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Rising Sea Level: Legal Consequences on the Shifting of Coastal State Baseline

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Abstract

Baseline is a line drawn from the coastal configuration features, which is very important because the drawing of a baseline allows a coastal State to claim its own maritime zone as measured from said line. However, this concept of baseline currently faced new phenomena called the sea-level rise caused by the climate change. Climate change is caused by the accumulation of greenhouse gas emissions in the atmosphere and causing the earth's surface temperature and sea surface temperatures to increase causing the melting of ice and glaciers. Based on survey data Fifth Assessment Report conducted by the Intergovernmental Panel on Climate Change (IPCC), it is said that in 2100 the rise of sea water will reach 0.52m to 0.98m. In this regard, the rise of seawater brings a legal implication of the possibility in a shift of the baseline due to the inundation of the coastline used as a place to draw the baseline itself, resulting in the possibility of States losing juridical claims in its maritime zone. Coastal States must now begin to have awareness regarding the impacts caused by rising sea level in order to anticipate and reduce the impact of rising sea level.

Keywords: Baseline, Climate Change, Maritime Zone, Rising-Sea Level.

Kenaikan Permukaan Laut: Konsekuensi Hukum atas Perubahan Garis Pangkal Pantai

Abstrak

Garis pangkal merupakan garis yang ditarik dari fitur-fitur konfigurasi pantai yang sangat penting karena penarikan garis pangkal memungkinkan suatu negara untuk mengklaim zona maritim miliknya, diukur dari garis tersebut. Akan tetapi, garis pangkal ini kini menghadapi kendala yaitu fenomena kenaikan air laut yang disebabkan oleh perubahan iklim. Perubahan iklim disebabkan karena menumpuknya gas emisi rumah kaca dan menyebabkan suhu permukaan bumi dan suhu permukaan air laut meningkat sehingga menyebabkan mencairnya es dan gletser di bumi. Dari kejadian tersebut lahirlah fenomena yang dinamakan kenaikan air laut. Berdasarkan data dari survei yang dilakukan oleh Intergovernmental Panel on Climate Change (IPCC) dalam Fifth Assessment Report, dikatakan bahwa pada tahun 2100 kenaikan air laut akan mencapai 0,52m hingga 0,98m. Dalam hal ini, kenaikan air laut akan membawa implikasi hukum terkait kemungkinan adanya pergeseran pada garis pangkal dikarenakan tergenangnya wilayah garis pantai yang digunakan sebagai tempat untuk menarik garis pangkal, sehingga besar kemungkinan terjadinya hilangnya klaim yuridis pada zona maritim tertentu. Negara-negara pantai sekarang sudah harus menyadari dampak yang disebabkan oleh kenaikan air laut ini sehingga kemudian dapat mengantisipasi dampak dari kenaikan air laut.

Kata Kunci: Garis Pangkal, Kenaikan Air Laut, Perubahan Iklim, Zona Maritim.

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A. INTRODUCTION

In the international law of the sea, the scope of jurisdictional zones under national jurisdiction is to be determined on the basis of distance from the coast.¹ Thus it is important to identify the line from which the outer limits of marine zones under national jurisdiction of the coastal States are measured. In determining the extent of territorial sea and other maritime zones, first we need to establish from what points on the coast the outer limits of such zones are to be measured. Baseline is the line from which the outer limits of the territorial sea and other coastal States maritime zones (contiguous zone, exclusive economic zone (EEZ)) are measured.² Baseline may also draw maritime boundaries when the jurisdiction of maritime zones between two coastal States overlap with each other, as the equidistant line which divides maritime zone claim is normally calculated from baseline of each State.

Currently, the concept of baseline is currently facing a new challenge that is the rising sea level caused by climate change. Rising sea level is the impact of climate change that is very subtle yet can significantly be felt by every coastal State,³ although the impact felt by each coastal State is different from one to another. Sea level changes occur when there is a change in either the mass or the volume of water in the sea. Sea level rise is linked to three main factors, all due to the ongoing global climate change:

- a. Thermal expansion
When the temperature heats up, the sea water will expand. About half the sea-level rise in the last century was caused by a warm

ocean that seeks to occupy more space. Some scientists said that this thermal expansion was the main driver of global sea level rise for 75 to 100 years after the start of the Industrial Revolution.⁴

- b. Melting glaciers and polar ice caps
Large ice formations, such as glaciers and polar ice caps naturally melts every summer. In winter, snow, especially those formed from the evaporation of seawater, is generally sufficient to offset melting. In recent times, the continuous rise in temperatures caused by global warming causes the summer melt to become larger, while reducing the amount of snow that falls in the next winter, and accelerating the arrival of spring. This imbalance generates a significant impact on the seawater evaporation ratio and causes sea levels to rise.
- c. The loss of ice from Greenland and Western Antarctica
Just as with glaciers and ice caps, the increase in heat also causes the giant ice sheets that cover Greenland and Antarctica to melt faster. Scientists also believe that meltwater from above and seawater that seeps at the bottom of the layer, effectively melting the ice and causing it to be easily released and drifted in the sea. Warming sea temperatures cause a giant ice sheet stretching from Antarctica, melting from the

¹ United Nations, United Nations on the Law of the Sea, Arts. 3, 33, 57, 76(1).

² R.R. Churchill and A.V. Lowe, *The Law of the Sea*, UK: Manchester University Press, 1999, p. 31.

³ Ann Powers, "Sea Level Rise and Its Impact on Vulnerable States: Four Example", *Louisiana Law Review*, Vol. 73, No. 1, 2012, p. 151.

⁴ Union of Concerned Scientists, "Causes of Sea Level Rise", p. 2, https://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/Causes-of-Sea-Level-Rise.pdf, accessed June 10th, 2019.

bottom, weakening, until it finally bursts.⁵

Scientists from the Intergovernmental Panel on Climate Change (IPCC) in the Fourth Assessment Report (AR4) released in 2007, predict that climate change and rises in seawater can cause significant and unpredictable coastal shift.⁶ The Fifth Assessment Report (AR5) released in 2013 says that by 2100, scientist estimated that the global average sea level rise will be up from 0.52 to 0.98 meters.⁷ Climate change especially sea level rise has legal implications since it causes the change that occurred to coastline, the disappearance of base-points, and also the shifting of baseline resulting in the shift of the outer limits of maritime zone.

