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**The application of Article 76 of the United Nations  
Convention on the Law of the Sea on the Extended  
Continental Shelf with Special Reference to Malaysia**

Thesis submitted for the degree of Doctor of Philosophy

By

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## **Abstract**

The purpose of this study was to clarify the ambiguity in the law relating to the extended continental shelf in Article 76 of the 1982 United Nations Convention on the Law of the Sea. Another aim was to study the application of the law in a more focused part of the world, the region of East Asia, and in particular, Malaysia. The study also sought to propose solutions to issues relating to the extended continental shelf.

The history of the law relating to the continental shelf, the codification of the law, and the enforcement of the law by the Commission on the Limits of the Continental Shelf is presented. Besides that, Article 76 was also thoroughly discussed in order to identify the problems involved.

Besides that, the two biggest issues which determine the outer limits of the continental shelf are examined. These are issues relating to ridges and submarine elevations and the application of the foot of continental slope provisions. The study examined the problems involved with the legal and scientific interface found in Article 76 and addressed them by referring to the legislative history of Article 76, State practice and the practice of the Commission.

The continental shelf in the East Asian region is also analysed in order to provide an overview of the continental shelf issues in the region. Special reference to Malaysia is made as a State that has made a submission on its outer limits of the continental shelf. A thorough analysis was made based on the findings made in this study. This study also explored possible solutions to the continental shelf issues discussed.

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# Chapter One: Introduction

## 1.1 Introduction

Ever since the advancement of technology opened the eyes of nations to the treasures that lie beneath the seabed, States have been striving to maximise dominion over the sea in the hope of acquiring as much of the wealth buried under the sea as possible. With the struggle for economic gain comes the rivalry between States and hence, the need for a law regulating the exploitation of the seabed. After a series of unilateral proclamations declaring rights over the seabed and after the Geneva Conventions, the 1982 United Nations Convention on the Law of the Sea was born. The Convention is a remarkable document that is comprehensive and covers a large part of the world's oceans. It covers a wide range of issues such as delimitation, marine research, economic issues and settlement of disputes to name a few. But among the most prominent evolutions of the law covered by the Convention is the regime of the continental shelf.

Negotiations for the Convention lasted nine years at the Third United Nations Conference on the Law of the Sea. The debate was between broad-margin States on one hand, which favoured a large part of the seabed to be under national jurisdiction, and geographically disadvantaged States on the other, which would naturally choose to uphold the common heritage of mankind principle.<sup>1</sup> As of 15 June 2012, a total of 61 submissions regarding the extended continental shelf and 45 preliminary information indicative of the outer limits of the continental shelf have been submitted.<sup>2</sup>

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<sup>1</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982: A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 831.

<sup>2</sup> United Nations, 'Submissions, through the Secretary-General of the United Nations, to the Commission on the Limits of the Continental Shelf, pursuant to article 76, paragraph 8, of the United Nations Convention on the Law of the Sea of 10 December 1982' *Division for Ocean Affairs and the Law of the Sea (DOALOS)* <[http://www.un.org/Depts/los/clcs\\_new/commission\\_submissions.htm](http://www.un.org/Depts/los/clcs_new/commission_submissions.htm)> accessed 20 June 2012; United Nations, 'Preliminary information indicative of the outer limits of the continental shelf beyond 200 nautical miles' *Division for Ocean Affairs and the Law of the Sea (DOALOS)* <[http://www.un.org/Depts/los/clcs\\_new/commission\\_preliminary.htm](http://www.un.org/Depts/los/clcs_new/commission_preliminary.htm)> accessed 20 June 2012.

In writing this thesis, focus is made to clarify the law relating to the establishment of the outer limits of the continental shelf. The interpretation and application of the law is also reviewed by reference to international practice. In particular, an overview of its application is made with regard to the region of East Asia while special attention is made to Malaysia in a case study on its extended continental shelf. In terms of literature, a major part of the thesis makes reference to submissions and recommendations made by the coastal States and the Commission respectively. However, due to the confidential nature of these two types of documents, the executive summaries and summaries of recommendations must be resorted to as the main reference. Besides that, in light of the sparse literature on this relatively new subject, reference from journal articles and other theses are minimal. Apart from that, reference has also been made to cases decided by the international courts and tribunals as well as literature on the subject of geology which is relevant to the research.

## **1.2 The research question**

This thesis shall examine and clarify the current law relating to the establishment of the extended continental shelf beyond 200 NM as laid down in Article 76 of the 1982 Convention and the problems revolving it. Reference shall also be made to the role of the Commission on the Limits of the Continental Shelf and its recommendations, the Scientific and Technical Guidelines, State practice, and the legislative history of Article 76. Further, this thesis will focus on the application of the law on the region of East Asia, and in particular Malaysia.

At the date of writing this thesis, most of the existing literature on the extended continental shelf is limited to discussions and analyses on the purely legal aspects of the continental shelf. Those literature that have incorporated scientific aspects to their discussion are brief and lack the thorough discussion on the legal aspects. Besides that, there are also other literature that only focus on certain topics, for example, the role of the Commission on the Limits of the Continental Shelf as the organ directly involved with the extended continental shelf. As will be seen throughout this thesis, the concept of the extended continental shelf is an integration of law and science, in particular geology and geophysics, hence this thesis shall examine Article 76 of the

Convention with an approach that takes into account this integration by looking at real situations. In that way, this thesis contributes to the existing literature on the subject.

### **1.3 The objectives of the study**

There are two main objectives to this study. The first objective is twofold in that it seeks to study the legal and technical aspects of the extended continental shelf and clarify the provisions of Article 76 of the Convention based on the outcome of that study. The second objective of this thesis is to conclude the study mentioned in the first objective by using it to examine the potential extended continental shelf of Malaysia.

#### **a) To study the legal and technical aspects of the extended continental shelf and clarify the provisions of Article 76 of the Convention**

A surface reading of Article 76 gives the impression that the provisions are precise and comprehensive. It makes use of technical terms in a legal context that demonstrate a dynamic and multifaceted mechanism in establishing the extended continental shelf. This is especially so when compared to its predecessor, the 1958 Convention on the Continental Shelf. However, a more thorough study would reveal that it is the same legal-scientific interface that results in the provisions of Article 76 being unclear and in need of even more precision.

The provisions of Article 76 regarding the outer limits of the continental shelf beyond 200 NM are settled through the establishment of the Commission on the Limits of the Continental Shelf. The Commission, comprising of a body of technical experts, is mandated to assess claims to the extended continental shelf and make recommendations thereof. Besides that, the Commission has also published the Scientific and Technical Guidelines to facilitate States in making submissions on their claims. It is through these two instruments that the Commission is said to interpret Article 76, hence, clarifying the vagueness and problems imposed by the latter.

Considering the legal and technical difficulties involved, it follows that coastal States intending to make a submission for an extended continental shelf claim cannot rely solely on the provisions of Article 76. Therefore, the Commission's Scientific and Technical Guidelines, being the most

resourceful instrument in establishing the extended continental shelf, is relied upon and referred to by coastal States in making submissions. It follows that a discussion on the extent of the Guidelines' influence on submissions made by coastal States is noteworthy.

Another avenue for States making submissions is to analyse the recommendations of the Commission in respect of submissions already made by coastal States. Besides the Commission's interpretation in the form of the Guidelines and its recommendations, it is also of paramount importance to appreciate the legislative history of Article 76. Discussions and early proposals at the Third Conference can provide some insight into the clarification of Article 76 and convey what the drafters had in mind with regard to those provisions.

This thesis shall identify and study the issues posed by the legal-technical interface of Article 76. At the same time, the outcome of the discussion of those issues shall also be used to attempt at clarifying the vague provisions of Article 76.

**b) To examine the problems relating to the continental shelf in East Asia and the legal implications that follow, and in particular, the extended continental shelf of Malaysia**

The legal and technical aspects of the extended continental shelf as demonstrated in the first objective shall serve as the foundation for an analysis of the establishment of the continental shelf in East Asia. The region of East Asia is a huge geographical area consisting of a number of coastal States bordering the many seas which in turn contain a myriad of islands and other insular features. Due to this unique geography, disputes between States are inevitable, many of which relate to issues on the continental shelf. However, since this thesis is primarily concerned with the application of Article 76 on the extended continental shelf, issues on delimitation disputes between States are beyond the scope of this thesis. In view of that, it is emphasised that this thesis shall not refer extensively to delimitation issues.

The discussion on the continental shelf in East Asia shall then serve as the basis for which to analyse the extended continental shelf of Malaysia. Malaysia is chosen for this case study for two reasons: First, its geography allows it to claim an extended continental shelf; and second, its



geography and the geological character of the seabed, as well as the existence of the islands formed as a result of the geological processes may affect the extended continental shelf of Malaysia.

In relation to the continental shelf of Malaysia, in particular, literature is scarce. The only literature directly relevant that can be found is with regard to the geological account of the region without any reference to its legal aspects. Apart from that, another important point analysed by the study is the fact that there are special notable submarine features that warrant an analysis of the application of Article 76 in the region which are the Northwest Borneo Trough and the Dangerous Ground that shall be discussed further throughout Chapter Eight of this thesis.

#### **1.4 Overview of Chapters Two to Nine**

In terms of the classification of chapters, the thesis is divided into two parts.

Part 1 comprises of Chapters Two to Six. It lays down the foundation of the law on the extended continental shelf including the historical setting, the law governing its establishment and the enforcement mechanism used to implement the law. It shall also involve a detailed examination on the technical aspects of Article 76 of the Convention. In particular, it focuses on those provisions that have the most significant bearing on the outer limits of the continental shelf, that is, the provisions with regard to submarine ridges and elevations, and the provisions on the foot of the continental slope. The technical aspects of the provisions are harmonised with the legal aspects. This is done with reference to State practice and the practice of the Commission.

Part 2 consists of Chapters Seven to Nine. Based on the outcomes of the discussion in Part 1, a case study is conducted on the extended continental shelf of Malaysia with a view of determining potential areas for its extended continental shelf. However, before that is done, an overview concerning the situation on the continental shelf in East Asia is provided in order to fully understand the situation concerning the Malaysian continental shelf.

Chapter Two, as the first chapter in Part 1, discusses the concept of the continental shelf as a concept under international law. It begins with a discussion on the relationship of the concept

with international law. Then the chapter recalls the evolution of the law on the continental shelf with the history of how the concept of the continental shelf came into being. This is then followed by the development of the concept through legislations, State proclamations and cases heard before international courts and tribunals.

Chapter Three analyses the codification of law regulating the establishment of the continental shelf. It begins with laying down the historical development of the law beginning with the First Convention leading to the Third Convention from which the current law, namely Article 76, emanates. The provisions of Article 76 are discussed one by one, including the issues involved with its application.

It would then follow that after the thorough discussion on the law relating to the extended continental shelf, the enforcement of the law is examined in Chapter Four. This chapter revolves around the Commission on the Limits of the Continental Shelf, the body responsible for assessing claims to the extended continental shelf by coastal States. The role and functions of the Commission, including its powers, are examined in light of the Convention and the drafting history of its establishment. Thereafter, an analysis is made on the Scientific and Technical Guidelines and the recommendations of the Commission, with a view of determining their significance and, hence, their effect on the extended continental shelf.

Chapter Five revolves around issues relating to submarine ridges, oceanic ridges and submarine elevations, features which are mentioned in Article 76. The Chapter begins with a descriptive account and geographical setting of the features. This section is concluded by laying down the questions which need to be addressed. The remaining parts of the chapter attempt to address those issues by a thorough discussion of the legislative history, the practice of States as well as the practice of the Commission in respect of ridges and submarine elevations.

Chapter Six examines the issues concerned with the identification of the foot of the continental slope as the most important process in establishing the outer limits. A descriptive account of its geography as well as an understanding of the issues involved is first laid down at the beginning of the chapter. Similar to Chapter Five on ridges and submarine elevations, this chapter involves

examining the legislative history of the foot of continental slope provisions. Thereafter, analysis is made on the practice of States in respect of the issues, as well as the practice of the Commission as expounded in the Guidelines and its recommendations.

Chapter Seven marks the first chapter in Part 2 of the thesis. It provides a discussion on the continental shelf in the region of East Asia and issues relevant to the continental shelf. It begins with an analysis on baselines and insular features as issues that may have an impact on continental shelf delimitation and delineation. It follows that a discussion on continental shelf claims and disputes relating to them is made on a region by region basis.

Following the overview laid down in Chapter Seven, the prospects concerning the extended continental shelf of Malaysia are explored in the case study discussed in Chapter Eight. This chapter begins with the historical and geographical background of the Malaysian continental shelf with a view of making a preliminary assessment as to its potential extended continental shelf. This chapter largely revolves around the submission jointly made by Malaysia and Vietnam, to which the Commission has yet to make recommendations. Following that, a practical analysis is made with regard to the claims taking into account the geological characteristics of the regions involved. Questions relating to other factors which may affect the extended continental shelf, such as territorial disputes and maritime delimitations with neighbouring States, are also expounded. Be that as it may, it is emphasised that this chapter shall only briefly discuss delimitation issues with regard to the continental shelf concerning Malaysia since it is beyond the scope of this thesis.

Chapter Nine, as the last chapter, is dedicated to conclusions made based on the discussions throughout this thesis. It shall provide possible solutions to the disputes and issues revolving around and relevant to the continental shelf in East Asia. It shall also delve on the possible legal implications that these issues may have on the extended continental shelf of Malaysia.

## **Chapter Two: The evolution of the continental shelf regime**

### **2.1 Introduction**

This chapter shall attempt to analyse how the issue of the continental shelf emerged under international law. It shall begin with an encounter on the development of the law relating to the continental shelf regime beginning with its inception under customary law. The Truman Proclamation in 1945 marked an important and historical point as the beginning of the struggle over resources of the seabed beyond territorial jurisdiction. So overwhelming was the number of unilateral proclamations by sovereign States that it was believed that the concept of the continental shelf had evolved into customary international law in the 1950s and that it had developed into “instant custom”.<sup>3</sup>

In this chapter, it shall be revealed that the primary factor that resulted in the emergence of the concept of the continental shelf was the realisation by coastal States that the continental shelf is rich in resources. This realisation was coupled with the fact that technological advancement in those days had made it potentially feasible to exploit that part of the seabed which could not have been anticipated before.

### **2.2 The concept of the continental shelf under international law**

The concept of the continental shelf was formerly only regarded as a geological concept. The concept only recently emerged as a legal concept when States decided to exercise authority over the seabed and subsoil beyond their territorial sea jurisdiction.<sup>4</sup> The theory of the continental shelf in relation to coastal State claims was believed to have been initiated by Russia as early as 1916. It was believed that Russia had issued a declaration claiming certain islands in the northern part of Siberia and had justified the claim by making reference to the “*plateforme continentale de*”

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<sup>3</sup> This is the view of H Lauterpacht, *Sovereignty over Submarine Areas* (1950) 27 BYBIL 376. In Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 36.

<sup>4</sup> Malcolm N Shaw, *International Law* (5<sup>th</sup> edn, Cambridge University press 2003) 523-522.

*la Sibérie*”. A confirmation of that claim was made later on 4 November 1924 but this time using the term “*plateau continentale sibérien*”.<sup>5</sup> Later on, the first international instrument which deals with the continental shelf was concluded. That instrument was the 1942 Treaty between the United Kingdom and Venezuela respecting the Gulf of Paria which sought to divide oil fields between Venezuela and Trinidad.<sup>6</sup> However, the term “continental shelf” was not yet used at the time. Instead, the treaty referred to the continental shelf as submarine areas and the seabed and subsoil outside territorial waters.<sup>7</sup>

Public international law deals with relationships between sovereigns.<sup>8</sup> Since the exercise of authority over the continental shelf is the right of sovereign States as opposed to private entities, the legal concept of the continental shelf would thus fall under the domain of public international law as opposed to private international law.<sup>9</sup>

One of the many branches of public international law is the law of the sea. The law of the sea is concerned with producing a framework to regulate and govern States’ rights and duties in the different parts of the sea. The continental shelf is one of the maritime zones which may be subject to coastal State jurisdiction. The concept of the continental shelf deals with a sovereign State’s authority over the seabed and subsoil. Hence, it would also be placed as part of the law of the sea.

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<sup>5</sup> MW Mouton, *The Continental Shelf* (The Hague 1952) 240-241.

<sup>6</sup> Treaty between the United Kingdom and Venezuela respecting the Gulf of Paria 1942, 205 LN Treaty Series 121, [1942] Great Britain Treaty Series No 10 (Cmd no 6400), *ibid.* Also mentioned in Lennox Ballah, ‘The living resources of the exclusive economic zone of Trinidad and Tobago and their potential contribution to national development’ in Bisessar Chakalall (ed), *Report and Proceedings of the Meeting on Fisheries Exploitation Within the Exclusive Economic Zones of English-Speaking Caribbean Countries: St. George’s, Grenada, 12-14 February 1992*, FAO Fisheries Report No. 483 (Food and Agriculture Organization of the United Nations 1992) 22

<sup>7</sup> Ted McDorman, ‘The Continental Shelf Beyond 200 NM: Law and Politics in the Arctic Ocean’ (2009) 18(2) *Journal of Transnational Law and Policy* 155, 163; Isidro Morales Paul, ‘Venezuela: The Country in the Caribbean’ in Ralph Zacklin (ed), *The Changing Law of the Sea: Western Hemisphere Perspectives* (BRILL 1974) 127.

<sup>8</sup> Malcolm D Evans, *International Law* (2<sup>nd</sup> edn, Oxford University Press 2006) 218.

<sup>9</sup> *Ibid* 629-643.

The law of the sea is to be distinguished with maritime law although the term “maritime” normally refers to the sea. Maritime law, also known as “admiralty law”, is the body of law governing maritime issues and offences. It is concerned with maritime activities of private entities be it under domestic law or international law. At the international level, maritime law refers to private international law governing marine commerce, marine navigation, shipping, sailors, and the transportation of passengers and goods by sea.<sup>10</sup>

The law of the sea consists of norms which have witnessed an evolution. The current law of the sea has classified the sea vis-à-vis a coastal State into different maritime zones. As will be seen later in Section 3.7.1, the maritime zone closest to the land territory of the coastal State is the territorial sea. In the days before the inception of the concept of the continental shelf, only the territorial sea was subject to national jurisdiction while the area beyond it was regarded as part of the high seas.<sup>11</sup>

In light of that, it is incumbent that the historical development of how the concept of the continental shelf emerged should be examined. This shall begin with an account of the legal status of the seabed before the United States Truman Proclamation on 1945. Next, the Truman Proclamation as the first ever unilateral proclamation proclaiming to have jurisdiction over the continental shelf shall be discussed.

## **2.3 The continental shelf: A historical perspective**

### **2.3.1 The seabed prior to the 1945 Truman Proclamation**

An important point in the history of the evolution of the continental shelf is the Truman Proclamation in 1945.<sup>12</sup> Be that as it may, regard must be had to the practice of coastal States

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<sup>10</sup> RR Churchill and AV Lowe, *The Law of the Sea* (2<sup>nd</sup> edn, Manchester University Press 1988) 1.

<sup>11</sup> Ibid 2.

<sup>12</sup> Truman Proclamation 1945 (Proclamation 2667 of 28 September 1945 Policy of the United States with Respect to the Natural Resources of the Subsoil and Seabed of the Continental Shelf). Also reprinted in Edward Duncan Brown, *Sea-bed Energy and Minerals: The International Legal Regime. Selected Documents*, vol 3 (Martinus Nijhoff Publishers 2001) 3-4.

prior to the Truman Proclamation as this may shed some light on the legal status of the seabed and subsoil back then.

The doctrine of the freedom of the seas was introduced some time during the seventeenth century. This doctrine restricted the rights and jurisdiction of coastal States to a narrow belt of the sea adjacent to their coastline. The area of the sea beyond that narrow belt did not belong to any one State but was subject to all nations. The freedom of the seas meant that any State could exploit the resources of the seas.<sup>13</sup>

So deeply embedded was this principle that it prevailed into the twentieth century. During this time there was no real impetus to extend jurisdiction beyond the territorial sea since States did not yet have the technological advancements to do so. Exploitation of the seabed by coastal States was limited to the territorial sea. The rule during the eighteenth century, known as the "cannon shot" rule, meant that the width of the territorial sea of a State was to be measured as the range of a cannon.<sup>14</sup> Later, during the nineteenth century, the practice of States had generally accepted 3 NM as the radius of the territorial sea.<sup>15</sup> The seabed beyond the 3 NM radius was regarded as part of the international area.<sup>16</sup> Therefore, during this time there was obviously no real need to draw a distinction between the continental shelf and the deep ocean floor.

During the middle of the twentieth century, States developed a new pressure to extend jurisdiction beyond the breadth of the territorial sea. One of the reasons was due to the growing concern over environmental issues. Besides that, there was also the concern of the oceans being taken over by the greater maritime powers resulting in tension between coastal States and

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<sup>13</sup> RR Churchill and AV Lowe, *The Law of the Sea* (2<sup>nd</sup> edn, Manchester University Press 1988) 2.

<sup>14</sup> Peter Malanczuk, Michael Barton Akehurst, *Akehurst's Modern Introduction to International Law* (Routledge 1997) 178.

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

distant-water fishermen. Another reason which may have greatly contributed to this new impetus was the possibility of exploiting the resources lying in the seabed and subsoil.<sup>17</sup>

Coastal States began to establish rights over the seabed and subsoil beyond their territorial sea limit. Although the concept of the continental shelf as it is understood now was unheard of at the time, there have already been laws governing the use of the seabed and subsoil.

The 1811 legislation of Ceylon, for example, governed the law relating to pearl fisheries, pearls being a natural resource of the seabed.<sup>18</sup> This legislation was later replaced by the Ordinance of 1925 which specified between 3 and 100 fathom lines as the authorised limit for the delineation of waters for the purpose of pearl fishing.<sup>19</sup> Laws on pearl fishing had also been enacted by States such as Venezuela and Panama.<sup>20</sup> The legislation by Panama had authorised pearl fishing for a distance of up to 120 miles, well beyond the territorial sea limit.<sup>21</sup> Sponge fishing also had its place in the Tunisian legislation where it extended for 17 miles beyond the coast of Tunisia.<sup>22</sup> Another example of legislation that allowed for fisheries beyond the territorial sea was the Fisheries Convention of 1839 in which France established oyster fishing beyond the 3 mile territorial sea limit.<sup>23</sup> Mining activities had also induced legislation that allowed for its establishment beyond the territorial sea limit. The Cornwall Submarines Mines Act 1858 of the

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<sup>17</sup> Ibid 178-179; see also Malcolm D Evans, *International Law* (2<sup>nd</sup> edn, Oxford University Press 2006) 641-642.

<sup>18</sup> British Colonial Act 1811, Jurisdiction over Ceylon Pearl Banks. Quoted in Ram Prakash Anand, *Legal Regime of the Seabed and Developing Countries* (Thomson Press 1976) 31.

<sup>19</sup> Pearl Fisheries Ordinance 1925; See also EJ Cosford, 'The Continental Shelf 1910-1945' (1958) 4 McGill Law Journal 251.

<sup>20</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 22.

<sup>21</sup> Ibid.

<sup>22</sup> Bernd Rüster, 'Fisheries, Sedentary' in Rudolf Bernhardt (ed), *Encyclopedia of Public International Law* vol 2 (Max Planck Institute for Comparative Public Law and International Law 1992) 390.

<sup>23</sup> Daniel P O'Connell, *The International Law of the Sea*, Volume 1 (Oxford University Press 1982) 452.



United Kingdom, for example, authorised the building of tunnels and mining beyond 3 NM.<sup>24</sup> Other States such as Australia, Canada, Chile and Japan also enacted legislation for mining activities particularly coal mining.<sup>25</sup>

The establishment of rights in areas beyond the territorial sea by these States opened the door for other States to proclaim similar rights. The development of technological advancements made it possible to exploit other parts of the seabed leading to activities such as deep seabed mining. This, combined with the high demand for natural resources such as oil, gas and minerals created a sudden pressure among coastal States to exploit the resources of the continental shelf beyond their territorial sea.<sup>26</sup> This led to the conclusion of treaties, for example the 1942 Treaty between the United Kingdom and Venezuela as mentioned in Section 2.2 before, which dealt with the continental shelf areas in the Gulf of Paria.

Ultimately, the reason for the overwhelming practice of States claiming sovereign rights over the continental shelf was the development of the deep sea technology industry. The first oil drilling activity was carried out in the Gulf of Mexico in 1947 at the depth of 14 feet of water.<sup>27</sup> Later on, in 1947, the first oil well was built on the continental shelf beyond the 3 NM territorial sea at the depth of only 17 feet of water.<sup>28</sup> The rapid development of the industry can also be seen through the sudden growth of oil production which was less than a million tons in 1954 but quickly

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<sup>24</sup> Cornwall Submarine Mines Act 1858. Available at <[http://www.legislation.gov.uk/ukpga/1858/109/pdfs/ukpga\\_18580109\\_en.pdf](http://www.legislation.gov.uk/ukpga/1858/109/pdfs/ukpga_18580109_en.pdf)> accessed 1 October 2012.

<sup>25</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 22.

<sup>26</sup> Malcolm D Evans, *International Law* (2<sup>nd</sup> edn, Oxford University Press 2006) 641.

<sup>27</sup> 14 feet equals to 4.27 metres. W Langeraar, *Surveying and Charting of the Seas* (Elsevier 1984) 91.

<sup>28</sup> 17 feet equals to 5.18 metres. Ibid.

<sup>29</sup> United Nations, 'The United Nations Convention on the Law of the Sea (A historical perspective)', *Division for Ocean Affairs and the Law of the Sea* <[http://www.un.org/depts/los/convention\\_agreements/convention\\_historical\\_perspective.htm#Historical\\_Perspective](http://www.un.org/depts/los/convention_agreements/convention_historical_perspective.htm#Historical_Perspective)> accessed 11 August 2012.

increased to 400 million tons during the late 60s.<sup>29</sup> At this time oil drilling was already being conducted at a depth of 4000 metres below sea level.<sup>30</sup>

### **2.3.2 The Truman proclamation of 1945**

A major challenge to the freedom of the seas doctrine was the unilateral proclamation of jurisdiction over the seas by the United States in 1945.

The concept of the continental shelf as being subject to the exclusive jurisdiction of individual States only began after the Proclamation was made by President Truman of the United States in 1945.<sup>31</sup> As may be recalled, the urge to establish rights over the continental shelf grew with the demand for natural resources. Similarly, the United States' assertion was triggered as a result of its wish to claim resources from the waters and the continental shelf when the need for raw materials grew after the war.<sup>32</sup> As such, two proclamations were signed: one on fisheries, and the other on the continental shelf. The proclamations signalled the first ever indication of the separation between the subject of fisheries and the continental shelf.<sup>33</sup>

The Truman Proclamation on the continental shelf is as follows:

[T]he Government of the United States regards the natural resources of the subsoil and seabed of the continental shelf beneath the high seas but contiguous to the coasts of the

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<sup>30</sup> Ibid.

<sup>31</sup> Truman Proclamation 1945 (Proclamation 2667 of 28 September 1945 Policy of the United States with Respect to the Natural Resources of the Subsoil and Seabed of the Continental Shelf). Also reprinted in Edward Duncan Brown, *Sea-bed Energy and Minerals: The International Legal Regime. Selected Documents*, vol 3 (Martinus Nijhoff Publishers 2001) 3-4.

<sup>32</sup> JF Pulvenis, 'The *Continental Shelf Definition and Rules Applicable to Resources*' in René Jean Dupuy and Daniel Vignes, *A Handbook on the New Law of the Sea*, vol 2 (Hague Academy of International Law) 325.

<sup>33</sup> Ibid.

United States as appertaining to the United States, subject to its jurisdiction and control.<sup>34</sup>

Besides that, the proclamation had also defined the continental shelf as “an extension of the land-mass of the coastal nation and thus naturally appurtenant to it”.<sup>35</sup> With this proclamation, the United States’ jurisdiction was extended to all of its natural resources namely oil, gas and minerals. This proclamation meant that those resources lying on the continental shelf was no longer subject to exploitation by other nations.

It has been stated that the concept of natural prolongation which was soon to become the fundamental criteria in pursuing a continental shelf claim originated from this proclamation.<sup>36</sup> Although the proclamation did not make use of the term “natural prolongation”, it employed the criterion of contiguity. The element of contiguity meant that it required a continuous connection with the territorial land mass as opposed to mere adjacency which does not necessarily imply continuity of the land mass.<sup>37</sup> The continuous connection between the continental shelf and the territorial land mass refers to geological continuity which will be discussed further in Chapter Five. Furthermore, it also defined the continental shelf as naturally appurtenant to the land mass of its land territory by reason of its extension. This confirms the geological element in the definition of the continental shelf. In light of this, the justification for this assertion of rights based on the contiguity of the continental shelf to the land meant that it was an extension of the

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<sup>34</sup> Ibid.

<sup>35</sup> Truman Proclamation 1945 (Proclamation 2667 of 28 September 1945 Policy of the United States with Respect to the Natural Resources of the Subsoil and Seabed of the Continental Shelf). Also reprinted in Edward Duncan Brown, *Sea-bed Energy and Minerals: The International Legal Regime. Selected Documents*, vol 3 (Martinus Nijhoff Publishers 2001) 3-4.

<sup>36</sup> JF Pulvenis, ‘The *Continental Shelf Definition and Rules Applicable to Resources*’ in René Jean Dupuy and Daniel Vignes, *A Handbook on the New Law of the Sea*, vol 2 (Hague Academy of International Law 1991) 363.

<sup>37</sup> See RY Jennings, ‘The High Seas, Air Space and Outer Space’, *Recueil des Cours*, vol 121 (Académie de Droit International de la Haye, Martinus Nijhoff Publishers 1967) 396.

land thus sharing the same geological features of the landmass. As for the limit of the continental shelf, it was placed at the depth of 100 fathom isobath.<sup>38</sup>

### 2.3.3 Other unilateral proclamations

Following the Truman Proclamation, many coastal States followed suit in claiming the seabed of the waters appurtenant to their coasts.<sup>39</sup> Within a decade, a general and consistent practice emerged with regard to continental shelf jurisdiction.<sup>40</sup>

A month after the Truman Proclamation by the United States, Mexico made a similar declaration asserting jurisdiction, protection and control over the continental shelf bordering its territory.<sup>41</sup> It was believed that pursuant to this proclamation, the Mexican Constitution was to be amended.<sup>42</sup> The effect of the proposed amendment was, among others, to declare “direct national ownership not only of the continental shelf and sea bed, but also of the sea waters covering them”.<sup>43</sup> This was, in effect, a proposal that would result in the area being assimilated having the same status as the territorial sea. In terms of the definition of the continental shelf, although it is not found in the declaration itself, Article 42 of the proposed amendment would have defined the continental shelf as the area “covered by sea waters up to two hundred meters of depth at the level of the low tide” and the submarine bed of Mexican islands, naming

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<sup>38</sup> Truman Proclamation 1945 (Proclamation 2667 of 28 September 1945 Policy of the United States with Respect to the Natural Resources of the Subsoil and Seabed of the Continental Shelf). Also reprinted in Edward Duncan Brown, *Sea-bed Energy and Minerals: The International Legal Regime. Selected Documents*, vol 3 (Martinus Nijhoff Publishers 2001) 3-4.

<sup>39</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 28.

<sup>40</sup> Heidar TH, ‘Legal Aspects of Continental Shelf Limits’ in Nordquist MH, Moore JN, Heidar TH (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 21.

<sup>41</sup> Richard Young, ‘Recent Developments with Respect to the Continental Shelf’ (1948) 42 AJIL 849, 851.

<sup>42</sup> Ibid.

<sup>43</sup> Ibid 852.

specifically Guadalupe and Revillagigedo in the Pacific Ocean.<sup>44</sup> However, the amendments were never enacted.<sup>45</sup>

The following year, in October 1946, Argentina followed suit in asserting rights over the continental shelf. By virtue of a decree of the President of the Argentine Republic, the Argentine epicontinental sea and continental shelf were declared as “subject to the sovereign power of the nation”.<sup>46</sup> The Argentine decree had a similar effect to the Mexican case in that it purported to claim jurisdiction not only on the continental shelf but also the water column above it.<sup>47</sup> However, there was no mention of the extent of the continental shelf. As such, the continental shelf as claimed by Argentina at the time lacked definition.

The 100 fathom isobath limit of the continental shelf in the United States’ proclamation was short of the 200 metre isobath limit of the continental shelf claimed by Mexico. Thus, the limits placed by Mexico were a little deeper, thus more seaward, than that of the United States.<sup>48</sup> As shall be observed later in Section 3.5 of Chapter Three, it is the 200 metre isobath limit that made its way into the first codification of the continental shelf limits later on in the 1958 Convention although during the time of the Mexican proclamation, it was still doubtful whether exploitation of the continental shelf at 200 metre isobath was possible. Nevertheless, it was proven later on that drilling oil at 200 metres isobath was feasible and became a common practice of the

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<sup>44</sup> Ibid.

<sup>45</sup> Ralph Zacklin, *The Changing Law of the Sea: Western Hemisphere Perspectives* (BRILL 1974) 98.

<sup>46</sup> Ibid.

<sup>47</sup> Ibid.

<sup>48</sup> 100 fathom is equivalent to approximately 183 metres. Langeraar W, *Surveying and Charting of the Seas* (Elsevier 1984) 91.

<sup>49</sup> Ibid.

industry.<sup>49</sup> As stated previously in Section 2.3.1, during the late 60s oil drilling activities had been carried out at 4000 metre isobath.<sup>50</sup>

Between October 1945 and March 1956, it is believed that there were a total of 24 States claiming sovereign rights and jurisdiction to some extent over the continental shelf.<sup>51</sup>

#### **2.3.4 Claims based on adjacency and distance**

Be that as it may, although some claims were made based on geological contiguity as laid down in the Truman Proclamation, others were made based on mere adjacency to the coast alone even though there is no actual geological continental shelf.<sup>52</sup> An example of this could be seen where a number of South American States came up with the Santiago Declaration in 1952.<sup>53</sup> This declaration purported to give them sovereignty over the seabed and subsoil for 200 NM from the baseline.<sup>54</sup> This declaration was made even though these States in actual fact did not have a physical continental shelf extending up to that distance.

Hence, the declaration provided for sole sovereignty and jurisdiction over the sea floor and subsoil of up to 200 NM. It is worthwhile to mention that the 200 NM limit owes its existence to the declaration made by the President of Chile and the decree made by the Government of Peru which introduced the 200 NM limit for fisheries. This was later absorbed into the concept of the

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<sup>50</sup> United Nations, 'The United Nations Convention on the Law of the Sea (A historical perspective)', *Division for Ocean Affairs and the Law of the Sea* <[http://www.un.org/depts/los/convention\\_agreements/convention\\_historical\\_perspective.htm#Historical\\_Perspective](http://www.un.org/depts/los/convention_agreements/convention_historical_perspective.htm#Historical_Perspective)> accessed 11 August 2012.

<sup>51</sup> Langeraar W, *Surveying and Charting of the Seas* (Elsevier 1984) 91.

<sup>52</sup> Heidar TH, 'Legal Aspects of Continental Shelf Limits' in Nordquist MH, Moore JN, Heidar TH (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 21.

<sup>53</sup> These States are Chile, Ecuador and Peru. Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 28.

<sup>54</sup> United Nations, 'Declaration on the Maritime Zone', *United Nations Legislative Series* (United Nations 1957) 723-724; Nandan S and Rosenne S (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 494.

exclusive economic zone.<sup>55</sup> Therefore, with the Santiago Declaration, the 200 NM limit was also applied in respect of the continental shelf.<sup>56</sup>

The Santiago Declaration introduced a new concept of the continental shelf where it did not only refer to the shelf as that which is appurtenant to the coastal State as set out in the Truman Proclamation but also included the reference to the distance criterion. In that case, the concept of the continental shelf also referred to the seabed up to 200 NM from the baseline regardless of whether a physical continental shelf existed. Thus, continental shelf jurisdiction at this time did not depend on the existence of an actual continental shelf. A criterion other than the geophysical criterion was used to establish jurisdiction over the continental shelf, that is, the distance criterion. Due to the diversity of continental shelf claims which included those based on different criteria and limits based on different water depths, it is clear that during this time, the term “continental shelf” was merely an expression of the extent on which claims were made by coastal States over the seabed and subsoil. There was no uniformed definition of what constituted the continental shelf.

### **2.3.5 Overlapping claims**

It has been noted that in making unilateral proclamations, coastal States have assumed a discretionary power over the seaward margin of the continental shelf.<sup>57</sup> Be that as it may, problems are faced when the proclamations of rights over the seabed involve a continental shelf

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<sup>55</sup> Presidential Declaration Concerning Continental Shelf 1947 (*El Mercurio*, Santiago de Chile, 29 June 1947); Presidential Decree No 781 1947 (*El Peruano: Diario Oficial*, vol 107 No 1983, 11 August 1947). In Satya Nandan, ‘The Exclusive Economic Zone: A Historical Perspective’ in *The Law and the Sea: Essays in Memory of Jean Carroz* (Rome 1987) 171-188.

<sup>56</sup> The establishment of the 200 M zone limit was obviously economic. However, the reason for choosing 200 M as the limit was found to have originated from the Panama Declaration of 1939. The Declaration saw an agreement between the United Kingdom and the United States to establish a zone of security and neutrality around the American continents in order to prevent the supply of Axis ships in South American ports. A map depicting the zone showed the breadth of the zone to be approximately 200 M from the Chilean coast. It is believed that this became the foundation for the 200 M limit placed on the exclusive economic zone and the continental shelf. Satya Nandan, ‘The Exclusive Economic Zone: A Historical Perspective’ in *The Law and the Sea: Essays in Memory of Jean Carroz* (Rome 1987).

<sup>57</sup> DJ Padwa, ‘Submarine Boundaries’ (1960) 9 *International and Comparative Law Quarterly* 628, 629.

area that is shared with another State. A reading of these unilateral proclamations indicates that coastal States are aware of the problems and have acknowledged this in the proclamations. The Portuguese Decree, for example, notes as follows:

[I]n any case to which the continental shelf extends to the sea coast of another State, concessions shall not be granted until after the line of demarcation has been determined.<sup>58</sup>

Other States have also allowed for the conclusion of treaties as recognition of the rights of other coastal States over their shared continental shelf. A number of Latin American countries, for example, acknowledged the principles of reciprocity in addressing this matter.<sup>59</sup> The Costa Rican proclamation referred to treaties as a way of “recognising the legitimate rights of other countries”.<sup>60</sup> The Nicaraguan decree noted that in such cases treaties shall fix boundaries between States.<sup>61</sup> Similarly, the Saudi Arabian proclamation provided that boundaries shall be determined by agreements with other States and in accordance with equitable principles.<sup>62</sup> This reference to equitable solutions as a way of delimiting continental shelf boundaries by agreement was also recognised by States in the Arabian Peninsula.<sup>63</sup> Hence, it is observed that equitable principles have long been recognised as a principle which shall govern delimitation of the continental shelf. The Truman Proclamation of the United States also expressed the same acknowledgement when it stated that “the boundary shall be determined by the United States and the State concerned in accordance with equitable principles”.<sup>64</sup>

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<sup>58</sup> Ibid 630.

<sup>59</sup> Ibid.

<sup>60</sup> Ibid.

<sup>61</sup> Ibid.

<sup>62</sup> Ibid.

<sup>63</sup> Ibid.

<sup>64</sup> Truman Proclamation 1945 (Proclamation 2667 of 28 September 1945 Policy of the United States with Respect to the Natural Resources of the Subsoil and Seabed of the Continental Shelf). Also reprinted in Edward Duncan Brown, *Sea-bed Energy and Minerals: The International Legal Regime. Selected Documents*, vol 3 (Martinus Nijhoff Publishers 2001) 3-4.



In light of this, it is observed that unilateral proclamations by coastal States have demonstrated a fairly uniform practice that delimitation issues concerning the continental shelf shall be determined by mutual agreement in particular with reference to equitable principles.

#### **2.4 The principle of natural prolongation**

Following the overwhelming number of unilateral declarations resulting in the extension of areas subject to sovereign rights, overlapping continental shelf areas of two or more coastal States were inevitable. During this time, the law on the continental shelf was codified into the 1958 Convention.<sup>65</sup> The codification shall be discussed in detail in Section 3.5 of Chapter Three. For the purpose of this chapter, however, discussion is limited to the principles laid down by the judicial and arbitral bodies in those cases.

It is worthy to note that these cases concern disputes on the delimitation of the continental shelf between States with opposite or adjacent coasts where their continental shelf areas may overlap. Although these cases do not relate to the scope of the extended continental shelf in the sense of Article 76 of the 1982 Convention which is the main concern of this thesis, it is worthy to note that these cases laid down the natural prolongation principle that later on becomes the basis of the concept of the continental shelf under Article 76.

The natural prolongation principle is a principle of utmost importance and represents the foundation of the concept of the extended continental shelf. The principle of natural prolongation now serves as the basis for continental shelf claims under Article 76.<sup>66</sup> However, even before the formulation of the 1982 Convention, broad margin States have been relying on the principle of natural prolongation in order to establish their claims to the extended continental shelf up to the outer edge of the continental margin. It is based on this principle that title and rights to the

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<sup>65</sup> Convention on the Continental Shelf 1958. Available at <[http://untreaty.un.org/ilc/texts/instruments/english/conventions/8\\_1\\_1958\\_continental\\_shelf.pdf](http://untreaty.un.org/ilc/texts/instruments/english/conventions/8_1_1958_continental_shelf.pdf)> accessed 9 September 2013.

<sup>66</sup> LOS Convention 1982, Article 76(1).

continental shelf is conveyed to States, that is, in the form of affinity to this geological entity.<sup>67</sup> The adoption of this principle can be witnessed in the development of the law on the continental shelf ever since the Truman Proclamation and is evident again in cases brought before the international courts.

#### North Sea Continental Shelf 1969

The principle of natural prolongation owes its origin to the 1969 *North Sea Continental Shelf* case which was the first case to lay down the principle.<sup>68</sup> Not only that, it was also the first time that any court had to consider a case on the continental shelf and give the continental shelf an elaborate definition.

In that case, Denmark, the Netherlands and Germany were contesting for a portion of the continental shelf in the North Sea. The parties were asked to come up with a “practical method” of delimitation. Denmark and Netherlands were strict proponents of the equidistance principle while Germany opposed this based on the proportionality to the length of its coastline.<sup>69</sup>

In relation to that, it is worthy to note that the continental shelf area in the North Sea is a single continuous shelf area, flat and without any features that could be considered a fundamental discontinuity, except for the Norwegian Trough which was nowhere within the area under dispute in the case.<sup>70</sup> Thus, the principle of natural prolongation in the technical sense would not seem to be of much relevance. Be that as it may, the principle came to be brought about in the case when Denmark and the Netherlands advanced an argument in support of the application of the equidistance principle. In that argument, it was contended that rights over the continental

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<sup>67</sup> Keith Highet, ‘Whatever Became of Natural Prolongation?’ in Dorinda G Dallmeyer and Louis De Vorse (eds), *Rights to Oceanic Resources: Deciding and Drawing Maritime Boundaries* (Martinus Nijhoff Publishers 1989) 87.

<sup>68</sup> *North Sea Continental Shelf Case (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands)* [1969] ICJ 3.

<sup>69</sup> *Ibid* para 7.

<sup>70</sup> *Ibid* para 4.

shelf areas are derived from sovereignty over the land of which the continental shelf area is its natural prolongation.<sup>71</sup> From this, it was derived that the right existed *ipso facto* and *ab initio* based on the coastal State's proximity to the continental shelf area, which was agreed by the court.<sup>72</sup> Indeed, it was the notion of proximity that Denmark and the Netherlands were after when they argued that the equidistance method was the only method that would allocate to each of the coastal States the areas that were closest to their own respective territories.<sup>73</sup>

However, although the court agreed with the nature of the rights that come with the continental shelf, the court refused to accept the notion of proximity as the basis of the right but instead held that it was natural prolongation that was the determining factor.<sup>74</sup> Indeed, The ICJ laid down the principle of natural prolongation as follows:

[the] right of the coastal state to its continental shelf areas is based on its sovereignty over the land domain, of which the shelf area is *the natural prolongation into and under the sea*.<sup>75</sup>

According to the ICJ, the principle of natural prolongation is more fundamental than the notion of proximity.<sup>76</sup> Therefore, although the North Sea case itself did not involve the actual application of the natural prolongation principle, it marked an utmost significant point in the development of the law relating to the continental shelf with the judicial elaboration of what provided the basis of continental shelf rights.

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<sup>71</sup> Ibid para 39.

<sup>72</sup> The court agreed with the nature of the rights when it stated as follows:

“namely that the rights of coastal State in respect of the area of continental shelf that constitutes a natural prolongation of its land territory into and under the sea exist *ipso facto* and *ab initio*, by virtue of its sovereignty over the land, and as an extension of it in an exercise of sovereign rights for the purpose of exploring the seabed and exploiting its natural resources, *ibid* para 19.

<sup>73</sup> Ibid para 39.

<sup>74</sup> Ibid para 40.

<sup>75</sup> Ibid para 39.

<sup>76</sup> Ibid para 43.

Considering the court's elaboration on the principle of natural prolongation did not have any effect on the North Sea case, it can be concluded that the court's elaboration on the principle was to provide an idea on the basic nature and attributes of the continental shelf which parties may consider in reaching a delimitation agreement.<sup>77</sup> In light of that, although not intended by the court when laying down the principle, it nevertheless came to be "a reason for finding the boundary" as what happened in the cases following the North Sea case.<sup>78</sup>

Hence, by virtue of the *North Sea Continental Shelf* case, the principle of natural prolongation was upheld. Furthermore, the case also clarified the insignificance of the notion of proximity where a claim on the continental shelf based on natural prolongation exists. The outcome of such an important principle was that it was subsequently acknowledged as being part of customary international law. This was confirmed by the ICJ in the *Continental Shelf (Tunisia v. Libya)* and in the *Continental Shelf (Libya v. Malta)*.<sup>79</sup>

It is also worthwhile to note that a section of the decision of the *North Sea* case had also made a mention of the delimitation agreement between the United Kingdom and Norway. The court referred to the Norwegian Trough, a submarine feature which would separate the continental shelf of Norway from the shelf areas of the adjacent North Sea, since it marked the boundary between the continental shelf areas of the two States, but had been ignored in the agreement.<sup>80</sup>

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<sup>77</sup> Keith Highet, 'Whatever Became of Natural Prolongation?' in Dorinda G Dallmeyer and Louis De Vorse (eds), *Rights to Oceanic Resources: Deciding and Drawing Maritime Boundaries* (Martinus Nijhoff Publishers 1989) 90.

<sup>78</sup> *Ibid.*

<sup>79</sup> *Case concerning the Continental Shelf (Tunisia/Libyan Arab. Jamahiriya)* [1982] ICJ 18, 32; *Case concerning the continental shelf (Libyan Arab Jamahiriya/Malta)* [1985] ICJ 13, 46.

<sup>80</sup> *North Sea Continental Shelf Case (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands)* [1969] ICJ 3, para 4.

## United Kingdom – France arbitration 1977

The 1977 case of *United Kingdom v France* concerned maritime delimitation of the continental shelf area in the English Channel.<sup>81</sup> This case also marks a major case in relation to the principle of natural prolongation since it saw the principle being applied. Unlike the *North Sea* case, this case involved an actual physical feature, the nature and effect of which was to be decided by the Tribunal. In the common continental shelf area in the English Channel, there exists a trough known as the “Hurd Deep” and a fault running in an easterly direction called the “Hurd Deep Fault Zone”. These two features lie in the submarine areas of the seabed to the west of the Channel Islands between the United Kingdom and France.<sup>82</sup>

This case was not so much about whether the natural prolongation principle applied since both parties were in agreement that it was indeed applicable. The United Kingdom’s view of how the natural prolongation principle should be applied was “to leave as much as possible to each party of its natural prolongation without encroachment on the natural prolongation of the other party”.<sup>83</sup> In view of that, another point was invoked by the United Kingdom, that is, in the event there was a disruption in the geological continuity of the land mass because of a submarine structure, the boundary shall be drawn on the axis of that structure resulting in each State having the natural prolongation of its land mass as its continental shelf. As such, the United Kingdom argued that the boundary should lie on the axis of the Hurd Deep as a feature that constitutes a fundamental discontinuity in the continental shelf.<sup>84</sup> This would have shifted the boundary southwards thus reducing the French portion of the continental shelf. However, the Tribunal did not agree with the United Kingdom and held that the Hurd Deep and Fault Zone did not disturb

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<sup>81</sup> *Case concerning the Delimitation of the Continental Shelf between the United Kingdom of Great Britain and Northern Ireland, and the French Republic* (Decision of 30 June 1977) 1 in (1979) 18 ILM 397.

<sup>82</sup> *Ibid* 60-61 in (1979) 18 ILM 397.

<sup>83</sup> *Ibid* 12.

<sup>84</sup> *Ibid* 13.

the essential geological continuity of the continental shelf throughout the entire Channel area and Atlantic sector.<sup>85</sup>

The fact that the Tribunal was prepared to consider whether the Hurd Deep and Fault Zone had disrupted the continuity of the continental margin is evidence that the principle of natural prolongation was left undisturbed as relevant circumstance which merits the derogation of the equidistance method in delimitation cases.

### Tunisia-Libya 1982

The case of *Continental Shelf (Tunisia v. Libya)*<sup>86</sup> in 1982 saw the parties placing a massive reliance upon the natural prolongation principle. Tunisia relied heavily on the natural prolongation principle. In particular, it relied on bathymetric evidence, which is a type of geomorphological evidence, stating that the bathymetry showed a natural prolongation of its coast extending from west to east.<sup>87</sup> Libya's contention with regard to the principle of natural prolongation was to invoke the theory of tectonic plates.<sup>88</sup> Further to that, the principle of natural prolongation had also been mentioned by Libya in relation to other geographical circumstances. For instance, the general geological and geographical relationship to the land mass was used to determine the direction of natural prolongation. Besides that, Libya had also argued on the basis of geology that the tectonic of plates defined the natural break between the continental shelf areas of the two States.<sup>89</sup> The court, however, rejected any argument based on geological and geomorphological criteria but instead invoked the legal concept of natural prolongation as held in *United Kingdom v France*.<sup>90</sup> It even referred to the case and compared the features asserted by

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<sup>85</sup> Ibid 60.

<sup>86</sup> *Case concerning the Continental Shelf (Tunisia/Libyan Arab. Jamahiriya)* [1982] ICJ 18.

<sup>87</sup> Ibid 55.

<sup>88</sup> Ibid 50.

<sup>89</sup> Ibid 50-51.

<sup>90</sup> Ibid 79; Robert Kolb, *Case Law on Equitable Maritime Delimitation: Digest and Commentaries* (Martinus Nijhoff Publishers 2003) 160-164.

Tunisia with the Hurd Deep and held that the former constituted a less significant disruption of the continental shelf than the latter.<sup>91</sup>

Therefore, although the court in Tunisia-Libya had discarded the scientific evidence brought by the parties before it, it is apparent that the court regarded geological and geomorphological factors as relevant in delimitation with its elaborate consideration of these factors in proving natural prolongation.

#### **a) Irrelevance of geophysical structures where natural prolongation is continuous**

In all the cases discussed above, except the brief mention on the Norwegian Trough in the *North Sea* case, the natural prolongation of the land territories of the States concerned was held to coincide. In other words, the continental shelf areas of the States were single and continuous without any significant disruption of prolongation. It could then be concluded that the physical features of the continental margin do not play much of a role in delimitation in cases where the continental shelf is single and continuous. In the *Tunisia/Libya* case, for example, since it was found that the natural prolongations of both parties coincided, the court held that delimitation shall be “governed by criteria of international law other than those taken from physical features”.<sup>92</sup> This case shows that geophysical evidence is irrelevant in cases where the area of natural prolongation of land territory is shared by two or more States. Hence, in cases such as this, geophysical evidence alone cannot be used to delimit the continental shelf between two States since the natural prolongation is continuous between the two States’ land territories.

Similarly, in the *Gulf of Maine* case, the court held that both the parties acknowledged that the “geological structure of the strata underlying the whole of the continental shelf of North America, including the Gulf of Maine area, is essentially continuous”.<sup>93</sup> The court further noted that based on its geomorphology, the shelf was “a single continuous, uniform and uninterrupted

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<sup>91</sup> *Case concerning the Continental Shelf (Tunisia/Libyan Arab. Jamahiriya)* [1982] ICJ 18, 79.

<sup>92</sup> *Ibid* 58.

<sup>93</sup> *Case concerning the Delimitation of the Maritime Boundary in the Gulf of Maine (Canada/United States of America)* [1984] ICJ 246, para 44.

physiographical structure”.<sup>94</sup> The physical features relied on by the parties which included shelves, banks, basins and channels were merely “insignificant body of rugosities” and that there was nothing to differentiate between the continental shelf of the United States with that of Canada.<sup>95</sup>

It has been noted by Kaye that the cases following the *North Sea* case illustrated above show a decline in the relevance of the principle of natural prolongation.<sup>96</sup> On the contrary, it is observed that those cases do not represent a decline in the relevance of the principle. Instead, it clarifies situations where the principle cannot determine the continental shelf boundary between States due to a single continuous continental shelf and the absence of any geological structure disrupting its continuity. The principle would, therefore, still be very much relevant in those cases since the court had appeared to rely on the principle in holding that the natural prolongation of the States’ land territory was continuous. Therefore, the principle was still heavily relied upon albeit delimitation of the continental shelf in those cases cannot rely on its application but instead relied on some other principle of international law.

Be that as it may, it is noted that Article 76 of the 1982 Convention introduced a new concept of the continental shelf; one that is based on distance as well as natural prolongation and to a certain extent has affected the relevance of the natural prolongation principle as espoused in the cases discussed above.

#### **b) The concept of distance as the basis of entitlement**

Following the cases cited above, a new concept evolved which made the criteria of distance relevant to delineation of the continental shelf.

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<sup>94</sup> Ibid para 45.

<sup>95</sup> Ibid.

<sup>96</sup> Stuart Kaye, ‘Lessons Learned from the Gulf of Maine Case: The Development of Maritime Boundary Delimitation Jurisprudence since UNCLOS III’ (2008) 14 *Ocean and Coastal Law Journal* 73, 74-78.



As may be recalled from Section 2.3.3 of this chapter, the concept of distance in relation to the continental shelf owes its origin to the Santiago Declaration of 1952. However, it is observed that despite the emergence of the distance criteria as the basis of entitlement, the principle of natural prolongation is still relevant. In fact, the notion of distance as a basis of entitlement is so closely interconnected to the principle of natural prolongation that the distance criterion plays a role in the definition of “natural prolongation” in Article 76 of the Convention. The close interconnection between the two concepts is evident from the definition of the continental shelf in Article 76 which employed both concepts making them complementary to each other.<sup>97</sup> Although not directly relevant to the continental shelf beyond 200 NM, the importance of the distance criterion is most apparent wherein it has been employed together with the principle of natural prolongation to serve as the basis for the definition of the continental shelf in Article 76.

### Analysis

It is observed that there is a discrepancy between the cases discussed above in relation to the relevance of the natural prolongation principle. While the *North Sea* case was the first to uphold this principle, the cases following that were not very explicit in ascertaining the relevance of the principle. However, with the decision of *Tunisia/Libya*, the doors were closed to the application of the natural prolongation principle when the court refused to entertain the scientific evidence brought before it.

Be that as it may, it is argued that the case of *Tunisia/Libya* can be contrasted with the cases preceding it which may provide an insight as to the court’s reason for decision. Unlike the other cases, *Tunisia/Libya* involved delimitation of the continental shelf between States of opposite coasts as opposed to States of adjacent coasts. Thus, where the distance between the coasts of two opposite States does not extend beyond 400 NM, the only equitable solution would be to

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<sup>97</sup> This was also mentioned by the court in *Case concerning the Continental Shelf (Tunisia/Libyan Arab Jamahiriya)* [1982] ICJ 18, 33.

adopt the equidistance line disregarding the natural prolongation of either State.<sup>98</sup> This is so since invoking the natural prolongation of one State as the continental shelf boundary would have infringed upon the other State's supposed entitlement to a continental shelf of up to 200 NM.

In light of this discussion, the following points are noteworthy:

With the introduction of other criterion in delimitation of maritime zones such as the distance criterion, it could be observed that the general trend was moving away from the concept of natural prolongation. Be that as it may, it is noted that the cases cited before which tend to reduce the relevance of the natural prolongation concept are cases concerning delimitation of the continental shelf between States as opposed to the delineation of its outer limits in the sense of Article 76 of the 1982 Convention. Therefore, those cases have rightfully taken into account other factors besides natural prolongation in delimiting the continental shelf between two or more opposite or adjacent States. In other words, the cases discussed above are cases on delimitation of the continental shelf where the distance between the coasts of the States involved do not entitle the States to claim an extended continental shelf beyond 200 NM. Hence, it is noted that the concept of natural prolongation is still of utmost importance in the delineation of the extended continental shelf and forms its foundation as long as it does not concern delimitation between States.

It is observed that the principle of natural prolongation had been recognised long before the creation of Article 76 in issues of delimitation of the continental shelf. The cases cited above illustrate that there were several interpretations to the principle of natural prolongation derived from these cases. These are as follows:

Firstly, the natural prolongation of a coastal State's land territory may coincide with the natural prolongation of another coastal State's land territory. In that case, since natural prolongation is

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<sup>98</sup> Keith Highet, 'Whatever Became of Natural Prolongation?' in Dallmeyer DG and De Vorse L (eds), *Rights to Oceanic Resources: Deciding and Drawing Maritime Boundaries* (Martinus Nijhoff Publishers 1989) 90.

continuous, geophysical evidence would not be relevant in determining the point where natural prolongation ends.

Secondly, the natural prolongation of a coastal State's land territory would be continuous as long as there is no geological structure that can disrupt the continuity of that natural prolongation.

Thirdly, natural prolongation can also be defined based on its legal concept. With this definition of the natural prolongation, there was a decline in the natural prolongation as a geological and geomorphological concept.

Fourthly, natural prolongation can also be defined in terms of distance where the actual physical natural prolongation does not extend beyond 200 NM. Hence, in that case, distance is the basis of entitlement to the continental shelf and not natural prolongation in its technical sense.

These interpretations shall be seen in the later chapters as being valid and form the basis of the provisions of Article 76. With the coming into force of the Convention, the application of the principle of natural prolongation is laid down in detail in Article 76. In addition, the principle of natural prolongation as a relevant circumstance in delimitation may have to be reviewed in light of developments. For example, the dispute between China and Japan in the East China Sea concerns the relevance of natural prolongation in areas where the distance between States of opposite coasts is less than 400 NM apart. This shall be discussed further in Section 7.4 of Chapter Seven.

## **2.5 Concluding remarks**

This chapter presented how the concept of the continental shelf first came into being and its development over the years. It owes its existence now to the overwhelming acceptance of the international community which was triggered by economic and political factors. Despite that, however, declarations and claims over the continental shelf were mostly unilateral and hence lack general uniform practice that is required in order to have sufficiently defined outer limits. This led to ambiguity.

This chapter demonstrated how the regime of the continental shelf was once merely associated as part of fisheries. The Truman Proclamation separated the continental shelf regime from fisheries and gave it a definition based on its appurtenance to the land. This evolved by virtue of other unilateral proclamations to include the distance criterion. Besides these contributions to the definition of the continental shelf, cases heard before the international court upheld the principle of natural prolongation as the basis of entitlement to the continental shelf. All of these criteria played a role in developing the concept of the continental shelf as understood today and that shall be revealed by the chapters following this.

## Chapter Three: Codification of the law on the continental shelf

### 3.1 Introduction

By the time the continental shelf regime became overwhelmingly accepted by the international world, codification of the law was seen as necessary for many reasons. Since the world was prepared to harness the vast wealth of the continental shelf, some equitable agreement between nations should be achieved. The law so established would consequently reduce the chances of disputes between States. Apart from that, codification of international law on the continental shelf should ensure freedom of the seas on one hand, and the right to exploit resources on the other while also ensuring minimum wasteful depletion of the resources.<sup>99</sup>

Before the two major conferences under the auspices of the United Nations were held, there had already been attempts at codification by the Committee of Experts under the League of Nations.<sup>100</sup> Nevertheless, this attempt was hampered and did not result in any codification of laws governing the continental shelf.<sup>101</sup> Subsequently, the United Nations was founded and the International Law Commission was established to hold the first major conference on the law of the sea.<sup>102</sup> This conference, as shall be seen later in this chapter, resulted in the first codification of the law relating to the continental shelf regime in the form of the 1958 Geneva Convention of the Continental Shelf. Later, it was only after nine years of negotiations during the Third Conference on the Law of the Sea that brought about the 1982 Convention in which provisions for the extended continental shelf were codified under Article 76.

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<sup>99</sup> Arthur H Dean, 'Second Geneva Conference on the Law of the Sea: The Fight for Freedom of the Seas' (1960) 54(4) AJIL 751, 751-752.

<sup>100</sup> Suzette V Suarez, *The outer limits of the continental shelf: legal aspects of their establishment* (Springer 2008) 29.

<sup>101</sup> Ibid.

<sup>102</sup> United Nations General Assembly Resolution 174 (II), 21 November 1947.

### 3.2 The Committee of Experts

Major codification of the law of the sea had been attempted as early as the establishment of the League of Nations at the conclusion of the First World War, that is, even before the Truman Proclamation of 1945.<sup>103</sup>

It was in 1924 that the Council of the League of Nations initiated codification work by establishing the Committee of Experts for the Progressive Codification of International Law (hereinafter “the Committee of Experts”).<sup>104</sup> This Committee, which consisted of seventeen experts, was to be “a body representing the main forms of civilisation and the principal legal systems of the world”. One of the topics the Committee of Experts undertook to codify was the international law of the sea.<sup>105</sup>

Although codification of the law had been generally understood as codifying existing customary international law into written form, this was clearly not the case as far as the Committee’s work is concerned. This is evident from a resolution of the League of Nations Assembly which stated that:

[C]odification should not confine itself to the mere registration of existing rules, but should aim at adapting them as far as possible to the contemporary conditions of international life.<sup>106</sup>

Nevertheless, the Second World War impeded the work of the Committee in its attempt at codification. As a result, no convention was produced.<sup>107</sup> When the United Nations was

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<sup>103</sup> Suzette V Suarez, *The outer limits of the continental shelf: legal aspects of their establishment* (Springer 2008) 29.

<sup>104</sup> League of Nations, *Official Journal* (Special Supplement No 21) 10. Quoted in *International Law Commission* <[http://untreaty.un.org/ilc/ilcintro.htm#\\_ftnref6](http://untreaty.un.org/ilc/ilcintro.htm#_ftnref6)> accessed 16 March 2012.

<sup>105</sup> *Ibid.*

<sup>106</sup> Resolution adopted by the League of Nations on 27 September 1927. Reprinted in (1947) 41 *American Journal of International Law* Supp 105.

<sup>107</sup> Suzette V Suarez, *The outer limits of the continental shelf: legal aspects of their establishment* (Springer 2008) 29.

established, work on codification was continued in an attempt to finish the work initiated by the Committee of Experts. This began with the setting up of the International Law Commission.<sup>108</sup>

### **3.3 The International Law Commission**

The International Law Commission was created by the United Nations General Assembly by virtue of Resolution 174 on 21 November 1947.<sup>109</sup> This was a body consisting of thirty four eminent lawyers elected by governments to be in charge of “the progressive codification” of international law.<sup>110</sup> When the International Law Commission was established, it went on to prepare draft articles on the high seas and the territorial sea. This codification work by the International Law Commission eventually resulted in the First United Nations Conference on the Law of the Sea.<sup>111</sup>

### **3.4 The First United Nations Conference on the Law of the Sea**

The First United Nations Conference on the Law of the Sea was convened in 1957 by virtue of United Nations General Assembly Resolution 1105 (XI) based on the report submitted by the International Law Commission on its work on issues of the uses of the sea and its maritime zones.<sup>112</sup> It was the first conference dedicated to addressing issues on the law of the sea. It was attended by eighty six States.<sup>113</sup>

The International Law Commission submitted several draft conventions comprising of topics relating to the different maritime zones, one of them being the Draft Articles on the Continental

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<sup>108</sup> Ibid 30.

<sup>109</sup> United Nations General Assembly Resolution 174 (II), 21 November 1947.

<sup>110</sup> RR Churchill and AV Lowe, *The Law of the Sea* (3<sup>rd</sup> edn, Manchester University Press 1999) 15.

<sup>111</sup> See Suzette V Suarez, *The outer limits of the continental shelf: legal aspects of their establishment* (Springer 2008) 30-32.

<sup>112</sup> United Nations General Assembly Resolution 1105 (XI), 21 February 1957.

<sup>113</sup> ‘United Nations Conference on the Law of the Sea’ (1958) 52(4) American Journal of International Law 830.

Shelf.<sup>114</sup> These draft articles were submitted for the consideration of the Conference and resulted in the adoption of four conventions namely the Convention on the Territorial Sea and Contiguous Zone<sup>115</sup>, the Convention on the High Seas<sup>116</sup>, the Convention on Fishing and Conservation of the Living Resources of the High Seas<sup>117</sup> and the Convention on the Continental Shelf.<sup>118</sup>

### **3.5 The 1958 Geneva Convention on the Continental Shelf**

As mentioned above, the First United Nations Conference on the Law of the Sea saw the adoption of four international conventions, one of them being the Geneva Convention on the Continental Shelf of 1958 which was ratified by 58 States.<sup>119</sup> This Convention saw a development in the law in the sense that it codified the rights relating to the continental shelf as established by the Truman Proclamation as will be discussed below.

Besides codification of the rights, it also laid down its version of the definition of the continental shelf. Article 1 of the Convention stated as follows:

[T]he seabed and subsoil of the submarine areas adjacent to the coast but outside the area of the territorial sea, to a depth of 200 metres or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas; and also to the seabed and subsoil of similar submarine areas adjacent to the coast of islands.<sup>120</sup>

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<sup>114</sup> Available at <[http://untreaty.un.org/ilc/documentation/english/a\\_cn4\\_49.pdf](http://untreaty.un.org/ilc/documentation/english/a_cn4_49.pdf)> accessed 23 September 2012.

<sup>115</sup> Convention on the Territorial Sea and the Contiguous Zone 1958. Available at <[http://untreaty.un.org/ilc/texts/instruments/english/conventions/8\\_1\\_1958\\_territorial\\_sea.pdf](http://untreaty.un.org/ilc/texts/instruments/english/conventions/8_1_1958_territorial_sea.pdf)> accessed 9 September 2013.

<sup>116</sup> Convention on the High Seas 1958. Available at <[http://untreaty.un.org/ilc/texts/instruments/english/conventions/8\\_1\\_1958\\_high\\_seas.pdf](http://untreaty.un.org/ilc/texts/instruments/english/conventions/8_1_1958_high_seas.pdf)> accessed 9 September 2013.

<sup>117</sup> Convention on Fishing and Conservation of the Living Resources of the High Seas 1958. Available at <[http://untreaty.un.org/ilc/texts/instruments/english/conventions/8\\_1\\_1958\\_fishing.pdf](http://untreaty.un.org/ilc/texts/instruments/english/conventions/8_1_1958_fishing.pdf)> accessed 9 September 2013.

<sup>118</sup> Convention on the Continental Shelf 1958. Available at <[http://untreaty.un.org/ilc/texts/instruments/english/conventions/8\\_1\\_1958\\_continental\\_shelf.pdf](http://untreaty.un.org/ilc/texts/instruments/english/conventions/8_1_1958_continental_shelf.pdf)> accessed 9 September 2013.

<sup>119</sup> .

<sup>120</sup> Convention on the Continental Shelf 1958, Article 1.



This definition of the continental shelf generally does not deviate from the definition of the continental shelf as understood under the Truman Proclamation, discussed in Section 2.3.2 in Chapter Two. Whilst the latter merely describes the continental shelf as “an extension of the land mass...naturally appurtenant to the coastal State”, the former lays down this definition in more detailed terms. First, the continental shelf is placed as the area beyond the territorial sea. This is of course a legal description as opposed to a geological one. Second, the new definition established a limit to the continental shelf by two restrictions: one based on depth, and the other based on exploitability. The depth criterion restriction is a definitive 200 metres while the exploitability criterion is a more subjective criterion.

#### **a) Rights of coastal States under the 1958 Convention**

The purpose of exercising the rights under the 1958 Convention was for exploring and exploiting the natural resources of the continental shelf.<sup>121</sup> The importance of this right is also evident from the definition of the continental shelf itself when it describes the continental shelf based on the exploitability criterion.<sup>122</sup> The rights as laid down in Article 1 are exclusive to the coastal State concerned in that they are independent of express acts of occupation or declaration by the State concerned.<sup>123</sup> The rights are inherent of the coastal State in that they exist *ipso facto* and *ab initio* “by virtue of its sovereignty over the land, and as an extension of it in an exercise of sovereign rights” as recognised by the *North Sea Continental Shelf* case.<sup>124</sup> That case also confirmed the exclusiveness of those rights in that other States do not have the right to explore and exploit the continental shelf of that State without its express consent.<sup>125</sup>

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<sup>121</sup> Convention on the Continental Shelf 1958, Article 2(1).

<sup>122</sup> *Ibid*, Article 1.

<sup>123</sup> *Ibid*, Article 2(1) and Article 2(3).

<sup>124</sup> [1969] ICJ 3, para 19.

<sup>125</sup> *Ibid*.

The rights under Article 1 include exploring and exploiting the natural resources of the continental shelf.<sup>126</sup> Natural resources include minerals, other non-living resources as well as sedentary species.<sup>127</sup>

#### **b) Definition of the continental shelf under the 1958 Convention**

The definition of the continental shelf in Article 1 of the 1958 Convention was adopted from the definition which resulted from the study by the International Law Commission from 1950 until 1956.<sup>128</sup> Thus, the continental shelf was defined as referring:

(a) to the seabed and subsoil of the submarine areas adjacent to the coast but outside the area of the territorial sea, to a depth of 200 metres or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas;

(b) to the seabed and subsoil of similar submarine areas adjacent to the coasts of islands.<sup>129</sup>

Be that as it may, although it locates the continental shelf as being “adjacent to the coast”, this definition lacks the geological criterion contained in the Truman Proclamation that the continental shelf must be “*naturally appurtenant to the coastal State*”.<sup>130</sup> The 1958 Convention merely defined the continental shelf based on adjacency and is not based on the physical continental shelf as scientifically understood. Hence, the definition is a purely legal one and containing no geophysical elements.

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<sup>126</sup> Convention on the Continental Shelf 1958, Article 1.

<sup>127</sup> Ibid, Article 2 (4).

<sup>128</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 828.

<sup>129</sup> Convention on the Continental Shelf 1958, Article 1.

<sup>130</sup> (Emphasis added).

The second part of the paragraph establishes the outer limits of the continental shelf based on two criterion, namely, the depth criterion and the exploitability criterion when it provided that the continental shelf shall extend to 200 metres deep or as far “as it was possible to exploit”.<sup>131</sup>

The negotiating history of this provision indicates that the two different criteria as the limits of the continental shelf were the result of the International Law Commission’s work. In 1951, it was proposed that the limits of the continental shelf be established at the depth of 200 metres while in 1953 the exploitability criterion was proposed as the limits.<sup>132</sup> However, in 1956, the International Law Commission sought to combine the two proposed limits in the Draft Articles on the Continental Shelf which was later submitted at the First Conference.<sup>133</sup> And this was upheld until the final convention.<sup>134</sup>

Besides this, the definition of the continental shelf under the 1958 Convention also suggests that it acknowledges the concept of the extended continental shelf. This can be seen from its recognition of the continental shelf beyond the 200 metre depth limit, a concept which was later incorporated into Article 76 of the 1982 Convention although the limits under the latter is based on distance rather than water depth. The outer limits of the extended continental shelf in the 1958 Convention does not depend on geological concepts like the current 1982 Convention but by the coastal State’s ability to exploit the natural resources in the area.

The imprecise nature of the exploitability criterion became the subject of criticism.<sup>135</sup> It was argued that it did not set any real limit to the continental shelf since a coastal State would have

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<sup>131</sup> Convention on the Continental Shelf 1958, Article 1.

<sup>132</sup> Yearbook of the International Law Commission 1951 Vol 1, 113<sup>th</sup> Meeting on 28 June 1951 (United Nations, 1951) 269 – 271.

<sup>133</sup> Yearbook of the International Law Commission 1956 Vol 1, 358<sup>th</sup> Meeting on 1 June 1956 (United Nations 1956) 139.

<sup>134</sup> Suzette V Suarez, *The outer limits of the continental shelf: legal aspects of their establishment* (Springer 2008) 31-32.

<sup>135</sup> Suzette V Suarez, *The outer limits of the continental shelf: legal aspects of their establishment* (Springer 2008) 34; Tomas H Heidar, ‘Legal Aspects of Continental Shelf Limits’ in Myron H Nordquist, John Norton Moore, Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 22.

the right to any part of the continental shelf as long as it is possible to exploit.<sup>136</sup> The rapid technological advances used in exploiting the submarine areas also rendered the exploitability criterion inadequate in setting limits to the continental shelf.<sup>137</sup> Hence, it favours the interest of developed States that are able to acquire advancement in technology to one day exploit the continental shelf as far away from the coast as possible. Due to this, it has been argued that the exploitability criterion did not impose any limit on the continental shelf at all. Furthermore, since the area beyond the limits of national jurisdiction had been widely accepted as the common heritage of mankind at the time, a more precise definition of the outer limits was needed.<sup>138</sup>

Be that as it may, it has been argued that although Article 1 of the 1958 Convention lacked the limits, the definition of the continental shelf is preceded by the words “for the purpose of these articles”, words that are often ignored when discussing the outer limits of the continental shelf.<sup>139</sup> The implications of these words are that the definition of the continental shelf as stated in Article 1 is not to be taken as a universal definition for the outer limits of the continental shelf.<sup>140</sup> Hence, since this definition is merely for the purposes of the articles, regard must be had to other sources of international law that may relate to the limits of the continental shelf.

### **3.6 The Third United Nations Conference on the Law of the Sea**

Two years after the adoption of the Geneva Conventions, the Second United Nations Conference on the Law of the Sea was convened in 1960.<sup>141</sup> That conference sought to address issues concerning the breadth of the territorial sea and fishery limits of which had not been settled at the

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<sup>136</sup> Suzette V Suarez, *The outer limits of the continental shelf: legal aspects of their establishment* (Springer 2008) 34.

<sup>137</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 829.

<sup>138</sup> *Ibid.*

<sup>139</sup> RY Jennings, ‘The Limits of Continental Shelf Jurisdiction: Some Possible Implications of the North Sea Case Judgment’ (1969) 18 *International and Comparative Law Quarterly* 819, 820.

<sup>140</sup> *Ibid.*

<sup>141</sup> RR Churchill and AV Lowe, *The Law of the Sea* (2<sup>nd</sup> edn, Manchester University Press 1988) 13.

First Conference.<sup>142</sup> Hence, there was no development on the topic of the continental shelf at the Second Conference.

The Third United Nations Conference on the Law of the Sea originated from the Ad Hoc Committee to Study the Peaceful Uses of the Sea-Bed and the Ocean Floor Beyond the Limits of National Jurisdiction (hereinafter “the Committee”) consisting of thirty six member States and was established by a General Assembly Resolution in 1967.<sup>143</sup>

The establishment of the Committee initiated from the proposal by Ambassador Arvid Pardo of Malta on 1 November 1967, to the United Nations General Assembly to look into the question of the legal status of the seabed and ocean floor beyond the limits of national jurisdiction.<sup>144</sup> The proposal, known as “the Pardo Speech”, suggested for the establishment of an area in the seabed and ocean floor from which the international community could exploit its resource. This idea was thought to have formed the basis of a new international economic order.<sup>145</sup>

A year later, the Sea Bed Committee presented its study (A/7230) to the General Assembly at its twenty-third session.<sup>146</sup> Based on the study, a resolution was adopted by which the General Assembly decided to establish a Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction to examine the question of the deep sea bed

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<sup>142</sup> Ibid.; the topics on the breadth of the territorial sea and fishery limits had no proposal which met the two-thirds majority. ‘Resolution 1307 (XIII) of the General Assembly of the United Nations Convening the Conference, Second United Nations Conference on the Law of the Sea’ *Official Records of the Second United Nations Conference on the Law of the Sea (Summary Records of Plenary Meetings and of Meetings of the Committee of the Whole, Annexes and Final Act)* xi.

<sup>143</sup> United Nations General Assembly Resolution 2340 (XXII), 18 December 1967.

<sup>144</sup> John-Pierre Levy, ‘The United Nations Convention on the Law of the Sea’ in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits: The Scientific and Legal Interface* (Oxford University Press 2000) 9.

<sup>145</sup> Ibid.

<sup>146</sup> United Nations, ‘Third United Nations Conference on the Law of the Sea, 1973-1982’, *United Nations Diplomatic Conference* <<http://untreaty.un.org/cod/diplomaticconferences/lawofthesea-1982/lawofthesea-1982.html>> accessed 12 August 2012.

lying beyond the limits of national jurisdiction.<sup>147</sup> This committee, commonly known as “the Sea Bed Committee”, consisted of forty two Member States. It was this Committee that was subsequently instructed to act as a preparatory body for the Third United Nations Conference on the Law of the Sea which was convened by another General Assembly Resolution.<sup>148</sup> The Sea Bed Committee engaged in preparatory work for the Third Conference from 1971 to 1973.<sup>149</sup>

The Third United Nations Conference on the Law of the Sea was held from 1973 to 1982 and participated by 160 States. It was during this conference that the 1982 United Nations Convention on the Law of the Sea was negotiated.<sup>150</sup> The Conference was divided into three committees. It was the second committee that was tasked to deal with, among others, issues on the continental shelf.<sup>151</sup> During the nine years of negotiations held in eleven sessions, debates were held between States for the definition of the continental shelf. The negotiating history generally saw a compromise between wide-margin States and geographically disadvantaged States. The Third Conference was different from the First Conference in the sense that it did not have any bases of discussion. While the latter had based its work on the report by the International Law Commission, the former was seen as a more political enterprise since it had no “Bases of Discussion” to aid its work.<sup>152</sup>

The first few sessions of the Conference saw a discussion on the newly introduced concept of the exclusive economic zone. While the concept of the continental shelf had already been exercised long before the Conference, the exclusive economic zone was new and had acquired the attention

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<sup>147</sup> United Nations General Assembly Resolution 2467 A (XXIII), 21 December 1968.

<sup>148</sup> United Nations General Assembly Resolution 2750 C (XXV), 17 December 1970.

<sup>149</sup> SP Jagota, *Maritime Boundary* (Martinus Nijhoff Publishers 1985) 221.

<sup>150</sup> United Nations <[www.untreaty.un.org](http://www.untreaty.un.org)> accessed 12 August 2012.

<sup>151</sup> Other issues that were dealt with by the second committee were the territorial sea, contiguous zone, the EEZ, the high seas, and fishing and conservation of the living resources of the high seas. The first committee dealt with the deep sea bed while the third committee dealt with the preservation of the marine environment and scientific research. RR Churchill and AV Lowe, *The Law of the Sea* (3<sup>rd</sup> edn, Manchester University Press 1999) 16.

<sup>152</sup> Ibid 17.

of delegates. As a result of this, delegates had differed in their opinion as to which concept should be carried into the Convention. Some were of the view that rights to the continental shelf should be retained as a legal concept and others were of the opinion that it should co-exist with the concept of the exclusive economic zone.<sup>153</sup>

Proposals were made for continental shelf rights based on distance, that is, 200 NM so as to coincide with the exclusive economic zone. Nevertheless, this was considered a disadvantage for wide-margin States since they were already entitled to continental shelf rights beyond 200 NM under the 1958 Convention as discussed previously in Section 3.5 of Chapter Three. After a few sessions of negotiations, it was eventually decided that the concept of natural prolongation which arguably reflects customary law shall be retained.<sup>154</sup>

### **3.7 The 1982 United Nations Convention on the Law of the Sea**

As a result of the Third Conference, the 1982 United Nations Convention on the Law of the Sea (hereinafter “the Convention”) was concluded. The Convention is a multilateral treaty that serves as the most important instrument relating to the international law of the sea. It was concluded at Montego Bay on 10 December 1982 and came into force on 16 November 1994. As of the date of writing this thesis, there are altogether 162 States party to the Convention.<sup>155</sup>

The Convention created a concept of the continental shelf different from what was understood before. The exploitability criterion found in the 1958 Convention was replaced by a definition of the continental shelf based on more accurate geological findings reflecting the characteristics of the seabed. It is the current law being applied in claims for an extended continental shelf.

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<sup>153</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 831.

<sup>154</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982: A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 830-836.

<sup>155</sup> ‘United Nations Convention on the Law of the Sea’, *United Nations Treaty Collection* <<http://treaties.un.org>> accessed 26 February 2012.

The law as it currently stands with regard to the delineation of the extended continental shelf is laid down in Article 76 of the Convention. Under the Convention, some new elements have been introduced in an attempt to address the shortcomings of the previous laws relating to the continental shelf. The Convention sets new criteria for the establishment of the outer limits that are based on more precise elements. Furthermore, it combines legal and geophysical concepts allowing for a more comprehensive definition of the continental shelf.<sup>156</sup>

Another point worth noting is the Statement of Understanding created by the Convention to address the technicalities involved with establishing the extended continental shelf in the southern part of the Bay of Bengal. This is provided for as a special case in addition to the ten paragraphs of Article 76.<sup>157</sup>

Apart from issues on the delineation of the continental shelf, the Convention prescribes for the sharing of revenue accruing from the exploitation of the continental shelf, a mechanism that is thought to be fair to all States. This is provided for in Article 82. The revenue shared shall be in the form of payment or contribution in kind in respect of the exploitation of the resources after the first five years of production.<sup>158</sup>

Besides the provisions regarding the delineation of the extended continental shelf, the Convention also provides for the establishment of a body to regulate the implementation of Article 76 as regards the extended continental shelf beyond 200 NM. This is provided for in Annex II on the Commission for the Limits of the Continental Shelf and will be discussed further in Chapter Four.