If the baseline shifts, the measured maritime zone that were measured from the said baseline will shift as well. Surely this has been considered as disadvantageous by coastal States as they are losing part(s) of their maritime zones whilst the ocean is the place to be taken advantage from by way of resources explorations and exploitations. Moreover, low-lying States such as Kiribati, Maldives, and Marshall Island will be the most disadvantaged because the citizens rely on the sea for a living and also don't have land to retreat from coastal line that has been inundated by the rising sea level. Based on the facts above, this article tries to observe the impact of sea level rise towards coastal States' baseline and whether or not it will affect its legal status. In addition, this paper analyses states practices conducted by some States in order to anticipate the impact of sea level rise caused by climate change.

This article argues that sea level rise due to climate change is evidently becoming

great concern to all countries especially the direct impact toward Claim to Maritime Jurisdictions. In terms of state boundaries or maritime delimitation, UNCLOS does not provide any provisions on the impact that sea level rise. Therefore, it is suggested that the affected states need to procure a new regulation or a new regime that provides the mechanism of endorsing the baseline. This may develop through state practices by way of a coastal state choosing a particular chart for the purposes of a maritime jurisdiction or by declaring the location of the boundary of the State's maritime claims. To achieve the conclusion, this paper starts by discussing the changes of coastal baseline from the impact of sea level rise. Then, this paper will observe the responses to baseline changes of base point by examining some state practices.

B. THE SHIFTING OF COASTAL STATE BASELINE CAUSED BY SEA LEVEL RISE

Climate change and its impact are the most important environmental problems in the recent years. The impacts of climate change are changing weather patterns, warming sea water temperatures, melting glaciers and ice, and rising sea levels. Sea level rise is the most significant effect of climate change, which has threatened low-lying islands located in the South Pacific Island *inter alia* Kiribati, Marshall Islands and many more to submerge under water. Climate change is caused by pressure on the environment such as forest destruction, excessive energy use, fossil fuel use in industry and vehicles, and greenhouse gas emissions in the atmosphere which increases the temperature on the Earth's surface, resulting thermal expansion in sea water that has warmer temperatures. In

⁵ Julie Erikania, "Hal-hal yang Harus Anda Ketahui Seputar Kenaikan Air Laut", National Geographic, <http://nationalgeographic.co.id/berita/2017/01/hal-hal-yang-harus-anda-ketahui-seputar-kenaikan-air-laut>, accessed on June 15th, 2017.

⁶ R.J. Nicholls, et al., *Coastal Systems in Low-Lying Areas*, in *Climate Change 2007: Impacts, Adaptation and Vulnerability*, Contribution of Working Group II to The

Fourth Assessment Report of the Intergovernmental Panel on Climate Change, (M.L. Parry, et al., eds.), 2007, p. 315.

⁷ John A. Church, et al., "Sea Level Change", in *Climate Change 2013: The Physical Science Basis. Contribution of Working Group 1 to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, England: Cambridge University Press, 2013, p. 25.

addition, there is also the contribution of melting glaciers and ice sheets that cause the rise in sea level.⁸

Although the sea level rise and other consequences of climate change are uncertain in every coastal State, the IPCC's AR5 report already predicted that the global water rise will increase by 52–98cm by 2100. Coastal areas will easily experience more effects caused by the rising sea level phenomenon. The rising sea level will eventually make the coastal areas go submerged, thus seawater will continue to move landward. This may lead to an increase in frequency and intensity of floods, changes in ocean currents, widespread mangrove damage around the coast, intrusion of seawater to freshwater, rising coastal abrasion and much more.⁹

United Nations Convention on the Law of the Sea (UNCLOS) 1982 says that every country has the right to enjoy maritime zones. The division between each maritime zone of a coastal State can be done with the drawing of the baseline. The drawing of baseline has two functions: the first one is to determine maritime limits, where a coastal state can unilaterally determine the outer limits of the maritime zones and marked the beginning of high seas; and the second one is to determine maritime delimitation when the maritime claim of one State overlaps with other coastal State's maritime claim(s). Since the normal baseline uses a low water line, the baseline may shift due to coastal realignment. UNCLOS provides a permanent determination of the baselines under two conditions: (a) The provision in Article 7 (2) of UNCLOS about the presence of deltas; (b)

The one relates to the determination of the outer limits of continental shelf, in accordance with the provisions in article 76 (9) of the UNCLOS, coastal state shall deposit to the Secretary General of the United Nations charts and all relevant information, including geodetic data, that were permanently describing the outer limits of the continental shelf of a coastal state. Apart from these two provisions, UNCLOS does not explicitly state whether or not the outermost limits of maritime zones shift as the baseline shifts due to the coastal realignment caused by sea level rise.

However, Freestone and other scholars argued that the baseline and also the outer limits of the territorial sea, contiguous zones and EEZ are ambulatory.¹⁰ Ambulatory means that the baseline is dynamic and shifts according to the changes that occurred in the coastline of coastal States.¹¹ They argue with the negative implication since UNCLOS only specifically regulates two conditions in which the baseline can be permanently established, the opposite baseline then is declared as ambulatory. This ambulatory baseline becomes a problem in the context of rising sea level if the outermost limits of the maritime zone also shifts along with the baseline's shifts.¹² Two of the particular concerns are those associated with low-tide elevation and reefs. In both cases, permanent sinking of the low-tide elevation and reefs, will result in a significant loss of the maritime zone from a coastal State. Archipelagic States, which fall into the category of disappearing countries, can also be severely affected by this phenomenon.¹³ Article 47 of UNCLOS is the provision to rule

⁸ Gerald A. Meehl, *et al.*, "How Much More Global Warming and Sea Level Rise?", <http://science.sciencemag.org/content/307/5716/1769.full>, accessed on June 3rd 2017.

⁹ Sayidah Sulma, "Kerentanan Pesisir Terhadap Kenaikan Muka Air Laut (Studi Kasus: Surabaya Dan Daerah Sekitarnya)", Depok: Faculty MIPA UI thesis, 2012, p. 8.

¹⁰ David Freestone, "International Law and Sea Level Rise", in *International Law and Global Climate Change* compiled by Robin Churchill dan David Freestone (*eds.*), 1992, p. 109-25; David D. Caron, "When Law Makes Climate Change Worse: Rethinking the Law of Baselines

in Light of the Rising Sea Level", *Ecology Law Quarterly*, Vol. 17, No. 1, 1990, p. 634.

¹¹ I Made Andi Arsana, interview with Author on May 26th 2017.

¹² Rosemary Rayfuse, "Preserving the Maritime Entitlements of "Disappearing States", in *Threatened Island Nations: Legal Implication of Rising Seas and a Changing Climate* compiled by Michael B. Gerrard and Gregory E. Wannier (*eds.*), New York: Cambridge University Press, 2013, p. 173.

¹³ *Ibid.*

that archipelagic baselines have a number of criteria to fulfill in order to draw archipelagic baseline for some States, including the maximum length of baseline that must not exceed 100 miles and also that archipelagic baselines must be so drawn that the ratio between waters and land areas within the lines is not more than 1 : 1 or not less than 1 : 9.¹⁴ The archipelagic States will have some difficulties in fulfilling the provisions of Article 47 of UNCLOS when the rising in sea level submerges low-tide elevation and reefs from land mass calculations.¹⁵

A very large change can also occur to island(s). Although an island can generate all existing maritime zones,¹⁶ "rocks which cannot sustain human habitation or economic life of their own shall have no exclusive economic zone or continental shelf."¹⁷ Nevertheless if an island shrinks to a low-tide elevation, the low-tide elevation will produce territorial sea if the elevation locates within 12 nautical miles from the mainland or from another island that also generates territorial sea. If the former island located beyond 12 nautical miles or submerged entirely and permanently under the water, hence it will result in the island losing its territorial sea entirely.¹⁸

The legal consequences of rising sea level are very difficult to predict. Coastline changes can occur in many and various ways. But there are examples of situations that may have the potential to occur which will be examined in this article. The first situation that occurs is that when a basepoint and a baseline are shifted backward towards landward, and second one, is when a basepoint and a baseline are located on an island, rocks and low-tide elevations that disappear.

1. The baseline shifts towards landward
When the coastline of the coastal State retreats landward without

generating overlapping claims over maritime zones with adjacent or opposite coastal States, it will result in losing parts of its territory, and the baseline from which the extent of the maritime zone was measured will shift towards landward. This will cause the maritime zone limits that was determined unilaterally by a coastal State to also retreat landward along with the baseline. This change will result in the change of legal status in each of the existing maritime zones. There are changes of legal implications in sovereign rights that occurred in the sea for example rights of innocent passage of foreign vessels, freedom of navigation, freedom of fishing, and many more.

But when the coastal State has a maritime delimitation agreement with other coastal State(s), this scenario will have two legal implications:

- If the delimitation agreement divides the EEZ of both coastal States, in most cases the landward shifting of the baseline will merely add the EEZ of both States. Thus, coastline shifts will not affect this zone when the total area of the two EEZs does not exceed 400 nautical miles.¹⁹
- If the total area exceeds 400 nautical miles after the coastline shifts landward, a new area will emerge as the high seas.²⁰

A landward shift of the baseline can change the initial direction of the coastline. In this case, if the shifts are considered large enough and the distance from the former base point and the new base point is significant,

¹⁴ Art. 47, United Nations Convention on the Law of the Sea (UNCLOS), 1982.

¹⁵ Rosemary Rayfuse, *Op. cit.*, p. 147.

¹⁶ UNCLOS, Art. 121(2).

¹⁷ UNCLOS, Art. 121(3).

¹⁸ Rosemary Rayfuse, *Op. cit.*, p. 174.

¹⁹ J. Listzwan, "Stability of maritime boundary agreements", *Yale Journal of International Law*, Vol 37, No. 1, 2012, pp. 154–200.

²⁰ *Ibid.*

this "former base point" will not be "replaced" with the new one and will not be drawn the new baseline from it, where this baseline have some initial and some significant distant far from the general direction of the coast. This is not in accordance with the provisions of Article 7(3) of UNCLOS, where the drawing of straight baselines must not depart to any appreciable extent from the general direction of the coast, and the sea areas lying within the lines must be sufficiently closely linked to the land domain to be subject to the regime of internal waters.

2. The baseline is located on an island or low-tide elevation that have disappeared

An island and a low-tide elevation can be used as the basepoint and baseline for the purpose of generating maritime limits and or maritime boundaries. According to Article 13(1), a low-tide elevation is a naturally formed area of land, which is surrounded by and above water at low tide but gets submerged at high tide. Where a low-tide elevation is situated wholly or partly at a distance not exceeding the breadth of the territorial sea from the mainland or an island, the low-water line on that elevation may be used as the baseline for measuring the breadth of the territorial sea. UNCLOS determines that the straight baseline can be drawn up to and from the low-tide elevation, if a lighthouse or another permanent installation was built on it or when there exists international recognition to that low-tide elevation in general. Therefore, the effect of its disappearance by permanent submergence depends on its geographical situation with respect

to the outer limits of the territorial sea.²¹ It creates a loss of the 12 miles that it generates if it is situated wholly or partly within the territorial sea area. Where a low-tide elevation (or former island) lies at a distance exceeding the breadth of the territorial sea from the mainland or an island, it has no territorial sea of its own.²²

3. In case of archipelagic baseline
UNCLOS sets out requirements for archipelagic state to enclose its territory and waters in straight baselines:²³

- 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
- The length of such baselines shall not exceed 100 nautical miles, except that up to 3 per cent of the total number of baselines enclosing any archipelago may exceed that length, up to a maximum length of 125 nautical miles.
- The drawing of such baselines shall not depart to any appreciable extent from the general configuration of the archipelago.
- Such baselines shall not be drawn to and from low-tide elevations, unless lighthouses or similar installations which

²¹ CM. Calerton and Clive Schofield, "Developments in the Technical Determination of Maritime Space: Charts, Datums, Baselines, Maritime Zones and Limits",

Maritime Briefing, No. 3, I.B.R.U. (England: University of Durham, 2001), p. 38.

²² UNCLOS, Art. 13(2).

²³ UNCLOS, Art. 47.

are permanently above sea level have been built on them or where a low-tide elevation is situated wholly or partly at a distance not exceeding the breadth of the territorial sea from the nearest island.