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<sup>156</sup> Philip A Symonds and others, 'Characteristics of continental margins' in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 25-26.

<sup>157</sup> The "Statement of Understanding" is concerning a specific method applicable to special geological and geomorphological characteristics such as those in the southern part of the Bay of Bengal. Adopted on 29 August 1980 as Annex II to the Final Act of the Third United Nations Conference on the Law of the Sea.

<sup>158</sup> LOS Convention 1982, Article 82(2).



### 3.7.1 Classification of maritime zones

Before going on to discuss the specific provisions of Article 76, it is vital to understand the geography of maritime zones vis-à-vis a coastal State. According to the Convention, all coastal States have rights over the specific maritime zones of the sea adjacent to their coasts subject to delimitation with other adjacent or opposite States.<sup>159</sup> As such, in order to obtain a clearer picture of the concept of the extended continental shelf, it is of utmost importance to fully comprehend each of the maritime zones vis-à-vis a coastal State including the location of the extended continental shelf.

In classifying a coastal State's maritime zones, the baseline is of utmost significance and will be discussed further in Section 7.2 of Chapter Seven. The baseline is the starting point from which the different zones are measured.<sup>160</sup> Base points are chosen on the coastline of a State. These base points will then be used as points on which to draw the baseline. It is from the baseline that the radius of a particular zone is measured according to the limits stated in the Convention in nautical miles (NM). Therefore, the territorial sea, for example, is delineated at the radius of 12 NM from the baseline.<sup>161</sup>

Baselines are to be established in accordance with the Convention.<sup>162</sup> The area of water landward of the baseline is called internal waters and is subject to full sovereign rights as with the land territory of the State.<sup>163</sup> However, the waters beyond the baseline entitle a State to different rights which vary according to the zones as will be discussed below.

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<sup>159</sup> Malcolm D Evans, *International Law* (2<sup>nd</sup> edn, Oxford University Press 2006) 629.

<sup>160</sup> For example, Article 3 on the territorial sea, Article 57 on the exclusive economic zone, and Article 76 on the continental shelf.

<sup>161</sup> LOS Convention 1982, Article 3.

<sup>162</sup> *Ibid*, Article 5 and 7.

<sup>163</sup> Malcolm D Evans, *International Law* (2<sup>nd</sup> edn, Oxford University Press 2006) 629.

### **a) The territorial sea**

The classification of maritime zones begins with the territorial sea as the zone in closest proximity to a coastal State's land territory. As with the continental shelf, the breadth of the territorial sea is measured from the baseline.<sup>164</sup>

The basis of entitlement to the territorial sea is purely on distance alone.<sup>165</sup> As may be recalled from the previous discussion on the historical development of the continental shelf in Section 2.3.1, the breadth of the territorial sea evolved from a mere range of the cannon shot. This range was further lengthened and at present, the current law states that the breadth of the territorial sea extends up to 12 NM from the baseline.<sup>166</sup>

### **b) The exclusive economic zone**

The exclusive economic zone is a relatively new concept introduced during negotiations leading up to the 1982 Convention as previously discussed in Section 3.6. The exclusive economic zone is the area beyond and adjacent to the territorial sea and extends up to 200 NM from the baseline.<sup>167</sup> It entitles a coastal State to sovereign rights over the resources of "the waters superjacent to the seabed and of the seabed and its subsoil".<sup>168</sup> Apart from that, it also confers jurisdiction over other rights such as the establishment of artificial islands, marine scientific research as well as the protection and preservation of the marine environment.<sup>169</sup> The fact that the exclusive economic zone extends up to 200 NM and corresponds with the continental shelf of

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<sup>164</sup> LOS Convention 1982, Article 3.

<sup>165</sup> Ibid.

<sup>166</sup> Ibid.

<sup>167</sup> Ibid, Article 55 and 57.

<sup>168</sup> Ibid, Article 56.

<sup>169</sup> Ibid.

up to 200 NM means that a State may enjoy extensive rights with regard to the resources of the water column and the seabed.<sup>170</sup>

### **c) The continental shelf**

Apart from rights over the exclusive economic zone, the area within 200 NM also entitles a coastal State to another right, the right to the continental shelf.<sup>171</sup> The continental shelf as defined in the Convention is as follows:

the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.<sup>172</sup>

From here, it can be seen that rights over the continental shelf may extend up to 200 NM or beyond 200 NM. Thus, for the purpose of understanding the different maritime zones, the continental shelf is divided into two zones, namely, the continental shelf up to 200 NM and the continental shelf beyond 200 NM.

The continental shelf up to 200 NM is allocated to all coastal States regardless of the geological character of a coastal State's land mass, subject of course to delimitation between adjacent and opposite States as with other overlapping maritime zones.<sup>173</sup> This right, as with the right to the exclusive economic zone and the territorial sea, is based purely on distance. As observed earlier, this concept of the continental shelf based on the distance criterion owes its existence to the Santiago Declaration of 1952 by the South American countries as discussed in Section 2.3.3 of Chapter Two.

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<sup>170</sup> RR Churchill and AV Lowe, *The Law of the Sea* (2<sup>nd</sup> edn, Manchester University Press 1988) 133.

<sup>171</sup> LOS Convention 1982, Article 76.

<sup>172</sup> *Ibid.*

<sup>173</sup> *Ibid.*, Article 76 and Article 83.

It is observed that the separation between the subject of fisheries and the continental shelf introduced in the Truman Proclamation, as discussed in Section 2.3.2 in Chapter Two, had been retained with the separation between jurisdiction over the exclusive economic zone and the continental shelf within 200 NM. This indicates that the continental shelf is so vital that it merits a subject on its own.

It is also worth noting that the position of sedentary species is an exception to the separation between fisheries and the continental shelf. Since sedentary species may well come under the term ‘natural resources’ of the continental shelf, they would fall under the coastal State’s sovereign rights as opposed to being part of the high seas.<sup>174</sup>

#### **d) The continental shelf beyond 200 NM**

The second type of continental shelf area which is the most seaward maritime zone subject to coastal State rights is the continental shelf beyond 200 NM, also known as the extended continental shelf. This part of the continental shelf extends beyond 200 NM from the baseline.<sup>175</sup>

In contrast with the maritime zones within 200 NM, a coastal State is not also entitled to rights over the superjacent water column beyond 200 NM. Instead, it is only the seabed and subsoil of the area beyond 200 NM that it is entitled to if the particular requirements are fulfilled. Therefore, the water column superjacent to the extended continental shelf is regarded as the high seas and not subject to appropriation by any State.<sup>176</sup>

As with the continental shelf of up to 200 NM, the extended continental shelf is also the inherent right of the coastal State *ipso facto* and *ab initio*.<sup>177</sup> However, unlike the continental shelf within

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<sup>174</sup> Ibid, Article 77; Convention on the Continental Shelf 1958, Article 1. See also LFE Goldie ‘Sedentary Fisheries and Article 2(4) of the Convention on the Continental Shelf--A Plea for a Separate Regime’ (1969) 63 American Journal of International Law 86, 86-87, footnote 5.

<sup>175</sup> LOS Convention 1982, Article 76.

<sup>176</sup> Ibid, Article 86.

<sup>177</sup> *North Sea Continental Shelf Case (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands)*[1969] ICJ 3, para 19.

200 NM which is based on distance, the limits of the extended continental shelf are not based on their distance from the baseline but are based on other criteria laid down in Article 76. As such, a coastal State shall delineate the outer limits of its extended continental shelf by fulfilling the requirements of Article 76.

The continental shelf beyond 200 NM is the only zone which does not base its limits on the distance criterion. Instead, scientific criterion based on the principle of natural prolongation is used.<sup>178</sup> The legal-scientific approach in determining the limits of the continental shelf beyond 200 NM have resulted in the emergence of a juridical and scientific definition of the continental shelf. This complexity shall be discussed further in Section 3.7.4 later in this chapter.

#### **e) The high seas and the deep seabed area**

While the extended continental shelf may come under a coastal State's sovereign rights, the water column beyond 200 NM from a coastal State's baseline is not subject to any sovereign rights. This part of the sea is not included in any State's exclusive economic zone, territorial sea, internal waters or archipelagic waters.<sup>179</sup> Thus, freedom of the seas is a fundamental principle of the high seas and this is highlighted in the Convention.<sup>180</sup>

Apart from the high seas, another zone that is not subject to any sovereign rights is the deep seabed area. The deep seabed is the area that lies beyond a coastal State's continental shelf zone, be it the continental shelf of up to 200 NM or the extended continental shelf beyond 200 NM. As for continental shelf zones of up to 200 NM, the deep seabed area would begin from 200 NM from the baseline of the particular coastal State. On the other hand, since the limit of the extended continental shelf is established by geological elements, the deep seabed area would also have to be determined based on scientific elements. Generally speaking, the deep ocean floor

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<sup>178</sup> LOS Convention 1982, Article 76.

<sup>179</sup> Ibid Article 86.

<sup>180</sup> Ibid Article 87.

begins where the natural prolongation ends. The deep ocean floor is otherwise known as the international seabed area in which the principle of common heritage of mankind applies.<sup>181</sup>

### **3.7.2 The juridical and scientific concepts of the continental shelf**

It is vital that the concept of the continental shelf as understood by geologists as well as the concept in legal terms be discussed before going on to the technical aspects of Article 76. This is so in order that the issues and problems relating to the extended continental shelf can be fully appreciated.

The continental shelf is a geological concept and would naturally be defined in scientific terms. However, since the concept is also being used in legal terms, it may possibly be subject to a different interpretation when put in a legal context. Therefore, a deep understanding of the concept of the continental shelf is necessary when discussing the law relating to the continental shelf.

The continental shelf in laymen's terms is that part of the land mass which is submerged under water. It must be differentiated from the ocean floor, which is the other primary province of the planet Earth. The ocean and the continent can be distinguished by their composition and physical properties.<sup>182</sup>

The term "continental shelf" in geological terms refers to the definition of the continental shelf in the narrower sense. Geologists use the term to refer to:

[T]hat part of the continental margin which is between the shoreline and the shelf break or, where there is no noticeable slope, between the shoreline and the point where the

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<sup>181</sup> LOS Convention 1982, Articles 136 and 137; Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 74.

<sup>182</sup> Olav Eldholm and Filippas Tsikalas, 'Scientific Aspects of the Continental Shelf' in Myron H Nordquist, John Norton Moore, Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 42.

depth of the superjacent water is approximately between 100 and 200 metres.<sup>183</sup>

The “continental shelf” in laymen’s terms as mentioned above is actually referred to as the “continental margin” from the geological perspective. The continental margin can be geomorphologically divided into three parts: the shelf, being the innermost part, the slope, and the rise, being the outermost part which also borders the ocean floor.<sup>184</sup> The distinction between the three parts is based on the angle at which the sea floor drops towards the ocean floor.<sup>185</sup> Thus, the continental shelf in geological terms is only one of the three parts of the continental margin and not the continental shelf as generally understood.<sup>186</sup>

The concept of the continental shelf under international law is more complicated and may differ from that understood by geologists. The continental shelf in the legal sense, or the “juridical continental shelf”, was brought about by Article 76 and basically adopts the meaning of the term in the general sense, which refers to the continental margin.<sup>187</sup>

The continental shelf beyond 200 NM is normally referred to as the “extended continental shelf” or the “outer continental shelf”.<sup>188</sup> This definition is the scope of the continental shelf relevant to this discussion. This scope of the continental shelf is governed by Article 76 of the Convention. According to Article 76, coastal States may only be entitled to the extended continental shelf if the natural prolongation of the land mass extends beyond the 200 NM limit.<sup>189</sup> This is called the

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<sup>183</sup> ‘The Definition of the Continental Shelf and Criteria for the Establishment of its Outer Limits’, *Division for Ocean Affairs and the Law of the Sea* <[http://www.un.org/Depts/los/clcs\\_new/continental\\_shelf\\_description.htm](http://www.un.org/Depts/los/clcs_new/continental_shelf_description.htm)> accessed 12 August 2012.

<sup>184</sup> J Ashley Roach and Robert W Smith, *United States Responses to Excessive Maritime Claims* (Publications on Ocean Development, vol 27, 2<sup>nd</sup> edn, Martinus Nijhoff Publishers 1996) 193.

<sup>185</sup> *Ibid.*

<sup>186</sup> Malcolm D Evans, *International Law* (2<sup>nd</sup> edn, Oxford University Press 2006) 642.

<sup>187</sup> This is with reference to the continental margin which has often been juridically defined as comprising “the shelf, the slope and the rise”.

<sup>188</sup> In this thesis, both shall be used interchangeably.

<sup>189</sup> Article 76 (1) of the Convention.

test of appurtenance. Two requirements must be proven in order to pass this test. First, that the continental shelf is the natural prolongation of its land mass; and second, that this natural prolongation extends beyond 200 NM from the coastal State's baseline.<sup>190</sup>

### **3.7.3 Overview of Article 76**

Article 76 comes with the heading "Definition of the continental shelf" and comprises of ten paragraphs. It comes under Part VI of the Convention which is devoted to provisions on the continental shelf.

#### **Paragraph 1**

The definition of the continental shelf is laid down in paragraph 1 of Article 76 as follows:

the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.

It can be deduced from this provision that there are two instances of where a coastal State may exercise its rights over the continental shelf. First, the provision indicates that a coastal State shall have the right to a continental shelf up to a distance of 200 NM from its baseline regardless of whether its natural prolongation extends up to that distance.<sup>191</sup> Second, it also states that a coastal State is entitled to a continental shelf throughout the natural prolongation of its land territory until the outer edge of the continental margin where the natural prolongation extends beyond 200 NM from the baseline.

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<sup>190</sup> Myron H Nordquist, Satya N Nandan and James Kraska, *UNCLOS 1982 Commentary: Supplementary Documents* (Martinus Nijhoff Publishers 2012) 482.

<sup>191</sup> This is, of course, subject to delimitation between opposite and adjacent States.



Therefore, paragraph 1 is the authority for both the continental shelf of up to 200 NM and the extended continental shelf beyond 200 NM. This explains why the heading for Article 76 does not make use of the term “extended continental shelf”.

This paragraph also implies the requirement known as the "test of appurtenance". Although the exact term has not been used in the provision, Article 76 does require the test to be applied by coastal States wishing to make a submission. The test of appurtenance refers to the establishment that the natural prolongation of the coastal State concerned does in fact extend beyond the 200 NM limit measured from its baseline.<sup>192</sup> Thus, where a coastal State has established that its natural prolongation extends beyond that distance, it is said to have passed the test of appurtenance and is entitled to invoke the rest of the provisions of Article 76 dealing with the extended continental shelf. Where a coastal State fails the test of appurtenance, its continental shelf shall remain up to the distance of 200 NM and the coastal State shall not be entitled to claim any area of the continental shelf beyond that point under Article 76.

## **Paragraph 2**

The second paragraph is relatively brief. It merely provides that there are limitations to the extent of the continental shelf beyond the 200 NM limit as follows:

The continental shelf of a coastal State shall not extend beyond the limits provided for in paragraphs 4 to 6.

Since the limitations can be found in paragraphs 4, 5 and 6, it is essential that the paragraphs be read together.

## **Paragraph 3**

Before proceeding with paragraphs 4 to 6, it is noted that another limitation is implied in paragraph 3 which states as follows:

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<sup>192</sup> Commission on the Limits of the Continental Shelf, ‘Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf’, CLCS/11 (United Nations, 13 May 1999) para 2.2; Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 245.

The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the seabed and subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor with its oceanic ridges or the subsoil thereof.<sup>193</sup>

Paragraph 3 defines the term "continental margin" as the submerged prolongation of the land mass of the coastal State. This definition is further refined by stating the features included in and excluded from the continental margin. To that end, the seabed and subsoil of the shelf, the slope and the rise are the features included in the continental margin whereas "the deep ocean floor with its oceanic ridges" and the subsoil thereof are not.<sup>194</sup> Thus, where the prolongation of a land territory meets the deep ocean floor or its oceanic ridges, it ceases to be part of the continental margin. This definition of the continental margin is reflective of the continental margin as understood in scientific terms. The description of the continental margin made with reference to geomorphological features such as the shelf, slope and rise evidently shows that it is intended as a geomorphological concept.<sup>195</sup>

It has been stated that this provision "reaffirms the legal concept of the continental shelf and its link with the physical fact of the natural prolongation, enunciated in 1969 by the International Court of Justice in the *North Sea Continental Shelf* cases".<sup>196</sup>

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<sup>193</sup> LOS Convention, Article 76(3).

<sup>194</sup> The deep ocean floor with its oceanic ridges do not come under the sovereignty of any State except that part which is within the 200 M limit measured from the baseline. Instead, it becomes part of the Area, subject to the principle of common heritage, and is within the resource jurisdiction of the International Seabed Authority established under Part XI of the Convention. Robert W Smith and George Taft, 'Legal Aspects of the Continental Shelf' in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 19.

<sup>195</sup> Philip A Symonds and others, 'Characteristics of continental margins' in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 29.

<sup>196</sup> United Nations, *The Law of the Sea Definition of the Continental Shelf* (United Nations 1993). Quoted in Robert W Smith and George Taft, 'Legal Aspects of the Continental Shelf' in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 19.

#### Paragraph 4

Paragraph 4 constitutes the first limitation to the extended continental shelf claim. It reads as follows:

(a) For the purposes of this Convention, the coastal State shall establish the outer edge of the continental margin wherever the margin extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by either:

(i) a line delineated in accordance with paragraph 7 by reference to the outermost fixed points at each of which the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope; or

(ii) a line delineated in accordance with paragraph 7 by reference to fixed points not more than 60 nautical miles from the foot of the continental slope.

(b) In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base.

Sub-paragraph (a) lays down the methods used to establish the outer edge of the continental margin. This, according to the paragraph, can be done in two ways and two formulae are given to that end. Both formulae make use of the term "foot of the continental slope" as the measuring point from which to apply the formulae. The application of either formula shall result in a point called the "fixed point" which will be used to delineate the outer limits.<sup>197</sup>

The first formula is known as the Irish or Gardiner formula and is based on the thickness of sediments in the area. It requires the fixing of points where the thickness of sediments is at least one percent of the shortest distance from the particular point to the foot of the continental

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<sup>197</sup> Refer to paragraph 7 of Article 76.

<sup>198</sup> Tomas H Heidar, 'Legal Aspects of Continental Shelf Limits' in Myron H Nordquist, John Norton Moore, Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 26.

slope.<sup>198</sup> The second formula, also known as the Hedberg formula, requires the fixing of points based solely on the distance criterion, that is, 60 NM from the foot of the continental slope.<sup>199</sup>

Sub-paragraph (b) provides for the method in which the “foot of the continental slope” mentioned in sub-paragraph (a) is determined. The second part of the sentence states that the point of the highest gradient change shall be the foot of the continental slope. In addition, it also further specifies that the point shall be located “at its base” referring to the base of the continental slope. However, the first part of the sentence makes use of the words “in the absence of evidence to the contrary”, indicating that there could possibly be evidence indicating otherwise. This topic shall be discussed extensively in Chapter Six which is dedicated to issues on the foot of the continental slope.

## **Paragraph 5**

Another limitation to the extended continental shelf can be found in paragraph 5 which states as follows:

The fixed points comprising the line of the outer limits of the continental shelf on the seabed, drawn in accordance with paragraph 4 (a) (i) and (ii), either shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured or shall not exceed 100 nautical miles from the 2,500 metre isobath, which is a line connecting the depth of 2,500 metres.

Paragraph 5 lays down two limitations to the extended continental shelf by constructing lines commonly known as “the constraint lines”.<sup>200</sup> These constraint lines provide the maximum limits

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<sup>199</sup> Ibid 27.

<sup>200</sup> Although this term is nowhere used in the 1982 Convention, it has been employed by the Commission on the Limits of the Continental Shelf in its Scientific and Technical Guidelines. See, for example, Commission on the Limits of the Continental Shelf, ‘Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf’, CLCS/11 (United Nations, 13 May 1999) para 2.3.3.

for a coastal State's entitlement to the continental shelf. In other words, the extended continental shelf claimed by a coastal State shall not go beyond the limits stated in paragraph 5.

However, the use of the conjunction "or" indicates that only one limitation may apply at a time. Thus, a coastal State's extended continental shelf may exceed 350 NM from the baseline as long as it does not extend beyond 100 NM measured from the water depth of 2,500 metres. Similarly, the continental shelf claim may exceed the limit of 100 NM from the 2,500 metre isobath as long as it is still within the 350 NM limit.

Nevertheless, this paragraph is to be read with paragraph 6 which is discussed below.

### **Paragraph 6**

Paragraph 6 is an extension of the limitation covered by paragraph 5, hence, must be read together with the latter. Paragraph 6 states as follows:

Notwithstanding the provisions of paragraph 5, on submarine ridges, the outer limit of the continental shelf shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured. This paragraph does not apply to submarine elevations that are natural components of the continental margin, such as its plateaux, rises, caps, banks and spurs.

The first part of paragraph 6 is a proviso to paragraph 5. It states that the maximum limit for the extended continental shelf on submarine ridges is 350 NM from the baselines, being one of the limitations provided for in paragraph 5. This implies that there is no option for the application of the other constraint line, the point of 100 NM from the 2,500 metre isobath. Instead, only the former applies on submarine ridges. Therefore, a reading of this paragraph would suggest that continental shelf claims along submarine ridges may extend beyond 100 NM from the 2,500 metre isobath as long as it is still within 350 NM from the baseline. In the same vein, it also implies that the extended continental shelf on submarine ridges may not extend beyond the 350 NM limit even though the point of 100 NM from the 2,500 metre isobath is seaward of the 350 NM limit.

In addition to the exception on submarine ridges, the second part of the paragraph provides for another exception, that is, the proviso applied to submarine ridges does not also apply to “submarine elevations that are natural components of the continental margin”. In other words, it is paragraph 5 and not paragraph 6 that applies to “submarine elevations that are natural components of the continental margin”. Therefore, on submarine elevations, the outer limits shall not exceed 350 NM *or* 100 NM from the 2,500 metre isobath. The paragraph further mentions examples of “submarine elevations that are natural components of the continental margin”. It lists plateaux, rises, caps, banks and spurs as examples. This shall be discussed extensively in Chapter Five.

### **Paragraph 7**

Paragraph 7 describes the method in which the delineation of the outer limits shall be made. It states as follows:

The coastal State shall delineate the outer limits of its continental shelf, where that shelf extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by straight lines not exceeding 60 nautical miles in length, connecting fixed points, defined by coordinates of latitude and longitude.

It prescribes for the drawing of straight lines from a “fixed point” referred to in paragraph 4 to another fixed point. The fixed points referred to here are the points established by using either the Gardiner or Hedberg formula from the foot of the continental slope as described in paragraph 4. Thus, it is the line connecting these fixed points that establish the outer limits of the continental shelf. This is, of course, assuming that the line connecting the fixed points does not exceed the constraint line applicable. If the line exceeds the constraint line, then the outer limits of the continental shelf shall be delineated on the constraint line.<sup>201</sup>

Paragraph 7 also states that each line shall not exceed 60 NM in length. In other words, the maximum distance from one fixed point connecting to another fixed point shall not exceed 60 NM. Besides that, the paragraph also states that the fixed points are to be defined by coordinates.

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<sup>201</sup> Read together with paragraphs 5 and 6.

## **Paragraphs 8 and 9**

Paragraph 8 states:

Information on the limits of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured shall be submitted by the coastal State to the Commission on the Limits of the Continental Shelf set up under Annex II on the basis of equitable geographical representation. The Commission shall make recommendations to coastal States on matters related to the establishment of the outer limits of their continental shelf. The limits of the shelf established by a coastal State on the basis of these recommendations shall be final and binding.

Paragraph 9 provides as follows:

The coastal State shall deposit with the Secretary-General of the United Nations charts and relevant information, including geodetic data, permanently describing the outer limits of its continental shelf. The Secretary-General shall give due publicity thereto.

Paragraphs 8 and 9 describe the procedure for submitting a claim on the extended continental shelf. Paragraph 8 requires a coastal State to make a submission on the information on the particular area of the continental shelf to the Commission. Based on that submission, the Commission shall then make recommendations. When a coastal State delineates its outer limits based on those recommendations, paragraph 8 states that the limits established shall have the effect of being final and binding. Paragraph 9 elaborates the next step, that is, the requirement to deposit the relevant information to the Secretary-General of the United Nations.<sup>202</sup>

## **Paragraph 10**

Finally, the last paragraph to Article 76 provides that “[t]he provisions of this article are without prejudice to the question of delimitation of the continental shelf between States with opposite or adjacent coasts”. Delimitation of continental shelf areas between States is addressed in Article 83 of the Convention.

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<sup>202</sup> Robert W Smith and George Taft, ‘Legal Aspects of the Continental Shelf’ in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 20-21.

### 3.7.4 Formulae for delineation

From the overview of Article 76 presented above, formulae for the delineation of the outer limits could be derived.

The formulae for the delineation of the outer limits are contained within paragraph 4 of Article 76 discussed above. That provision makes use of the foot of the continental slope as the point from which the outer limits is measured. The importance of the application of paragraph 4 is stressed since the method of locating the foot of the continental slope is not provided for in detail by Article 76. The use of paragraph 4 does not only relate to establishing the outer limits, but also in determining whether the test of appurtenance is passed in order to see whether the coastal State is entitled to an extended continental shelf.

Another equally important provision of Article 76 is paragraph 5. Paragraph 5 sets the maximum limit of the continental shelf a coastal State may claim. Since it is possible for the foot of the continental slope, as the point from which the outer limits shall be measured, to be located far out in the ocean, paragraph 5 sets out formulae for constraints on the delineation of the outer limits. These constraint lines are set based on the geological characteristics of the submarine features found on that part of the seabed, that is, whether a feature is a submarine ridge or a submarine elevation that is a natural component of the continental margin. Hence, identification of the geological characteristics of submarine features are also of utmost importance since it affects the outer limits.

In the attempt to distinguish between the submarine features, paragraph 5 is read together with paragraph 3. Paragraph 5 mentions two significant submarine features on which the maximum limits shall be applied. The two features are "submarine ridges" and "submarine elevations that are a natural prolongation of the continental margin" as mentioned above. In addition to the submarine features in paragraph 5, paragraph 3 also mentions another submarine feature, namely the "oceanic ridges of the deep ocean floor". The use of these terms has definitely triggered



discussions.<sup>203</sup> Although Article 76 is relatively more precise in the establishment of the outer limits of the extended continental shelf compared to the 1958 Convention, in practice, the use of these geological terms within a legal context is in need of clarification. It is of utmost importance to identify these features since they affect a coastal States' right to the continental shelf. A similar problem has been posed by the use of the term "foot of the continental slope" of which detailed interpretation cannot be found by reading Article 76 alone.

**a) Which States are entitled to claim the extended continental shelf?**

An established principle of international law regarding the law of the sea is that the land dominates the sea. A coastal State is entitled to the continental shelf by virtue of its sovereignty over the land.<sup>204</sup> As such, in order for a coastal State to generate maritime zones, it has to have land territory. With that, it would be worthwhile to discuss the types of land territories that are entitled to generate extended continental shelf areas.

A land-locked State having no coast of its own is not entitled to a continental shelf area the same way it is not entitled to a territorial sea or an exclusive economic zone. However, the 1982 Convention provides for the sharing of revenues obtained from exploitation of the extended continental shelf as previously mentioned in Section 3.7 of this thesis.<sup>205</sup> Therefore, although land-locked States are not entitled to make a submission for a claim over the extended continental shelf, they are still entitled to the payments and contributions obtained from the exploitation of the extended continental shelf which will be distributed to these States.<sup>206</sup>

A coastal State may be entitled to claim the extended continental shelf only if it passes the test of appurtenance as explained in the discussion on Paragraph 1 under Section 3.7.2. This implies that a coastal State must prove that the natural prolongation of its territorial land mass extends

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<sup>203</sup> This shall be reviewed in Section 5.1.2 in Chapter Five of this thesis.

<sup>204</sup> *North Sea Continental Shelf Case (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands)* [1969] ICJ 3, 30.

<sup>205</sup> LOS Convention 1982, Article 82.

<sup>206</sup> *Ibid.*

beyond 200 NM from its baseline. As such, coastal States whose natural prolongation does not extend beyond 200 NM shall only be entitled to the continental shelf of up to 200 NM.

Islands are also land territories and would thus be entitled to claim an extended continental shelf if the test of appurtenance is passed. An island is defined under the Convention as a “naturally formed area of land, surrounded by water, which is above water at high tide”.<sup>207</sup> Article 121 (2) of the Convention also confirms that an island is also entitled to claim the continental shelf like any other land territory as long as the island is not a rock that “cannot sustain human habitation or economic life of their own”.<sup>208</sup> Since an island is to be treated similar to any other land territory for the purpose of claiming a continental shelf, it shall follow that it would also be entitled to claim an extended continental shelf. Hence, an island which passes the test of appurtenance may be eligible to claim an extended continental shelf under Article 76.<sup>209</sup>

Be that as it may, issues may arise as to whether an island is entitled to generate an extended continental shelf taking into consideration geological elements. Unlike most land territories which are geologically continental in nature, islands may be composed of oceanic rocks thereby making it oceanic in nature as opposed to continental. This shall be discussed in Chapter Five. Besides the geological elements, other issues may arise in respect of islands. For example, the issue of whether a feature is an island or a mere rock, and whether artificial islands can generate extended continental shelf areas.<sup>210</sup> This will be further discussed in the context of the East Asian region in Section 7.3 of Chapter Seven.

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<sup>207</sup> LOS Convention 1982, Article 121(1).

<sup>208</sup> Ibid, Article 121, paras 2 and 3.

<sup>209</sup> A lengthy discussion on islands and other insular features including their ability to generate continental shelf areas can be found in Chapter Seven.

<sup>210</sup> See, for example, JI Charney ‘Rocks that cannot sustain human habitation’ [1999] AJIL 863; HI Llanos, ‘Low-tide elevations: Reassessing their impact on maritime delimitation’ (2002) 14 Pace Intl L Rev 255; D Anderson, ‘Islands and rocks in the modern law of the sea’ in Myron H Nordquist, John Norton Moore, Alfred HA Soons, Hak-So Kim, (eds), *The Law of the Sea Convention: US Accession and Globalization* (Martinus Nijhoff Publishers 2012).

## **b) The legal-scientific interface**

The complexity of the extended continental shelf definition based on natural prolongation in Article 76 is due to the scientific elements that have been integrated into the concept of the continental shelf.<sup>211</sup> This includes geological and geophysical elements. Hence, it is important to have some understanding of these scientific concepts in order to fully understand the concept of the continental shelf in Article 76 and the uncertainties that follow its interpretation which will be referred to in the lengthy discussions that follow.

As discussed throughout this chapter, the principle of natural prolongation is the core criterion for establishing the extended continental shelf. It is important to note that in scientific terms, prolongation can be viewed from different aspects.

First of all, there is geomorphological prolongation. The geomorphological concept refers to that which is "based on the characteristics of the submarine landscape and near-surface geological formations found at the edge of the continents".<sup>212</sup> Hence, morphological prolongation is the term used to indicate that the seafloor shape is a continuation of the land mass morphology.<sup>213</sup> Therefore, if there is morphological continuity between a feature and the land mass, this denotes the absence of a break in slope that could sever its connection with the land mass.

Secondly, there is also the term geological prolongation. In contrast to the geomorphological concept, the geological concept refers to that which is based on the characteristics of the rocks of the seafloor. Therefore, geologic prolongation implies that the rocks beneath the sea floor are similar to, or related to, those of the land mass.<sup>214</sup> In that case, there exists geological continuity

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<sup>211</sup> Philip A Symonds and others, 'Characteristics of continental margins' in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 27-29.

<sup>212</sup> Steinar Thor Gudlaugsson, 'Natural Prolongation and the Concept of the Continental Margin' in Myron H Nordquist, John Norton Moore, Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 63-64.

<sup>213</sup> Ray Wood and others, 'Legal Continental Shelf' in Harsh K Gupta (ed), *Encyclopedia of Solid Earth Geophysics*, vol 2 (Springer 2011) 671.

<sup>214</sup> Ibid.

leading to the land mass.

Another relevant term is “tectonic history” which refers to the process of continent building or continental growth, for example, sediment deposition, igneous activity and accretion of rocks along the continental margin. Hence, if the seafloor is said to be the tectonic prolongation of a land mass, this refers to the rocks beneath the seafloor sharing the same history of process of continental growth with the land mass. Similarly, a disruption of tectonic history implies fragmentation of the continental land mass by the process of rifting and seafloor spreading.<sup>215</sup>

As may be recalled, Article 76 defines the extended continental shelf as the natural prolongation extending to the outer edge of the continental margin.<sup>216</sup> As discussed in Section 2.3.2 of Chapter Two, the Truman Proclamation laid down sovereign rights to the continental shelf at a depth of no more than 100 fathoms, referring to the geomorphic continental shelf since water depth indicates reference to a geomorphic definition. Similarly, the 1958 Convention also retained a geomorphic definition of the continental shelf, that is, by referring to it as the submerged land no more than 200 metres deep.<sup>217</sup> However, when the 1982 Convention came into force, the definition of the continental shelf was not limited to just the geomorphic definition as contained in the Truman Proclamation and the 1958 Convention (with regard to water depth), but also the whole of the natural prolongation of a coastal State’s land territory, also known as the continental margin. Hence, the concept of the continental shelf in the 1982 Convention is better understood as the continental margin.<sup>218</sup>

Among the geomorphological and geological terms made use by Article 76 are as follows:

First, paragraph 1 of Article 76 mentions the terms “natural prolongation” and “continental

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<sup>215</sup> Ibid.

<sup>216</sup> LOS Convention 1982, Article 76(1).

<sup>217</sup> Although this is so, it may be recalled that the Convention also introduced the exploitability criterion to the definition, apart from the definition based on water depth.

<sup>218</sup> Philip A Symonds and others, ‘Characteristics of continental margins’ in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 26.

margin”. Second, the scientific terms that can be found in paragraph 3 are “the shelf, the slope and the rise”, the “deep ocean floor”, and “oceanic ridges”. Paragraph 4 describes the “foot of the continental slope”, a scientific term, as the “maximum change in gradient” which also bears scientific meaning. Besides those, paragraph 4 also uses the expression “in the absence of evidence to the contrary” when defining the foot of the continental slope. Although not exactly scientific, it is in need of interpretation and involves scientific elements as will be seen later in Chapter Six. Apart from that, paragraph 6 makes use of terms describing different submarine features such as “submarine ridges”, “submarine elevations”, and “plateaus, rises, caps, banks, and spurs”.<sup>219</sup>

Since these terms are of utmost importance in establishing the outer limits of the continental shelf, the integration of these legal and scientific concepts shall be studied in the chapters that follow, in particular, Sections 5.2, 5.3 and 5.4 of Chapter Five and Sections 6.2, 6.3 and 6.4 of Chapter Six..

### **3.8 Concluding remarks**

This chapter has demonstrated the evolution of how the law relating to the continental shelf was codified. In particular, it seeks to establish the history of how the legal concept of the continental shelf came into being and made its way into the 1982 Convention.

It took altogether nine years for the drafters to eventually come up with the new definition of the continental shelf and the methods of establishing its outer limits. Whatever was left of the seabed beyond the continental shelf zone became the international sea bed area of which the common heritage of mankind applies. Article 76 defined the continental shelf in a manner that commands more precision from its predecessors. Although it reflected a juridical kind of continental shelf, it also employed scientific elements in the delineation of the outer limits. As a result of this integration between legal and scientific concepts, it is inevitable that coastal States were faced with problems of interpreting the terms. It is these difficulties that the later chapters shall seek to

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<sup>219</sup> Ibid 26-27.

resolve.

In light of conclusions, it is worth noting that the continental shelf as a concept was developed in part due to legal and political intervention, and another part due to the advancement of technology in the fields of geology, geomorphology and geophysics.

## **Chapter Four: Enforcement of Article 76**

### **4.1 Introduction**

Like any other treaties, the 1982 Convention is in need of a body to enforce its provisions. Since Article 76 is highly technical in nature, it would be incumbent that a technical body of experts be authorised to implement its enforcement. As presented in the previous chapter, the difficulty of applying the provisions of Article 76 is due to the integration of legal and scientific terms.

This chapter is not concerned with the way certain bodies are given the general role of enforcing the law of the sea including the extended continental shelf such as the Division of Ocean Affairs and the Law of the Sea (DOALOS), neither shall it be concerned with dispute settlement mechanisms provided by judicial bodies such as the International Tribunal for the Law of the Sea (ITLOS) or the International Court of Justice (ICJ). Instead, this chapter shall be limited to the enforcement of the provisions dealing with the extended continental shelf in Article 76 by a technical body specifically set up by the Convention in order to facilitate the implementation of those provisions. This body is the Commission on the Limits of the Continental Shelf (hereinafter “the Commission”).

Since the delineation of the extended continental shelf is a sovereign State’s prerogative, the term ‘enforcement’ of Article 76 by the Commission here is not to be understood in its strict sense. The term enforcement here is used merely to describe the role of the Commission in ensuring the limits so established do not infringe Article 76 since the Commission does not have the power to ‘enforce’ its recommendations.<sup>220</sup> In other words, the Commission ‘enforces’ Article 76 by monitoring that its provisions are adhered to when a sovereign State opts to establish its outer limits, for example, that the limits so established do not extend to the international seabed area. This ‘enforcement’ mechanism is carried out through the Commission’s power to make

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<sup>220</sup> Surya P Subedi, ‘Problems and Prospects for the Commission on the Limits of the Continental Shelf in Dealing with Submissions by Coastal States in Relation to the Ocean Territory Beyond 200 Nautical Miles’ (2011) 26 *International Journal of Marine and Coastal Law* 413, 424.

recommendations in respect of a State's submission. It also relates to the delineation becoming 'final and binding' once it is made in accordance with the recommendations. This will be discussed further in Section 4.5 of this Chapter.

This chapter shall provide some background information on the Commission in order to clarify the issues involved with the implementation of Article 76 through the Commission. It follows that the history of the Commission's establishment shall be discussed with a view to further analyse its functions and mandate. As will also be seen later in this chapter, in facilitating the enforcement and implementation of Article 76, the Commission assumes powers of law enforcement and law-making albeit a controversial one. In light of that, this chapter shall examine the methods in which the Commission enforces the provisions of Article 76. This shall be done through a thorough discussion of the Scientific and Technical Guidelines, and the recommendations of the Commission.

#### **4.2 The Commission on the Limits of the Continental Shelf**

As may be recalled, paragraph 8 of Article 76 requires a coastal State intending to delineate its extended continental shelf limits to make a submission to the Commission. It states as follows:

Information on the limits of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured shall be submitted by the coastal State to the Commission on the Limits of the Continental Shelf set up under Annex II on the basis of equitable geographical representation. The Commission shall make recommendations to coastal States on matters related to the establishment of the outer limits of their continental shelf. The limits of the shelf established by a coastal State on the basis of these recommendations shall be final and binding.

The points that can be deduced from this paragraph in relation to the Commission may be laid down as follows: First, the coastal State gives information on its extended continental shelf in the form of a submission to the Commission. Second, the Commission is to make recommendations in regard to the submission made by the coastal State. Third, the effect of the outer limits



established based on those recommendations is final and binding.<sup>221</sup>

On the surface, it would seem that while it is the coastal State's right to delineate its outer limits, the Commission's role is obviously a purely technical one that involves evaluating submissions made by coastal States.

The Commission's role in delineating the extended continental shelf in relation to a coastal State's inherent right to the continental shelf can be illustrated as follows. Although the right to an extended continental shelf of a coastal State exists *ipso facto* and *ab initio* by virtue of its sovereignty over its land territory, this right or entitlement has to be demonstrated by the State. Indeed, it was pointed out by Eiriksson that "article 77 paragraph 3 ... does not remove from the coastal State the burden of demonstrating its entitlement"<sup>222</sup> over the continental shelf.

The role of the Commission was seen as highly important since the establishment of the Commission was one of the factors which convinced States to accept the extended continental shelf as being subject to an individual State.<sup>223</sup> A scientific and technical body mandated to regulate and evaluate coastal States' application to claim areas over the wide continental margin had member States assured that the provisions of Article 76 would not jeopardize those rights in favour of developed States.<sup>224</sup>

In this regard, the *Bay of Bengal case* highlights the role of the Commission as the only body that

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<sup>221</sup> LOS Convention 1982, Article 76(8).

<sup>222</sup> Gudmundur Eiriksson, 'The case of disagreement between a coastal State and the Commission on the limits of the continental shelf', in Myron H Nordquist, John Norton Moore and Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limits* (Martinus Nijhoff Publishers 2004) 258. See also Bjørn Kunoy, 'The Admissibility of a Plea to an International Adjudicative Forum to Delimit the Outer Continental Shelf Prior to the Adoption of Final Recommendations by the Commission on the Limits of the Continental Shelf' (2010) 25 *International Journal of Marine and Coastal Law* 237, 241

<sup>223</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 2.

<sup>224</sup> *Ibid.*

has a role to play in the delineation of the extended continental shelf.<sup>225</sup> In that case, the issue was whether the Tribunal has jurisdiction to delimit the continental shelf beyond 200 NM. The Tribunal held that there is a need to distinguish between the role of the Tribunal under Article 83 of the Convention to delimit the continental shelf within and beyond 200 NM on one hand, and the role of the Commission to make recommendations in respect of the delineation of the outer limits of the continental shelf pursuant to Article 76 of the Convention on the other hand. Hence, in the delineation of the continental shelf beyond 200 NM, the Commission is the only body that has jurisdiction over the matter.<sup>226</sup> Thus, a coastal State must delineate its extended continental shelf on the basis of the Commission's recommendations after first submitting its data to the Commission.<sup>227</sup>

Since the delineation of the outer limits of the continental shelf is solely between the coastal State making a submission and the Commission without the involvement of any legislative or judicial body, the role of the Commission has been the subject of criticism where it has been criticized as assuming a legislative role.<sup>228</sup> The argument as it stands assumes that the role of the Commission relates solely to technical issues involving the delineation of the extended continental shelf. Its actions do not affect the sovereign prerogative to delimit continental shelf boundaries especially in an area of the continental shelf which has to be delimited between States, a right exclusively belonging to a sovereign State. This is emphasized in Article 9 of Annex II of the Convention which states as follows:

The actions of the Commission shall not prejudice matters relating to delimitation of boundaries between States with opposite or adjacent coasts.

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<sup>225</sup> *Delimitation of the maritime boundary between Bangladesh and Myanmar in the Bay of Bengal* (2012) 16 ITLOS.

<sup>226</sup> *Ibid* paras 374-379.

<sup>227</sup> Bjørn Kunoy, 'The Admissibility of a Plea to an International Adjudicative Forum to Delimit the Outer Continental Shelf Prior to the Adoption of Final Recommendations by the Commission on the Limits of the Continental Shelf' (2010) 25 *International Journal of Marine and Coastal Law* 237, 241

<sup>228</sup> See, for example, Anna Cavnar, 'Accountability and the Commission on the Limits of the Continental Shelf: Deciding Who Owns the Ocean Floor' IILJ Emerging Scholars Paper 15 (2009) 13 <<http://www.iilj.org/publications/documents/CavnarESP15-09.pdf>> accessed 2 July 2011, 21-26.

This is reiterated in Rule 46 of the Commission’s Rules of Procedure, which states as follows:

The actions of the Commission shall not prejudice matters relating to the delimitation of boundaries between States.<sup>229</sup>

Besides clarifying that the Commission’s role does not involve delimitation of continental shelf boundaries between States, the Commission also considered the possible implications which may arise in conjunction with the establishment of the outer limits.<sup>230</sup> To that, the Commission implied that it does not have competence to deal with such matters. Indeed, it is clearly stated that:

The Commission recognizes that the competence with respect to matters regarding disputes which may arise in connection with the establishment of the outer limits of the continental shelf rests with States.<sup>231</sup>

With regard to the status of the Commission under international law, it has been pointed out that the Commission is not an international organization since its members are not composed of States. Instead, the Commission is made up of technical experts that have been chosen by States parties to the Convention.<sup>232</sup> In light of that, it has been suggested that the best classification of the Commission under international law is that of a “treaty organ” or a “treaty body”.<sup>233</sup> The purpose of a treaty organ is to “establish substantive rules regulating conduct within a specialized

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<sup>229</sup> Commission on the Limits of the Continental Shelf, ‘Rules of Procedure of the Commission on the Limits of the Continental Shelf’, CLCS/40/Rev.1 (United Nations, 17 April 2008).

<sup>230</sup> See Commission on the Limits of the Continental Shelf, ‘Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the progress of work in the Commission – Third session’ CLCS/7 (United Nations, 15 May 1998) para 5.

<sup>231</sup> Commission on the Limits of the Continental Shelf, ‘Rules of Procedure of the Commission on the Limits of the Continental Shelf’, CLCS/40/Rev.1 (United Nations, 17 April 2008) Annex 1, s 1.

<sup>232</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 80. See also Bjørn Kunoy, ‘The Admissibility of a Plea to an International Adjudicative Forum to Delimit the Outer Continental Shelf Prior to the Adoption of Final Recommendations by the Commission on the Limits of the Continental Shelf’ (2010) 25 *International Journal of Marine and Coastal Law* 237, 241.

<sup>233</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 81

area”. However, it is not “fully a part of the United Nations system”.<sup>234</sup> This opinion is based on a letter from the United Nations Legal Affairs concerning the members of the Commission for purposes of determining their privileges and immunities. In that letter, the United Nations Legal Counsel had considered the Commission as a “treaty organ” of the Organisation.<sup>235</sup> Besides a treaty organ, the Commission has also been categorized as an implementation committee.<sup>236</sup> Examples of implementation committees are the Montreal Protocol on Substances that Deplete the Ozone Layer of 1987 and the Framework Convention on Climate Change.<sup>237</sup> These implementation committees are similar to the Commission in that they were established by States to facilitate in implementing their obligations under a treaty although in terms of form, composition and structure they vary from that of the Commission.<sup>238</sup>

Another view with regard to the status of the Commission under international law is that the Commission is a scientific and technical advisory body. Another example of this type of body is the Air Navigation Commission of the International Civil Aviation Organisation whose function is to develop technical standards in aviation.<sup>239</sup> It appears that this type of classification best describes the Commission since members of technical advisory bodies are elected on their own merits and not as representatives of State governments.<sup>240</sup> However, in terms of establishment, the Commission is established by the Convention which is a multilateral treaty instead of by the United Nations organs or specialised agencies that commonly establish technical advisory

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<sup>234</sup> Ibid 81-82.

<sup>235</sup> Commission on the Limits of the Continental Shelf, ‘Letter dated 11 March 1998 from the Legal Counsel, Under-Secretary-General of the United Nations for Legal Affairs addressed to the Chairman of the Commission on the Limits of the Continental Shelf’ CLCS/5 (United Nations, 11 March 1998) para 2.

<sup>236</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 82.

<sup>237</sup> Ibid; Rüdiger Wolfrum, ‘Means of ensuring compliance with and enforcement of international environmental law’, *Recueil des Cours* vol 272 (Académie de Droit International de la Haye 1998) 118 – 122.

<sup>238</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 82.

<sup>239</sup> Ibid 83.

<sup>240</sup> Ibid.

bodies.

In terms of the functions of the Commission, the following may provide some insight. In the past there had been a number of boundary commissions to aid in the delineation of land boundaries, for example, the French-Siamese Mixed Commission that was tasked to settle the boundary dispute between Cambodia and Thailand in the *Case concerning the Temple of Preah Vihear*.<sup>241</sup> Another example would be the Mixed Boundary Commission set up to determine the sovereignty over disputed plots of land in the *Case concerning Sovereignty over Certain Frontier Land* between Belgium and the Netherlands.<sup>242</sup> These commissions were technical boundary commissions established to aid in boundary-making. However, it is noted that the Commission on the Limits of the Continental Shelf is different from these technical boundary commissions. Again, this is due to the fact that the Commission was set up by a multilateral convention as opposed to bilateral treaties such as the boundary commissions in the cases mentioned above.

The Commission is one of the three bodies established by the Convention apart from the International Seabed Authority and ITLOS.<sup>243</sup> The particular provision which had set up the Commission is Annex II of the Convention. The first part of Article 1 of Annex II reads “[i]n accordance with the provisions of Article 76, a Commission on the Limits of the Continental Shelf beyond 200 nautical miles shall be established”.

The purpose of the Commission is to facilitate the implementation of the Convention in respect of defining the outer limits of the continental shelf beyond 200 NM. As may be recalled from the previous chapters, a coastal State shall establish the outer limits of its continental shelf where its natural prolongation extends beyond 200 NM on the basis of the Commission’s recommendations.<sup>244</sup> The Commission shall make recommendations to the coastal State

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<sup>241</sup> [1962] ICJ 6.

<sup>242</sup> [1959] ICJ 209, 214.

<sup>243</sup> LOS Convention 1982, Article 156 and Article 1 of Annex VI.

<sup>244</sup> LOS Convention 1982, Article 76(8).

concerned on matters related to the establishment of those limits.<sup>245</sup>

As to the Commission's functions, Article 3 of Annex II states as follows:

The functions of the Commission shall be:

- (a) to consider the data and other material submitted by coastal States concerning the outer limits of the continental shelf in areas where those limits extend beyond 200 nautical miles, and to make recommendations in accordance with article 76 and the Statement of Understanding adopted on 29 August 1980 by the Third United Nations Conference on the Law of the Sea;
- (b) to provide scientific and technical advice, if ~~requested~~ by the coastal State concerned during the preparation of the data referred to in subparagraph (a).

In performing its role, two instruments have been used by the Commission to express its interpretation of Article 76. These are the Scientific and Technical Guidelines (hereinafter "the Guidelines") and the recommendations of the Commission.<sup>246</sup> These instruments form the practice of the Commission with regard to the interpretation of Article 76. As such, both instruments shall be discussed in order to give a better picture of how the practice of the Commission has affected the development in the law relating to the extended continental shelf in the later chapters in this thesis.

It would then follow that the main issue that needs to be clarified is whether the Commission is working within its mandate in enforcing the implementation of Article 76. This shall be seen in light of submissions made by States which will be discussed in detail in Chapters Five and Six of this thesis. In view of that, other considerations, such as the powers of the Commission, need to be discussed beforehand. The issue shall be addressed by first examining the negotiating history of the Commission's establishment. Thereafter, an analysis shall be made with regard to the Scientific and Technical Guidelines as an instrument used by the Commission to interpret Article

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<sup>245</sup> Ibid.

<sup>246</sup> Commission on the Limits of the Continental Shelf, 'Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf', CLCS/11 (United Nations, 13 May 1999); LOS Convention 1982, Article 76(8).

76. The legal effect of the Guidelines shall also be examined with a view of determining its effect on the interpretation of Article 76. The same shall be done with the recommendations of the Commission.

### **4.3 Negotiating history for the establishment of the Commission**

Negotiations for the establishment of the Commission can be traced back to the third session of the Third Conference in 1975. During the session, the first mention of the Commission can be found in a written proposal by the United States which required that submissions by coastal States be submitted to a Continental Shelf Boundary Commission.<sup>247</sup> It states as follows:

Every delineation pursuant to this Article shall be submitted to the Continental Shelf Boundary Commission for review in accordance with Annex ... Acceptance by the Commission of a delineation so submitted, or the final decision of the Commission in accordance with Annex ... and the seaward boundary so fixed, shall be final and binding.<sup>248</sup>

Although there was no mention of the recommendations, it is clear that even at this early stage, the power of the Commission was to have a significant effect.

A similar proposal was also submitted by the Evensen Group.<sup>249</sup> Article 5 of the proposal suggested for a Continental Shelf Boundary Commission whose function is to review delineations.<sup>250</sup> It also provides for the final and binding effect of such delineation.<sup>251</sup> There was, however, a footnote attached to that provision which describes the Commission as an

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<sup>247</sup> Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 500.

<sup>248</sup> Proposal by the United States (1975), Article 5 in *ibid*.

<sup>249</sup> The Evensen Group is also known as the Informal Group of Juridical Experts and comprised of delegates from 40 nations from all regions. The group was chaired by Minister Jens Evensen from Norway, hence it being known as the "Evensen Group".

<sup>250</sup> Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 469.

<sup>251</sup> *Ibid*.

independent organ and that "its composition would ensure that it disposes of the necessary technical and scientific expertise".<sup>252</sup> Nevertheless, the scope of powers of the Commission was not yet determined.

The next session of the Conference in 1976 saw other States also proposing for a Commission. However, it was the proposal by Canada that included detailed elements of the Commission.<sup>253</sup> The proposal contained nine articles. Among them were provisions on: the number of experts constituting the Commission; the expertise of the members being geology, hydrography and geophysics; the functions of the Commission, that is, to certify submissions on the outer limits and to advise States upon request; the procedure of evaluating submissions; and that the Commission's decision is final and binding.<sup>254</sup> This indicates that the Commission was founded primarily in order to certify submissions made by coastal States since the submissions are highly technical in nature. This is also the reason why the Commission consists of experts in the fields relevant to the delineation of the continental shelf limits. Although the term "recommendations" of the Commission was not yet adopted at that stage, the certification referred to in the proposal clearly sought to give mandate to the Commission to determine the technical correctness of delineations according to submissions made by coastal States.

It was during the eighth session that the Conference discussed the proposal which had sought to establish the Commission. This was done by Negotiating Group 6. Negotiations revolved around the extent of power to be given to the Commission.<sup>255</sup> Some States were agreeable to the Commission having decision-making powers while others preferred the term "recommendations" to be used indicating the Commission's power is limited to giving recommendations as opposed

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<sup>252</sup> Ibid.

<sup>253</sup> Proposal by Canada on the Continental Shelf Boundary Commission (1976) Article 62 ISNT/II in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 4 (Oceana Publications 1982) 321-322.

<sup>254</sup> Ibid.

<sup>255</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 77.



to making decisions.<sup>256</sup> Besides that, the Conference also discussed the effect of such recommendations. To that end, the Russian Federation proposed that the recommendations be "final and unalterable".<sup>257</sup>

The following sessions showed less discussion on the Commission. The only proposal made was one by Germany at the resumed ninth session proposing for the term "decision" instead of "recommendation" giving a stronger mandate to the Commission.<sup>258</sup> Nevertheless, it was not carried into the final text of Article 76 and the term "recommendation" remained.<sup>259</sup>

The history of the establishment of the Commission demonstrates that coastal States were generally in agreement that a Commission should be established. It was also generally agreed that certain powers be given to the Commission to decide on submissions made by States even though the role of the Commission was not thoroughly discussed. The discussions also reveal that delegates were under the impression that Article 76 could not be implemented without the technical expertise of the Commission.<sup>260</sup> In light of this, coastal States must have realised the importance of establishing the Commission since the subject of the extended continental shelf was highly scientific and technical.

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<sup>256</sup> Ibid.

<sup>257</sup> Informal proposal by USSR (1979) para 5 in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 9 (Oceana Publications 1982) 378.

<sup>258</sup> Federal Republic of Germany (1980) Article 76(8) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 4 (Oceana Publications 1982) 527.

<sup>259</sup> Ibid.

<sup>260</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 132.

#### 4.4 The Scientific and Technical Guidelines

As may be recalled, the Commission is endowed with the task of enforcing Article 76. To that end, one way of implementing that enforcement is through the formulation of some guidelines designed to facilitate coastal States in making submissions. These guidelines produced by the Commission are called the Scientific and Technical Guidelines (hereinafter “the Guidelines”).<sup>261</sup>

The Guidelines is the third basic document of the Commission, the first and second being the Rules of Procedure and the *modus operandi*.<sup>262</sup> It contains a set of rules containing the scientific and technical aspects of making submissions in respect of the outer limits of the continental shelf. Being the only document of its kind, the Guidelines became the primary source of the technical requirements required by the Commission in coastal States’ submissions.<sup>263</sup> It is also regarded as “the first authoritative and detailed scientific and technical interpretation of Article 76”.<sup>264</sup>

The Guidelines, being rules adopted by the Commission in order to explain the technical requirements of establishing the outer limits, has become a medium in which the Commission interprets the uncertain provisions of Article 76.

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<sup>261</sup> Commission on the Limits of the Continental Shelf, ‘Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf’, CLCS/11 (United Nations, 13 May 1999).

<sup>262</sup> United Nations, ‘Scientific and Technical Guidelines’ *United Nations Division for Ocean Affairs and the Law of the Sea* < [http://www.un.org/Depts/los/clcs\\_new/commission\\_guidelines.htm](http://www.un.org/Depts/los/clcs_new/commission_guidelines.htm) > accessed 15 July 2011.

<sup>263</sup> Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits: The Scientific and Legal Interface* (Oxford University Press 2000) 6.

<sup>264</sup> Peter F Croker, ‘The Commission on the Limits of the Continental Shelf’ in Myron H Nordquist, John Norton Moore, Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 216.

Work in preparing the Guidelines began in September 1997. After the technical working groups set up by the Commission had deliberated on them, the Guidelines were finally adopted by the Commission by way of consensus on 13 May 1999.<sup>265</sup>

It might appear that the Guidelines are similar to other instruments bearing the name “guidelines”. However, a deeper analysis may reveal otherwise. A comparison may be made between the Guidelines and the UNEP Guidelines of 1982.<sup>266</sup> The UNEP Guidelines was also produced as a result of a study by a group of experts. It lays down basic standards to ensure the protection of environmental considerations.<sup>267</sup>

Nevertheless, it is observed that the UNEP Guidelines is different from the Guidelines of the Commission. The former imposes no commitment on States. As such, it is an example of a non-binding soft law instrument. The small number of governments that have made use of the UNEP Guidelines as shown in progress reports indicates that States do not feel they have to comply with the Guidelines.<sup>268</sup> In light of that, it is observed that the UNEP Guidelines are merely recommendatory. There is no implication for non-compliance of the Guidelines. In contrast, the Guidelines of the Commission is not merely recommendatory in nature. Although not legally binding and therefore without legal implication for non-compliance, the Guidelines, being the expression of the Commission’s view and an interpretive tool for Article 76 has a high influence on States making submissions. In that sense, submissions made not based on the interpretations

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<sup>265</sup> Alexei A Zinchenko, ‘Emerging Issues in the Work of the Commission on the Limits of the Continental Shelf’ in Myron H Nordquist, John Norton Moore, Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 225-226.

<sup>266</sup> The United Nations Environment Programme Guidelines Concerning the Environment Related to Offshore Mining and Drilling Within the Limits of National Jurisdiction (Nairobi, 31 May 1982).

<sup>267</sup> AE Boyle and others, ‘Marine environment and marine pollution’ in Peter H Sand (ed), *The Effectiveness of International Environmental Agreements: A Survey of Existing Legal Instruments* (Cambridge University press 1992) 165-166.

<sup>268</sup> See the progress reports in the United Nations Environment Programme, UNEP/GC.13/9/Add.1 (United Nations, 3 December 1984) paras 34-35, and the United Nations Environment Programme, UNEP/GC.14/25 (United Nations, 20 May 1987) paras 24-30.

laid down in the Guidelines have a high possibility of being rejected by the Commission as will be seen later in Chapters Five and Six.<sup>269</sup>

### **The change in time limit**

The importance of the Guidelines can be seen from the reason for its creation as well as the change in the deadline for making submissions. Before the Guidelines was formulated and issued by the Commission, many States lacked the detailed know-how in preparing their submissions due to the complexity of the technical issues involved.<sup>270</sup> It was only after the adoption of the Guidelines that States had a clearer idea of how to prepare submissions.<sup>271</sup>

The change in the time limit for making submissions highlights coastal States' dependence upon the Guidelines. The original time limit for States to make submissions of their claim over the continental shelf was 10 years from the date of entry into force of the Convention. This is stated in Article 4 of Annex II of the Convention which reads as follows:

[A] coastal State intending to establish the outer limits to its continental shelf beyond 200 nautical miles is obligated to submit particulars of such limits to the Commission on the Limits of the Continental Shelf along with supporting scientific and technical data as soon as possible but in any case within 10 years of the entry into force of the Convention for that State.

Owing to a number of factors particularly the complexity of the issues related to such submissions, many countries were not able to make their submissions within the 10 year time frame as stipulated in the Convention. At the tenth Meeting of States Parties, several States

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<sup>269</sup> For example, the Barbados submission in locating the foot of the continental slope by evidence to the contrary in situations where it is possible to locate it as the maximum change in gradient at its base. Commission on the Limits of the Continental Shelf, 'Summary of Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by Barbados on 8 May 2008' (United Nations, 15 April 2010) para 14. This will be discussed further in Section 6.3 of Chapter Six.

<sup>270</sup> "States had had a clear idea of how to prepare their submissions only after the Commission had adopted its Scientific and Technical Guidelines on 13 May 1999" – Meeting of States Parties, 'Report of the eleventh Meeting' SPLOS/73 (United Nations, New York, May 2001) para 71.

<sup>271</sup> Ibid.

particularly developing States raised concerns over the difficulties in complying with the 10-year time frame established by Article 4 of Annex II.<sup>272</sup> Due to this, it was decided that “Issues with respect to Article 4 of Annex II to the United Nations Convention on the Law of the Sea” be part of the agenda in the forthcoming eleventh Meeting of States Parties.

During the eleventh Meeting in May 2001, a proposal had been submitted by States members of the Pacific Island Forum for the new time limit.<sup>273</sup> The new time limit was to run from the date of adoption of the Guidelines, 13 May 1999, due to the difficulties in complying with the time limit set out under Article 4 of Annex II of the Convention.<sup>274</sup> This proposal received overwhelming support from other States and was later adopted by the meeting.<sup>275</sup> Hence, the Meeting of States Parties (SPLOS/73) decided that: “in the case of a State Party for which the Convention entered into force before 13 May 1999, the 10-year period was taken to have commenced on 13 May 1999” but that “should make every effort to make their submission to the Commission as soon as possible.”<sup>276</sup> It was decided later, during the eighteenth meeting on 20 June 2008, that the new time limit “may be satisfied by submitting to the Secretary-General preliminary information indicative of the outer limits of the continental shelf” and “a description of the status of preparation and intended date of making a submission”.<sup>277</sup>

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<sup>272</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 89.

<sup>273</sup> Meeting of States Parties, ‘Report of the eleventh Meeting’ SPLOS/73 (United Nations, New York, May 2001) para 70; The Pacific Island Forum consists of the following States: Australia, Fiji, Marshall Islands, Micronesia (Federated States of), Nauru, New Zealand, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu.

<sup>274</sup> Meeting of States Parties, ‘Report of the eleventh Meeting’ SPLOS/73 (United Nations, New York, May 2001) para 70.

<sup>275</sup> Ibid paras 71-76. The rule was adopted in the Rules of Procedure of the Commission on the Limits of the Continental Shelf, CLCS/40/Rev.1 (United Nations, 17 April 2008) Rule 45.

<sup>276</sup> Meeting of States Parties, ‘Report of the eleventh Meeting’ SPLOS/73 (United Nations, New York, May 2001) para 101.

<sup>277</sup> Meeting of States Parties, ‘Decision regarding the workload of the Commission on the Limits of the Continental Shelf and the ability of States, particularly developing States, to fulfill the requirements of article 4 of annex II to the United Nations Convention on the Law of the Sea, as well as the decision contained in SPLOS/72, paragraph (a)’, SPLOS/183 (United Nations, New York, June 2008) para 1.

The importance of the Guidelines can also be seen in light of the problems encountered with regard to Article 76. The complexity of the technical issues involved in preparing submissions is further amplified by the interpretation problems posed by Article 76. As discussed in Section 3.7.3 in Chapter Three, Article 76 makes use of scientific words in a legal context which at times depart significantly from the accepted scientific terminology.<sup>278</sup>

In light of these circumstances, the Guidelines was eventually formulated and had sought to clarify Article 76. This intention is reflected in the Guidelines where it is stated that the Commission aimed to clarify, with these Guidelines, its interpretation of scientific, technical and legal terms contained in the Convention.<sup>279</sup>

In this regard, it is noted that the Guidelines is of highly scientific nature. It deals with geodetic and other methodologies stipulated in Article 76 of the Convention for the establishment of the outer limits of the continental shelf, using criteria such as determination of the foot of the slope of the continental margin, sediment thickness, and structure of submarine ridges and other underwater elevations.

#### **4.4.1 Drafting history of the Guidelines**

With regard to the formulation and the issuance of the Guidelines, preliminary work on the Guidelines was carried out at the second session of the Commission in 1997.<sup>280</sup> The Commission adopted its rules of procedure and considered the study prepared by the Secretariat of DOALOS on the “functions and scientific and technical needs of the Commission in assessing the

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<sup>278</sup> Nuno Marques Antunes and Fernando Maia Pimentel ‘Reflecting on the Legal-Technical Interface of Article 76 of the LOSC: Tentative Thoughts on Practical Implementation’ (ABLOS Conference, Monaco, October 2003) 1-3 <<http://www.gmat.unsw.edu.au/ablos/ABLOS03Folder/PAPER3-1.PDF>> accessed 16 December 2008.

<sup>279</sup> Commission on the Limits of the Continental Shelf, ‘Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf’, CLCS/11 (United Nations, 13 May 1999) para 1.3.

<sup>280</sup> Commission on the Limits of the Continental Shelf, ‘Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the Progress of Work in the Commission - Second session’ CLCS/4 (United Nations, 17 September 1997).

submission of a coastal state”.<sup>281</sup> The Commission decided that two documents should emanate from this study, namely the *modus operandi* of the Commission as well as “the technical guidelines”.<sup>282</sup>

At the third session in 1998, the Commission established an Editorial Working Group on the Guidelines.<sup>283</sup> The first draft of the Guidelines was completed before the end of the session.<sup>284</sup> At its fourth session in the same year, the Commission resumed its work on the Guidelines and decided to adopt it provisionally (CLCS/L.6).<sup>285</sup> It was also agreed that pending formal adoption at the fifth session, the Guidelines could be provisionally applied.<sup>286</sup>

Finally at its fifth session in 1999, the Commission adopted the final text of the Guidelines on a provisional basis, and the text was published as document CLCS/11.<sup>287</sup> At the sixth session in the same year, the Guidelines were eventually finalized after an extensive discussion throughout the session.<sup>288</sup>

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<sup>281</sup> Meeting of States Parties, ‘Commission on the Limits of the Continental Shelf: Its functions and scientific and technical needs in assessing the submission of a coastal State (Study prepared by the Secretariat)’ SPLOS/CLCS/INF/1(United Nations, 10 June 1996).

<sup>282</sup> Commission on the Limits of the Continental Shelf, ‘Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the Progress of Work in the Commission - Second session’ CLCS/4 (United Nations, 17 September 1997) paras14 - 16.

<sup>283</sup> Commission on the Limits of the Continental Shelf, ‘Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the progress of work in the Commission – Third session’ CLCS/7 (United Nations, 15 May 1998).

<sup>284</sup> Ibid.

<sup>285</sup> Commission on the Limits of the Continental Shelf, ‘Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the Progress of Work in the Commission - Fourth session’ CLCS/9 (United Nations, 11 September 1998).

<sup>286</sup> Ibid.

<sup>287</sup> Commission on the Limits of the Continental Shelf, ‘Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the Progress of Work in the Commission - Fifth session’ CLCS/12 (United Nations, 18 May 1999).

<sup>288</sup> Commission on the Limits of the Continental Shelf, ‘Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the Progress of Work in the Commission - Sixth session’ CLCS/18 (United Nations, 3 September 1999).

On 1 May 2000, an open meeting of the Commission was held in New York. The purpose of the meeting was to conduct a series of presentations in order to provide an explanation on the Guidelines and the work of the Commission. The audience consisted of scientific, technical and legal experts as well as government officials.<sup>289</sup>

Based on the history of its creation, it appears that the Guidelines was formulated and eventually issued on the initiative of the Commission as opposed to being sanctioned by the Convention. On top of that, nothing in the negotiating history of its establishment suggests that the Commission is given the mandate to interpret Article 76 in the form of the Guidelines. Hence, the Guidelines was created as an initiative of the Commission in clarifying the vagueness of Article 76.

Nevertheless, the fact that the Guidelines was not specifically sanctioned by the Convention does not in any way reduce its significance in the enforcement of Article 76. It should be noted that the Guidelines serves as a primary reference in assisting the Commission as well as the submitting coastal States in interpreting Article 76 of the Convention. This is proven in the practices of States in the form of submissions as well as the practice of the Commission in the form of its recommendations which will be shown later in Chapters Five and Six of this thesis. It follows that the Guidelines has a substantial effect on the interpretation of Article 76. Thus, it would be worthwhile to discuss the effect that the Guidelines has on the application of Article 76.

#### **4.4.2 The effect of the Guidelines**

The fact that an instrument comes in the form of guidelines or recommendations do not necessarily mean they do not possess a legally binding force. The case of *IJssel-Vliet Combinatie BV v Ministry of Economic Affairs*<sup>290</sup> demonstrates an instance where guidelines were held to be legally binding. However, it was argued that the Court's decision in that case is not easily

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<sup>289</sup> Peter F Croker, 'The Commission on the Limits of the Continental Shelf' in Myron H Nordquist, John Norton Moore, Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 216.

<sup>290</sup> *IJssel-Vliet Combinatie BV v Ministry of Economic Affairs* [1996] ECR-I 5026.



generalisable. That case concerned a State's aid for the construction of a fishing vessel and the issue was whether the guidelines in that case had a binding effect. The Court, answering in the affirmative reasoned its decision by stating that the guidelines were a result of the agreement between member States. Hence, even though it came in the form of guidelines and would thus resemble typical guidelines created by an international organ, the guidelines in issue were held to be analogous to a treaty and would derive its legally binding force from the agreement.<sup>291</sup> This treaty-analogy approach can be traced back to the days when it was applied by the Permanent Court of Justice in its advisory opinion in the *Railway Traffic*<sup>292</sup> case between Poland and Lithuania in 1931. In that case, it was held that since both States had participated in the adoption of a resolution by the League Council of Nations, it must be held to be legally binding.<sup>293</sup>

In both the abovementioned cases, the treaty-analogy approach was apparently applied by the Courts for the reason that the guidelines and resolution in those cases had directly emanated from the States. In other words, it is the direct consent of the States involved that had triggered the Courts to apply that approach. With regard to the Scientific and Technical Guidelines, however, it is argued that the Guidelines emanated from the Commission. As discussed earlier, the Guidelines are the mere initiative of the Commission and not the result of any consensual agreement between States. Therefore, it is difficult to see the treaty-analogy being applied to the Guidelines as has been applied to the cases mentioned above. In light of this, it can be concluded that, in principle, the Guidelines are mere guidelines and are not binding upon States making a submission.

Be that as it may, since the Guidelines were created to facilitate the enforcement of Article 76, regard must be had to the effect of the Guidelines in practice. This is so since although it can be concluded that the Guidelines does not have any legally binding effect on a coastal State making

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<sup>291</sup> Ibid; Jan Klabbbers, *An Introduction to International Institutional Law* (Cambridge University Press 2002) 204.

<sup>292</sup> *Railway Traffic between Lithuania and Poland, Advisory Opinion* [1931] PCIJ (ser A/B, No 42 (Oct 15)); Jan Klabbbers, *An Introduction to International Institutional Law* (Cambridge University Press 2002) 203.

<sup>293</sup> Ibid.

a submission, it is noted that other considerations apply in determining the significance of the Guidelines.

Although not legally binding, the Guidelines is an instrument of utmost importance in issues relating to the continental shelf and form the practice of the Commission in this sense. Being an instrument of non-binding effect, it could be said that the Guidelines possesses the characteristics of a soft law instrument.

Soft law is the term used to refer to non-legally binding laws. In the context of the law-making process, soft law can be contrasted with hard law which creates legally binding obligations such as those found in treaties. Soft law, which is particularly used in contemporary international law by States and international organizations, comes in the form of instruments such as declarations, resolutions and guidelines. These instruments are adopted by States in international conferences, the United Nations, or other international organizations. Be that as it may, the names given to the instruments do not necessarily decide whether they are soft law or hard law. Rather, it is the substance and intent of those instruments that matter.<sup>294</sup>

Although soft law is not legally binding, it is not necessarily without any legal effect. The fact that soft law instruments are often very carefully negotiated and drafted indicates that they are intended to have some normative value. While this is so, the normative value attached to each soft law instrument may vary.<sup>295</sup>

In the context of customary international law, it has been observed that soft law instruments may have a legal effect depending on the effect it has on State practice. In this regard, a soft law instrument is considered to have legal effect when it has an influence on State practice or if it can provide evidence of *opinio juris*.<sup>296</sup> Thus, it is the evidence of State practice that determines

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<sup>294</sup> Malcolm D Evans, *International Law* (2<sup>nd</sup> edn, Oxford University Press 2006) 180-183.

<sup>295</sup> Boyle, *Reflections on Treaties and Soft Law*, [1999] 48 *International and Comparative Law Quarterly* 901, p. 902.

<sup>296</sup> *Ibid.*, p. 904.

whether a soft law instrument is of any legal effect to customary international law rather than the question of whether it is binding or not.

With regard to the Guidelines, it shall be observed throughout Sections 5.4.1 and Sections 6.4.1 of this thesis that the Guidelines has a considerable impact on the practice of States. The highly scientific and technical nature of the Guidelines places it as the most relied upon source in making a submission.

Since there is a direct relationship between the Guidelines and the practice of States with regard to making submissions on the extended continental shelf, it is pertinent to address the issue of whether the Guidelines would have an effect on State practice.

The two entities having direct influence on the significance of the Guidelines are obviously the coastal States and the Commission itself. Therefore, an analysis of the effect of the Guidelines in practice shall be done from the point of view of submitting coastal States and the point of view of the Commission.

With regard to coastal States, the practice of States as reflected in their submissions can be referred to in analysing the extent the Guidelines have influenced those submissions. The practice of coastal States in respect of the application of the Guidelines is discussed in detail in Chapters Five and Six of this thesis.

For the purpose of this chapter, however, it is observed that States generally follow the Guidelines. For a start, executive summaries of submissions made by States expressly mention at the beginning that the submissions are made in accordance with the Guidelines.<sup>297</sup> It is observed that the effect of the Guidelines in State practice is substantial. This is so since the Guidelines has highly influenced submitting States in making their submission.

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<sup>297</sup> See, for example, the executive summaries of Iceland and Mauritius and Seychelles, to name a few. Iceland, 'The Icelandic Continental Shelf: Partial Submission to the Commission on the Limits of the Continental Shelf pursuant to article 76, paragraph 8 of the United Nations Convention on the Law of the Sea in respect of the Ægir Basin area and Reykjanes Ridge: Executive Summary' (29 April 2009) 5; Mauritius and Seychelles, 'Joint Submission to the Commission on the Limits of the Continental Shelf concerning the Mascarene Plateau: Executive Summary (Revised)' (12 March 2010) 6.

As for the effect of the Guidelines from the point of view of the Commission, regard must be had to the recommendations of the Commission. The recommendations of the Commission as will be seen later in this chapter is where the Commission expresses its approval or disapproval of the application of Article 76 by the submitting State. Since submissions made by States are confidential and only the Commission's recommendations are made public, most of the analysis shall be made based on the latter.<sup>298</sup>

In relation to the practical effect of the Guidelines, examples can be found in the recommendations. The Indonesian submission, for example, stated as follows:

...the Commission concludes that, in the North West Sumatra Region, the FOS points presented *fulfil the requirements of article 76 and Chapter 5 of the Guidelines*. The Commission recommends that these FOS points should form the basis for the establishment of the outer edge of the continental margin in the area North West of Sumatra.<sup>299</sup>

From this excerpt it is understood that the Commission had accepted the foot of slope points presented in the Indonesian submission based on its fulfilment of the requirements stated in Article 76 and the Guidelines. Similarly, in the summary of recommendations to the joint submission by Mauritius and Seychelles, the Commission mentioned that the foot of continental slope points “fulfil the requirements of article 76 of the Convention and Chapter 5 of the Guidelines”.<sup>300</sup> Be that as it may, this cannot be held to mean that the submission would have been rejected had it not fulfilled the said requirements. However, as will be seen in Chapter Six of this thesis, the Barbados submission had identified foot of continental slope points not based

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<sup>298</sup> Commission on the Limits of the Continental Shelf, ‘Rules of Procedure of the Commission on the Limits of the Continental Shelf’, CLCS/40/Rev.1 (United Nations, 17 April 2008) Annex II, Article 2.

<sup>299</sup> (Emphasis added). “FOS” stands for “foot of the continental slope”. Commission on the Limits of the Continental Shelf, ‘Summary of Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by Indonesia in respect of the area North West of Sumatra on 16 June 2008’ (United Nations, 28 March 2011) para 39.

<sup>300</sup> Commission on the Limits of the Continental Shelf, ‘Summary of Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Joint Submission made concerning the Mascarene Plateau region on 1 December 2008’ (United Nations, 30 March 2011) 14.

on the requirements laid down in the Guidelines. To that, the Commission expressed that it did not agree with the points so established.<sup>301</sup> Although this is indicative of the highly influential character of the Guidelines, another factor must be considered namely the effect of the recommendations of the Commission. It would then follow that the effect of the recommendations is also substantial in that only outer limits established in accordance with the recommendations shall be final and binding.<sup>302</sup> This shall be discussed next.

#### **4.5 The recommendations of the Commission**

As may be recalled, there is another instrument which is of utmost importance in claims to the extended continental shelf, that is, the recommendations of the Commission (hereinafter “the recommendations”). The recommendations are the result of the Commission carrying out its mandate stated in paragraph 8 of Article 76. Therefore, unlike in the case of the Guidelines, there is no question as to whether the Commission has the power to issue the recommendations. While the Guidelines are the Commission’s understanding as to how Article 76 should be applied, the recommendations reflect the Commission’s application of Article 76 based on actual cases. As such, they also serve as a form of the Commission’s practice through which the Commission expresses its interpretation of Article 76.

The recommendations are issued pursuant to paragraph 8 of Article 76 whereby the Commission shall produce its recommendations based on the submission made by a coastal State.<sup>303</sup> To date, there has been eighteen recommendations adopted by the Commission, the first being recommendations to the Russian Federation submission adopted on 27 June 2002.<sup>304</sup>

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<sup>301</sup> Commission on the Limits of the Continental Shelf, ‘Summary of Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by Barbados on 8 May 2008’ (United Nations, 15 April 2010) paras 11–14.

<sup>302</sup> LOS Convention 1982, Article 76(8).

<sup>303</sup> Ibid.

<sup>304</sup> As of the date of writing, 12 September 2012. For details on which submissions have been issued recommendations, see *Division for Ocean Affairs and the Law of the Sea* <[http://www.un.org/Depts/los/clcs\\_new/commission\\_submissions.htm](http://www.un.org/Depts/los/clcs_new/commission_submissions.htm)>.

In issuing recommendations, the Commission is required to lay down the rationale of its decision.<sup>305</sup> It is through this process that the Commission's application of Article 76 can be analysed. Although it is not stated how much information is required from the rationale, the Commission's interpretation of Article 76 could be revealed from it to some extent.

#### **4.5.1 The effect of the recommendations**

The history of how the Commission was to have the mandate of giving recommendations might shed some light on the legal effect of the recommendations. The last sentence of paragraph 8 of Article 76 as analysed before states the main role of the Commission, that is, to issue recommendations.

Paragraph 8 has been the subject of discussion on a number of issues.<sup>306</sup> This includes the relationship between the Commission and the submitting State, the competence of the Commission in issuing the recommendations and the status of the Commission's recommendations. These issues have been brought up and debated by writers as well as the delegates back then during negotiations for Article 76. Basically, the negotiating history of paragraph 8 saw a shifting of powers between the Commission and the coastal State making a submission. The resulting decision was that the recommendations were not intended to be binding but were anticipated to have some legal effect.

As examined in the history of the Commission's establishment in Section 4.3 of this chapter, negotiations revolving around the power of the Commission to issue recommendations emanated

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<sup>305</sup> Commission on the Limits of the Continental Shelf, 'Rules of Procedure of the Commission on the Limits of the Continental Shelf', CLCS/40/Rev.1 (United Nations, 17 April 2008) Annex III, Part V, 12(4).

<sup>306</sup> See, for example, Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 500-501; Ted L McDorman, 'The role of the Commission on the Limits of the Continental Shelf: A Technical Body in a Political World' (2002) 17(3) *The International Journal of Marine and Coastal Law* 301, 314; Robert W Smith and George Taft, 'Legal Aspects of the Continental Shelf' in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 20; Alexei A Zinchenko, 'Emerging Issues in the Work of the Commission on the Limits of the Continental Shelf' in Myron H Nordquist, John Norton Moore, Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 225-226; International Law Association, *Legal Issues for the Outer Limits of the Continental Shelf, Berlin Conference (2004), Report of the Seventy-first Conference* (ILA 2004) 805.

during the eighth session of the Conference in 1979. Apart from the words “on the basis of”, issues also revolved around whether the Commission was to be given the power to issue “recommendations” or “decisions”. The effect of such recommendations being “final and binding” was also discussed. However, the words “on the basis of”, being the most controversial wording of the paragraph, would have a significant impact on the relationship between the Commission and the submitting States.

**a) “On the basis of” the recommendations**

The words “on the basis of” seem to indicate that it is the recommendations of the Commission rather than the provisions of Article 76 that submitting States are supposed to base the delineation of their outer limits.