These could be affected by sea level rise for some low-lying archipelagic states. There will be a challenge in fulfilling the requirement of land and water ratio. For widely scattered archipelagoes with small islands, the land-to-water ratio seems to be difficult, as they have too much water to enclose. A rise in sea level might remove drying reefs from the archipelagic State's calculation in relation to land, and therefore it might struggle to retain its archipelagic status. In case archipelagic state uses low-tide elevations, it cannot be used unless there is a lighthouse or similar installation built upon them.²⁴ Archipelagic State, should take immediate action to preserve its sinking basepoints with installing some features upon them. Since there is no requirement under Article 47(4) for lighthouses to be crewed, or even capable of occupation, a relatively modest installation could meet this requirement.²⁵ This land-water ratio will likely not become a problem. Article 47(7) provides that waters inside the fringing reefs of islands or atolls may be regarded as land when calculating this ratio.²⁶ Inundated lands could be regarded as a fringing reef, essentially keeping ratios at their present levels

It is important to underline that the islands regime is different from low-tide elevation. An island is a naturally formed area of land, surrounded by water, which is above water when high tide occurred.²⁷ With regard to the generation of maritime zone, low-tide elevations "literally do not rise to the status of islands."²⁸ An island generates maritime zones such as territorial sea, contiguous zones, EEZ and continental shelf. Coastal States may use an island as their baseline when it is located within its 12 nautical miles, since the usage of an island will enlarge the extent of territorial sea area seawards as the island itself produces its own territorial sea. Article 7(4) of UNCLOS recognizes similar rights to low-tide elevations only within its limited circumstances of uses. If sea level rise occurs, some islands may become submerged completely or at least get submerged during a high tide. This consequently lead to a different legal situation with regard to maritime entitlement since islands are different from low-tide elevations.

When an island changes and becomes a mere low-tide elevation, coastal States will try with all their might to strengthen the coastlines from further drowning to maintain their straight baseline. To preserve its emergence above the water surface at low tide, the coastal State may be involved in some development activities from artificial installations on the low-tide elevations.

Some scholars argue that this does not conflict with Article 7 of UNCLOS because low-tide elevation shall be recognized internationally after a coastal State published the geographic coordinates list.²⁹ In a jurisdictional maritime delimitation, even though there is a general recognition of a low-tide elevation being used to draw

²⁴ UNCLOS, Art. 47 (4).

²⁵ Stuart Kaye, "The Law of the Sea Convention and Sea Level Rise after the South China Sea Arbitration", *International Law Studies*, Vol. 93, 2017,

²⁶ UNCLOS, *Op. cit.*, Art. 47.

²⁷ UNCLOS, Art. 121(1).

²⁸ JA. Roach and RW. Smith, *United States Responses to Excessive Maritime Claims*, 2nd Edition, 1996, p. 73.

²⁹ E. Bird and J.R.V. Prescott, "Rising Global Sea Levels and National Maritime Claims", *Marine Policy Rep*, 1989, p. 177.

straight baselines, it seems difficult to accept that the Court would still consider the disappearance of a low-tide elevation.

This would lead to conclude that if the land features from which baselines may be drawn retreat into each other and disappear, there will be no baselines from which we can define the internal waters, territorial sea, contiguous zone, exclusive economic zone, and continental shelf zone.³⁰ With the disappearance of these zones, the maritime area would be subject to the regime of high seas which as provided in UNCLOS is defined as “all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State.”³¹

C. POTENTIAL RESPONSES TO BASELINE ALTERATION AND DISSAPEARANCE OF BASEPOINTS

We shall keep in mind that the UNCLOS 1982 framework is based on maritime geography of coastal states. However, in reality the maritime geography is naturally unstable and constantly changing from time to time. A question may arise as to how to find legal answers to the instability of low water lines and some basepoints as well as their potential impact on the maritime baseline of a coastal State. Two opinions have been born to answer this question and each of this answer has different consequences as the result: the first one is an approach that encourages coastal States to use the ambulatory baselines; and the second approach considers a safe path for the stability and the preservation of the baseline against the occurrence of geographical changes.

1. The Use of Shifting Baseline Approach

As we know, many of the coastal States use the low water line as the normal baseline according to Article 5 of UNCLOS because some thought that the normal baseline was the “default” baseline. It can be understood that there is a common uncertainty related to the coastal State’s choices regarding the determination of their own low-water line, which is inherently changing by the sea level rise. It’s important to understand that the lower water line is the starting line of the outer limits of maritime zones. International Law Association (ILA) Committee on Baseline under the International Law of the Sea interpretation of Article 5 UNCLOS, considers that the argued charted low-water line is the legal normal baseline and the chart itself is the legal document that determines the position of the baseline irrespective of the physical realities of the coast.³² In determining the initial low-water line, a coastal State generally relies on research data they conducted. Thus, the selection of low-water line is up to the coastal State itself.³³

Once selected, the low water line will be indicated in an official chart from the coastal State, therefore the recognition by other States about it may remain in place regardless of sea level rise. This will ensure the security and prevent uncertainty in navigation aspect. However, another interpretation upon Article 5 of UNCLOS by the ILA may occur in cases where the coastline is unstable due to the rising sea levels. It is said that normal baseline can adapt to existing physical reality and is said to be dynamic. This means that it would

³⁰ J. Hestetune, “The Invading Waters: Climate Change Dispossession, State Extinction, and International Law”, *California Western School of Law*, 2010, p. 25.

³¹ UNCLOS, Art. 86.

³² Interpretation from International Law Association (ILA) about Article 5 of UNCLOS in International Law Association, Committee on Baselines. Internal Discussion Document, 2008, pp. 1-2.

³³ Calerton, *Op. cit.*, p. 14.

create a baseline system that reflects the actual geographical conditions by being an ambulatory baseline.

The ambulatory approach considers that the Convention does not provide any provision on the consequences of sea level rise on the baselines, islands, and low-tide elevations, and consequently nothing can require a coastal State to permanently fix its limits and boundaries. The very few provisions that might be seen as dealing with stability of maritime limits are related to the continental shelf and with the deltas' baseline provisions, but they are far from being sufficient. Thus, with regard to the continental shelf, UNCLOS requires the coastal State to "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." As to the baselines of the deltas, UNCLOS provides that "the appropriate points may be selected along the furthest seaward extent of the low-water line and, notwithstanding subsequent regression of the low-water line, the straight baselines shall remain effective until changed by the coastal State in accordance with this Convention."³⁴

The ambulatory approach or the baseline shifting approach has been developed by some scholars, who consider that the rising sea level creates some uncertainty in the maritime boundaries where the baseline from which the boundary is measured is ambulatory.³⁵ In here,

when the feature from or on which the baseline is drawn disappears, the baseline must move and the maritime boundary generated from it has to be redrawn and calculated from the new baseline. Therefore, the maritime boundary generated from the previously disappeared baseline will not be valid anymore and is re-established by the new baseline. In this case, the outer limits of maritime zones are ambulatory in a way that they will move with the baselines from which they are measured from and normal baselines may change along with the change(s) of the low-water line.³⁶

The loss of basepoint from the baseline implies the loss of the boundaries generated by that point which resulted in shifts of maritime limits and boundaries. Some argue that the implications of rising sea level on maritime boundaries would lead to renegotiation in maritime delimitation agreement based on the principle of equidistance to conform with new geographical realities; re-evaluate the principles of justice and equidistance through international courts in resolving boundary issues, or returning claims to ZEE which is always disputed and making its status as part of the open seas.³⁷

This shift can produce quite critical consequences. This will create uncertainty in maritime boundaries that is not aligned with laws aimed at creating stability for relations between countries. Modifying maritime boundaries on a regular basis will create legal uncertainty for coastal States that came out with

³⁴ UNCLOS, Art. 7(3).

³⁵ D. Caron, *Op.cit.*, p. 635; Charles Di Leva and Sachiko Morita, "Maritime Rights of Coastal States and Climate Change: Should States Adopt to Submerged Boundaries", *Law and Development Working Paper Series*, No. 5, 2009, p. 17, accessed in

http://siteresources.worldbank.org/INTLAWJUSTICE/Resources/L&D_number5.pdf.

³⁶ L. Alexander, 1983, "Baseline Delimitations and Maritime Boundaries", *Virginia Journal of International Law*, Vol. 23, No. 1, p. 535.

³⁷ Houghton, *et al.*, "Maritime Boundaries in A Rising Sea", *Nat Geosci* 3, 2010, pp. 813-814.

unstable coastline. They must constantly review their maritime limits and boundaries, and fear it will create conflicts and uncertainties for any neighboring countries, even to a country with a more stable baseline.

In reality, the changes occur to baselines can create conflicts with other countries in the case of exploitation of natural resources. If the shift of baseline is to be applied, some States that would lose part of their territory, islands, or low-tide elevations may invest huge financial efforts to maintain them even “artificially”.³⁸ On the other side, by adjusting and correcting baselines, coastal States must take into consideration the costs of adaptation and the time that has to be spent in the long process of modifying maritime borders. Moreover, by applying the ambulatory baseline approach and if the baselines are not marked on large-scale charts, navigation charts would not be precise in determining the maritime limits and boundaries and ships would not know exactly in which zone they navigate and which rights they are subject to (right of innocent passage, fishing rights, etc.).

Taking into account all the implications of this shifting baseline approach, the ILA argues that the actual low-water line is the legal normal baseline and charts, and it should be considered as the evidence of the physical coastal realities or the actual coastal configuration. Thus the interpretation of Article 5 of UNCLOS by coastal States is crucial to address the potential impact of sea level rise on maritime zones.

2. The Preservation of Baselines

Neither in the case of normal baselines nor in straight baselines does UNCLOS provide that the maritime zone limits and boundaries can move with baselines. It “permanently” fixes the outer limit of the continental shelf to every State since they have to deposit to the Secretary-General of the United Nations charts and relevant information, including geodetic data, permanently describing the outer limits of their continental shelf. It also fixes the baselines for deltas and other natural conditions that make coastlines highly unstable. Since UNCLOS does not fix the outer boundary of the territorial sea, the contiguous zone, and the EEZ, one may think that these maritime zone boundaries can be ambulatory.

However, the unique provision of UNCLOS to the question of instability of geography is illustrated in Article 7(2). It indicates that despite the possible shift of the coast landward, the appropriate points and the straight baselines joining them “shall remain effective until changed by the coastal State.” This Article would present some help in our contest because it concerns, according to the Convention, the case of “the presence of a delta and other natural conditions the coastline is highly unstable”.³⁹ Although the definition of “highly unstable coast” is still unclear, the International Court of Justice (ICJ) in the *Nicaragua v. Honduras* case—noting the highly unstable nature of the mouth of the River Coco at the Nicaragua-Honduras land boundary terminus—decided that fixing base points on either bank of the river and using them to construct a provisional

³⁸ D. Caron, *Op. cit.*, pp. 639–40.

³⁹ UNCLOS, Art. 7(2).

equidistance line would be “unduly problematic.”⁴⁰

However, the Convention is silent about the legal solution for changes of coasts or disappearance of features on which baselines and basepoints are established. This method had already been proposed by A.H.A. Soons in 1990 and was followed by several scholars: “Coastal states are entitled, in the case of landward shifting of the baseline as a result of sea level rise, to maintain the outer limits of the territorial sea and of the exclusive economic zone where they were located at a certain moment.” Following this, the other scholars have underlined that by recognizing the coastline change, the nautical chart or the straight baseline geographical coordinates as deposited in the Secretary-General of UN must remain the reference legal document regardless of the coastline changes.

By permanently fixing the baselines, resource conflicts between States can be avoided. It could appear that the coastal State that had less than 200 nautical mile EEZ and has lost part of its coast would gain more maritime resources because its coastline retreats, but all States would not have more than they are entitled to under the Convention. It is important to understand that since the breadth of the maritime zones is fixed by UNCLOS, equity considerations impose States to recall that choosing to fix the boundaries or to adjust them with the ambulatory baselines and base points will not allow States to gain more than what they presently possess.

Changing boundaries to adapt to the coastline changes would lead to an act of protecting the baselines by installing artificial or permanent installations which certainly costs a lot of money. However, fixing baselines would avoid costs of adjustment to constant uncertain changes of the baselines and costs of nautical maps modifications. By fixing the boundaries, the principles governing the oceans and those agreed upon related to the maritime zones and maritime boundaries are preserved. Freezing baselines would promote stability in the location of limits of maritime zones and also in maritime delimitation boundaries. The ICJ stated in the *Temple of Preah Vihear* case, “when two countries establish a frontier between them, one of the primary objects is to achieve stability and finality.” The Division of Ocean Affairs’ Handbook on Maritime Delimitation underlines that maritime boundary delimitation agreement “have a vocation for permanence and stability.”⁴¹

Baselines are characterized by legal stability and should not move the law of the sea that is in general the law that governs relations between States in their maritime affairs. In this sense, what fundamentally interests the law of the sea, including the Convention, is the stability and security of the relations between States, including in their international boundary regime. Even though the particularity of this law is that it is based on geography—in which changes and instabilities are inherent—law is considered the priority because it provides stability and security and answers perfectly to the objectives of the Convention.