The draft paragraph 8 had to undergo several changes of wordings before it was finally decided that the words “on the basis” of was to be incorporated in the final draft. The initial power of the Commission, as deliberated during the third session of the Conference in 1975, was to “review” delineations submitted by coastal States without any mention of the recommendations.<sup>307</sup> However, even at that stage, it was proposed that the decision of the Commission on such delineation shall be *final and binding* thus empowering the Commission to decide whether to accept such delineation.<sup>308</sup> This wording, however, underwent a change later during the Conference when new proposals attempted to remove the power of accepting and certifying delineations. An example would be the proposal by the Soviet Union at the eighth session in 1979 which reads that the Commission shall make recommendations and that delineations made *taking into account* these recommendations shall be *final and unalterable*.<sup>309</sup> Following this

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<sup>307</sup> Proposal by the United States (1975) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 500; Proposal by the Evensen Group, The Continental Shelf (1975) Article 1 (Informal Group of Juridical Experts) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 501.

<sup>308</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 213.

<sup>309</sup> NG6/8 (1979) Article 76(5) (USSR) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 9 (Oceana Publications 1982) 377.

proposal, the Chairman of Negotiating Group 6 made a compromise proposal where although the words “final and binding” were retained, the words “taking into account” were later incorporated into the ICNT.<sup>310</sup>

It has been suggested that “on the basis of” can be implied to mean that there is a closer fit in the relationship between the delineation of the outer limits by a coastal State and the recommendations of the Commission compared to the case if the words “taking into account” had been adopted.<sup>311</sup> However, it has also been suggested that the words meant the powers of the Commission is restricted and only affects the final decision “in a fairly remote way”.<sup>312</sup> Another suggestion was that the term “on the basis of” was meant to ensure certainty and consistency while at the same time providing for flexibility in establishing outer limits.<sup>313</sup>

Be that as it may, the history of negotiations shows that States had not intended for the recommendations to have such a significant impact on the delineation of the outer limits. This apparent complication resulting from the wordings of paragraph 8 was brought up by the delegate of Canada in 1980 when it was stated as follows:

The ... Commission is primarily an instrument which will provide the international community with reassurances that coastal States will establish their continental shelf limits in strict accordance with article 76. It has never been intended, nor should it be intended, as a means to impose on coastal States limits that differ from those already recognized in article 76. Thus to suggest that the coastal States limits shall be established “on the basis of” the Commission’s recommendations rather than on the

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<sup>310</sup> Compromise proposal, A/CONF.62/L.37 (Chairman NG6, 1979) Article 76 in United Nations, ‘Third United Nations Conference on the Law of the Sea’, *Official Records*, vol XI (United Nations 1980) 100; A/CONF.62/WP.10/Rev.1 (ICNT/Rev.1, 1979) Article 76 in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 1 (Oceana Publications 1982) 420.

<sup>311</sup> Ted L McDorman, ‘The Role of the Commission on the Limits of the Continental Shelf: A Technical Body in a Political World’ (2002) 17(3) *The International Journal of Marine and Coastal Law* 301, 314.

<sup>312</sup> Ibid; TA Clingan Jr, ‘Dispute Settlement Among Non-Parties to the LOS Convention With Respect to the Outer Limits of the Continental Shelf’ in TA Clingan Jr (Ed.) *The Law of the Sea: What Lies Ahead?* (Law of the Sea Institute 1988) 497.

<sup>313</sup> Robert W Smith and George Taft, ‘Legal Aspects of the Continental Shelf’ in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 20.



basis of article 76, could be interpreted as giving the Commission the function and power to determine the outer limits of the continental shelf of a coastal State. We are assured on all sides that this is not the intention...<sup>314</sup>

It has been pointed out that the above statement indicates Canada's objection on the reference to the recommendations. It was argued that the Canadian position was to replace the reference to the recommendations with reference to Article 76, therefore, conferring the final and binding effect to delineations that are made on the basis of the latter rather than the former. It was also noted that other States have expressed similar objections.<sup>315</sup> Nevertheless, this intention had been overlooked since the Conference was focussed on giving a meaning to the words "final and binding".<sup>316</sup>

This indicates that delegates were not prepared to give such extensive powers to the Commission by letting the Commission determine the outer limits of the continental shelf in the form of its recommendations. Rather, it is the provisions of Article 76 that should be the basis on which delineations of the outer limits are established.

Since the Canadian objection was not carried, the provisional paragraph 8 was retained. Hence, the reference to the Commission's recommendations combined with the preceding words "on the basis of" conferred substantial powers to the Commission. This would have an impact on the relationship between the submitting State and the Commission whereby it is the Commission's interpretation of Article 76 in the form of the recommendations that determines the delineation of the outer limits.

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<sup>314</sup> Statement by the delegation of Canada, A/Conf.62/WS/4 (2 April 1980) in United Nations, 'Third United Nations Conference on the Law of the Sea', *Official Records*, vol XIII (United Nations 1980) 102.

<sup>315</sup> This was noted by Brown in EDBrown, *Sea-Bed Energy and Mineral Resources and the Law of the Sea: The Areas Within National Jurisdiction* (Graham and Trotman 1984) 1.4.13, mentioned in Ted L McDorman, 'The Role of the Commission on the Limits of the Continental Shelf: A Technical Body in a Political World' (2002) 17(3) *The International Journal of Marine and Coastal Law* 301, 314.

<sup>316</sup> Ted L McDorman, 'The role of the Commission on the Limits of the Continental Shelf: A Technical Body in a Political World' (2002) 17(3) *The International Journal of Marine and Coastal Law* 301, 314.

## **b) The power of the Commission to make recommendations**

Apart from the issue on the words “on the basis of”, the drafting history shows that delegates were also concerned about the term used to indicate the power of the Commission. The issue was whether the Commission should be given the power to make “decisions” or “recommendations”.<sup>317</sup>

It is observed that the Commission only has recommendatory powers and is not granted the power to impose its recommendations. This is because if the Commission had the power to impose its recommendations on coastal States, it would effectively be determining the outer limits of the continental shelves of coastal States; a privilege reserved for coastal States itself as the holder of sovereign rights over its continental shelf.<sup>318</sup> To that end, it has been stated that:

the Commission is not a court of law, nor was it ever expected to become one. It was neither conceived as a watchdog, nor as a chamber for the easy and convenient approval of a coastal State’s submissions...The process of the consideration of the submission is not like that of a competition between a prosecutor and a defense attorney, but rather a joint cooperation between the scientists of the coastal state and those of the Commission, a joint effort to establish the correct line in accordance with the criteria set out in the Convention.<sup>319</sup>

As reviewed earlier in this chapter, the proposals during the earlier sessions of the Conference had sought to give substantial powers to the Commission. It was generally proposed that the Commission be given the power to accept delineations.<sup>320</sup> For example, the United States

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<sup>317</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 81.

<sup>318</sup> LOS Convention 1982, Article 77(1).

<sup>319</sup> Alexei A Zinchenko, ‘Emerging Issues in the Work of the Commission on the Limits of the Continental Shelf’ in Myron H Nordquist, John Norton Moore, Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 225-226.

<sup>320</sup> (Emphasis added). See, for example, the United States proposal (1975) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 500.

proposal at the third session of the Conference suggested that “acceptance by the Commission of a delineation so submitted, or the final *decision* of the Commission ... shall be final and binding”.<sup>321</sup> Similarly, a proposal submitted by the Evensen Group at the same session purported to give the Commission the power to *decide* on a delineation and that such *decision* shall be final and binding.<sup>322</sup>

In the following session, a proposal by Ireland appeared to have changed the wording of the Commission’s powers when the word “decision” was omitted. Instead, the proposal read “[a]cceptance by the Commission of a delineation so submitted ... shall be final and binding”.<sup>323</sup>

From the proposals which sought to confer to the Commission the power to issue “decisions”, it is apparent that, on one hand, the delegates were aware of the importance of establishing a Commission having significant roles in the delineation of the outer limits. On the other hand, since many delegates were not prepared to surrender coastal State’s prerogative of establishing their outer limits, the Commission was only given the power to issue “recommendations” instead of “decisions”. Thus, the coastal State retains the power to delineate the outer limits which will become final and binding when established on the basis of the Commission’s recommendations.

### **c) The “final and binding” effect**

A straightforward reading of paragraph 8 indicates that the effect of outer limits established in conformity with the Commission’s interpretation as laid down in its recommendations shall have the effect of being final and binding.<sup>324</sup> In other words, if a delineation of the outer limits is made based on the Commission’s recommendations, it shall have the effect of being final and binding.

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<sup>321</sup> Ibid para 5.

<sup>322</sup> (Emphasis added). Reproduced in Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 850.

<sup>323</sup> The Irish formula, 75<sup>th</sup> informal meeting of the Second Committee (15 April 1976). Reproduced in *ibid* 852.

<sup>324</sup> Ted L McDorman, ‘The role of the Commission on the Limits of the Continental Shelf: A Technical Body in a Political World’ (2002) 17(3) *The International Journal of Marine and Coastal Law* 301, 314.

However, questions may arise as to the exact meaning of “final and binding” and to whom the effect of “final and binding” applies.

The negotiating history shows that the phrase “final and binding” had undergone a few minor changes during the Conference. The initial suggestion was the actual words “final and binding” as seen in the proposals by the United States and the Evensen Group at the third session in 1975.<sup>325</sup> The insertion of this phrase commanded support from Ireland when it was later incorporated into the Irish proposal at the following session.<sup>326</sup> It was only during the eighth session in 1979 that the Soviet Union proposal had attempted to change the phrase to “final and unalterable”.<sup>327</sup> This was, however, not carried into the compromise proposal by the Chairman of Negotiating Group 6 and was not incorporated into the ICNT/Rev. 1.<sup>328</sup>

According to the United States government, the “final and binding” phrase ensures stability to delineations made on the basis of the recommendations. To that, it was stated that:

[i]f the coastal State agrees, the limits of the continental shelf established by the coastal State on the basis of these recommendations are final and binding, thus providing stability to these claims which may not be contested.<sup>329</sup>

Hence, the United States view is that “final and binding” denotes stability to the coastal State in which its delineated outer limits cannot be contested. This is in line with the International Law Association’s (ILA) interpretation of the phrase when it stated that third states can no longer

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<sup>325</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 848-850.

<sup>326</sup> *Ibid* 852.

<sup>327</sup> NG6/8 (USSR 1979) Article 76. Reproduced in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 9 (Oceana Publications 1982) 377.

<sup>328</sup> Compromise proposal A/CONF.62/L.37 (Chairman NG6 1979) Article 76 in United Nations, ‘Third United Nations Conference on the Law of the Sea’, *Official Records*, vol XI (United Nations 1980),100; A/CONF.62/WP.10/Rev.1 (ICNT/Rev.1 1979) Article 76 in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 1 (Oceana Publications 1982) 375, 420.

<sup>329</sup> ‘The 1994 US Commentary’ (US Senate Treaty Doc 103-39, 103<sup>rd</sup> Congress 2<sup>nd</sup> Session 1994). Reprinted in (1995) 34 *International Legal Materials* 1393.

challenge outer limits that have become final and binding.<sup>330</sup> The word “final” according to the ILA means that the delineation would be permanent and not subject to change while the word “binding” entails an obligation on the part of third States and the international community to accept the outer limits delineated.<sup>331</sup> This is, of course, subject to the outer limits being in accordance with the recommendations and Article 76.<sup>332</sup>

However, in the event a coastal State does not agree with the recommendations of the Commission, there is nothing in paragraph 8 that clearly indicates the steps the coastal State is supposed to take. Based on a reading of paragraph 8 and opinions of authors, what a coastal State should do in cases such as this is to make a resubmission since the purpose is to achieve “accord”. This would lead to the situation of what authors have termed as the “ping-pong process”.<sup>333</sup> Before going on to discuss the “ping-pong process” under Section 4.7 of this chapter, it is worthwhile to first consider whether third party dispute settlement mechanisms are relevant where a coastal State does not agree with the Commission’s recommendations.

#### **4.6 Dispute settlement mechanism**

Under the 1982 Convention, a number of bodies have been named as the forum for dispute settlement with regard to disputes concerning the law of the sea. The International Tribunal for the Law of the Sea (ITLOS) and the International Court of Justice (ICJ) are examples of bodies tasked to hear cases between States in dispute concerning law of the sea issues.

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<sup>330</sup> International Law Association, *Legal Issues for the Outer Limits of the Continental Shelf, Berlin Conference (2004), Report of the Seventy-first Conference* (ILA 2004) 805.

<sup>331</sup> Ibid.

<sup>332</sup> Ibid 806.

<sup>333</sup> See Section 4.7 of this thesis. See also Ted L McDorman, ‘The role of the Commission on the Limits of the Continental Shelf: A Technical Body in a Political World’ (2002) 17(3) *The International Journal of Marine and Coastal Law* 301, 306; Anna Cavnar, ‘Accountability and the Commission on the Limits of the Continental Shelf: Deciding Who Owns the Ocean Floor’ IILJ Emerging Scholars Paper 15 (2009) 13 <<http://www.iilj.org/publications/documents/CavnarESP15-09.pdf>> accessed 2 July 2011.

States parties to the Convention are generally entitled to choose a means for dispute settlement under Article 287 which includes ITLOS under Annex VI, the ICJ and the arbitral tribunal under Annex VII or a special arbitral tribunal under Annex VIII.

With regard to disputes over the continental shelf, four cases have been brought before the ICJ concerning maritime delimitation issues on the continental shelf: the *North Sea Continental Shelf*<sup>334</sup>, the *Continental Shelf (Tunisia v. Libya)*<sup>335</sup>, the *Gulf of Maine case*<sup>336</sup>, the *Continental Shelf (Libya v. Malta)*<sup>337</sup> and the *Jan Mayen case*<sup>338</sup>. Besides the ICJ, delimitation cases that involve the continental shelf and heard before the tribunals are the *Anglo-French Continental Shelf Arbitration*<sup>339</sup> which was decided by the Permanent Court of Arbitration<sup>340</sup> and the *Delimitation of the maritime boundary between Bangladesh and Myanmar in the Bay of Bengal*<sup>341</sup> which was heard before ITLOS.

Be that as it may, it should be noted that these are cases concerning delimitation of the continental shelf that is adjacent to the territories of two or more States whose coasts are opposite one another. Thus, these cases do not involve, at least directly, the application of Article 76 but rather they involve the application of Article 83. Paragraph 1 of Article 83 states as follows:

The delimitation of the continental shelf between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law, as referred to in

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<sup>334</sup> [1969] ICJ 3.

<sup>335</sup> [1982] ICJ 18.

<sup>336</sup> [1984] ICJ 246.

<sup>337</sup> [1985] ICJ 13.

<sup>338</sup> [1993] ICJ 38.

<sup>339</sup> (1979) 18 ILM 397.

<sup>340</sup> This refers to the arbitral tribunal under Annex VII of the Convention.

<sup>341</sup> (2012) 16 ITLOS.

Article 38 of the Statute of the International Court of Justice, in order to achieve an equitable solution.

In cases such as these, it is further stated in paragraph 2 that States may resort to procedures under Part XV of the Convention where no agreement is reached within a reasonable time.

With regard to cases involving the application of Article 76, however, the Convention is silent on any recourse to dispute settlement options such as that offered in paragraph 2 of Article 83. Although States parties to the Convention have standing to submit an application for dispute settlement under Article 287, it is noted that the Commission, unlike States, has no legal standing to be heard before a court or tribunal.<sup>342</sup> Hence, a coastal State making a submission to the Commission would not have any means of dispute settlement before a court or tribunal against the Commission in the event the State does not agree with the recommendations of the Commission.

The only recourse for a State that does not agree with the recommendations of the Commission is to make a resubmission, as mentioned before in the last section. This is not expressly stated in Article 76 but is implied in the wordings of paragraph 8. This issue shall be further examined with reference to the “ping-pong process” below.

#### **4.7 The ping-pong process**

The “ping-pong process” is the term commentators have used to refer to the submission-recommendation-resubmission process implied in paragraph 8.<sup>343</sup> It was envisaged that the relationship between the Commission and the submitting State was “a narrowing down ping-

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<sup>342</sup> Suzette V Suarez, *The Outer Limits of the Continental Shelf: Legal Aspects of Their Establishment* (Springer 2008) 232.

<sup>343</sup> Ted L McDorman, ‘The role of the Commission on the Limits of the Continental Shelf: A Technical Body in a Political World’ (2002) 17(3) *The International Journal of Marine and Coastal Law* 301, 306; Anna Cavnar, ‘Accountability and the Commission on the Limits of the Continental Shelf: Deciding Who Owns the Ocean Floor’ IILJ Emerging Scholars Paper 15 (2009) 13 <<http://www.iilj.org/publications/documents/CavnarESP15-09.pdf>> accessed 2 July 2011.

pong procedure”.<sup>344</sup> Since the recommendations are not legally binding upon submitting States, the submitting State is under no obligation to delineate its outer limits according to the recommendations. As such, since the purpose of the paragraph is to achieve accord, the submitting State shall have to make a resubmission and the Commission shall have to make recommendations based on that new submission. This may theoretically go on until both the submitting State and the Commission achieve accord. This ping-pong effect is due to the absence of any provision for a legal endpoint to the process of submission-recommendation-resubmission. Hence, this process is indefinite in that there may not be an end to it.<sup>345</sup>

This theoretically endless process could evolve by observing submitting coastal States’ responses towards the Commission’s recommendations. One possibility would be that submitting States would choose to follow the Guidelines resulting in a high probability of the submission being accepted since it is based on the interpretation of Article 76 by the Commission itself. In that case, the Guidelines, although not binding upon coastal States, would become highly influential.

#### **4.8 Concluding remarks**

The introduction of Article 76 has brought a whole new life to the law relating to the outer limits of the continental shelf. No longer were the outer limits subject to criterion that lacks precision. Furthermore, it anticipated the technical complications in implementing the provisions and had encountered this difficulty by setting up the Commission. Hence, Article 76 could be seen as a comprehensive provision which resolves the discrepancies found in the previous laws relating to the continental shelf. This chapter examined the role of the Commission as a technical body of experts designed to analyse claims to the extended continental shelf. It has sought to establish the extent of the mandate given to the Commission and the legal implications thereof.

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<sup>344</sup> Piers RR Gardiner, ‘The Limits of the Area Beyond National Jurisdiction – Some Problems with Particular References to the Role of the Commission on the Limits of the Continental Shelf’ in Gerald H Blake (ed), *Maritime Boundaries and Ocean Resources* (Routledge 1987) 69.

<sup>345</sup> Robert W Smith and George Taft, ‘Legal Aspects of the Continental Shelf’ in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 20.



Due to the legal-technical interface involved with Article 76, questions on interpretation of the provisions have been the subject of debate by many. This is further aggravated by the different interpretations that can be found be it in the drafting history of the provisions, State practice or the Commission's practice.

As presented in this chapter the relationship between the Commission and the submitting State is far from straightforward. The reason for the establishment of the Commission was due to the technical expertise needed by States in making submissions considering the problems involved with the scientific and legal interface encountered in applying Article 76. It was intended that there be a balance between the power given to the Commission on one hand, and coastal State's prerogative to establish the outer limits on the other. However, this chapter has seen the Commission's act in formulating the Guidelines and its power of reviewing submissions and later issuing its recommendations have proven to leave a substantial impact on the application of Article 76. The effect and influence of the Commission's interpretation in this regard shall be evaluated in the later chapters.

## Chapter Five: Ridges and submarine elevations

### 5.1 Introduction

One of the major problems encountered in claims to the extended continental shelf revolves around issues on seafloor highs. In this chapter, the term “seafloor highs” shall be used as a generic term to include features such as oceanic ridges, submarine ridges and submarine elevations. This term shall also be used interchangeably with other terms such as 'submarine highs' and 'submarine features' which are both generic terms used to refer to the seafloor ridges and elevations.

Paragraphs 3 and 6 of Article 76 of provide for the extent of continental shelf rights a State is entitled to on seafloor highs such as ridges and other submarine elevations.

Paragraph 3 states that:

The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the seabed and subsoil of the shelf, the slope and the rise. *It does not include the deep ocean floor with its oceanic ridges or the subsoil thereof.*<sup>346</sup>

Although paragraph 5 does not deal directly with seafloor highs, it is relevant to the subject since paragraph 6 on submarine ridges and submarine elevations is an exception to paragraph 5.

Paragraph 5 reads as follows:

The fixed points comprising the line of the outer limits of the continental shelf on the seabed ... either shall not exceed 350 NM from the baselines from which the breadth of the territorial sea is measured or shall not exceed 100 NM from the 2,500 metre isobath, which is a line connecting the depth of 2,500 metres.

Paragraph 6, which is an exception to the above, states as follows:

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<sup>346</sup> (Emphasis added).

Notwithstanding the provisions of paragraph 5, on submarine ridges, the outer limits of the continental shelf shall not exceed 350 NM from the baseline from which the breadth of the territorial sea is measured. This paragraph does not apply to submarine elevations that are natural components of the continental margin, such as its plateaux, rises, caps, banks and spurs.

From the provisions above, several preliminary points can be deduced with regard to the submarine highs mentioned.

The first is concerning the term "oceanic ridges". Paragraph 3 of Article 76 states that the continental shelf does not include "the deep ocean floor with its oceanic ridges". This paragraph describes the geographical characteristic of the ridge as being located in the deep ocean floor. It also describes the geological aspect of the ridge, that is, the ridge must be oceanic in nature as opposed to continental.

The second point concerns the interpretation of "submarine ridges". As may be recalled from Section 3.7.3 of Chapter Three, the first part of paragraph 6 limits the extension of continental shelf rights on submarine ridges to 350 NM. This paragraph is to be read as an exception to paragraph 5 which allows continental shelf rights of up to 350 NM or 100 NM from the 2,500 metre isobath whichever the State wishes to choose. In other words, the limit is 350 NM with no other available option. The second part of paragraph 6 clarifies that the limitation does not apply to submarine elevations that are natural components of the continental margin. An assumption that could be derived from this clause is that submarine ridges are not natural components of the continental margin. Paragraph 6 is, however, silent on the morphological and geological aspect of the ridges.

The third point is with regard to "submarine elevations". Reference to submarine elevations can be found in paragraph 6 which also mentions submarine ridges. A literal interpretation of paragraph 6 shows that submarine elevations have been exempted from the 350 NM rule applicable to submarine ridges. Looking at the language, it can be assumed that submarine elevations share some similarities with submarine ridges but because of their characteristics of

being a natural component of the continental margin, they are not only limited to the 350 NM limit but may also apply the 100 NM from the 2,500 metre isobath rule where applicable.

The vague description of the seafloor highs provided by Article 76 has given rise to many different interpretations, particularly on submarine ridges.

### 5.1.1 Geography

As the discussion on seafloor highs involve different types of margins, it is significant to understand the geography of margins.<sup>347</sup> The geography of the submerged land mass of a coastal State varies depending on whether it is part of a continental land mass or part of a land mass of an island surmounted on a ridge. As such, both instances will be examined below.

For a land territory which consists of a continental land mass, its natural prolongation typically comprises of a shelf, a slope and a rise.<sup>348</sup> These features are stated in paragraph 3 of Article 76 as being part of the continental margin and are continental in nature as opposed to oceanic. The continental shelf is the submerged part of the natural prolongation of the land territory adjacent to the coastline. Towards the seaward border of the continental shelf lies the continental slope which is a sharp drop or break in the continental shelf.<sup>349</sup> The lower part of the continental slope is connected to the continental rise in margins where the rise is present, or to the ocean floor where there is no rise.<sup>350</sup> The rise is the most seaward feature of the continental margin, where the margin consists of a rise, and constitutes a very long transition between continental and oceanic rocks. The continental rise is also where the continent-ocean transition zone lies, thus

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<sup>347</sup> For discussion on the types of margins, see Philip A Symonds and others, 'Characteristics of continental margins' in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 32-54.

<sup>348</sup> Ibid 29. It was also stated that this description of margins is based on the Atlantic-type continental margins or passive/divergent margins as opposed to Pacific-type or active margins.

<sup>349</sup> Ibid.

<sup>350</sup> Ibid 31.

marking the boundary between the continental margin and the deep ocean floor.<sup>351</sup> Beyond the rise, where the rocks are wholly oceanic, lies the deep ocean floor. The crust of the deep ocean floor can be distinguished from that of the continental margin as it is relatively much thinner.<sup>352</sup>

A coastal State land territory can also be made up of an island surmounting ridges. In that case, the cap of a ridge may surface above the water resulting in an island. Thus, the natural prolongation of an island surmounting ridges would be made up of the ridge itself as opposed to the typical continental margin which forms the natural prolongation of a continental land mass.<sup>353</sup> An example of an island surmounting ridges is Iceland which is located on the Reykjanes Ridge. The Reykjanes Ridge is part of the Mid-Atlantic spreading ridge system which is made up of mountains in the ocean of more than 60,000 kilometres in length.<sup>354</sup> The geological nature of the ridge will be discussed in more detail under State practice under Section 5.3 of this chapter.

Apart from spreading ridges, elevations associated with a continental land mass can also occur as a result of continental growth. Where continents grow by continental break-up, part of the continental margin is separated from its original land mass through the process of rifting. This results in a gap between the newly rifted margin and the original margin. As a result, the new margin would appear as an elevation of the seafloor.<sup>355</sup>

Elevations of the seafloor are given various names such as ridges, plateaus, caps, seamounts etc.<sup>356</sup> However, for the purpose of Article 76, the classification of seafloor highs, that is,

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<sup>351</sup> Ibid 29.

<sup>352</sup> Robert E Gabler and others, *Physical Geography*. (9<sup>th</sup> edn, Cengage Learning 2008) 373.

<sup>353</sup> Philip A Symonds and others, 'Ridge Issues' in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 303.

<sup>354</sup> Ibid 290.

<sup>355</sup> GNS Science New Zealand, *Law of the Sea – UNCLOS Article 76* <<http://www.gns.cri.nz/static/unclos/ridges.html>> accessed 20 July 2011.

<sup>356</sup> LOS Convention 1982, Article 76 (3) and (6).

whether a feature is an oceanic ridge, a submarine ridge or a submarine elevation must not depend on the names given to the features. The identification of a submarine feature is complicated by the fact that their geomorphological names constantly do not reflect their geological origin and composition. Thus, a feature could be an extension of the continental margin as much as it could be part of the deep ocean floor whether it is called a ridge, plateau or seamount.<sup>357</sup>

This contributes to the difficulties posed by the ridge provisions of Article 76. Identification of the submarine features must therefore rely on characteristics which enable them to be distinguished from one another.

### **5.1.2 Analysis of issues**

It has been argued that seafloor highs could be differentiated based on crustal type. As a marine geologist, McKelvey argues that only ridges with continental crustal types as opposed to oceanic crustal types can generate continental shelf rights.<sup>358</sup> As will be examined later in this chapter, there has been a proposal to include a crustal type criterion in the definition of oceanic ridges during negotiations for Article 76. Oxman, however, was of the opinion that it was unnecessary to include terms referring to crustal types such as "oceanic crust" in the Irish formula.<sup>359</sup> He seems to suggest that the wording of paragraph 3 have adequately defines oceanic ridges as ridges with oceanic crust.<sup>360</sup>

Another point would be that the first clause of paragraph 6 on submarine ridges has no applicability as it does not apply to oceanic ridges nor does it apply to submarine elevations that

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<sup>357</sup> Vincent E McKelvey, 'Interpretation of the UNCLOS III Definition of the Continental Shelf' in Douglas M Johnson and Norman G Letalik (eds), *The Law of the Sea and Ocean Industry: New Opportunities and Restraints* (Honolulu 1984) 468-469.

<sup>358</sup> Philomène A Verlaan, 'New seafloor mapping technology and Article 76 of the United Nations Convention on the Law of the Sea' (1997) 21(5) *Marine Policy* 425, 427.

<sup>359</sup> Bernard H Oxman, 'The Third United Nations Conference on the Law of the Sea: The Eighth Session (1979)' (1980) 74 *AJIL* 1, 21.

<sup>360</sup> *Ibid.*

are natural components of the continental margin. Taft, who advocated this argument, suggests that, on one hand, a submarine ridge which is oceanic in character would be covered by the term "oceanic ridges" in paragraph 3 and would not be entitled to generate continental shelf rights.<sup>361</sup> On the other hand, if the ridge was continental in nature it would definitely be part of the continental margin and would be entitled to an extended continental shelf.<sup>362</sup> Apparently, the argument is based on the premise that continental shelf rights can only be generated from the natural prolongation of a State territory which is continental in nature. As a result, he argues that islands that are in close proximity to oceanic ridges are not entitled to a continental shelf beyond 200 NM. Accordingly, oceanic ridges which form part of the natural prolongation of islands are to be regarded as oceanic ridges in the sense of paragraph 3 which cannot generate continental shelf rights beyond 200 NM.<sup>363</sup>

On the contrary, it could be argued that the only other solution would be to consider submarine ridges as ridges which are neither oceanic nor continental in origin. Nevertheless, Taft argued that even though ridges may have mixed lineage, there was no recognition on the applicability of paragraph 6 to such a ridge during the negotiations on the drafting of Article 76.<sup>364</sup> It is hereby pointed out that the point made by Taft is highly unlikely to stand. The legislative history, as will be discussed later in this chapter, will show that the drafters of Article 76 had given considerable thought in drafting paragraph 6 and had intended for the paragraph to be of significance.

This chapter shall first look into the original interpretation of the different seafloor highs mentioned in Article 76 as intended by the drafters of Article 76. Besides that, it is also noted that State practice as well as the practice of the Commission also play roles in the development of

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<sup>361</sup> George Taft, *Solving the Ridges Enigma of Article 76 of the United Nations Convention on the Law of the Sea* (ABLOS Conference, Monaco, October 2001) <<http://www.gmat.unsw.edu.au/ablos/ABLOS01Folder/TAFT.PDF>> accessed 12 December 2008.

<sup>362</sup> Ibid.

<sup>363</sup> Ibid.

<sup>364</sup> George Taft, *Solving the Ridges Enigma of Article 76 of the United Nations Convention on the Law of the Sea* (ABLOS Conference, Monaco, October 2001) 5-6 <<http://www.gmat.unsw.edu.au/ablos/ABLOS01Folder/TAFT.PDF>> accessed 12 December 2008.

international law. Therefore, this chapter shall examine the differences between the seafloor highs as drafted during negotiations for Article 76 and the seafloor highs as understood by States making submissions to the Commission. The legal or geological characteristics of the seafloor highs that drive the States to classify them as such shall also be examined. Apart from that, it is crucial to see whether the Commission accepts the States' interpretation of seafloor highs and the reasons behind it. It is also worthy to note that the Guidelines have dedicated a whole chapter on ridges. As the Guidelines were drafted by the Commission, it too may have an impact on the interpretation of seafloor highs under international law.

I will attempt to highlight on the terms “oceanic ridges”, “submarine ridges” and “submarine elevations” to see if observations such as those mentioned above are correct. Issues which need to be clarified are as follows:

1. whether there is a difference between “oceanic ridges” in the sense of paragraph 3 and “submarine ridges” in the sense of paragraph 6,
2. the geological and morphological characteristics of submarine ridges, that is, whether they are oceanic, continental or both oceanic and continental, and whether they are connected to the land mass, and
3. the characteristics of submarine elevations and the meaning of "natural components of the continental margin".



## **5.2 Legislative history of the ridge provisions**

Work on the drafting of Article 76 of the United Nations Convention on the Law of the Sea of 1982 on the outer limits of the continental shelf began with the work of the Sea-Bed Committee in its 1973 session before debates continued further into the second session of the Third United Nations Conference in 1974.<sup>365</sup> During the conference, work on the "coastal State sovereign rights over the exploration and exploitation of the resources of the seabed and subsoil of the continental margin where it extends beyond 200 miles", among others, were entrusted to the Second Committee.<sup>366</sup> Paragraphs 3 and 6 of Article 76 which incorporated the ridge provisions were among the more complicated provisions and had to undergo many sessions of the conference until they were finally agreed on.

This section will examine the lengthy historical development leading to the final wordings of paragraph 3 which began with discussions concerning the definition of the continental margin. As will be seen later in this chapter, the discussions which led to the definition of the continental margin and hence paragraph 3, play a significant role in the interpretation of submarine features, particularly "oceanic ridges of the deep ocean floor". Besides that, this section will also examine the other ridge provision as manifested in the current paragraph 6 which only came into the forefront of negotiations much later during the resumed eighth session in 1979 as an addition to the provision on the distance and depth criterion constraints formulae.

### **1973 session of the Sea-Bed Committee**

Discussions on the definition of the continental margin began in the 1973 session of the Sea-Bed Committee following the General Assembly resolution in 1969.<sup>367</sup> The resolution acknowledged

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<sup>365</sup> JR Stevenson and BH Oxman, 'The Third United Nations Conference on the Law of the Sea: The 1975 Geneva Session' (1975) 69 AJIL 763, 764-765.

<sup>366</sup> Ibid.

<sup>367</sup> United Nations General Assembly Resolution 2574A (XXIV) 15 December 1969.

the difficulties posed by the 1958 Convention on the Continental Shelf, in particular, Article 1 which lacked precision in its definition of the continental shelf. The Sea-Bed Committee was thus set up to encounter the problem and provide a more precise definition of the continental shelf.<sup>368</sup>

The 1973 session of the Sea-Bed Committee saw at least six different proposals submitted by States. All of these proposals focused on provisions aimed at defining the outer limit of the continental shelf.<sup>369</sup>

A proposal submitted by three Latin American States described the continental shelf as "the sea-bed and subsoil of the submarine areas adjacent to the coast, but outside the area of the territorial sea, to the outer limits of the continental rise bordering on the ocean basin or abyssal floor."<sup>370</sup> It is to be noted that there was an earlier proposal before the 1973 session where the Declaration of Santo Domingo defined the continental shelf as contained in the 1958 Convention and urged Latin American States to promote a study on the advisability and timing for the establishment of the precise limits of the continental shelf taking into account the limits of the rise.<sup>371</sup> It seems that the 1973 proposal by the Latin American States attempted a more precise definition of the continental shelf.<sup>372</sup>

Unlike the proposal by the Latin American States, a proposal by the Soviet Union described the outer limit of the continental shelf based on a fixed distance as well as water depth criteria.<sup>373</sup> It was the proposal by China that first referred to the concept of natural prolongation in its

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<sup>368</sup> The Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction was established in 1968 by the General Assembly in its 1752nd plenary meeting, Resolution 2467 (XXIII) of 21 December 1968.

<sup>369</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 842-844.

<sup>370</sup> The three States are Colombia, Mexico and Venezuela. *Ibid* 842.

<sup>371</sup> *Ibid*.

<sup>372</sup> *Ibid*.

<sup>373</sup> *Ibid*.

definition of the continental shelf. This was followed by a similar proposal by Australia and Norway.<sup>374</sup> The only difference was that the former limits the continental shelf according to a State's specific geographical conditions whereas the latter limits the continental shelf to the outer edge of the continental margin.

It appears that most of the proposals at this stage acknowledged the concept of natural prolongation as the main criteria for establishing the continental shelf. However, the precise extent of natural prolongation was yet to be formulated.

### **Second session of the Conference (1974)**

Proceedings were later moved from the Sea-Bed Committee sessions to the Third United Nations Conference. During this time, delegates were still deliberating on the definition of the precise outer edge of the continental shelf.<sup>375</sup>

The second session of the Third Conference was held in 1974 and various proposals were submitted by those who wished to maintain the 200-mile limit and those who preferred an outer limit based on the concept of natural prolongation.<sup>376</sup>

Among the proposals that advocated for a definition of the continental shelf based on natural prolongation was a proposal by nine States which defined the continental shelf as the natural prolongation of a coastal State's territory where it extends beyond 200 NM.<sup>377</sup> Similarly, the

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<sup>374</sup> Ibid 843.

<sup>375</sup> Ibid 844-848.

<sup>376</sup> Ibid 844.

<sup>377</sup> A/CONF.62/L.4 (1974) in United Nations, 'Third United Nations Conference on the Law of the Sea', *Official Records*, vol III (United Nations 1974) 81; Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 846. The nine States were Canada, Chile, Iceland, India, Indonesia, Mauritania, Mexico, New Zealand and Norway.

United States submitted to the Conference a draft which also referred to the concept of natural prolongation in establishing the outer limits of the continental shelf.<sup>378</sup>

Nevertheless, the proposals and draft articles which referred to the concept of natural prolongation failed to make provisions on the precise delimitation of the limits of the continental shelf although Article 23 recognised that provisions for greater precision is needed to define the limits of the continental margin.<sup>379</sup>

This problem was further acknowledged by Kenya when it stated that the uncertainty of where the continental margin ends would allow coastal States to arbitrarily conclude for themselves where the natural prolongation of their land territory ends.<sup>380</sup>

Hence, it can be observed at this stage that although some States, particularly geographically disadvantaged States, had advanced for a continental shelf definition based on the 200 NM limit, as far as coastal States are concerned, there was a strong preference for a continental shelf based on natural prolongation. Besides that, there was an overwhelming acceptance among States which preferred the concept of natural prolongation that provisions for greater precision was necessary.

### **Third session of the Conference (1975)**

It was during the third session of the Conference that there was some attempt to define with more precision the extent of natural prolongation. Of the two proposals submitted by the United States of America, the second proposal offered a more detailed provision on the description of the continental margin that was originally laid down in the first proposal. Paragraph 2 of the second proposal includes in the definition of the continental margin "all such rocks underlying the

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<sup>378</sup>United Nations, 'Third United Nations Conference on the Law of the Sea', *Official Records*, vol III (United Nations 1974) 224 (Article 22(2) USA); in Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 847.

<sup>379</sup> United Nations, 'Third United Nations Conference on the Law of the Sea', *Official Records*, vol III (United Nations 1974) 224 (Article 23).

<sup>380</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 847.

physiographic continental shelf, slope and rise, but does not include the rocks or sediments of the deep ocean floor."<sup>381</sup>

A proposal submitted by the Evensen Group was similar in nature.<sup>382</sup> Paragraph 2 of the proposal sought to include in the definition of the continental margin "all rocks appertaining to the...land mass, as well as the overlying sediments of the shelf, slope, and rise but does not include the rocks and sediments appertaining to the deep ocean floor."<sup>383</sup>

Clearly then, the Evensen Group's proposal was different from the United State's proposal only in terms of text. More importantly, both proposals were the earliest proposals which made any reference to rocks of the deep ocean floor.

This session also saw the introduction of the Informal Single Negotiating Text of the Second Committee, or the ISNT/Part II, which served as the basis for negotiations throughout the Conference. Although neither elements from the United States proposal nor the Evensen proposal were accepted at this stage, the definition of the continental shelf as incorporated in the ISNT/Part II as Article 62 adopted the concept of natural prolongation when it described the continental shelf as the natural prolongation of a coastal State's land territory to the outer edge of its continental margin.<sup>384</sup>

The more detailed proposals submitted during this session shows that there was some development in the attempt to achieve greater precision in defining the outer limits of the continental shelf compared to the previous sessions which merely dwelled on the concept of natural prolongation. That precision was demonstrated by the proposals which sought to define the continental margin by distinguishing it using features of the deep ocean floor.

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<sup>381</sup> Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 500.

<sup>382</sup> The Evensen Group were also known as the Informal Group of Juridical Experts and comprised of delegates from 40 nations from all regions. The group was chaired by Minister Jens Evensen from Norway, hence it being known as the "Evensen Group".

<sup>383</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 849.

<sup>384</sup> 'Informal Single Negotiating Text Part II' (1975) 14 ILM 710, 727.

#### **Fourth session of the Conference (1976)**

The following year, the fourth session of the conference was held in order to discuss the ISNT/Part II.<sup>385</sup> Proposals submitted by coastal States at this session generally agreed on the ISNT/Part II but sought to make additional paragraphs to the clause.<sup>386</sup>

A proposal by Chile was submitted. The proposal was intended as the second paragraph to Article 62 and employed wordings similar to that of the Evensen Group which indicated that the rocks and sediments of the ocean floor do not constitute part of the continental margin.<sup>387</sup>

At the same session, Ireland made a proposal to add six new paragraphs to Article 62.<sup>388</sup> The first proposed paragraph is relevant to the discussion on the definition of the continental margin. That paragraph was significantly shorter than the proposal by Chile but had the same effect of excluding rocks and sediments of an oceanic nature from the continental margin. It read as follows:

The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the seabed and subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor or the subsoil thereof.<sup>389</sup>

The Irish proposal adopted all the elements from the previous proposals. Although this proposal adopted different wordings compared to the other two proposals mentioned, it only had the effect of simplifying the reference to geological features as the word "subsoil" was meant to cover rocks as well as sediments of the deep ocean floor. However, Brekke and Symonds were of the opinion that the Irish proposal had another effect of removing ambiguity relating to situations where rocks "appertaining to" the continental margin were displaced and accreted onto the deep

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<sup>385</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 851.

<sup>386</sup> *Ibid* 851-854.

<sup>387</sup> *Ibid* 851.

<sup>388</sup> Article 62 was subsequently renumbered as Article 76 at the sixth session in 1977.

<sup>389</sup> *Ibid* 852.

ocean floor.<sup>390</sup> In light of this, it seems that the Irish proposal did not place much emphasis on the geological part of what comprises the continental margin and the deep ocean floor but simply that the deep ocean floor merely begins where the continental margin ends. Thus, the Irish proposal could be construed as adopting a more geomorphological approach and left the geological criterion to a minimum.

All these proposals signify that the objective at the time was to define the continental margin by distinguishing it from the deep ocean floor. However, it was the Irish wordings which were later embodied in the final consolidated text on the definition of the continental shelf.<sup>391</sup>

Although discussions on the definition of the outer limits of the continental shelf continued throughout the next few sessions, they did not have much significance on seafloor highs until the discussion on ridges came into the forefront of negotiations during the eighth session of the Conference in 1979.

### **Eighth session of the Conference (1979)**

The eighth session saw a continuation of the discussion on the definition of the outer limits of the continental shelf. Several proposals were submitted suggesting a modification to the Irish formula.<sup>392</sup>

The eighth session also marks a significant development in the formulation of the ridge provisions as it was during this session that the term "ridges" was first introduced. It began with the Soviet Union proposal which sought to make an addition to paragraph 2 so that the continental margin did not include "the deep ocean floor, the subsoil thereof, nor *underwater*

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<sup>390</sup> Harald Brekke and Philip A Symonds, 'The ridge provisions of Article 76 of the UN Convention on the Law of the Sea' in Myron H Nordquist, John Norton Moore, Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 174.

<sup>391</sup> LOS Convention 1982, Article 76(3).

<sup>392</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 860-867.

*ocean ridges* and the subsoil thereof."<sup>393</sup> Besides introducing the term “underwater ocean ridges”, that proposal also triggered a discussion on the issue of the extent of a coastal State's continental shelf on *submarine ridges which might be considered part of its natural prolongation*.<sup>394</sup> Thus, since two different terms were employed, it is evident even at this early stage that the "underwater ocean ridges" proposed in paragraph 2 by the Soviet Union were those which are not part of the natural prolongation of a land territory.

Based on all the proposals drafted, the Chairman of Negotiating Group 6<sup>395</sup> submitted a compromise solution which was later incorporated into the Revised Informal Composite Negotiating Text (ICNT/Rev.1) after receiving extensive support from States.<sup>396</sup> Paragraph 3 of the text itself did not contain any reference to ridges and merely excludes the deep ocean floor from the continental margin. However, it did include a footnote which stated that a mutually acceptable formulation will be drawn up on the question of "underwater oceanic ridges".<sup>397</sup> Nevertheless, the footnote was the only provision that had any mention of ridges and there was no other provision indicating the type of ridge to which the footnote was referring.

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<sup>393</sup> NG 6/8, Article 76 (USSR). Reproduced in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 9 (Oceana Publications 1982) 377 (emphasis added).

<sup>394</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 862.

<sup>395</sup> Negotiating Group 6 was established during the seventh session to address issues on, among others, the definition of the outer limits of the continental shelf and the question of payments and contributions with respect to the exploitation of the continental shelf beyond 200 M. Discussions on the definition of the outer limits of the continental shelf mainly revolved around the proposals submitted by the Soviet Union and Ireland.

<sup>396</sup> A/CONF.62/L.37 (1979) Article 76 (Chairman NG 6) in United Nations, ‘Third United Nations Conference on the Law of the Sea’, *Official Records*, vol XI (United Nations 1980) 100; Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 863.

<sup>397</sup> *Ibid* para 3.



Thus, Oxman construed the term "underwater oceanic ridges" in the footnote as referring to ridges having the same qualities as the deep ocean floor. He came to that conclusion after finding that construing the word "oceanic" to mean underwater would be redundant.<sup>398</sup>

Nevertheless, it is important to note that the Soviet Union proposal on "underwater ocean ridges" which was to be excluded from the definition of the continental margin was not yet incorporated into paragraph 3 of the compromised text at the time. Furthermore, the issue concerning the other type of ridge, that is, the submarine ridge which might be considered as part of the natural prolongation of a coastal State was already raised during this session as a result of the introduction of the ridges by the Soviet Union. As such, it is most likely that the term "underwater oceanic ridges" in the footnote of the ICNT/Rev.1 was meant to refer to both types of ridges which had yet to be resolved. As the term used in the footnote clearly described the ridges as "oceanic", it can therefore be concluded, in light of these observations, that both the "underwater ocean ridges" as proposed by the Soviet Union, as well as the "submarine ridges" which might be considered a natural prolongation of a coastal State's land mass were seen as ridges that are oceanic in nature as opposed to being continental.

### **Resumed 8th session (1979)**

At the resumed eighth session, one of the main questions to be considered by Negotiating Group 6 included the issue on "submarine oceanic ridges" and this was the term used in the agenda.<sup>399</sup> The group continued its work in examining several informal proposals concerning the issue.<sup>400</sup>

It is worthy to be reminded that the original term used in the footnote in the ICNT/Rev.1 was "underwater oceanic ridges" which was to be discussed in order to reach a mutually acceptable

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<sup>398</sup> Bernard H Oxman, 'The Third United Nations Conference on the Law of the Sea: The Eighth Session (1979)' (1980) 74 AJIL 1, 21.

<sup>399</sup> A/CONF.62/L.42 (1979) para 8 (Chairman, Second Committee) in Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 867.

<sup>400</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 867-868.

formulation. However, “submarine oceanic ridges” was the term used in the agenda in the resumed eighth session, and not the former.<sup>401</sup> Despite careful viewing of the documents, it is unclear what persuaded the delegates to change the wording. On one hand, it could be assumed that the two terms bear the same meaning since "underwater" and "submarine" can both be interpreted to mean below the surface of the water.<sup>402</sup>

On the other hand, a preferred interpretation would be that the "submarine oceanic ridges" written in the agenda referred to submarine ridges which might be a natural prolongation of a land mass, raised during the eighth session. This could be found based on an examination of the Soviet Union proposals. As mentioned earlier, at the eighth session, the Soviet Union made a proposal indicating that "underwater ocean ridges" are not to be included in the continental margin and hence not entitled to generate continental shelf rights. However, during the discussion on "submarine oceanic ridges" at this resumed eighth session, the Soviet Union made another proposal to limit the shelf to a maximum of 350 NM in areas containing "submerged oceanic ridges".<sup>403</sup> Hence, this recognition to an entitlement of a continental shelf in the latter proposal reflects the view that "submerged oceanic ridges" were intended to be different from the "underwater ocean ridges" raised during the eighth session.

This undoubtedly shows that by referring to "submerged oceanic ridges", the Soviet Union must have been addressing the issue of ridges which were part of the natural prolongation of a land mass. Furthermore, it cannot be argued that the Soviet Union proposal on "submerged oceanic ridges" was intended to nullify its previous proposal on "underwater ocean ridges" as the former was intended as an addition to paragraph 5 while the latter was clearly aimed at modifying paragraph 2. Apart from that, this also shows that at this stage, ridges that are considered a

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<sup>401</sup> A/CONF.62/L.42 (1979) para 8 (Chairman, Second Committee) in Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 867.

<sup>402</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 867.

<sup>403</sup> Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 9 (Oceana Publications 1982) 379.

natural prolongation of the land mass were intended to be, or were at least thought to be, oceanic as opposed to continental.

Besides what can be inferred from the Soviet Union proposals, a description of "submarine oceanic ridges" can be found in a proposal to modify paragraph 5 submitted by ten States which defined the ridges as "long, narrow submarine elevations formed of oceanic crust".<sup>404</sup> Although brief and short of detail, this was the first proposal that included a definition of ridges. Similar to the Soviet Union proposal, this proposal also sought to limit the continental shelf jurisdiction on submarine oceanic ridges to a distance of 350 NM.<sup>405</sup>

Another proposal which sought to modify paragraph 5 was the proposal by Bulgaria. This proposal was entirely different in its approach compared to the two proposals previously mentioned. The proposal did not allow for any extension of a continental shelf beyond 200 NM on submarine oceanic ridges. Its effect was to limit the continental shelf on submarine ridges to a maximum of 200 NM from the baseline.<sup>406</sup>

It is noted that the Soviet Union had used the term "submerged oceanic ridges" while the proposal by the ten States as well as Bulgaria had used the term "submarine oceanic ridges". However, it is pointed out that this is of trivial significance. The similarity in the meaning of "submerged" and "submarine" combined with the fact that all three proposals were intended to modify the same clause, that is paragraph 5, is ample evidence that they were referring to the same type of ridges.

Another point that can be deduced from this session is the introduction of a crustal type criterion for ridges. First, the proposal by the ten States as mentioned earlier described submarine oceanic

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<sup>404</sup> Proposal by Argentina, Australia, Canada, India, Ireland, New Zealand, Norway, United Kingdom, United States of America and Uruguay, NG6/11 (13 August 1979) in *ibid* 380.

<sup>405</sup> *Ibid*.

<sup>406</sup> Nandan and Rosenne, *United Nations Convention on the Law of the Sea 1982 A Commentary*, Dordrecht, 1993, Vol. ii, p. 867.

ridges as being formed of oceanic crust.<sup>407</sup> Second, Japan proposed adding the words "or ridges formed of oceanic crust" after "deep ocean floor".<sup>408</sup> The Japan proposal would have changed the last sentence of paragraph 3 to read as follows: "It does not include the deep ocean floor or ridges formed of oceanic crust or the subsoil thereof".<sup>409</sup>

This proposal appears to be a consequence of the Soviet Union proposal that the continental margin does not include the deep ocean floor and "underwater ocean ridges". The Japan proposal merely clarified that the ridges excluded from the continental margin are those of oceanic crustal type as opposed to continental crustal type.

Nevertheless, it is noted that the final and present text of paragraph 3 excludes the deep ocean floor "with its oceanic ridges" without any reference to crustal type.<sup>410</sup> This shows that the crustal type criterion proposed by Japan had been rejected by delegates and the "oceanic ridges" of the deep ocean floor is to be excluded from the continental margin regardless of its crustal type.

This session shows a significant development in the construction of the ridge provisions. Furthermore, the discussion at this session reveals that there are actually two types of ridges, both of which are oceanic. More importantly, this session clarifies that the submarine ridges referred to in the present paragraph 6 are ridges which are part of the natural prolongation of a coastal State's land mass as opposed to ridges of the deep ocean floor.

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<sup>407</sup> NG6/11 (13 August 1979) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 9 (Oceana Publications 1982) 380.

<sup>408</sup> NG6/16 (1979) Article 76(3) (Japan) in *ibid* 383.

<sup>409</sup> *Ibid*.

<sup>410</sup> LOS Convention 1982, Article 76(3).

## **Ninth session of the Conference (1980)**

Discussions on submarine oceanic ridges continued into the ninth session in Negotiating Group 6 since they were still unresolved by the end of the resumed eighth session.<sup>411</sup> The ninth session saw a continuation of debates aimed at modifying the ridge provisions which were then paragraphs 3 and 5. This session also marks another significant step towards the conclusion of the ridge provisions with the introduction of another submarine feature, that is, submarine elevations.<sup>412</sup>

Submarine elevations first made its way into the forefront of negotiations through the proposal made by the group of broad-shelf States.<sup>413</sup> The proposal which sought to modify paragraph 3 suggested the inclusion of "submarine elevations" to the definition of the continental margin but not oceanic ridges of the deep ocean floor.<sup>414</sup> A similar proposal was advanced by Australia, also a member of the group, which sought to list examples of submarine elevations as "plateaux, rises, banks and spurs".<sup>415</sup>

A few points can be made concerning the proposal by the broad-shelf States above. First, the purpose of inserting the term "submarine elevations" into paragraph 3 was clearly in order to distinguish it with oceanic ridges of the deep ocean floor. This, combined with the fact that the submarine elevations clause was initially proposed to be added under paragraph 3 is of significance. It is obvious from here that submarine elevations were intended to refer to elevations which formed part of the continental margin as opposed to the deep ocean floor. Hence, when the submarine elevations clause was subsequently moved from paragraph 3 to

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<sup>411</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 868-872.

<sup>412</sup> Ibid.

<sup>413</sup> These States were known as "the Margineers" and consisted of the following: Argentina, Australia, Brazil, Canada, Iceland, India, Ireland, Madagascar, New Zealand, Norway, Sri Lanka, United Kingdom and Venezuela. Ibid 842.

<sup>414</sup> The Margineers. (1980), Article 76 (3) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 4 (Oceana Publications 1982) 524.

<sup>415</sup> Ibid.

paragraph 6, the descriptive words in paragraph 6 limiting submarine elevations to those which are "natural components of the continental margin" were necessary in order to keep the meaning intact. Another point worth mentioning is that the term "submarine elevations" had been used previously in a proposal submitted by ten States at the resumed eighth session which defined "submarine oceanic ridges" as "long narrow *submarine elevations* formed of oceanic crust".<sup>416</sup> According to this definition, submarine oceanic ridges are also submarine elevations albeit the difference between the former and submarine elevations that are natural components of the continental margin was that submarine oceanic ridges refer specifically to those which are formed of oceanic crust. Hence, "submarine elevations" in the sense of paragraph 3 (now paragraph 6) would almost certainly refer to those elevations that are not formed of oceanic crust but are natural components of the continental margin.

Subsequent to the proposal by the broad-shelf States was a proposal by the Soviet Union. The proposal suggested to list examples of what is not included in the continental margin, that is, "the deep ocean floor, with its oceanic ridges, seamounts, guyots and any other submarine elevations not situated on the continental margin or the subsoil of the ocean floor".<sup>417</sup>

The addition to paragraph 3 of the Soviet Union proposal could have been triggered by the Australian proposal which listed examples of submarine elevations. It clarified that features of the deep ocean floor are to be excluded from the continental margin.<sup>418</sup> The words "and any other submarine elevations" suggests that the list of features preceding it, that is, the oceanic ridges, seamounts and guyots, are examples of submarine elevations that are not included in the continental margin where they are not situated on the continental margin.<sup>419</sup> The wordings also indicate that this list is not exhaustive. More importantly though, the proposed paragraph affirms

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<sup>416</sup> NG6/11 (13 August 1979) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 9 (Oceana Publications 1982) 380 (emphasis added).

<sup>417</sup> NG6/21 (1980) Informal proposal by the USSR, *ibid* 389.

<sup>418</sup> *Ibid*.

<sup>419</sup> *Ibid*.

that the Soviet Union considers the location of a feature as the determining factor on whether it is included in the continental margin.

On the question of submarine elevations, it is apparent from the Soviet Union proposal as well as the previous proposal by the broad-shelf States that the term "submarine elevations" was used as a generic term to refer to all types of underwater features which constitute an elevation of the seabed regardless of its morphology or geological composition and regardless as to whether it is situated on the continental margin or the deep ocean floor. This can be seen from the fact that the broad-shelf States' proposal used the term "submarine elevations" to refer to those elevations situated on the continental margin, while the Soviet Union proposal used the same term in the context of referring to elevations of the seabed situated on the deep ocean floor.

Apart from the modification to paragraph 3, the Soviet Union also proposed a new paragraph 5 *bis*. According to that proposal, the 350 NM limit was to be applied "in areas of any other submarine ridges and elevations except those referred to in paragraph 3".<sup>420</sup>

An analysis of the Soviet Union's paragraph 5 *bis* reveals that the term "submarine ridges" must refer to oceanic ridges since the same term was used during negotiations at the resumed eighth session. Despite thorough viewing of the documents, it is still unclear why the word "oceanic" was dropped from the term. The second part of the phrase "except those referred to in paragraph 3" is to be read together with the Soviet Union proposal in paragraph 3. Thus, the 350 NM limit is not to be applied to oceanic ridges of the deep ocean floor and submarine elevations of the continental margin. This again confirms that the ridges subject to the 350 NM rule in paragraph 5 would be those oceanic ridges which do not belong to the deep ocean floor.

Further to those proposals, the Chairman of Negotiating Group 6 formulated a compromise solution for paragraphs 3 and 5 *bis*. The last sentence of paragraph 3 read: "It does not include the

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<sup>420</sup> Ibid.

<sup>421</sup> Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 576.

deep ocean floor with its oceanic ridges or the subsoil thereof.<sup>421</sup> As for paragraph 5 *bis*, the Chairman formulated a compromise proposal which read as follows:

Notwithstanding the provisions of paragraph 5, on submarine ridges the outer limits of the continental shelf shall not exceed 350 miles from the baseline from which the breadth of the territorial sea is measured. This paragraph does not apply to submarine elevations that are natural components of the continental margin, such as its plateaux, rises, caps, banks and spurs.<sup>422</sup>

A few points can be made from the new compromise proposal. First, the examples of features not included in the continental margin in the Soviet Union's proposed paragraph 3 must have been regarded as unnecessary by the Chairman as it is obvious that features of an oceanic nature not situated in the continental margin cannot in any way generate continental shelf rights. This is only reasonable as the deep ocean floor itself is already precluded from generating continental shelf rights regardless of whether there are submarine features situated on it. Accordingly, the examples in the Soviet Union proposal would appear to be redundant. As such, this led to the simplified version of paragraph 3 in the compromise proposal.

However, it is to be noted that "oceanic ridges" was the only submarine feature retained by the Chairman in the compromised paragraph as a feature of the deep ocean floor which is not included in the continental margin. This leads to another point relating to oceanic ridges of the deep ocean floor. Hence, it is only plausible to say that "oceanic ridges" in paragraph 3 was retained in order to distinguish it from "submarine oceanic ridges". The former belongs to the deep ocean floor whereas the latter, while also sharing characteristics of an oceanic nature, is connected to the land mass and forms part of its natural prolongation.

The second point worthy of note is that although the provision on submarine elevations was inserted into paragraph 5 *bis* in the compromise proposal, it was originally proposed to be inserted into paragraph 3 indicating that submarine elevations were to be distinguished using

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<sup>422</sup> Ibid.



oceanic ridges of the deep ocean floor. As observed before, the term "submarine elevations" was used by delegates as a generic term referring to all types of elevations of the seabed. Hence, when the submarine elevation clause was moved to paragraph 5 *bis* in the compromise proposal, the descriptive words "that are natural components of the continental margin" were added to the term indicating that the "submarine elevations" were referring to those which formed part of the continental margin as originally proposed by the broad-shelf States in paragraph 3. Despite careful observation of the relevant documents, it is unclear what led the Chairman to formulate the wordings of the clause. Nevertheless, it is considered necessary for the reason stated above. Therefore, a plausible interpretation of submarine elevations would be that they are seafloor highs which share characteristics with the continental margin of the land territory in question as opposed to the deep ocean floor. Sure enough, this interpretation appears to be what was understood at the time. This is evident from the statements made by delegates during the session following the compromise proposal.

Among them was the statement made by Denmark who, in an attempt to elucidate the meaning of paragraph 5 *bis*, interpreted "submarine elevations that are natural components of the continental margin" as "submarine elevations that belong to fundamentally the same geological structure as the land territory of the coastal State in question".<sup>423</sup>

The United States expressed its interpretation of what constitutes a submarine elevation by giving an example of what it understood as a submarine elevation as follows:

[The United States] support for the proposal on the continental shelf contained in the report of the Chairman of the Second Committee rested on the understanding that it was recognized - and to the best of his knowledge, there was no contrary interpretation - that features such as Chukchi plateau situated to the north of Alaska and its component elevations could not be considered a ridge and were covered by the last sentence of the proposed paragraph 5 *bis* of article 76.<sup>424</sup>

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<sup>423</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 870.

<sup>424</sup> *Ibid.*

The United States understanding of what constitutes a submarine elevation was expressed by giving an example of the Chukchi Plateau. The geological characteristics of the plateau, which led the United States to arrive at that conclusion, were not mentioned in the statement. However, the plateau is situated to the north of Alaska, and appears most likely to be part of the natural prolongation of Alaska.

On the issue of submarine ridges, Iceland had voiced out its understanding of the provision on submarine ridges to the effect that the 350 NM cut off would apply to "ridges which were a prolongation of the land mass of the coastal State concerned".<sup>425</sup> This is in line with the Soviet Union proposal which implied that submarine ridges are oceanic ridges which are not ridges of the deep ocean floor as observed before. This statement by Iceland, therefore, strengthens the finding that "submarine ridges" are ridges that form the natural prolongation of a land mass.

The compromise provisions were later incorporated verbatim in Article 76 of the ICNT/Rev.2.<sup>426</sup> It is to be noted that the footnote in ICNT/Rev.1 on the issue of coming to a mutually accepted formulation on ridges did not appear in the ICNT/Rev.2. This indicates that the formula on ridges as incorporated in the ICNT/Rev.2 had been agreed upon.<sup>427</sup>

Negotiations on Article 76 continued until the eleventh session in 1982.<sup>428</sup> However, as of the ninth session, there were no more discussions on ridges and submarine elevations that continued until the eleventh session, nor had there been any modification of the ridge provisions before the final draft of Article 76 was concluded.<sup>429</sup>

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<sup>425</sup> Ibid.

<sup>426</sup> ICNT/Rev.2 (1980) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 2 (Oceana Publications 1982) 48.

<sup>427</sup> Ibid.

<sup>428</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 873.

<sup>429</sup> Ibid.

### 5.2.1 Conclusion

This examination of the legislative history of the ridge provisions provide some useful insight on the interpretation of submarine features as intended by the drafters of Article 76. The analysis made with regard to this suggests that the following are noteworthy.

The first point concerns the interpretation of "oceanic ridges" in the sense of paragraph 3. In relation to this, it can be concluded that two criteria have been established during negotiations which led to the identification of what constitutes an oceanic ridge of the deep ocean floor. The first relates to the geological characteristic of the oceanic ridges whereas the second concerns their location, that is, the deep ocean floor.

As for the first criteria, paragraph 3 expressly describes the ridges as being oceanic in nature. From the beginning of negotiations, the numerous proposals on the definition of the continental margin were attempts at defining the boundary between the continental margin and the deep ocean floor. When oceanic ridges were first introduced by the Soviet Union as "underwater ocean ridges" during the eighth session, the provision clearly sought to exclude the deep ocean floor and the ridges from the continental margin.<sup>430</sup> This combined with the word "ocean" and "underwater ocean ridges" indicate that the ridges are oceanic and share characteristics of the deep ocean floor. This was later incorporated into the present paragraph 3 albeit the term used to refer to the ridges had been changed. As for the type of features which could be considered oceanic ridges, this has been shown in the ninth session that "seamounts, guyots and any other submarine elevations not situated on the continental margin" were also intended to be excluded from the continental margin.<sup>431</sup> As such, it had been established that the abrogation of these words was merely for the sake of simplicity as "oceanic ridges" of the deep ocean floor would inevitably include these features.

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<sup>430</sup> NG 6/8, Article 76 (USSR) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 9 (Oceana Publications 1982) 377.

<sup>431</sup> NG6/21 (1980) Informal proposal by the USSR, *ibid* 389.

The second criteria relates to the location of oceanic ridges. Paragraph 3 expressly states that the ridges belong to the deep ocean floor with the words "the deep ocean floor *with its* oceanic ridges".<sup>432</sup> Hence, the location of the deep ocean floor is of utmost importance. When the final draft of paragraph 3 was constructed, the continental margin was defined as consisting of the shelf, slope and rise and that it did not include the deep ocean floor. Because the rise covers a large transitional area, greater precision was made in paragraph 4 in order to define the boundary. According to paragraph 4, the outer edge of the continental margin was to be determined according to either the Hedberg or Gardiner formula, which would be the juridical boundary between the continental margin and the deep ocean floor. This would place the deep ocean floor as the area beyond the points established through either formula. Thus, it is evident that the deep ocean floor is more of a legal feature than a geological one. As a result, the oceanic ridges of the deep ocean floor mentioned in paragraph 3 of Article 76 must correctly refer to those ridges of an oceanic character and are located on the deep ocean floor as defined above, that is, they are located beyond the points established by either the Hedberg or Gardiner formula.

The second point relates to the interpretation of "submarine elevations" in the sense of paragraph 6. As observed in the previous discussion, "submarine elevations" were only introduced during the ninth session, much later than oceanic ridges and submarine ridges.<sup>433</sup> The submarine elevations clause first came into the forefront of negotiations in order to clarify which elevations was part of the continental margin and which belong to the deep ocean floor. Hence, when the "submarine elevations" clause was proposed in paragraph 3 it was intended to refer to those which were part of the continental margin. This would apparently mean that submarine elevations are those which share geological and morphological characteristics with the continental margin. This intention was made obvious when the clause was moved to paragraph 5 *bis* in the compromise proposal and the submarine elevations clause was made clear with the requirement that they must be natural components of the continental margin in order for the 100 NM from the 2,500 metre isobath constraint to apply. When the provision was subsequently

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<sup>432</sup> (Emphasis added).

<sup>433</sup> Proposal by the Margineers. (1980), Article 76(3) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 4 (Oceana Publications 1982) 524.

moved to paragraph 6 and was included in the final draft of Article 76, this signified the agreement of delegates that the submarine elevations in the sense of that paragraph must be a natural component of the continental margin. Despite careful viewing of the documents, there is no indication of there having been any debate on what is meant by "natural component of the continental margin". This is highly suggestive of the fact that the meaning was obvious to the delegates at the time. Looking at the history of debates, it is apparent that the "natural component of the continental margin" merely means being a part of the continental margin, that is, sharing the same geological and morphological characteristics of the continental margin.

The third point is concerning the interpretation of "submarine ridges" in the sense of paragraph 6. Two points dealing with ridges have been identified from the legislative history. It is with these characteristics that the ridges, as envisaged by delegates at that time, are to be distinguished from the other two submarine features.

The first relates to the requirement that the ridges are a natural prolongation of the continental margin. According to the history of negotiations observed, when the issue of submarine ridges or "submarine oceanic ridges" as they were then called was brought up, it was intended to cover ridges which were a natural prolongation of the continental margin.<sup>434</sup> This was expressly stated during negotiations. The realisation that there was a need for a provision on submarine ridges only came up after a proposal by the Soviet Union for "underwater ocean ridges" to be excluded from generating any continental shelf rights.<sup>435</sup> This was apparently viewed by delegates as necessary since there were coastal States of which their natural prolongation consisted of oceanic ridges and it would not be just to deny such States their continental shelf rights.

From here, the second characteristic of submarine ridges can be identified, that is, the ridges are of oceanic character as opposed to continental. However, with the subsequent removal of the word "oceanic" later on during negotiations, it might be argued to be an indication that ridges of

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<sup>434</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 862.

<sup>435</sup> NG 6/8, Article 76 (USSR) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 9 (Oceana Publications 1982) 377.

non-oceanic character may also be covered by the term "submarine ridges" in paragraph 6 provided they constitute the natural prolongation of the land mass. Although submarine ridges were originally envisioned as ridges of oceanic character, there was neither any explicit rejection of the ridges being of a continental nature, nor of them being of mixed lineage, if such a ridge exists. Accordingly, the simplest way of putting it is that a submarine ridge would encompass any seafloor high which is a natural prolongation of the land mass but is not a natural component of the continental margin. Nevertheless, the absence of any express statement to that effect suggests that it is not yet safe to conclude that submarine ridges may comprise of ridges with non-oceanic character.

In light of discussions, issues on the seafloor highs can be clarified as follows:

1. There is a difference between oceanic ridges in the sense of paragraph 3 and submarine ridges in the sense of paragraph 6. Although both may have the same geological composition and are in essence geologically similar in the sense that they both share qualities of the ocean floor, submarine ridges in paragraph 6 are those ridges which form part of the natural prolongation of a coastal State while oceanic ridges in paragraph 3 refer to ridges located beyond the outer edge of the continental margin in the context of a coastal State whose natural prolongation consists of a continental margin. Thus, the difference between the two lies in their connection to the coastal State's land mass.
2. Submarine ridges were visualised by the drafters of Article 76 as ridges having an oceanic geological structure. Nevertheless, the most important element associated with submarine ridges is that they are connected to the land mass by being part of its natural prolongation.
3. Although the term "submarine elevations" was used liberally to refer to elevations of the seafloor regardless of geological and morphological characteristics, "submarine elevations that are natural components of the continental margin" in the sense of paragraph 6 are elevations of the seafloor that share geological characteristics of the continental margin. They must be continental in nature as opposed to oceanic and possess the same composition as the continental margin of the coastal State's land mass.

It would then follow that any interpretation of the respective seafloor highs that are different than the ones deduced from the legislative history of the ridge provisions as analysed above would not be in conformity with the provisions of Article 76, and would hence be in breach of the Convention. Be that as it may, to base a definitive conclusion merely on the textual interpretation of Article 76 would be to undermine the various other factors which may have an effect. Thus, it is essential to identify whether there are any other considerations which might strengthen or undermine the textual interpretation discussed above or whether there are any alternative interpretations which might not result in a breach of the Convention. The next section will deal with these considerations. The first part is a discussion on State practice, while the second will examine the practice of the Commission.

### 5.3 State Practice

State practice with regard to the ridge issue can be deduced by examining the classification of submarine highs by States and the location of foot of continental slope points in order to determine which features are considered part of the continental margin. This can be gathered directly from official documents such as executive summaries of submissions as well as recommendations of the Commission, and indirectly from various reports and articles on the geological and geophysical characteristics of submarine highs.

#### a) New Zealand

New Zealand distinguishes between the three types of seafloor highs based on three main criteria, that is, morphological continuity, geological continuity and tectonic continuity of seafloor highs with the land mass and continental margin.<sup>436</sup>

On submarine elevations, New Zealand referred to paragraph 7.3.1 of the Guidelines extensively in determining what can be considered a natural component of the continental margin and has deduced certain points based on its understanding of the paragraph.

First, for growth of the continental margin by the process of accretion, New Zealand interprets this to mean that volcanic seamounts or oceanic rock fragments of the mid-ocean spreading ridge that are accreted to a continent by tectonic activity may be regarded as the natural components of the continental margin. Thus, island arcs in the Pacific region are considered natural components of the continental margin as they contribute significantly to continental growth by accretion.<sup>437</sup>

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<sup>436</sup> Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the Submission made by New Zealand 19 April 2006' (United Nations, 22 August 2008); Ray Wood and others, *New Zealand's Continental Shelf and UNCLOS Article 76* (New Zealand Continental Shelf Project Scientific Advisory Group 2003) 31.

<sup>437</sup> Ray Wood and others, *New Zealand's Continental Shelf and UNCLOS Article 76* (New Zealand Continental Shelf Project Scientific Advisory Group 2003) 29.



Second, in seafloor highs formed by rifting and other processes of continental break up, it is essential that the feature forms an integral part of the prolongation of land mass in order to be considered a natural component of the continental margin. This has been interpreted by New Zealand to mean having a "continuous morphological and geological connection to the land mass".<sup>438</sup> Thus, continental fragments for which their connection with the continent has been changed due to continental break up would still be considered natural components of the continental margin as long as they are an integral part of the prolongation of the land mass. The continental fragments must have a continuous geological and morphological connection with the land mass. As such, continental fragments for which their connection with the land mass is completely severed even though they share the same geologic origin and history with the land mass cannot be said to have a continuous morphological connection with the land mass.<sup>439</sup> The meaning and required degree of morphological and geological connection can be understood by examining the examples of the New Zealand practice.

New Zealand relies highly on the affinity or "similarity of geologic origin and history" of rocks along the seafloor high with that of the land mass in order to distinguish between a submarine ridge and a natural component of the continental margin.<sup>440</sup>

The Gilbert Seamount is an example of a continental fragment from a rifted margin. As it is continental in origin, it cannot in any way be an oceanic ridge. Gilbert Seamount was originally part of Challenger Plateau, hence, part of the Gondwana continent. Nevertheless, during the fragmentation of Gondwana, the seamount became separated from Challenger Plateau by a saddle area formed as a result of continental break up.<sup>441</sup> Therefore, the seamount can be

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<sup>438</sup> Ibid.

<sup>439</sup> Ibid.

<sup>440</sup> Ibid 31.

<sup>441</sup> Ray Wood, *Finding the Continental Shelf - Examples from the New Zealand Region* (ABLOS Conference, Monaco, October 2001) 3 <<http://www.gmat.unsw.edu.au/ablos/ABLOS01Folder/WOOD.PDF>> accessed 16 December 2008.

considered a natural component of the continental margin if it forms an "integral part of the prolongation of the land mass".

On a morphological basis, Challenger Plateau is connected with the New Zealand land mass. The saddle separating the seamount from Challenger Plateau was formed by rifting prior to seafloor spreading and is made up of sediments which are part of coalescing fans. The depth of the saddle was calculated to be approximately 4,400 metres. This is significantly shallower than the 5,000 metre deep ocean floor in the adjacent Tasman Basin.<sup>442</sup>

New Zealand relies on the fact that the saddle is shallower than the deep ocean floor to claim that there is in fact a morphological connection between Gilbert Seamount and Challenger Plateau, although it is not a strong one.<sup>443</sup>

The geological aspect shows that there is a continuity of continental rocks from the seamount to Challenger Plateau and extending all the way to the land mass.<sup>444</sup> A geological connection can be established based on the continuity of continental rocks.<sup>445</sup>

Although the morphological connection with the landmass based on the saddle area is not strong, there is a continuity of continental rocks from the seamount to Challenger Plateau and extending all the way to the mainland.<sup>446</sup> Because of this continuity of geologic connection, New Zealand

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<sup>442</sup> Ibid 4.

<sup>443</sup> Ray Wood, *Finding the Continental Shelf – Integration of Geology and Geophysics* (New Zealand Petroleum Conference Proceedings, February 2002) 5-7 <<http://www.gns.cri.nz/static/unclos/pdfs/44wood.pdf>> accessed 20 February 2009.

<sup>444</sup> Ray Wood, *Finding the Continental Shelf - Examples from the New Zealand Region* (ABLOS Conference, Monaco, October 2001) 3 <<http://www.gmat.unsw.edu.au/ablos/ABLOS01Folder/WOOD.PDF>> accessed 16 December 2008.

<sup>445</sup> Ibid.

<sup>446</sup> Ibid.

concluded that Gilbert Seamount is an integral part of the prolongation of the New Zealand land mass. Thus, it is a natural component of the continental margin and not a submarine ridge.<sup>447</sup>

Similar to Gilbert Seamount, the Bollons Seamount is also an elevated continental fragment and was formed as a result of the Gondwana break up. It is located in the eastern region some 1,000 kilometres to the southeast of South Island. The seamount is shallow to less than 1,000 metres deep and separated from the adjacent Campbell Plateau except for a saddle connecting between them.<sup>448</sup>

According to a report made during the earlier days of the New Zealand Continental Shelf Project, it was believed that the rifting process that occurred between Bollons Seamount and Campbell Plateau may have been more advanced than that between Gilbert Seamount and Challenger Plateau.<sup>449</sup> Because of this advanced rifting process, a morphological continuity of rocks between Bollons Seamount and Campbell Plateau was not yet found at the time.<sup>450</sup>

However, the saddle area separating the seamount from Campbell Plateau is found to be significantly shallower than the deep ocean floor surrounding it, similar to the situation with Gilbert Seamount.<sup>451</sup> This indicates that morphological continuity between the seamount and the plateau has been established. Further evidence can be seen in the New Zealand executive summary where the foot of the continental slope points were established near the base of the

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<sup>447</sup> Ibid; Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the Submission made by New Zealand 19 April 2006' (United Nations, 22 August 2008) para 183.

<sup>448</sup> Ray Wood, *Finding the Continental Shelf - Examples from the New Zealand Region* (ABLOS Conference, Monaco, October 2001) 5 <<http://www.gmat.unsw.edu.au/ablos/ABLOS01Folder/WOOD.PDF>> accessed 16 December 2008.

<sup>449</sup> Ibid.

<sup>450</sup> Ibid.

<sup>451</sup> Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the Submission made by New Zealand 19 April 2006' (United Nations, 22 August 2008) para 70.

slope of the seamount.<sup>452</sup> This proves that New Zealand has in fact claimed the seamount as a natural prolongation of its land mass.

The findings from Gilbert Seamount and Bollons Seamount imply that if the depth of the saddle area was deeper to the extent it resembles the deep ocean floor, the morphological connection between the seamount and the plateau would be thoroughly severed. In such a case, it would be difficult to suggest that the seamount is an integral part of the prolongation of the land mass, and hence a natural component of the continental margin, even though there is a geological connection.

### **Hikurangi Plateau**

The Hikurangi Plateau region demonstrates the New Zealand practice on accreted terranes on convergent margins. The Hikurangi Plateau is a large igneous province situated on the eastern side of North Island. Its composition is similar to oceanic crust although its thickness is about 10-15 km which is thicker than the adjacent oceanic crust of the ocean floor which is only 5-7 km thick.<sup>453</sup> The plateau was accreted to the continental land mass at the subduction zone along the New Zealand part of the Gondwana continental margin.<sup>454</sup>

Along the western side, the plateau is currently subducted beneath the North Island along the Hikurangi Trough. It is understood that there were seamounts on the plateau that have been subducted beneath North Island and accreted to the margin. As a result, this part of the New

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<sup>452</sup> New Zealand, 'New Zealand Submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76 of the United Nations Convention on the Law of the Sea - Executive Summary' (19 April 2006) 14.

<sup>453</sup> R Wood, *Finding the Continental Shelf – Integration of Geology and Geophysics* (New Zealand Petroleum Conference Proceedings, February 2002) 5 <<http://www.gns.cri.nz/static/unclos/pdfs/44wood.pdf>> accessed 20 February 2009.

<sup>454</sup> Ray Wood and others, *New Zealand's Continental Shelf and UNCLOS Article 76* (New Zealand Continental Shelf Project Scientific Advisory Group 2003) 13.

Zealand continental land mass has experienced growth by accretion. However, it was not proven that the whole of the subducted part of the plateau was accreted to the land mass.<sup>455</sup>

Nevertheless, the southern part of the plateau along Chatham Rise provided a better solution for the New Zealand continental shelf claim. Chatham Rise is approximately 400 metres deep and is an extension of South Island.<sup>456</sup> Thus, Chatham Rise is undeniably part of the New Zealand continental margin. In order to prove that Hikurangi Plateau is also within the continental margin, New Zealand established that a morphological connection exists between Hikurangi Plateau and Chatham Rise.<sup>457</sup> It was found that the plateau abuts the continental rocks of Chatham Rise. Further evidence showed that the basement rocks of New Zealand comprise of terranes accreted to the Gondwana margin. The Hikurangi Plateau, believed to be the last of the terranes, were accreted to Chatham Rise which was part of the original Gondwana margin.<sup>458</sup>

This accretion of the Hikurangi Plateau onto Chatham Rise as well as parts of North Island was used by New Zealand to prove that the plateau is in fact a natural component of the continental

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<sup>455</sup> Bryan Davy and Chris Uruski, *Result of the 2001 deep seismic survey of the Chatham Rise and Hikurangi Plateau and implications for petroleum exploration* (New Zealand Petroleum Conference Proceedings 2002) 1 <<http://www.nzpam.govt.nz/cms/pdf-library/petroleum-conferences-1/2002-nz-petroleum-conference-proceedings/davy-2-4-mb-pdf>> accessed 20 February 2009.

<sup>456</sup> RA Cook, RA Wood, HJ Campbell, *The Chatham Rise: An exploration frontier* (New Zealand Petroleum Conference Proceedings 1989) 35 <<http://www.nzpam.govt.nz/cms/pdf-library/petroleum-conferences-1/1989-petroleum-conference-proceedings/cook-436-kb-pdf>> accessed 21 February 2009.

<sup>457</sup> R Wood, *Finding the Continental Shelf – Integration of Geology and Geophysics* (New Zealand Petroleum Conference Proceedings, February 2002) 7 <<http://www.gns.cri.nz/static/unclos/pdfs/44wood.pdf>> accessed 20 February 2009.

<sup>458</sup> Ibid.

<sup>459</sup> Figure NZ-ES-6.2b of the ‘New Zealand Submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76 of the United Nations Convention on the Law of the Sea - Executive Summary’ (19 April 2006) shows both constraint lines (350 M and 100 M from the 2,500 metre isobaths) drawn from Chatham Rise, indicating that New Zealand regards it as a natural component of the continental margin. Since the Hikurangi Plateau was found to be accreted to it, this process of continental growth would thus mean that Hikurangi is also a natural component of the continental margin; Ray Wood and others, *New Zealand’s Continental Shelf and UNCLOS Article 76* (New Zealand Continental Shelf Project Scientific Advisory Group 2003) 29; Commission on the Limits of the Continental Shelf, ‘Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf’, CLCS/11 (United Nations, 13 May 1999) para 7.3.1.

margin.<sup>459</sup> Thus, it is considered a submarine elevation in the sense of paragraph 6 and not a submarine ridge or an oceanic ridge.

Unlike the case of rifted margins such as Gilbert Seamount and Bollons Seamount, New Zealand did not seek to establish both geological and morphological connections but had only used morphological connection to prove that Hikurangi Plateau is a natural component of the continental margin. The obvious reason behind this may be due to the fact that accreted terranes do not share the same geologic characteristics as the continental land mass as they are separate features which only later form part of the prolongation by way of accretion. As such, this explains why New Zealand did not consider whether there exists any geological connection between the Hikurangi Plateau and Chatham Rise. Thus, for convergent margins such as this, the morphological connection between the accreted terrane and the land mass is the determining factor in order to prove it is a submarine elevation that is a natural component of the continental margin.