⁴⁰ *Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras)*, ICJ, Judgment, 2007, para. 273.

⁴¹ United Nations Publication, *Handbook on Maritime Delimitation*, Division for Ocean Affairs and the Law of the Sea, 2000, para. 322.

Thus, in stating factors that States should consider in boundary negotiations, the UN Division for Ocean Affairs and the Law of the Sea advises States not to take into consideration any future geographical or geological shifts and the corresponding impacts on resource distribution or equities.

For maritime boundaries agreement, according to the Vienna Convention for the Law of Treaties (VCLT), stability of boundary agreements is achieved regardless of coastline's movement. Even though geography changes and baseline shifts, maritime boundary agreements and their geographical coordinates remain secure and stable. Article 62 of the VCLT underlines an exception by which a State can unilaterally terminate an agreement because of a fundamental change in circumstances (*rebus sic stantibus*). Some scholars considered that a change in the geography would be a fundamental change that justifies the termination of an agreement and therefore its revision or replacement by a new agreement that would take into consideration the new situation. This may lead to some questions to arise. It is believed that the both parties know, at the time of conclusion their maritime boundary agreement, that a change of geography is inherent to this kind of agreements and can initially be expected; thus, stable geography is not the "circumstance" that forms the ground of their consent. Therefore, Article 62 of the VCLT cannot be invoked, and coastline changes will not affect the maritime boundary agreement. International Courts have not accepted the recognition of the right of unilateral termination, given the importance of the stability of the treaty regime. Some States like Argentina and Chile

have expressly rejected the application of this theory.

Moreover, article 62(2) of the VCLT explicitly excludes boundary agreements; although it is still debatable by the doctrine if it also applies to maritime boundaries. The ICJ in the *Aegean Sea* case implied that maritime boundaries fall within the Article 62(2) exception: "Whether it is a land frontier or a boundary line in the continental shelf that is in question, the process is essentially the same, and inevitably involves the same element of stability and permanence, and is subject to the rule excluding boundary agreements from fundamental change of circumstances." It is understood that States would be unlikely to succeed in unilaterally terminating a maritime boundary treaty by invoking the principle of *rebus sic stantibus* under Article 62 of the VCLT. However, the stability of boundaries and the legal stability are defended by the legal reasoning, even though the approach of fixing baselines is criticized. Avoiding instability and insecurity in maritime limits and boundaries would lead to fix them as they are situated at the time of agreement between States and at the time of deposit to the UN Secretary-General. Article 76 paragraph 9 of UNCLOS can be applied analogically to fix baselines and boundaries.

D. STATE PRACTICES IN ADDRESSING ISSUES CONCERNING THE SHIFTING BASELINE

United States of America is also currently facing shifts in their coastline, for example the scientists from US made an assumption that if the sea level rises, it will end up with the maritime crossing road in Bahama falling into Cuban hands, which will undoubtedly lead to loss of maritime area for US because Florida's East Coast is

located in the region of low tide. The US that did not want to lose some of its territory, will need the Cuban and the US governments to maintain their territorial sea and the base line simultaneously in accordance with the provisions of international law, and also ensure that changes will not affect the sovereignty of each State.⁴² The US Supreme Court has several times decided in contradictory to the UNCLOS stipulation, stating that the baseline is "modern" and "ambulatory". US Supreme Court judgment in *US vs. California* cases stated that the Court considered the coastline as "something from now on that can be modified for natural or artificial causes..."⁴³ The US Supreme Court also stated in the case of the *US v. Alaska* that "shifts in a low water line along the shore, could lead to a shift in the baseline for measuring a maritime zones" and that "state's entitlement to submerged lands beneath the territorial sea would consequently change."⁴⁴ In 2007, the US Supreme Court faced a problem of a shrinking coastline caused by global warming in *Massachusetts v. E.P.A.* In this case, the State of Massachusetts argues that the potential loss of 200 miles of their coastline due to the rising sea level is a concrete and particular matter and very possible to happen in the future. This is a case in which the Court in the US for the first time recognized that the loss of coastline is indeed true due to climate change.⁴⁵

Small Island Developing States (SIDS) such as Kiribati, Marshall Islands, Tuvalu or any other States located in South Pacific are

the most threatened to be submerged completely due to the rising sea level phenomenon. Maldives and Kiribati are the most "vocal" States concerning this issue. It started in 2009, when the President of Republic of Maldives held a meeting with other government officials and declare their desire to reduce global carbon emissions percentage.⁴⁶ This meeting underlines the fact that the Maldives could turn into an uninhabitable island by the end of the 21st century because of the impacts of climate change⁴⁷ in light of the fact that Maldives only has an average elevation of 1.5 meters above the sea level. Although small island nations have never sunk before due to rising seas,⁴⁸ but the possibility of such events could raise complex questions from the view of international law.⁴⁹ The first question to rise is about these small island nations losing their part of maritime zone due to the fact that these maritime zones are generated by land geography of each coastal states. These two countries plan to build an artificial island and to also conduct reclamation on their threatened parts, but this contradicts with the law of the sea itself. UNCLOS stipulated that artificial islands are excluded from the definition of island which was formed naturally. That is why Maldives is also trying hard to convince the other States with their suggestion to amend the UNCLOS especially on the provision that rules artificial islands. Maldives aims to convince the other States to accept artificial island as their official territory which also generate new basepoints for the purpose of measuring

⁴² Gu Jie Yuan, *International Maritime Boundary Delimitation in the Theory and Practice*, Law Press, 2001, pp. 190-192.

⁴³ US Supreme Court, *United States of America v. California*, 382 US, 449, 1966, <https://supreme.justia.com/cases/federal/us/382/448/case.html>, accessed on June 3rd 2017.

⁴⁴ US Supreme Court, 521 U.S. 1, 31, 1997, <https://supreme.justia.com/cases/federal/us/521/1/case.html>, accessed on June 3rd 2017.

⁴⁵ US Supreme Court, *Massachusetts v. Environmental Protection Agency*, 549 US, 2007, <https://www.justice.gov/enrd/massachusetts-v-epa>, accessed on June 3rd 2017.

⁴⁶ CNN, "From Underwater, Maldives Sends Warning on Climate Change", 2009, <http://edition.cnn.com/2009/WORLD/asiapcf/10/17/maldives.underwater.meeting/>, accessed on June 3rd 2017.