### **Macquarie Ridge Complex**

The Macquarie Ridge Complex is located in the south western region extending southwards from South Island. The base of the continental slope beyond the 200 NM limit which is relevant to the outer continental shelf claim lies on the western flank of the ridge complex and is generally distinct and easy to identify.<sup>460</sup> However, as the ridge extends southwards, the question is whether

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<sup>460</sup> Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the Submission made by New Zealand 19 April 2006' (United Nations, 22 August 2008) para 108.

New Zealand regards the ridge as a submarine elevation that is a natural component of the continental margin or a submarine ridge.

The Macquarie Ridge Complex is a transform ridge and comprises of both continental and oceanic rocks. Although the majority of the rocks are oceanic, they are not part of the modern seafloor spreading system. Transform ridges are ridges that are continental in nature but changes its character somewhere along the ridge.<sup>461</sup> In the case of the Macquarie Ridge Complex, the rocks on the landward part of the ridge are continental and related to the New Zealand land mass. However, the precise boundary between continental and oceanic rocks is still unknown to scientists.<sup>462</sup>

Theoretically, the Macquarie Ridge Complex would be categorised as a submarine ridge based on New Zealand's interpretation. According to New Zealand, transform ridges are submarine ridges.<sup>463</sup> However, it is difficult to ascertain whether this is actually New Zealand's stand as established in the official submission to the Commission due to two reasons. First, there is nothing in the executive summary of New Zealand's submission which suggests that New Zealand classifies the ridge complex as a submarine ridge. Second, the length of the ridge along its southern part which is claimed by New Zealand is only a portion of the ridge and does not extend far enough for a conclusion to be made as to the applicable constraint line.<sup>464</sup> This is due to the New Zealand - Australian Delimitation Treaty line which cuts across the length of the ridge at points barely exceeding the 200 NM limit.<sup>465</sup> If not for the delimitation line, New

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<sup>461</sup> Ray Wood and others, *New Zealand's Continental Shelf and UNCLOS Article 76* (New Zealand Continental Shelf Project Scientific Advisory Group 2003) 31.

<sup>462</sup> Ibid.

<sup>463</sup> Ibid.

<sup>464</sup> New Zealand, 'New Zealand Submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76 of the United Nations Convention on the Law of the Sea - Executive Summary' (19 April 2006) 21 (Figure NZ-ES-6.4b).

<sup>465</sup> The Treaty between the Government of Australia and the Government of New Zealand Establishing Certain Exclusive Economic Zone Boundaries and Continental Shelf Boundaries 2004 which came into force on 25 July 2004 establishes the boundary between the exclusive economic zone and the continental shelf of Australia and New Zealand.

Zealand's continental shelf claim to the ridge would definitely extend further south. In that case, if New Zealand had limited its claim on the ridge to the point of 350 NM without considering the 2,500 metre isobath, it would be clear that New Zealand regards the ridge as a submarine ridge and not a natural component of its continental margin.

Several points can be made from the analysis on the New Zealand practice.

With regard to submarine elevations, the New Zealand practice shows that the connection between the elevation and the land mass is of utmost importance in order for it to be considered a natural component of the continental margin. In passive margins, the submarine high must be shown to be an integral part of the prolongation of the land mass. This, according to New Zealand, is demonstrated by morphological and geological continuity.<sup>466</sup> Based on the New Zealand practice, the required degree of morphological and geological continuity is merely that both must be present. It has been observed from the New Zealand practice that the requirement for morphological continuity is established where the maximum depth of the area that separates the submarine high from the land mass is less than that of the ocean floor. For instance, the morphological connection between Gilbert Seamount and Challenger Plateau as discussed, which is a natural prolongation of the New Zealand land mass, is not a strong one. Nevertheless, the saddle area which separates the seamount with the plateau with a maximum depth of 4,400 metres is still significantly shallower than the 5,000 metres depth of the Tasman Basin adjacent to it. Therefore, there is still a morphological connection albeit a weak one.

As for the degree of geological continuity, as long as continental rocks can be found from the submarine high leading back towards the continental land mass, New Zealand has regarded this as sufficient in order for the submarine high to be an integral part of the prolongation of the land mass.

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<sup>466</sup> R Wood and others, *New Zealand's Continental Shelf and UNCLOS Article 76* (New Zealand Continental Shelf Project Scientific Advisory Group 2003) 29.



## **b) Australia**

### **Kerguelen Plateau**

The Kerguelen Plateau is a large seafloor high located in the Southern Ocean with a length of approximately 2,300 kilometres and an average width of 600 kilometres. It encompasses several underwater features namely the Northern, Central and Southern Kerguelen Plateau, Skiff Bank, Elan bank and Williams Ridge. The basis for a continental shelf claim in this region is the land territory of the Heard and McDonald Islands which lie on the Central Kerguelen Plateau.<sup>467</sup>

In order to determine whether the Central Kerguelen Plateau (where the Heard and McDonalds Island is situated) is a submarine elevation which is a natural component of the continental margin, Australia had demonstrated the connection between the plateau and the island. According to Australia, the islands were formed as a result of magmatism erupting through the crust of the plateau and subsequently embedded in the crust. The magmatic rocks in some parts of the plateau were also found to be contaminated by continental crust.<sup>468</sup> The history of how the islands were formed on the plateau shows that the plateau is an integral part of the island land mass. Because of this, Australia claims the Central Kerguelen Plateau as a natural component of the continental margin.

The Southern Kerguelen Plateau was also regarded as a natural component of the continental margin. Australia came to this conclusion based on two grounds. First, that the Southern Kerguelen Plateau is morphologically connected to the Central Kerguelen Plateau which is already proven part of the natural prolongation of the continental margin. Secondly, that the Southern Kerguelen Plateau is also formed by magmatic rocks which shows contamination by continental crust similar to the crust of the Central Kerguelen Plateau.<sup>469</sup> It is evident in this case

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<sup>467</sup> Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the submission made by Australia on 15 November 2004' (United Nations, 9 April 2008) para 48.

<sup>468</sup> Ibid para 48.

<sup>469</sup> Ibid para 49.

that both morphological continuity and similarity in geological origin were established to prove that the plateau is a natural component of the continental margin.

Similarly, Australia also maintained that the Elan Bank and the Williams Ridge are natural components of the continental margin. Nevertheless, although the Elan bank was found to have the same magmatic rocks, data on the nature and origin of the Williams Ridge was based on indirect evidence.<sup>470</sup>

It is likely that the evidence given by Australia for the Williams Ridge did not include the Williams Ridge sharing the same geological origin as the other submarine features in the area. In more specific terms, it might have been inconclusive that the Williams Ridge was formed by magmatic rocks that have been contaminated by continental crust.

### **Wallaby and Exmouth Plateau**

The Australian practice with regard to the Wallaby and Exmouth Plateau Region demonstrate Australia's stand on what constitutes a submarine elevation that is a natural component of the continental margin.

The Wallaby Composite High is a structural and morphological submarine feature extending from the continental coast of north-west Australia.<sup>471</sup> The slope around the composite high is steep and ends abruptly on the deep ocean floor with no prominent rise.<sup>472</sup> In its submission, Australia holds that the Wallaby Composite High qualifies for the depth criterion constraint which accordingly means that it regards the high as a submarine elevation that is a natural component of the Australian continental margin.<sup>473</sup> This claim is based on evidence which show that the Wallaby Composite High was formed under the rifting and break-up process of the

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<sup>470</sup> Ibid.

<sup>471</sup> Ibid para 121.

<sup>472</sup> Ibid para 123.

<sup>473</sup> Ibid para 132.

continent.<sup>474</sup> However, information on the geological origin of the composite high was still unresolved.<sup>475</sup> Due to that, Australia used morphological evidence alone to maintain its claim that the feature is a natural component of the continental margin.

The Exmouth Plateau is located to the north of the Cuvier Abyssal Plain. On the northern margin of the plateau lie the Wombat Plateau, the Platypus Spur and the Joey Rise.<sup>476</sup> It has been contended that the Australian act of establishing the Joey Rise as part of its natural prolongation was to extend the base of the continental slope further north onto the Argo Abyssal Plain since the bathymetric saddle connecting Joey Rise to the Exmouth Plateau is more than 4,000 metres deep.<sup>477</sup>

Australia appears to have adopted a more relaxed approach compared to New Zealand with regard to identifying submarine elevations that are natural components of the continental margin. Both States adhere to the Guidelines in respect of the requirement that the submarine high must be formed as a result of the natural process of continental growth.<sup>478</sup> However, New Zealand goes a step further by proving that the submarine high is an integral part of the prolongation of the land mass. Australia, on the other hand, has in a couple of cases, such as in the Wallaby Composite High, based its claim on morphological evidence alone. Thus, according to the Australian practice, morphological evidence alone would suffice for the purpose of establishing that a seafloor high is a natural component of the continental margin.

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<sup>474</sup> See DE Powell and others, 'The Northwest Australian Continental Margin [and Discussion]' (1982) 305 (1489) *Phil Trans R Soc Lond A* 45.

<sup>475</sup> Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the submission made by Australia on 15 November 2004' (United Nations, 9 April 2008) para 137.

<sup>476</sup> *Ibid* para 120.

<sup>477</sup> Deborah R Hutchinson and Robert W Rowland 2006, *USGS Analysis of the Australian UNCLOS Submission: (US Geological Survey Open-File Report 2006-1073)* 5 <<http://pubs.usgs.gov/of/2006/1073/index.htm>> accessed 14 March 2011.

<sup>478</sup> Commission on the Limits of the Continental Shelf, 'Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf', CLCS/11 (United Nations, 13 May 1999) para 7.3.1.

### c) Russian Federation

The Russian Federation practice with regard to the ridge issue can be deduced from its treatment of the infamous Alpha-Mendeleev Ridge System. The executive summary of the Russian Federation submission does not state precisely whether Russia claimed the Alpha-Mendeleev Ridge System as a submarine ridge in the sense of paragraph 6 or a submarine elevation that is a natural component of its continental margin.<sup>479</sup> However, the Deputy Minister for Natural Resources of the Russian Federation, issued a statement explaining the methods used in the Russian submission. From that, it was clear that the Russian Federation had claimed the Alpha-Mendeleev as a submarine elevation that is a natural component of the Russian continental margin.<sup>480</sup>

In its submission in 2001, the Russian Federation claimed the Alpha-Mendeleev Ridge System as part of its continental margin. By way of the statement to the Commission by the Deputy Minister mentioned above, it was explained that the findings of geological and geophysical research led the Federation to claim the Alpha-Mendeleev Ridge as a natural component of its continental margin.<sup>481</sup> As a result the, the Russian Federation felt entitled to apply the constraint line of the 2,500 metre isobath. Indeed, it would seem that the ridge qualifies as a natural component of the continental margin since the ridge terminates against the edges of the Eurasian and Amerasian continental margins.<sup>482</sup>

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<sup>479</sup> For the Russian Executive Summary and maps, see , ‘Submissions, through the Secretary-General of the United Nations, to the Commission on the Limits of the Continental Shelf, pursuant to article 76, paragraph 8, of the United Nations Convention on the Law of the Sea of 10 December 1982: Submission by the Russian Federation’ *Division for Ocean Affairs and the Law of the Sea (DOALOS)* <[http://www.un.org/Depts/los/clcs\\_new/submissions\\_files/submission\\_rus.htm](http://www.un.org/Depts/los/clcs_new/submissions_files/submission_rus.htm)> accessed 12 August 2010.

<sup>480</sup> Commission on the Limits of the Continental Shelf, ‘Statement made by the Deputy Minister for Natural Resources of the Russian Federation During Presentation of the Submission made by the Russian Federation to the Commission on 28 March 2002’ CLCS/31 (United Nations, 5 April 2002) 5.

<sup>481</sup> Ibid.

<sup>482</sup> Ron Macnab, ‘Submarine Elevations and Ridges: Wild Cards in the Poker Game of UNCLOS Article 76’ (2008) 39(2) *Ocean Development & International Law* 223, 226.

According to Russia, the Amerasian Basin where the ridge is located has characteristics of continental crust varying in its degrees of transformation.<sup>483</sup> The Russian Federation explained to the Commission in a statement in 2002 the various hydrographic surveys and bathymetric mapping it undertook to establish the 2,500 metre isobath and foot of slope points in the Alpha-Mendeleev Ridge System area.<sup>484</sup> Apart from that, the Russian Federation suggested that deep seismic sounding and seismic reflection showed that the ridge system was indeed part of its continental margin by stating that the tests "provided data on the velocity characteristics, layering and thickness of the earth's crust which are characteristic of a continental-type crust."<sup>485</sup>

Be that as it may, the Russian Federation's claim to the Alpha-Mendeleev Ridge generated adverse reactions from other States.<sup>486</sup> Interestingly, geological data on the ridge system as stated in the United State's position paper demonstrated that the ridge system was formed by magma from volcanic activity on the oceanic crust of the Amerasia Basin in the Arctic Ocean.<sup>487</sup>

Based on aeromagnetic data, the United States found that the Alpha-Mendeleev Ridge System "is the bathymetric expression of a single extensive field of magnetic anomalies" lying in the oceanic part of the deep sea floor of the Arctic Ocean Basin. These anomalies do not extend to the continental margin of Russia, nor are they found on the adjacent continental shelf of the East Siberian Sea. Accordingly, the anomaly field in that area resembles those produced in the area of the Iceland-Faroe Ridge which is an oceanic ridge.<sup>488</sup>

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<sup>483</sup> 'US Reaction to Russian Continental Shelf Claim' (2002) 96(4) AJIL 969, 970

<sup>484</sup> Ibid.

<sup>485</sup> Ibid.

<sup>486</sup> Canada, the United States, Norway, Denmark and Japan were the States that expressed their reaction towards the Russian submission. However, among these States, the response by the United States was the only one that commented on the technical aspects of the Russian continental shelf claim.

<sup>487</sup> United States of America: Notification regarding the submission made by the Russian Federation to the Commission on the Limits of the Continental Shelf (CLCS.01.2001.LOS/USA, 18th March 2002). Quoted in 'US Reaction to Russian Continental Shelf Claim' (2002) 96(4) AJIL 969, 970.

<sup>488</sup> Ibid.

Apart from that, the United States contended that bathymetric data shows that the average slope of its flanks range from low to moderate which are not characteristics of ridges formed of continental rocks. The ridge system extends across the Arctic Ocean and is a single standing feature not morphologically connected to the continental shelf. In that sense, the United States again compared it with the Iceland-Faroe Ridge which is morphologically similar with the Alpha-Mendeleev Ridge System.<sup>489</sup>

The United States further asserts that, based on the aeromagnetic and bathymetric evidence which confirm that the ridge system is an oceanic ridge, it could in no way be considered a natural component of the continental margin.<sup>490</sup>

From the 2002 statement, it appears that the Russian Federation made its claim that the Alpha-Mendeleev Ridge is a submarine elevation in the sense of paragraph 6 merely on the basis that the ridge is of continental crust type. It is silent on whether the ridge was formed as result of the natural process of continental break up or any information on the formation process and origin of the ridge. Notwithstanding the evidence given by the United States, it is highly unlikely that the approaches adopted by other States would favour the Russian Federation in its claim for the Alpha-Mendeleev Ridge as a natural component of the continental margin.

Assuming the Alpha-Mendeleev Ridge System is in fact of oceanic character as stated in the United States' response, it may still qualify as a submarine ridge. However, if there is some merit to the United State's assertion that the ridge system is a single standing feature and does not cross the Russian continental margin, the ridge system would not have fulfilled the requirement of natural prolongation and should thus be considered an oceanic ridge of the deep ocean floor.

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<sup>489</sup> Ibid.

<sup>490</sup> Ibid.

## d) Iceland

### Reykjanes Ridge

The State practice of Iceland is highly relevant to the discussion on seafloor highs because of its fairly interesting geographical formation. Iceland forms the largest sub aerial part of the longest spreading ridge system in the world, the mid-ocean ridge system in the Atlantic.<sup>491</sup> It is comprised of a number of ridges which extend from every side of the island. On the western side of Iceland lies the Greenland-Iceland Ridge which adjoins Iceland with the Greenland land mass. This ridge extends through Iceland and continues to the eastern side of the island as the Iceland-Faroe Ridge thus running transverse to the spreading ridges of Kolbeinsey and Reykjanes. The Kolbeinsey Ridge lies on the northern part of Iceland which adjoins the Jan Mayen Ridge by the Iceland Plateau. Adjacent to the Iceland Plateau lies the Ægir Basin. The Reykjanes Ridge lies on the southern side of Iceland.<sup>492</sup>

The Reykjanes Ridge in Iceland is part of the Mid-Atlantic Ridge and extends southwards from the sub aerial territory of Iceland. The western and southern parts of the Reykjanes Ridge beyond the 200 NM limit does not overlap with continental shelf claims of any other coastal State except for the eastern side which is potentially in dispute since it overlaps with the Hatton-Rockall area.<sup>493</sup> Therefore, with regard to the western and southern parts of the ridge, it is possible to examine whether Iceland regards the ridge as a natural component of its continental margin, or as a submarine ridge.

According to Iceland, the spreading ridges of Kolbeinsey and Reykjanes are morphologically and tectonically connected to the land mass of Iceland and share the same geological history and

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<sup>491</sup> Philip A Symonds and others, 'Ridge Issues' in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 290.

<sup>492</sup> Iceland, 'The Icelandic Continental Shelf: Partial Submission to the Commission on the Limits of the Continental Shelf pursuant to article 76, paragraph 8 of the United Nations Convention on the Law of the Sea in respect of the Ægir Basin area and Reykjanes Ridge: Executive Summary' (29 April 2009) 6.

<sup>493</sup> Iceland, 'The Icelandic Continental Shelf: Partial Submission to the Commission on the Limits of the Continental Shelf pursuant to article 76, paragraph 8 of the United Nations Convention on the Law of the Sea in respect of the Ægir Basin area and Reykjanes Ridge: Executive Summary' (29 April 2009) 8.

crustal characteristics with the land mass.<sup>494</sup> In other words, the ridges could also be described as being the natural prolongation of the Icelandic land mass. As for the geological characteristics of the ridges, it is obvious that they are oceanic in nature as opposed to continental, being part of the mid-ocean ridge system.<sup>495</sup>

This is definitely Iceland's stand, as expressed in the executive summary.<sup>496</sup> In the documents, Iceland had fixed points at 60 NM from the foot of the continental slope in order to define the outer limits of the continental shelf.<sup>497</sup> Be that as it may, it appears that Iceland had also drawn a constraint line at 100 NM from the 2,500 metre isobath and had used points on the line to define its outer continental shelf limit.<sup>498</sup> As may be recalled, paragraph 5 of Article 76 provides that the constraint line at 100 NM from the 2,500 metre isobath can only apply to natural components of the continental margin and not submarine ridges. As such, by using fixed points on the said constraint line as its outer limit, it appears that Iceland considers the Reykjanes Ridge as a natural component of its continental margin and not a submarine ridge.

As concluded earlier in the previous part of this chapter, it was found that the drafters of Article 76 intended for submarine ridges to cover seafloor highs which are not of continental nature but are still part of the natural prolongation of the land mass of the coastal State in question. This description rightly fits the description of the Reykjanes Ridge with regard to the Icelandic land mass. Thus, although the Reykjanes Ridge are a prolongation of the Icelandic land mass, it is nevertheless part of the mid-ocean spreading ridge system which is oceanic as opposed to continental, and should therefore be regarded a submarine ridge in the sense of paragraph 6

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<sup>494</sup> Ibid 6.

<sup>495</sup> The only types of ridges that are continental as opposed to oceanic are those which are continental fragments and island arcs Philip A Symonds and others, 'Ridge Issues' in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 298.

<sup>496</sup> Iceland, 'The Icelandic Continental Shelf: Partial Submission to the Commission on the Limits of the Continental Shelf pursuant to article 76, paragraph 8 of the United Nations Convention on the Law of the Sea in respect of the Ægir Basin area and Reykjanes Ridge: Executive Summary' (29 April 2009) 6.

<sup>497</sup> Ibid 9.

<sup>498</sup> For example, point ICE-RR-OL-319 was drawn on the constraint line. Ibid.



according to the findings in Section 5.2 on the legislative history.<sup>499</sup> This appears to suggest that the practice of Iceland with regard to seafloor highs do not coincide with the interpretation deduced from the legislative history of Article 76.

However, it is to be borne in mind that during the Conference, Iceland had made a statement to the effect that it understood submarine ridges as "ridges which were a prolongation of the land mass of the coastal State concerned" and gave the example of the Iceland-Faroe Ridge as their understanding of what constitutes a submarine ridge.<sup>500</sup> It is not yet possible to see whether this statement is reflected in the Iceland practice as their current submission is a partial one and does not include the Iceland-Faroe Ridge. Nevertheless, given Iceland's stand that the Reykjanes Ridge is not a submarine ridge, there is a high possibility that it would consider the same with the Iceland-Faroe Ridge. However, there is a likelihood that this would not be expressly reflected in the submissions to come due to the continental shelf areas potentially overlapping with neighbouring States.

In a different context, the Reykjanes Ridge can be geologically, as opposed to juridically, interpreted as a natural prolongation of the Icelandic land mass. This is in fact what is claimed by Iceland. The practice of New Zealand and Australia as observed throughout Section 5.3 shows that the natural prolongation of the continental margin shares the same geological and morphological characteristics as well as the same geological origin as the land mass. However, in the case of the Reykjanes Ridge, although it does share the same morphological and geological characteristics as the land mass, it is not continental in nature. The continental characteristic is expressly mentioned in paragraph 6 of Article 76 when it uses the words "natural prolongation of the *continental* margin". Be that as it may, Iceland would still have room to argue that "continental" margin here is not limited to margins of continental nature the same way a State

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<sup>499</sup> See Ron Macnab, 'Submarine Elevations and Ridges: Wild Cards in the Poker Game of UNCLOS Article 76' (2008) 39(2) *Ocean Development & International Law* 223, 226.

<sup>500</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 870.

formed of oceanic rocks such as Iceland itself is not deprived of entitlement to a continental shelf jurisdiction although the shelf in that case is not geologically “continental” in nature.

This must surely be the view held by Iceland as it clearly does not consider the Reykjanes Ridge as a submarine ridge based on its application of the constraint line of 100 NM from 2,500 metre isobaths on the ridge.

**e) United Kingdom (Ascension Island)**

Besides Iceland, another submission which involves the consideration of oceanic ridges is the United Kingdom submission in respect of Ascension Island.<sup>501</sup> Ascension Island is an island lying isolated in the South Atlantic Ocean. It is a volcanic island surmounting the Mid-Atlantic Ridge.<sup>502</sup> Since the latter is oceanic and part of the deep ocean floor, the land mass of the former would naturally be part of the deep ocean floor in geological terms. However, similar to the situation of the Reykjanes Ridge in Iceland, according to the United Kingdom, the Mid-Atlantic Ridge is part of the natural prolongation of Ascension Island. Indeed, the United Kingdom has clearly confirmed their stand when it stated that the natural prolongation of Ascension Island extends beyond 200 NM “along the submarine ridge identified as The Mid-Atlantic Ridge”.<sup>503</sup> It is noted that the United Kingdom used the term “submarine ridge” with regard to the Mid-Atlantic Ridge vis-a-vis Ascension Island. This clearly shows that the United Kingdom interprets submarine ridges as oceanic ridges which are the natural prolongation of a land territory although geologically part of the deep ocean floor. This is further clarified by the statement as follows:

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<sup>501</sup> United Kingdom, ‘Submission made by the United Kingdom of Great Britain and Northern Ireland in respect of Ascension Island’ (9 May 2008).

<sup>502</sup> Commission on the Limits of the Continental Shelf, ‘Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by the United Kingdom of Great Britain and Northern Ireland in respect of Ascension Island on 9 May 2008’ (United Nations, 15 April 2010), para 28.

<sup>503</sup> United Kingdom, ‘Submission made by the United Kingdom of Great Britain and Northern Ireland in respect of Ascension Island’ (Main submission, 9 May 2008) para 1.4.1 in ‘Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by the United Kingdom of Great Britain and Northern Ireland in respect of Ascension Island on 9 May 2008’ (United Nations, 15 April 2010), para 29.

[w]hile it is clear that Ascension as an island cannot be part of the deep ocean floor, likewise the associated parts of the MAR are also not deep ocean floor.<sup>504</sup>

Based on the interpretation of the above, the United Kingdom further concludes its stand that Ascension Island is an “integral component of the Mid-Atlantic Ridge” and that it considers the Mid-Atlantic Ridge as a submarine ridge in the sense of paragraph 6 of Article 76.<sup>505</sup> Since it was described that Ascension Island is an “integral component” of the ridge, it would therefore be reasonable to contrast this with the term “natural component” used to describe “submarine elevations that are natural components of the continental margin” in the sense of paragraph 6. Apart from clarifying the United Kingdom’s interpretation of submarine ridges, this statement also implies the interpretation regarding submarine elevations in the sense of paragraph 6. It would seem that although the Ascension Island is an “integral component” of the Mid-Atlantic Ridge (which is juridically defined as its continental margin), it does not regard it as a “natural component” of the margin that qualifies it as a submarine elevation which is a natural component of the continental margin in the sense of paragraph 6. This clarifies the United Kingdom’s interpretation of submarine elevations that are natural components of the continental margin that it does not include those which are oceanic in nature. Hence, “submarine elevations” in the sense of paragraph 6 is only limited to prolongations of the continental land mass as opposed to oceanic land mass and islands.

It is apparent that the United Kingdom does not share the same interpretation as Iceland. The United Kingdom categorised Ascension Island, a component of the Mid-Atlantic Ridge, as a submarine ridge based on its oceanic character. However, Iceland regarded the Reykjanes Ridge which is also part of the Mid-Atlantic Ridge as a natural component of its continental margin, based on its prolongation to the land mass, regardless of its oceanic character.

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<sup>504</sup> United Kingdom, ‘Submission made by the United Kingdom of Great Britain and Northern Ireland in respect of Ascension Island’ (Main submission, 9 May 2008) para 2.5.3.1 in *ibid* para 30. ‘MAR’ here refers to ‘Mid-Atlantic Ridge’.

<sup>505</sup> *Ibid* para 31-32.

### 5.3.1 Conclusion

Several points can be derived from the practices of States with regard to the interpretation of submarine highs.

The first point is on the adoption of the term 'submarine ridges' by States. The New Zealand practice indicates that submarine ridges are not restricted to ridges of a purely oceanic character. This is demonstrated by the extension of the definition of submarine ridges to include transform ridges which are of continental and oceanic nature. Although this is true, New Zealand maintains the requirement that a submarine ridge must be part of the natural prolongation of its land territory.

The United Kingdom clearly shares the same interpretation with New Zealand as regards the requirement that submarine ridges form part of the natural prolongation of the land territory. Therefore, there must not be any morphological discontinuity between the land territory and the ridge. However, the United Kingdom also bases its interpretation on the geological nature of the ridge. Hence, according to the United Kingdom, a submarine ridge is one that is of oceanic character as opposed to continental.

Secondly, as for the definition of submarine elevations, the following points are noteworthy:

In identifying a submarine high as a submarine elevation that is a natural component of the continental margin, most States generally place much weight on the process of continental growth as laid down in the Guidelines. Despite this, States vary in their approaches when it comes to identifying natural components of the continental margin where continents grow by continental break up especially in the case of rifted margins.

The Russian Federation appears to be the only State that has not based its claim on the natural process of continental growth. On the other hand, it relies on crustal type criterion. The continental crustal type of the Alpha-Mendeleev Ridge has led the Russian Federation to claim it as a natural component of the continental margin. From this, it can be deduced that the Russian Federation considers natural components of the continental margin to include all features

composed of continental crustal type. This might be so even if the feature is not morphologically and geologically connected to the land mass. Apart from that, this also confirms that the Russian Federation regards submarine ridges as those which comprise of oceanic crust. This would thus relate to the observation made in the Russian original proposal for "submarine oceanic ridges" during the Conference since, based on the Russian view, features made of continental crust would evidently be categorised as natural components of the continental margin.

Among the States that identify natural components of the continental margin by the process of continental growth are New Zealand and Australia. A relatively more cautious approach is evident from the practice of New Zealand which prescribes a precise method of proving that a submarine high is an integral part of the prolongation of the continental land mass. While other States such as Australia may have arguably adopted to establish the same, a consistent and clear method is generally lacking. While New Zealand maintains the rule that geological and morphological continuity must be present, it seems that there are other States who have adopted a more flexible approach. That said, New Zealand does not place a very high threshold on the requirement of morphological continuity seeing that as long as the submarine high is not separated from the land mass by a feature as deep as the adjacent ocean floor, it can still be considered an integral part of the prolongation of the land mass.

Thus, this group of States generally maintains that morphological and geological continuity as well as the geologic origin of a feature in the process of continental growth are the determining criteria as to whether a feature is an integral part of the prolongation of the land mass.

On the issue of Iceland's claim over the Reykjanes Ridge, it appears that Iceland also looked at the process of continental growth although the Reykjanes Ridge is not geologically continental in nature. Since the Reykjanes Ridge shares the same morphological and geological characteristic as the Icelandic land mass, it is claimed as a natural component of the continental margin. Therefore, Iceland nevertheless made its claim based on the ridge being an "integral part of the prolongation of the land mass" as other States have, although this is arguable since the Reykjanes Ridge is oceanic. The United Kingdom practice, however, is different from that of Iceland. In

establishing that submarine ridges are those of oceanic nature, it can be implied that elevations that are oceanic cannot be regarded as elevations that are natural components of the continental margin although it is part of the component of the land territory. As such, it can be inferred that the United Kingdom places much importance on the geological characteristic of the feature in determining whether it is a submarine ridge or a submarine elevation that is a natural component of the continental margin. In that sense, it is clear that the words “natural component of the *continental* margin” is given a direct meaning according to the practice of the United Kingdom.<sup>506</sup>

## **5.4 The practice of the Commission**

The practice of the Commission with regard to the ridge issue in specific cases can be found in the Guidelines and the Recommendations of the Commission to a State's submission to an extended continental shelf claim.

### **5.4.1 The Scientific and Technical Guidelines**

The Commission's interpretation of the ridges and submarine elevations can be observed in the Guidelines in which a whole chapter has been allocated to address this issue.<sup>507</sup> The Guidelines contain the Commission's explanation on the difference between the seafloor highs as well as the methods to be used to identify them, among others.<sup>508</sup> It shall thus be worthwhile to examine the provisions on seafloor highs as laid down in the Guidelines.

The Guidelines, which starts off by giving an overview of paragraphs 3 and 6, recognises the ambiguous link between "submarine ridges" in paragraph 6 and "oceanic ridges" in paragraph 3.<sup>509</sup> In addressing that, the Commission states as follows:

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<sup>506</sup> Emphasis added.

<sup>507</sup> Chapter 7, Commission on the Limits of the Continental Shelf, ‘Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf’, CLCS/11 (United Nations, 13 May 1999) 52-55.

<sup>508</sup> Ibid.

<sup>509</sup> Ibid para 7.1.3

The distinction between the “submarine elevations” and “submarine ridges” or “oceanic ridges” shall not be based on their geographical denominations and names used so far in the preparation of the published maps and charts and other relevant literature. Such a distinction for the purpose of article 76 shall be made on the basis of scientific evidence taking into account the appropriate provisions of these Guidelines.<sup>510</sup>

The paragraph stresses the importance of scientific evidence in distinguishing between the submarine features. An examination of the Guidelines reveals that the Commission places much importance on the formation process as well as the geological composition of the ridges.<sup>511</sup> Eight examples of ridges were given under the subheading "Oceanic ridges and submarine ridges" along with the geological processes associated with their formation.<sup>512</sup> Nevertheless, the Guidelines do not explicitly categorise the ridges as being “oceanic ridges” in the sense of paragraph 3 or submarine ridges in the sense of paragraph 6. The only indication to any sort of classification of the ridges can be found in paragraph 7.2.3. The paragraph appears to say that the term "oceanic ridges" is not limited to its strict meaning of oceanic spreading ridges only, but could also refer to ridges composed of oceanic basaltic rocks. Thus, oceanic ridges are not only identified by reference to its formation process, that is, ridges formed by sea-floor spreading, but any type of ridge composed of oceanic basaltic rocks would also be considered an oceanic ridge. At this juncture, however, it is noted that the Guidelines makes no reference to the deep ocean floor with regard to oceanic ridges.

Similar to the categorisation of oceanic rocks, the composition of ridges seem to play an important role in the categorisation of ridges which are not considered as oceanic ridges by the Commission.<sup>513</sup> The Guidelines recognise that there exist ridges which may not have any relationship with oceanic crust.<sup>514</sup> Transform ridges are described in the Guidelines as ridges

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<sup>510</sup> Ibid para 7.1.8.

<sup>511</sup> See, for example, ibid paras 7.2.1 and 7.2.3.

<sup>512</sup> Ibid para 7.2.1.

<sup>513</sup> Ibid paras 7.2.6 and 7.2.7.

<sup>514</sup> Ibid para 7.2.9.

which are difficult to classify due to their forming on a continental crust environment into an oceanic crust environment.<sup>515</sup> Apart from transform ridges, there are ridges which have no connection at all with oceanic crust.<sup>516</sup> Examples of these ridges are given as ridges formed by regional excessive volcanism, some ridges that are associated with active plate boundaries and the formation of island arcs systems and ridges formed by rifting of continental crust.<sup>517</sup> Therefore, as transform ridges are not entirely oceanic and the other ridges are definitely not oceanic, they cannot be categorised as oceanic ridges in the sense of paragraph 3. The Guidelines, however, does not explicitly specify them as "submarine ridges" in the sense of paragraph 3 either. Be that as it may, looking at the subheading under which this paragraph is drafted as well as the classification of ridges composed of oceanic rocks as "oceanic ridges", it is likely that the other ridges of non-oceanic character mentioned under the paragraph are impliedly categorised as "submarine ridges" in the sense of paragraph 6 of Article 76. Therefore, similar to the categorisation of oceanic ridges, the composition of the ridges plays an important role.

Notwithstanding the significance of geological composition, the Commission recognises the problem with identifying ridges based on their composition alone. Firstly, there have been instances where ridges composed of oceanic basaltic rocks infringe continental margins. This may happen if the ridges are formed along transform faults or by tectonic activity.<sup>518</sup> Secondly, some islands are located on oceanic ridges.<sup>519</sup> The Commission must have been referring to oceanic ridges that form the natural prolongation of islands, for example, the Iceland-Faroe ridge upon which Iceland is located. In these cases, the Commission admits that it would be difficult to consider the ridges as oceanic ridges of the deep ocean floor in the sense of paragraph 3 although they are oceanic based on their geologic composition.<sup>520</sup>

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<sup>515</sup> Ibid para 7.2.3.

<sup>516</sup> Ibid.

<sup>517</sup> Ibid paras 7.2.1 and 7.2.3.

<sup>518</sup> Ibid para 7.2.7.

<sup>519</sup> Ibid para 7.2.8.

<sup>520</sup> Ibid para 7.2.8.



The Commission then concludes the issue on ridges by resorting to "scientific and legal considerations as natural prolongation of land territory and land mass, morphology of ridges and their relation to the continental margin as defined in paragraph 4, and continuity of ridges" as the main criterion in identifying ridges.<sup>521</sup> To that end, the Commission acknowledges the difficulty in identifying ridges and states that the issue would be examined on a case-by-case basis.<sup>522</sup>

With regard to submarine elevations, the Guidelines makes it clear that the formation process of the sea floor high is the determining factor.<sup>523</sup> The Guidelines start by referring to the selection of submarine highs mentioned in paragraph 6 "such as plateaux, rises, caps, banks and spurs" and stresses that these highs share a common characteristic, that is, their being natural components of the continental margin.<sup>524</sup> Because this common denomination is based on components of the continental margin, the Guidelines consider it important to examine the formation process and growth of continental margins.<sup>525</sup>

The two types of natural processes involved in continental growth are stated in the Guidelines as follows:

(a) In the active margins, a natural process by which a continent grows is the accretion of sediments and crustal material of oceanic, island arc or continental origin onto the continental margin. Therefore, any crustal fragment or sedimentary wedge that is accreted to the continental margin should be regarded as a natural component of that continental margin;

(b) In the passive margins, the natural process by which a continent breaks up prior to the separation by seafloor spreading involves thinning, extension and rifting of the continental crust and extensive intrusion of magma into and extensive extrusion of magma through that crust. This process adds to the growth of continents. Therefore,

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<sup>521</sup> Ibid para 7.2.10.

<sup>522</sup> Ibid para 7.2.11.

<sup>523</sup> Ibid para 7.3.1.

<sup>524</sup> Ibid.

<sup>525</sup> Ibid.

seafloor highs that are formed by this breakup process should be regarded as natural components of the continental margin where such highs constitute an integral part of the prolongation of the land mass.<sup>526</sup>

It seems, therefore, that where a submarine high contributes to the growth of the continental margin, or is formed as a result of the growth of the continental margin, it shall be regarded as components of that continental margin. Crucial to this is that the process by which the continent grows has to be natural, that is, occurring either by way of accretion or continental breakup. It is noted that under sub-paragraph (b) on passive margins quoted above, the Guidelines place another requirement that the seafloor highs formed by continental breakup must also "constitute an integral part of the prolongation of the land mass" in order to be regarded as natural components of the continental margin. The Guidelines, however, did not elaborate further on this.

It is clear that on the issue of ridges, the Guidelines places much weight on the composition of the ridges to determine whether they are oceanic in nature. However, the Guidelines failed to identify the determining factor on which a distinction between oceanic ridges of the deep ocean floor and submarine ridges could be drawn. Based on the difficulties involved, the Guidelines stated that other factors which include, among others, natural prolongation and morphology shall be considered. On the other hand, the Guidelines is more specific on the method of identifying submarine elevations in the sense of paragraph 6. The only consideration given by the Guidelines is to determine whether the submarine high is a natural result of the growth of continents. If this can be answered in the positive, the Commission shall regard is as a natural component of the continental margin.

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<sup>526</sup> Ibid para 7.3.1.

#### 5.4.2 The recommendations of the Commission

In the case of New Zealand, it is found that the Commission has agreed with the way New Zealand considers and classifies its submarine highs.<sup>527</sup>

In particular, the case of the Bollons Seamount shows that the Commission agreed with New Zealand that the seamount is a submarine elevation that is a natural component of the New Zealand continental margin. The saddle area which separates the seamount and the adjacent Campbell Plateau was found to be shallower than the deep ocean floor. As such, the saddle morphologically connects the plateau with the seamount allowing the seamount to be included in the foot of the continental slope envelope.<sup>528</sup>

Similarly, with regard to the Gilbert Seamount, which shares similar circumstances with the Bollons Seamount, the Commission agreed with New Zealand that the seamount is a natural component of the continental margin. Again, the Commission did not regard the saddle area which separates the Gilbert Seamount from Challenger Plateau as severing the morphological connection between the seamount and the plateau.<sup>529</sup>

It is observed that the Commission agreed with the practice of New Zealand that morphological continuity is present where a submarine high is separated from the continental margin by a feature shallower than the adjacent ocean floor.

The practice of the Commission with regard to the Australian submission can be observed in the case of the Wallaby Composite High and the Joey Rise.

As may be recalled earlier in Section 5.3.1 of this chapter, Australia had claimed the Wallaby Composite High as a natural component of its continental margin based on morphology alone

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<sup>527</sup> See Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the Submission made by New Zealand 19 April 2006' (United Nations, 22 August 2008).

<sup>528</sup> Ibid para 155.

<sup>529</sup> Ibid para 183.

since its geological origin was still doubtful. The Commission considered whatever morphological and geological data presented by Australia and based on a balance between all the data submitted, agreed with Australia that the feature was in fact a natural component of the Australian continental margin.<sup>530</sup>

With regard to the Joey Rise which is an extension of the Exmouth Plateau, Australia had similarly claimed it as a submarine elevation that is a natural component of its continental margin based on morphology alone.<sup>531</sup> However, in contrast to the Wallaby Composite High, the Commission had refused to recognise the Joey Rise as a natural component of the Australian continental margin on the ground that the data provided by Australia on the geological origin of the Joey Rise was too sparse.<sup>532</sup> Therefore, it was not proven that the Joey Rise shares the same geological origin as the continental margin.

Similarly, in the case of the Williams Ridge the Commission had also refused to acknowledge the feature as a natural component of the continental margin. The reason given by the Commission was that data on the nature and origin of the Williams Ridge consist merely of indirect evidence. As such, the Commission found that the geological origin of the feature is unresolved.<sup>533</sup>

It is likely that the different treatment by the Commission towards the Wallaby Composite High on one hand, and the Joey Rise and the Williams Ridge on the other, may be due to the amount of data on the geological origin of the features. There was sufficient data on the geological origin of Wallaby Composite High albeit the data was still doubtful. Thus, it is likely that of the data provided on its geological origin, there was sufficient data to suggest that the Wallaby Composite High might possibly share the same geological origin as the continental land mass although it was inconclusive. On the other hand, with regard to the Joey Rise, the Commission's ground for

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<sup>530</sup> Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the submission made by Australia on 15 November 2004' (United Nations, 9 April 2008) paras 136-137.

<sup>531</sup> Ibid para 138.

<sup>532</sup> Ibid.

<sup>533</sup> Ibid para 50.

rejection was due to insufficient data. Hence, in that case, the Commission was unable to decide whether there was a possibility of the Joey Rise and the Williams Ridge sharing the same geological origin with the land mass. Similarly, the indirect evidence given on the geological origin of the Williams Ridge must have not satisfied the Commission that the Williams Ridge was in fact a natural component of the Australian continental margin.

In light of this, it can be observed that the Commission does not require conclusive evidence that a submarine high shares the same geological origin with the continental land mass in order for the submarine high to be regarded a natural component of that continental margin. Nevertheless, some morphological and geological evidence is necessary in order for the Commission to consider the balance between the evidence available and see whether the claim is proven. It appears that the standard of proof required by the Commission in order to prove a submarine feature is a natural component of the continental margin is on a balance of probability. As have been observed, the geological origin of Wallaby Composite High remained unresolved, but on a balance of probability, the Commission had considered that there was a possibility of it being a natural component of the continental margin. However, the data on the geological origin of Joey Rise and Williams Ridge, on the other hand, was too sparse making it insufficient for the Commission to arrive at a decision. Thus, on a balance of probability, the Commission had to reject the claims.

On another note, although the Joey Rise is not qualified to be a natural component of the continental margin based on geological origin, the Commission did not disregard the fact that the Joey Rise is in fact morphologically connected to the Australian land mass by the Platypus Spur which is an extension of the Exmouth Plateau.<sup>534</sup> The Commission recognised this when it acknowledged the Joey Rise as a submerged prolongation of the Australian land mass.<sup>535</sup> As such, it is part of the continental margin of Australia.

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<sup>534</sup> Ibid para 139.

<sup>535</sup> Ibid.

From here, it can be observed that morphological continuity alone is not sufficient to prove that a submarine feature is a natural component of the continental margin. It is evident that geological continuity as well as the geological origin of the feature must be proven as well. This indicates that the Commission agrees with the practice of States that these are the determining criteria to prove a feature is a natural component of the continental margin. Nevertheless, it can be seen from the case of the Joey Rise that morphological continuity alone is sufficient to prove that a feature is part of the continental margin although not necessarily a natural component of it. Thus, it can be deduced from here that the 'natural component' part of the term relates directly to the geological origin of the feature.

Following this, the Commission recommended for the distance criterion constraint alone to be applied in respect of the outer limits of the continental shelf along Joey Rise.<sup>536</sup> From this observation, it can be safely implied that the Commission regards the Joey Rise as a submarine ridge in the sense of paragraph 6 of Article 74 although this is not clearly mentioned anywhere in the summary of recommendations.

The Commission's recommendations as regards elevations that are oceanic in nature can be seen from the Ascension Island submission. In response to that submission, the Commission held that it did not agree with the United Kingdom that its natural prolongation extends to the region where the westward-dipping seafloor corresponding to the western flank of the Mid-Atlantic Ridge meets the deep abyssal plain of the western South Atlantic Ocean which in turn corresponds with the eastern edge of the South American Rise.<sup>537</sup> In finding that the island rises directly from the deep ocean floor, the Commission held that the natural prolongation of the island "must form part of the discrete seafloor high from which the island edifices rise".<sup>538</sup>

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<sup>536</sup> Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the submission made by Australia on 15 November 2004' (United Nations, 9 April 2008) para 143.

<sup>537</sup> Commission on the Limits of the Continental Shelf, 'Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by the United Kingdom of Great Britain and Northern Ireland in respect of Ascension Island on 9 May 2008' (United Nations, 15 April 2010) para 35.

<sup>538</sup> *Ibid* para 45-46.

Therefore there is no morphological connection between the seafloor high claimed in the submission and Ascension Island. Besides morphological connection, the Commission also referred to the “crustal structure” of the island which it found was different from the normal oceanic crust of the surrounding seafloor high.<sup>539</sup> Therefore, it can be concluded that even in oceanic features claimed as submarine ridges, the requirement of morphological and geological connection is the determining factor in establishing natural prolongation, in this case for the purpose of claiming a submarine ridge. Therefore, in the case of Ascension Island, the part of the seafloor high beyond the volcanic pedestal from which the island edifices rise is juridically considered part of the deep ocean floor even though it is in fact part of the deep ocean floor in the actual sense. In that case, the United Kingdom is not entitled to claim an extended continental shelf along the seafloor high.

Besides that, the recommendations also clarified the Commission’s position with regard to islands surmounting ridges. According to the Commission they are indeed entitled to a “continental margin” and “continental shelf” regardless of its non-continental nature. However, the issue relates to which part of the ridge represents the island’s continental margin and which part is part of the deep ocean floor. This has been demonstrated by the discussion on Ascension Island previously.<sup>540</sup>

### **5.4.3 Conclusion**

As far as submarine elevations that are natural components of the continental margin are concerned, the Commission gives utmost priority to morphological continuity, and when that has been established, on the geological origin of the feature. It appears that the Commission is willing to compromise on the geological origin of a feature in some cases, based on a balance of probability of the evidences produced that there is a possibility of the feature sharing the same geological origin as the land mass although not conclusive, where it is satisfied with the morphological continuity of the feature.

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<sup>539</sup> Ibid para 47.

<sup>540</sup> Ibid para 43.

The requirement that submarine elevations that are natural components of the continental margin have to be an “integral part of the prolongation of the land mass” was mentioned in the Guidelines but was not elaborated further.<sup>541</sup> However, the practice of most States have applied and illustrated their interpretation of this. In particular, New Zealand interprets this as having a continuous morphological and geological connection with the land mass. This interpretation was not rejected by the Commission in its recommendations to the New Zealand submission when it agreed with New Zealand with regard to its claims on these submarine elevations. This implies that this is also the interpretation of the Commission.

Where the Commission is not satisfied that a submarine high is a natural component of the continental margin as claimed by a coastal State, the Commission will admit the high as a submarine ridge as long as morphological connection between the submarine high and the land mass of the coastal State is proved, as observed in the case of the Joey Rise in Australia. The Commission does not look at other considerations such as geological composition or geological continuity in order to determine that the feature is a submarine ridge. As observed in the case of Ascension Island, the Commission held that there was no morphological continuity between the submarine high from which the island edifices rise and the feature along which was claimed as part of the island’s continental margin. As a result, it can be concluded that according to the practice of the Commission, a submarine ridge is merely a submarine feature that fails to satisfy the requirements of a submarine elevation that is a natural component of the continental margin but is still morphologically connected to the land mass.

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<sup>541</sup> Commission on the Limits of the Continental Shelf, ‘Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf’, CLCS/11 (United Nations, 13 May 1999) para 7.3.1(b).



## 5.5 Concluding remarks

### Oceanic ridges of the deep ocean floor

It is apparent from the drafting history of Article 76 that the main purpose of paragraph 3 was to define the continental margin. During negotiations, it was understood that the continental margin shall consist of the shelf, the slope and the rise and that the deep ocean floor is excluded.

Along with the legal context of oceanic ridges of the deep ocean floor, it is also crucial to acknowledge the scientific definition of the term. The International Hydrographic Office (IHO) describes the deep ocean floor as "the surface lying at the bottom of the deep ocean with its oceanic ridges, beyond the continental margin".<sup>542</sup> This definition that the deep ocean floor lies beyond the continental margin is also supported by Seibold and Berger.<sup>543</sup> If the deep ocean floor lies beyond the continental margin, it is thus equally important to understand what constitutes the continental margin.

The scientific continental margin is basically the physical continental margin, which consists of the shelf, the slope and the rise. The juridical continental margin, on the other hand, is defined by the provisions of Article 76. The Gardiner and Hedberg formulae, which are incorporated into paragraph 4(a) defines the outer edge of the continental margin. Hence, the deep ocean floor in the sense of Article 76 relates to the area beyond the points established by either the Gardiner or Hedberg formula.

As a result, the deep ocean floor in paragraph 3 must refer to the part of the seafloor beyond the outer edge of the continental margin. The area between the foot of continental slope and the outer edge of the continental margin would still be regarded as being part of the juridical continental margin even if it shares the same scientific origin as the deep ocean floor.

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<sup>542</sup> Harald Brekke and Philip A Symonds, 'The ridge provisions of Article 76 of the UN Convention on the Law of the Sea' in Myron H Nordquist, John Norton Moore, Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 174.

<sup>543</sup> Eugen Seibold and Wolfgang H Berger, *The Sea Floor: An Introduction to Marine Geology* (3<sup>rd</sup> edn, Springer 1996) 42-45.

Hence, a ridge which lies beyond the foot of slope envelope but does not extend beyond the outer edge of the continental margin as defined by the Gardiner and Hedberg formulae would not be regarded as an oceanic ridge of the deep ocean floor even if it is of oceanic origin as it is still within the juridical continental margin. This type of ridge is not a submarine ridge in the sense of paragraph 6 as it lies beyond the foot of continental slope envelope, in other words, morphologically detached from the natural prolongation of the land territory. It could scientifically be regarded as an oceanic ridge of the deep ocean floor by nature. However, it is still within the outer edge of the continental margin as defined by the Hedberg or Gardiner formula.<sup>544</sup>

This implies that paragraph 3 in stating that the continental margin does not include the "deep ocean floor and its oceanic ridges" is merely intended to define where the continental margin ends. Any part of the "scientific" deep ocean floor or its oceanic ridges cannot be excluded from the continental margin merely based on its oceanic nature. It is obvious that the definition of the continental margin would prevail in any circumstance. Thus, an oceanic ridge which happens to lie within the outer edge of the continental margin does not have the effect of cutting off that part of the continental margin just because it is excluded from the continental margin by virtue of paragraph 3.<sup>545</sup> This supports the view that the "deep ocean floor" is a juridical feature which lies beyond the point of the outer edge of the continental margin. Be that as it may, it is also unable to generate continental shelf rights in any way. Consequently, if part of the ridge does extend beyond the outer edge of the continental margin, only that part of the ridge would be regarded as an oceanic ridge of the deep ocean floor.<sup>546</sup>

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<sup>544</sup> PA Symonds and others, 'Ridge Issues' in Cook PJ and Carleton CM (eds), *Continental Shelf Limits – The Scientific and Legal Interface* (Oxford University Press 2000) 299-300.

<sup>545</sup> Ibid 300.

<sup>546</sup> Harald Brekke and Philip A Symonds, 'The ridge provisions of Article 76 of the UN Convention on the Law of the Sea' in Myron H Nordquist, John Norton Moore, Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 194.

Thus, in determining whether a seafloor high is an oceanic ridge of the deep ocean floor, it is of utmost importance that the outer edge of the continental margin as defined by the Hedberg and Gardiner formula be established first.

### **Submarine ridges**

Another point relates to the term 'submarine ridges'. The textual interpretation of Article 76 does not reveal the characteristics of features that can be considered submarine ridges nor does it lay down examples of those features. An examination of the drafting history of Article 76, as observed in Section 5.2, reveals that submarine ridges were initially envisaged as ridges of oceanic character. Apart from that, a submarine ridge must be connected to the land mass as its natural prolongation in order for it to generate continental shelf rights. However, there is nothing in the record of the Conference which attempted to give examples of submarine ridges or to further describe the characteristics of a submarine ridge.

The study has demonstrated that State practice as confirmed by New Zealand shows that the term is not limited to those types of ridges only. New Zealand has included transform ridges as an example of a submarine ridge. During negotiations for Article 76, there was nothing in the statements and proposals advanced by States that suggest submarine ridges in paragraph 6 are comprised of ridges with characteristics of transform ridges. Even the Guidelines, in describing transform ridges as ridges that are “difficult to classify”, did not classify the ridges as oceanic ridges. Hence, it would be open to interpretation to say that transform ridges may be classified as submarine ridges.<sup>547</sup>

As observed in Section 5.2 earlier, the term 'submarine oceanic ridges' was initially used during negotiations to refer to oceanic ridges which formed the land territory, and hence natural prolongation, of a State in order for the State to be entitled to an outer continental shelf under Article 76. As such, discussions on the ridges during the Conference as discussed previously in Section 5.2 revolved around those with oceanic origin. There was no recognition on the existence

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<sup>547</sup> Commission on the Limits of the Continental Shelf, ‘Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf’, CLCS/11 (United Nations, 13 May 1999) para 7.2.3.

of a ridge which was neither oceanic nor continental nor was there any recognition that a ridge of mixed lineage could be considered a submarine ridge.

Nevertheless, State practice has extended the meaning of submarine ridges to cover ridges which are not purely oceanic as originally envisaged in the negotiations leading to the adoption of Article 76. The New Zealand practice, for example, shows that New Zealand considers transform ridges as submarine ridges. In addition, the practice of the Commission as reflected in the recommendations for the Australian submission shows that the Commission would classify a seafloor high as a submarine ridge in situations where it does not fulfill the criteria of a natural component of the continental margin. To that end, the practice of the Commission shows that only morphological continuity is required in order for a seafloor high to be classified as a submarine ridge. The practice of the United Kingdom as regards Ascension Island confirms the intended meaning of submarine ridges as discussed during negotiation at the Third Conference as oceanic ridges which are the natural prolongation of an oceanic land mass. Furthermore, the Commission's rejection of the United Kingdom's submission was due to the latter's failure to prove that a morphological connection exists and not because the Commission does not acknowledge an oceanic island's entitlement to an extended continental shelf.<sup>548</sup>

### **Submarine elevations that are natural components of the continental margin**

As for submarine elevations that are natural components of the continental margin, the legislative history of Article 76 reveals that they were intended as seafloor highs that share the same geological and morphological characteristics of the continental margin. Not much was discussed on the specific requirements of what was meant by the term "natural components". However, State practice confirms that morphological and geological connection is indeed the determining factor in proving submarine elevations in the sense of paragraph 6. In fact, State practice goes a step further by emphasizing on the formation process of the seafloor high, that it must be shown to be an "integral part of the prolongation of the land mass". This is also confirmed by the Commission in the Guidelines. However, as observed from the Commission's recommendations,

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<sup>548</sup> See Section 5.3 as previously discussed.

it appears that the Commission adopts a fairly relaxed approach on the requirement of geological origin where the morphological connection of the seafloor high is already strongly established. Therefore, in cases where the geological origin of a seafloor high does not satisfy the Commission, the particular seafloor high is merely a natural prolongation of the continental margin (without any reference to it being a natural component of the continental margin) and is treated like a submarine ridge in terms of the application of constraint lines.

In light of conclusions, it is observed that the legislative history of Article 76 revealed the original intended interpretation of the drafters during negotiations. As time passes by and knowledge on seafloor high develops, the Guidelines started to contribute to the interpretation of these seafloor highs although not much can be used by coastal States in making submissions. However, some light has been shed as to how States classify seafloor highs. It is observed that States vary in their approaches but are generally consistent with regard to the criteria in establishing the different seafloor highs. In addition, by virtue of the Commission's recommendations, some insight could be obtained as to which criteria is fundamental in proving the different seafloor highs.

## **Chapter Six:       The foot of the continental slope**

### **6.1     Introduction**

As explored in Section 3.7 of Chapter Three and discussed further in Section 5.2 of Chapter Five, the need for Article 76 of the Convention is to clearly identify the boundary between the continental shelf and the deep ocean floor. This is evident from paragraphs 1 and 3 of Article 76 which sought to define and classify those features which are part of the continental margin and those which are not. Hence, these two paragraphs would have directly defined the boundary between the continental margin and the ocean floor.

Nevertheless, the boundary is not easily distinguished due to the transitional character of the continental rise as opposed to an abrupt boundary. A juridical definition of the boundary is needed, and according to Article 76 this begins with the identification of the foot of the continental slope.

The foot of the continental slope is basically the point where the continental slope ends and the rise begins, or the deep ocean floor where there is no rise.<sup>549</sup> Thus, it signifies the most seaward part of the continental margin and serves as the point from where the outer limits of the continental shelf is to be measured.<sup>550</sup> In more specific terms, it is the point from which the two formula lines are constructed to establish fixed points that define the outer limits of the continental shelf. The two formula lines, the Hedberg and Gardiner formulae, are laid down in paragraph 4(a) of Article 76 where both methods of establishing the outer edge of the continental margin make use of the foot of the continental slope. Another importance of the foot of the continental slope relates to the issue of ridges. As the fixed points measured from the foot of the continental slope signify the end of the continental margin, any feature beyond those points

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<sup>549</sup> George K Walker, *Definitions for the Law of the Sea: Terms Not Defined by the 1982 Convention* (Martinus Nijhoff 2011) 196.

<sup>550</sup> Suzette V Suarez, *The outer limits of the continental shelf: legal aspects of their establishment* (Springer 2008) 154.

would be regarded as an oceanic ridge of the deep ocean floor.<sup>551</sup> As such, the identification of the foot of continental slope is the key to establishing the extended continental shelf.

Paragraph 4(b) of Article 76 lays down the methods of identifying the foot of the continental slope. It reads as follows:

In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in gradient at its base.

From here, it is clear that Article 76 provides for two methods of identifying the foot of the continental slope. The first is by locating the point of maximum change in gradient at the base of the continental slope, and second is by evidence to the contrary. The provision specifically describes the foot of the continental slope as the point of maximum change in gradient at its base. Besides that, it also suggests that the foot of the continental slope may be determined by other means where there is evidence to the contrary.

### **6.1.1 Geography**

The foot of the continental slope is understood to signify the beginning of the rise which is a transition between continental margin and deep ocean floor, or the deep ocean floor where there is no rise.<sup>552</sup> As may be recalled, the legal continental shelf as stated in paragraph 3 of Article 76 comprises of the shelf, slope and rise. Therefore, the continental slope is described as “that part of the continental margin that lies between the shelf and the rise”.<sup>553</sup> The continental rise is defined as “a submarine feature which is that part of the continental margin lying between the continental slope and the deep ocean floor”.<sup>554</sup> The foot of the continental slope lies on the lower part of the slope as the word 'foot' indicates. Thus, the foot of the continental slope lies at the

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<sup>551</sup> LOS Convention 1982, Article 76 (3).

<sup>552</sup> Philip A Symonds and others, ‘Characteristics of continental margins’ in Peter J Cook and Chris M Carleton (eds), *Continental Shelf Limits: The Scientific and Legal Interface* (Oxford University Press 2000) 29.

<sup>553</sup> United Nations, *Handbook on the Delimitation of Maritime Boundaries* (United Nations Division for Ocean Affairs and the Law of the Sea 2000) 150.

<sup>554</sup> *Ibid.*

outermost edge of the slope, and immediately before the slope meets the rise, or the deep ocean floor where there is no rise.

Descriptions and diagrams of the location of the foot of the continental slope are largely influenced by the diagrams of the foot of the continental slope on passive margins.<sup>555</sup> This classic description of the margin demonstrates the continental shelf as a horizontal structure which meets an abrupt break at its seaward extent. This break is shown as a slope descending at approximately 30 to 45 degrees and is known as the continental slope. It then meets the continental rise which is a relatively more gradual slope descending at approximately 15 degrees towards the horizontal deep ocean floor.<sup>556</sup> The foot of the continental slope is shown to be the point on the most seaward part of the lower continental slope which meets the continental rise.<sup>557</sup>

Nevertheless, more recent findings reveal that there are various types of continental margins around the world and many differ significantly from the classic margin described above. These include convergent or active margins, rifted margins and sheared margins all of which do not necessarily reflect the classic continental margin profile as understood before.<sup>558</sup> In these situations, the foot of the continental slope is not as easily distinguished.

### **6.1.2 Analysis of issues**

Paragraph 4(b) is not absolutely clear on which method is to be applied in locating the foot of the continental slope. Some have concluded that a literal interpretation of this provision would entail that the method based on evidence to the contrary is the general rule and the point of maximum

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<sup>555</sup> See Annex 16.

<sup>556</sup> Dave Monahan, 'Determination of the Foot of the Continental Slope as the Point of Maximum Change in the Gradient at its Base' in Myron H Nordquist, John Norton Moore, Tomas H Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limit* (Martinus Nijhoff Publishers 2004) 94; Claudia Owen, Diane Pirie, Grenville Draper, *Earth Lab: Exploring the Earth Sciences* (3<sup>rd</sup> edn, Brookes/Cole Cengage Learning 2011) 318.

<sup>557</sup> See Annex 16; see also Commission on the Limits of the Continental Shelf, 'Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf', CLCS/11 (United Nations, 13 May 1999) para 6.2.2.

<sup>558</sup> Commission on the Limits of the Continental Shelf, 'Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf', CLCS/11 (United Nations, 13 May 1999) para 6.2.6.



change in gradient at its base is only used where there is no evidence to the contrary.<sup>559</sup> Nevertheless, the Guidelines is clear on this and states that the point of maximum change in gradient is the general rule as the foot of the continental slope will be located at some other point only when there is evidence to say that the point of maximum change in gradient is not the actual foot of slope position<sup>560</sup>. However, some writers have suggested that the two methods are merely alternatives and that a coastal State is free to choose whichever method it wishes.<sup>561</sup> As a result of the different interpretations of paragraph 4(b), there has been extensive debate on the relationship between the two methods of locating the foot of the continental slope and this revolves around whether the relationship is of general rule and exception, or whether they are alternatives.

Another issue relevant to the application of the two methods is the technical problems relating to the circumstances in which the two applies. It is obvious that the two methods are provided for in Article 76 to cater for the different types of geologic features and margin structures a coastal State may encounter when identifying a foot of continental slope position. This would include situations when a maximum change in gradient is observed at two or more points along a profile, or when a point of maximum change in gradient cannot be specifically determined because of the existence of sediments or any other geological features.<sup>562</sup>

The issue stated above is in turn connected to another issue, that is, the issue of the dual regime. The dual regime refers to the rule that a coastal State is to employ two steps in locating a foot of

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<sup>559</sup> See Nuno Marques Antunes and Fernando Maia Pimentel 'Reflecting on the Legal-Technical Interface of Article 76 of the LOSC: Tentative Thoughts on Practical Implementation' (ABLOS Conference, Monaco, October 2003) 13-15 <<http://www.gmat.unsw.edu.au/ablos/ABLOS03Folder/PAPER3-1.PDF>> accessed 16 December 2008.

<sup>560</sup> Commission on the Limits of the Continental Shelf, 'Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf', CLCS/11 (United Nations, 13 May 1999) para 5.3.1.

<sup>561</sup> Nuno Marques Antunes and Fernando Maia Pimentel 'Reflecting on the Legal-Technical Interface of Article 76 of the LOSC: Tentative Thoughts on Practical Implementation' (ABLOS Conference, Monaco, October 2003) 13-15 <<http://www.gmat.unsw.edu.au/ablos/ABLOS03Folder/PAPER3-1.PDF>> accessed 16 December 2008.

<sup>562</sup> Commission on the Limits of the Continental Shelf, 'Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf', CLCS/11 (United Nations, 13 May 1999) para 5.4.12.

continental slope position.<sup>563</sup> The first is to identify the base of the continental slope region and once this has been done then only can the coastal State locate the foot of the continental slope by identifying the point of maximum change in gradient within the base of slope region.<sup>564</sup>

Another issue revolves around the application of the evidence to the contrary rule. Article 76 does not state how it is to be applied, nor does it state what type of evidence is to be used to show that the point of maximum change in gradient is not the true foot of continental slope position. Furthermore, on the surface of paragraph 4(b), it seems that the dual regime is only applicable to situations where the foot of the continental slope is determined by the point of maximum change in gradient. It should be noted that the point of maximum change in gradient rule is a method of locating the foot of the continental slope by means of geomorphological evidence.<sup>565</sup> As a result, it has been widely accepted that the evidence to the contrary rule must obviously refer to evidence based on geological criteria as opposed to morphological criteria.

Types of margins may also have an impact on the method of locating the foot of the continental slope. Active margins, for example, have a different profile than that of passive and rifted margins.<sup>566</sup> Thus, it may be that the former requires one method to be applied while it would be more feasible to use the other method on the latter. Similarly, the margin may consist of particular features that may entail different methods of identifying the foot of the continental slope. Besides those stated above, one must also bear in mind that continental margins are not the only features that can generate continental shelf rights. Islands surmounting submarine ridges which are oceanic in nature are also able to generate continental shelf rights as previously discussed in the last chapter, and hence, would also be subject to paragraph 4 on the establishment of the foot of the continental slope.<sup>567</sup> As observed previously in Chapter Five,

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<sup>563</sup> Ibid para 5.1.2.

<sup>564</sup> Ibid para 5.1.3.

<sup>565</sup> Ibid para. 5.2.1.

<sup>566</sup> Ibid para. 6.2.6.

<sup>567</sup> LOS Convention 1982, Article 76 (6).

submarine ridges are in essence oceanic ridges which form the natural prolongation of a coastal State's land territory. Therefore, the profile of submarine ridges must differ significantly from continental margins of continental land masses and may entail a different method of locating the foot of the continental slope.

This chapter shall first delve into the legislative history of the present paragraph 4 in an attempt to find out whether the drafters of Article 76 had intended a certain way of identifying the foot of the continental slope. From here, the practices of States shall be examined in order to find out how coastal States have interpreted the foot of continental slope provision in practice and the extent to which States have followed the Guidelines in determining the foot of the continental slope. The practice of States is also significant in examining the influence of the Commission's interpretation through its Guidelines. As the Guidelines consist of the most comprehensive document on the foot of the continental slope, an analysis of its interpretation is essential in order to fully appreciate the issues involved. The Guidelines also provide an insight as to the Commission's practice on the matter apart from those contained in the recommendations of the Commission, which will also be dealt with in this chapter.

The focus of this chapter is to attempt to answer the issues as summarised below:

1. To identify the relationship between the "maximum change in gradient" rule and the "evidence to the contrary" rule or, in more specific terms, to determine whether the relationship is that of general rule and exception or that they are alternatives and States are free to choose one method over the other.
2. To determine the circumstances relevant for establishing the foot of the continental slope by the maximum change in gradient rule. This includes how the dual regime is applied and situations where two or more points of maximum change in gradient are identified.
3. To determine the circumstances relevant for invoking the evidence to the contrary rule. This includes the question on what type of evidence can be construed as evidence to the contrary and whether the dual regime is also applied when using this method.

4. To examine whether the application of the two methods depend on the type of margin where the foot of the continental slope is to be located.

The aim to find these objectives shall be achieved through examining these three sources: Firstly, the legislative history of paragraph 4 of Article 76; secondly, State practice; and thirdly, the practice of the Commission which includes the Guidelines as well as the recommendations of the Commission.

## **6.2 Legislative History**

The term "foot of the continental slope" was only first mentioned in a proposal by the United States at the third session of the Conference in 1975.<sup>568</sup> Although the term appeared a number of times during negotiations, much of the discussion related to the application of the Hedberg and Gardiner formulae which were to be constructed from the foot of the continental slope point in order to determine the outer limits of the continental margin. However, those discussions were not relevant to issues on the identification of the foot of the continental slope.<sup>569</sup> It seemed that the drafters at the time did not foresee the problems that may be encountered in identifying the foot of the continental slope. This is fair enough as during that time knowledge on the various types of continental margins were unknown.

In as much as this is the case, the relationship between the two methods of identifying the foot of the continental slope can be inferred from discussions on whether the concept of the continental shelf was intended to be geological or morphological. The maximum change in gradient rule employs a geomorphological concept whereas the evidence to the contrary rule relies on geologically based evidence.<sup>570</sup> Thus, the debates on geomorphology versus geology could

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<sup>568</sup> Reproduced in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 500.

<sup>569</sup> For example, the draft proposal by the Evensen Group (1975) *The Continental Shelf*, Article 1. Reproduced in *ibid* 501.

<sup>570</sup> Commission on the Limits of the Continental Shelf, 'Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf', CLCS/11 (United Nations, 13 May 1999) Chapter 6.

provide an insight as to the intention of the drafters with regard to the method of identifying the foot of the continental slope.

Even before negotiations on Article 76 began, the Truman Proclamation as well as the 1969 judgment in the *North Sea* case had described the continental shelf as the natural prolongation of a State's land territory as discussed in Sections 2.3.2 and 2.4 in Chapter Two. This notion was retained and upheld during negotiations for the new definition of the continental shelf limits in Article 76.<sup>571</sup>

This section will attempt to unravel any significant points brought up during negotiations which might have an impact on the following questions:

1. whether the continental margin was intended as a geomorphological or a geological concept,
2. whether there was any discussion leading to the requirement that the dual regime be applied and, if so, which method of identifying the foot of the continental slope is applied to the dual regime, and
3. whether there were any indications as to the type of margin to which the two methods apply.

### **1973 session of the Sea-Bed Committee**

The first proposal which referred to the continental shelf as the 'natural prolongation of the continent territory' was a proposal by China during the 1973 Sea-Bed Committee.<sup>572</sup> Another similar proposal was proposed by Australia and Norway.<sup>573</sup> It is apparent at this early stage that

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<sup>571</sup> For detailed discussion, see Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 825-873.

<sup>572</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 843.

<sup>573</sup> *Ibid.*

the concept of natural prolongation, which is a geomorphological concept, was the key criteria in the minds of the drafters in establishing the continental shelf.

At the same session, Argentina submitted a proposal which described the continental shelf in more specific terms. It stated as follows:

The continental shelf comprises the bed and subsoil of the submarine areas adjacent to the territory of the State but outside the area of the territorial sea up to the outer lower edge of the continental margin which adjoins the abyssal plains or, when that edge is at a distance of less than 200 miles from the coast, up to that distance.<sup>574</sup>

This proposal recognised two main criteria in defining the limits of the continental shelf. The words "outer lower edge of the continental margin" signifies a geomorphological criterion whereas the 200 mile distance for a continental shelf which does not extend beyond that indicates a distance criterion.<sup>575</sup> Although it may be argued that a geological concept was used to describe the continental shelf when the proposal referred to the "bed and subsoil", nevertheless, it was the geomorphological criterion that was used to describe the outer edge of the continental margin.

Another noteworthy point concerning this proposal is the use of the words "outer lower edge of the continental margin" to signify the boundary between the margin and the abyssal plains or deep ocean floor. Clearly, at this point, the delegates were still under the impression that the boundary between the continental margin and the deep ocean floor is easily identified and marked by a distinct outer lower edge of the continental margin. Furthermore, there was nothing that suggests the delegates visualised the continental margin as comprising the shelf, slope and rise. This indicates that, at this juncture, there was no recognition of a foot of the continental slope.

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<sup>574</sup> Ibid 845.

<sup>575</sup> Ibid.

## Second session of the Conference (1974)

The second session of the Third Conference saw a debate between geographically disadvantaged States who did not support the extension of the continental shelf, and coastal States in favour of an extended continental shelf based on a fixed distance as well as those in favour of the outer limits based on natural prolongation.<sup>576</sup> It seems that even though the issue had yet to be resolved, the concept of the extended continental shelf based on natural prolongation, hence based on a geomorphological concept, received overwhelming support.<sup>577</sup>

A proposal submitted by nine States had reaffirmed the natural prolongation concept when it defined the continental shelf as extending "beyond the territorial sea to a distance of 200 miles from the applicable baselines and throughout the natural prolongation of its land territory where such natural prolongation extends beyond 200 miles".<sup>578</sup> This definition clearly indicated a geomorphological concept and this was explicitly acknowledged by the statement of Canada, which was among the nine States that made the proposal, as follows:

It was both a legal and geomorphological concept and ... was intended as a basis of discussion to replace the elastic and open-ended exploitability criterion.<sup>579</sup>

The proposal was obviously referring to the 1958 Convention. It also came with a note attached which indicated that further provisions will be required to determine the precise limit of the continental margin beyond 200 miles.<sup>580</sup> The precise limit of the continental margin is what is known today as the formulae provided for in paragraph 4 of Article 76 referring to the "foot of the continental slope" combined with the Hedberg or Gardiner formula. Therefore, this precise

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<sup>576</sup> Ibid 844-848.

<sup>577</sup> Ibid.

<sup>578</sup> A/CONF.62/L.4 (1974), Article 19(2) in United Nations, 'Third United Nations Conference on the Law of the Sea', *Official Records*, vol III (United Nations 1974) 81, 83. The nine States that submitted this proposal were Canada, Chile, Iceland, India, Indonesia, Mauritius, Mexico, New Zealand and Norway.

<sup>579</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 846.

<sup>580</sup> Ibid.

limit was one of the initial points which brought about the concept of the foot of the continental slope.

A similar proposal was submitted by the United States which also incorporated the concept of natural prolongation in its definition of the continental shelf “beyond the exclusive economic zone”, thereby referring to that beyond 200 NM.<sup>581</sup> The proposal also stated that more precision was needed to define the exact limit of the continental margin, which was again another trigger to the concept of the foot of the continental slope.<sup>582</sup>

It seems that both the proposal by the nine States and the proposal by the United States agreed that defining the continental shelf with reference to natural prolongation alone did not suffice and that a mechanism was needed to determine the precise outer limits. Be that as it may, what can be deduced at this early stage is that the continental shelf was seen as a morphological concept. Thus, the precise limit of this morphological concept must have also been intended to be a morphological concept.

Nevertheless, at that time, there was no attempt to list the features included in the continental margin much less the foot of the continental slope. The absence of any reference to the foot of the continental slope at this stage indicates that the delegates were still unaware of the precise boundary of the continental margin.

### **Third session of the Conference (1975)**

A year later at the third session, discussions revolved around constructing a more precise definition of the outer limits of the continental shelf. It was during this session that the Conference first saw a more detailed definition of what constitutes the continental margin.<sup>583</sup>

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<sup>581</sup> A/CONF.62/C.2/L.47 (1974), Article 22(2) and Article 23 (USA) in United Nations, ‘Third United Nations Conference on the Law of the Sea’, *Official Records*, vol III (United Nations 1974) 222, 224.

<sup>582</sup> *Ibid.*

<sup>583</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 848-851.



It began with two proposals by the United States. Although the first proposal described the continental shelf and the continental margin, these provisions were only elaborated in more detail in the second United States' proposal. Apart from the first paragraph reaffirming the concept of natural prolongation, the second paragraph of that proposal described the continental margin as including the continental shelf, slope and rise<sup>584</sup>. This was the first ever proposal that distinguished between the three features of the continental margin. Apart from that, the proposal was also the first to have mentioned the term "foot of the continental slope". Paragraph 3 of that proposal suggested for coastal States to draw "straight lines connecting fixed points which are not more than 60 nautical miles from the foot of the continental slope".<sup>585</sup> The fact that the proposal had referred to those morphological features evidently confirms that morphological criteria was preferred in defining the continental margin.

Support for this morphological definition of the continental margin was also reflected in the subsequent proposal from the group of broad-shelf States, the Evensen Group.<sup>586</sup> The group submitted a proposal which, similar to that of the United States, described the continental margin as consisting of the shelf, slope and rise. That proposal also incorporated the term "foot of continental slope".<sup>587</sup>

From these proposals, it is observed that delegates then had an idea that the continental margin was comprised of a shelf which meets the slope which descends into the rise and finally adjoins the ocean floor. This impression of the continental margin description most likely had a

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<sup>584</sup> United States (1975) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 498 and 500.

<sup>585</sup> Ibid.

<sup>586</sup> The "Evensen Group" is the term commonly used to refer to Informal Group of Juridical Experts and owes its name to the Chairman of the Group, Jens Evensen from Norway, in Myron H Nordquist and others (eds), *United Nations Convention on the Law of the Sea 1982: A Commentary*, vol 3 (Martinus Nijhoff Publishers 1995) xli.

<sup>587</sup> Evensen Group (1975) The Continental Shelf, Article 1. Reproduced in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 501.

significant impact in the minds of the drafters in establishing the boundary of the outer limit of the continental shelf.<sup>588</sup>

Another crucial development which can be gathered from both the proposals by the United States and the Evenson Group is the fact that these proposals were among the first to make use of the term "foot of the continental slope".<sup>589</sup> Both proposals proposed for a seaward boundary of the continental shelf to be delineated based on the natural prolongation of a land territory until the outer edge of the continental margin or to a distance of 200 NM. However, the same paragraph also sets out an alternative method of delineation, that is, by way of connecting fixed points which are not more than 60 NM from the foot of the continental slope.<sup>590</sup>

It is obvious that this new reference to the foot of the continental slope only came about after it was recognised that the continental margin consisted of the shelf, slope and rise.<sup>591</sup> When the foot of the continental slope was proposed as a point to delineate the outer edge of the continental margin, this also indicates that the proposing States were aware of the nature of the rise where the transition from continental to oceanic may be gradual and thus determining a precise boundary might prove to be difficult and impractical within the continental rise. As such,

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<sup>588</sup> It should be noted that this description of a continental margin is that of a typical passive margin; see Annex 16 for a diagram of the passive margin.

<sup>589</sup> United States (1975), Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 498 and 500; Evenson Group (1975) *The Continental Shelf*, Article 1. Reproduced in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 501.

<sup>590</sup> *Ibid.*

<sup>591</sup> The concept of the continental shelf as comprising the shelf, slope and rise was first introduced in the draft proposals of the United States and the Evenson Group. United States (1975) para 2, Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 498 and 500, and Evenson Group (1975) *The Continental Shelf*, Article 1 para 2. Reproduced in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 501.

the foot of the continental slope which is the most seaward extent of the continental slope was selected as the starting point to measure the outer edge of the continental margin.<sup>592</sup>

This, together with the fact that the continental margin was obviously described based on geomorphological criteria and combined with the reference to geomorphological features in the definition of the continental margin is ample evidence that the continental margin is to be based on a morphological concept. Thus, the determination of a foot of the continental slope point as a point from which to measure the outer edge of the continental margin must have also been intended to be based on a morphological method.

At this stage, neither the United States proposal nor the Evensen Group's proposal was accepted although many of the elements from both proposals were subsequently adopted in the final draft of Article 76 in the later sessions.<sup>593</sup> Be that as it may, the ISNT/Part II incorporated a significant element of what was to be the definition of the continental shelf based on a geomorphological interpretation when it defined the continental shelf as the natural prolongation of a coastal State's land territory to the outer edge of the continental margin where that natural prolongation extends beyond 200 NM.<sup>594</sup> Accordingly, it would be reasonable to say even at this stage that the drafters had intended for the foot of the continental slope to be identified by geomorphological methods. However, as of then, the definition of the "outer edge of the continental margin" and the method on which its limits were to be determined still required a more precise definition.

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<sup>592</sup> United States (1975), Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 498 and 500; Evensen Group (1975) *The Continental Shelf*, Article 1. Reproduced in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 501.

<sup>593</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 851.

<sup>594</sup> A/CONF.62/WP.8/Part II (ISNT, 1975), Article 62 (Chairman, Second Committee), in United Nations, 'Third United Nations Conference on the Law of the Sea', *Official Records*, vol IV (United Nations 1975) 152, 162.

#### **Fourth session of the Conference (1976)**

The fourth session marks a significant development in the identification of the foot of the continental slope.<sup>595</sup> There were a number of proposals which sought to modify Article 62 in the ISNT. Among them was a proposal by Chile which sought to retain the Evensen and United States proposals in terms of reference to the shelf, slope and rise, among others.<sup>596</sup> Besides the Chilean proposal, other proposals include those by Austria and the Soviet Union which attempted to limit the natural prolongation of a coastal State's land territory to the 500 metre isobath, which was a morphological criterion, in the definition of the continental shelf.<sup>597</sup>

Nevertheless, it was the lengthy proposal by Ireland that sought to make extensive additions to Article 62 in the ISNT.<sup>598</sup> Instead of merely defining the continental shelf by reference to the concept of natural prolongation and the distance criterion, the Irish proposal set out more detailed methods to delineate the continental shelf.<sup>599</sup> First, the reference to the shelf, slope and rise in the definition of the continental margin as discussed in the third session found support in this proposal.<sup>600</sup> Second, the Hedberg formula of fixing a point of not more than 60 NM from the foot of the continental slope as originally suggested by the United States and the Evensen Group

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<sup>595</sup> It is to be noted that the Second Committee had agreed to follow a rule of silence. This rule denotes that the delegates who are generally in agreement with the ISNT would refrain from commenting on an article. This rule also connotes that a delegate who is silent on modifications suggested by a member delegation on a particular article is not in support for such modification, A/CONF.62/WP8/Rev.1/Part II, Introductory note (Chairman, Second Committee) in United Nations, 'Third United Nations Conference on the Law of the Sea', *Official Records*, vol V (United Nations 1976) 151, 153.

<sup>596</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 851.

<sup>597</sup> Austria (1976), Article 62 (ISNT/Part II) and Soviet Union (1976), Article 62 (ISNT/Part II) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 4 (Oceana Publications 1982) 320 and 322.

<sup>598</sup> The "Irish Formula", 75<sup>th</sup> informal meeting of the Second Committee on 15 April 1976. Reproduced in Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 852.