⁴⁷ Michael Gagain, "Climate Change, Sea Level Rise, and Artificial Islands: Saving the Maldives Statehood and Maritime Claims Through the 'Constitution of the Oceans'", *Colorado Journal International Environmental Law and Policy*, Vol. 23, No. 1, p. 79.

⁴⁸ Frank McDonald, "Paradise in a Perilous State", *Irish Times*, December 5th 2009, p. 1.

⁴⁹ Shaina Stahl, "Unprotected Ground: The Plight of Vanishing Island Nations", *New York International Law Review*, Vol. 23, No. 1, 2010, pp.29-30.

their maritime zones. Some scholars argue if Maldives succeed, this can create a new general principle of law in international law especially in law of the sea.

Rather than amending UNCLOS, Philippine prefer to amending their own national regulations about territorial sea and such. According to RA 9522, Philippine uses archipelagic baselines for their own archipelago (Luzon, Visayas dan Mindanao),⁵⁰ and normal baselines for Kalayan Islang Group (KIG) and Bajo de Masinloc.⁵¹ The rising sea level has a big impact affecting the shifts in baseline and resulted in changes of regime existed in Philippine's maritime zones. This situation will also affect the implementation of national regulations and freedom of navigation that existed in the sea. Meanwhile, Australia opted to change their own basepoints and baseline several times and deposit their new geographical coordinate lists again to the Secretary General of United Nations due to the shifts of their own coastline. They have also amended their own regulations the same as Philippine did for their own territory.

Indonesia in this instance, Indonesia prefers to use fix baseline method. State can draw specific and fixed charts showing its baselines. But, the consequences other States may or may not recognize this baseline chart. in case of negotiating maritime delimitation boundaries between states, if one State fails to recognize other State's chart depicting its baselines, the progress of the delimitation may be hampered.⁵² However, the two States could

also agree upon the use of this chart even though the chart is old and does not depict the real and current situation of state's coastline/baselines. In 2009, Indonesia and Singapore reached an agreement by delimiting both territorial sea in the western extension of the existing boundary in west part of the Strait of Singapore.⁵³ In here, Indonesia insisted that Singapore use its normal baselines, as depicted in the original map of 1969, in the delimitation, and Singapore agreed to do so. To anticipate problems caused by disagreement on the use of fixed baselines depicted by a particular chart, coastal states can voluntarily declare their fixed normal baselines in the same manner as states usually declare straight or archipelagic baselines. By doing this, protest and disagreement from other states, usually neighbours, can be anticipated well in advance, before the baselines are used for maritime claims and delimitation.⁵⁴

Other than state practice, we can also see some decision of international court. There are two distinct court decision. The first one is Bay of Bengal Maritime Boundary Arbitration between Bangladesh and India (Bangladesh v. India). Where on 7 July 2014, the Permanent Court of Arbitration (PCA) rendered its Award. The Award establishes the course of the maritime boundary line between Bangladesh and India in the territorial sea, the exclusive economic zone, and the continental shelf within and beyond 200 nautical miles.⁵⁵ The Tribunal considered that the "equidistance/relevant

⁵⁰ Philippine, R.A. 9522, An Act to Amend Certain Provisions of Republic Act No. 3046, As Amended By Republic Act No. 5446, To Define The Archipelagic Baseline of the Philippines and For Other Purposes, 10 March 2009, Article 1, http://www.lawphil.net/statutes/repacts/ra2009/ra_9522_2009.html, accessed on June 3rd 2017.

⁵¹ Philippine, R.A. 9522, Article 2. It is said that Kalayan Island Group and Bajo de Masinloc are included as island regime as stipulated in Article 121 of UNCLOS.

⁵² I Made Andi Arsana, "The Sinking of Sovereignty and Sovereign Rights? Mitigating the Impacts of Climate Change to Maritime Jurisdiction and a Proposal for

Solutions", *Indonesia Law Review*, Vol. 2, Year 3, May - August 2013, p. 143.

⁵³ Ety R. Agoes, "Indonesia: Problems Encountered in Some Unresolved Boundaries and the Outermost Islands Issues", *Indonesian Journal for International Law*, Vol. 9, Number 1, October 2011, p. 7.

⁵⁴ Clive Schofield, "Holding Back The Waves? Sea Level Rise And Maritime Claims", *Legal Responses and Global Responsibility Vol.1*, 2013, p. 12.

⁵⁵ PCA, Bay of Bengal Maritime Boundary Arbitration between Bangladesh and India (Bangladesh v. India), <https://pca-cpa.org/en/news/bay-of-bengal-maritime-boundary-arbitration-between-bangladesh-and-india-bangladesh-v-india/>, accessed June 8th, 2019.

circumstances” method is preferable. However, noting that both Parties had been able to identify base points that would permit the construction of a provisional equidistance line, and decided that it would apply the equidistance/relevant method. The Tribunal did not consider the instability of the coast of the Bay of Bengal to be a relevant that would justify adjustment of the provisional equidistance line. The Tribunal emphasized that what matters is the coast line at the time of delimitation and that future changes in the coast cannot alter the maritime boundary. The Tribunal concluded, however, that the concavity of the Bay of Bengal was a relevant circumstance and that, as a result of such concavity, the provisional equidistance line produced a cut-off effect on the seaward projections of the coast of Bangladesh. The Tribunal considered that the cut-off required an adjustment to the provisional equidistance line in order to produce an equitable result.⁵⁶

Somehow the PCA award contradicts with ICJ’s judgment on Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras). In respect of sovereignty over the islands of Bobel Cay, Savanna Cay, Port Royal Cay and South Cay, located in the area in dispute, the Court concluded that it had not been established that either Honduras or Nicaragua had title to those islands by virtue of *uti possidetis juris*. Having then sought to identify any post-colonial *effectivités*, the Court found that sovereignty over the islands belonged to Honduras, as it had shown that it had applied and enforced its criminal and civil law, had regulated immigration, fisheries activities and building activity and had exercised its authority in respect of public works there.⁵⁷ As for the delimitation of the maritime areas between the two States, the

Court found that no established boundary existed along the 15th parallel on the basis of either *uti possidetis juris* or a tacit agreement between the Parties.⁵⁸ It thus proceeded to determine the delimitation itself. Since it was unable to apply the equidistance method, in view of the particular geographical circumstances, the Court adjusted the course of the line to take account of the territorial seas accorded to the aforementioned islands and to resolve the issue of overlap between those territorial seas and that of the island of Edinburgh Cay (Nicaragua) by drawing a median line.