<sup>599</sup> *Ibid.*

<sup>600</sup> *Ibid* para 2.

made its way into the Irish proposal as a way of defining the outer edge of the continental margin.<sup>601</sup> Third, it also provided an alternative method of establishing an outer edge of the continental margin, that is, by fixing points based on the ratio of the thickness of sedimentary rocks in reference to the foot of the continental slope. This formula went to be called the “Irish formula” or the “Gardiner formula” both terms of which will be used interchangeably in this thesis.<sup>602</sup> Fourth, it actually sought to define the foot of the continental slope as the point of maximum change in gradient at its base where there is no evidence to the contrary.<sup>603</sup> That paragraph was later incorporated verbatim into the final draft of Article 76. It read as follows:

In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in gradient at its base.<sup>604</sup>

The Irish proposal received support from the group of broad-shelf States. The group of States nevertheless felt that the proposal would cause a compromise, resulting in the reduction of the continental shelf area that could have previously been claimed under the 1958 Convention.<sup>605</sup>

Despite the proposed modifications made by the delegations, the RSNT/Part II did not adopt any of the elements proposed. Instead, the definition of the continental shelf remained unchanged from the definition in the ISNT, albeit it was renumbered as Article 64.<sup>606</sup> To this, the Chairman of the Second Committee explained his reasons for not incorporating the changes as follows:

On the definition of the continental shelf I was sympathetic to proposals that the outer limit of the continental margin need to be precisely defined, particularly since the definition contained in the [ISNT] commanded significant support. However, since the

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<sup>601</sup> Ibid para 3(b).

<sup>602</sup> Ibid para 3(a).

<sup>603</sup> Ibid para 3.

<sup>604</sup> Ibid.

<sup>605</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 853.

<sup>606</sup> A/CONF.62/WP.8/Rev.1/PartII, Revised Single Negotiating Text (Part II), Article 64, in United Nations, ‘Third United Nations Conference on the Law of the Sea’, *Official Records*, vol V (United Nations 1976) 164.

proposals on such a precise limit were of a very technical nature and were in fact presented to the Committee in detail for the first time, I did not consider it appropriate to include such a definition at this stage. At the next session, a group of experts could perhaps be convened to give more exposure to this question.<sup>607</sup>

It seems that the Chairman was of the view that the definition adopted in the ISNT was sufficient at that stage. Since that session saw quite a fair number of proposals suggesting for a more technical and precise limit to the continental margin and unforeseen by the Chairman, this indicates that States were anticipating a more defined extended continental shelf. In particular, it is observed that the proposals submitted at this session were inclined to base the outer limits on geomorphological as opposed to geological criterion.

#### **Fifth and sixth session of the Conference (1976 and 1977)**

There was not much discussion that contributed to a better understanding of the foot of the continental slope at the fifth session in 1976.<sup>608</sup> When the sixth session was convened, the debate was between those States in favour of the Irish formula on sediment thickness, and those who supported the Hedberg formula but opposed the Irish formula.<sup>609</sup> Although the debate did not have any significant impact on the identification of the foot of the continental slope itself, it revealed that by this time most States have expressed their acceptance on the use of the foot of the continental slope to determine the outer edge of the continental margin.<sup>610</sup>

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<sup>607</sup> Ibid.153 (Introduction, para 13).

<sup>608</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 854.

<sup>609</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 855-856.

<sup>610</sup> Ibid.

### **Seventh session of the Conference (1978)**

The seventh session saw the Soviet Union proposing for a modification of the continental shelf definition.<sup>611</sup> Among others, it sought to impose a maximum limit on the extended continental shelf to the point of 100 NM from the 200 NM limit of the exclusive economic zone. In other words, the outer limits of the continental shelf shall not go beyond 300 NM from the baseline.<sup>612</sup> For continental margins that do not extend up to that limit, the Soviet Union proposed that the continental shelf be determined “on the basis of scientifically-sound geological and geomorphological data”.<sup>613</sup> It further proposed that in the absence of such data, resort must be had to “paragraph 3(b) of the Irish amendment”, referring to the formula of 60 NM from the foot of the continental slope, as long as it does not extend beyond 100 NM from the 200 NM limit.<sup>614</sup>

The proposal that the outer edge of the continental margin be determined by “scientifically-sound geological and geomorphological data” is undefined but could be interpreted to include the identification of foot of slope points. However, it is observed that although the Soviet Union sought to modify the definition of the outer edge of the continental margin by incorporating a definition based on scientific data, the proposal still made use of the legal formula, that is, 60 NM from the foot of the continental slope. Thus, the foot of the continental slope is still much relevant even though the definition was to be modified to be based on scientific elements.

### **Resumed seventh session of the Conference (1978)**

The resumed seventh session in 1978 saw the Chairman of the Second Committee reiterating the work of the Group.<sup>615</sup> Among others, he summed up the three main proposals discussed in the

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<sup>611</sup> C.2/Informal meeting/14 (1978) Article 76 (USSR). Reproduced in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 4 (Oceana Publications 1982) 20.

<sup>612</sup> *Ibid* para 2.

<sup>613</sup> *Ibid*.

<sup>614</sup> *Ibid*.

<sup>615</sup> It might be worthy to note that the Chairman of the Second Committee was also the Chairman of Negotiating Group 6.

Group which were the Irish proposal, the Soviet Union proposal, and the proposal by the Arab States which did not agree with the extension of the continental shelf beyond 200 NM.<sup>616</sup>

### **Eighth session of the Conference (1979)**

At the eighth session in 1979, discussions on the definition of the outer limits of the continental margin continued in Negotiating Group 6 where six informal meetings were held.<sup>617</sup>

Among the proposals submitted for a modification of the Irish proposal was a proposal by Denmark which sought to remove the words "submerged prolongation of the land mass of the coastal State".<sup>618</sup> An explanation for the said removal was provided for in the proposal. It stated that the word "prolongation" could possibly be confused with the concept of "natural prolongation" in paragraph 1.<sup>619</sup> According to Denmark, the essence of the concept of natural prolongation is the "fundamental geological continuity" of the area. In effect, a coastal State may only claim the whole of the continental margin if the fundamental geological continuity is not interrupted by a significant physical feature. The example given by Denmark in the explanation was a trench of sufficient magnitude which would disrupt the geological continuity of the margin<sup>620</sup>. Hence, in that case, the limit of the continental shelf would only extend up to that trench. In other words, the "natural prolongation" of the continental margin ends with its geological continuity, that is, at the trench.

It is apparent from this statement that there was an attempt to include some geological definition to the concept of natural prolongation. In that event, it could be argued that geology also plays a

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<sup>616</sup> A/CONF.62/RCNG/2 (1978), Para 6, Report to the Plenary by the Chairman of the Second Committee, United Nations, 'Third United Nations Conference on the Law of the Sea', *Official Records*, vol X (United Nations 1979) 126, 164.

<sup>617</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 860.

<sup>618</sup> NG6/2 (1978), Article 76 (Denmark), Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 9 (Oceana Publications 1982) 372.

<sup>619</sup> Ibid.

<sup>620</sup> Ibid.



role in defining the extent of the continental shelf and that, in practice, the limits of the continental shelf is not determined by geomorphological criteria alone.

A likely interpretation of the statement by Denmark would be that in circumstances where the fundamental geological continuity of an area is not disrupted by a physical feature, the natural prolongation would consist of the shelf, slope and rise. Hence, the foot of the continental slope which marks the end of the slope could be determined by morphological criteria alone. However, where there is an interruption of the fundamental geological continuity of the area by a feature such as a trench, the trench would mark the end of the natural prolongation of the area. Therefore, geological evidence can be used to identify the trench as the outer edge of the continental margin.

Even though the proposal by Denmark was never incorporated into the subsequent ICNT nor was it adopted into the final draft of Article 76, it nevertheless provided a good understanding on the essence of the concept of natural prolongation and acknowledgment that it may sometimes be necessary to use geological evidence to determine the outer limits of the continental shelf.

This is consistent with the premise that the relationship between the two methods of locating the foot of the continental slope is that of general rule and exception. The general rule would apply in situations where the foot of the continental slope can be located by morphologically based methods, that is, by determining the point of maximum change in gradient which would ideally be the point where the slope meets the rise. The exception to the general rule would thus be situations where geological evidence is needed to determine the geological continuity of the area.

On the other hand, the concept of natural prolongation could also be understood differently from the explanation by Denmark in the sense of the relationship between the two methods. As observed throughout Chapter Five, an area is considered a natural prolongation of the land mass where there exists geological and morphological continuity. Thus, where a physical feature disrupting the geological continuity of a prolongation is present, such as a trench of sufficient magnitude, it also disrupts the morphological continuity of the prolongation. As such, the trench actually marks the end of the natural prolongation of the area and the most seaward part of the

trench can be identified as the foot of the continental slope. In this situation, morphological evidence is to be used to identify the point of maximum change in gradient which in this case is the trench. However, geological evidence may be used to say that the most seaward part of the trench is not in fact the foot of the continental slope by proving, for instance, that the seabed beyond the trench is continental in nature.

The explanation by Denmark also suggests that the delegation was under the impression that there is always an identifiable foot of continental slope. It is apparent from the explanation that Denmark regards all continental margins as having a distinct shelf, slope and rise. As a result, where there exists a trench disrupting the geological continuity of an area, the coastal State in question is unable to claim the whole of the margin. Denmark did not see the trench as being the most seaward extent of the continental margin, where it is possible that the trench marks the foot of the continental slope even though a distinct shelf and slope is not easily identifiable.

The Chairman of Negotiating Group 6 took into account the proposals submitted by delegates and came up with his compromise proposal<sup>621</sup>. The definition of the continental shelf as the natural prolongation of the land territory to the outer edge of the continental margin in the ISNT/ Part II was retained under paragraph 1 of that compromise proposal. However, the latter also incorporated paragraph 2 which defined the continental margin as consisting of the seabed and subsoil of "the shelf, the slope and the rise".<sup>622</sup> The description of the foot of the continental slope as suggested by Ireland was also included in the compromise proposal. The clause that was adopted verbatim read as follows:

In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in gradient at its base.<sup>623</sup>

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<sup>621</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 863.

<sup>622</sup> A/CONF.62/L.37 (1979) Article 76 (Chairman, Negotiating Group 6), United Nations, 'Third United Nations Conference on the Law of the Sea', *Official Records*, vol XI (United Nations 1980) 100.

<sup>623</sup> *Ibid.*

The delegates deliberated on this compromise proposal during this session and after having received widespread support, it was finally adopted by the ICNT/Rev.1.<sup>624</sup> Nevertheless, there was a slight change made to the clause on the foot of the continental slope where, instead of coming under paragraph 3(b) on the Hedberg formula, the ICNT renumbered the paragraph so that the clause which provides for the method of identifying the foot of the continental slope stands on its own under paragraph 4(b) while the Irish and Hedberg formula were numbered paragraphs 4(a)(i) and 4(a)(ii) respectively.<sup>625</sup> This makes clear that the provision describing the method of identification of the foot of slope is to be used in applying either the Irish or Hedberg formula.

The widespread support for the provision on the definition of the continental margin indicated that States were in favour of a geomorphological interpretation of the continental shelf. The provision incorporated "the shelf, the slope and the rise" as morphological features of the continental margin. This undoubtedly denotes that delegations understood that the outer edge of the continental margin as measured from the foot of the continental slope is to be determined by morphological criteria. Support for the inclusion of the Irish proposal also reaffirms this. This shows that the delegates were in favour of the view that the foot of the continental slope was to be determined as the point of maximum change in gradient at the base of the continental slope. Apart from that, the adoption of the words "[i]n the absence of evidence to the contrary" in the same provision suggests that delegates were also aware that there may be instances where the foot of the continental slope is determined by other means. The words "point of maximum change in gradient at its base" indicates that the base of the continental slope is the region where the point of maximum change in gradient is to be located, and this was accepted by the delegates.

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<sup>624</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 865.

<sup>625</sup> Ibid.

As for the rest of the sessions, there were no more discussions on the foot of the continental slope or any other provisions affecting it.<sup>626</sup> The definition of the outer edge of the continental margin adopted in the ICNT/Rev. 1 was later incorporated verbatim into the final draft of Article 76.<sup>627</sup>

### **6.2.1 Conclusion**

The analysis on the legislative history above reveals the following on the determination of the foot of the continental slope.

First, there was no express recognition for the use of geological evidence in determining the foot of the continental slope during negotiations. The only method explicitly acknowledged was the maximum change in gradient rule which was introduced in the proposal by Ireland at the fourth session in 1976. However, it was acknowledged that there would be situations where other evidence can be used when the Conference adopted the clause for evidence to the contrary. As such, it could be assumed that this would include geological evidence although it was not explicitly mentioned in the Conference.

Second, despite careful examination, all the documents relating to negotiations of the Third Conference were silent on the reason why the evidence to the contrary clause was suggested by Ireland. The only reasonable explanation would be that it was intended to cater for situations where a foot of continental slope position could not be located by the maximum change in gradient rule. Although this was possibly the case, there was no further discussion on the matter which could explain the method and evidence to be used under the evidence to the contrary rule.

In light of the above conclusion, the following points could be made on the foot of the continental slope with regard to the legislative history of Article 76:

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<sup>626</sup> Satya Nandan and Shabtai Rosenne (eds), *United Nations Convention on the Law of the Sea 1982. A Commentary*, vol 2 (Martinus Nijhoff Publishers 1993) 867-873.

<sup>627</sup> LOS Convention 1982, Article 76.

First, with regard to the relationship between the maximum point in gradient rule and the evidence to the contrary rule, it is observed from the legislative history of Article 76 that the drafters did in fact intend for the point of maximum change in gradient rule as the general rule in locating the foot of the continental slope and the evidence to the contrary rule as the exception. This is inferred from the lengthy negotiations revolving around the definition of the continental shelf and later the continental margin. It is clear that the drafters were in favour of the continental shelf being described as a geomorphological feature by associating it with the concept of natural prolongation. This was reaffirmed when the drafters continued to define the continental margin with reference to features such as the shelf, slope and rise which are morphological features. Therefore, with the overwhelming acceptance of a morphological interpretation of the continental shelf and the continental margin, it is only reasonable that the drafters must have intended the outer edge of the continental margin to be identified by morphological evidence. Hence, the point of maximum change in gradient as a morphological method of identifying the foot of the continental slope was intended as the general rule.

This combined with the wordings of paragraph 4(b) as proposed by Ireland and adopted in the final draft show that the maximum point in gradient was intended by the drafters as the main method of identifying the foot of the continental slope. As a result, any method other than that established by the maximum change in gradient rule is regarded as a secondary method.

Second, on the issue of the dual regime, the terms used in proposals during the earlier sessions of the Conference such as "outer lower slope" could have indicated the region where foot of continental slope positions are to be located. In that sense, the region referred to could be construed as the base of the continental slope. Be that as it may, although these terms were used, nothing in the proposals seem to expressly indicate the dual regime in the sense that the base of the continental slope region is to be identified first followed by the foot of the continental slope. Nevertheless, later in the Conference, the current paragraph 4 as proposed by Ireland expressly mentions "the point of maximum change in gradient *at its base*" referring to the base of the continental slope. With the incorporation of this Irish proposal in the final draft of Article 76, it is apparent that the base of the continental slope is to be identified first before locating the foot of

the continental slope. However, the clause suggests that this rule only applies to situations where the foot of the continental slope is determined by the maximum change in gradient rule. It is silent on whether the rule is to be applied when using evidence to the contrary to locate the foot of the continental slope.

The third point is on the issue of the circumstances where the foot of the continental slope is to be established by the maximum change in gradient rule. An analysis of the legislative history reveals that there was no discussion on whether the type of continental margin determines which rule is to be applied. Nevertheless, it can be deduced from the documents that the determining criteria would be the morphology of the continental margin. The type of margin which merits the application of the maximum change in gradient rule as founded by the drafters was the type which has a clear and straightforward morphology consisting of a distinct shelf, slope and rise, also known as the passive margin.<sup>628</sup> This is based on the definition of the continental margin as agreed by the drafters which describes the continental margin as consisting of a shelf, slope and rise.<sup>629</sup> This type of margin as envisaged by the drafters during the Conference resulted in the formulation of the maximum change in gradient rule as the general rule for determining the foot of the continental slope position as this was the most suitable and convenient method for this type of margin.

To base an interpretation on the legislative history alone would not be sufficient in order to resolve the issues on the foot of the continental slope. This is because not much can be deduced from the legislative history that could reveal the drafters' intention. Furthermore, it would undermine the roles of the two most important actors in the establishment of the outer limits of the continental shelf, namely the coastal States and the Commission. Therefore, the practice of

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<sup>628</sup> Claudia Owen, Diane Pirie, Grenville Draper, *Earth Lab: Exploring the Earth Sciences* (3<sup>rd</sup> edn, Brookes/Cole Cengage Learning 2011) 318.

<sup>629</sup> Examples of proposals describing the continental margin as such are: United States (1975) in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 498 and 500; Evensen Group (1975) The Continental Shelf, Article 1 in Renate Platzöder (ed), *Third United Nations Conference on the Law of the Sea: Documents*, vol 11 (Oceana Publications 1982) 501.

coastal States and the practice of the Commission shall be analysed next in order to understand how the foot of the continental slope provisions are applied in practice.

### **6.3 State practice**

The issues revolving around the foot of the continental slope in light of State practice can be analysed by examining the methods used by States in locating foot of continental slope points and the circumstances in which they were applied.

#### **a) Australia**

The Australian approach has been to establish foot of continental slope points based on three different methods depending on the base of the continental slope. The first method relates to the use of morphology alone to determine the foot of the continental slope. This morphological foot of slope can only be identified where there is only a single and obvious base of slope location.<sup>630</sup> The second method involves identifying the geologically supported foot of continental slope. This method is used to identify foot of continental slope points in situations where there are multiple possible morphological base of slope locations.<sup>631</sup> The third type of foot of slope is that which is identified by 'evidence to the contrary'. According to Australia, this method is applied in the absence of an obvious morphological base of continental slope region.

The first method was applied for the majority of foot of continental slope points submitted by Australia whilst the second method had been applied for three foot of slope points in the Great Australian Bight region.<sup>632</sup> As for the last method, there has been no foot of slope points submitted by Australia using evidence to the contrary.

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<sup>630</sup> An example is the Kerguelen Plateau Region. Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the submission made by Australia on 15 November 2004' (United Nations, 9 April 2008) para 39.

<sup>631</sup> An example is the Great Australian Bight Region. *Ibid* para 24.

<sup>632</sup> *Ibid*.

**(i) Using morphology alone**

The first method, that is, by using morphology alone is applied by assessing the gradients and change of gradients of the profile in the region between the deep ocean floor and the continental slope or rise.<sup>633</sup> This method was applied for the majority of foot of continental slope points submitted by Australia.<sup>634</sup> These foot of continental slope points include those in the region of the western flank of the South Tasman Rise where morphology alone was used.<sup>635</sup>

The South Tasman Rise is located towards the south of the island of Tasmania.<sup>636</sup> It is less than 1000 metres deep. The western flank of the South Tasman Rise meets the 4,500 metre deep ocean floor of the Australia-Antarctic Basin. It was found that a rise does not exist in this area.<sup>637</sup> As such, the foot of the continental slope must lie on the boundary between the most seaward margin of the base of the transform fault and the deep ocean floor. This foot of continental slope point is relatively easy to identify. Since there is no rise, which is a gradually sloping feature, there was obviously a distinct difference between the depth of the continental margin and that of the deep ocean floor. Therefore, in this case, the foot of the continental slope was determined by using morphological evidence alone.<sup>638</sup> The Australian practice here shows that with regard to profiles where the boundary between the continental margin and the deep ocean floor can be easily distinguished by the distinct morphological descend, morphological evidence alone would

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<sup>633</sup> Mark Alcock, *The use of marine geophysical data in submissions on the outer limits of the extended continental shelf* (First International Symposium on Application of Marine Geophysical Data, Seoul, October 2006) <<http://marinesympo.nori.go.kr/files/12.Alcock2.pdf>> accessed 13 June 2009.

<sup>634</sup> See Commission on the Limits of the Continental Shelf, ‘Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the submission made by Australia on 15 November 2004’ (United Nations, 9 April 2008).

<sup>635</sup> Ibid.

<sup>636</sup> Ibid para 92.

<sup>637</sup> Ibid para 97.

<sup>638</sup> Mark Alcock, *The use of marine geophysical data in submissions on the outer limits of the extended continental shelf* (First International Symposium on Application of Marine Geophysical Data, Seoul, October 2006) <<http://marinesympo.nori.go.kr/files/12.Alcock2.pdf>> accessed 13 June 2009.



suffice in order to determine the foot of the continental slope without the support of geological evidence.

**(ii) Using geology to support morphological foot of slope points**

The application of the second method can be seen in the Great Australian Bight region where three foot of continental slope points in the Recherche Sub Basin area had been identified by using geology to support a morphological foot of continental slope.<sup>639</sup>

The Recherche Sub Basin is a rift basin and geologically part of the Australian continental margin. Along the seaward extent of the Recherche Sub Basin lies the Recherche Lower Slope, a feature of a significantly low gradient. The gradients in this province were found to be 0.7 to 1.4 degrees, hence, falling in the upper range of the gradients of a typical rise but lower than the gradient range of a slope.<sup>640</sup>

The underlying question was whether the Recherche Lower Slope is in fact part of the continental slope or the continental rise. If it was established that the Recherche Lower Slope is part of the continental slope, then the foot of the continental slope shall lie on its seaward margin. On the contrary, if it was established as a rise, then the foot of the continental slope shall lie on its landward margin.

In determining whether it constitutes a slope or a rise, Australia had relied on the definition of a rise as described by the Commission in the Guidelines.<sup>641</sup> The Commission defines the rise as follows:

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<sup>639</sup> Ibid; Commission on the Limits of the Continental Shelf, ‘Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the submission made by Australia on 15 November 2004’ (United Nations, 9 April 2008), para 24.

<sup>640</sup> Mark Alcock, *The use of marine geophysical data in submissions on the outer limits of the extended continental shelf* (First International Symposium on Application of Marine Geophysical Data, Seoul, October 2006) <<http://marinesympo.nori.go.kr/files/12.Alcock2.pdf>> accessed 13 June 2009.

<sup>641</sup> Ibid.

The rise is normally a wedge-shaped sedimentary body having a smaller gradient than the continental slope. The rise developed predominantly in a rifted margin realm with sufficient supply of sediments from the continent *after* breakup and commencement of sea-floor spreading.<sup>642</sup>

As indicated in the Guidelines, the determining factor as to whether a feature constitutes a rise is that it is formed after continental breakup. To this end, Australia had used geological evidence to determine the formation process of the Recherche Lower Slope. The sediments that have accumulated in the area of the Recherche Lower Slope were found to be deposited during the last rift stages of continental break up and not after breakup as would a rise. Furthermore, the sediments were found to be deposited preceding the sediments that filled the Australia-Antarctic basin which is not a characteristic of a rise.<sup>643</sup>

It was established that the Recherche Lower Slope is the morphological expression of the Recherche Sub Basin underlying it which is geologically part of the Australian continental margin. Thus, Australia found that the Recherche Lower Slope constitutes a gradually sloping lower part of the continental slope and not a rise in the sense of the Guidelines.<sup>644</sup>

Since the Recherche Lower Slope is not a rise, the region of the base of the continental slope was considered to be the area of the seaward margin of the rift basin.<sup>645</sup> From the region of the base of the slope that has been located by geological evidence, Australia was able to determine the foot of the continental slope at a point on the lower slope.<sup>646</sup> If morphology alone was used, the

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<sup>642</sup> Commission on the Limits of the Continental Shelf, 'Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf', CLCS/11 (United Nations, 13 May 1999) para 6.2.1 (emphasis added).

<sup>643</sup> Mark Alcock, *The use of marine geophysical data in submissions on the outer limits of the extended continental shelf* (First International Symposium on Application of Marine Geophysical Data, Seoul, October 2006) <<http://marinesympo.nori.go.kr/files/12.Alcock2.pdf>> accessed 13 June 2009.

<sup>644</sup> Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the submission made by Australia on 15 November 2004' (United Nations, 9 April 2008) para 24.

<sup>645</sup> Ibid.

<sup>646</sup> Mark Alcock, *The use of marine geophysical data in submissions on the outer limits of the extended continental shelf* (First International Symposium on Application of Marine Geophysical Data, Seoul, October 2006) <<http://marinesympo.nori.go.kr/files/12.Alcock2.pdf>> accessed 13 June 2009.

Recherche Lower Slope would have been regarded as a rise and would thus place the foot of the continental slope at a point land ward of the Recherche Lower Slope. Instead, by using geological evidence to support a morphological foot of slope, Australia was able to extend its continental shelf claim to a point on the seaward end of the Recherche Lower Slope.

From the case of the Recherche Lower Slope examined above, it is observed that in applying the geologically supported morphological foot of slope method, the foot of continental slope points are identified using the maximum change in gradient rule and not by geological evidence based on the evidence to the contrary rule. However, it is the base of the continental slope region that is determined by geological evidence. In other words, this method is applied in areas where a further seaward morphological foot of slope point is preferred. As demonstrated above, Australia used geological evidence to support its preferred selection of a more seaward foot of slope point by establishing that the continental margin does in fact extend up to that point. Thus, in situations where there are more than one possible points of maximum change in gradient, the Australian practice is to use geological evidence to determine which one of the points is to be chosen as the foot of the continental slope such as in the case presented above. Nevertheless, as the foot of the continental slope is morphologically profound and easily identifiable, there is no need to resort to any method other than the maximum change in gradient in order to locate the foot of the continental slope. To that end, it is observed that the supporting geological evidence used in the Australian practice relates only to the location of the base of the continental slope region. When the true base of continental slope region has been located, the foot of the continental slope maintains to be identified by morphological evidence alone.

With regard to the relationship between the maximum change in gradient rule and the evidence to the contrary rule, there is no clear practical evidence that Australia regards the former as the general rule and the latter an exception to the former. Nevertheless, the fact that there were no instances where Australia had used evidence to the contrary to locate a foot of continental slope point strongly suggests that the Australian practice has always been to opt for the maximum change in gradient rule as its first choice whenever possible. This evidently suggests that

Australia regards the maximum change in gradient rule as the general rule in determining the foot of the continental slope points.

It is also clear from the Australian practice that the dual regime is applied by Australia in determining foot of the continental slope by means of the maximum change in gradient rule. In locating the base of the continental slope, the Australian practice has been to use morphological evidence such as bathymetric data in areas where it is easily identified. The Australian practice also shows that geological evidence can be used to locate the base of the continental slope different from the one identified by morphological evidence alone. Thus, the dual regime is applied by Australia with regard to foot of continental slope points that are determined by the maximum change in gradient rule.

**(iii) Using evidence to the contrary**

There has been no opportunity for Australia to demonstrate whether it would locate the base of the continental slope in situations where the foot of the continental slope point is located by using evidence to the contrary.<sup>647</sup> As such, it is not possible to determine the Australian practice on whether the dual regime applies where evidence to the contrary is invoked.

The Australian practice shows that the different methods used would depend on the profile of the margin itself. Where the margin is relatively straightforward and corresponds to the ideal profile of a distinct shelf, slope and rise, Australia opted for a fully morphological method of determining the foot of the continental slope. However, where the margin is less distinct and the morphological foot of continental slope is less profound, the Australian practice has been to involve some geological evidence where necessary. It appears that, even in instances where geological evidence was used, it was merely to support the morphological evidence and not applied on its own. Be that as it may, Australia does recognise the use of geological evidence alone based on the evidence to the contrary clause in Article 76 although in practice the method has never actually been applied.

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<sup>647</sup> Ibid.

## **b) New Zealand**

The application of both the maximum change in gradient rule and the evidence to the contrary rule according to the New Zealand practice can be examined by analysing their application in a number of regions. In particular, the Hikurangi Plateau region and the Lau Terrace region are excellent examples of how the two methods have been applied. The application of the methods in these regions also demonstrates the New Zealand practice with regard to the dual regime.

### **(i) Hikurangi Plateau**

The Hikurangi Plateau region demonstrates an example of the New Zealand practice with regard to how both methods of identifying the foot of the continental slope were applied. The maximum change in gradient method was used in the northern region while evidence to the contrary was applied in the eastern region.<sup>648</sup>

The boundary of Hikurangi Plateau is marked by the Rapuhia Scarp which ranges from the north of the plateau to the east. Thus, the plateau lies on the western side of the Rapuhia Scarp while the deep ocean floor lies on its eastern side. The plateau is connected to the New Zealand land mass on its southern end by the Chatham Rise.<sup>649</sup>

The Hikurangi Plateau is located to the east of North Island and to the north of Chatham Rise which is connected to the New Zealand land mass. There is a distinct break in slope at the base of Chatham Rise where it meets the Hikurangi Plateau. This was merely found to be an intermediate drop to 2,600 metres.<sup>650</sup> Furthermore, as the plateau extends up to 700 kilometres

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<sup>648</sup> Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the Submission made by New Zealand 19 April 2006' (United Nations, 22 August 2008) 46-51.

<sup>649</sup> A Henig and BP Luyendyk, *The Manihiki Plateau, Hikurangi Plateau, Wishbone Scarp, and Osborn Trough: A Review and Analysis* (Abstract, American Geophysical Union, Fall Meeting 2007) <<http://adsabs.harvard.edu/abs/2007agufm.t12a..01h>> accessed 1 September 2012.

<sup>650</sup> R Wood, *Finding the Continental Shelf – Integration of Geology and Geophysics* (New Zealand Petroleum Conference Proceedings, February 2002) 5-7 <<http://www.gns.cri.nz/static/unclos/pdfs/44wood.pdf>> accessed 20 February 2009.

further and is not composed of rocks of the ocean floor, the break in slope cannot be considered the true foot of slope position. Therefore, another location for the base of the slope was located further seaward. This was a steeper slope descending from the Hikurangi Plateau at approximately 4,000 metres deep along the Rapuhia Scarp. The morphological foot of slope point was found to be seaward of the scarp.<sup>651</sup>

In contrast to the northern region, the morphologic boundary towards the eastern end of the Hikurangi Plateau is less distinct. A prominent morphologic foot of slope position was identified by applying the maximum change in gradient rule. However, the true foot of slope position was identified a further 100 kilometres from that morphologic foot of slope by using the evidence to the contrary rule. New Zealand first located the base of the slope which was represented by the continent-ocean transition zone. As a result, foot of slope positions were identified on the inner margin of the transition zone.<sup>652</sup>

In the northern region as previously discussed, the Rapuhia Scarp was identified as the base of the continental slope. The scarp in that region was distinct and easily identified as it was 1 kilometre high. However, in the eastern region, the same range of escarpment was buried under sediments making it impossible to be morphologically identified.<sup>653</sup> As a result, geological evidence as evidence to the contrary was necessary to locate the foot of the continental slope in the area of the buried scarp. Thus, although a pronounced morphologic foot of slope position was identified further landward, it did not represent the boundary of the Hikurangi Plateau. The true

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<sup>651</sup> Ibid.

<sup>652</sup> R Wood, 'Integration of Geophysical & Geological Data in Determining the Extent of the Continental New Zealand, Finding the continental shelf - examples from the New Zealand Region' (ABLOS Conference, October 2001) <<http://www.gmat.unsw.edu.au/ablos/ABLOS01Folder/WOOD.PDF>> accessed 21 February 2009.

<sup>653</sup> Bryan Davy and Chris Uruski, 'Results of the 2001 deep seismic survey of the Chatham Rise and Hikurangi Plateau and implications for petroleum exploration' ((New Zealand Petroleum Conference Proceedings 2002) 7 <<http://www.nzpam.govt.nz/cms/pdf-library/petroleum-conferences-1/2002-nz-petroleum-conference-proceedings/davy-2-4-mb-pdf>> accessed 20 February 2009.

foot of slope position was only discovered by evidence to the contrary seaward of the morphologic foot of slope on the inner edge of the continent-ocean transition zone.<sup>654</sup>

The two regions in the Hikurangi Plateau reflect the New Zealand practice with regard to the application of both the maximum change in gradient rule as well as the evidence to the contrary rule.

First, the New Zealand practice in the northern region demonstrates that applying the maximum change in gradient rule does not necessarily mean the first maximum change in gradient is to be chosen as the foot of the continental slope. The first point of maximum change in gradient may merely be an intermediate break in slope and the true foot of slope point could be well further than the first intermediate break in slope. In such a case, the New Zealand practice shows that the true foot of slope can be identified at a different point by locating the true base of the continental slope. It has been demonstrated that this base of continental slope is determined by reference to geological means, such as the transition from continental to oceanic rocks. This is so even in the case where the foot of the continental slope is identified by morphological means in that region of the base of the slope.

Second, the New Zealand practice shows that the identification of the point of maximum change in gradient does not necessarily diminish the right of identifying foot of slope points by means of evidence to the contrary. In this sense, although a possible foot of slope point can be identified by the maximum change in gradient rule, geological evidence can still be used to prove that the continental shelf extends beyond that point of maximum change in gradient. This method is applied, for example, where it is found that the rocks beyond the point of maximum change in gradient do not share characteristics of rocks of the deep ocean floor as seen in the Hikurangi Plateau region discussed above.

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<sup>654</sup> 'Integration of Geophysical & Geological Data in Determining the Extent of the Continental New Zealand, Finding the continental shelf - examples from the New Zealand Region' (ABLOS Conference, Monaco, October 2001) 7 and 8 <<http://www.gmat.unsw.edu.au/ablos/ABLOS01Folder/WOOD.PDF>> accessed 21 February 2009.

Third, it is observed that the base of the continental slope was identified regardless of the method used to identify the foot of the continental slope. In other words, the dual regime applies where the foot of the continental slope is determined by either the maximum change in gradient or evidence to the contrary. In both instances demonstrated in the Hikurangi Plateau, the base of continental slope regions were identified by using geological methods to determine the region where continental rocks meet oceanic rocks. Thus, the base of the continental slope region plays an important role in determining the foot of the continental slope according to the New Zealand practice.

Fourth, it appears that where a foot of slope position based on the maximum change in gradient does not correctly reflect the boundary of the margin, the New Zealand practice shows that a different region is established as the base of the continental slope which correctly reflects the boundary of the margin. It is within this region that the true foot of continental slope point is identified by applying either the maximum change in gradient rule or evidence to the contrary, based on the nature of the margin in that region.

#### **(ii) Lau Terrace**

The New Zealand practice can be further demonstrated by the Lau Terrace and Colville Ridge area in the northern region.

The Lau Terrace is comprised of tilted fault blocks facing the west side and extends into the Western Lau Terrace. These fault blocks were formed as a result of rifting. The crustal thickness of Lau Terrace to the east is between 14 to 17 kilometres. The crust gradually thins to approximately 8 to 10 kilometres along the Western Lau Terrace which is 1 to 2 kilometres thicker than the adjacent South Fiji Basin. Both the Lau Terrace and the Western Lau Terrace are part of the natural prolongation of the New Zealand land mass.<sup>655</sup>

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<sup>655</sup> Vaughan Stagpoole and others, *Foot of the continental slope in Article 76* (ABLOS Conference, October 2003) <<http://www.gmat.unsw.edu.au/ablos/ABLOS03Folder/PAPER2-1.PDF>> accessed 25 February 2009.



The bathymetric profile of the Lau Terrace region shows that there are a number of potential foot of slope points on these fault blocks based on the maximum change in gradient rule. Nevertheless, the base of slope region has to be determined first. Because of the numerous potential morphological base of slope regions, the true base of the continental slope had to be identified by locating the continent-ocean transition zone. This was found to be located on the western edge of the Western Lau Terrace where the terrace meets the South Fiji Basin. Once this was located, New Zealand identified the foot of slope point as being either the point of maximum change in gradient at the base or the point at the most landward edge of the transition zone, both of which occurred at the same place.<sup>656</sup>

The Lau Terrace situation above demonstrates the New Zealand practice with regard to locating the base of the continental slope. It appears that New Zealand uses geological and geophysical evidence to locate the base of the continental slope in situations where the bathymetric profile shows more than one point of maximum change in seafloor gradient. Therefore, the fact that a point of maximum change in gradient can be identified does not preclude New Zealand from using geological and geophysical evidence where morphological evidence appears to be complex and does not correctly locate the region.

As regards locating the foot of the continental slope, the above demonstrates that New Zealand used morphological evidence to determine the point of maximum change in gradient at the base of the continental slope as the foot of slope position. This is so even though the base of slope region itself was not morphologically identified. As such, although the continent-ocean transition zone was used as the base of slope in the Lau Terrace region, New Zealand still applied the maximum change in gradient rule in locating the foot of slope position and not merely resorting to the landward limit of the transition zone as the proxy foot of slope position.

Several points can be deduced with regard to the New Zealand practice as observed from the regions analysed above.

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<sup>656</sup> Ibid.

First, New Zealand allows the use of geological and geophysical evidence to identify the region of the base of slope in certain circumstances. The first situation which allows for the use of such evidence is where a morphologic break in slope does not represent the true boundary of the continental margin. In doing so, New Zealand had presented geological and geophysical evidence to show that the rocks beyond the break in slope do not consist of rocks of the deep ocean floor. In that situation, geological and geophysical evidence was used to locate a further seaward break in slope as the boundary in order to identify the base of slope region. The second situation relates to the absence of a distinct morphologic boundary, for example, where the change in seafloor gradient is disguised by escarpment. In that situation, New Zealand had resorted to the continent-ocean transition zone as its base of slope region. The third situation is where there are several points of maximum change in seafloor gradient. It appears that New Zealand had opted to use geological and geophysical evidence to locate the continent-ocean transition zone as the base of slope region.

Second, with regard to locating the foot of the continental slope, the New Zealand practice has been to use the point of maximum change in gradient at the base of the continental slope as the foot of the continental slope wherever possible. This method of locating the foot of the continental slope was applied even when geological and geophysical evidence were used to locate the base of the slope region. Similarly, in situations where the continent-ocean transition zone is used as the base of slope region, New Zealand had located the foot of slope position as the point of maximum change in gradient inside the transition zone where the point of maximum change in gradient is identifiable and not use a proxy foot of slope point on the inner landward edge of the zone.

Third, as far as evidence to the contrary is concerned, the New Zealand practice has been to resort to this method only in certain situations. Examples of these are where the point of maximum change in gradient cannot be identified, does not reliably locate the boundary, or where there are several points of maximum change in gradient. In such circumstances, the New Zealand practice has been to resort to the inner margin of the continent-ocean transition zone as a proxy foot of slope position.

In light of these observations, several points can be made with regard to the issues raised.

First, the New Zealand practice shows that the relationship between the two rules is of general rule and exception. This is so in the sense that the former is to be attempted first, and the latter can only be resorted to when the former does not correctly locate the true foot of slope position. The fact that a point of maximum change in gradient can be located does not necessarily mean that it represents the true foot of slope position. The New Zealand practice shows that in these circumstances, evidence to the contrary is used to locate the true foot of slope position although the point of maximum change in gradient is present.

Second, on the issue of the dual regime, the New Zealand practice shows that it had on every occasion determined the base of continental slope region before identifying the foot of continental slope. In locating the base of slope region, New Zealand had used morphological evidence in cases where the morphological profile of the region is straightforward. In cases where the morphological profile is less obvious, the New Zealand practice shows that the continent-ocean transition zone is selected as the base of the continental slope.

### **c) Russian Federation**

The executive summary and recommendations of the Commission with regard to the submission made by Russia do not provide much information on the practice of Russia in identifying its foot of continental slope points. However, a statement made by the Deputy Minister for Natural Resources of the Russian Federation during a presentation of the submission provides some insight on the matter.<sup>657</sup> The Russian practice is best reflected in the part of the statement which states the methods used to determine foot of continental slope points as follows:

The determination of the foot of the continental slope was carried out by a geomorphological analysis of the profile and the selection of the maximum bottom gradient on the basis of the continental slope. A geomorphological analysis was

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<sup>657</sup> Commission on the Limits of the Continental Shelf, 'Statement made by the Deputy Minister for Natural Resources of the Russian Federation During Presentation of the Submission made by the Russian Federation to the Commission on 28 March 2002' CLCS/31 (United Nations, 5 April 2002) 5.

necessary to determine the point of junction between the continental slope and the continental rise, i.e., the foot of the continental slope.<sup>658</sup>

From the statement above, it is evident that the Russian Federation used geomorphological evidence in order to determine the foot of the continental slope. It also suggests that the foot of the continental slope is selected as the point of maximum change in gradient within the base of the continental slope region. This statement demonstrates the Russian practice with regard to the foot of the continental slope determined by the maximum change in gradient rule. Accordingly, smoothing procedures were used on the bathymetric profile of the regions concerned.<sup>659</sup> Several extreme gradients in the "bottom slope" were then selected from the profile and examined. It is from among these extreme gradients that the gradient with the maximum change is identified as the foot of continental slope.<sup>660</sup> The term "bottom slope" here used in the statement obviously refers to the lower slope, that is, the most seaward part of the continental slope which meets the continental rise. Thus, this "bottom slope" is most likely to represent the base of the continental slope region.<sup>661</sup> As such, it can be said that the Russian practice has been to define the base of the continental slope region first before identifying the foot of the continental slope by the maximum change in gradient.

With regard to the evidence to the contrary rule, despite careful viewings of the relevant documents, there is nothing to suggest that the Russian Federation had applied this method in locating foot of continental slope points. As such, it is unclear whether the Federation regards the rule as an exception to the maximum change in gradient rule.

#### **d) Brazil**

The Brazilian practice with regard to the foot of the continental slope can be observed by examining the examples set out in the regions discussed below.

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<sup>658</sup> Ibid 2.

<sup>659</sup> Ibid.

<sup>660</sup> Ibid.

<sup>661</sup> Ibid. 3.

The Brazilian practice demonstrates that it is essential to first locate the base of the continental slope.<sup>662</sup> This had been derived from the language of paragraph 4 of Article 76. According to Brazil, paragraph 4 states that the region of the base of the continental slope is to be identified first, and the foot of the continental slope shall be located as the point of maximum change in gradient within this region.<sup>663</sup> Brazil also interprets paragraph 4 as acknowledging that there are other ways of determining the foot of the continental slope which is not based on gradient change.<sup>664</sup>

In locating the base of the continental slope, Brazil relies on analysis of regional gradient distribution of the seabed. This is done by obtaining a bathymetric profile of the gradient distribution in the area. Based on the profile, the region of the base of the continental slope is identified at the region where there is a variation of gradient distribution. Later, the point of maximum change in gradient within that region is established as the foot of the continental slope.<sup>665</sup>

**(i) Rio Grande Fan**

The Rio Grande Fan is located at the southernmost region of the Brazilian continental margin. Bathymetric profile of the Rio Grande Fan region demonstrates that a continuous slope is present. In profiles such as this, the regional gradient distribution analysis does not indicate a major gradient variation as the slope is continuous. Thus, in determining the base of the continental slope, Brazil uses the first regional gradient variation as the base of the continental slope. This was located at the limit of the Rio Grande Fan. In order to locate the foot of the continental slope, a second derivative was defined within the region identified as the base of the

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<sup>662</sup> LC Torres and others, *Brazilian Southern Margin: An Example of the Identification of the Base of the Slope on a Passive Continental Margin* (ABLOS Conference, Monaco, October 2008) 1.

<sup>663</sup> Ibid.

<sup>664</sup> Ibid.

<sup>665</sup> Ibid.4.

continental slope in the profile which was used to identify it. Within this derivative, the point of maximum change in gradient was identified as the foot of the continental slope.<sup>666</sup>

**(ii) Santa Catarina Plateau**

The situation in the Rio Grande Fan region can be contrasted with the Santa Catarina Plateau region. The bathymetric profile of the Santa Catarina Plateau does not demonstrate a smooth and continuous slope. Thus, the variation of gradient distribution in this profile is more distinguished and easily identifiable compared to the continuous slope of the Rio Grande Fan region.<sup>667</sup> The base of the continental slope was identified as that region. As far as the identification of the foot of the continental slope is concerned, the same method used in the Rio Grande Fan was used in this region.<sup>668</sup> Thus, even though the method of establishing the region of the base of the continental slope was different because of the different morphological characteristics, the method of identifying the foot of the continental slope remains the same.

**(iii) Sao Paulo Plateau**

The base of the continental slope identified within the marginal plateau in the Santa Catarina region curves towards an embayment in the Sao Paulo Plateau to the south. Similar to the other regions, the base of the continental slope in this region was geomorphologically identified by bathymetric profile, and foot of continental slope points were identified as the points of maximum gradient change within this region.<sup>669</sup>

It appears that the Brazilian practice adopts a morphological approach in determining the base of the continental slope, that is, by looking at the regional gradient variation. Thus, gradient change plays an important role both in determining the base of the continental slope region as well as in determining the foot of the continental slope point within that region when using the maximum

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<sup>666</sup> Ibid 8-9.

<sup>667</sup> Ibid 6.

<sup>668</sup> Ibid 7.

<sup>669</sup> Ibid 6-7.

change in gradient rule. A fully morphological approach was adopted in determining the base of the continental slope without considering geological criteria such as the continent-ocean transition zone as has been applied in the practices of other coastal States. This morphological approach was used even in regions where the regional gradient variation was not easily identifiable. In such a case, Brazil had opted to use the first regional gradient variation as seen in the Rio Grande Fan region. With regard to the determination of the foot of the continental slope, it appears that Brazil acknowledges the evidence to the contrary method as a method employing crustal type as the main determining criteria.<sup>670</sup> The Brazilian practice seems to interpret the evidence of the contrary method by reference to the continent-ocean transition zone and places the foot of the continental slope in such a case as the most landward point of the zone.<sup>671</sup>

#### **e) Norway**

The claim for an extended continental shelf in the Banana Hole region in Norway provides some insight as to the Norwegian practice on the foot of the continental slope. This region is also of interest as it contains some interesting seafloor features and demonstrates the Norwegian practice with regard to the foot of the continental slope of these features.

In this region, thirteen critical foot of slope points were used to delineate the extended continental shelf of Norway comprising of various types of margins. Among them are the Mohns Ridge which is an active seafloor spreading oceanic ridge, and the Bjørnøya Fan, which is a large glacio-marine trough-mouth fan.<sup>672</sup> Despite thorough examination of the relevant documents, however, nowhere was it stated which rule was used to determine the foot of continental slope points in this region.

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<sup>670</sup> Ibid 10.

<sup>671</sup> Ibid.

<sup>672</sup> Commission on the Limits of the Continental Shelf, 'Summary of recommendations of the Commission on the Limits of the Continental Shelf in regard to the submission made by Norway in respect of areas in the Arctic Ocean, the Barents Sea and the Norwegian Sea on 27 November 2006' (United Nations, 27 March 2009) para 45.

Be that as it may, it was clear that Norway had in all instances located the base of the continental slope region before the foot of continental slope points were established, thus indicating that it applies the dual regime.

**(i) Mohns Ridge and Bjørnøya Fan**

In the Mohns Ridge area, Norway views the ridge as a submarine ridge in the sense of paragraph 6. The base of the slope region was located on the outer, northwestern margin of the flanking ridge. It is clear that, the base of the continental slope was located prior to identifying the foot of slope points. Hence, the dual regime applies not only on the typical continental margins but also on oceanic submarine ridges according to the Norwegian practice.<sup>673</sup> Although the Mohns Ridge was subsequently viewed by the Commission as being part of the deep ocean floor and therefore does not qualify as a submarine ridge, this observation nevertheless clarifies the Norwegian practice with regard to the determination of the foot of the continental slope on submarine ridges.<sup>674</sup>

When the Mohns Ridge was decided as constituting a ridge of the deep ocean floor, the ridge would thus not be entitled to generate foot of slope points. As such, the Commission recommended for new foot of slope points to be established on the slopes of the Bjørnøya Fan.<sup>675</sup> As mentioned before, the Bjørnøya Fan is a trough-mouth glacio-marine fan. New foot of slope points were established at a regionally significant gradient change on the seaward boundary of the slope of the Bjørnøya Fan which is represented by lobe-like features. These lobe-like features are believed to be formed of glacial debris flows which constitute slopes of glacio-marine fans.<sup>676</sup>

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<sup>673</sup> Ibid para 48.

<sup>674</sup> Ibid para 49.

<sup>675</sup> Ibid para 50.

<sup>676</sup> Ibid.



## **(ii) Vøring Spur**

The Vøring Spur extends to the northwest from the Vøring Plateau. In the northern margin of the Vøring Spur, although the gradients are relatively low, the base of the continental slope is morphologically identifiable by the change to the smooth, flat seafloor of the adjacent Lofoten Basin. Similarly, the southern margin of the Vøring Spur is marked by the East Jan Mayen Fracture Zone. The base of slope in this region can be morphologically identified with respect to the smooth flat ocean floor of the Norway Basin.<sup>677</sup>

It is evident from here that the Norwegian practice has been to morphologically identify the base of slope regions in margins where the slope is easily identified and the deep ocean floor is flat and smooth and easily distinguished from the slope.

## **(iii) Jan Mayen**

A similar scenario can be found in the establishment of the outer limits of the continental shelf in the Jan Mayen micro-continent area. The Jan Mayen micro-continent is a complex, composite, structural high and extends southward from the island of Jan Mayen. However, with regard to establishing the continental shelf beyond 200 NM, only the eastern margin of the micro-continent is relevant. In that area, the base of the continental slope is morphologically easy to identify as the continental slope is moderately steep.<sup>678</sup> In light of this, it can be concluded that as far as micro-continents are concerned, the Norwegian practice shows that the base of the slope is located where it is morphologically distinct and easily identifiable.

The practice of Norway on this subject provides some interesting findings as it demonstrates methods of determining foot of continental slope points on different types of structures. In trough-mouth glacio-marine fans, the Norwegian practice has been to locate the base of the

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<sup>677</sup> Ibid para 51.

<sup>678</sup> Ibid para 54.

continental slope on the lobe-like features which form the expression of glacial debris flows. As such, it can be concluded that according to the practice of Norway, lobe-like features form the region of the base of the slope in these types of margins. On submarine ridges, the Norwegian practice has been to locate the base of the slope at the margins of the flanking ridge to locate the foot of the continental slope. Although it is unclear which method was used to locate the foot of the continental slope, it is most likely that the point of maximum change in gradient was used since that method requires the base of the continental slope to be determined first according to the Norwegian practice.

**f) Barbados**

In the claim for an extended continental shelf by Barbados, the Barbados Accretionary Prism and the Tiburon Rise areas constitute the regions on which the base of the continental slope and foot of continental slope points were established.

The critical foot of slope points in this region were determined by Barbados based on evidence to the contrary. Apparently, according to the relevant documents, it was possible for the foot of continental slope points in this region to be located by applying the maximum change in gradient rule. Nevertheless, Barbados had chosen to apply the evidence to the contrary rule regardless.<sup>679</sup>

In light of this, it could be concluded that Barbados views the relationship between the two methods of identifying the foot of the continental slope as alternatives rather than as general rule and exception. Therefore, according to Barbados, a coastal State is free to apply the evidence to the contrary rule even in cases where the point of maximum change in gradient could have located a foot of continental slope point.

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<sup>679</sup> Commission on the Limits of the Continental Shelf, 'Summary of Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by Barbados on 8 May 2008' (United Nations, 15 April 2010) para 14.

### **g) France**

The foot of continental slope points in the French Guiana region demonstrates the practice of France with regard to the determination of the foot of continental slope. The French Guiana is located in the northwestern part of South America and is sandwiched between Brazil and Suriname.

Along the maritime region of the French Guiana which extends from the Demerara/Guyana Plateau until the Amazon Deep Sea Fan, five critical foot of slope points have been determined. Out of the five, four points have been located in the base of slope region around the Demerara/Guyana Plateau. These points were determined based on the maximum change in gradient rule by using morphological evidence alone. The remaining point was located on the remaining part of the eastern margin, that is, not within the base of slope region where the other four points have been located. It is also worthy to note that even though it was not located within the base of slope region, the point was determined by the maximum change in gradient.<sup>680</sup>

However, in order to support the location of the foot of slope point, additional sedimentary and geophysical evidence was used. Thus, this remaining point was established by both morphological and geological evidence.<sup>681</sup> It is observed that this method is similar to the geologically supported morphological foot of slope as demonstrated by the Australian practice.

### **h) United Kingdom**

The application of Article 76 in the United Kingdom submission with respect to Ascension Island is interesting. As previously presented in Section 5.3 of the last chapter, Ascension Island is part of the Mid-Atlantic Ridge which is geologically an oceanic ridge. Therefore, the natural prolongation of the island is geologically part of an oceanic ridge of the deep ocean floor. Hence, for the purpose of Article 76, it is regarded by the United Kingdom as a submarine ridge.

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<sup>680</sup> Commission on the Limits of the Continental Shelf, 'Summary of recommendations of the Commission on the Limits of the Continental Shelf in regard to the submission made by France in respect of French Guiana and New Caledonia regions on 22 May 2007' (United Nations, 2 September 2009) 5-6.

<sup>681</sup> Ibid.

Morphological information on the ridge demonstrates that the ridge does not comprise of a typical shelf, slope and rise like most continental margins.<sup>682</sup> In particular, it was asserted by the United Kingdom that the juridical continental shelf of Ascension Island does not comprise of the typical classic shelf, slope and rise. Nevertheless, in the eastern sector, the United Kingdom had applied paragraph 5.4.5 of the Guidelines in locating the base of the slope, that is, by locating the seaward and landward edges. However, in the western sector and partially in the eastern sector, evidence to the contrary was used to determine the foot of slope locations.<sup>683</sup>

It is observed that the United Kingdom notes the non-existence of an actual continental shelf since Ascension Island is not ‘continental’. Instead, the term ‘juridical continental shelf’ was used to refer to its natural prolongation.<sup>684</sup> Therefore, it could also be said that there is no foot of continental slope since there is no actual continental slope.

Be that as it may, the United Kingdom’s approach as demonstrated in the Ascension Island submission was to draw an analogy with that of the typical continental margin. To that end, in the western sector, the United Kingdom identified the base of the continental slope as the area where the westward-dipping seafloor that corresponds to the western flank of the Mid-Atlantic Ridge meets the deep abyssal plain, the western South Atlantic Ocean, and the eastern edge of the South American rise. This was interpreted to be analogous to the region where the lower slope or rise meets the deep ocean floor.<sup>685</sup> Further to that, the United Kingdom went on to describe the region and stated that it was “equivalent to the slope–rise transition in a classic continental margin”.<sup>686</sup> By reason of that, the United Kingdom was of the view that the region can be used to

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<sup>682</sup> Commission on the Limits of the Continental Shelf, ‘Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by the United Kingdom of Great Britain and Northern Ireland in respect of Ascension Island on 9 May 2008’ (United Nations, 15 April 2010) para 33.

<sup>683</sup> Ibid.

<sup>684</sup> Ibid.

<sup>685</sup> Ibid para 35.

<sup>686</sup> Paragraph 4.3.2.2, page 4-30, of the Main Body of the Submission; *ibid*.

*“represent the position of the foot of slope, based on both geomorphological and geological evidence and analysis”*.<sup>687</sup>

As far as the eastern sector is concerned, the United Kingdom first identified the western edge of the axial rift as the most seaward edge of the island’s natural prolongation. Thereafter, a proxy base of slope region was identified and the foot of the continental slope points were in turn identified as the maximum change in gradient within the proxy base of slope region.<sup>688</sup> However, where the foot of the continental slope was not represented by the maximum change in gradient, the United Kingdom resorted to “geological and geophysical data as evidence to the contrary to supplement the bathymetric and geomorphological evidence”.<sup>689</sup>

This observation provides great insight as to the United Kingdom’s practice in locating the foot of the continental slope. First of all, the practice is unique in that it acknowledges the establishment of a ‘proxy base of slope’, a term not found in the Guidelines and an approach not practiced by the other States previously discussed. It was also further stated that the base of slope was delimited using morphological evidence but supported by geology.<sup>690</sup> Second, it clearly states that the United Kingdom regards geological and geophysical evidence as evidence to the contrary. Third, it clarifies that the relationship between the two methods of identifying the foot of the continental slope is that of general rule and exception. However, it is observed that the practice regards evidence to the contrary as supplementary to morphological evidence thus indicating that the two rules complement each other and would have reached the same conclusion.

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<sup>687</sup> Ibid (emphasis added).

<sup>688</sup> Paragraph 4.1.3 of the Main Body of the Submission; Commission on the Limits of the Continental Shelf, ‘Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by the United Kingdom of Great Britain and Northern Ireland in respect of Ascension Island on 9 May 2008’ (United Nations, 15 April 2010) para 36.

<sup>689</sup> Ibid.

<sup>690</sup> Ibid.

### 6.3.1 Conclusion

In light of discussions, the following points can be concluded from the analysis made above:

The first point is on the relationship between the two methods of identifying the foot of the continental slope: the maximum change in gradient rule, and the evidence to the contrary rule. It appears that the practice of most States is to regard them as general rule and exception. This can be seen, for example, in the United Kingdom submission in respect of Ascension Island, where applied the maximum change in gradient rule was applied whenever possible and the evidence to the contrary rule only in exceptional cases. Besides that, there have also been indirect forms of practices of States where States have only applied the maximum change in gradient rule in all instances, for example, Australia and Brazil. Nevertheless, this practice still denotes that the States concerned regard the two methods as general rule and exception.

The only State that does not appear to view the relationship between the two methods as general rule and exception is Barbados. The Barbados practice shows that evidence to the contrary can be applied even in cases where it is possible to locate the foot of the continental slope by the maximum change in gradient rule.

The second point is on the application of the maximum change in gradient rule. In applying this method, the practice of most States shows that morphological evidence is used in locating both the base of the continental slope region and the foot of the continental slope within the region of the base, thus, observing the dual regime.

However, it is observed that there is a growing trend where States differentiate between foot of continental slope points identified purely by morphological evidence and those identified using morphology supported by geological evidence. Among the States that have been seen to follow this approach are Australia and France. It is observed that while the reasons and method of applying this so-called geologically supported morphological foot of slope may differ between States, they are essentially the same in the sense that these States use geological evidence to justify foot of continental slope points beyond the supposed base of slope region. Australia used

geological evidence to support a more seaward morphological foot of slope in cases where the purely morphological foot of slope is not the true foot of slope point. Similarly, France used geological and geophysical evidence to support a morphological foot of slope point which was not located within the base of the continental slope region.

The practice of these States shows that geological and geophysical evidence is used to support the location of a morphological foot of slope. The geological and geophysical evidence had been used to justify the location of morphological foot of slope points in a region that was not within the base of continental slope regions. In other words, the geological and geophysical evidence were used to identify new base of continental slope regions for these morphological foot of slope points.

This emerging practice of using geology to support morphological foot of slope points also indicates that States are not quick to apply the evidence to the contrary rule in the event the maximum change in gradient rule does not reliably locate the foot of the continental slope. Instead States have opted to use geological and geophysical evidence in order to justify and support the location of a different but morphological foot of slope point. This also confirms the first point, that is, States do in fact regard the evidence to the contrary rule as an exception to the general rule.

On the third point, with regard to the application of the evidence to the contrary rule, the practice of States shows that this method is applied in instances where it is impractical to locate a morphological foot of continental slope. A consistent application of the evidence to the contrary method by States is observed, that is, by locating the continent-ocean transition zone using geological evidence. Thereafter, a proxy foot of continental slope is chosen at the inner edge of the transition zone. The United Kingdom's practice further clarified that evidence to the contrary involves geological evidence.

On the issue of the dual regime, it is observed that States have not identified the base of the slope region where evidence to the contrary is applied. Nevertheless, identification of the continent-ocean transition zone serves the same purpose as applying the dual regime since the transition

zone functions as the region where the foot of the continental slope, albeit a proxy one, is to be determined.

The last point relates to the issue of whether the type of margin determines which method is to be applied. As noted in the previous section, it was the margin with a distinct shelf, slope and rise envisaged during negotiations that led to the formulation of the maximum change in gradient rule. State practice shows that the maximum change in gradient rule had been applied in almost all cases where it is possible to identify a morphological foot of slope. Thus, even where a margin does not have an easily identifiable shelf, slope and rise, the maximum change in gradient rule has been applied although many States had included geological and geophysical evidence in order to support their findings. This is so even in cases of submarine ridges (as noted in the submission concerning Ascension Island) where, even with the absence of a classic shelf, slope and rise, the maximum change in gradient rule was applied whenever possible and evidence to the contrary was only resorted to in circumstances where the correct foot of slope does not correspond to the maximum change in gradient.

#### **6.4 The practice of the Commission**

The Guidelines contain two chapters on the determination of the foot of continental slope and this constitutes the practice of the Commission with regard to those issues.<sup>691</sup> Apart from the Guidelines, the practice of the Commission can also be deduced from the recommendations of the Commission with regard to submissions made by coastal States.

##### **6.4.1 The Scientific and Technical Guidelines**

So important are the issues involving the foot of the continental slope that the Commission allocated two chapters to address these issues in its Guidelines. Chapter 5 of the Guidelines is dedicated to the Commission's view on the foot of the continental slope determined by the

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<sup>691</sup> See Chapters 5 and 6 of the Guidelines, Commission on the Limits of the Continental Shelf, 'Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf', CLCS/11 (United Nations, 13 May 1999).



maximum change in gradient while Chapter 6 deals with matters relating to evidence to the contrary.

Chapter 5 starts off with a formulation of the problem.<sup>692</sup> In that section, the Commission addresses the issues by stating the significance of the foot of the continental slope as the basis for delineation of the outer limits of the extended continental shelf.<sup>693</sup> Both the Irish and the Gardiner formulae as found in Article 76 of the Convention were mentioned as being the formulae upon which the breadth of the continental shelf is measured from the foot of the continental slope.<sup>694</sup>

In paragraph 5.1.2 of the Guidelines, it is specifically mentioned that paragraph 4(b) of Article 76 provides for the dual regime for the determination of the foot of continental slope. Nevertheless, it does not explicitly state whether the dual regime is to be applied where the foot of the continental slope is determined as the maximum change in gradient, or when evidence to the contrary is invoked, or both.

Be that as it may, it is the next paragraph of the Guidelines that provide us with some indication on the view of the Commission regarding issues on the foot of the continental slope. Paragraph 5.1.3 clearly states that the Commission regards the maximum change in gradient rule as the general rule in the determination of the foot of the continental slope. In applying that rule, the Commission considers it essential to fulfill two requirements. The first is that the region defined as the base of the continental slope must be determined. The second is that the location of the point of maximum change in gradient is determined at that base of the continental slope.<sup>695</sup>

Hence, from this paragraph alone, two points are evident with regard to the practice of the Commission as found in the Guidelines. First, the maximum change in gradient rule serves as the

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<sup>692</sup> Commission on the Limits of the Continental Shelf, ‘Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf’, CLCS/11 (United Nations, 13 May 1999) para 5.1.

<sup>693</sup> Ibid para 5.1.1.

<sup>694</sup> Ibid.

<sup>695</sup> Ibid para 5.1.3.

general rule in locating the foot of the continental slope. This automatically renders the evidence to the contrary rule as an exception to that rule. The effect of this would be that a coastal State may not locate the foot of the continental slope based on evidence to the contrary in circumstances where it could be located by the maximum change in gradient rule. Second, the dual regime is in fact a requirement according to the Commission in areas where the foot of the continental slope is determined as the maximum change in gradient. Thus, the region of the base of the slope has to be located prior to the identification of the point of maximum change in gradient. However, this paragraph is silent on whether the dual regime is also applied when locating the foot of the continental slope by evidence to the contrary.

The next section of the Guidelines provide for the sources of data to be used in the determination of the foot of the continental slope.<sup>696</sup> It is from this section that some information is revealed on the type of evidence that can be used in order to locate the region of the base of the slope and the point of maximum change in gradient. To that end, paragraph 5.2.1 states that in locating the base of the slope region, bathymetric and geological data is used in the geomorphological analysis to identify the region of the base of the slope. Hence, it is obvious here that besides morphological evidence based on bathymetric information, geological evidence can also be used. However, it clearly states that the evidence used is for the geomorphological analysis of the region, thus clearly indicating that the region of the base of the slope is evidently determined as a morphological feature.<sup>697</sup> The paragraph further states that in locating the point of maximum change in gradient at the base of the slope, only bathymetric data shall be used.<sup>698</sup> This shows that in determining the foot of the continental slope based on the point of maximum change in gradient, while the foot of the continental slope point itself must obviously be identified by morphological evidence such as bathymetric data, the location of the base of the slope region can be identified using geological data apart from the typical bathymetric data.

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<sup>696</sup> Ibid para 5.2.

<sup>697</sup> Ibid para 5.2.1.

<sup>698</sup> Ibid.

The Commission's view on the type of evidence to be used in identifying the base of the continental slope region is further clarified in paragraph 5.4.4 of the Guidelines. This paragraph provides for the definition of the continental slope and the continental rise. The continental slope is defined as “the outer portion of the continental margin that extends from the shelf edge to the upper part of the rise or to the deep ocean floor where a rise is not developed”.<sup>699</sup> The rise is, in turn, defined as “the wedge-shaped sedimentary body having a smaller gradient than the continental slope.”<sup>700</sup>

It is evident that the definitions above employ a morphological description of the features. The identification of both these morphological features is vital when locating the base of the continental slope region since it is typically located along the boundary between the continental slope and the rise, or the continental slope and the deep ocean floor where there is no rise. In order to elaborate on that, the next paragraph sees the Commission laying down the definition of the base of the continental slope as “a region where the lower part of the slope merges into the top of the continental rise, or into the top of the deep ocean floor where a continental rise does not exist”.<sup>701</sup>

The Guidelines then provide a two-step approach for the identification of the base of slope region. The first step concerns its seaward edge which starts from the rise or the deep ocean floor, whichever is applicable, in the direction of the continental slope. The second step is with regard to its landward edge which starts from the lower part of the continental slope and in a seaward direction.<sup>702</sup> Both the definition and approach for locating the base of the slope are morphological. This confirms that the Commission intends for the base of the slope region to be determined by morphological evidence since it is a morphological feature.

Be that as it may, further along paragraph 5.4.4 after the definition of the continental slope and rise, the Commission admits that many continental margins do not possess this ideal description of a distinct morphological continental slope and rise. In such cases, the Commission allows for the use of geological and geophysical data in order to support the identification of the base of the

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<sup>699</sup> Ibid para 5.4.4.

<sup>700</sup> Ibid.

<sup>701</sup> Ibid para 5.4.5.

<sup>702</sup> Ibid.

continental slope region.<sup>703</sup> From here, it can be inferred that with regard to the identification of the base of the continental slope, morphological data serves as the general type of evidence in identifying this region whereas geological and geophysical data are used only in circumstances where morphological evidence is not sufficient to locate the true base of slope region.

This is reaffirmed in paragraph 5.4.6 when the Guidelines state that as a general rule, the Commission recommends the application of morphological and bathymetric evidence where the base of the slope can be clearly identified based on that evidence. The paragraph further describes geological and geophysical data as supplementary proof in order to support the location of the base of the slope.<sup>704</sup>

With regard to the determination of the foot of the continental slope by evidence to the contrary, Chapter 6 of the Guidelines is referred to. Paragraphs 6.1.1 and 6.1.2 of that chapter state that the Commission interprets evidence to the contrary as an exception to the method of locating the foot of the continental slope by the maximum change in gradient rule. Although the Commission regards the former rule as an exception, it is not meant to oppose the latter rule but instead aims at complementing the latter in searching for the foot of the continental slope at its base.<sup>705</sup>

The complementary character of the evidence to the contrary rule is reiterated in paragraph 6.4.1 near the end of Chapter 6 of the Guidelines. This paragraph lists down the considerations to be given where a coastal State invokes evidence to the contrary in its submission. One of the considerations to be given is whether the evidence submitted based on evidence to the contrary is aimed at establishing that the limit obtained by the maximum change in gradient rule does not equate the limit of the geological continental margin.<sup>706</sup> Thus, the result obtained by the maximum change in gradient rule should ideally equate the limit of the continental margin as obtained by geological evidence as this would inevitably mean that both types of evidence would

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<sup>703</sup> Ibid para 5.4.4.

<sup>704</sup> Ibid para 5.4.6.

<sup>705</sup> Ibid para 6.1.2.

<sup>706</sup> Ibid para 6.4.1.

result in locating the true foot of continental slope. This paragraph confirms the complementary nature of the evidence to the contrary rule because it ensures that evidence to the contrary is only applied to establish that the limits of the continental margin does not equate that obtained by the point of maximum change in gradient, hence, the resort to geological evidence based on evidence to the contrary. Therefore, this illustration reaffirms that the evidence to the contrary rule complements the general rule in the search for the foot of the continental slope.

The issue of whether the dual regime applies to evidence to the contrary is not clearly stated in the Guidelines. Nevertheless, it is observed that the Commission, when referring to the foot of the continental slope determined by evidence to the contrary, used the term "foot of the continental slope at its base".<sup>707</sup> This suggests that the foot of the continental slope must lie at the base of the continental slope regardless of whether it is identified by the point of maximum change in gradient or evidence to the contrary. However, this is not indicative of the dual regime being a requirement when evidence to the contrary is invoked.

The Guidelines expressly state that the Commission does not prescribe a specific type of methodology in the application of evidence to the contrary.<sup>708</sup> It merely states that geological and geophysical evidence by means of evidence to the contrary can be used by coastal States when the maximum change in gradient rule based on geomorphological evidence is unable to reliably locate the foot of the continental slope.<sup>709</sup> Thus, there is no straightforward answer to the type of evidence to be used when applying evidence to the contrary.

However, provisions of the Guidelines do provide some indication as to the types of evidence that can be used, for example, when the Guidelines acknowledge the role of plate tectonics in influencing geological and geophysical concepts of the continental margin.<sup>710</sup> The Guidelines state that the Commission allows the use of geological and geophysical data to establish the foot

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<sup>707</sup> Ibid for example, paras 6.1.10 and 6.3.1.

<sup>708</sup> Ibid para 6.1.10.

<sup>709</sup> Ibid.

<sup>710</sup> Ibid para 6.1.6.

of the continental slope by evidence to the contrary only when "the geomorphological evidence given by the maximum change in gradient does not or cannot locate reliably the foot of the continental slope".<sup>711</sup> The Guidelines then give a couple of examples to illustrate this situation. The first is when "the curvature of the seabed along the base of the continental slope is constant".<sup>712</sup> It was then explained that the maximum change in gradient in this kind of situation would encompass a whole region instead of a mere point. In such a case, it seems that the Commission allows the use of geological evidence to determine the exact point along the curvature of the seabed that should be regarded as the foot of the continental slope. The second example given is a situation where there is more than one point of maximum change in gradient at the base of the continental slope.<sup>713</sup> The Guidelines does not make it clear how this is possible since there should only be one point of maximum change in gradient, that is, the gradient with the highest degree. The most plausible interpretation would be that it refers to a situation where there are several points having the same degree of gradient change. In that case, the Commission recognises that the change in gradient may not indicate the true foot of slope position.<sup>714</sup>

Even though the two examples are mentioned in the Guidelines, there is nothing that indicates the actual method of how evidence to the contrary is to be applied in such cases. Be that as it may, the Guidelines did refer to the different types of continental margins in addressing the issue of determining the foot of the continental slope.<sup>715</sup> The reference to the different types of margins provides some understanding as to how the Commission views the method of identification of the foot of the continental slope in the different types of continental margins. Three types of margins are mentioned in the Guidelines with regard to identifying the foot of the continental slope. They are the convergent margin, the rifted margin and the sheared margin.<sup>716</sup>

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<sup>711</sup> Ibid para 6.3.1.

<sup>712</sup> Ibid para 6.3.2.

<sup>713</sup> Ibid para 6.3.3.

<sup>714</sup> Ibid.

<sup>715</sup> Ibid paras 6.2.6 and 6.3.6 to 6.3.13.

<sup>716</sup> Ibid.

In the case of convergent margins, the Commission regards the seaward edge of the accretionary wedge or the foot of the upper plate and the foot of the inner trench wall as the most seaward extent of the margin, hence the location of the foot of the continental slope.<sup>717</sup> The Guidelines further states that this seaward extent of the continental margin can be identified by seismic and bathymetric techniques.<sup>718</sup> It is evident that the Commission was referring to geophysical and geomorphological evidence. As the seaward extent is not identified as the point of maximum change in gradient, it is considered to be identified by evidence to the contrary. Hence, this shows that the Commission regards evidence to the contrary as any type of evidence be it geological, geophysical or geomorphological that is used to locate the foot of the continental slope other than the point of maximum change in gradient.

With regard to rifted non-volcanic and sheared continental margins, the Commission considers "the transition between continental crust and oceanic crust created by sea-floor spreading and related volcanic/magmatic processes" as the seaward limit of the continental margin.<sup>719</sup> The Guidelines further elaborated that the continental-oceanic transitional zone is the place to determine the outer limits of the continental margin in the event the foot of the continental slope cannot be located by morphological evidence. In such a case, the Commission might consider the landward edge of the transitional zone as the foot of the continental slope as long as geological and geophysical evidence show that the continental margin does in fact extend to that point.<sup>720</sup>

This is also the case for rifted volcanic margins where the landward limit of the transitional zone of the rifted volcanic continental margins "might be considered by the Commission as equivalent of the foot of the continental slope".<sup>721</sup> In both these circumstances, the application of evidence to the contrary is observed where proxy foot of continental slope points are established at the landward limit of the continent-ocean transitional zone.

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<sup>717</sup> Ibid para 6.3.6.

<sup>718</sup> Ibid para 6.3.7.

<sup>719</sup> Ibid para 6.3.8.

<sup>720</sup> Ibid para 6.3.10.

<sup>721</sup> Ibid para 6.3.11.

It is observed that the Commission had reiterated its preference for the use of geomorphological evidence in locating the foot of the continental slope. Nevertheless, owing to the fact that the foot of the continental slope in some continental margins cannot be identified in such a way, the Commission recognises the use of geological and geophysical evidence to determine the boundary between continental and oceanic crust, which in this case would be the continental-oceanic transitional zone. Once this transitional zone is located, a proxy foot of continental slope position is identified at the landward limit of this zone.

In light of discussions, it can be understood that the transitional zone is regarded as the base of the continental slope since it serves as the region from where the location of the foot of the continental slope is to be determined. While this transitional zone is identified by geological and geophysical data, the foot of the continental slope point as the landward limit of this zone, however, is not identified by using any particular geological or geophysical method. Instead, it is merely a proxy foot of continental slope point since the true foot of continental slope is difficult, if not impossible, to locate. Be that as it may, in establishing this landward limit of the transitional zone as the proxy foot of continental slope, the Commission lays down a requirement that geological and geophysical data must confirm that the continental margin does in fact extend up to this point. This shows that it is possible that the true foot of continental slope lies further seaward than the proxy foot of continental slope. However, since this is difficult to locate, the landward limit of the transitional zone shall be considered the foot of the continental slope instead. More importantly, it ensures that the proxy foot of continental slope is still within the geological continental margin of the coastal State concerned.<sup>722</sup>

#### **6.4.2 The recommendations of the Commission**

With regard to the relationship between the maximum change in gradient rule and the evidence to the contrary rule, it is observed that the practice of the Commission as found in its

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<sup>722</sup> The Commission places much importance in ensuring that the foot of the continental slope as determined by evidence to the contrary is well within the geological continental margin, hence, within the breadth of the continental shelf defined in Article 76 of the 1982 Convention. This is explicitly laid down in the ‘Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf’, CLCS/11 (United Nations, 13 May 1999) para 6.3.5.



recommendations upholds the view as stated in the Guidelines. Therefore, the maximum change in gradient rule is the general rule while the evidence to the contrary rule constitutes an exception to it.

A direct example can be found in the summary of the recommendations in respect of the submission by Barbados. In the Barbados claim, it has been shown that Barbados has located critical foot of slope points based on evidence to the contrary.<sup>723</sup> Nevertheless, the Commission did not agree with Barbados using evidence to the contrary to locate the foot of slope points. The reason given was that these points could have been determined using the maximum change in gradient rule.<sup>724</sup>

This reaffirms that the Commission upholds the view that the maximum change in gradient rule is the general rule and should be applied where possible. Therefore, the evidence to the contrary rule could only be applied as an exception to the general rule.

On the maximum change in gradient rule, the practice of the Commission also shows that geological evidence can be used to locate the region of the base of the slope in situations where the foot of the continental slope is determined according to that method.

This can be seen from its recommendations in respect of the submission made by Australia. With regard to the Recherche Lower Slope in the Great Australian Bight region, Australia had used geological evidence to support its pick for a morphological foot of continental slope point.<sup>725</sup> The geological evidence was in essence used to prove that the region of the base of the slope was further seaward than the originally perceived base of the slope region. The individual foot of the continental slope was determined by the maximum change in gradient rule. After examining the

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<sup>723</sup> Commission on the Limits of the Continental Shelf, ‘Summary of Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by Barbados on 8 May 2008’ (United Nations, 15 April 2010) para 14.

<sup>724</sup> *Ibid.*

<sup>725</sup> Commission on the Limits of the Continental Shelf, ‘Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the submission made by Australia on 15 November 2004’ (United Nations, 9 April 2008) 7.

data provided by Australia, the Commission agreed with the approach taken by Australia as well as the reasoning given.<sup>726</sup>

Besides that, another noteworthy point is with regard to three remaining foot of continental slope points in the same area. These foot of slope points were identified by using morphology alone but are consistent with the geologically supported foot of continental slope points examined above, thus coincide with the outer edge of the Recherche Sub Basin as with the geologically supported foot of slope points.<sup>727</sup> As observed before, the supporting geological evidence used by Australia in order to establish a morphological foot of slope point is merely geological evidence used to locate the base of the continental slope region. Therefore, where a geologically supported morphological foot of slope point coincides with a foot of slope point identified by morphology alone, this affirms that the base of the continental slope has been correctly established and this was agreed by the Commission. It also indicates that the Commission agrees with the way the base of the continental slope region has been identified, that is, by morphological evidence in some areas and geological evidence in others.

As regards submarine ridges of oceanic nature, the practice of the Commission can be seen from its recommendations in respect of Ascension Island. The Commission did not agree with the United Kingdom's location of foot of continental slope points. In fact, the Commission was of the view that Ascension Island was not even entitled to an extended continental shelf for failing the test of appurtenance. It was held that the points of maximum change in gradient located by United Kingdom were merely "variations in the gradient of features of the deep ocean floor".<sup>728</sup> As previously presented in Section 5.4.2 of Chapter Five, the Commission held that the natural prolongation of Ascension Island, which would be considered a submarine ridge of an oceanic

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<sup>726</sup> Ibid.

<sup>727</sup> Ibid.

<sup>728</sup> Commission on the Limits of the Continental Shelf, 'Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by the United Kingdom of Great Britain and Northern Ireland in respect of Ascension Island on 9 May 2008' (United Nations, 15 April 2010) para 51.

nature, “must form part of the discrete seafloor high from which the island edifices rise”.<sup>729</sup> This implies that the Commission regards the foot of the continental slope on submarine ridges should be located at the outermost region of that discrete seafloor high where it meets the juridical ocean floor.

The practice of the Commission as reflected in its recommendations demonstrates the following points. First, it reaffirms the view that the maximum change in gradient rule is the general rule to be applied with regard to identifying the foot of the continental slope. Second, evidence to the contrary may only be used where it is not possible to locate the foot of the continental slope by the general rule. Third, the base of the continental slope may be identified on a geological basis where the region is not readily identified by morphological evidence. Fourth, the trend of using geologically supported morphological foot of slope is not opposed by the Commission since it finds its basis in the Guidelines.

## **6.5 Concluding remarks**

The legislative history of Article 76 does not provide much insight on the intention of the drafters with regard to paragraph 4 on the foot of the continental slope. The only point that can be deduced from the legislative history that is of significance to the foot of the continental slope issue was that the drafters had envisaged a particular type of margin, the classic continental margin, which had most likely influenced the wordings of paragraph 4.

Since the legislative history did not provide much assistance in the application of paragraph 4, resort must be had to the next substantive document, that is, the Guidelines which demonstrates the Commission’s view with regard to the issues concerned.

The first point deals with the relationship between the two methods of identifying the foot of the continental slope. It can be concluded that the maximum change in gradient rule is the general rule in identifying the foot of the continental slope while the evidence to the contrary rule serves as its exception. Although, the negotiating history of the foot of slope provision does not reveal

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<sup>729</sup> Ibid para 45-46.

much, the maximum change in gradient rule was the only method contemplated by the drafters. However, it could be inferred that a geomorphological approach was intended as the default means of establishing foot of continental slope points since it was clear that the continental shelf was intended to be a geomorphological concept. The Guidelines, on the other hand, uses language that strongly confirms the Commission's stand that the relationship of the two methods is one of general rule and exception. This has been reiterated several times in the recommendations of the Commission. As for State practice, most States applied the maximum change in gradient rule wherever possible and only resorted to evidence to the contrary in exceptional cases. Some States have expressly stated their adherence to the Guidelines by quoting the relevant provisions while others have not.

The second point concerns the interpretation and application of the dual regime. While the legislative history is silent on the matter, the Guidelines provide a thorough explanation on the type of evidence that can be used to identify the region of the base of slope. The Guidelines provide that both geomorphological and geological evidence can be used to identify the region, albeit the preferred method is by geomorphological means. However, the Guidelines only explicitly state that the dual regime is to be applied when locating the foot of the continental slope by the maximum change in gradient. It is silent on the application of the dual regime when using evidence to the contrary. Thus, there is no need to locate the base of the slope region when identifying the foot of slope by using the latter. As for State practice, it is observed that the dual regime has been generally applied by States but not consistently.

The analysis made in this chapter also reveals that the practice of most States has been to generally adhere to the rules set out in the Guidelines. Nevertheless, it has been observed that although some States have quoted the Guidelines when following the rules set out therein, thus, suggesting adherence to the Guidelines, others may have followed the same rules but for different reasons such as reasons of practicality and convenience. Be that as it may, regardless of the reason for applying the rules under the Guidelines, the underlying point is that the practice of States generally support the interpretation made by the Commission in the Guidelines. The observation made shows that the majority of States are in agreement with the Commission on the

following points: First, that the relationship between the maximum change in gradient rule and the evidence to the contrary rule is one of general rule and exception; and second, that the dual regime is to be applied when determining the foot of continental slope by means of the maximum change in gradient.

Besides State practices that conform to the Guidelines, there are also practices of States that have no foundation in the Guidelines. In this sense, State practice can be said to have clarified the Guidelines. The first is with regard to the foot of the continental slope on margins which do not reflect the typical distinct continental margin such as submarine ridges, trough-mouth fans and margins that do not have an identifiable shelf, slope and rise. The second is with regard to the classification of methods for determining the foot of the continental slope. The practice of a number of States demonstrate that there is a rising trend of identifying the foot of the continental slope by using geological evidence to support a morphological foot of slope point. Although this method appears to have no foundation in the Guidelines, it is observed that this method is merely an illustration of the dual regime wherein the base of the continental slope is first identified using geological evidence and the foot of the continental slope is identified using morphological evidence within that region. Thus, in this sense, the practice of States clarifies the Guidelines by confirming that geological evidence can be used in locating the base of the continental slope in order to locate a morphological foot of slope therein.

The analysis made in this chapter shows that the practice of States and the practice of the Commission are generally in agreement with each other. Apart from that, State practice seems to have clarified what the Guidelines have not in terms of the practical application of the rules laid down in the Guidelines, hence, contributing to solving the issues posed by the vague foot of continental slope provision of Article 76.

### **Subsequent practice and its relevance in the interpretation of Article 76**

Chapters Five and Six of this thesis have presented a thorough discussion on the application and interpretation of Article 76 by first exploring the legislative history of Article 76 and later analysing State practice as well as the practice of the Commission. The question which therefore

arises is whether, and to what extent, State practice and the practice of the Commission shed any further light on the way that Article 76 is to be interpreted, in accordance to paragraph 3 of Article 31 of the Vienna Convention on the Law of Treaties (hereinafter “the Vienna Convention”). The Vienna Convention states that subsequent practice which “establishes the agreement of parties” in the interpretation of a treaty shall be taken into account together with the context.<sup>730</sup>

The drafting history of that provision shows that the word “agreement” in the text was drafted in order for the English text to be in conformity with the Spanish, French and Russian versions. The initial wording for the English text appears to have used the word “understanding” instead of “agreement”. Thus, the word “agreement” in the current text would have the same meaning as the word *accord* in French and the word *acuerdo* in Spanish. It is observed that this word was chosen in order to indicate that “the assent of a party to the interpretation may be inferred from its reaction or absence of reaction to the practice”.<sup>731</sup>

Article 31 paragraph 3(b) of the Vienna Convention was invoked by Argentina in the *Beagle Channel Arbitration*.<sup>732</sup> It was argued by Argentina that the key word in that provision was the word “agreement” and had interpreted the provision to mean that an “agreement” should manifest the “common will” of the parties.<sup>733</sup> This, it was argued, should be contrasted to “unilateral acts” of a State, referring to the unilateral acts of Chile in that case, which does not reflect any agreed interpretation or common will.<sup>734</sup> Chile responded by denying the reasoning put forward by Argentina. It was contended that a “synallagmatic” transaction was not required

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<sup>730</sup> The Vienna Convention on the Law of Treaties 1969, Article 31(3) (b).

<sup>731</sup> Humphrey Waldock, ‘Sixth Report on the Law of Treaties, UN Document A/CN.4/186 and Add. 1-7’, in International Law Commission, *Yearbook of the International Law Commission*, vol 2 (United Nations 1966) 99; James Thuo Gathii, ‘The Legal Status of the Doha Declaration on TRIPS and Public Health under the Vienna Convention on the Law of Treaties’, (2002) 15(2) *Harvard Journal of Law & Technology* 291, 310.

<sup>732</sup> *Dispute between Argentina and Chile concerning the Beagle Channel* (1977) 21 Reports of International Arbitral Awards 55.

<sup>733</sup> *Ibid* 185-186.

<sup>734</sup> *Ibid* 186.

in order to establish agreement under Article 31.<sup>735</sup> Chile further argued that “agreement” comes from “conduct” and that would include, in that case, “the open, persistent and undisturbed exercise of sovereignty by Chile over the islands, coupled with knowledge by Argentina and the latter's silence.”<sup>736</sup> The Court did not agree with Argentina’s interpretation of Article 31 when it stated as follows:

[T]he Court cannot accept the contention that no subsequent conduct, including acts of jurisdiction, can have probative value as a subsidiary method of interpretation unless representing a formally stated or acknowledged "agreement" between the Parties. The terms of the Vienna Convention do not specify the ways in which "agreement" may be manifested.<sup>737</sup>

Hence, the word “agreement” in Article 31 is not to be given a strict interpretation to mean that the agreement must be that which is agreed between the parties. Rather, it should be given a more general meaning, and in this case would refer to the consent of a State with regard to that interpretation. In that sense, it would be more in line with the original meaning intended by the drafters of the Article, that is, with the word “understanding”.

Although the text of a treaty may appear to be clear and precise, the subsequent practice of States is a good indication of what States party to the treaty have intended.<sup>738</sup> As has been pointed out by Sir Gerald Fitzmaurice, the conduct of parties to a treaty in relation to that treaty may become legitimate evidence to the correct interpretation of that treaty. He further acknowledged the importance of the conduct of parties when stated as follows:

[C]onduct usually forms a more reliable guide to intention and purpose than anything to be found for instance in the preparatory work of the treaty, simple because it has

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<sup>735</sup> A synallagmatic transaction is also known as a bilateral transaction where each contracting party binds himself to the other, or one that imposes reciprocal obligations upon the parties. John Bouvier, *Bouvier's Law Dictionary* (6<sup>th</sup> edn, 1856) <<http://constitution.org/bouv/bouviers.txt>> accessed 20 September 2012.

<sup>736</sup> Ibid.

<sup>737</sup> Ibid 187.

<sup>738</sup> Anthony Aust, *Modern Treaty Law and Practice* (Cambridge University Press 2007) 241.

taken concrete and active, and not merely verbal or paper, form.<sup>739</sup>

The practice must, however, be consistent and accepted by the parties.<sup>740</sup> In other words, subsequent practice in the application of Article 76 in State submissions to the Commission reflects their understanding of Article 76. In light of observations, applying Article 31(3) to the analysis made in Chapters Five and Six would give a clearer meaning to the provisions of Article 76. As regards the practice of the Commission, however, it is submitted that Article 31(3) does not apply since it only deals with the subsequent practice of parties to the agreement. Since the Commission is not a party, only the practice of States shall be considered.

The observations made in Chapter Five reveals that States generally share the same understanding with regard to the meanings of the submarine features found in Article 76. The term “oceanic ridges”, for example, had acquired a common interpretation among States that the ridges are those of oceanic character, located in the deep ocean floor beyond the juridical continental shelf of the State concerned and not connected to the State’s land mass. As for “submarine ridges”, it was found that this term has been commonly accepted as seafloor highs which constitute the natural prolongation of a coastal State land territory or an island regardless of its geological composition. These points have been commonly understood by States and would form subsequent practice in the sense of Article 31(3) of the Vienna Convention.

As regards “submarine elevations that are natural components of the continental margin”, however, it is observed that the practices of States were too varied to establish a common practice. This is most apparent since Russia, for example, based its interpretation on crustal type while New Zealand and Australia stress on the process of continental growth. In addition, the United Kingdom placed much importance on the geological characteristics of the feature and excluded all oceanic features from being termed natural components of the *continental* margin. In contrast to the United Kingdom practice, Iceland expressly claimed its oceanic seafloor high

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<sup>739</sup> Gerald Fitzmaurice, *The Law and Procedure of the International Court of Justice*, vol 1 (Cambridge University Press 1986) 357.

<sup>740</sup> *Case Concerning the Air Services Agreement of 27 March 1946 (United States v France)* (1979) 54 ILR 303.



as a natural component of the continental margin. Since there is no point of agreement on this issue, Article 31(3) of the Vienna Convention cannot be meaningfully applied.

With respect to Chapter Six, the analysis made reveals that the practices of States do not follow a general pattern in identifying the foot of the continental slope. So varied were the approaches taken by the States that the obvious lack of consistency could not be considered as constituting a common understanding among the States. It has been presented throughout this chapter that in identifying foot of continental slope points, States have applied their own interpretation based on their own understanding of Article 76 and the Guidelines. The examples presented in this chapter showed that some States have applied morphological evidence alone, whereas some others have supported the method used with geological evidence. A totally different approach was also undertaken by Barbados when foot of slope points were identified using geological evidence alone based on evidence to the contrary where morphological evidence would have clearly established those points. Similarly, in identifying base of slope regions, some have based this on morphological evidence alone while some others took into account geological elements. There were also instances where proxy base of slope regions were considered.

Be that as it may, the instances described above are with regard to specific details on how the foot of the continental slope and the base of slope region were identified. In considering whether there exists any common agreement among the States which could be considered subsequent practice in the sense of Article 31(3) of the Vienna Convention, it appears that there are some general common points of understanding. First, States with the exception of Barbados have generally agreed that the relationship between the maximum change in gradient rule and the evidence to the contrary rule is that of general rule and exception. Second, States have consistently applied the dual regime where foot of continental slope points are determined according to the general rule. Although as elaborated above, the detailed approaches taken by States in doing so vary, but the general application of the methods shows a certain extent of consistency and acceptance by States. In that sense, a general common understanding that establishes the agreement of States exists and this is reflected in the practice of States with regard to paragraph 4 of Article 76.

Based on the observation above, it appears that Article 31(3) could be applied to the extent of the issues that have been clarified by a common understanding of the States reflected in their practice in the form of submissions. In light of that, it is concluded that as far as those issues are concerned, the subsequent practices of States that establish their agreement may be used to interpret the relevant provisions of Article 76.

## Chapter Seven: The continental shelf in East Asia

### 7.1 Introduction

The region of East Asia in this study shall refer to the region extending from the East of Asia which includes China and Japan extending all the way to Southeast Asia where the southernmost part is occupied by Indonesia. This region comprises a number of coastal States, and a myriad of islands scattered throughout the seas, many of which are the subject of disputes.<sup>741</sup>

Besides the many “natural” islands and other insular features formed by the unique geological processes around the region of East Asia, it is observed that there is also a massive construction of artificial islands in the region by coastal States.<sup>742</sup>

In light of these geographical conditions, this chapter shall examine the issues revolving East Asia and their legal implications, if any, on the continental shelf regime. This would include issues relating to the baseline systems adopted by coastal States as well as the status and legal effects of insular features. Apart from that, it is also most worthwhile to study the implications of other disputes occurring in East Asia that may have a legal effect on the continental shelf.

With regards to extended continental shelf claims, it is also worthy to note that there are a number of coastal States that have made their submissions for the extended continental shelf to the Commission. Japan, the Philippines, Malaysia and Vietnam have all submitted their submissions to the Commission.<sup>743</sup>

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<sup>741</sup> ‘Asia’, World Atlas < <http://www.worldatlas.com/webimage/countrys/as.htm> > accessed 15 August 2012.

<sup>742</sup> For example China, Japan and Singapore have been constructing artificial islands.

<sup>743</sup> United Nations, ‘Submissions, through the Secretary-General of the United Nations, to the Commission on the Limits of the Continental Shelf, pursuant to article 76, paragraph 8, of the United Nations Convention on the Law of the Sea of 10 December 1982’ (DOALOS) <[http://www.un.org/Depts/los/clcs\\_new/commission\\_submissions.htm](http://www.un.org/Depts/los/clcs_new/commission_submissions.htm)> accessed 20 June 2012.

As for the other States that have not made their submissions, they have nevertheless submitted preliminary information with respect to their extended continental shelf claims. These States are Brunei, China and the Republic of Korea (hereinafter also referred to as South Korea) who have exercised their right in submitting preliminary information in accordance with the decision of the eighteenth meeting of States Parties to the Convention.<sup>744</sup>

It is thus noted that the States have all succeeded in complying with the time limit to make submissions and preliminary information as previously mentioned in Section 4.4 of Chapter Four. This is indicative of the importance of the extended continental shelf to the coastal States in this region.

For the purpose of convenience, this study on the continental shelf shall first discuss the issues of baselines and insular features followed by a region-by-region study starting from the East China Sea, and followed by the Yellow Sea, the Philippine Sea and the South China Sea. This chapter which provides an overview of the continental shelf in East Asia extending from the seas surrounding China, Japan and South Korea all the way south to Indonesia shall serve as the backdrop for the analysis of the continental shelf of Malaysia which shall be done in the next chapter.

## **7.2 Baselines**

The practical result of the drawing of baselines is of utmost importance as baselines indicate the starting point from which to measure the breadth of maritime zones.<sup>745</sup> In relation to the extended continental shelf, Article 76 has made it clear that for continental shelf areas of up to 200 NM, it

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<sup>744</sup> United Nations, 'Preliminary information indicative of the outer limits of the continental shelf beyond 200 nautical miles', (DOALOS) <[http://www.un.org/Depts/los/clcs\\_new/commission\\_preliminary.htm](http://www.un.org/Depts/los/clcs_new/commission_preliminary.htm)> accessed 20 June 2012; Meeting of States Parties, 'Decision regarding the workload of the Commission on the Limits of the Continental Shelf and the ability of States, particularly developing States, to fulfil the requirements of article 4 of annex II to the United Nations Convention on the Law of the Sea, as well as the decision contained in SPLOS/72, paragraph (a)', SPLOS/183 (United Nations, New York, June 2008), 2.

<sup>745</sup> See, for example, Article 3 of the 1982 Convention where the territorial sea is "measured from baselines". Other provisions include Article 57 for measuring the breadth of the exclusive economic zone, and Article 76 for measuring the breadth of the continental shelf.

shall be measured “from the baselines from which the breadth of the territorial sea is measured”.<sup>746</sup> As for the extended continental shelf beyond 200 NM, in the first instance, it would appear that the issue of baselines is not of much relevance to the claim since the latter is based solely on the natural prolongation of the continental margin.<sup>747</sup> Be that as it may, Article 76 expressly made use of baselines in the drawing of the 350 NM constraint line as one of the maximum limits for the extended continental shelf.<sup>748</sup> Besides that, the significance of baselines would have a great impact in situations where there exists an overlap of the continental shelf between opposite States, be it the continental shelf of up to 200 NM or that which is beyond 200 NM. An example would be the extended continental shelf of Malaysia and Vietnam in the southern part of the South China Sea which will be discussed in detail in the next chapter.<sup>749</sup>

The problem with regard to baselines lies in the fact that the Commission is not concerned with how States draw their baselines or whether they are consistent with international law.<sup>750</sup> This is primarily due to the choice of allowing baselines, as with other national claims to maritime jurisdiction, to be unilateral acts of political States.<sup>751</sup>

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<sup>746</sup> LOS Convention 1982, Article 76(1).

<sup>747</sup> LOS Convention 1982, Article 76(1).

<sup>748</sup> LOS Convention 1982, Article 76(5) states that “[t]he fixed points...either shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured or...” (emphasis added).

<sup>749</sup> Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary (2009). For a more detailed discussion, see Chapter Eight of this thesis.

<sup>750</sup> Clive Schofield, I Made Andi Arsana, ‘Beyond the Limits?: Outer Continental Shelf Opportunities and Challenges in East and Southeast Asia’ (2009) 31(1) *Contemporary Southeast Asia: A Journal of International and Strategic Affairs* 28, 38.

<sup>751</sup> *Ibid.*

<sup>752</sup> LOS Convention 1982, Articles 5, 7 and 47.

The Convention mentions three types of baselines: normal baselines, straight baselines and archipelagic baselines.<sup>752</sup> The normal baseline from which the breadth of all maritime zones is measured is the low-water line along the coast.<sup>753</sup>

Article 7(1) of the Convention states two situations which merits coastal States to claim straight baselines. The first situation is with regard to "localities where the coastline is deeply indented and cut into", and the second is "if there is a fringe of islands along the coast in its immediate vicinity".<sup>754</sup> Article 7 on straight baselines owes its origin to the *Anglo-Norwegian Fisheries Case* in 1935.<sup>755</sup> In that case, Norway had drawn straight baselines along the islands and rocks fringing a part of its coast with a view to establishing its exclusive fisheries zone. However, this was opposed by the United Kingdom and the case was brought before the ICJ.<sup>756</sup> The court in upholding Norway's claim held that "where a coast is deeply indented and cut into...the baseline becomes independent of the low-water mark and can be determined by means of geometric construction"; and that, "the drawing of baselines must not depart in any appreciable extent from the general direction of the coast".<sup>757</sup>

Thus, it is clear that the straight baseline system is to be applied restrictively where the geographical configuration of a coast is such that would allow its application based on Article 7.

As for the third type of baselines, Article 47 of the Convention provides for the application of archipelagic baselines. This type of baseline appears to use straight lines as well but is subject to different rules. Article 47 lays down the requirements to be met as follows:

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<sup>753</sup> LOS Convention 1982, Article 5.

<sup>754</sup> LOS Convention 1982, Article 7(1)

<sup>755</sup> *Fisheries Case (United Kingdom/Norway)* [1951] ICJ.

<sup>756</sup> Ibid.

<sup>757</sup> Ibid.

An archipelagic State may draw straight archipelagic baselines joining the outermost points of the outermost islands and drying reefs of the archipelago provided that within such baselines are included the main islands and an area in which the ratio of the area of the water to the area of the land, including atolls, is between 1 to 1 and 9 to 1.

Unlike the straight baseline system, archipelagic baselines cannot be applied by any State. The requirement that a State applying this type of baseline must be an archipelagic State restricts the liberal use of this baseline system.

With regard to the practice of coastal States in East Asia, it is observed that most of the States have claimed straight baselines. In 1996, China claimed a set of straight baselines which begins from its coast on the northeast section and continuously extends to the west coast of Hainan Island.<sup>758</sup> Furthermore, it also claimed straight baselines around the group of Paracel Islands in the northern part of the South China Sea. Japan also claimed extensive straight baselines in the same year with some islands used as turning points.<sup>759</sup> North Korea or the Democratic People's Republic of Korea, on the other hand, has not made any formal proclamation of a straight baseline system. However, it has been deduced that straight baselines were in fact employed in 1977 where a 50 mile maritime boundary measured from straight baselines was proclaimed in the Sea of Japan.<sup>760</sup> South Korea had claimed straight baselines for parts of its coast in 1978, and thereafter more extensive straight baselines in 1996.<sup>761</sup> Vietnam too has employed this system of baselines and this is evident from its submission for an extended continental shelf in 2009 which

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<sup>758</sup> Declaration of the Government of the People's Republic of China on the Baseline of the Territorial Sea of the People's Republic of China 1996. Reproduced in US Department of State, *Limits in the Seas No. 117, Straight baselines claim: China* (Office of Ocean Affairs, Bureau of Oceans and International Environmental and Scientific Affairs, US Department of State, 9 July 1996).

<sup>759</sup> RW Smith, 'Territorial Disputes over Offshore Islands: International Precedents and Practices' in Kim Young-Koo (ed), *Maritime Boundary Issues and Islands Disputes in the East Asian Region, Proceedings of the 1<sup>st</sup> Annual Conference held 4 August 1997, Pusan, Centre for Social Science Research* (Korea Maritime University, 1997) 27.

<sup>760</sup> Sam Bateman and Clive Schofield, 'State Practice regarding Straight Baselines in East Asia – Legal, Technical and Political Issues in a Changing Environment' (ABLOS Conference, Monaco, October 2008) < <http://www.gmat.unsw.edu.au/ablos/ABLOS08Folder/Session7-Paper1-Bateman.pdf> > accessed 9 July 2012.

<sup>761</sup> Ibid.

clearly pictures straight baselines.<sup>762</sup> Similarly, Malaysia has also claimed straight baselines and this is also evident from the joint submission it has made with Vietnam.<sup>763</sup> As for Indonesia, since it is an archipelagic State and the main proponent for archipelagic baselines during the Third Conference, it has obviously applied the archipelagic baseline system. The Philippines is another State in the region which may well claim archipelagic baselines.<sup>764</sup> However, it has applied the “straight baseline” system as it is referred to in domestic legislation.<sup>765</sup> However, it is observed that the baselines adopted by the Philippines are, in essence, of an archipelagic nature.<sup>766</sup>

From the observation made above, there would seem to be little substance in claiming that the straight baselines adopted by the coastal States in the East Asian region meet the requirements laid down in the Convention.

First of all, the straight baselines employed by the coastal States are neither drawn where coastlines are “deeply indented and cut into”, nor are there “fringing islands” in the immediate vicinity of the coasts as laid down in the *Anglo-Norwegian Fisheries case*.<sup>767</sup> Secondly, many of the straight baselines drawn by the States show a departure from the general direction of the

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<sup>762</sup> Malaysia and Vietnam, Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary (6 May 2009) Figure 1.

<sup>763</sup> Ibid.

<sup>764</sup> Sam Bateman and Clive Schofield, ‘State Practice regarding Straight Baselines in East Asia – Legal, Technical and Political Issues in a Changing Environment’ (ABLOS Conference, Monaco, October 2008) <<http://www.gmat.unsw.edu.au/ablos/ABLOS08Folder/Session7-Paper1-Bateman.pdf>> accessed 9 July 2012.

<sup>765</sup> Philippines Republic Act No 3046 (1961) <[http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/PHL\\_1961\\_Act.pdf](http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/PHL_1961_Act.pdf)> accessed 1 September 2012. This was subsequently amended through the Philippines Republic Act No. 5446 (1968) ‘An Act to Amend Section One of the Republic Act Numbered Thirty Hundred and Forty-Six, Entitled “An Act to Define the Baselines of the Territorial Sea of the Philippines”’ <[http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/PHL\\_1968\\_Act.pdf](http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/PHL_1968_Act.pdf)> accessed 1 September 2012.

<sup>766</sup> Sam Bateman and Clive Schofield, ‘State Practice regarding Straight Baselines in East Asia – Legal, Technical and Political Issues in a Changing Environment’ (ABLOS Conference, Monaco, October 2008) <<http://www.gmat.unsw.edu.au/ablos/ABLOS08Folder/Session7-Paper1-Bateman.pdf>> accessed 9 July 2012.

<sup>767</sup> *Fisheries Case (United Kingdom/Norway)* [1951] ICJ.



coast. Thirdly, the construction of straight baselines on the Paracel Islands by China cannot be sustained under international law since the islands are located mid-ocean and furthermore cannot be considered as straight archipelagic baselines since China does not in any way meet the requirement of an archipelagic State. Thus, the use of straight baselines in the region is comparable to the case of *Qatar/Bahrain* where the court, in holding that the situation was different from the case of Norway, held that the maritime features involved were not part of a “deeply indented” coast and that they could not be characterized as a “fringe of islands”.<sup>768</sup>

In light of these observations, it is concluded that straight baselines have become popular in the practice of States within East Asia. The approach taken by many coastal States, particularly in this region, is to apply the straight baseline system extensively and in a liberal and flexible manner despite the restrictive criteria laid down in international law and especially by the Convention.

It is also highlighted that these discrepancies between the international law of the sea as laid down in the Convention and the practices of States contribute to the difficulties in the application of Article 76. Although the extensive use of the straight baseline system does not directly affect the application of Article 76 since the latter is only concerned about natural prolongation, in practice it may cause problems to coastal States intending to delineate the outer limits of the continental shelf. This is especially so in cases of opposite States where continental shelf areas may overlap due to these extensive baselines. However, it must be borne in mind that the drawing of baselines is a unilateral political act. Also, since it is not within Article 76, the Commission is not concerned with whether baselines drawn by a submitting State conforms to the Convention which also contributes to difficulties in implementing Article 76.

### **7.3 Insular features**

East Asia is a huge geographical area within which there are many insular features consisting of islands, islets, rocks and reef. Indeed, State practice has shown that the terms used, whether

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<sup>768</sup> *Case concerning Maritime Delimitation and Territorial Questions between Qatar and Bahrain (Qatar/Bahrain)* [2001] ICJ.

“island” or “rock” for example, have been used very broadly.<sup>769</sup> For example, States have used the term “islands” very broadly to include even low-tide elevations or features that are permanently under water.<sup>770</sup> However, for the purpose of ascertaining the legal status of these features and the impact they have on the continental shelf, reference must be made to the Convention which has laid down definitions of these features.

### **7.3.1 Islands, rocks and low-tide elevations**

An “island” is defined in Article 121 (1) of the Convention as a “naturally formed area of land, surrounded by water, which is above water at high tide”. Based on these three elements, a feature that is man-made, or not completely surrounded by water, or is only visible at low-tide cannot be regarded as an “island”.

Paragraph 2 of Article 121 further states as follows:

Except as provided for in paragraph 3, the territorial sea, the contiguous zone, the exclusive economic zone and the continental shelf of an island are determined in accordance with the provisions of this Convention applicable to other land territory.

This paragraph thus bestows upon islands the same status as other land territories. It seems that however small an island is, if it fulfills the criterion laid down in paragraph 1, it shall be able to generate maritime zones like other land territories.

However, paragraph 3 states that “[r]ocks which cannot sustain human habitation or economic life of their own shall have no exclusive economic zone or continental shelf”. When read together with the two paragraphs preceding it, it could be implied that another requirement has to be met in order for a feature to be regarded as an island, that is, it must be able to sustain human habitation or economic life of its own. Thus, where a feature is unable to meet that requirement,

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<sup>769</sup> Zou Keyuan, ‘The Impact of Artificial Islands on Territorial Disputes Over The Spratly Islands’ (Second International Workshop, Ho Chi Minh City, November 2010) <<http://nghiencuubiendong.vn/en/conferences-and-seminars-/second-international-workshop/597-the-impact-of-artificial-islands-on-territorial-disputes-over-the-spratly-islands-by-zou-keyuan>> accessed 20 June 2012.

<sup>770</sup> Ibid.

it becomes a mere “rock” in the sense of the Convention and is only entitled to generate a 12 NM territorial sea.<sup>771</sup> Writings on this topic have indicated that two features are considered the most important in distinguishing between an island and a rock.<sup>772</sup> The first is the size of the feature while the second relates to the ability to “sustain human habitation or economic life of their own”. A typical example would be Rockall which is acknowledged to be a mere rock, as opposed to an island.<sup>773</sup> The rock measures a mere 624 square metres and is unable to sustain human habitation or economic life.<sup>774</sup>

Another feature mentioned by the Convention is the “low-tide elevation”. A low-tide elevation is defined in Article 13 as “a naturally formed area of land which is surrounded by and above water at low tide but submerged at high tide”. Article 13 further states the legal effect of low-tide elevations as follows: Firstly, if the low-tide elevation is located wholly or partly within the territorial sea of the coastal State, whether measured from the mainland or an island, it is able to generate a territorial sea of its own. Secondly, if it is, however, located beyond the territorial sea so measured, it shall not generate a territorial sea and would thus be of no legal effect.<sup>775</sup> Therefore, the legal status of low-tide elevations is limited to generating territorial seas only, without any exclusive economic zone or continental shelf. This is again limited to those low-tide elevations that are located within the 12 NM limit of a coastal State.<sup>776</sup>

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<sup>771</sup> LOS Convention 1982, Article 121(3).

<sup>772</sup> JI Charney ‘Rocks that cannot sustain human habitation’ [1999] AJIL 863; HI Llanos, ‘Low-tide elevations: Reassessing their impact on maritime delimitation’ (2002) 14 Pace Int’l L Rev 255; D Anderson, ‘Islands and rocks in the modern law of the sea’ in Myron H Nordquist, John Norton Moore, Alfred HA Soons, Hak-So Kim, (eds), *The Law of the Sea Convention: US Accession and Globalization* (Martinus Nijhoff Publishers 2012).

<sup>773</sup> The United Kingdom recognizes that Rockall did not have the capacity to generate extended maritime zones, The Fishery Limits Order 1997, S.I. 1750 <<http://www.legislation.gov.uk/ukxi/1997/1750/contents/made>> accessed 9 August 2012.

<sup>774</sup> Guifang Xue ‘How much can a rock get? A reflection from the Okinotorishima rocks’ sea’ in Myron H Nordquist, John Norton Moore, Alfred HA Soons, Hak-So Kim, (eds), *The Law of the Sea Convention: US Accession and Globalization* (Martinus Nijhoff Publishers 2012).

<sup>775</sup> LOS Convention 1982, Article 13.

<sup>776</sup> JI Charney ‘Rocks that cannot sustain human habitation’ [1999] AJIL 863.

Based on the discussion above, it is evident that only islands in the sense of Article 121 of the Convention can have a legal effect on the continental shelf. In practice, however, it is difficult to distinguish between islands and mere rocks.

The larger islands within East Asia such as Borneo Island, Luzon Island of the Philippines, and Java Island of Indonesia to name a few are undoubtedly islands in the sense of the Convention since they fulfill all the requirements. The problem lies in identifying the much smaller islands, mostly uninhabited and without any social or economic development. A number of these features such as Pulau Batu Puteh and Middle Rocks have been decided by the court in order to determine their status.<sup>777</sup>

The cases on the features mentioned above have well been decided and their legal status ascertained.<sup>778</sup> Nevertheless, not all the status of features in the region has been settled. The Spratly Islands Group consists of numerous offshore features which come in the form of islands, rocks and reefs. It is foreseen that the on-going dispute regarding territorial sovereignty over the Spratly Islands may well extend to the question of classification of the features as islands, rocks or low-tide elevations. This shall be discussed in more detail later under subsection 7.7 in this chapter.

### **7.3.2 Artificial islands**

Apart from natural islands and rocks, technological advancement has made it possible to construct artificial offshore features. This advancement has been carried out by coastal States in East Asia such as China, Japan and Singapore for various reasons. It is thus noteworthy to assess the legal effect of these artificial islands.

There is nothing in the Convention that expressly defines what constitutes an artificial island. Over the years, however, scholarly attempts have been made to define the term “artificial

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<sup>777</sup> See *Sovereignty over Pedra Branca/Pulau Batu Puteh, Middle Rocks and South Ledge (Malaysia/Singapore)* [2008] ICJ 12.

<sup>778</sup> Ibid.

island”.<sup>779</sup> As a result, two definitions for the term have emerged. One definition associates the term “artificial island” with that of “ship”.<sup>780</sup> Another definition is a broad one which tends to regard artificial islands as natural islands.<sup>781</sup> This definition is thus not in line with the definition of natural islands in the strict sense as laid down in the Convention which states that an “island” “is a naturally formed area of land, surrounded by water, which is above water at high tide”.<sup>782</sup> As such, artificial islands lack the “natural” character stated in the Convention. Be that as it may, scholarly attempts have also been made at defining “artificial islands” in the international law perspective. One definition states that artificial islands are a temporary or permanent fixed platform made by man surrounded by water and above water at high tide.<sup>783</sup> Another definition regards artificial islands as those structures created by placing natural substances such as gravel, sand and rocks; while artificial installations are those concrete structures fixed to the sea bed by pipes and poles.<sup>784</sup>

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<sup>779</sup> Zou Keyuan, ‘The Impact of Artificial Islands on Territorial Disputes Over The Spratly Islands’ (Second International Workshop, Ho Chi Minh City, November 2010) <<http://nghiencuubiendong.vn/en/conferences-and-seminars/-second-international-workshop/597-the-impact-of-artificial-islands-on-territorial-disputes-over-the-spratly-islands-by-zou-keyuan>> accessed 20 June 2012.

<sup>780</sup> A proposal had been made to define “ship” at the International Law Commission during the time of negotiating the Conventions on the Law of the Sea as “a device capable of traversing the sea but not the air space, with the equipment and crew appropriate to the purpose for which it is used”. However, this draft had been deleted in 1955 by the International Law Commission. See International Law Commission, *Yearbook of the International Law Commission*, vol 1 (United Nations 1955) 10.

Although the LOS Convention 1982 does not define the term “ship”, other international treaties have defined the term. For instance the International Convention on the Prevention of Pollution from Ships 1973 defines “ship” as “a vessel of any type whatsoever operating in the marine environment and includes hydrofoil boats, air-cushion vehicles, submersibles, floating craft and fixed or floating platforms”. As such, an artificial island could constitute a “floating craft” or a “fixed or floating platform”.

<sup>781</sup> Zou Keyuan, ‘The Impact of Artificial Islands on Territorial Disputes Over The Spratly Islands’ (Second International Workshop, Ho Chi Minh City, November 2010) <<http://nghiencuubiendong.vn/en/conferences-and-seminars/-second-international-workshop/597-the-impact-of-artificial-islands-on-territorial-disputes-over-the-spratly-islands-by-zou-keyuan>> accessed 20 June 2012.

<sup>782</sup> LOS Convention 1982, Article 121.

<sup>783</sup> Rudolf Bernhardt, *Encyclopedia of Public International Law*, vol 11 (Law of the Sea 1989) 38.

<sup>784</sup> AHA Soons, *Artificial Islands and Installations in International Law* (Law of the Sea Institute, University of Rhode Island 1974) 3.

It should be observed, however, that the requirement of “naturally formed” is a recent addition to international law. Legislative history shows that the Sub-Committee II of the Second Commission (Territorial Waters) of the 1930 Hague Conference found that “[t]he definition of the ‘Island’ does not exclude artificial islands, provided these are true portions of territory and not merely floating works, anchored buoys, etc.”.<sup>785</sup> This shows that artificial islands were originally intended to have the same status as natural islands. However, as observed before in Chapter Three of this thesis, the Hague Conference failed to adopt a Convention, and since then the status of artificial islands remained ambiguous.<sup>786</sup>

Artificial islands have been mentioned in several provisions in the Convention.<sup>787</sup> Although the Convention does not define artificial islands, the Convention provides for the right of a State to construct, use and have exclusive jurisdiction over artificial islands in the exclusive economic zone.<sup>788</sup> However, the Convention clearly states that artificial islands do not possess the legal status of natural islands when it is stated as follows:

Artificial islands, installations and structures do not possess the status of islands. They have no territorial sea of their own, and their presence does not affect the delimitation of the territorial sea, the exclusive economic zone or the continental shelf.<sup>789</sup>

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<sup>785</sup> League of Nations, Doc. C.230M.117 1930 V (1930), quoted in HW Jayewardene, *The regime of islands in international law* (BRILL 1990) 8, quoted in M Gagain, ‘Climate Change, Sea Level Rise, and Artificial Islands’ [2012] *Colorado Journal of International Environmental Law and Policy* 77, 103.

<sup>786</sup> See M Gagain, ‘Climate Change, Sea Level Rise, and Artificial Islands’ [2012] *Colorado Journal of International Environmental Law and Policy* 77, 103.

<sup>787</sup> See, for example, LOS Convention 1982, Articles 11, 56, 60, 79, 80, and 87.

<sup>788</sup> LOS Convention 1982, Articles 56 and 60.

<sup>789</sup> LOS Convention 1982, Article 60(8). Although an artificial island is unable to generate maritime zones, it entitled to a safety zone that, according to Article 60 (5) does not exceed a distance of 500 metres, “measured from each point of their outer edge, except as authorized by generally accepted international standards or as recommended by a competent international organization”.

In other words, an artificial island does not have the effect of generating maritime zones such as the territorial sea, the exclusive economic zone nor can it generate continental shelf rights.<sup>790</sup> In that sense, it could be argued that artificial islands have no effect at all on delimitation and the delineation of the continental shelf. Besides that, another evidence showing that the Convention intends to restrict the effect of artificial islands over maritime zones can be found in Article 11 which states that “the outermost permanent harbour works which form an integral part of the harbour system are regarded as forming part of the coast”, but off-shore installations and artificial islands should not be considered as “permanent harbour works”.

Be that as it may, it must be noted that the Convention does make mention of artificial islands in relation to the construction of baselines when it is stated that “[s]traight baselines shall not be drawn to and from low-tide elevations, unless lighthouses or similar installations which are permanently above sea level have been built on them”.<sup>791</sup> Although the provision does not specifically mention artificial islands, “similar installations” in this provision could be argued to include artificial islands. Therefore, if an artificial island is an installation which is built on a low-tide elevation and is permanently above sea level, it could be used as a base point to construct straight baselines. This in turn determines the drawing of the territorial sea and all the other maritime zones that are measured from the baseline, including the continental shelf.

It seems that when applying this principle, except for the little effect it may have on baselines, artificial islands do not play a role in delimitation of the continental shelf between States nor do they have any effect in the delineation of the extended continental shelf beyond 200 NM. However, setting aside the words of the Convention on artificial islands discussed above, it would be worthy to also discuss the legal effects of these islands on the continental shelf with regard to actual State practice.

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<sup>790</sup> Ibid; See also Grigoris Tsaltas, Tilemachos Bourtzis, Gerasimos Rodotheatos, ‘Artificial Islands and Structures as a Means of Safeguarding State Sovereignty Against Sea Level Rise: A Law of the Sea Perspective’ (ABLOS Conference, Monaco, October 2010) <<http://www.gmat.unsw.edu.au/ablos/ABLOS10Folder/S2P3-P.pdf>> on 11 August 2012.

<sup>791</sup> LOS Convention 1982, Article 7(4).

Among the most prominent artificial islands is the Okinotorishima built by Japan on its southernmost part on the Kyushu-Palau Ridge. Okinotorishima is a reef above water at high tide consisting of two rocks: Kitakojima, the northern islet which is 16 centimetres high, and *Higashikojima, the eastern islet which is only six centimeters above water at high tide.*<sup>792</sup> However, the surface of Okinotorishima has been reduced by water erosion.<sup>793</sup> In an attempt to expand its maritime jurisdiction, Japan had spent a massive amount of money to reconstruct Okinotorishima by building a wall around the feature so as to enclose it.<sup>794</sup> This is to prevent further erosion which might result in the permanent disappearance of the feature. In Japan's submission to the Commission for an extended continental shelf claim, Japan had used Okinotorishima as base points to generate maritime zones including an extended continental shelf.<sup>795</sup> In essence, this means that Japan regards Okinotorishima as an island. This received protests from China and South Korea who contended that the feature is not an island and unable to generate maritime zones.<sup>796</sup>

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<sup>792</sup> See TJ Schoenbaum, *Peace in Northeast Asia: Resolving Japan's Territorial and Maritime Disputes with China, Korea and the Russian Federation* (Edward Elgar Publishing 2008), 95-97; Y Song 'Okinotorishima: A Rock or an Island? Recent Maritime Boundary Controversy Between Japan and Taiwan/China' in Seoung-Yong Hong, Jon M. Van Dyke (eds), *Maritime Boundary Disputes, Settlement Processes, and the Law of the Sea* (Martinus Nijhoff Publishers 2009), 148.

<sup>793</sup> Y Song 'Okinotorishima: A rock or an island? Recent Maritime Boundary Controversy Between Japan And Taiwan/China' in Seoung-Yong Hong, Jon M. Van Dyke (eds), *Maritime Boundary Disputes, Settlement Processes, and the Law of the Sea* (Martinus Nijhoff Publishers 2009), 145.

<sup>794</sup> *Ibid* 149.

<sup>795</sup> Japan, 'Japan's Submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea: Executive Summary' (12 November 2008); See also Guifang Xue 'How much can a rock get? A reflection from the Okinotorishima rocks' sea' in Myron H Nordquist, John Norton Moore, Alfred HA Soons, Hak-So Kim, (eds), *The Law of the Sea Convention: US Accession and Globalization* (Martinus Nijhoff Publishers 2012), 358.

<sup>796</sup> In its note verbale CML/25/2012, dated 5 April 2012, the People's Republic of China states inter alia , that "Such disagreement is, in essence, a dispute of whether or not the rock of Oki-no Tori shall have exclusive economic zone or continental shelf, and a dispute of whether relevant maritime space is under national jurisdiction or a common space of the international community"; In its note verbale MUN/174/12 dated, 5 April 2012, the Republic of Korea states inter alia, that "it considers that there exists a dispute concerning Oki-no-Tori Shima's legal status.", Commission on the Limits of the Continental Shelf, 'Summary of Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by Japan on 12 November 2008' (United Nations, 19 April 2012) para 6.



The Okinotorishima is mentioned in two regions in the Japanese submission: the Southern Kyushu-Palau Ridge region and the Shikoku Basin region.

As regards the Southern Kyushu-Palau Ridge region, the relevant documents show that the subcommission established by the Commission to consider the matter relating to Okinotorishima had recommended in favour of the Japan submission that the island is entitled to a continental shelf.<sup>797</sup> However, after considering the various notes verbale from other States and after a formal vote during its twenty-ninth session, the Commission decided that it would not take action on the parts relating to the Southern Kyushu-Palau Ridge Region until the matter has been resolved.<sup>798</sup>

On another note, the Shikoku Basin Region shows that Japan had drawn constraint lines of 350 NM generated from the baseline of Okinotorishima Island.<sup>799</sup> The recommendations of the Commission also show that the Commission agrees with the procedure.<sup>800</sup> Hence, this might be used to imply that the Commission regards Okinotorishima as an island capable of having a continental shelf of its own. It is to be noted, however, that this region of the continental shelf is not disputed by any other State. The reason is most likely that this area would come under the extended continental shelf of Japan regardless of the status of Okinotorishima due to the

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<sup>797</sup> See for example Commission on the Limits of the Continental Shelf, ‘Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the progress of work in the Commission – Twenty-eighth session’ CLCS/72 (United Nations, New York September 2011), para 14.

<sup>798</sup> Commission on the Limits of the Continental Shelf, ‘Summary of Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by Japan on 12 November 2008’ (United Nations, 19 April 2012), paras 15-20; Commission on the Limits of the Continental Shelf, ‘Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the progress of work in the Commission – Twenty-ninth session’ CLCS/74 (United Nations, New York April 2012), para 19.

<sup>799</sup> See Figure 25, Commission on the Limits of the Continental Shelf, ‘Summary of Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by Japan on 12 November 2008’ (United Nations, 19 April 2012).

<sup>800</sup> Commission on the Limits of the Continental Shelf, ‘Summary of Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by Japan on 12 November 2008’ (United Nations, 19 April 2012), para 210.

overlapping formula lines generated from other Japanese land territories in the region (the line generated from Okinotorishima mentioned above is only the 350 NM constraint line).<sup>801</sup>

Since the draft recommendations prepared by the subcommission has not been adopted by the Commission, it could not be concluded that artificial islands are able to generate maritime zones. However, since the subcommission has gone as far as to decide in favour of Japan that Okinotorishima is able to generate a continental shelf, there is some merit to the distinction between artificial islands built on a natural base and those which are not built on a natural base. Therefore, with regard to continental shelf delineation, artificial islands may have a significant impact as long as it is built on a naturally formed base such as rocks and reefs. However, considering the two rocks that make up Okinotorishima are arguably unable to “sustain human habitation or economic life of their own”, they cannot be considered able to generate an exclusive economic zone or continental shelf. In light of this, it could also be implied that artificial islands which are not built on naturally formed features, such as those fixed to the seabed, would be regarded as mere “artificial islands” in the sense of the Convention which do not bring about any legal implications to the delineation of the continental shelf.

With the overview of the legal situations discussed above, a regional analysis could prove a useful insight to further understand the problems involved with delimitation and delineation of the continental shelf within East Asia. This shall be done with regard to the East China Sea, the Yellow Sea, the Philippine Sea in this chapter, and followed by the South China Sea in the next chapter in relation to the study on the continental shelf of Malaysia.

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<sup>801</sup> Figure 25, Commission on the Limits of the Continental Shelf, ‘Summary of Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by Japan on 12 November 2008’ (United Nations, 19 April 2012).

## 7.4 The East China Sea

The East China Sea is shared between China, Japan and South Korea.<sup>802</sup> Within this sea area, the distance between the coasts of China and Japan is less than 400 NM.<sup>803</sup> A prominent feature in the East China Sea is the Okinawa Trough, which lies beyond 200 NM from the coast of China but within the Japanese 200 NM limit.<sup>804</sup> It runs from the Japanese island of Kyushu and extends along the Ryukyu Islands, which is a chain of Japanese islands located on the southwestern end of the Japanese archipelago.<sup>805</sup> The trough is about 900 kilometres in length and ranges 36 to 150 kilometres in width, with an area of more than 100 000 square kilometres.<sup>806</sup>

As for the depth of the trough, a large portion of it is more than 1000 metres deep while the maximum depth of the trough is 2322 metres. However, its average depth in the East China Sea is only about 370 metres. In terms of its geological formation, the Okinawa Trough is “a back-arc basin formed by extension of the continental lithosphere behind the Ryukyu trench-arc system”.<sup>807</sup>

The dispute concerning the continental shelf delimitation in the East China Sea is essentially between China and Japan arising out of their different interpretation of the geography of the Okinawa Trough. This issue also inevitably concerns another party, South Korea, which also shares the same interpretation with China. Thus, the dispute is between China and South Korea on one hand, and Japan on the other.

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<sup>802</sup> See Annex 9.

<sup>803</sup> Ji Guoxing, ‘Maritime jurisdiction in the three China seas’ (Policy Papers, Institute on Global Conflict and Cooperation, UC Berkeley 1995) 3, 10 < <http://escholarship.org/uc/item/7rq2b069>> accessed 1 June 2012.

<sup>804</sup> Jianjun Gao, ‘The Okinawa Trough Issue in the Continental Shelf Delimitation Disputes within the East China Sea’ (2010) 9 Chinese Journal of International Law 143, 144-145.

<sup>805</sup> Ibid.

<sup>806</sup> Ibid.

<sup>807</sup> Ibid 145.

As mentioned before, the distance between the baselines of China and that of Japan in this region is less than 400 NM. However, the distance between the Chinese coast as well as the coast of South Korea and the axis of the Okinawa Trough is more than 200 NM. This denotes that the distance between the baseline of Japan and the axis of the trough is substantially less than 200 NM.

Since the East China Sea is being bounded by the three States, there is a need for delimitation of the continental shelf boundary in the region.

Applying the median line as the boundary between the States would have allocated between the States continental shelf areas of less than 200 NM. At the same time the States would be precluded from claiming an extended continental shelf beyond 200 NM.

Be that as it may, China seeks to claim a continental shelf area beyond 200 NM from its baselines, hence beyond the median line, on the basis of natural prolongation. Natural prolongation is invoked in the sense that the natural prolongation of the Chinese territory extends from the land mass of the mainland all the way beyond the 200 NM and continues until the Okinawa Trough.

Indeed, China claims that “the Okinawa Trough proves that the continental shelves of China and Japan are not connected, that the Trough serves as the boundary between them, and that the Trough should not be ignored”.<sup>808</sup> It is based on this view that China sought to claim an extended continental shelf beyond 200 NM, since the Okinawa Trough is located beyond the 200 NM measured from the baseline of China. Thus, according to China, the trough marks the end of the natural prolongation of its land territory and China is entitled to claim an extended continental shelf up to that point by virtue of Article 76. The interpretation put forward by China is also the

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<sup>808</sup> Ji Guoxing, ‘Maritime jurisdiction in the three China seas’ (Policy Papers, Institute on Global Conflict and Cooperation, UC Berkeley 1995) 3, 10 < <http://escholarship.org/uc/item/7rq2b069>> accessed 1 June 2012.

view of South Korea, since the latter also needs to delimit its boundaries with Japan and also claims an extended continental shelf in the region.<sup>809</sup>

The problem lies in the fact that the area of the continental shelf claimed by China and South Korea is within 200 NM from Japan's baseline. Since Article 76 also allocates a right to a continental shelf of up to 200 NM regardless of geophysical factors, but subject to delimitation between States, the Chinese claim would have infringed Japan's right under Article 76. Thus, Japan holds the position that the equidistance line should be the line delimiting the continental shelf boundary between them.<sup>810</sup> According to Japan, "the trough is just an incidental depression in a continuous continental margin between the two countries ... and that any legal effect of the trough should be ignored".<sup>811</sup>

Following the claim to an extended continental shelf, China has submitted preliminary information to the Commission in respect of that part of the continental shelf on 11 May 2009.<sup>812</sup> Similarly, South Korea has also submitted preliminary information for an extended continental shelf in the Okinawa Trough on the same date.<sup>813</sup> Both the preliminary information submitted by

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<sup>809</sup> Jianjun Gao, 'The Okinawa Trough Issue in the Continental Shelf Delimitation Disputes within the East China Sea' (2010) 9 Chinese Journal of International Law 143, 147.

<sup>810</sup> It is noted that Japan has consistently relied on the equidistance line as a method of delimitation. This is evident from its national legislation such as the Japanese Law on the Exclusive Economic Zone and the Continental Shelf 1996, Article 1(2) which defines the outer limit of the exclusive economic zone as "the equidistance line" when the 200 nautical mile line as measured from the baseline extends beyond the equidistance line.

<sup>811</sup> Ibid.

<sup>812</sup> Republic of China, 'Preliminary Information Indicative of the Outer Limits of the Continental Shelf beyond 200 Nautical Miles of the People's Republic of China' (11 May 2009).

<sup>813</sup> Republic of Korea, 'Preliminary Information regarding the Outer Limits of the Continental Shelf: Pursuant to Paragraph 8 of Article 76 of the United Nations Convention on the Law of the Sea 1982 and the Decision of the Eighteenth Meeting of States Parties to the UNCLOS (SPLOS/183)' (11 May 2009).

China and South Korea are in respect of their extended continental shelf which are located in the same submarine feature, that is, the Okinawa Trough.<sup>814</sup>

Since China did not submit a full submission, the preliminary information it submitted did not contain complete information on the outer limits that China wishes to establish. Instead, it took the approach of giving four fixed points as examples of the other points it intends to establish.<sup>815</sup> The foot of the continental slope identified by China in its preliminary information is located on the western slope of the Okinawa Trough.<sup>816</sup> This indicates that China regards the natural prolongation of its continental margin extends until the Okinawa Trough. The preliminary information shows China establishing its outer limits at the point determining the maximum water depth, which does not exceed 60 NM from the foot of the continental slope.<sup>817</sup>

The preliminary information submitted by South Korea indicates the areas which it intends to claim as its extended continental shelf. The area is located within the joint development zone established between South Korea and Japan by virtue of an agreement in 1974.<sup>818</sup> According to the preliminary information, the area is beyond 200 NM from the baselines of South Korea, and hence, the basis for its entitlement to the extended continental shelf.<sup>819</sup>

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<sup>814</sup> Republic of China, 'Preliminary Information Indicative of the Outer Limits of the Continental Shelf beyond 200 Nautical Miles of the People's Republic of China' (11 May 2009) 4.; Republic of Korea, 'Preliminary Information regarding the Outer Limits of the Continental Shelf: Pursuant to Paragraph 8 of Article 76 of the United Nations Convention on the Law of the Sea 1982 and the Decision of the Eighteenth Meeting of States Parties to the UNCLOS (SPLOS/183)' (11 May 2009) 3.

<sup>815</sup> Republic of China, 'Preliminary Information Indicative of the Outer Limits of the Continental Shelf beyond 200 Nautical Miles of the People's Republic of China' (11 May 2009) 3; Jianjun Gao, 'The Okinawa Trough Issue in the Continental Shelf Delimitation Disputes within the East China Sea' (2010) 9 *Chinese Journal of International Law* 143, 148.

<sup>816</sup> Republic of China, 'Preliminary Information Indicative of the Outer Limits of the Continental Shelf beyond 200 Nautical Miles of the People's Republic of China' (11 May 2009) 3.

<sup>817</sup> *Ibid* 4.

<sup>818</sup> Agreement between the Republic of Korea and Japan concerning joint development of the southern part of the continental shelf adjacent to the two countries 1974.

<sup>819</sup> Republic of Korea, 'Preliminary Information regarding the Outer Limits of the Continental Shelf: Pursuant to Paragraph 8 of Article 76 of the United Nations Convention on the Law of the Sea 1982 and the Decision of the Eighteenth Meeting of States Parties to the UNCLOS (SPLOS/183)' (11 May 2009).

## Analysis

The questions to be answered in resolving the dispute in the East China Sea are as follows:

- 1) whether the Okinawa Trough constitutes a fundamental discontinuity of the continental shelf, and
- 2) if it does constitute a fundamental discontinuity, what are the legal implications?

With regard to the first question, the Okinawa Trough would constitute a fundamental discontinuity of the continental shelf if it marks the end of the natural prolongation of the land masses of the States. In other words, if the trough constitutes a fundamental continuity, it would serve as the boundary between two continental margins.

In order to ascertain the impact of the Okinawa Trough, the comparative analysis made by the court and tribunals may provide an insight. For example, in the 1977 case between the United Kingdom and France, the tribunal compared the Hurd Deep and the Hurd Deep Fault Zone with the Norwegian Trough and found that the former two “do not disrupt the essential unity of the continental shelf” and can only be regarded as minor faults in the geological structure of the shelf”.<sup>820</sup> In *Tunisia/Libya*, the court rejected Tunisia’s argument that the Tripolitanian Furrow constituted a natural frontier of the continental margin. To that, the court stated that even “so substantial a feature as the Hurd Deep was not attributed such significance in the Franco-British Arbitration”.<sup>821</sup> Similarly, in the *Gulf of Maine* case, the court held that the Northeast Channel:

does not have the characteristics of a real trough marking the dividing-line between two geo-morphologically distinct units...It might also be recalled that the presence of much more conspicuous accidents, such as the Hurd Deep and Hurd Deep Fault Zone in the continental shelf which was the subject of the Anglo-French arbitration, did not prevent the Court of Arbitration from

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<sup>820</sup> *Case concerning the Delimitation of the Continental Shelf between the United Kingdom of Great Britain and Northern Ireland, and the French Republic*, Decision of 30 June 1977 (1979) 18 ILM 397, para 107.

<sup>821</sup> *Case concerning the Continental Shelf (Tunisia/Libyan Arab. Jamahiriya)* [1982] ICJ 18, para 66.

concluding that those faults did not interrupt the geological continuity of that shelf and did not constitute factors to be used to determine the method of delimitation.<sup>822</sup>

Looking at the decisions of the court and tribunal, it is noted that only the Norwegian Trough has been attributed the characteristics of a natural continental shelf boundary by the court thus far. The Norwegian Trough is a belt of water with a depth ranging from 200 to 650 metres, 430 kilometres long and 80 to 100 metres wide. In comparison to the adjacent North Sea which has a water depth of merely below 200 metres, the Norwegian Trough was regarded by the court as a fundamental discontinuity of the natural prolongation.<sup>823</sup> With that, it would be noteworthy to compare the Okinawa Trough with the Norwegian Trough. The Okinawa Trough has a depth of 894 to 2,322 metres while the water depth of most areas of the East China Sea is below 150 metres.<sup>824</sup> Since the average depth of the Okinawa Trough is more than 1,000 metres, it might be concluded that it is comparable to the Norwegian Trough. Even its depth in the East China Sea which is merely an average of 370 metres is significantly deeper than the shelf areas of the East China Sea. Therefore, based on water depth alone, it is very likely that a court would acknowledge the trough as being a natural continental shelf boundary looking at the massive difference between the water depth of the Okinawa Trough and the adjacent sea areas compared to the situation of the Norwegian Trough-North Sea.

Indeed, it was found that:

[g]eologically and geomorphologically, the continental margin bounded by the Okinawa Trough is Chinese. It stretches seaward from the mainland coast of China and

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<sup>822</sup> *Case concerning the Delimitation of the Maritime Boundary in the Gulf of Maine (Canada/United States of America)*, [1984] ICJ 246, para 46.

<sup>823</sup> In the *North Sea* case, the court stated that “the shelf areas in the North Sea separated from the Norwegian coast by the 80 – 100 kilometres of the Trough cannot in any physical sense be said to be adjacent to [Norway], nor to be its natural prolongation”, *North Sea Continental Shelf Case (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands)*, [1969] ICJ 3, para 45.

<sup>824</sup> L Guanbao, L Baohua, L Naisheng, ‘A probe heat flow value of the East China Sea shelf’ [2006] *Chinese Journal of Oceanology and Limnology* 243. See also, Table 2, Jianjun Gao, ‘The Okinawa Trough Issue in the Continental Shelf Delimitation Disputes within the East China Sea’ (2010) 9 *Chinese Journal of International Law* 143, 170.



it has been formed mainly by the filling of marginal basins with sediment provided by Chinese rivers. The imperfect concept of natural prolongation fashioned in the North Sea by the International Court of Justice in 1969 is perfectly illustrated by the continental margin of the East China Sea.<sup>825</sup>

As for the second question, assuming the position of China is upheld and the Okinawa Trough does constitute the boundary between the two States, the possible legal implications are as follows:

First, China would be able to exercise its right in claiming an extended continental shelf beyond 200 NM. Hence, the provisions of Article 76 would be invoked. Indeed, China has already submitted preliminary information for its extended continental shelf in this area to the Commission on 11 May 2009. It would thus be worthwhile to examine the preliminary information in order to fully understand China's claim to the continental shelf in the East China Sea.

The second possible legal implication would be that the Okinawa Trough is regarded as a relevant circumstance in the delimitation between the States. Since the general rule regarding delimitation would be to apply the equidistance line, which is the position held by Japan until today, China could use natural prolongation as a relevant circumstance in order to shift the median line to a more seaward position.

In that case, the issue is no longer concerned with Article 76 and the Commission, but is between China, Japan, and any other States involved. As such, the States involved could resort to judicial bodies such as the ICJ in order to resolve such issues. Of course, if such a decision were to be made, the parties would have to present scientific information regarding the nature of the Okinawa Trough.

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<sup>825</sup> Victor Prescott and Clive Schofield, *The Maritime Political Boundaries of the World* (2<sup>nd</sup> edn, Martinus Nijhoff 2005) 439.

It would follow that this case would then be comparable to the delimitation of the continental shelf between Libya and Malta which was decided by the ICJ in 1985.<sup>826</sup> The court in that case refused to entertain the scientific evidence brought by Libya to show that the Rift Zone constituted a natural boundary between the continental shelf of Libya and that of Malta.<sup>827</sup> To that, the court held that by virtue of new developments in the law, the geophysical characters of the shelf area lying between the coasts of States which does not extend beyond 400 NM is “completely immaterial”.<sup>828</sup> The court was obviously referring to Article 76 of the Convention.

As may be recalled, preliminary information has been submitted by both China and South Korea in respect of the area.<sup>829</sup> However, it is noted that any legal implications arising from these documents are minimal. First of all, the documents submitted are merely preliminary information as opposed to a submission. Preliminary information is merely indicative of a future submission and is not considered by the Commission.<sup>830</sup> Nevertheless, in the event China and South Korea do make full submissions to the Commission it is highly unlikely that the Commission would make recommendations in respect of those submissions due to the presence of the dispute as previously discussed in Section 4.2 of Chapter Four.

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<sup>826</sup> *Case concerning the continental shelf (Libyan Arab Jamahiriya/Malta)*, [1985] ICJ 13.

<sup>827</sup> *Ibid* para 39.

<sup>828</sup> *Ibid*.

<sup>829</sup> See Republic of China, ‘Preliminary Information Indicative of the Outer Limits of the Continental Shelf beyond 200 Nautical Miles of the People’s Republic of China’ (11 May 2009); Republic of Korea, ‘Preliminary Information regarding the Outer Limits of the Continental Shelf: Pursuant to Paragraph 8 of Article 76 of the United Nations Convention on the Law of the Sea 1982 and the Decision of the Eighteenth Meeting of States Parties to the UNCLOS (SPLOS/183)’ (11 May 2009).

<sup>830</sup> United Nations, ‘Decision regarding the workload of the Commission on the Limits of the Continental Shelf and the ability of States, particularly developing States, to fulfill the requirements of article 4 of annex II to the United Nations Convention on the Law of the Sea, as well as the decision contained in SPLOS/72, paragraph (a)’, SPLOS/183 (New York, June 2008), 2.

## 7.5 The Yellow Sea

To the northwest of the East China Sea lies the Yellow Sea which is shared by China, South Korea and North Korea.<sup>831</sup> In contrast to the configuration of the East China Sea, the seabed of the Yellow Sea constitutes a single and continuous continental shelf with no fundamental discontinuities in its margin.<sup>832</sup> Similar to the case in the East China Sea, the distance between the coasts of the three coastal States in the Yellow Sea is less than 400 NM miles apart.

It should be noted that China has been a strong proponent of the principle of equity in maritime delimitation matters as opposed to the application of the equidistance method.<sup>833</sup> However, although it is possible to invoke the principle of natural prolongation as a relevant circumstance in the East China Sea against Japan, it is not possible to do so in the Yellow Sea due to the absence of any possible discontinuities of the continental margin in the area. It would follow that there is no recourse to applying Article 76 in claiming an extended continental shelf based on natural prolongation as has been made by China and South Korea respectively in the East China Sea. As such, it is highly unlikely that a method other than equidistance would apply in the continental shelf delimitation in the Yellow Sea.

## 7.6 The Philippine Sea

To the south of the East China Sea lies the Philippine Sea. The Philippine Sea is bounded on the north by the Ryukyu Islands of Japan, on the west by the Philippine archipelago, on the east by the ridge joining Japan to the Mariana Islands, and on the south by the island of Palau.<sup>834</sup>

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<sup>831</sup> 'Yellow Sea', *World Atlas* <<http://www.worldatlas.com/aatlas/infopage/yellowsea.htm>> accessed 2 September 2012; Annex 10.

<sup>832</sup> Keun-Gwan Lee, *Continental Shelf Delimitation in the Yellow Sea* (Konkuk University 2005) 4 <[http://www.wilsoncenter.org/sites/default/files/Keun-Gwan\\_Lee\\_2\\_.pdf](http://www.wilsoncenter.org/sites/default/files/Keun-Gwan_Lee_2_.pdf)> accessed 10 August 2012.

<sup>833</sup> Keun-Gwan Lee, *Continental Shelf Delimitation in the East China Sea* (Konkuk University 2005) 10 <[http://www.wilsoncenter.org/sites/default/files/Keun-Gwan\\_Lee\\_1\\_.pdf](http://www.wilsoncenter.org/sites/default/files/Keun-Gwan_Lee_1_.pdf)> accessed 10 August 2012.

<sup>834</sup> International Hydrographic Organization, *Limits of Oceans and Seas*, (3<sup>rd</sup> edn, International Hydrographic Organization 1953) 33; see also Annex 11.

A partial submission has been made by the Philippines on its extended continental shelf in respect of the Benham Rise region on 8 April 2009.<sup>835</sup> Following the submission, a presentation to the Commission was made on 25 August 2009.<sup>836</sup>

In contrast also to the joint submission by Malaysia and Vietnam, the submission was not the subject of any dispute, and no note verbale of protest concerning the submission from any other coastal State had been made. This is so since there is no land territory belonging to or claimed by other States in close proximity to the Benham Rise. Pursuant to the submission made, the Philippines' claim to the Benham Rise has been approved although a formal summary of recommendations of the Commission is not yet available as of the date of writing this thesis.<sup>837</sup>

The Benham Rise is separated from Luzon by the East Luzon Trough situated on the western edge of the former.<sup>838</sup> The East Luzon Trough was found to be once part of the Philippine Trench but is presently separated from the latter by a saddle area.<sup>839</sup> Both the trough and trench represent subduction zones and would in normal circumstances be considered part of the deep ocean floor.<sup>840</sup>

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<sup>835</sup> Republic of the Philippines, 'A partial submission of data and information on the outer limits of the continental shelf of the Republic of the Philippines pursuant to Article 76 (8) of the United Nations Convention on the Law of the Sea, Part 1: Executive Summary' (8 April 2009).

<sup>836</sup> Commission on the Limits of the Continental Shelf, 'Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the progress of work in the Commission – Twenty-fourth session' CLCS/64 (United Nations, New York, October 2009).

<sup>837</sup> Kristine L Alave, 'UN approves PH territorial claim to Benham Rise' (Philippine Daily Inquirer, 28 April 2012) <<http://newsinfo.inquirer.net/183779/un-approves-ph-territorial-claim-to-benham-rise>> accessed 25 May 2012.

<sup>838</sup> Republic of the Philippines, 'A partial submission of data and information on the outer limits of the continental shelf of the Republic of the Philippines pursuant to Article 76 (8) of the United Nations Convention on the Law of the Sea, Part 1: Executive Summary' (8 April 2009) Figure 2; see also Annex 12.

<sup>839</sup> Gerald Gulgana, Michael Hamburger, Robert McCaffrey, Ernesto Corpuz, Qizhi Chen, 'Analysis of crustal deformation in Luzon, Philippines using geodetic observation and earthquake focal mechanisms' [2007] *Tectonophysics* 63, 64.

<sup>840</sup> *Ibid.*

Although the East Luzon Trough separates the Benham Rise from Luzon, there is a submarine feature in the form of a saddle area. The Bicol Saddle is located between the Benham Rise and Luzon, and near the southern end of the East Luzon Trough.<sup>841</sup>

## **Analysis**

The questions to be answered in determining the Philippines' entitlement to the extended continental shelf in this area would be as follows:

- 1) Whether the Benham Rise constitutes a natural prolongation of the continental shelf of the Philippines, and
- 2) Whether it is situated beyond the 200 NM limit measured from its baselines.

Thereafter, the extent of the Philippines' extended continental shelf could be analysed by establishing the foot of the continental slope points, and the Hedberg or Gardiner formula lines.

First, on the issue of whether the Benham Rise is a natural prolongation of the Philippines land mass, in applying the view of most States which is also the view of the Commission as stated in the Guidelines and reaffirmed in recommendations, morphological and geological continuity must exist between Benham Rise and the Philippines' land territory. This has been discussed in Sections 5.3 and 5.4 in Chapter Five.

In analysing this, it is observed that the East Luzon Trough that separates the Benham Rise from the island of Luzon is part of the deep ocean floor. Hence, in normal circumstances, the presence of the trough would have severed the morphological connection with the land territory due to it being part of the deep ocean floor.

However, this is not detrimental to the Philippines' claim if it could be proven that a morphological connection exists elsewhere, such as the case with the Hikurangi Plateau of New Zealand discussed in Section 5.4 of Chapter Five, and the case with Sabah in Malaysia which

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<sup>841</sup> Ibid; see also Annex 12.

will be discussed in Section 8.5.2 and 8.5.3 of Chapter Eight.<sup>842</sup> To that end, it is observed that there is a saddle area, the Bicol Saddle, connecting the Benham Rise with the land territory of Luzon.<sup>843</sup> Hence, it would be insightful to see whether Benham Rise could be connected to the Philippines' land territory by virtue of the Bicol Saddle.

The Bicol Saddle, located near the southern end of the East Luzon Trough, connects the Benham Rise with Luzon.<sup>844</sup> The geology of the south and southwestern segments of the Benham Rise shows features of an accreted terrane. It is due to the process of accretion of the terranes in this area that the Bicol Saddle was formed.<sup>845</sup>

In order to determine the effect of this formation process, the Commission's Guidelines must be referred to which states that "any crustal fragment or sedimentary wedge that is accreted to the continental margin should be regarded as a natural component of that continental margin".<sup>846</sup> This is confirmed and practiced by most States that have already made submissions.<sup>847</sup>

Since the Bicol Saddle was formed due to the accretion process, it would thus constitute part of the natural prolongation of the Benham Rise.<sup>848</sup> Besides that, bathymetric evidence shows that

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<sup>842</sup> For a discussion on the Hikurangi Plateau, see Section 5.4 of this thesis; for a discussion on Sabah, see Sections 8.5.2 and 8.5.3.

<sup>843</sup> See Annex 12.

<sup>844</sup> M Aurelio, D Bringas, H Catapang, K Queaño, 'Seabed Morphology, Structural Geology and Tectonics of the NE Bicol Saddle: Linking the Benham Rise with Luzon', abstract (Geological Society of the Philippines conference, Philippines, 2008) <[http://www.geolsocphil.org/geocon\\_abstracts/geocon2008\\_09.htm](http://www.geolsocphil.org/geocon_abstracts/geocon2008_09.htm)> accessed 10 August 2012.

<sup>845</sup> Ibid.

<sup>846</sup> Commission on the Limits of the Continental Shelf, 'Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf', CLCS/11 (United Nations, 13 May 1999) para. 7.3.1.

<sup>847</sup> See Section 5.4 of this thesis.

<sup>848</sup> M Aurelio, D Bringas, H Catapang, K Queaño, 'Seabed Morphology, Structural Geology and Tectonics of the NE Bicol Saddle: Linking the Benham Rise with Luzon', abstract (Geological Society of the Philippines conference, Philippines, 2008) <[http://www.geolsocphil.org/geocon\\_abstracts/geocon2008\\_09.htm](http://www.geolsocphil.org/geocon_abstracts/geocon2008_09.htm)> accessed 10 August 2012.

Benham Rise was found to be accreted to eastern Luzon.<sup>849</sup> As such, morphological continuity from Benham Rise leading to the Luzon land territory could be proven by reason of the Bicol Saddle.<sup>850</sup>

Besides the formation process of Benham Rise, the factor of water depth may also be relevant in establishing natural prolongation. To that end, the practice of New Zealand may shed some light on how the water depth of the saddle area could determine morphological continuity. According to New Zealand, as rehearsed in Section 5.3 of Chapter Five, a saddle area may establish morphological continuity between the feature (in this case the Benham Rise) and the land territory if the depth of the saddle area is not as deep as the adjacent ocean floor.<sup>851</sup> In this instance, comparison of water depth may be made to the East Luzon Trough which would be the adjacent ocean floor.

In light of the discussion above, the natural prolongation of the Philippines' land territory extending from Luzon to the Benham Rise could be established. The Benham Rise, being located beyond the 200 NM would thus entitle the Philippines to an extended continental shelf since the test of appurtenance has been passed.

With that, the extent of the continental shelf could be established by locating the base of the continental slope on the eastern edge of the Benham Rise and thereafter the foot of the continental slope by locating the maximum change in gradient, or applying the evidence to the contrary rule if the former is not possible. Indeed, the Commission agrees with the submission by

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<sup>849</sup> AMF Lagmay, Z Ben-Avraham, A Nur, 'The Role of the Benham Rise in the Geodynamic Evolution of the Philippines', abstract (Geological Society of the Philippines conference, Philippines, 2008) <[http://www.geolsocphil.org/geocon\\_abstracts/geocon2008\\_10.htm](http://www.geolsocphil.org/geocon_abstracts/geocon2008_10.htm)> accessed 10 August 2012.

<sup>850</sup> Ibid.

<sup>851</sup> Ibid.

the Philippines that the base of the slope and the foot of the continental slope were located based on morphology on the flanks of the Benham Rise.<sup>852</sup>

## 7.7 The South China Sea

The South China Sea is surrounded by six coastal states which are China (including Taiwan), Indonesia, Malaysia, Brunei, the Philippines, and Vietnam.<sup>853</sup> It is a wide area of sea in which the distance between opposite mainland coasts exceed 200 NM. Therefore, in principle, there is potential of an extended continental shelf beyond 200 NM for those coastal States. However, the South China Sea serves as a region with numerous islands consisting of the Paracel Islands on the northern part of the South China Sea, and the Spratly Islands on its southern part.<sup>854</sup>

The problem lies in the fact that these islands have been the subject of territorial dispute between a number of States in the South China Sea mainly due to the considerable potential for economic resources in the area.<sup>855</sup> Although the initial interest over the Spratly Islands was the commercially exploited guano found on many of the islands, the prediction of substantial petroleum resources ignited more interest among States.<sup>856</sup>

The dispute over these islands has a very long history. However, among the more recent outbreaks of the disputes relates to China's announcement to set up Sansha City, a prefecture-level city, on Xisha Island (part of the Spratly and Paracel chain of islands) to manage the Xisha,

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<sup>852</sup> However, the Commission did not agree with one foot of slope point which was found not to be located within the base of the continental slope. To that, the Philippines was asked to revise the point to a more landward location, Commission on the Limits of the Continental Shelf, 'Recommendations of the Commission on the Limits of the Continental Shelf in regard to the Submission made by the Philippines in respect of the Benham Rise Region on 8 April 2009' (United Nations, 12 April 2012) paras 35, 37-39.

<sup>853</sup> See Annex 13.

<sup>854</sup> See Annex 14.

<sup>855</sup> Daniel J Dzurek, 'The Spratly Islands Dispute: Who's on First?' *Maritime Boundary Briefing*, vol 2 no 1 (IBRU 1996) 1; US Energy Information Administration, 'South China Sea' <<http://www.eia.gov/countries/regions-topics.cfm?fips=SCS>> accessed 2 September 2012.

<sup>856</sup> Ibid.



Zhongscha and Nansha islands and their surrounding areas in the South China Sea.<sup>857</sup> This decision received protest from Vietnam stating that the decision “seriously violated Vietnam’s sovereignty” and that the city has “no legal legitimacy”.<sup>858</sup> Similarly the Philippines had also lodged a note verbale of diplomatic protest saying that China’s action violated the Philippines rights over its territorial waters and continental shelf.<sup>859</sup>

Thus, there are three main issues to be resolved. The first is regarding territorial sovereignty, the second relates to the legal status and weight given to the features, and the third is with regard to delimitation.

It is noted, however, that sovereignty claims, including territorial and boundary disputes, are governed by the rules and principles of customary international law on acquisition of territory. The 1982 Convention as a convention on the law of the sea is not concerned with disputes involving sovereignty over land territory. However, since a sovereign State’s right over its maritime zones including the continental shelf is dependent upon its dominion over the territorial land mass, delimitation and sovereignty issues do play a role in the extent of maritime space, including the extent of the continental shelf of a State.<sup>860</sup> This thesis will focus on the law of the sea issues and will not address the sovereignty disputes over the islands, although it is noted that sovereignty disputes need to be addressed eventually in order for maritime zones to be delimited.

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<sup>857</sup> Globaltimes.cn, ‘Sansha new step in managing S.China Sea’ (*Globaltimes.cn*, 18 July 2012) <<http://www.globaltimes.cn/NEWS/tabid/99/ID/717193/Sansha-new-step-in-managing-SChina-Sea.aspx>> accessed 2 September 2012.

<sup>858</sup> Thanhniennews, ‘Vietnam Opposes China’s Establishment of Illegal East Sea City’ (*Talk Vietnam*, 23 June 2012) <<http://talkvietnam.com/2012/06/vietnam-opposes-chinas-establishment-of-illegal-east-sea-city/>> accessed 1 July 2012.

<sup>859</sup> Michaela Del Callar, ‘PHL hands Ma Keqing signed protest over “Sansha City”’ (*GMA News*, 5 July 2012) <<http://www.gmanetwork.com/news/story/264276/news/nation/phl-hands-ma-keqing-signed-protest-over-sansha-city>> accessed 6 July 2012.

<sup>860</sup> Malcolm D Evans, *International Law* (2<sup>nd</sup> edn, Oxford University Press 2006) 629.

As for the legal status of these insular features, the question is whether they constitute islands in the sense of Article 121(1) of the Convention that could generate maritime zones, or mere rocks under Article 121(3). The Paracel Islands (often also considered part of the Spratly archipelago) consist of a chain of islands in the South China Sea. They are bordered to the north by China, in particular the Chinese province of Hainan, to the east by Luzon Island of the Philippines, to the west by Vietnam, and to the south by the Spratly Islands.<sup>861</sup> The Spratly Islands are a group of islands lying south of the Paracel Islands.<sup>862</sup> They are located to the north of Sabah and consist of an area of less than 5 kilometres.<sup>863</sup> The features building up the Spratly Group are mostly “flyspecks” and “virtually negligible in their physical value”.<sup>864</sup>

Due to the geographical configuration of the features making up the Paracel and Spratly Islands, the legal effect of those features impact significantly on maritime delimitation. If, on one hand, the islands were to generate maritime zones, there would not be any area of the high seas in the South China Sea. It follows that much of the maritime zones would overlap with those of mainland coastal States as well as other islands. On the other hand, if the islands were to be ignored and given no effect, there would be a broad area of the high seas in which mainland coastal State might be able to claim an extended continental shelf.

In that sense it would be worthwhile to compare the situation with the *Case Concerning delimitation in the Black Sea* between Romania and Ukraine.<sup>865</sup> That case concerned the delimitation of the continental shelf and the exclusive economic zone by a single maritime

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<sup>861</sup> See Annex 14; see also AG Oude Elferink, ‘The Islands in the South China Sea: How Does Their Presence Limit the Extent of the High Seas and the Area and the Maritime Zones of the Mainland Coasts?’ [2001] *Ocean Development & International Law* 169.

<sup>862</sup> See Annex 14.

<sup>863</sup> Many of the islands are claimed or occupied by China, the Philippines, Vietnam, Taiwan, Malaysia and Brunei.

<sup>864</sup> R Haller-Trost, *The Contested Maritime and Territorial Boundaries of Malaysia*, vol 3 (International Boundary Studies Series, Kluwer Law International 1998) 296.

<sup>865</sup> *Case concerning Maritime Delimitation in the Black Sea (Romania v Ukraine)* [2009] ICJ 61.

boundary between Romania and Ukraine in the northwestern part of the Black Sea.<sup>866</sup> One of the issues relevant to the delimitation is the presence of Serpents' Island, owned by Ukraine. Serpents' Island is located 20 NM from the Danube delta between the two States. It is merely 0.17 square kilometers at high tide with a circumference of 2,000 metres.<sup>867</sup> It was held by the court that Serpents' Island be disregarded in the drawing of the provisional equidistance line. The reason given by the court was related to the considerable distance between the island and the mainland coast. To that end, the court stated that it would be a "refashioning of geography" if the island was to be counted as a base point in drawing the equidistance line.<sup>868</sup> Besides the massive distance between the island and the mainland coast, another reason can be implied from the decision of the court. It has been noted that the court may have disregarded the island as a base point due to its limited size.<sup>869</sup>

The size of the feature being the reason for disregarding the feature in delimitation could be seen in the *delimitation case between Bangladesh and Myanmar in the Bay of Bengal*.<sup>870</sup> In that case, St. Martins Island belonging to Bangladesh and located off the coast of Myanmar was given full effect by ITLOS. The tribunal acknowledged that less than full effect is usually given to islands which are "insignificant maritime features". It gave the example of Qit'at Jaradah in the case of *Qatar v Bahrain* which was "a very small island, uninhabited and without any vegetation".<sup>871</sup> In

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<sup>866</sup> Ibid para 14.

<sup>867</sup> Ibid para 16.

<sup>868</sup> Ibid 149.

<sup>869</sup> AG Oude Elferink, 'Maritime Delimitation in the Black Sea (Romania v Ukraine)': A Commentary' [2009] The Hague Justice Portal < <http://www.haguejusticeportal.net/Docs/Commentaries%20PDF/Oude%20Elferink%20-%20Black%20Sea.pdf>> accessed 29 September 2012.

<sup>870</sup> *Dispute concerning delimitation of the maritime boundary between Bangladesh and Myanmar in the Bay of Bengal (Bangladesh/Myanmar)* (2012) 16 ITLOS.

<sup>871</sup> Ibid para 151; *Case concerning Maritime Delimitation and Territorial Questions between Qatar and Bahrain (Qatar/Bahrain)* [2001] ICJ 40, para 219.

comparison, St. Martin's Island was 8 square kilometers in size and has a population of about 7,000 people.<sup>872</sup>

Applying these cases to the discussion on the islands lying within the South China Sea, it is unlikely that the court would count any of the islands as base points due to the same reasons laid down in the *Black Sea* case. First of all, compared to Serpents' Island which is only 20 NM from the coast, the Spratly Islands, for example, are located more than 20 NM from any mainland coast. Furthermore, in terms of size, since most of the Spratly Islands are "flyspecks" and "virtually negligible in their physical value" as mentioned before, it is significantly smaller than Serpents' Island not to mention St. Martin's Island. Even the largest island within the Spratly Group, Itu Aba, has a surface area of only 489,600 square metres.<sup>873</sup> Therefore, to accord the Spratly Islands full effect such as St. Martin's Island is highly unlikely. Since Serpents' Island which is bigger in surface area is disregarded as a base point, it would only be reasonable that the same effect is given to the Spratly Islands.

To date, the continental shelf areas in this region have been claimed, albeit with much controversy, by a number of coastal States in the region. These are the Joint Submission by Malaysia and Vietnam in 2009 which will be discussed extensively in the next chapter, the Partial Submission by Vietnam with regard to its North Area in 2009, and Preliminary Information by Brunei.<sup>874</sup> In furtherance to the claims made by Malaysia and Vietnam in both the

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<sup>872</sup> Ibid para 143.

<sup>873</sup> Barbara Kwiatkowska, 'Fundamental Principle of "Without Prejudice" in Submissions to the UN CLCS in Northeast and Southeast Asia' (2012) 3(1) Law of the Sea Reports 1, 21.

<sup>874</sup> Malaysia and Vietnam, 'Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary' (6 May 2009); Vietnam, 'Submission to the Commission on the Limits of the Continental Shelf Pursuant to Article 76, Paragraph 8 of the United Nations Convention on the Law of the Sea 1982, Partial Submission in Respect of Vietnam's Extended Continental Shelf: North Area (VNM-N), Part 1: Executive Summary' (7 May 2009); Brunei Darussalam, 'Brunei Darussalam's Preliminary Submission concerning the Outer Limits of its Continental Shelf' (12 May 2009).

submissions, an overwhelming number of protests have been made by other States in the region in the form of notes verbales.<sup>875</sup>

## **7.8 Concluding remarks**

This chapter has explored issues relating to the continental shelf in the region of East Asia. It has presented how the issues of straight baselines and different insular features have affected, directly or indirectly, the continental shelf delimitation and delineation in the region due to its geographical configuration. This chapter found that the straight baseline system has been used extensively by all the coastal States in the region where it is possible to do so looking at geographical circumstances. Apart from that, attempts have been made to bestow upon insular features the status of “islands”, as opposed to mere rocks, in order to generate maritime zones including the continental shelf.

In addition, the chapter examined issues relating to the continental shelf in various parts of the region, that is, the East China Sea, the Yellow Sea, the Philippine Sea, and the South China Sea. This is in order to provide a general overview of the continental shelf situation in the region. Since the South China Sea is shared by a number of States, including Malaysia, the issues involved in that part of the region, including the legal effect of the disputed Spratly Islands, shall be discussed in further detail in the next chapter where a case study on the continental shelf of Malaysia shall be conducted.