In the judgment, since the delimitation effected by the present Judgment takes no account of the maritime delimitation treaty concluded in 1986 between Honduras and Colombia, even though this is a treaty in force between the two States, registered with the Secretariat of the United Nations and invoked by Honduras in the present case. The dispute that exists regarding this treaty between the Parties to the present case was not included by Nicaragua, within the subject of the dispute as defined in its Application instituting proceedings, and nor did it ask the Court, in its final submissions, to rule on any legal aspect of the dispute between the Parties concerning that treaty. In other words, the status of that treaty instrument should have been determined beforehand, since a maritime delimitation line cannot settle a dispute concerning the treaty-making power of States and/or the validity of the treaties thus concluded, just as it could not settle in the present case the dispute between the Parties concerning sovereignty over the contested islands.”

The dissenting judgment in previous cases can be easily pointed out. In the case of Bay of Bengal between India and Bangladesh, PCA clearly stated that whether the base points chosen now are

⁵⁶ PCA, Press Release Bay of Bengal Maritime Boundary Arbitration between Bangladesh and India, pp. 2-3, <https://pcacases.com/web/sendAttach/410>, accessed June 9th, 2019.

⁵⁷ ICJ, Overview of the Case, <https://www.icj-cij.org/en/case/120>, accessed June 9th, 2019.

⁵⁸ ICJ, Press Release, pp. 2-3, <https://www.icj-cij.org/files/case-related/120/14053.pdf>, accessed June 9th, 2019.

feasible in the present case and time, PCA also emphasized that maritime delimitations must be stable and definitive to ensure peaceful relationship. In conclusion, PCA affirm that we must look at circumstances today / not projection of consequences of rising sea levels. Whereas ICJ emphasized that Honduras could not rely on certain coordinates for its baselines because they no longer conformed to the physical reality on the ground and to look at present circumstances, not past.⁵⁹

For the future steps that could be taken are SIDS in Pacific Island may conclude an agreement modifying UNCLOS pursuant to Article 311 (3) and Article 41 of the 1969 Vienna Convention on the Law of Treaties to permit fixed baselines notwithstanding sea level rise. Article 311 (3) of UNCLOS sets out three conditions for modification. With Sea Level Rise Pacific Agreement, the rights of third states in the future may be affected because fixing the baselines will also 'fix' the areas of high seas available to traditional freedoms such as fishing. Since Article 311(3) modification agreements are in principle applicable solely between the parties this presents a problem for a proposed Pacific Agreement as maritime zones need to be opposable to *all* states. However, if the obligations of third states under UNCLOS and under the 1992 UNFCCC are considered holistically, with particular emphasis on the obligation of the international community to support adaptation, it can be argued that third states *should* recognize such a modification agreement. The process for modification (in contrast to amendment) is quick and simple and preserves the rights of third states in that they can object.

SIDS could also develop a regional customary norm permitting fixed baselines.

Regional customary law is uncommon but there is no reason in principle why it cannot be established here on the basis of state practice and *opinio juris* (belief that the right is permitted under the law). There is already significant evidence of state practice and emerging *opinio juris*, providing the basis for a customary norm, and it is suggested that Pacific Island states make bolder statements asserting that they have such a right in order to strengthen this practice.

Uncertainty in maritime boundaries is undesirable and may cause some conflicting claims to valuable ocean resources.⁶⁰ An adapted interpretation of Article 7(2), could provide the opportunity to adapt to sea level rise, as well as contribute to preventing new conflicts concerning ocean resources without invoking the formal amendment procedures of UNCLOS. Thus, it seems to be the most efficient way to counter the consequences of sea level rise. However, a liberal interpretation of Article 7(2) and the rules of baselines does not accommodate the needs of *all* States that are particularly vulnerable to sea level rise. For SIDS, it seems unclear whether maritime limits may be upheld if the legal requirements for entitlement in Article 121 are no longer fulfilled. It can be argued that only where the requirements of Article 121 are met, does the question of the location of baselines and maintenance of permanent continental shelf limits come into play.

E. CONCLUSION

The incidence of the sinking of a country due to rising sea water has not really occurred completely but the problem of sea level rise due to climate change is of great concern if it continues, that is about the

⁵⁹ Foley Hoag LLP, "Effects of Rising Sea Levels on Maritime Boundaries", on 18th United Nations Informal Consultative Process on Oceans and the Law of the Sea, p. 10, https://www.un.org/depts/los/consultative_process/icp18_presentations/hioureas.pdf, accessed June 9th, 2019.

⁶⁰ DD Caron, "Climate Change, Sea Level Rise and the Coming Uncertainty in Oceanic Boundaries: A Proposal to Avoid Conflict", in *Maritime Boundary Disputes, Settlement Processes and the Law of the Sea*, ed. S-Y Hong and JM Van Dyke (Martinus Nijhoff Publishers, 2009).

issue of the maritime boundary of the countries that exist at the moment. Although the impact of sea-level rise caused by climate change is felt differently in every country and region in the world, but countries like those in the South Pacific region or commonly known as SIDS experience more severe impacts than others. This phenomenon of sea level rise is feared to change the coastline, which is the source of the withdrawal of a country that is following the coastal contour and cannot be too far off the mainland. In fact, the SIDS country is the smallest contributor of greenhouse gas emissions compared to other countries.

Based on the discussion above, this article concludes that doing nothing and allow the normal coastline and baseline to find natural balance is one of the options considered less attractive, especially for small island States that have very limited territorial territory and little room for shorelines to shift due to rising of seawater. Another option is to preserve the baseline through building a construction for marine defense. This option physically protects the coast from rising seawater, but it looks like this kind of construction is costly and unrealistic.

According to some experts, instead of protecting the coastline physically, which will certainly cost a lot of money for one coastal State, some legal actions can be taken by the State to be able to maintain its claims of jurisdiction on the existing maritime areas. This is because UNCLOS itself does not talk about the impacts of sea level rise on its design stage and does not provide a mechanism to deal with the problem of a radical shift in the baseline. The objective of maintaining a claim against a maritime zone can be made by endorsing the baseline or limits of claims of the maritime jurisdiction of the coastal State.

Ultimately, it is likely to require a new regulation or a new regime that provides the mechanism of endorsing the baselines. This may develop through state practices by way of a coastal State choosing a particular

chart for the purposes of a maritime jurisdiction or by declaring the location of the boundary of the State's maritime claims. Although, for now, no State has done such practice to defend their own baselines.

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