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<sup>875</sup> Barbara Kwiatkowska, ‘Fundamental Principle of “Without Prejudice” in Submissions to the UN CLCS in Northeast and Southeast Asia’ (2012) 3(1) Law of the Sea Reports 1, 21-24.

## Chapter Eight: The extended continental shelf of Malaysia

### 8.1 Introduction

As a State with a massive coastline, Malaysia is a coastal State that is most likely to be able to extend its continental shelf. However, as with the other Southeast Asian States such as Indonesia, the Philippines and Thailand, the geographical configuration of Malaysia has placed it within it surrounded by many neighbouring States which may result in territorial disputes which in turn affects its claim to the continental shelf.<sup>876</sup>

Malaysia signed the Convention on 10 December 1982.<sup>877</sup> By virtue of its ratification on 14 October 1996, Malaysia became bound by the provisions of the Convention including Article 76 on the continental shelf.<sup>878</sup> Since Malaysia is a State for which the Convention entered into force before 13 May 1999, the deadline to make a submission would be on 13 May 2009, ten years after that date, as discussed in Section 4.4 in Chapter Four.<sup>879</sup>

This chapter shall comprise of a case study on the extended continental shelf of Malaysia. For the purpose of convenience, this chapter shall be divided into two parts.

The first part of this chapter shall be an account of the background in this case study. It shall first set the historical perspective of the continental shelf of Malaysia including any municipal law and delimitation agreements with regard to the continental shelf. It would then further describe

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<sup>876</sup> See Annex 8.

<sup>877</sup> United Nations, 'United Nations Convention on the Law of the Sea' (*United Nations Treaty Collection*) <[http://treaties.un.org/Pages/ViewDetailsIII.aspx?&src=TREATY&mtdsg\\_no=XXI-6&chapter=21&Temp=mtdsg3&lang=en](http://treaties.un.org/Pages/ViewDetailsIII.aspx?&src=TREATY&mtdsg_no=XXI-6&chapter=21&Temp=mtdsg3&lang=en)> accessed 5 September 2012.

<sup>878</sup> Ibid.

<sup>879</sup> Meeting of States Parties, 'Report of the eleventh Meeting (14-18 May 2001)' SPLOS/73 (United Nations, New York).

the geographical setting of Malaysia with a view of making a preliminary assessment on the parts of Malaysia that is eligible to claim an extended continental shelf. Any territorial and boundary disputes involving Malaysia are also discussed with a view of ascertaining the effect it has on the Malaysian continental shelf.

The second part of the chapter shall discuss the technical aspect of the extended continental shelf. It discusses the joint submission made by Malaysia and Vietnam by virtue of analysing the executive summary and other relevant documents. Next, the chapter shall also look into the legal and technical aspects of the submission followed by a detailed analysis thereof.

## **8.2 The historical setting**

The historical setting of the Malaysian continental shelf is of utmost significance to this study since it highlights the current issues in the delimitation of the continental shelf and the application of Article 76 in Malaysia.

In 1966, Malaysia passed its first Continental Shelf Act of 1966.<sup>880</sup> Section 2 of the Act provides for the definition of the continental shelf as follows:

the sea-bed and subsoil of submarine areas adjacent to the coast of Malaysia but beyond the limits of the territorial waters of the States, the surface of which lies at a depth no greater than two hundred metres below the surface of the sea, or, where the depth of the superadjacent waters admits of the exploitation of the natural resources of the said areas, at any greater depth.

It is observed that the Act had employed a definition of the continental shelf as defined in the 1958 Convention. Like the 1958 Convention, there is nothing in the Malaysian Continental Shelf Act that defines the continental shelf based on any geological criteria such as natural prolongation or contiguity of land mass. The definition incorporated the criterion of adjacency in relation to the continental shelf as rehearsed in Section 3.5 of Chapter Three.

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<sup>880</sup> Continental Shelf Act 1966 (Malaysia).

Similar to the 1958 Convention, the Act employed two different limits to the continental shelf; one based on water depth, and the other based on the exploitability criterion. Both these limits do not employ any geological or geomorphological element.<sup>881</sup>

Hence, the definition employs a legal definition of the continental shelf as opposed to a physical/geological one.<sup>882</sup>

In August 1969, the Emergency (Essential Powers) Ordinance No. 7 was promulgated. It was through the promulgation of this Ordinance that Malaysia fulfilled its obligation under international law to incorporate the 1958 Conventions into domestic law. By virtue of this Ordinance, Malaysia had extended its territorial waters to 12 NM in accordance with the 1958 Convention on the Territorial Sea and Contiguous Zone. Following the extension of the territorial sea, section 5.1 of the Ordinance also announced the publication of a “large scale map indicating the low water marks, baselines and the territorial waters of Malaysia”. And so, 10 years later, the 1979 map was published.

In the same year that the Ordinance was promulgated, Malaysia began to delimit its first maritime boundaries.

The first of these agreements was the 1969 Continental Shelf Treaty between Malaysia and Indonesia for the delimitation of the continental shelf between the two States in the South China Sea and the Straits of Malacca.<sup>883</sup> The agreement purported to delimit the continental shelf in three maritime areas.<sup>884</sup> The first delimitation was in the Straits of Malacca, the second was in the western side of the South China Sea off the east coast of West Malaysia, and the third was in

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<sup>881</sup> Ibid.

<sup>882</sup> Ibid.

<sup>883</sup> Agreement between the Government of the Republic of Indonesia and the Government of Malaysia relating to the Delimitation of the Continental Shelves between the Two Countries 1969. Reprinted in (1970) 9(6) International Legal Materials 1173.

<sup>884</sup> Ibid.



the eastern side of the South China Sea, that is, off the coast of Sarawak.<sup>885</sup> Article 1 of the agreement delimited the continental shelf boundary in the Straits of Malacca and the South China Sea by the straight lines connecting the points specified.

The 1969 Continental Shelf Treaty resulted in the amendment of the 1969 Ordinance in which the boundary in the Straits of Malacca, the Sulu Sea and the Celebes Sea were to be exempted from adhering to the 12 NM territorial sea limit laid down in the Ordinance.<sup>886</sup> This is so since these areas were to be the subject of continental shelf delimitation between the two States.

In 1971, Malaysia concluded an agreement on the continental shelf in the northern part of the Straits of Malacca with Thailand and Indonesia commonly known as the 1971 Tripartite Continental Shelf Treaty.<sup>887</sup>

Eight years later, another agreement, the 1979 Continental Shelf Memorandum, was concluded with Thailand in respect of overlapping continental shelf claims in the Gulf of Thailand.<sup>888</sup> It should be pointed out that part of the overlapping continental shelf of the two countries in this area has been delimited as a joint development area by virtue of the 1979 Joint Development Area Memorandum which was concluded only several months before the Continental Shelf Memorandum. Thus, the Continental Shelf Memorandum was concluded in respect of the remaining overlapping areas.<sup>889</sup> It was two months after this agreement that Malaysia published the 1979 Map which shall be discussed further in Section 8.2.1 of this chapter.

As for delimitation agreements with Singapore, there is no need for one with regard to the continental shelf. This is so since the breadth of the Johor Straits separating Malaysia from

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<sup>885</sup> Ibid.

<sup>886</sup> Emergency (Essential Powers) Ordinance No. 7 1969 (Malaysia).

<sup>887</sup> Agreement between Thailand, Indonesia and Malaysia relating to the Delimitation of the Continental Shelf Boundaries in the Northern Part of the Straits of Malacca 1971.

<sup>888</sup> Memorandum of Understanding between Malaysia and the Kingdom of Thailand on the Delimitation of the Continental Shelf Boundary between the two Countries in the Gulf of Thailand 1979.

<sup>889</sup> Ibid.

Singapore does not even allow the States to claim a full territorial sea of 12 NM, much less a continental shelf.<sup>890</sup>

As for delimitation treaties with the Philippines, several agreements have been entered into and formed the basis of the maritime boundary in the Sulu and Celebes Sea. These are the 1898 Treaty of Paris, the 1900 United States – Spanish Treaty and the 1930 United Kingdom – United States Border Agreement.<sup>891</sup> Although these agreements did not purport to establish maritime boundaries, since the concept of extended maritime jurisdiction was not yet in existence at the time, they were intended to allocate sovereignty over the islands in the area.<sup>892</sup> It is from the basis of sovereignty over these islands that the maritime boundary was constructed between Malaysia and the Philippines. This boundary is presently recognised by both Malaysia and the Philippines through the practice of both States.<sup>893</sup>

With regard to the maritime boundary between Malaysia and Brunei, the territorial sea and continental shelf of up to 100 fathom isobaths was delimited by two British Orders in Council in

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<sup>890</sup> Malaysia and Singapore agreed to delimit the territorial waters between them in the Straits of Johor by virtue of the Agreement between the Government of Malaysia and the Government of the Republic of Singapore to delimit precisely the territorial waters boundary in accordance with the Straits Settlement and Johore Territorial Waters Agreement 1927.

<sup>891</sup> These treaties are respectively the Treaty of Peace between the United States and Spain 1898; the Treaty between the United States and Spain, for the Cession to the United States of any and all Islands of the Philippine Archipelago lying outside the Lines described in Article III of the Treaty of Peace of December 10<sup>th</sup>, 1899 1900; and the Boundary Agreement between Great Britain and the United States 1930.

<sup>892</sup> Ibid.

<sup>893</sup> This is evident from the *Understanding* made upon the Philippines' signature of the Convention in 1982 (Available at <[http://www.un.org/depts/los/convention\\_agreements/convention\\_declarations.htm](http://www.un.org/depts/los/convention_agreements/convention_declarations.htm)> accessed 12 September 2012), the Philippines' publication of maps, and the publication of the Malaysian 1979 map.

<sup>894</sup> North Borneo (Definition of Boundaries) Order in Council 1958, SI 1958/1517 available at < <http://www.lawnet.sabah.gov.my/Lawnet/SabahLaws/Treaties/viewdoc.aspx?document=NorthBorneo%28DefinitionOfBoundaries%29OrderInCouncil1958.pdf>> accessed 19 August 2012; Sarawak (Definition of Boundaries) Order in Council 1958, SI 1958/1518, mentioned in Daniel J Dzurek and Clive Schofield, *The Spratly Islands Dispute: Who's on First?* (IBRU 1996) 45.

1958.<sup>894</sup> The remaining continental shelf area of up to 200 NM between the two States was delimited later by virtue of an Exchange of Letters dated 16 March 2009.<sup>895</sup>

### 8.2.1 The map of 1979

The map of 1979 was published on 21 December 1979 which unilaterally defines the extent of the territorial sea and the continental shelf of Malaysia.<sup>896</sup> An observation of the map clearly reveals that straight baselines, as opposed to normal baselines, were used by Malaysia.<sup>897</sup> This is understandably so since in relation to the 1969 Treaty with Indonesia, Indonesia had used archipelagic baselines, which are construed as straight baselines, throughout its coast.<sup>898</sup> Hence, the use of different baseline systems between the two States would have made matters complicated.

As can be observed, the map was published only after Malaysia had entered into the delimitation agreements with neighbouring States. As such, the purpose of the map was to announce the extent of maritime zones in the remaining areas not covered by the agreements, for example,

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<sup>895</sup> The Exchange of Letters are not made public. However, a Statement on the Exchange of Letter by the Prime Minister of Malaysia indicates as follows: That the agreement “serves to settle certain overlapping claims”, and that the agreement “includes a commercial arrangement under which Malaysia will be allowed to participate on a commercial basis, to jointly develop the oil and gas resources in this area for a period of 40 years”, Ministry of Foreign Affairs Malaysia, ‘Statement on The Exchange of Letters Between Malaysia and Brunei Darussalam, Dated 16 March 2009’ <<http://www.kln.gov.my>> accessed 4 September 2012.

<sup>896</sup> The map is named *Peta Baru Menunjukkan Sempadan Perairan dan Pelantar Benua Malaysia* (New Map Showing the Territorial Waters and Continental Shelf Boundaries of Malaysia) 1979 and consist of two sheets. *Syit 1* (Sheet 1) depicts the maritime zones of the Malaysian Peninsular while *Syit 2* (Sheet 2) shows the maritime zones of Sabah and Sarawak; see Annexes 4 and 5.

<sup>897</sup> Ibid.

<sup>898</sup> The Geographer, ‘Indonesia – Malaysia Continental Shelf Boundary’, *Limits in the Seas, No. 1* (International Boundary Study Series A, January 1970) 5.

certain turning points on the east coast of the peninsula and the coast off Sabah and Sarawak.<sup>899</sup> It is also worthy to note that the publication of the 1979 map was subject to much controversy. Among others, the map seems to have constructed turning points by constructing points of equidistance from certain land points instead of drawing the mathematical equidistance line.<sup>900</sup>

It may be recalled that the continental shelf off the west coast of the peninsula had been delimited by agreement with Indonesia. This is also the case with the east coast of the peninsula with the exception of one turning point which had been unilaterally constructed and shown in the 1979 map.<sup>901</sup> It is observed that this turning point had been constructed as the point equidistant from the land points of Pulau Redang (being the Malaysian base point) and the tip of the south coast of the Vietnamese mainland.<sup>902</sup>

With regard to the continental shelf off the coast of Sabah and Sarawak in East Malaysia, it is observed that its delineation was not based on any single criterion such as geology, distance or water depth.<sup>903</sup> Instead, delineation had been made by establishing points equidistant to a feature on which Malaysia apparently lays a claim and the feature opposite of it. For instance, points of equidistance have been constructed between Amboyna Cay and Spratly Island proper and between Commodore Reef and Alicia Anne Reef.<sup>904</sup>

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<sup>899</sup> R Haller-Trost, *The Contested Maritime and Territorial Boundaries of Malaysia*, vol 3 (International Boundary Studies Series, Kluwer Law International 1998) 13.

<sup>900</sup> The mathematical equidistance line denotes the construction of a line every point of which is equidistant from the nearest point of the baseline from which the breadth of the territorial sea is measured.

<sup>901</sup> *Ibid.*; the 1979 map, Annexes 4 and 5.

<sup>902</sup> The 1979 map; R Haller-Trost, *The Contested Maritime and Territorial Boundaries of Malaysia*, vol 3 (International Boundary Studies Series, Kluwer Law International 1998) 96-97.

<sup>903</sup> R Haller-Trost, *The Contested Maritime and Territorial Boundaries of Malaysia*, vol 3 (International Boundary Studies Series, Kluwer Law International 1998) 105.

<sup>904</sup> *Ibid.*

Another region not covered by delimitation agreements is within the waters off East Borneo.<sup>905</sup> Although the maritime boundaries between Malaysia and the Philippines in the Sulu Sea and the Celebes Sea have been delimited as discussed above, there is an absence of agreement between Malaysia and Indonesia in the Celebes Sea south of the delimitation with the Philippines. This resulted in Malaysia unilaterally defining its continental shelf limits in the area as depicted in the 1979 map.<sup>906</sup> The map depicts the Malaysian continental shelf boundary as continuing from the point southeast of Sibutu Island (the Philippines), which was established by agreement with the Philippines, extending southwards and continuing westwards until it meets the land boundary between Malaysia and Indonesia on Sebatik Island.<sup>907</sup> The continental shelf limits as shown in the map had used the islands of Bohayen, Ligitan, Sipadan, and a point on Sebatik Island as base points.<sup>908</sup>

Besides these, there is another controversial aspect of the map in that it depicted several islands ownership of which is disputed as being part of Malaysian territory.<sup>909</sup> Protests have been made by Indonesia, the Philippines and Singapore over the ownership of the Sipadan and Ligitan, the Spratly Islands and Pulau Batu Puteh respectively. Thailand had also protested to the map contending that the map did not take into account the joint development area of the overlapping continental shelf in the Gulf of Thailand.<sup>910</sup>

Apart from that, the map does not depict Brunei's continental shelf as established by the two British Orders in Council of 1958 although the continental shelf has been acquiesced by

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<sup>905</sup> Ibid 108.

<sup>906</sup> Ibid 108-109.

<sup>907</sup> Ibid 517.

<sup>908</sup> Ibid.

<sup>909</sup> The 1979 map, Sheet 2; see Annex 5.

<sup>910</sup> Chi-Kin Lo, *China's Policy Towards Territorial Disputes: The Case of the South China Sea Islands* (Routledge 1989) 157-158.

Malaysia as belonging to Brunei.<sup>911</sup> A protest was made by the United Kingdom on behalf of Brunei, its protectorate, in August 1980 in respect of this.<sup>912</sup>

Another controversy involves the extensive use of the straight baseline system similar to that discussed in Chapter Seven on the practice of States in East Asia. As may be recalled, straight baselines were used in the delimitation with Indonesia in respect of the waters off Peninsular Malaysia. For the remaining part of the Malaysian coast, the 1979 map shows that straight baselines were also used. This includes the straight baselines constructed off the coast of Sabah which had resulted in a territorial sea limit which departs to an appreciable extent from the general direction of the coast.<sup>913</sup>

### **8.3 The current law**

As of 1 May 2009, the 1966 Continental Shelf Act had been amended in order to incorporate Article 76 of the 1982 Convention thus reflecting Malaysia's observance of its international obligations.<sup>914</sup> As such, Section 2 of the Act was amended and the new definition of the continental shelf is as follows:

[T]he sea-bed and subsoil of the submarine areas that extend beyond the territorial sea-

(a) throughout the natural prolongation of the land territory of Malaysia to the outer edge of the continental margin as determined in accordance with section 2b;

or

(b) to a distance of two hundred nautical miles from the baselines from which the breadth of the territorial sea is measured in accordance with the Baselines of Maritime Zones Act 2006 [*Act 660*] where the outer edge of the continental margin does not

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<sup>911</sup> Ibid 45.

<sup>912</sup> Ibid 7.

<sup>913</sup> The 1979 map, see Sheet 2; Annex 5.

<sup>914</sup> The 1966 Act had been amended by virtue of the Continental Shelf (Amendment) Act 2009 which came into force on 1 May 2009.

extend up to that distance, but shall not affect the territory of the States or the limits of the territorial waters of the States and the rights and powers of the State Authorities therein.

Therefore, the Malaysian law was amended to insert two definitions to the continental shelf; one that relates to the extended continental shelf beyond 200 NM based on the natural prolongation of the continental margin, and another that incorporates rights to the continental shelf based on the distance criterion.

Apart from the definition of the continental shelf in Section 2, the new Section 2B of the Act entitled “continental shelf limit and continental margin” had also incorporated the remaining provisions of Article 76 almost verbatim and was, in effect, similar to Article 76.

Following amendments to the 1966 Act, on 6 May 2009, Malaysia made its first submission to the Commission for the extended continental shelf, details of which will be discussed throughout this chapter.<sup>915</sup>

In light of the discussion above, it is observed that most of the Malaysian continental shelf overlaps with that of opposite and adjacent States. Among these, delimitation agreements have been entered into and commercial or joint development arrangements have been made. It could be deduced that the areas of the continental shelf which have been delimited by agreement with an opposite State are areas where Malaysia’s entitlement to the continental shelf does not extend up to 200 NM since there is an overlap of the continental shelf as can be seen in the maritime areas off Peninsula Malaysia. While there are also parts in East Malaysia that have been delimited by delimitation agreements and commercial arrangements, there still remains a substantial part of the sea which potentially entitles Malaysia to an extended continental shelf.

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<sup>915</sup> Malaysia and Vietnam, ‘Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary’ (6 May 2009).

#### 8.4 The geographical setting

In order to see whether Malaysia is entitled to make a submission over an extended continental shelf, an analysis of its geographical account is necessary. This geographical description shall also account for a preliminary assessment of which particular areas have the potential to generate an extended continental shelf area.

As a federal State, the Federation of Malaysia, established in 1963 comprises of a number of States.<sup>916</sup> The geographical configuration of its land territory is unusual in that it is divided into two parts.<sup>917</sup> There is West Malaysia which is located on the Malay Peninsula, and thus often referred to as Peninsula Malaysia. East Malaysia, which lies 650 kilometres across the South China Sea, consists of the States of Sabah and Sarawak situated on the island of Borneo.

Malaysia is surrounded by a number of neighbouring States namely Indonesia, Thailand, Singapore, Brunei, Vietnam and the Philippines.<sup>918</sup>

In West Malaysia, Malaysia is adjoined to Thailand at the northern end of the peninsula. As such, there is only a land boundary demarcated between Malaysia and Thailand.<sup>919</sup>

To the south, the peninsula is separated from Singapore by the Johor Straits (also known as the Tebrau Straits).<sup>920</sup> The breadth of the straits is definitely less than 200 NM and would therefore be ineligible for a claim over the extended continental shelf. This is confirmed when Malaysia had entered into an agreement with Singapore to delimit the territorial waters in the Straits of

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<sup>916</sup> See the Federal Constitution of Malaysia.

<sup>917</sup> Annex 8.

<sup>918</sup> Ibid

<sup>919</sup> Ibid; the land boundary between Thailand and Malaysia in the peninsular was demarcated by virtue of the Anglo-Siamese Treaty 1909 (also known as the Bangkok Treaty 1909) between Thailand, then Siam, and the British on behalf of Malaysia.

<sup>920</sup> The Johor Straits can also be found in its alternative spelling, that is, "Johore Straits".



Johor.<sup>921</sup> The distance between the base points of the land territories of the two States is less than 24 NM thereby precluding each State from claiming a territorial sea of 12 NM, hence, the need for a delimitation agreement. Therefore, there is no recourse for a claim to a continental shelf much less the extended continental shelf beyond 200 NM.

To the west of the peninsula, the Straits of Malacca separates Malaysia from the Indonesian island of Sumatra.<sup>922</sup> The Straits of Malacca is the waterway which separates the west coast of Peninsula Malaysia from the east coast of the Indonesian island of Sumatra.<sup>923</sup> While the Straits of Malacca is 800 kilometres long, its breadth is only 65 kilometres in the south and widens northward to 250 kilometres at its widest.<sup>924</sup> Since 250 kilometres is only approximately 135 NM, considerably less than the 400 NM required between two opposite States in order to pursue an extended continental shelf claim, there is no recourse to a claim in this area.

On the eastern side of the peninsula, the South China Sea lies beyond the east coast and separates the peninsula from the many islands scattered off the coast as well as East Malaysia on the island of Borneo.<sup>925</sup> To the northeast of the peninsula lies the Gulf of Thailand. The maritime space in the Gulf of Thailand is shared between Thailand, Malaysia and Vietnam.<sup>926</sup> It is submitted that the distance between the most north-eastern point on the west coast of the mainland and the nearest point on the mainland of the Vietnamese land territory is considerably less than 400 NM.<sup>927</sup> This is not even taking into account offshore islands of the two States. Because of this,

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<sup>921</sup> Agreement between the Government of Malaysia and the Government of the Republic of Singapore to delimit precisely the territorial waters boundary in accordance with the Straits Settlement and Johore Territorial Waters Agreement 1927.

<sup>922</sup> See Annex 8.

<sup>923</sup> Ibid.

<sup>924</sup> 'Straits of Malacca', *Encyclopedia Britannica* <<http://www.britannica.com/EBchecked/topic/359411/Straits-of-Malacca>> accessed 20 May 2012.

<sup>925</sup> See Annex 8.

<sup>926</sup> Ibid.

<sup>927</sup> Distance measured using 'Free Map Tools' <<http://www.freemaptools.com/measure-distance.htm>>.

there is an overlap of the continental shelf jurisdiction (referring to the continental shelf of up to 200 NM) between the two States. Therefore, there is no likelihood of claiming the extended continental shelf in this area.

East Malaysia consists of the States of Sabah and Sarawak located on the northern part of Borneo Island which Malaysia shares with its neighbours Indonesia and Brunei. While Sarawak is located on the western part of northern Borneo, Sabah is located further east with Brunei occupying the area between the two States. Brunei is, in turn, divided into two parts by the district of Limbang which belongs to Sarawak. South of Sabah and Sarawak lies the Indonesian region of Kalimantan. Off the eastern coast of Sabah, the many islands of the Philippines are scattered in the Sulu Sea.<sup>928</sup>

Malaysia possesses a long coastline on the coast of northern Borneo. It starts from Malaysia's most westward point, Tanjung Datu, at the border between Indonesia and the Sarawak which continues eastward along the coast until it reaches Tanjung Baram, the most eastern point of the border between Sarawak and Brunei. From Tanjung Baram eastwards, the coast belongs to the Bruneian land territory which, after crossing the Brunei Bay, finally ends at the Malaysian border where the Temburong District of Brunei meets Lawas of Sabah. The Malaysian coastline on east Borneo again continues from that point until it reaches the end of the Sabah coastline on the island of Sebatik.<sup>929</sup>

Off the coast of east Borneo, the waters known as the triborder sea area linking Malaysia, Indonesia and the Philippines comprises of two sectors: the Sulu Sea and the Celebes Sea. While the Sulu Sea and the northern part of the Celebes Sea have been delimited between Malaysia and the Philippines, the area of the sea shared between Malaysia and Indonesia has only been unilaterally defined in the 1979 map.<sup>930</sup> With regard to the possibility of an extended continental

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<sup>928</sup> R Haller-Trost, *The Contested Maritime and Territorial Boundaries of Malaysia*, vol 3 (International Boundary Studies Series, Kluwer Law International 1998) 475-477.

<sup>929</sup> Ibid 477.

<sup>930</sup> Ibid 485; see also ibid 106-112.

shelf in the area, it is highly unlikely that it could be claimed by Malaysia. This is due to the fact that the distance between potential base points do not exceed 400 NM taking into account Indonesia's archipelagic baseline and the delimitation agreement with the Philippines.<sup>931</sup>

In light of the discussion on the preliminary assessment above, it is therefore concluded that there is an area in which Malaysia may potentially be entitled to the extended continental shelf. This area lies in the southern part of the South China Sea off the coast of Sabah and Sarawak. The southern part of the South China Sea would have allocated to Malaysia an extended continental shelf beyond 200 NM from its baseline on the coasts of Sabah and Sarawak extending in the northern direction. This extended continental shelf area would possibly have a potential overlap with the extended continental shelf of Vietnam, an opposite State, and Brunei, an adjacent State.

In the case of Malaysia, sovereignty issues with neighbouring States may well affect Malaysia's entitlement to the extended continental shelf or the other maritime zones for that matter. Therefore, it is vital to first examine these issues, if any, in order to have a clearer picture of the subject of Malaysia's potential extended continental shelf claims.

Since the waterways, particularly the South China Sea, are surrounded by a number of coastal States, the situation of overlapping maritime space is inevitable. This is further amplified by the fact that there are a massive number of islands in the region sovereignty of which have been the subject of dispute among Malaysia and neighbouring States.<sup>932</sup>

### **Spratly Islands**

An overview of the configuration of the Spratly Islands and the issues involved has been discussed before, in Section 7.7 of Chapter Seven. In this chapter, further discussion on the Spratly Islands shall be made in relation to the Malaysian claim.

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<sup>931</sup> Distance measured using 'Free Map Tools' <<http://www.freemaptools.com/measure-distance.htm>>.

<sup>932</sup> See Annexes 8 and 13.

Malaysia's claim to the Spratly Islands involves only the islands on the southern part of the group.<sup>933</sup> Malaysia's claim over these features is evident from the Malaysian 1979 map which depicts the features as being under Malaysian territory.<sup>934</sup> Territorial seas have been allocated to Amboyna Cay and Swallow Reef but not around Royal Charlotte Reef.<sup>935</sup> Based on the map, several features such as Amboyna Cay, Commodore Reef, Barque Canada Reef, Mariveles Reef and Erica Reef have been used in drawing equidistant lines in constructing the continental shelf boundary.<sup>936</sup> Besides the 1979 map, Malaysia's reply to Vietnam's 1982 publication of its Declaration on Baselines which referred to the Spratly Islands as being part of Vietnamese territory had emphasized that the three features were Malaysian and not Vietnamese territory and protested against any encroachment over its rights within the maritime space.<sup>937</sup>

Amongst the features claimed by Malaysia, only some may have an impact on the continental shelf. These are Amboyna Cay, Swallow Reef and possibly Commodore Reef since the other features are mere low-tide elevations in the sense of the Convention and are unlikely to be able to generate continental shelf rights.<sup>938</sup>

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<sup>933</sup> See Annexes 4 and 5; see also R Haller-Trost, *The Contested Maritime and Territorial Boundaries of Malaysia*, vol 3 (International Boundary Studies Series, Kluwer Law International 1998) 105.

<sup>934</sup> Ibid.

<sup>935</sup> Ibid.

<sup>936</sup> R Haller-Trost, *The Contested Maritime and Territorial Boundaries of Malaysia*, vol 3 (International Boundary Studies Series, Kluwer Law International 1998) 105.

<sup>937</sup> Vietnamese Declaration on Baselines 1982. Reprinted in *The Geographer*, 'Straight baselines: Vietnam', *Limits in the Seas*, No. 99 (International Boundary Study Series A, December 1983) 5-7.

<sup>938</sup> Chi-Kin Lo, *China's Policy Towards Territorial Disputes: The Case of the South China Sea Islands* (Routledge 1989) 157.

Be that as it may, Malaysia had disregarded these features when delineating the extent of its continental shelf although it still claims ownership over the features such as will be seen later in this chapter in its joint submission with Vietnam.<sup>939</sup>

### **Pulau Sipadan and Pulau Ligitan<sup>940</sup>**

The islands of Sipadan and Ligitan are two tiny islands situated off the south eastern coast of Sabah in the Celebes Sea lying at approximately 15.5 NM apart.<sup>941</sup> These islands had been the subject of dispute between Malaysia and Indonesia until it was finally resolved by the ICJ in 2002. It was held by the ICJ in that case that sovereignty over Sipadan and Ligitan belonged to Malaysia.<sup>942</sup> According to the 1979 map, baselines were drawn using Sipadan and Ligitan as base points in the construction of the Malaysian continental shelf.<sup>943</sup> As such, if the islands were awarded in favour of Indonesia, it would have resulted in the shifting of the Malaysian continental shelf limit to a more landward position.

The geographical description of Sipadan Island is as follows. The island lies 7.5 NM south of Mabul Island and 7 NM southeast from Kapalai Island, both of which are under the territory of Sabah. Its distance vis-a-vis the Malaysian mainland is 15 NM from Tanjung Tutop on the Semporna Peninsula off the south eastern coast of Sabah, and 40 NM from the nearest Indonesian territory on the southern part of Sebatik Island. It is permanently above water with a total area of approximately 0.031 square kilometres above sea-level.<sup>944</sup> Hence, the island is not a

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<sup>939</sup> Malaysia and Vietnam, ‘Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary’ (6 May 2009).

<sup>940</sup> “Pulau” is the local term used to refer to islands. In this thesis, “pulau” and “island” will be used interchangeably.

<sup>941</sup> *Sovereignty over Pulau Ligitan and Pulau Sipadan (Indonesia/Malaysia)* [2002] ICJ 625, 634.

<sup>942</sup> Ibid 685-686.

<sup>943</sup> See Annex 8.

<sup>944</sup> R Haller-Trost, *The Territorial Dispute Between Indonesia and Malaysia Over Pulau Sipadan and Pulau Ligitan in the Celebes Sea: A Study in International Law* (IBRU 1995) 3.

low-tide elevation. The island was not permanently inhabited until the 1980s when it became a scuba diving haven for tourists.<sup>945</sup>

The geological formation of Sipadan Island is of interest and may be of relevance in the discussion on the extended continental shelf. Unlike the other islands in the region which comprise of reefs lying on the continental shelf, Sipadan Island is actually a deep-water oceanic island and not formed of continental rocks.<sup>946</sup> The island has been described as representing “the top of a precipitous volcanic sea mountain of approximately 600 to 700 metres in height on whose peak a coral atoll has formed”.<sup>947</sup> The island is separated from the continental shelf on which the other islands rest by a trench with the depth of more than 800 fathoms, which is equivalent to more than 1,400 metres.<sup>948</sup>

From the description of the island, it is observed that Sipadan is an island of oceanic character rising from the ocean floor as opposed to one of a continental character. Therefore, the island may well come under the term “oceanic ridges” in the sense of paragraph 3 of Article 76 as discussed before in chapter five of this thesis.

There are a number of implications resulting from this.

Firstly, if Malaysia were to claim an extended continental shelf generated from the mainland or any island resting on an actual continental shelf, it could not do so to include Sipadan, since the geological nature of Sipadan, being an “oceanic ridge of the deep ocean floor” in the sense of paragraph 3 of Article 76 vis-a-vis mainland Sabah, does not permit it to be part of the natural

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<sup>945</sup> *Sovereignty over Pulau Ligitan and Pulau Sipadan (Indonesia/Malaysia)* [2002] ICJ 625, 634.

<sup>946</sup> R Haller-Trost, *The Territorial Dispute Between Indonesia and Malaysia Over Pulau Sipadan and Pulau Ligitan in the Celebes Sea: A Study in International Law* (IBRU 1995) 3.

<sup>947</sup> *Ibid.*

<sup>948</sup> *Ibid.*

<sup>949</sup> LOS Convention 1982, Article 76 (3). For further detailed discussion, see Chapter Five of this thesis.

prolongation.<sup>949</sup> Therefore, the natural prolongation would be disrupted by the trench which separates the continental shelf from Sipadan.

Secondly, if Malaysia was to claim an extended continental shelf generated from Sipadan Island, it would be able to do so since it could be well argued that Sipadan is a full-fledged island as opposed to a mere rock in the sense of Article 121 of the Convention. It is to be noted, however, that Sipadan is not composed of continental rocks and does not rest on the continental shelf since it is an oceanic ridge. Therefore, Malaysia would be able to lay a claim to the continental shelf on the basis that Sipadan is a “submarine ridge” in the sense of paragraph 3 of Article 76. The extent of the continental shelf that it would be able to claim from Sipadan would depend on the natural prolongation of Sipadan. In other words, the extended continental shelf could be claimed throughout the natural oceanic prolongation of Sipadan Island. However, this would also imply that, as a submarine ridge, the extent of the natural prolongation would be limited to 350 NM from the baseline and the limit of 2,500 metre isobaths would not apply.<sup>950</sup>

With regard to Ligitan Island, the small island is part of a group of a reef system called the Ligitan Group situated 12 NM east of Kapalai Island and 15 NM east of Sipadan Island.<sup>951</sup> This reef system is mostly submerged in water but shows dry patches of around 0.3 to 0.6 metres in irregular patterns.<sup>952</sup> Parts of the reef system which are permanently above sea level have been named such as Dinawan Island<sup>953</sup> at the northern tip of the reef on which lies a village, and Si Amil which lies 0.5 NM to the northeast of Dinawan Island where a lighthouse has been built. Similar to Dinawan and Si Amil, Ligitan Island is also a feature permanently above sea level

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<sup>950</sup> LOS Convention 1982, Article 76 (6).

<sup>951</sup> *Sovereignty over Pulau Ligitan and Pulau Sipadan (Indonesia/Malaysia)* [2002] ICJ 625, 634; R Haller-Trost, *The Contested Maritime and Territorial Boundaries of Malaysia*, vol 3 (International Boundary Studies Series, Kluwer Law International 1998) 228-229.

<sup>952</sup> *Ibid.*

<sup>953</sup> Also referred to as Danawan Island, *Sovereignty over Pulau Ligitan and Pulau Sipadan (Indonesia/Malaysia)* [2002] ICJ 625, 634.

lying at the southern end of the reef system and having a surface area less than that of Sipadan.<sup>954</sup> Ligitan Island is uninhabited and the only vegetation it can grow is a few low bushes. The distance between Ligitan Island and the nearest Indonesian territory is 55 NM to the Indonesian part of Sebatik Island, while its distance to the Malaysian Dinawan Island is 8.5 NM.<sup>955</sup>

As with any other features, the effect Ligitan Island would have on the continental shelf depends on whether it is considered an island or a mere rock.<sup>956</sup> In the case of Ligitan Island, it is a feature permanently above sea level and hence not a low-tide elevation.<sup>957</sup> However, it would be difficult to argue that it is an island capable of sustaining human habitation or economic life looking at the size of the island and the fact that it can only sustain a few low bushes. The practical implication of this is that Ligitan Island would not be able to generate a continental shelf of its own.

### **Pulau Batu Puteh and Middle Rocks**

The sovereignty of Pulau Batu Puteh, also known as Pedra Branca, Middle Rocks as well as South Ledge, all of which are located in the same vicinity, have been the subject of dispute between Malaysia and Singapore.<sup>958</sup> The case has been heard before the ICJ to which Pulau Batu Puteh has been awarded to Singapore and Middle Rocks to Malaysia while South Ledge, which is a low-tide elevation, remains unresolved.<sup>959</sup>

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<sup>954</sup> Ibid.

<sup>955</sup>R Haller-Trost, *The Contested Maritime and Territorial Boundaries of Malaysia*, vol 3 (International Boundary Studies Series, Kluwer Law International 1998) 228-229.

<sup>956</sup> See LOS Convention 1982, Article 121.

<sup>957</sup> LOS Convention 1982, Article 13 states that a low-tide elevation is “above water at low tide but submerged at high tide”.

<sup>958</sup> *Sovereignty over Pedra Branca/Pulau Batu Puteh, Middle Rocks and South Ledge (Malaysia/Singapore)*, [2008] ICJ 12.

<sup>959</sup> *Sovereignty over Pedra Branca/Pulau Batu Puteh, Middle Rocks and South Ledge (Malaysia/Singapore)*, [2008] ICJ 12, 96-101.



Pulau Batu Puteh is an island located at the most eastern end of the Straits of Singapore where the Straits open up into the South China Sea. It lies approximately 24 NM to the east of Singapore, 7.7 NM to the south of the Malaysian State of Johor and 7.6 NM to the north of the Indonesian island of Bintan.<sup>960</sup>

As with other features, the island and rocks do have an effect on Malaysia's continental shelf. Pulau Batu Puteh has been depicted by the 1979 map as a base point from which the baseline is drawn.<sup>961</sup> The use of the island as a base point has resulted in the construction of the territorial sea limit at Turning Points 31 and 30 according to the map.<sup>962</sup> Since Pulau Batu Puteh has been awarded to Singapore, Malaysia is unable to use the island as a base point in order to construct the baseline from which its territorial sea is measured. This would in turn denote the baseline from which other maritime zones, including the continental shelf, is measured. The award of Pulau Batu Puteh to Singapore would, thus, affect the maritime boundaries of Malaysia. Therefore, any continental shelf area which comes under the jurisdiction of Malaysia before the award of Pulau Batu Puteh to Singapore would be minimised by virtue of this award. This is due to two reasons: First, because the baseline from which the Malaysian territorial sea, and hence the continental shelf, is measured would be shifted landwards; and secondly, Pulau Batu Puteh, being an island under Singaporean territory, would be entitled to generate continental shelf rights on its own, hence, allocating a substantial portion of what was originally the Malaysian continental shelf to Singapore.

With regard to Middle Rocks, the effect it would have on the Malaysian maritime zones depends on the nature of the rocks. If Middle Rocks are mere rocks in the sense of the Convention, it would not have the capacity to generate a continental shelf.<sup>963</sup> The Middle Rocks are located

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<sup>960</sup> *Sovereignty over Pedra Branca/Pulau Batu Puteh, Middle Rocks and South Ledge (Malaysia/Singapore)*, [2008] ICJ 12, 22.

<sup>961</sup> See Annex 8.

<sup>962</sup> See Annex 8; R Haller-Trost, *The Contested Maritime and Territorial Boundaries of Malaysia*, vol 3 (International Boundary Studies Series, Kluwer Law International 1998) Appendix 25.

<sup>963</sup> LOS Convention 1982, Article 121(3).

some 0.6 NM southeast of Pulau Batu Puteh. The rocks stand 0.6 to 1.2 metres permanently above water but due to the nature of the rocks, it is unlikely that the rocks can sustain human habitation or economic life. As such, it is difficult to argue that Malaysia would be able to claim a continental shelf using the rocks as base points much less an extended continental shelf.

Be that as it may, it should be noted that this discussion on whether the two features may generate an extended continental shelf is only a theoretical one. In practice, it is highly unlikely that either Malaysia or Singapore may pursue a claim over the extended continental shelf based on these two features since the waters surrounding them are considerably less than 400 NM apart.<sup>964</sup> This is due to the existence of the many islands belonging to Indonesia in the South China Sea slightly seaward of the two features.

## **8.5 Joint submission in respect of the southern part of the South China Sea**

As may be recalled, two areas have been identified as having the potential for an extended continental shelf claim. The technical aspects of the areas concerned shall be discussed further.

An area with potential extended continental shelf for Malaysia is the southern part of the South China Sea. As of the date of writing this thesis, Malaysia has made a submission to the Commission for the extended continental shelf in this area, details of which will be discussed below.<sup>965</sup>

The submission referred to comes in the form of a joint submission between Malaysia and Vietnam and was submitted to the Commission in accordance with paragraph 8 of Article 76 on 6 May 2009. It is also noted that this submission was made as a partial submission in respect of the southern part of the South China Sea off the coast of Sabah and eastern Sarawak. Therefore,

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<sup>964</sup> See Annex 8.

<sup>965</sup> Malaysia and Vietnam, 'Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary' (6 May 2009).

Malaysia may make further submissions with respect to its extended continental shelf in other parts.<sup>966</sup>

At the time of writing, a presentation to the Commission has been made by both Malaysia and Vietnam on 27 August 2009.<sup>967</sup> Malaysia and Vietnam have yet to hear the recommendations of the Commission on their submission. The joint submission is currently undergoing the process of waiting for consideration of the Commission. The submission received several reactions from neighbouring States. This can be seen from the notes verbales communicated by the States.<sup>968</sup>

The first of these States to give their note verbale was China.<sup>969</sup> China indicated that it has sovereignty over the islands in the area which is the subject matter of the joint submission (hereinafter “the defined area”), and hence over the South China Sea. As such, China alleged that the joint submission over the defined area had infringed its sovereignty, sovereign right and jurisdiction over the South China Sea.<sup>970</sup> To this, both Malaysia and Vietnam have responded and contended that the submission is made without prejudice to disputes over delimitation.<sup>971</sup>

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<sup>966</sup> Ibid.

<sup>967</sup> Commission on the Limits of the Continental Shelf, ‘Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the progress of work in the Commission – Twenty-fourth session’ CLCS/64 (United Nations, New York October 2009) para 87.

<sup>968</sup> See ‘Communications received with regard to the joint submission made by Malaysia and Viet Nam to the Commission on the Limits of the Continental Shelf’, *Division for Ocean Affairs and the Law of the Sea* <[http://www.un.org/Depts/los/clcs\\_new/submissions\\_files/submission\\_mysvnm\\_33\\_2009.htm](http://www.un.org/Depts/los/clcs_new/submissions_files/submission_mysvnm_33_2009.htm)> accessed 11 June 2012.

<sup>969</sup> Ibid.

<sup>970</sup> Republic of China, ‘Communication dated 7 May 2009, Communications received with regard to the joint submission made by Malaysia and Viet Nam to the Commission on the Limits of the Continental Shelf’, *Division for Ocean Affairs and the Law of the Sea*. <[http://www.un.org/Depts/los/clcs\\_new/submissions\\_files/mysvnm33\\_09/chn\\_2009re\\_mys\\_vnm\\_e.pdf](http://www.un.org/Depts/los/clcs_new/submissions_files/mysvnm33_09/chn_2009re_mys_vnm_e.pdf)> accessed 2 July 2012.

<sup>971</sup> This is made in consonance with Article 76(10) of the Convention, Article 9 of Annex II of the same, Rule 46 of the Commission’s Rules of Procedure and paras 1, 2 and 5 of Annex 1 of the same. Communication dated 8 May 2009 by Vietnam and communication dated 20 May 2009 by Malaysia, ‘Communications received with regard to the joint submission made by Malaysia and Viet Nam to the Commission on the Limits of the Continental Shelf’, *Division for Ocean Affairs and the Law of the Sea* <[http://www.un.org/Depts/los/clcs\\_new/submissions\\_files/mysvnm33\\_09/vnm\\_chn\\_2009re\\_mys\\_vnm\\_e.pdf](http://www.un.org/Depts/los/clcs_new/submissions_files/mysvnm33_09/vnm_chn_2009re_mys_vnm_e.pdf)> and <[http://www.un.org/Depts/los/clcs\\_new/submissions\\_files/mysvnm33\\_09/mys\\_re\\_chn\\_2009re\\_mys\\_vnm\\_e.pdf](http://www.un.org/Depts/los/clcs_new/submissions_files/mysvnm33_09/mys_re_chn_2009re_mys_vnm_e.pdf)> accessed 2 July 2012.

Another note verbale was communicated by the Philippines claiming that the defined area is a disputed area for two reasons.<sup>972</sup> First, that it overlapped with the extended continental shelf of the Philippines, and second, that sovereignty over the islands within the area as well as North Borneo (Sabah) is controversial.<sup>973</sup>

Apart from these two notes verbales, there are two others made by Indonesia and the Philippines contending China's claim over the islands and maritime zones in the South China Sea and another one by China as a response to those contentions.<sup>974</sup>

The notes verbales from China and the Philippines invoked, inter alia, paragraph 5 (a) of Annex I to the Rules of Procedure with reference to the defined area which states that the Commission shall not have the competence to "consider and qualify a submission made by any of the States concerned in the dispute" unless consent has been given by all States that are parties to the a dispute. To this, both Malaysia and Vietnam contended that paragraph 5 does not apply.<sup>975</sup> Be that as it may, it is due to the numerous notes verbales that the Commission decided to defer consideration of the submission.<sup>976</sup>

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<sup>972</sup> Republic of the Philippines, 'Communication dated 4 August 2009, Communications received with regard to the joint submission made by Malaysia and Viet Nam to the Commission on the Limits of the Continental Shelf', *Division for Ocean Affairs and the Law of the Sea* <[http://www.un.org/Depts/los/clcs\\_new/submissions\\_files/mysvnm33\\_09/clcs\\_33\\_2009\\_los\\_phl.pdf](http://www.un.org/Depts/los/clcs_new/submissions_files/mysvnm33_09/clcs_33_2009_los_phl.pdf)> accessed 2 July 2012.

<sup>973</sup> Ibid

<sup>974</sup> Republic of Indonesia, 'Communication dated 8 July 2010'; The Philippines, 'Communication dated 5 April 2011', Republic of China, 'Communication dated 14 April 2011', Communications received with regard to the joint submission made by Malaysia and Viet Nam to the Commission on the Limits of the Continental Shelf, *Division for Ocean Affairs and the Law of the Sea* <[http://www.un.org/Depts/los/clcs\\_new/submissions\\_files/mysvnm33\\_09/idn\\_2010re\\_mys\\_vnm\\_e.pdf](http://www.un.org/Depts/los/clcs_new/submissions_files/mysvnm33_09/idn_2010re_mys_vnm_e.pdf)> , <[http://www.un.org/Depts/los/clcs\\_new/submissions\\_files/mysvnm33\\_09/phl\\_re\\_chn\\_2011.pdf](http://www.un.org/Depts/los/clcs_new/submissions_files/mysvnm33_09/phl_re_chn_2011.pdf)> , <[http://www.un.org/Depts/los/clcs\\_new/submissions\\_files/mysvnm33\\_09/chn\\_2011\\_re\\_phl\\_e.pdf](http://www.un.org/Depts/los/clcs_new/submissions_files/mysvnm33_09/chn_2011_re_phl_e.pdf)>.

<sup>975</sup> Commission on the Limits of the Continental Shelf, 'Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the progress of work in the Commission – Twenty-fourth session' CLCS/64 (United Nations, New York October 2009) para 91.

<sup>976</sup> Ibid para 92.

### 8.5.1 Technical aspects of the joint submission

Due to the confidential nature of submissions, only the executive summary of the submission is made available to the public. Hence, this study on the claim for the extended continental shelf jointly made by Malaysia and Vietnam is based on the executive summary alone with only some references to other literature. The key points from the observations made of the executive summary are as follows:

Firstly, the executive summary shows that Malaysia has drawn straight baselines along the coast of Sabah and Sarawak. There are altogether five base points on the coast of Sarawak and three more on the islands off the coast of Sabah that have been used to draw the 200 NM limit.<sup>977</sup> It was also shown that the defined area is located beyond the 200 NM limit drawn using these base points.<sup>978</sup>

According to the executive summary, the defined area extends from the points on the boundary between Vietnam-Indonesia and Malaysia-Indonesia in the western part of the South China Sea and ends near the region where the boundary between the waters of Malaysia and the Philippines meet.<sup>979</sup> In terms of its definition vis-a-vis the 200 NM limit, it extends from the points beyond the Malaysian 200 NM limit and continues northwards to the line defined as the Vietnamese 200 NM limit.<sup>980</sup> On top of that, there is no definition of any foot of continental slope near the defined area in the executive summary.

The observation made in light of this is that, according to the joint submission, the natural prolongation of the land mass is continuous from the coast of the Malaysian land territory until the coast of the Vietnamese land territory. This in turn also denotes that, according to the

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<sup>977</sup> Malaysia and Vietnam, 'Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary' (6 May 2009) 5 (Figure 1).

<sup>978</sup> Ibid.

<sup>979</sup> Ibid.

<sup>980</sup> Ibid.

submission, there is an absence of any feature disrupting the continuity of the land mass. Besides this finding, the fact that the defined area is located beyond the 200 NM limit of both States meant that it has passed the test of appurtenance.

The second point is closely related to the first. The executive summary shows that the straight baseline system had been used by both States in measuring the 200 NM limit.<sup>981</sup> It should be noted that in normal circumstances, in determining extended continental shelf claims, the 200 NM limit is only relevant when applying the test of appurtenance. However, due to the fact that the defined area is the subject of joint claims, the 200 NM limit of either State shall have an effect on the size of the defined area. Based on the executive summary, the extensive use of the straight baseline system by Vietnam may have an effect on the size of the defined area, hence, Malaysia's entitlement to it.

The third noteworthy point is in respect of the extended continental shelf of Brunei. It is noted that the executive summary shows the defined area as encompassing what should have been the area of the extended continental shelf of Brunei.<sup>982</sup> The Malaysian 200 NM limit was shown to be extending from the point of the maritime border between Malaysia and Indonesia and continues until it reaches the intersection with the 200 NM limit of the Philippines.<sup>983</sup>

The fourth point is with regard to the offshore islands off the coast of Malaysia. As may be recalled from Section 7.7 in Chapter Seven and Section 8.4 of this chapter, there are unresolved disputes revolving around the many offshore islands in the South China Sea. In particular, the Spratly Islands ownership of which has been claimed by several States including Malaysia is situated very close to, if not within the defined area. Although Malaysia has been asserting sovereignty over the island, the executive summary does not depict the islands as generating an

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<sup>981</sup> Ibid.

<sup>982</sup> Ibid.

<sup>983</sup> Ibid.

exclusive economic zone or a continental shelf nor does it show Malaysia or Vietnam using the islands as base points.<sup>984</sup>

As such, it can be deduced from this observation that the joint submission with the agreement that the islands are not taken into account in the delineation of the continental shelf.

On the fifth point, the executive summary states that the paragraphs 4 and 5 of Article 76 are invoked in defining the outer limits of the continental shelf.<sup>985</sup>

In respect of the application of paragraph 4, the joint submission used the Hedberg formula to define all of the fixed points for the outer edge of the continental margin.<sup>986</sup> Thus, by using this formula, the outer edge of the continental margin is drawn as a line 60 NM from the foot of the continental slope, as elaborated earlier in Section 3.7.2 of Chapter Three.<sup>987</sup> In terms of the formula used to define the foot of the continental slope, it is unclear whether the submission had made use of the maximum change in gradient rule or the evidence to the contrary rule. A reading of the executive summary would reveal that seven foot of slope points have been identified by applying paragraph 4 of Article 76.<sup>988</sup> However, it is pointed out that the foot of slope points defined in the executive summary refer to foot of slope points which are found to be located at a

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<sup>984</sup> Malaysia and Vietnam, 'Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary' (6 May 2009) 5 (Figure 1).

<sup>985</sup> Malaysia and Vietnam, 'Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary' (6 May 2009) 1.

<sup>986</sup> Table 2, List of Geographical Coordinates of Formula Fixed Points used in the Establishment of the Outer Edge of the Continental Margin, Malaysia and Vietnam, 'Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary' (6 May 2009) 24-27.

<sup>987</sup> *Ibid.*; LOS Convention 1982, Article 76(4)(a)(ii). For further discussion see Section 6.1 of this thesis.

<sup>988</sup> Malaysia and Vietnam, 'Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary' (6 May 2009).

significantly more north-easterly area of the South China Sea.<sup>989</sup> It is observed that the area lies at the transition between the Dangerous Ground and the ocean floor of the South China Sea.<sup>990</sup>

As regards the application of paragraph 5, nothing in the executive summary provides for any clue on how it was applied. Nevertheless, it shows that the defined area is within the limits provided for under the provision.<sup>991</sup> As may be recalled in Section 3.7.2 of Chapter Three, paragraph 5 of Article 76 states that the outer limits shall be within 350 NM from the baseline or 100 NM from the 2,500 metre isobath. It is shown that the defined area is clearly within 350 NM from the baseline of Malaysia as well as from the baseline of Vietnam.<sup>992</sup> Since the defined area has clearly not exceeded the 350 NM limit, it is immaterial whether or not it is within 100 NM from the 2500 metre isobaths.

Therefore, in relation to the defined area, it is observed that the outer edge of the continental margin as identified in the joint submission lies considerably further to the northeast of the defined area.<sup>993</sup> In other words, the area of the extended continental shelf jointly claimed by Malaysia and Vietnam does not extend up to the outer edge of the continental margin.

In light of discussions, it should be noted that the executive summary is a narration of the assertion made by Malaysia and Vietnam over their claim to the extended continental shelf in their joint submission. The submission shall be examined by the Commission which will decide whether it agrees with the limits so established. Accordingly, it would be worthy to analyse the

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<sup>989</sup> Ibid 23 (Figure 2); see Annex 6.

<sup>990</sup> Ibid.

<sup>991</sup> Malaysia and Vietnam, 'Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary' (6 May 2009) 5 (Figure 1).

<sup>992</sup> Malaysia and Vietnam, 'Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary' (6 May 2009) 23 (Figure 2); see Annex 6.

<sup>993</sup> Ibid.



legal basis of the claim in another perspective other than that of the joint submission in order to independently examine the issues.

### **8.5.2 Geological background**

An analysis of the joint submission is necessary in order to provide another insight on the legal and technical aspects of the extended continental shelf claim. Since it relates to geological elements, regard must be had to the geological and tectonic setting of the region. This also includes identification of features that may have an effect on the claim.

In making a submission on the extended continental shelf, the geological history of the area concerned may provide an insight as to the extent of the physical continental shelf.

The tectonic history of the margin in the defined area shows that the margin was apparently involved in continental break up. In particular, it is observed that the break up was caused by the rifting process. The South China Sea comprises of a variation of sea floors ranging from a depth of merely less than 100 metres on the Sunda Shelf and as deep as 5,000 metres in the Philippine Basin.<sup>994</sup>

With regard to Malaysia, the Sunda Shelf is the continental shelf on which most of Malaysian land territory is founded. The Sunda Shelf is located on the biogeological region of Southeast Asia called Sundaland. The Malay Peninsula sits on the Sunda Shelf which extends eastwards as far as the western part of Sarawak until the West Baram Line near Brunei.<sup>995</sup>

The continental slope of the Sunda Shelf is a narrow transition zone from the shelf to the rise. It can be distinguished from the shelf and rise by a greater change in gradient since the slope is

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<sup>994</sup> DR Dillon, *The China Challenge: Standing Strong Against the Military, Economic, and Political Threats That Imperil America* (Rowman & Littlefield 2007) 27.

<sup>995</sup> Charles S Hutchison, *Geology of North-West Borneo: Sarawak, Brunei and Sabah* (Elsevier 2005) 137; see Annex 15.

slightly steeper. The foot of the continental slope has been measured to be about 450 to 500 metres deep.<sup>996</sup>

As for the continental rise, this is characterised by the water depth of between 500 metres at the foot of the continental slope to 3.5 kilometres deep near the continent-ocean transition zone which marks the zone of sea-floor spreading. In numerous accounts, Hutchison had referred to the Dangerous Ground as the continental rise of the Sunda Shelf.<sup>997</sup> The Dangerous Grounds which is composed of thinned continental crust due to stretching of the crust and is 170-333 kilometres wide.<sup>998</sup> It is observed that the defined area in the joint submission is located within the Dangerous Ground.<sup>999</sup>

In this case, the geographical and geological account of the Dangerous Ground is noteworthy. The size of the Dangerous Ground has been reported to be around 284 NM wide and 559 NM long. It is an area located near the south-eastern rim of the Sunda Shelf and supporting numerous banks, reefs and shoals, commonly known as the Spratly Group. To the southeast, the Dangerous Ground is separated from the northwest Borneo slope by the Northwest Borneo Trough. As for its geological formation, the Dangerous Ground was generally formed after continental break-up.<sup>1000</sup>

While the Malaysian Peninsula and most of Sarawak until the West Baram Line are underlain by the continental crust of Sundaland, Sabah and Brunei are not since Borneo Island does not have a continental shelf of its own.<sup>1001</sup> Sabah, together with Brunei, is located on the Northwest Borneo

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<sup>996</sup> Charles S Hutchison, *Geology of North-West Borneo: Sarawak, Brunei and Sabah* (Elsevier 2005) 140.

<sup>997</sup> See, for example, Charles S Hutchison, *Geology of North-West Borneo: Sarawak, Brunei and Sabah* (Elsevier 2005) 137, 139 and 140.

<sup>998</sup> *Ibid* 142.

<sup>999</sup> Malaysia and Vietnam, 'Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary' (6 May 2009) 23 (Figure 2); see Annex 6.

<sup>1000</sup> Charles S Hutchison, *Geology of North-West Borneo: Sarawak, Brunei and Sabah* (Elsevier 2005) 147.

<sup>1001</sup> Charles S Hutchison, *Geology of North-West Borneo: Sarawak, Brunei and Sabah* (Elsevier 2005) 137.

Margin which is separated from the Sunda Shelf by the Baram Delta off the coast of Brunei.<sup>1002</sup> The basement on which Sabah and Brunei are founded upon is of “Mesozoic oceanic lithosphere with local occurrences of continental microcontinents”.<sup>1003</sup> In other words, Sabah does not share the same continental shelf as the rest of Malaysia. Instead it is underlain by oceanic crust which has occurrences of continental fragments.

### **8.5.3 The Northwest Borneo Trough**

As may be recalled from the discussion in Chapter Five, a submarine structure of a substantial degree may have the effect of disrupting the natural prolongation of a continental land mass, thus, affecting the continental shelf claim of the relevant coastal State. In other words, the feature may serve as a natural boundary of the continental margin.

In relation to the joint submission, nothing in its executive summary mentions any physical submarine structures such as any ridges or submarine elevations of which its geological character may need further assessment. However, according to studies done on the geological aspects of the South China Sea, it is observed that there is a submarine structure which requires further analysis in order to identify its effect, if any, on the extended continental shelf claims.<sup>1004</sup>

The effect on a continental shelf claim of a structure which is substantial enough to disrupt the natural prolongation of the land mass is as follows:

If the structure is found to be located beyond 200 NM from the baseline, the structure may constitute the outer edge of the continental margin. Hence, as discussed in Chapter Six, paragraphs 4 and 5 of Article 76 shall apply and foot of continental slope points shall be located at the inner wall of the trench. However, if the structure is found to be located within 200 NM

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<sup>1002</sup> Ibid; see Annex 15.

<sup>1003</sup> Charles S Hutchison, *Geology of North-West Borneo: Sarawak, Brunei and Sabah* (Elsevier 2005) 5.

<sup>1004</sup> See Charles S Hutchison, ‘The North-West Borneo Trough’ [2010] *Marine Geology* 32; Charles S Hutchison, *Geology of North-West Borneo: Sarawak, Brunei and Sabah* (Elsevier 2005) 167.

from the baseline, its presence is immaterial, and the continental shelf shall not extend beyond 200 NM for it would have failed the test of appurtenance.<sup>1005</sup>

As may be recalled, Sabah sits on the Northwest Borneo margin which does not have a continental shelf of its own. Parallel to the coast of Sabah, an underwater structure is found in the form of a trough known as the Northwest Borneo Trough.<sup>1006</sup> The trough is also known by its alternative names such as the “Palawan Trough” as used in the Philippines, and the “Sabah Trough”, referring to that part of the trough off the coast of Sabah.<sup>1007</sup>

The Northwest Borneo Trough is a very prominent deep linear trough with a depth of between 2 to 2.7 kilometres.<sup>1008</sup> Off the Sabahan coast, the Northwest Borneo margin extends for a few kilometres before the seafloor abruptly slopes at a steep 2-4 degrees into the basin floor of the trough. In terms of its geographical description, the trough extends from the Philippine waters off Palawan ranging more than 500 kilometres and continues in a south-eastern direction off the coast of Sabah and Brunei until it finally ends off the coast of eastern Sarawak.<sup>1009</sup> The termination of the trough is abrupt with it terminating at West Baram Line, a line extending from northwest to southeast.<sup>1010</sup> To the north of the trough is the distinctive Dangerous Grounds, which is the continental rise of the Sunda Shelf.<sup>1011</sup> The location of the Northwest Borneo Trough in relation to the Malaysian coast is at a distance of not more than 100 NM.

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<sup>1005</sup> LOS Convention 1982, Article 76(1).

<sup>1006</sup> Charles S Hutchison, ‘The North-West Borneo Trough’ [2010] *Marine Geology* 32; Charles S Hutchison, *Geology of North-West Borneo: Sarawak, Brunei and Sabah* (Elsevier 2005) 366.

<sup>1007</sup> Ibid.

<sup>1008</sup> Charles S Hutchison, *Geology of North-West Borneo: Sarawak, Brunei and Sabah* (Elsevier 2005) 366; MJR Gee and others, ‘The Brunei slide: A giant submarine landslide on the North West Borneo Margin revealed by 3D seismic data’ [2007] *Marine Geology* 9, 12.

<sup>1009</sup> Ibid 33.

<sup>1010</sup> Charles S Hutchison, *Geology of North-West Borneo: Sarawak, Brunei and Sabah* (Elsevier 2005) 167.

<sup>1011</sup> Ibid.

#### 8.5.4 Analysis

An analysis of the joint submission is necessary in order to provide another insight on the legal and technical aspects of the extended continental shelf claim. The extended continental shelf area in the joint submission shall be analysed with reference to the provisions of Article 76, and the practice of States as well as the Commission.

##### **Baselines and base points**

As may be recalled in Section 3.7.2 of Chapter Three, paragraph 1 of Article 76 lays down the requirement that the natural prolongation of the continental margin must extend beyond 200 NM from the baseline from which the territorial sea is measured, known as the test of appurtenance.

In view of that, it is submitted that the first element to be determined is the baseline from which the territorial sea is measured. The executive summary pictures straight baselines constructed on the coast of Sabah and Sarawak.<sup>1012</sup> While it may be contended that, as discussed in Section 7.2 of Chapter Seven, the baselines so constructed are not in conformity with Article 7 of the Convention, since it does not involve a “deeply indented and cut into” coastline nor does it involve “a fringe of islands”, it is beyond the scope of this thesis to delve deeper into the subject of baselines.

As previously discussed in Section 7.2 of Chapter Seven, unlike the other maritime zones, the outer limits of the continental shelf established under Article 76 is not dependent upon the baseline since its determinant factor is the natural prolongation of the continental margin. However, the baseline is still relevant since the test of appurtenance requires the natural prolongation of the continental margin to extend beyond 200 NM which is measured from the baseline.<sup>1013</sup>

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<sup>1012</sup> Malaysia and Vietnam, ‘Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary’ (6 May 2009) 23 (Figure 2); see Annex 6.

<sup>1013</sup> LOS Convention 1982, Article 76(1).

Besides that, since the submission involves opposite States, the baseline may have an effect on the joint submission, that is, on the size of the defined area. The defined area is the extended continental shelf area jointly claimed by the two States, therefore, the straight baselines so constructed on the coasts of Sabah and Sarawak would result in a smaller defined area since it would move the 200 NM limit in a more seaward direction. However, if normal baselines as opposed to straight baselines were constructed on the coasts of Sabah and Sarawak, this would have moved the 200 NM limit more landward resulting in a more sizable defined area.

This issue of straight baselines is strongly related to the base points chosen by the States. In drawing the straight baselines, the executive summary shows that Vietnam used a number of islands as base points in measuring the 200 NM limit. It is observed that one of these islands, the Thu Island (Cu Lao Thu) off the coast near Ho Chi Minh City, is situated at approximately 50 NM from the mainland coast.<sup>1014</sup> Looking at the location of the island vis-a-vis mainland Vietnam, it is submitted that the island is not appropriate to be used as a base point. This is so since it results in baselines that depart in an “appreciable extent from the general direction of the coast” which is not in conformity with Article 7 (3) and the principle laid down in the *Anglo-Norwegian Fisheries Case* as discussed in Section 7.2.

Due to the use of Thu Island as a base point combined with the extensive usage of straight baselines by Vietnam, the size of the defined area has been affected and, hence, Malaysia’s entitlement to the extended continental shelf.

If Vietnam were to use normal baselines, or alternatively a more appropriate base point if using straight baselines, this would generate a larger defined area for a joint extended continental shelf claim with Malaysia. Thu Island would still be able to generate a 200 NM considering its status as an island in the sense of the Convention. However, the 200 NM arcs drawn from other points on the baseline would be located at a considerably more landward position than those drawn using the straight baseline with Thu Island as a base point. This would result in the Vietnamese

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<sup>1014</sup> Malaysia and Vietnam, ‘Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary’ (6 May 2009) 5 (Figure 1).

200 NM line on the most western part of the defined area to be shifted further north towards mainland Vietnam. Therefore, the size of the defined area would be larger.

The purpose of this discussion is merely to acknowledge the straight baseline issue as having a possible effect on the extended continental shelf. As such, this discussion is continued by assuming that the straight baseline systems adopted by the two States are used.

### **Natural prolongation beyond 200 NM**

The second element to be determined is whether the natural prolongation of the continental margin extends beyond 200 NM from the baseline. In other words, the question is whether the test of appurtenance is passed. In view of that, regard must be had to any physical features that may disrupt the prolongation of the land mass.

Looking at the coordinates of the defined area as listed in the executive summary, it is observed that the defined area is situated in the area of the Dangerous Ground.<sup>1015</sup> Therefore, in determining whether Malaysia has passed the test of appurtenance, it must be proven that the Dangerous Ground where the defined area lies is part of the natural prolongation of the Malaysian land territory.

According to the Guidelines, and confirmed by the general practice of most States as analysed in Chapter Five, this is done by proving morphological and geological continuity. The methods adopted by New Zealand and Australia show that there must be a continuous morphological and geological connection from the defined area leading to the land territory. However, the Russian Federation adopts a relatively more flexible approach in that natural prolongation is established based merely on similarity of crustal type. These methods have been previously discussed in Section 5.3 of Chapter Five.

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<sup>1015</sup> Malaysia and Vietnam, 'Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary' (6 May 2009) 24-27 (Table 2).

The joint submission shows the defined area lying beyond the 200 NM limit in a seaward direction. Although the line representing the 200 NM limit measured from the coasts of Sabah and Sarawak are connected, the two do not share the same continental shelf as discussed earlier in this Section. As such, analysis would be made separately by examining the Sabah case first before following with the Sarawak case.

## **Sabah**

The case of Sabah is different to that of Sarawak. Sabah is situated on the Northwest Borneo margin which does not comprise of a shelf, a slope and a rise. Instead, the margin meets the abrupt linear deep of the Northwest Borneo Trough where the seafloor dips towards the basin floor.<sup>1016</sup> It is thus crucial to analyse whether this physical structure disrupts the natural prolongation of the land mass of Sabah.

Analysis can be made with reference to the submissions made by other coastal State which have already received recommendations of the Commission. This may bring an insight as to the likelihood of the Commission agreeing with the joint submission made in respect of the defined area.

Previous submissions and recommendations, as discussed in Sections 5.3 and 5.4.2 of Chapter Five, demonstrate that in order to prove natural prolongation, geological and morphological continuity must be present where continental break up by the rifting process was involved. Since State practice shows that this has been interpreted differently by coastal States in making submission, it would be worthy to see how this can be applied in relation to the defined area. As has been observed in Section 5.3, the practice of States generally was to rely on morphological and geological connection to the land mass.

In terms of the morphological requirement, it must be shown a morphological connection between the defined area and the Sabah land mass is present. The only problem lies in the

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<sup>1016</sup> Charles S Hutchison, *Geology of North-West Borneo: Sarawak, Brunei and Sabah* (Elsevier 2005) 366.



presence of the Northwest Borneo Trough that lies between Sabah and the defined area.<sup>1017</sup> In order to prove a morphological connection exists, it must be satisfied that the trough does not sever the morphological connection between the defined area and the Sabah land mass. In other words, the trough does not constitute a fundamental discontinuity of the continental margin.

As may be recalled from the discussion in Section 2.4 of Chapter Two and Section 7.4 of Chapter Seven, the Norwegian Trough was held in the *Anglo-Norwegian Fisheries case* to constitute a natural boundary of the continental margin.<sup>1018</sup> It was analysed in Section 7.4 of Chapter Seven that based on water depth, the trough was deeper than the adjacent North Sea.

The New Zealand submission, as discussed in Section 5.3 of Chapter Five, had demonstrated situations where a bathymetric saddle area may or may not have an effect on natural prolongation. An example that was discussed in the section was the saddle separating Gilbert Seamount from the Challenger Plateau. The maximum depth of the saddle is 4400 metres. Although significantly deep, the Commission agreed with New Zealand that the saddle did not sever the morphological connection between Gilbert Seamount and the Challenger Plateau since its depth is shallower than the 5,000 metre deep adjacent ocean floor of the Tasman Basin.<sup>1019</sup>

Similarly, the Naturaliste Trough in Australia, also discussed in Section 5.3, was held to have not severed the morphological connection between the Naturaliste Plateau and the Australian continental margin. This was due to the fact that the Naturaliste Trough was found to be only slightly deeper (200 to 300 metres) than the outer parts of the Naturaliste Plateau which was generally at a depth of 2,400 metres.<sup>1020</sup> Apart from the Naturaliste Trough, the South Tasman

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<sup>1017</sup> See Annex 15.

<sup>1018</sup> *Fisheries Case (United Kingdom/Norway)* [1951] ICJ.

<sup>1019</sup> Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the Submission made by New Zealand 19 April 2006' (United Nations, 22 August 2008) 31.

<sup>1020</sup> Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the submission made by Australia on 15 November 2004' (United Nations, 9 April 2008) 23.

Rise was also held to be in morphological continuity with the Australian land mass since the South Tasman Saddle was found to be 1,000 metres higher than the adjacent abyssal plains.<sup>1021</sup>

This water depth criterion was also discussed in relation to the Benham Rise area in the Philippines, as discussed in Section 7.6 of Chapter Seven. It was examined that the Bicol Saddle which adjoins the Benham Rise with Luzon was not as deep as the adjacent ocean floor so as to sever the morphological connection. This can be contrasted with the Norwegian Trough which was held to constitute a natural continental margin boundary and hence would have severed the morphological connection with the territorial land mass by reason of its significant water depth compared to adjacent shelf areas. Similarly, with regard to the Okinawa Trough, the previous discussion in Section 7.4 of Chapter Seven presented that the depth of the trough, which is between 894 to 2,322 metres, as compared to its surrounding shelf areas in the East China Sea, which is below 150 metres, is significantly deep enough in order to assume it has severed the connection with the land mass.

Applying this method in the present case, it must be shown that the depth of the Northwest Borneo Trough is not deep enough to the extent that it resembles the deep ocean floor so that a morphological connection exists from the defined area leading to the trough and continuing to the Sabah land mass. The depth of the trough ranges between 200 to 2,700 metres while the defined area is estimated between 500 to 3,500 metres deep.<sup>1022</sup> The Southwestern sub-basin of the South China Sea, being the adjacent basin, is generally more than 3,000 metres deep.<sup>1023</sup> Therefore, applying this method, it could be concluded that the trough is not deep enough to sever the morphological continuity.

On another note, the formation process of the trough as discussed throughout Chapter Five of this thesis may also be relevant. If the trough is the reflection of a subduction zone, it would then

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<sup>1021</sup> Ibid 27.

<sup>1022</sup> The depth of the defined area is estimated by referring to the depth of the Dangerous Ground on which the defined area is most probably located.

<sup>1023</sup> Pinxian Wang, William A Berggren, *Marine geology and palaeoceanography: proceedings of the 30th International Geological Congress, Beijing, China, 4-14 August 1996* (VSP 1997) 49.

be difficult to establish that the prolongation of the Sabah land mass extends beyond the trough. In that sense, it would be analogous to the Kermadec Trough of New Zealand as previously discussed in Section 5.3. The Kermadec Trough was found to be the oceanic subduction zone located on the eastern flank of the Kermadec Ridge. Because of this, New Zealand had established foot of slope points on the base of the steep slope of Kermadec Ridge which is also the base of the subduction trough.<sup>1024</sup> Applying this analogy, if the Northwest Borneo Trough is found to be a subduction zone, this would suggest that the natural prolongation of the Sabah land mass is disrupted.

Assuming a morphological connection is established, the geological requirement is considered next. As may be recalled earlier in this Chapter, the Sabah land mass is not composed of continental crust but of oceanic lithosphere with continental fragments. In applying the method used by the Russian Federation as discussed in Section 5.3, the only essential criterion is the crustal type of the land mass. In that sense, if it is established that the defined area is also composed of oceanic lithosphere like the Sabah land mass, the geological requirement in order to prove natural prolongation would have been met.

However, applying the more stringent method adopted by other coastal States, criterion other than crustal type must also be considered as discussed in Section 5.3. If it is found that the geologic origin of the defined area is similar to that of the Sabah land mass, that would be ample proof that the geological requirement is met. Besides geologic origin, a geological connection between the rocks of the defined area leading to the Sabah land mass would also have fulfilled the requirement<sup>1025</sup>. This method was adopted in the New Zealand submission, and the recommendations of the Commission have shown that this was acceptable while it is not yet ascertained whether the Commission agrees with the Russian method.

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<sup>1024</sup> Commission on the Limits of the Continental Shelf, 'Summary of the Recommendations of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the Submission made by New Zealand 19 April 2006' (United Nations, 22 August 2008) 13.

<sup>1025</sup> Ibid.

Be that as it may, the Australian practice has shown that a doubtful geological connection could be disregarded where a strong geomorphological connection exists and this has been agreed with by the Commission. As demonstrated by the case of the Wallaby Composite High in Sections 5.3 and 5.4.2.

In the present case, the defined area has been shown to constitute part of the continental margin extending from the Sunda Shelf of Sarawak. Thus, it is unlikely that the rocks of the defined area are similar to those of the Sabah land mass considering the Sabah land mass stands on a different margin than the Sarawak land mass. Even in applying the more relaxed Russian practice of crustal type criterion, the continental crustal type in the defined area could not be similar to the non-continental crust of the Sabah margin since the latter is made up of oceanic lithosphere.

In light of this, it is submitted that it would be difficult to argue prolongation to the defined area across the Northwest Borneo Trough due to the absence of a morphological and geological connection with the Sabah land mass. However, this finding may not be detrimental to the Malaysian claim after all if it could be established that a morphological connection between the Malaysian land mass and the defined area exists elsewhere. To that end, it would be worthy to examine the natural prolongation in respect of Sarawak, which will be discussed next.

## **Sarawak**

In relation to Sarawak, the defined area is located beyond the 200 NM limit from the baseline on the coast of Sarawak. Hence, it is required to prove that there exists a natural prolongation of the land mass from the land territory of Sarawak extending along the continental margin until the defined area identified within the Dangerous Ground. The land mass of Sarawak is represented by the Sunda Shelf which, like other typical continental margins comprise of a shelf, slope and rise. The rise in this case is defined as the Dangerous Ground where the defined area lies. The shelf is wholly composed of continental crust and extends outwards from the continent to approximately the water depth of 200 metres.<sup>1026</sup>

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<sup>1026</sup> See, for example, Charles S Hutchison, *Geology of North-West Borneo: Sarawak, Brunei and Sabah* (Elsevier 2005) 137, 139 and 140.

Since the defined area was involved in the process of continental break up, the practice of most States in the form of submissions show that the defined area must be proven to be an integral part of the of the prolongation of the continental land mass as previously discussed in Section 5.3.

Similar to the situation in Sabah, in terms of the geomorphological requirement, it must be shown that there is a continuous morphological connection between the Sarawak land mass and the defined area. Since the margin is a typical continental margin comprising of a typical shelf, slope and rise, it is unlikely that there is a disruption in its morphological continuity.

With regard to the geological requirement, this requirement would be considered fulfilled if it can be shown that the rocks in the defined area share the same geological origin as the rocks of the Sarawak land mass. This is based on the practice of most States as discussed in Section 5.3.

Alternatively, a geological connection could also be proven if continental rocks are found to be present from the defined area leading all the way to the Sarawak land mass as demonstrated by the New Zealand practice in Section 5.3.

In light of the analysis above, it is observed that the defined area is beyond the line of the 200 NM limit and would definitely be part of the natural prolongation of the Sarawak continental land mass. However, the likelihood of it also being part of the natural prolongation of Sabah is unlikely since it has been established that the Northwest Borneo Trough, which lies within the 200 NM limit, marks the end of the Sabah margin. Hence, it would have failed the test of appurtenance in relation to the Sabah land mass.

Be that as it may, it is strongly emphasised that this does not affect the Malaysia-Vietnam joint submission in respect of the defined area if Malaysia is able to prove that the defined area is part of the natural prolongation of the Sarawak land mass. In that case, the natural prolongation of the Sarawak land mass would encompass the Sunda shelf off Sarawak, the continental slope at the edge of the shelf, and the continental rise identified by the Dangerous Ground where the defined area is located as long as the provisions of Article 76 of the Convention are fulfilled.

This situation where prolongation fails to be established in one place but can be identified in another is analogous to the situation in the New Zealand submission in respect of the Hikurangi Plateau as discussed in Section 5.3 of Chapter Five. In that discussion, the western part of the Hikurangi Plateau was found to mark the subduction zone of the Pacific Plate beneath the Australian Plate. Hence, the plateau could not be part of the prolongation of North Island since the subduction zone disrupts the natural prolongation of the North Island land mass to the plateau. However, it was established that the Hikurangi Plateau is in fact connected to the New Zealand land mass by virtue of its connection to the Chatham Rise located on its south, which is in turn connected to South Island. Hence, it was established that the Hikurangi Plateau is in fact part of the natural prolongation of the New Zealand continental margin.

Applying this analogy, even though the defined area cannot be established as having a morphological connection with the Sabah land mass, it is nevertheless part of the natural prolongation of the Malaysian land mass by virtue of its connection to the Sunda Shelf leading to the Sarawak land mass.

### **Definition of the outer edge of the continental margin**

With regard to the definition of the outer edge of the continental margin, regard must be had to paragraph 4 which states the requirement of identifying the foot of the continental slope.

The practice of States coupled with the practice of the Commission as observed from Sections 6.3 and 6.4 in Chapter Six have shown that this is done, as a general rule, by the two-fold test of identifying the region of the base of the continental slope before locating the point of maximum change in gradient.<sup>1027</sup>

The practice of most States, brought about initially by the Australian submission, shows that there are three methods of identifying foot of slope points as discussed in Section 6.3 of Chapter Six. These are foot of slope points identified by morphology alone, by morphology but supported by geology, and by “evidence to the contrary”. As may be recalled in Section 6.3, the first type of

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<sup>1027</sup> LOS Convention, Article 76(4)(b).

foot of slope identification is applied where the slope has a prominent gradient making it relatively easy to distinguish between the slope and the rise. As for the second type, geological evidence is used to determine the region where the morphological foot of slope point is to be located. In other words, as observed in the previous chapter on the foot of the continental slope, geological evidence was used to determine the base of the continental slope before proceeding with locating the foot of the continental slope using morphological evidence. The third method refers to the use of a proxy foot of continental slope point. As may be recalled, it has been concluded in the chapter that based on the general view of States, the first two methods denote the application of the general rule while the latter is applied only in exceptional circumstances.

The New Zealand practice, also discussed in Section 6.3, demonstrates the criterion to be considered when choosing the base of slope region. For example, the depth of the break in slope, the type of rocks beyond the break of slope, and the location of the continent-ocean transition zone were considered in determining whether the break reflects the foot of the continental slope. The practice of Brazil and Norway, however, shows that only morphological evidence is applied in choosing the base of slope region.

Looking at the practice of States, it is observed that the bathymetric profile of the area needs to be considered in locating the foot of the continental slope. Three possibilities may arise as a result.

On the first possibility, if the bathymetric profile demonstrates the slope as consisting of a prominent and easily distinguished slope and rise, the practice of all States show that morphological evidence may be sufficient in locating the base of the continental slope. Following that, the foot of the continental slope may be identified using the maximum change in gradient rule. Applying this to the present case, if the slope and rise in the defined area is easily distinguished, for instance if the slope is significantly steep and the point where it meets the gradual slope of the rise is prominent, then the point where it meets the rise shall be the base of the continental slope. A second bathymetric profile within that area could be obtained in order to identify the foot of the continental slope.

The second possibility is that the profile of the defined area shows a less distinguished slope and rise, for instance, where the profile shows a smooth and continuous slope. In applying the practices of Australia and New Zealand this may result in the use of geological evidence in order to locate the region of the base of slope. However, if applying the practice of Brazil, morphological evidence as opposed to geological evidence would still be used to locate the base of slope region by identifying the first regional gradient change.

As to the third possibility, a proxy foot of the continental slope point may be determined by using evidence to the contrary. This is based on the practice of most States and the foot of the continental slope is identified as the inner margin of the continent-ocean transition zone. The practice of States with the exception of Barbados, as discussed previously in Section 6.3 of Chapter Six, also shows that the evidence to the contrary rule is only applied where the general rule fails to locate the foot of the continental slope. Hence, if this situation occurs in the defined area, Malaysia and Vietnam would be justified in using geological evidence to locate the continent-ocean transition zone, and then choosing a proxy foot of the continental slope at the inner margin of the zone.

Since it is observed that the distinction between slope and rise is of utmost importance and is the key to locating the foot of the continental slope, it is noteworthy to determine whether the Dangerous Ground, where the defined area is located, constitutes a slope or a rise.<sup>1028</sup>

If the Dangerous Ground constitutes the continental rise of the Sunda Shelf, it is submitted that the base of the continental slope would be located at the region where the continental slope of the Sunda Shelf meets the latter. However, in the event, the Dangerous Ground does not constitute the continental rise, but is part of the continental shelf or slope, then the base of the slope may be identified where the Dangerous Ground meets a transition near the marginal basin at the north

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<sup>1028</sup> Commission on the Limits of the Continental Shelf, 'Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf', CLCS/11 (United Nations, 13 May 1999) para 5.4.4; Further discussion can be found in Section 6.4.1 of Chapter Six.



western part of the sea.<sup>1029</sup> Similarly, in the case where a rise does not exist, then the foot of slope points shall be identified where the lower slope meets the deep ocean floor.<sup>1030</sup> In other words, if the Dangerous Ground constitutes the continental slope, the foot of the continental slope shall be on its seaward margin.

Regard must be had to the practice of the Commission and coastal States. It was laid down in the Guidelines, and discussed in Chapter Six, that the continental rise is normally developed “*after* breakup and commencement of sea-floor spreading”.<sup>1031</sup> This was confirmed in the Australian practice discussed in Section 6.3 when the Recherche Lower Slope was established as a continental slope, and not a rise, due to the fact that it was developed before continental break-up.

In the Dangerous Ground case, reference can be made to Hutchison where he stated that the Dangerous Ground was generally founded after break-up.<sup>1032</sup> This combined with paragraph 6.2.1 of the Guidelines and as discussed above, confirms that the Dangerous Ground is actually the continental rise of the Sunda Shelf and not the continental slope.

It is worthy to note that this method of identifying the base of the continental slope refers to the second method practiced by States as mentioned previously. In other words, it is geological evidence that is used to locate the base of the slope region as opposed to morphological evidence. Hence, the base of the continental slope which is established as being the landward margin of the Dangerous Ground is identified by using geological evidence.

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<sup>1029</sup> Malaysia and Vietnam, ‘Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary’ (6 May 2009) 23 (Figure 2); see Annex 6.

<sup>1030</sup> Commission on the Limits of the Continental Shelf, ‘Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf’, CLCS/11 (United Nations, 13 May 1999) para 5.4.5.

<sup>1031</sup> Commission on the Limits of the Continental Shelf, ‘Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf’, CLCS/11 (United Nations, 13 May 1999) para 6.2.1 (emphasis added).

<sup>1032</sup> Charles S Hutchison, *Geology of North-West Borneo: Sarawak, Brunei and Sabah* (Elsevier 2005) 147.

After the base of the slope has been identified, the foot of the continental slope is located. Referring to the Guidelines and the practice of States as rehearsed in Chapter Six, this is done, as a general rule, by locating the maximum change in gradient at the region of the base of the continental slope.

It is recalled from Section 8.5.1 of this chapter that the outer edge of the continental margin as defined in the executive summary is well beyond the limits of the continental shelf which is the subject of the joint submission.<sup>1033</sup> This is due to the fact that the joint submission does not regard the Dangerous Ground as part of the continental rise of the Sunda Shelf. Thus, the location of the foot of the continental slope as established in the submission does not affect the defined area.

However, applying the finding that the Dangerous Ground constitutes the continental rise, the foot of the continental slope would be located well within the defined area. This may affect the size of the defined area depending on whether the Hedberg or Gardiner formula is applied.<sup>1034</sup> In applying the Hedberg formula, the fixed points connecting the outer limits of the continental shelf would lie 60 NM from the foot of the continental slope points so established where the slope meets the landward margin of the Dangerous Ground.<sup>1035</sup> If the Gardiner formula is applied, then the fixed points would be established at the points where “the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope”.<sup>1036</sup>

Once the outer edge of the continental margin is identified by foot of slope points and thereafter the location of fixed points resulting from the application of the Hedberg or Gardiner formula, it must be ensured that the limits of the continental shelf so established does not go beyond the

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<sup>1033</sup> Malaysia and Vietnam, ‘Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary’ (6 May 2009) 23 (Figure 2); see Annex 6.

<sup>1034</sup> Both formulae have been discussed in Section 3.7.2 and 3.7.3 in Chapter Three.

<sup>1035</sup> LOS Convention, Article 76 (4) (a) (ii).

<sup>1036</sup> LOS Convention, Article 76 (4) (a) (i).

limitations imposed by Article 76. It may be recalled from the discussion in Sections 3.7.2 and 3.7.3 of Chapter Three and throughout Chapter Five, that paragraphs 5 and 6 of Article 76 imposes the maximum limit of 350 NM from the baseline for submarine ridges, and 350 NM from the baseline or 100 NM from the 2500 metre isobath for natural components of the continental margin.

The type of maximum limit placed on the extent of the continental shelf must depend on the natural prolongation of the defined area. This has been discussed in detail earlier in this chapter with regard to the defined area in the discussion on natural prolongation. Applying the findings made in Chapter Five on submarine ridges and submarine elevations that are natural components of the continental margin, it is clear that the defined area is a natural prolongation that is not a submarine ridge. Therefore, the maximum limit imposed on the outer limits of the continental shelf in the defined area must be 350 NM from the baseline or 100 NM from the 2500 metre isobaths.<sup>1037</sup>

As for the defined area, since it has been established that the extended continental shelf can only be generated from Sarawak and not from Sabah, the limits of not more than 350 NM must be measured from the baseline of Sarawak only. However, since the defined area is considered a natural component of the Sarawak continental margin, the limits of the continental shelf may well exceed 350 NM as long as it does not go beyond 100 NM measured from the 2,500 metre isobath.

### **The extended continental shelf of Brunei**

Another issue which may affect the defined area in the Malaysia-Vietnam joint submission is the presence of a possible extended continental shelf of Brunei. From the geographical setting discussed earlier in this chapter in Section 8.4, Brunei is bordered by Malaysia on three sides. Since Brunei occupies the region in the middle between Sabah and Sarawak and has a coastline

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<sup>1037</sup> LOS Convention, Article 76(5).

extending for 160 kilometres, the effect that it has on Malaysian maritime claims is inevitable.<sup>1038</sup>

With regard to this, it should be born in mind that Malaysia has reached an amicable solution with Brunei in relation to the States' maritime boundaries by virtue of the 2009 Exchange of Letters. Be that as it may, as discussed in Section 8.2 of this chapter, the Exchange of Letters and its specific details have not been publicly disclosed.<sup>1039</sup> However, it is noted that the Exchange of Letters only deal with maritime zones, including the continental shelf, of up to 200 NM.<sup>1040</sup>

For the purpose of discussion, it would be worthy to examine Brunei's possible entitlement to the extended continental shelf in the southern part of the South China Sea.

To date, Brunei has made a submission in the form of preliminary information to the Commission on 12 May 2009.<sup>1041</sup> This shows that Brunei undoubtedly intends to claim an extended continental shelf beyond 200 NM, which based on the geographical configuration of the State, may have implications on the defined area jointly claimed by Malaysia and Vietnam. According to the preliminary information, Brunei has plans to make a full submission claiming jurisdiction over its extended continental shelf beyond 200 NM.<sup>1042</sup> In relation to that, Brunei has asserted the following:

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<sup>1038</sup> Brunei Darussalam, 'Brunei Darussalam's Preliminary Submission concerning the Outer Limits of its Continental Shelf' (12 May 2009) para 9.

<sup>1039</sup> It has been reported that there have been a number of enquiries regarding the details of the letters by law of the sea and petroleum industry sources as well as academics, all of which have been unsuccessful, Jeffrey J Smith, 'Brunei and Malaysia resolve outstanding maritime boundary issues' (2010) 1 LOS Reports 1, 2 (note 5).

<sup>1040</sup> Brunei Darussalam, 'Brunei Darussalam's Preliminary Submission concerning the Outer Limits of its Continental Shelf' (12 May 2009) para 10.

<sup>1041</sup> United Nations, 'Preliminary information indicative of the outer limits of the continental shelf beyond 200 nautical miles', (DOALOS) <[http://www.un.org/Depts/los/clcs\\_new/commission\\_preliminary.htm](http://www.un.org/Depts/los/clcs_new/commission_preliminary.htm)> accessed 20 June 2012.

<sup>1042</sup> Brunei Darussalam, 'Brunei Darussalam's Preliminary Submission concerning the Outer Limits of its Continental Shelf' (12 May 2009) paras 11 and 27.

First, that the natural prolongation of the Bruneian land mass is continuous and “extends across the areas known as the Northwest Borneo Shelf, the Northwest Borneo Trough and the Dangerous Grounds to the edge of the deep ocean floor of the South China Sea Basin”.<sup>1043</sup>

Second, that the outer edge of the continental margin lies “at the transition between the Dangerous Grounds and the deep ocean floor of the South China Sea” and is situated beyond 200 NM from the baselines from which Brunei’s territorial sea is measured.<sup>1044</sup> By virtue of this, Brunei asserts that it has passed the test of appurtenance.<sup>1045</sup>

From the description of the relevant area, it is apparent that the area overlaps with the defined area jointly claimed by Malaysia and Vietnam.<sup>1046</sup> Nevertheless, it is contended that Brunei shares the same situation with Sabah in that it is not situated on the continental shelf of Sunda but on the Northwest Borneo margin. As may be recalled earlier in this chapter, it is difficult to argue that a prolongation exists between the Malaysian-Vietnamese defined area and the Sabah land mass. Since Sabah and Brunei share the same geographical, morphological and geological setting, it would thus be unlikely that the natural prolongation of the Brunei land mass, as with the Sabah land mass, extends beyond the 200 NM limit. If this is the case, the defined area in the Malaysia-Vietnam joint submission should not be affected.

However, in the event the Commission agrees with Brunei on the definition of its outer limits, this would inevitably affect the defined area jointly claimed by Malaysia and Vietnam. Hence, an agreement would have to be made between the States in order to delimit the area. Alternatively, joint development arrangements can be made in respect of the overlapping areas. This method has served to be popular in the region, for example the joint development areas in the Gulf of

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<sup>1043</sup> Ibid para 20.

<sup>1044</sup> Ibid para 21.

<sup>1045</sup> Ibid.

<sup>1046</sup> The “relevant area” refers to the subject of Brunei’s extended continental shelf claim, Brunei Darussalam, ‘Brunei Darussalam’s Preliminary Submission concerning the Outer Limits of its Continental Shelf’ (12 May 2009) 3; the relevant area is as described in *ibid* para 21.

Thailand between Malaysia-Thailand and Malaysia-Vietnam. As such, joint development arrangement is a feasible method and is likely to work out in this part of the world.

## **8.6 Concluding remarks**

This chapter has explored the background information need to analyse the possible extended continental shelf of Malaysia by presented the historical and geological facts of the coastal State. It has found that, while Malaysia's location in South East Asia means that it shall have to share a massive part of its waters with neighbouring States due to the proximity of the many coastal States in the region and the myriad of islands, there is a high potential of claiming an extended continental shelf in the southern part of the South China Sea.

An analysis of the joint submission by Malaysia and Vietnam has been made in this chapter. In addition, this chapter also presented the complexities of establishing the outer limits of the extended continental shelf in this area due to the different geological elements involved. Though a joint submission has been made in respect of the area, this chapter found that it is unlikely that the Commission would agree with the submission due to the following:

First, there exist disputes in the area. This includes the disputes over the Spratly Islands which has been ongoing for a while and involves a number of States. As such, it is highly unlikely that the dispute would be resolved in the near future. Another dispute concerns the extended continental shelf of Brunei. Since Brunei has submitted preliminary information indicating its intention to pursue a claim to an extended continental shelf, there exists potential overlap with the Malaysian-Vietnamese defined area.

Second, it has been established through analysis on the geological characteristics of the continental margins and submarine features involved that the real outer limits of the continental margin in respect of the Malaysian-Vietnamese claim lies in a more landward position than the ones depicted in the submission. Therefore, there is a possibility that the Commission may not agree with the submission by Malaysia and Vietnam.

In light of conclusions, it is submitted that despite the problems involved, the possibility of Malaysia having an extended continental shelf is still high albeit the size of the area may be significantly reduced. Besides that, the process for the Commission to make recommendations and for Malaysia to establish the limits based on those recommendations as provided in paragraph 8 of Article 76 might take a longer time than expected and after delimitation disputes have been resolved.

## **Chapter Nine: Conclusions**

### **9.1 Conclusions**

This thesis has identified the problems relating to the application of Article 76 of the 1982 Convention regarding the delineation of the extended continental shelf beyond 200 NM. Much of the problems are associated with the vagueness and ambiguity of Article 76 combined with the legal-scientific interface which is necessary for its implementation. This thesis has aimed to examine and resolve a major part of the difficulties involved in the application of Article 76 in order to achieve greater clarity in the understanding of Article 76. In addition, the findings of this thesis also resulted in a better analysis of the continental shelf in the East Asian region, and in particular Malaysia.

In order to fully understand the problems underlying Article 76 and its application, **Chapter Two** explored the history of how the concept of the continental shelf came into being. Individual States made unilateral claims to the continental shelf based on a number of criteria and methods. These State practices resulted in a number of definitions for the continental shelf. Due to this, several different criteria have emerged as the legal definition of the continental shelf. For example, as discussed in Section 2.3.2, the concept as expressed in the Truman Proclamation which purely employed the notion of adjacency differs from the concept that incorporated the criterion of distance as proclaimed by States with narrow margins. Chapter Two explained how these different criteria gradually made its way into the Convention. In addition to this, this chapter presented the emergence of a new concept to the continental shelf, that is, the extended continental shelf beyond 200 NM. The importance of natural prolongation is also discussed as the scientific principle which serves as the primary basis on which a State is entitled to the extended continental shelf.

Having shown the origins of international practice with regards to the continental shelf, the developments of the concept were further examined in **Chapter Three**. However, this chapter



focused on the codification of the law rather than the general evolution discussed in Chapter Two. From here, it is evident that the criteria of adjacency and water depth on which the Truman Proclamation was based had made their way to be codified into the 1958 Convention. Nevertheless, it is apparent that the imprecise nature of this definition was not sufficient to regulate the law on the continental shelf and maintain the balance between the interests of different States. Thus, this chapter presented how the criteria laid down in the 1958 Convention had been replaced with the incorporation of the natural prolongation principle that originated from case law, and the distance criterion that was advocated by the narrow shelf States of South America into Article 76.

This new definition of the continental shelf in Article 76 employed many technical terms which were required to maintain its precision and comprehensiveness. However, this chapter found that the incorporation of scientifically technical terms had led to problems since the concept of the continental shelf was legal as opposed to scientific.

Chapter Three identified a number of provisions in Article 76 that have caused primary concern over the application of Article 76 in delineating the extended continental shelf. The problems posed by these provisions have resulted in difficulties in the interpretation of two major issues which are as follows: The first are issues regarding ridges and submarine elevations that encompass paragraphs 1 to 6, while the second relates to issues on the determination of the foot of the continental slope in paragraphs 1, 2 and 4. Hence, this chapter presented an overview of the issues emanating from these paragraphs as a background for a more thorough discussion on these matters in Chapters Five and Six.

Before examining the interpretive problems of Article 76, the thesis presented in **Chapter Four** the enforcement of Article 76 provisions dealing with the extended continental shelf by the Commission on the Limits of the Continental Shelf as a technical body. It found that the Commission was set up as a result of the technical difficulties in applying Article 76 due to lack of technical knowhow by States. It also explored the history of the Commission's establishment including its functions and mandate in order to determine the legal effect of the Commission's

acts. As a result, this chapter found that although the Scientific and Technical Guidelines are of utmost importance to States in making a submission for the claim to an extended continental shelf, they are mere guidelines and are not legally binding on States. Nevertheless, although they are not binding in principle, this chapter also found that the Guidelines are highly influential in the making of submissions both due to the reliance of States upon the Guidelines and to the Commission's practice in making recommendations on based on the Guidelines.

This chapter also delved on the issue of the legal effects of the recommendations. To that, this chapter has found that the provision giving power to the Commission to make recommendations was intended to balance between the right of coastal States to delineate their continental shelf areas, and the power of the Commission to accept or reject submissions. This chapter also addressed the problems associated with the power of the Commission, such as the ping-pong process which may result from different interpretations of Article 76.

While Chapters Three and Four identified the problems associated with the interpretation and application of Article 76, more detailed discussion on the difficulties regarding the technicalities that Article 76 poses is undertaken in **Chapter Five** with regard to issues on ridges and submarine elevations. This chapter explored the legislative history of the relevant provisions in order to find out the intended meaning of the terms used to name the different geomorphological features. The result of this analysis shows that the terms "submarine ridges" and "oceanic ridges" both referred to those that are of oceanic character. However, the difference between the two is purely based on legal elements although they may be geologically the same. The former denotes ridges that share the same characteristics with its land territory, such as islands surmounting ridges, while the latter refers to ridges that are located on the deep ocean floor or beyond the continental margin of a State. As for "submarine elevations that are natural components of the continental margin", the legislative history shows that they must share the same composition as the continental margin.

In addition, this chapter also explored the practices of States regarding the application of the terms. It presented that the interpretation of most States is generally in line with the findings in

the legislative history. However, State practice has developed it further by specifying the characteristics of the features in more detail based on geology, geophysics, morphology and tectonic history.

Beside State practice, this chapter also presented the practice of the Commission in the form of the Guidelines and its recommendations. This chapter presented that the Guidelines clarified the method of identifying submarine elevations that are natural components of the continental margin, that is, by identifying whether a feature is a natural result of continental growth. However, with regard to submarine ridges and oceanic ridges, it was found that although the Guidelines laid down detailed explanation of these features based on their compositions and formation processes, it failed to distinguish between the two. In light of conclusions, it is presented that this is due to the Commission being a technical body as opposed to a legal one and had thus addressed the issue according to scientific findings, while the difference between the two features is based on the legal definition of the continental shelf. The recommendations of the Commission had not only reaffirmed in practice the Commission's position in the Guidelines but had also clarified further the criteria used to identify the features. In relation to submarine elevations that are natural components of the continental margin, it was found that the geological origin of the feature is the determining factor.

Based on the findings made throughout this chapter, it is found that the legislative history of Article 76, the practice of most States and the practice of the Commission generally concur on the following points:

First, a feature is a "submarine elevation" that is a "natural component" of the continental margin only when it fulfills the following:

- 1) Its geological composition is similar to that of the continental margin,
- 2) It shares the same geological origin as the continental margin, and
- 3) It is a natural result of continental growth, for example, rifting and seafloor spreading.

Second, “oceanic ridges” are those that are part of the deep ocean floor and not subject to the continental shelf entitlement of any State. The criterion for an oceanic ridge that can be derived from the study made in Chapter Five is as follows:

- 1) It is composed of oceanic rocks,
- 2) It is severed from the geological and juridical continental margin of the State concerned.  
In other words, it is located in the “deep ocean floor” in the sense of Article 76.

Third, the findings made in the chapter show that a “submarine ridge” may be as follows:

- 1) It is composed of oceanic rocks or is a mid-ocean ridge that may be composed of oceanic and continental rocks,
- 2) It is geologically and morphologically connected to the land territory of the State.

With these findings presented, it is submitted that Chapter Five has clarified the law relating to ridges and submarine elevations in Article 76 that was very much unclear and in need of definition.

Similar to Chapter Five, **Chapter Six** had also resolved certain aspects of the ambiguity posed by Article 76, that is, in relation to the foot of the continental slope. Unlike the issue on ridges and submarine elevations, the legislative history of Article 76 did provide much detail in resolving those issues. It was found that such technical difficulties were not foreseen by the delegates during negotiations. However, it could be implied that a general rule – exception relationship was intended for the two methods provided for under Article 76. This finding was made based on the morphological approach adopted for the definition of the continental shelf which would in turn reflect a morphological definition for the foot of the continental slope.

Besides the legislative history, the chapter explored the practices of States making submissions and how the foot of the continental slope provisions were applied. With the exception of Barbados, coastal States making submissions regarded the relationship between the maximum change in gradient rule and the evidence to the contrary rule to be that of general rule and

exception. As for the identification of foot of continental slope points, States vary in their approaches. However, it was found that although there are a number of different terms used by States to describe the method in which the foot of slope points are located, such as “geologically supported morphological foot of slope” and “regional gradient change”, the results are essentially the same. Thus, a general pattern could be deduced from this practice, that is, a morphological foot of slope point is usually located at the base of the slope which is in turn located by morphological or, in some situations by geological, means.

In addition, the practice of the Commission is reflected in the Guidelines which provides a thorough explanation on how the foot of continental slope is identified. Similarly, the practice of the Commission can also be found in the recommendations of the Commission where it reaffirms the position held by the Guidelines and the general practice of States.

It appears that whereas the Guidelines laid down in detail the methods of identifying the foot of the continental slope according to the steps and the types of evidence applicable, it is State practice that further clarifies the law with actual examples of different continental margins.

As a conclusion, points that can generally be derived from the findings in this chapter giving due consideration to the legislative history, State practice and the practice of the Commission are as follows:

- 1) The maximum change in gradient rule was indeed intended as the general rule with the evidence to the contrary rule as its exception.
- 2) The dual regime applies when the maximum change in gradient rule is used to locate foot of continental slope points. It is not applied when foot of continental slope points are determined by evidence to the contrary.
- 3) Although morphological evidence was originally intended to be used in areas where the shelf, slope and rise are distinct and easily identifiable, is to be applied as much as it is possible to do so be it in identifying the base of slope region or the foot of the continental slope.

Hence, this chapter has clarified the other important aspect of delineating the extended continental shelf according to Article 76.

In **Chapter Seven**, the general picture of the continental shelf regime in East Asia was presented with an overview of the issues relating to the extended continental shelf in the East China Sea, the Yellow Sea, the Philippine Sea and the South China Sea. This includes the discussion on baselines and insular features. **Chapter Eight** focused on a smaller part of the East Asian region relating to the continental shelf of Malaysia.

With regard to the legal implications that baselines and insular features may have on international law and practice as a whole and on the Malaysian situation in particular, the following points are noteworthy:

**a) Baselines**

As discussed, the number of coastal States implementing the straight baseline system in East Asia is overwhelming, therefore it can be safely concluded that the practice of most States in the region is to adopt straight baselines. Because of this overwhelming claim over straight baselines, the straight baseline system, although excessive, may prove to become a generally accepted practice in the region. This can be construed from a number of sources. First, in the joint submission by Malaysia and Vietnam, for example, both States have applied the straight baseline system of which both are significantly inconsistent with the wordings of the Convention. The fact that both States have agreed to submit a joint submission using those baselines shows acknowledgement and acceptance. Secondly, there have been no protests by States in the region over the application of the straight baselines. Thirdly, State practice has shown that the coastal States in this region are motivated to apply straight baselines in order to match those of an opposite or adjacent State. An example would be the agreement between Malaysia and Indonesia in the 1969 Treaty with Indonesia.<sup>1047</sup>

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<sup>1047</sup> The Geographer, 'Indonesia – Malaysia Continental Shelf Boundary', *Limits in the Seas, No. 1* (International Boundary Study Series A, January 1970) 5.

Since the practice of States in East Asia has been to claim straight baselines excessively and to accept those straight baselines claimed by neighbouring States, it is difficult to say that the straight baselines claimed by Malaysia would cause much of a problem.

On a more general perspective, the widely accepted usage of excessive straight baselines may prove to have a significant impact on the evolution of the law, in particular the Convention. It appears that the requirements of Article 7 on straight baselines do not command much authority in the region of East Asia. Therefore, it is observed that although the extensive use of the straight baseline system in East Asia may constitute a change in international practice, it does not result in much of problem in the delineation of the continental shelf.

#### **b) Insular features**

Another legal implication that could be concluded with regard to the practice of East Asian States is in relation to the status of insular features. With regard to insular features, two main issues are relevant to the situation in this region. The first one is on the status of artificial islands. As mentioned before in Section 7.3.2 on artificial islands, there may be some merit to the discussion on whether an artificial island is built on a natural base. Although not adopted by the Commission, the case of the Okinotorishima implies that there is a likelihood that artificial islands built on a natural base can be regarded as islands that are able to generate maritime zones as long as they fulfill the other requirements of an island under Article 121 of the Convention. This also implies that artificial islands which are not built on a natural base have no chance at all of being granted the status of an island under Article 121 of the Convention. If this theory stands, this could have a huge impact on international practice. While the case of Rockall may have been the precedent relied upon before this, thus diminishing any State's intention of constructing artificial structures upon mere rocks, this would have changed since the case of Okinotorishima. Thus, if and when the Okinotorishima case has been resolved, the outcomes would have an impact on the islands in the East Asian region. If artificial islands built on a natural base were to be regarded as islands that are able to generate continental shelf rights, those insular features within the Spratly Group that cannot be regarded as "islands" that can "sustain human habitation

or economic life of their own” in the sense of Article 121 of the Convention may still be able to generate exclusive economic zones, continental shelf areas of up to 200 NM, and possibly even an extended continental shelf if artificial islands are built upon them. Therefore, it could be foreseen that States would start building permanent installations extensively on features under their sovereignty in attempts to have these features regarded as full-fledged islands. Indeed, this scenario started occurring right after Japan made its submission which involves claiming an extended continental shelf area around Okinotorishima. For example, China passed its Island Protection Law on 26 December 2009 and completed building permanent installations on 13 islands within the East and South China Seas by February 2010.<sup>1048</sup> It is observed that in the event the Spratly Islands are regarded as islands in the sense of Article 121 of the Convention, this would considerably reduce, or even diminish, Malaysia’s entitlement to an extended continental shelf in the southern part of the South China Sea.

This also relates to the second issue, that is, the weight to be given to these islands. If any of the insular features of the Spratly Group do come within the meaning of “island” in the sense of the Convention, they would not necessarily be given full effect in delimitation. In other words, it is most likely that the features would be given limited weight due to their size and their distance from the coast. This has been discussed in Chapter Seven in relation to the *Black Sea* case and the *delimitation case between Bangladesh and Myanmar in the Bay of Bengal*.<sup>1049</sup> Indeed, it has been argued that “[t]here seems no doubt that a court, applying existing principles and precedents, would limit the entitlement of each Spratly and Paracel high-tide elevation to, at most, a 12-mile belt of territorial sea”.<sup>1050</sup> In light of the discussion above, although in principle the features comprising the Spratly Islands may be able to generate maritime zones if

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<sup>1048</sup> Barbara Kwiatkowska, ‘Fundamental Principle of “Without Prejudice” in Submissions to the UN CLCS in Northeast and Southeast Asia’ (2012) 3(1) *Law of the Sea Reports* 1, 18.

<sup>1049</sup> *Case concerning Maritime Delimitation in the Black Sea (Romania v Ukraine)* [2009] ICJ 61; *Dispute concerning delimitation of the maritime boundary between Bangladesh and Myanmar in the Bay of Bengal (Bangladesh/Myanmar)* (2012) 16 ITLOS.

<sup>1050</sup> Brice M Claggett, ‘Competing Claims of Vietnam and China in the Vanguard Bank and the Blue Dragon Areas of the South China Sea: Part II’ (1995) 13 *Oil and Gas Law and Taxation Review* 419, 432.



the requirements of an “island” are met, in practice, it is likely that the features be given the weight of mere rocks in relation to delimitation.

## **9.2 Possible solutions for East Asia**

In light of conclusions in respect of Chapters Seven and Eight, it is also presented that there are a number of possibilities on how they may be addressed. The best possible solution in relation to each case is proposed and discussed below in addition to the implications they may have on the extended continental shelf of Malaysia.

### **a) Resort to the Commission**

As may be recalled, resort to the Commission is not available as a dispute settlement mechanism since the Commission is not a judicial body. However, in circumstances where a dispute involves the interpretation of the scientific character of a particular feature, there is nothing in the Convention or the Guidelines that specifically precludes the Commission from being involved. In that case, the Commission would be the most suitable body to determine the scientific character of a feature where the feature is the subject of a submission made in pursuance to Article 76. In other words, where a coastal State puts forward its interpretation of a submarine feature in its submission under Article 76 where the interpretation of that feature is disputed by another State, the Commission may agree with that State or relay its own interpretation thereof.

With regard to the continental shelf in the East China Sea, it is noted that the primary issue which needs to be resolved first and foremost is the interpretation of the Okinawa Trough, that is, whether the trough constitutes the boundary between the continental shelf of China and Japan. Since this question is one that purely relates to the scientific and technical nature of a feature, it is argued that resort to the Commission would be the best solution. In light of that, it is observed that China and South Korea have taken the appropriate steps in submitting their preliminary information. It is foreseen that their future submissions would put the Commission in a position to determine the scientific character of the Okinawa Trough.

Be that as it may, although this solution is likely to work best, it is not without its problems. In practice, the Commission has been reluctant to make recommendations on submissions in respect of areas which are subject to dispute. For instance, in response to the submission made by the Russian Federation with regard to the Okhotsk Sea, Japan had sent a notification stating its position requesting the Commission “not to take any action that would prejudice the territorial issue of the Four Islands or delimitation of the continental shelf and the exclusive economic zone between Japan and the Russian Federation”.<sup>1051</sup> Due to this, the Commission refrained from making any recommendations and recommended the Russian Federation to make a partial submission in respect of the Okhotsk Sea without prejudice to delimitation issues in the region disputed by Japan.

Based on the Commission’s practice regarding the Russian submission, it is observed that this solution of resorting to the Commission similarly cannot be applied in the case of the Malaysian submission. The submission, which is in respect of the southern part of the South China Sea, would inevitably involve the Spratly Islands. Since the dispute over the islands has not been resolved, based on the previous practice of the Commission, it would be highly unlikely that the Commission would choose to issue recommendations in respect of that area.

Despite that, while the future submissions by China and South Korea may well involve the dispute with Japan, it would still be possible that the Commission consider and address the nature of the Okinawa Trough as a purely scientific question disregarding the dispute between the States.

Besides resolving the scientific aspect of the East China Sea dispute as discussed above, it is reminded that the issue in the East China Sea also involves resolving the legal aspect that is, ascertaining the legal effect of the Okinawa Trough. If the Okinawa Trough is held to mark the geological boundary of the two continental shelf areas, a judicial body would be needed to

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<sup>1051</sup> Japan, ‘Notification regarding the submission made by the Russian Federation’ (14 March 2002) 2 <[http://www.un.org/Depts/los/clcs\\_new/submissions\\_files/rus01/CLCS\\_01\\_2001\\_LOS\\_JPNtext.pdf](http://www.un.org/Depts/los/clcs_new/submissions_files/rus01/CLCS_01_2001_LOS_JPNtext.pdf)> accessed 17 June 2012.

consider whether it constitutes a relevant circumstance that merits the shifting of the equidistance line.

As seen in the earlier chapters, the developments in international jurisprudence as applied by the court and tribunal have witnessed the decline of the natural prolongation principle in delimitation cases. This is very much evident in the *Tunisia v Libya* case where the facts are similar to the situation in the East China Sea between China and Japan. Therefore, with China strongly insisting for the application of the natural prolongation principle, there is a wide discrepancy between the position of China on one hand, and international jurisprudence on the other. Accordingly, it is unlikely that the case would be brought before the international court. It would then follow that the most practical solution would be to resort to bilateral negotiations and arrangements as the most preferred method of resolving the delimitation issues in this region.

For the purpose of discussions, however, assuming the dispute is heard before a judicial body, the decision of the court would be of great significance to the development of international jurisprudence. If, on one hand, the court holds that natural prolongation is irrelevant where the distance between the coasts of two opposite States does not exceed 400 NM, then this would only reaffirm and strengthen the principle laid down in *Tunisia v Libya*. If, on the other hand, it decides that China is entitled to a continental shelf beyond 200 NM in the Okinawa Trough based on natural prolongation, this may result in a significant change in international jurisprudence

#### **b) Third party dispute settlement**

Although the application of Article 76 clearly involves only two parties, that is, the coastal State making the submission and the Commission, resort may be had to third party dispute settlement in circumstances where another State may be involved. This would occur particularly where there is dispute concerning sovereignty over land territory. In such a case, resort should first be had to a judicial or arbitral body in order to determine the sovereignty of a land territory. Only then the continental shelf, and other maritime zones for that matter, could be delimited. In instances where the land territory is also entitled to an extended continental shelf beyond 200 NM, resolving its sovereignty dispute would also allow for the smooth application of Article 76.

This solution would work best for areas such as the southern part of the South China Sea where the many islands within the Spratly Group are claimed by various States. In relation to the joint submission by Malaysia and Vietnam, it is noted that both States have adopted an amicable approach in putting aside the issue of the Spratly Islands. In other words, the States' agreement to disregard the islands has made it possible for both States to make a joint submission on the extended continental shelf, and possibly a joint development arrangement later on. This would have been the perfect approach had the dispute over the islands been between Malaysia and Vietnam only. However, since the dispute also involves other States, delimitation issues is less likely to be resolved without the interference of third party dispute settlement. In terms of the effect or weight to be given to the Spratly Islands, it has been discussed in Section 7.7 in Chapter Seven that the court or tribunal would most likely disregard the features due to their size and distance from the coast.

### **c) Joint development arrangements**

Cooperative arrangement for joint exploration and exploitation is a practical way of dealing with deadlocks in negotiations over territorial sovereignty and maritime delimitation. As such, it has been a popular method of resolving jurisdictional disputes where maritime zones of two or more States overlap. It would thus be noteworthy to consider whether this solution would work in the region of East Asia in light of the issues previously analysed.

It is noted that this method has been applied successfully in Southeast Asian countries, for instance the joint development areas in the Gulf of Thailand between Malaysia-Thailand and Malaysia-Vietnam, and the commercial arrangement between Malaysia and Brunei as mentioned in Chapter Eight. In that sense, this method would work best for most areas where there exist jurisdictional disputes. More specifically, this method seems to be the best solution where there exists an overlap of continental shelf zones between neighbouring States as an alternative to delimitation. Therefore, joint development arrangements also serve as an alternative to dispute settlement where States cannot agree on a boundary to delimit their continental shelf areas.

Despite this method being the best alternative to dispute settlement, it would nevertheless be difficult to apply to situations where several land territories which are claimed by a number of States are situated in very close proximity to one another. An obvious example would be the Spratly Islands in the southern part of the South China Sea. In such a case, where the sovereignty of the islands are claimed by several States combined with the fact that the islands are in such close proximity to one another, it would not be feasible to establish joint development areas. Hence, in situations such as these, the best solution would be to agree on delimitation once ownership has been determined.

With regard to the States involved in the delimitation of the continental shelf in the East China Sea and the Yellow Sea, unlike the situation in the Spratly Islands, it is technically feasible to set up joint development arrangements looking at the geographical configuration of the region. However, it is highly unlikely that this method could be achieved in light of the history between China and Japan. Be that as it may, for the purpose of discussions, a proposed framework for the possibility of a joint development arrangement would be that the States concerned should take a more relaxed approach in establishing the limits of a joint development area as opposed to insisting on their respective methods of delimitation. In the East China Sea, for instance, a joint development area could be established by adopting the line between the axis of the Okinawa Trough which represents China's position, and the equidistance line representing Japan's stand, as the eastern limit of the joint development area.

It is worthy to note that a joint development zone has already been set up in the East China Sea between Japan and South Korea in 1974.<sup>1052</sup> The limits of this claim have been identified as being based on South Korea's claim where the limit faces Japan, and based on Japan's claim where the limit faces South Korea. However, it has been noted that almost the entire joint

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<sup>1052</sup> Agreement between Japan and the Republic of Korea concerning Joint Development of the Southern Part of the Continental Shelf Adjacent to the Two Countries 1974.

development zone is on the Japanese side of the hypothetical equidistance line between Japan and South Korea.<sup>1053</sup>

Besides the joint development zone established between Japan and South Korea, Japan and China have also announced their intention to establish a joint development zone between them in 2008.<sup>1054</sup> Nevertheless, this was merely a provisional arrangement in the sense of Article 83(3) of the 1982 Convention and does not resolve the issue regarding the Okinawa Trough.<sup>1055</sup> Hence, in cases such as this one, joint development arrangements can only at best be regarded as the most amicable temporary solution pending delimitation agreements. In light of conclusions, it is therefore submitted that joint development arrangements do not stand much chance of success in respect of East Asia.

### **9.3 The extended continental shelf of Malaysia**

In terms of the technical aspects of the extended continental shelf of Malaysia, the assessment made on the geographical and geological configuration of Malaysia reveals that it has a high likelihood of claiming an extended continental shelf in the southern part of the South China Sea. However, the extent of the continental shelf claimed shall depend on the geological and morphological elements which may or may not conform to the defined area claimed in the joint submission.

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<sup>1053</sup> Jianjun Gao, 'The Okinawa Trough Issue in the Continental Shelf Delimitation Disputes within the East China Sea' (2010) 9 Chinese Journal of International Law 143,146.

<sup>1054</sup> 'Principled Consensus on the East China Sea Issue between China and Japan' (18 June 2008) <[www.fmprc.gov.cn/eng/xwfw/s2510/2535/t466632.htm](http://www.fmprc.gov.cn/eng/xwfw/s2510/2535/t466632.htm)> accessed 10 June 2012.

<sup>1055</sup> The first provision of this principled consensus states as follows: In order to make the East China Sea, of which the delimitation between China and Japan is yet to be made, a "sea of peace, cooperation and friendship", China and Japan have, in keeping with the common understanding reached by leaders of the two countries in April 2007 and their new common understanding reached in December 2007, agreed through serious consultations that the two sides will conduct cooperation in the transitional period prior to delimitation without prejudicing their respective legal positions. 'Principled Consensus on the East China Sea Issue between China and Japan' (18 June 2008) <[www.fmprc.gov.cn/eng/xwfw/s2510/2535/t466632.htm](http://www.fmprc.gov.cn/eng/xwfw/s2510/2535/t466632.htm)> accessed 10 June 2012.

In light of the analysis previously made with respect to the Malaysian extended continental shelf claim in the defined area, the following points on the technical requirements of establishing the extended continental shelf can be concluded:

First, it was established that Malaysia had passed the test of appurtenance by proving natural prolongation beyond 200 NM. Although this may not be the case for Sabah due to the existence of the Northwest Borneo Trough, natural prolongation could be established from the defined area leading to the land territory of Sarawak.

This point denotes that the existence of a trough is not necessarily detrimental to a claim since morphological connection may be established elsewhere. Apart from that, it also denotes that, in principle, the Malaysian continental shelf area generated from the coast of Sabah shall be limited to the 200 NM limit as a continental shelf entitlement based on the distance criterion and not on natural prolongation. This point concurs strongly with the practice of New Zealand as established in the Hikurangi Plateau area. Besides that, there is nothing in the Convention, other State practice or the Guidelines indicating that this point is inconsistent with international law. Therefore, the practice of Malaysia here strengthens international practice with regard to the method of establishing natural prolongation of the continental margin.

The second is with regard to the adoption of the straight baseline system by Malaysia (and Vietnam). Although it is submitted that the baselines do not conform to the requirement of the Convention, the use of the straight baseline system constitutes the normal practice of States in the region. As discussed earlier, States in this region have generally acquiesced to the extensive usage of straight baselines in order to be on par with their archipelagic neighbours. Therefore, it is highly unlikely that the adoption of these baselines by Malaysia and Vietnam would cause any problems.

Third, the establishment of the outer edge of the continental margin is done by determining foot of continental slope points. Assuming the Dangerous Ground constitutes the continental rise, the geological assessment previously made shows that the distinction between the slope and the rise is easily identifiable. As a result, bathymetric profile can be used to determine the base of the

continental slope and foot of continental slope points can be located by the maximum change in gradient rule.

However, in the event the rise is at a more seaward location as depicted in the executive summary, the general practice of States shows that geological evidence may be used in determining the base of slope region, followed by the foot of slope points which is identified by bathymetric profile. If all fails, then Malaysia would be justified, according to the practice of most States, to locate proxy foot of continental slope points at the inner margin of the continent ocean transition zone.

Fourth, in determining the maximum limit of the extended continental shelf, the practice of States and the drafting history of Article 76 reveal that “submarine ridges” refer to those which are of oceanic character as opposed to continental. Since it has been established that the defined area is not part of a submarine oceanic ridge, Malaysia shall have the option of applying either constraint line. Hence, the maximum limit would be either 350 NM or 100 NM from the 2,500 metre isobath.

It is apparent that based on the technical analysis, it would appear that in principle, the Commission as a technical body would agree with the submission. In practice, however, other factors must also be considered which may well affect the extent of the continental shelf in the defined area. The primary issue concerns the presence of the Spratly Islands in the vicinity of the defined area. With regard to this key point, the following are the possible implications that may follow:

The first relates to the status of the submission. As may be recalled, precedent has shown that the Commission has been reluctant to decide on submissions that involve sovereignty disputes. Indeed, ever since the Malaysia-Vietnam joint submission was submitted, the Commission has not yet set up a subcommission to consider the submission. This would result in a stalemate unless the sovereignty issues over the Spratly Islands are resolved.



The second implication is with regard to the continental shelf of Brunei as a State with a coast adjacent to Sabah and Sarawak. A future submission by Brunei, if based on the preliminary information that it has submitted, would in all likelihood allocate part of the defined area to Brunei as part of its extended continental shelf, hence, again reducing the size of the defined area.

A solution to the problems mentioned above would be to set up tripartite joint development arrangements in the overlapping extended continental shelf areas with Brunei and perhaps with States which are awarded the Spratly Islands in the future.

As a concluding remark, it is reminded that the extended continental shelf regime is regulated by a dynamic mechanism of establishing its outer limits as laid down in Article 76. Nevertheless, as with the law regulating any other regime, it is the practice of individual States and the practice of the Commission which fashions the development of the law.

## ANNEXES

### Annex 1

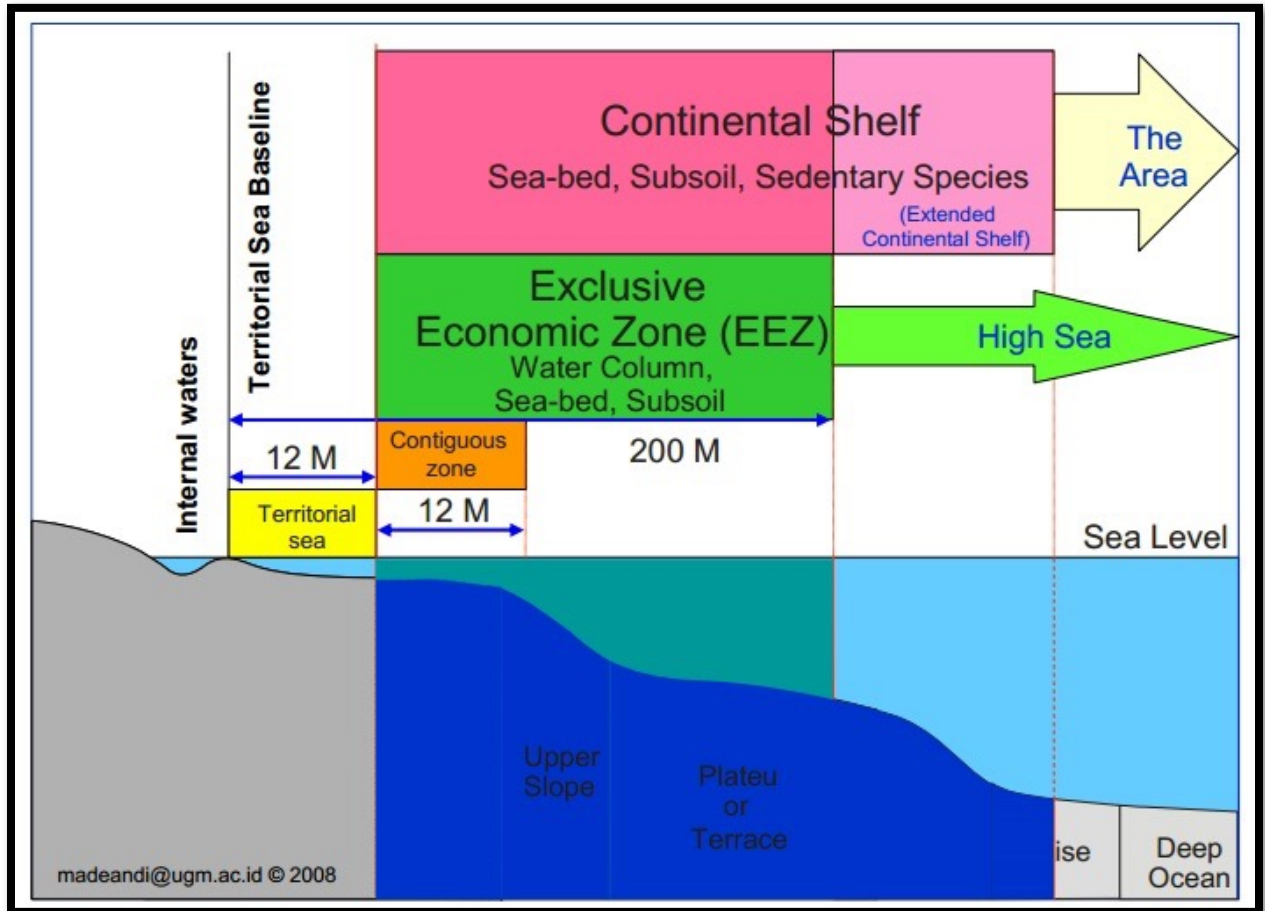


Figure showing the maritime zones under the 1982 Convention.

Source: MA Arsana and C Schofield, 'Extended continental shelf opportunities in Asia Pacific' (United Nations-Nippon Foundation Fellowship Alumni Meeting, Tokyo, April 2009) <[http://www.un.org/depts/los/nippon/unnff\\_programme\\_home/alumni/tokyo\\_alumni\\_presents\\_files/alum\\_tokyo\\_arsana.pdf](http://www.un.org/depts/los/nippon/unnff_programme_home/alumni/tokyo_alumni_presents_files/alum_tokyo_arsana.pdf)> accessed 18 July 2012.

## Annex 2

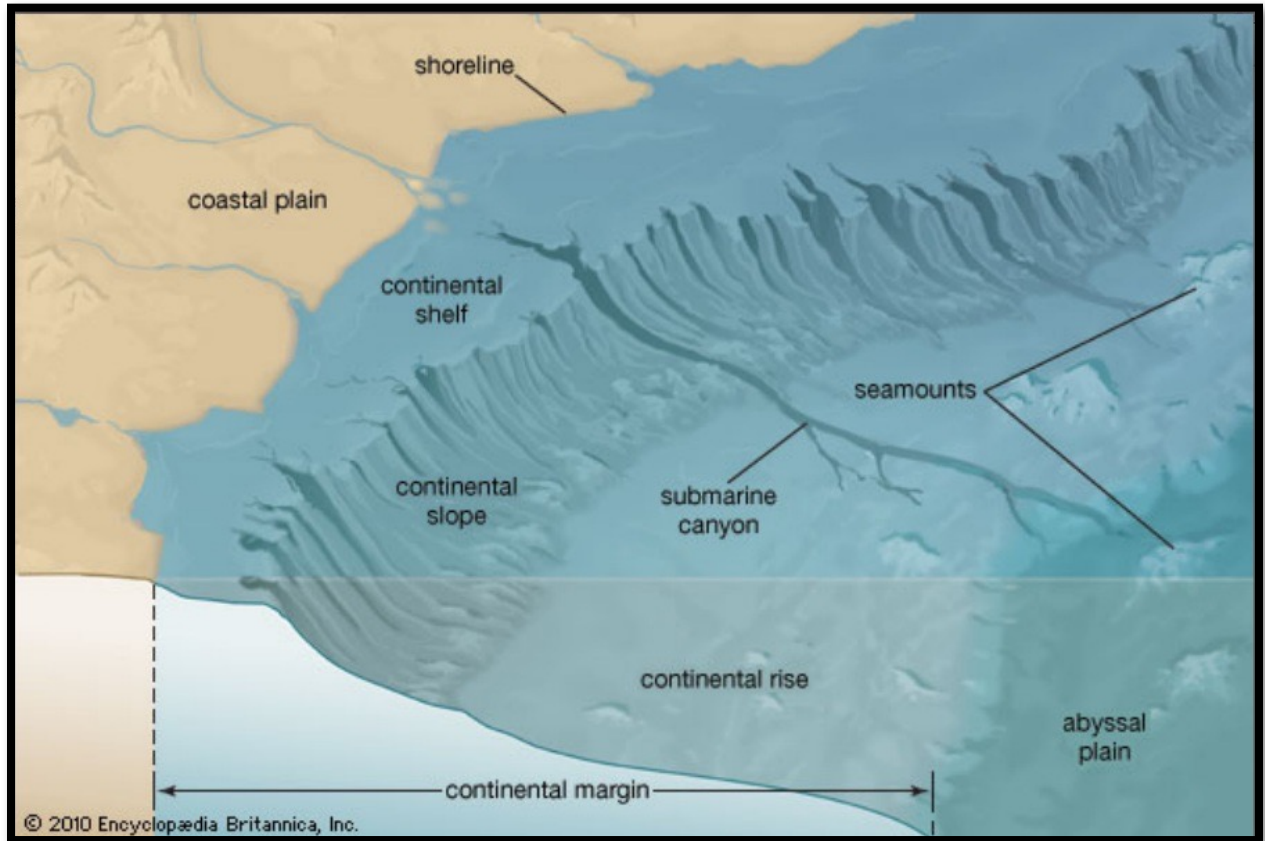


Figure showing the possible morphological features of a continental margin

Source: 'Continental margin', *Encyclopædia Britannica* <<http://www.britannica.com/EBchecked/topic/135007/continental-margin>> accessed 18 July 2012.

## Annex 3

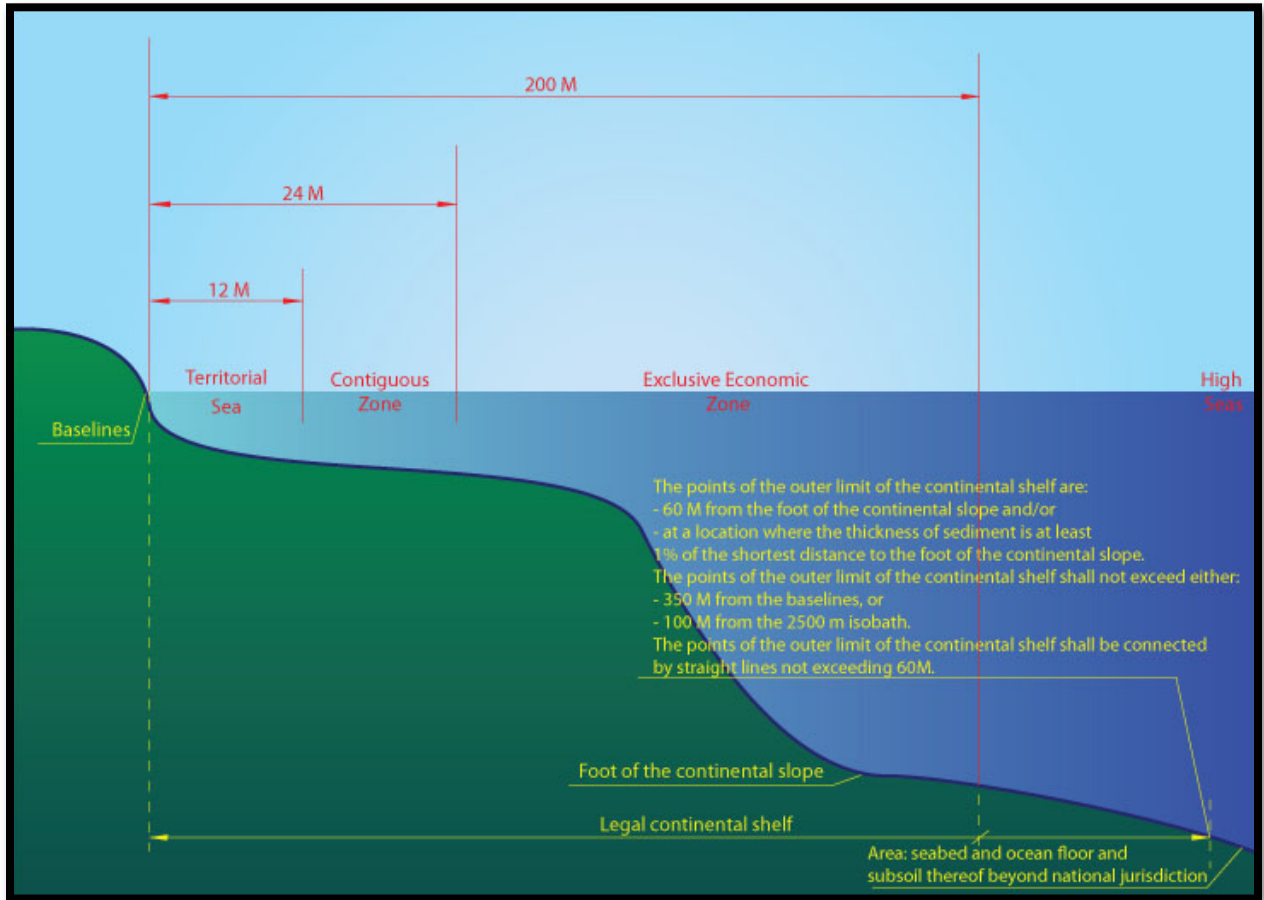
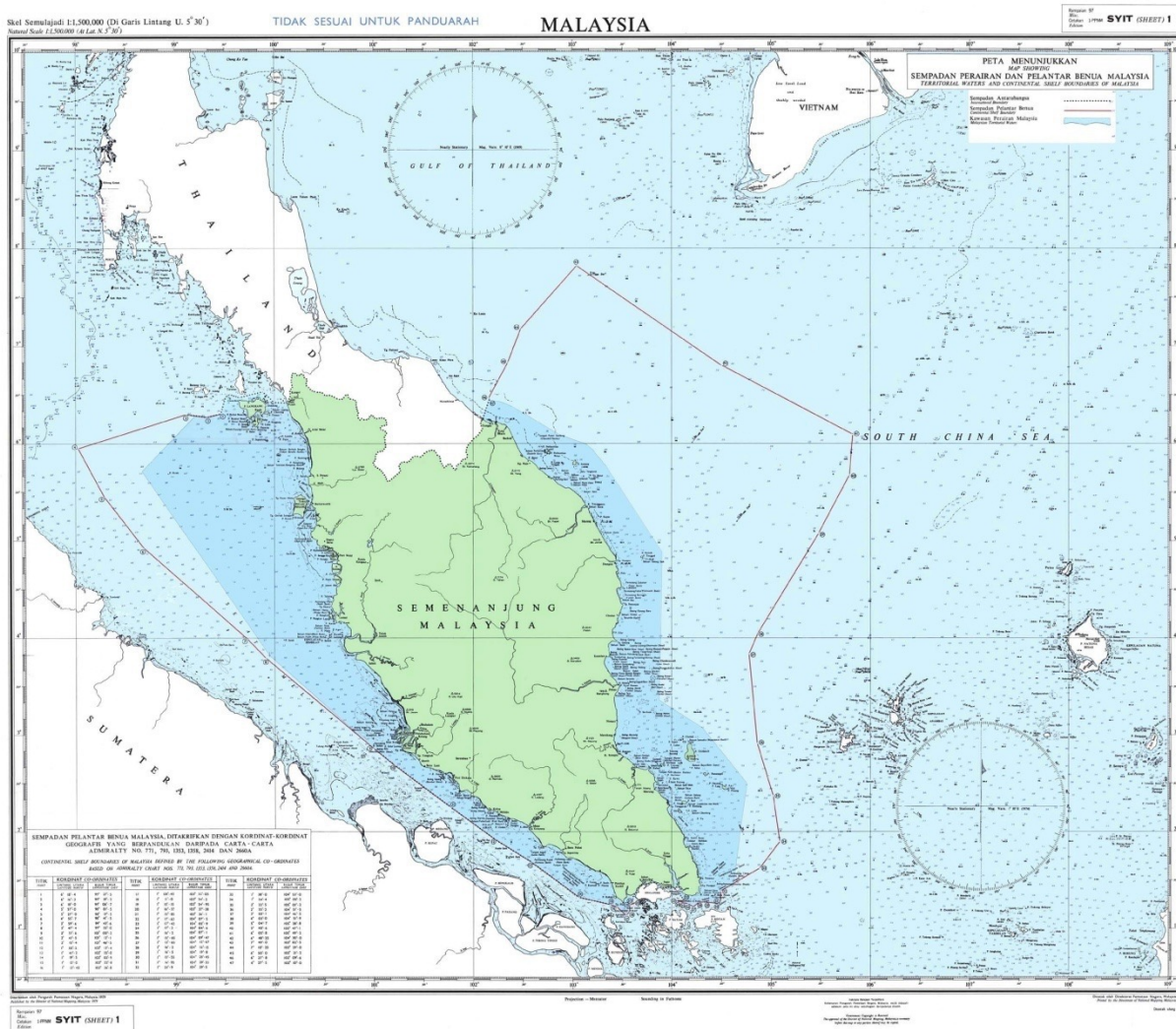


Figure showing the foot of the continental slope, the legal continental shelf and the Area.

Source: United Nations, 'The continental shelf', *Division for Ocean Affairs and the Law of the Sea* <[http://www.un.org/Depts/los/clcs\\_new/continental\\_shelf\\_description.htm](http://www.un.org/Depts/los/clcs_new/continental_shelf_description.htm)> accessed 19 July 2012.

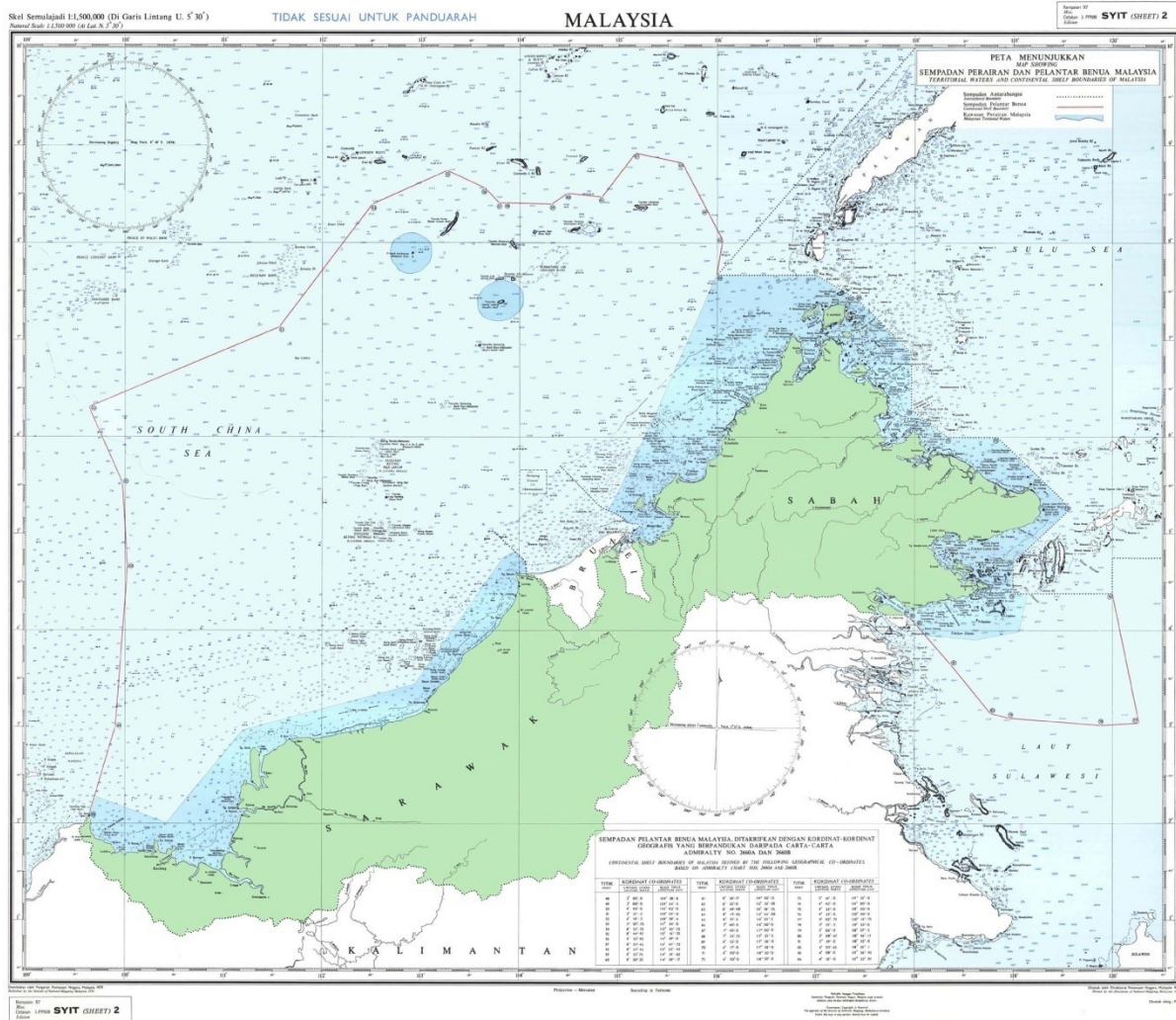
## Annex 4



The Malaysian 1979 Map or *Peta Baru Menunjukkan Sempadan Perairan dan Pelantar Benua Malaysia* (New Map Showing the Territorial Waters and Continental Shelf Boundaries of Malaysia) - Sheet 1

Source: *Laman Web Rasmi Majlis Keselamatan Negara, Jabatan Perdana Menteri* (The official website of the national Security Council, The Prime Minister's Department) <[http://www.mkn.gov.my/mkn/default/article\\_NM.php?mod=4&fokus=16](http://www.mkn.gov.my/mkn/default/article_NM.php?mod=4&fokus=16)> accessed 18 July 2012.

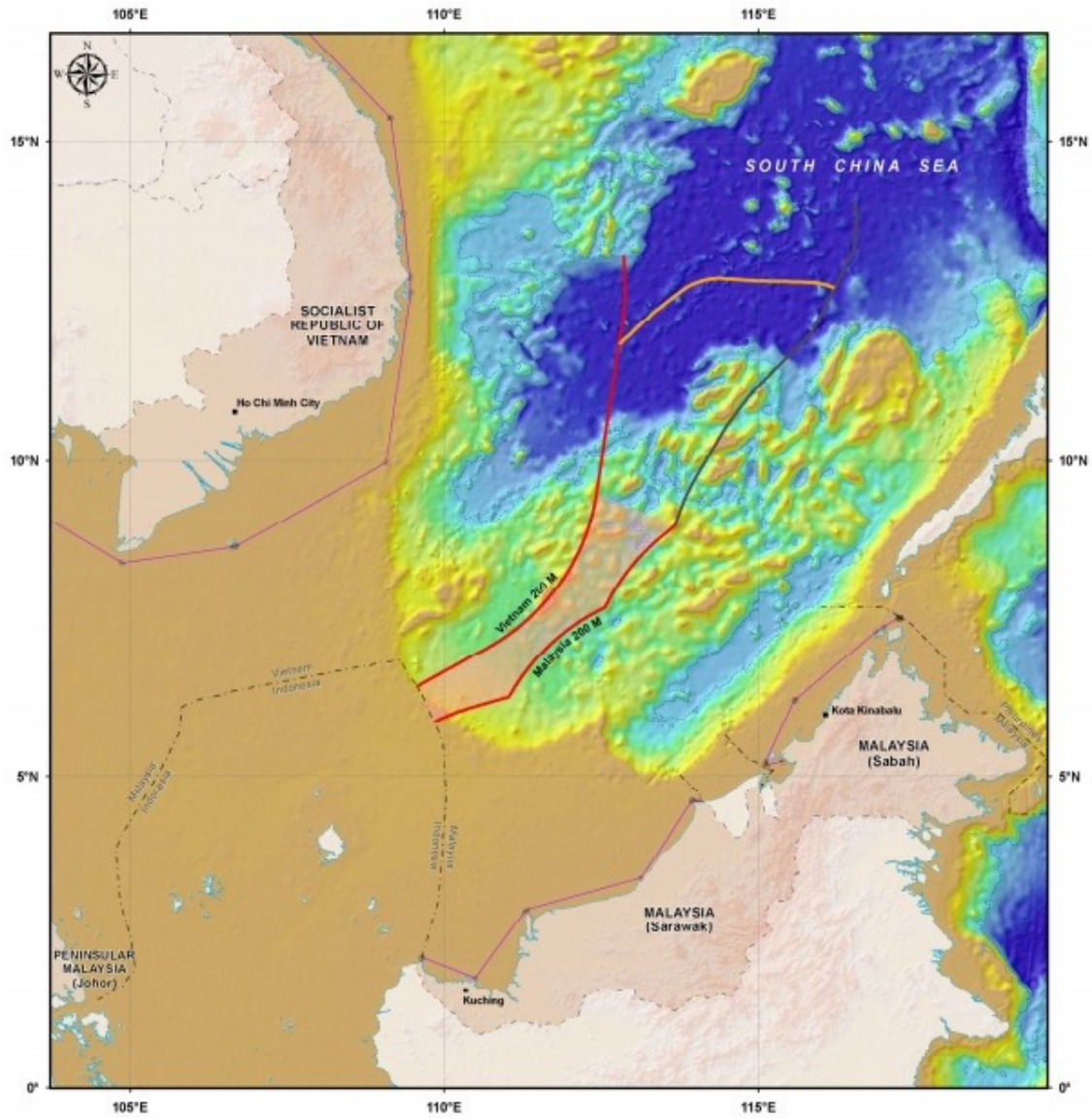
## Annex 5



The Malaysian 1979 Map or *Peta Baru Menunjukkan Sempadan Perairan dan Pelantar Benua Malaysia* (New Map Showing the Territorial Waters and Continental Shelf Boundaries of Malaysia) - Sheet 2

Source: *Laman Web Rasmi Majlis Keselamatan Negara, Jabatan Perdana Menteri* (The official website of the national Security Council, The Prime Minister's Department) <[http://www.mkn.gov.my/mkn/default/article\\_NM.php?mod=4&fokus=16](http://www.mkn.gov.my/mkn/default/article_NM.php?mod=4&fokus=16)> accessed 18 July 2012.

## Annex 6



The outer edge of the continental margin and the defined area in the southern part of the South China Sea.

Adapted from Malaysia and Vietnam, 'Malaysia-Vietnam joint submission to the Commission on the Limits of the Continental Shelf pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in respect of the southern part of the South China Sea, Part 1: Executive Summary' (6 May 2009) Figure 2.

Annex 7



Map of the East Asian region

Source: 'Map of Southeast Asia', *World Map* <[http://www.world-maps.co.uk/maps/600-southeast\\_asia.jpg](http://www.world-maps.co.uk/maps/600-southeast_asia.jpg)> accessed 18 July 2012.



## Annex 8



Map of Malaysia

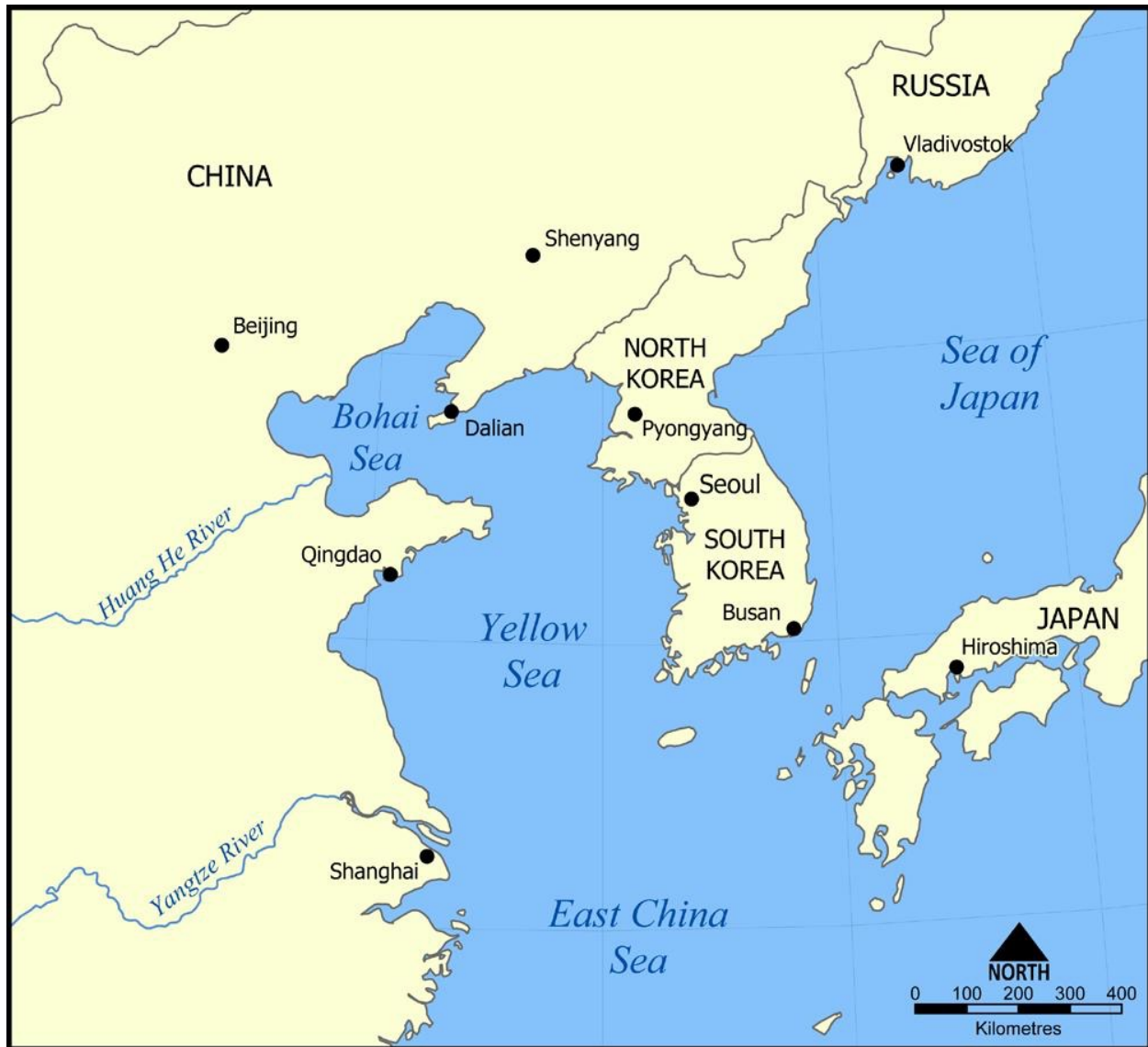
Source: -- <<http://wps.aw.com/wps/media/objects/277/284581/malaysia.jpg>> accessed 18 July 2012.

Annex 9



Map of the East China Sea

## Annex 10



Map of the Yellow Sea

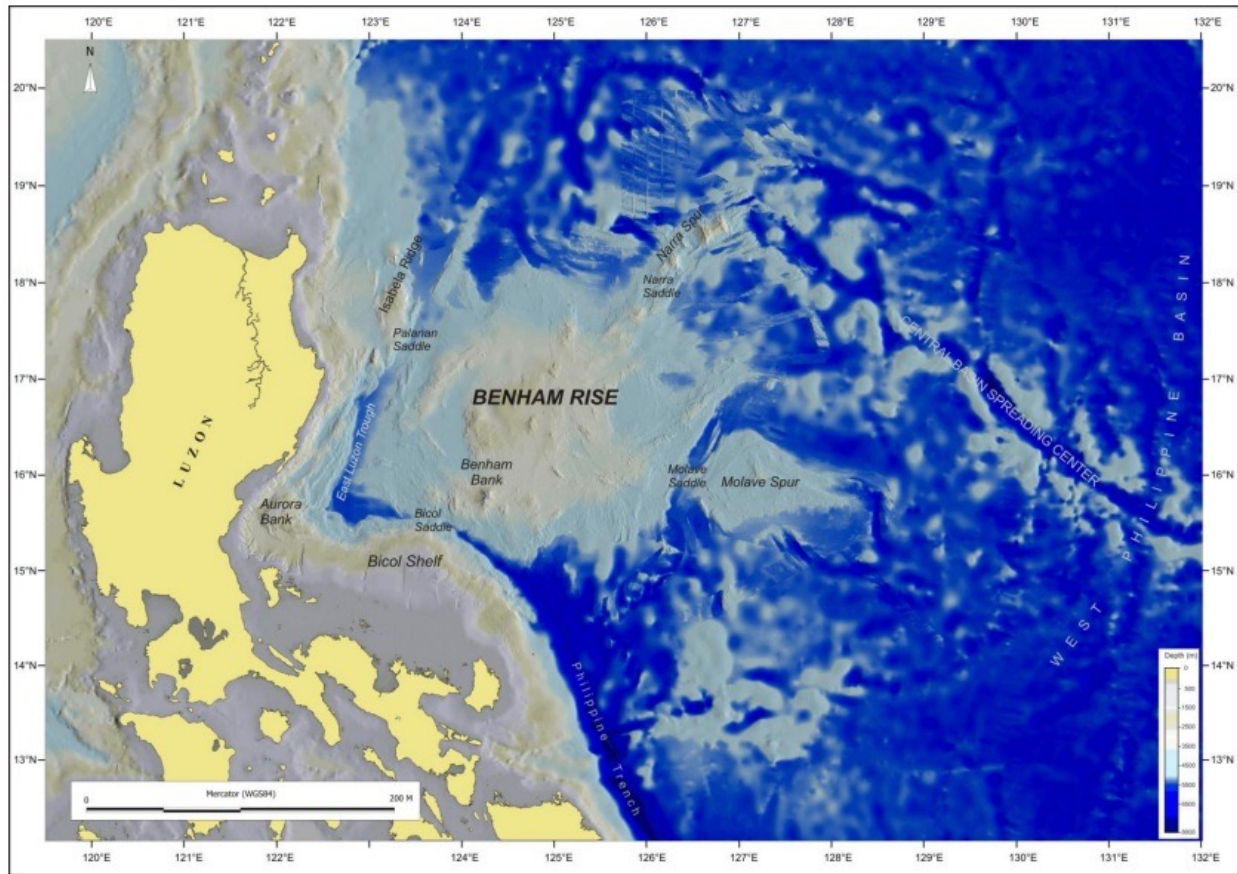
Source: 'The Yellow Sea' (*The Economic Voice*, July 2010) <<http://www.economicvoice.com/wp-content/uploads/2010/07/Yellow-Sea.jpg>> accessed 18 July 2012.

Annex 11



Map of the Philippine Sea

## Annex 12



### Geographical location of the Benham Rise

Source: Republic of the Philippines, 'A partial submission of data and information on the outer limits of the continental shelf of the Republic of the Philippines pursuant to Article 76 (8) of the United Nations Convention on the Law of the Sea, Part 1: Executive Summary' (8 April 2009) Figure 2.

## Annex 13



Map showing the location of the South China Sea

Source: 'South China Sea', *Google Maps* <<https://maps.google.com>> accessed 18 July 2012.

Annex 14



Figure showing the location of the Spratly and Paracel Islands in the South China Sea.

Source: AGO Elferink, 'The Islands in the South China Sea: How Does Their Presence Limit the Extent of the High Seas and the Area and the Maritime Zones of the Mainland Coasts?' (2001) 32 Ocean Development & International Law 169, 170 (Figure 1).

Annex 15

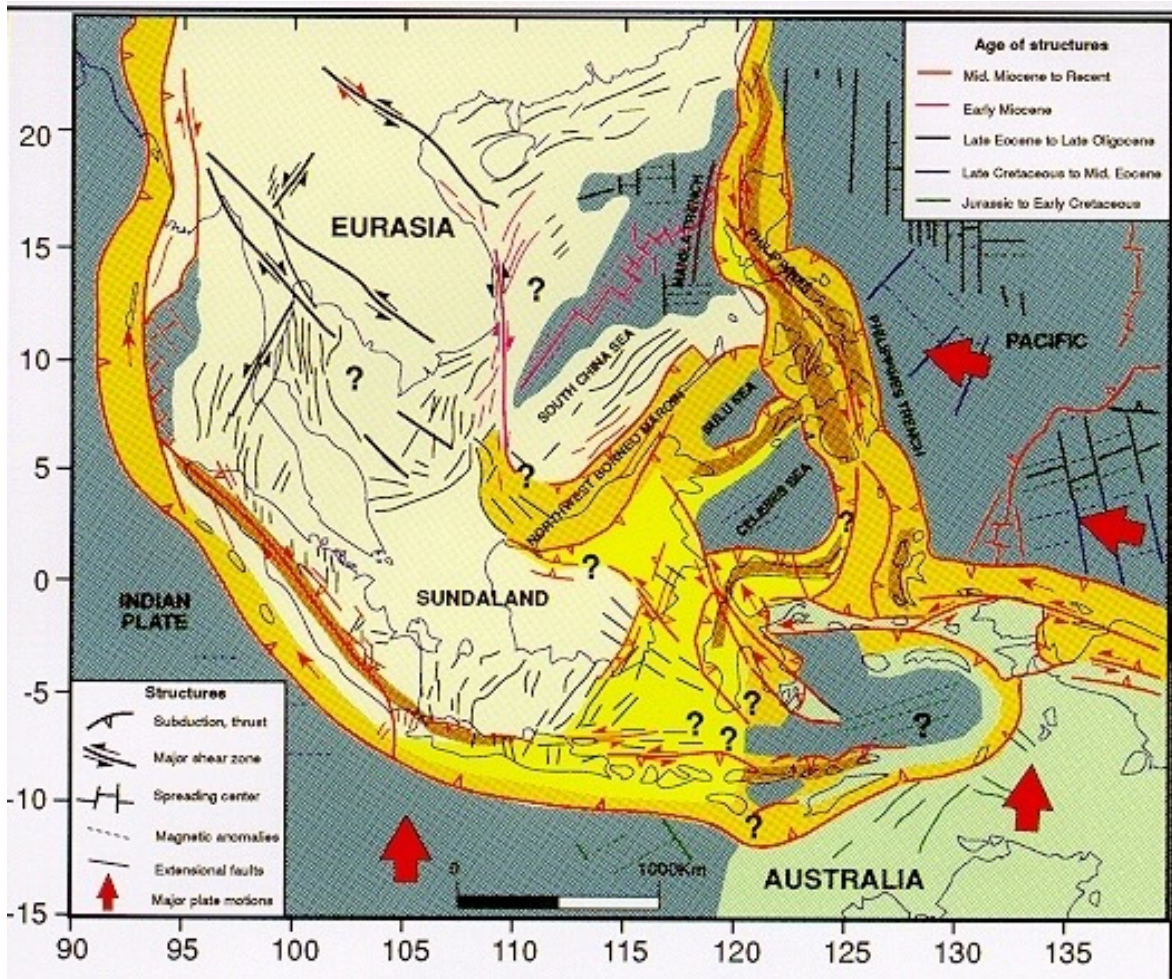


Figure showing the plate-tectonic framework of Southeast Asia

Source: The Geology and Hydrocarbon Resources of Negara Brunei Darussalam, ‘Plate-tectonic framework of Southeast Asia’ (courtesy of the Southeast Asia project team, SIEP, The Hague, 1996) <[https://www.bsp.com.bn/panagaclub/pnhs\\_old/geology/web/fig2\\_1.htm](https://www.bsp.com.bn/panagaclub/pnhs_old/geology/web/fig2_1.htm)> accessed 20 July 2012.



## Annex 16

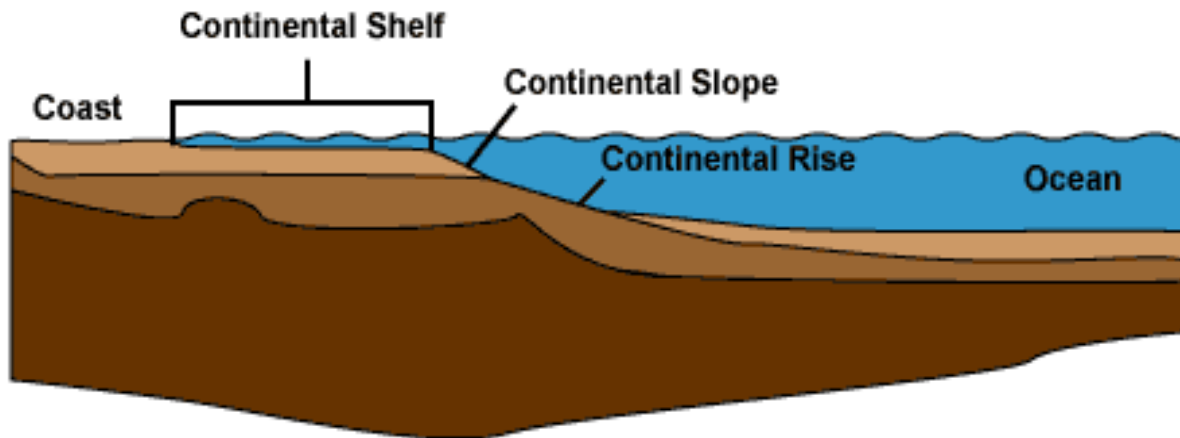


Figure showing the classic continental margin.

Source: United States Department of the Navy, 'Ocean Regions: Ocean Floor - Continental Margin & Rise', *Science and Technology Focus* (Office of Naval Research) <<http://www.onr.navy.mil/Focus/ocean/regions/oceanfloor2.htm>> accessed 20 July 2012.

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