

CLIMATE CHANGE AND OCEAN GOVERNANCE: CONSEQUENCES OF SEA-LEVEL CHANGE

Professor Alfred Soons
Utrecht University School of Law, The Netherlands

One of the most important consequences of climate change is the rising sea-level. Sea-level has been rising for several decades, and during the current century is expected to rise further: estimates vary between almost one meter to much more, depending in particular on the speed of the melting of the Antarctic ice caps. So there is great uncertainty about the extent of this rise. At the same time, sea-level rise constitutes one of the 'changing dynamics in the global environment', and raises great challenges for law and justice in this global environment.

The rising sea-level will not only affect the geographical extent of land areas: low-lying coastal areas will become inundated or uninhabitable. For some coastal States, with vast low-lying coastal areas with a small gradient, this will have significant consequences. Large coastal populations will eventually have to move, unless timely protective measures have been taken. Often this will not be possible. In particular low-lying island States must even fear for their own physical survival.

But part from this loss of land, sea-level rise will also have another consequence for these low-lying countries, especially those constituted by islands: loss of sea areas over which they exercise sovereignty or jurisdiction. The sea areas subject to coastal State jurisdiction can be enormous and sometimes are of great importance economically for these States. In addition to the territorial sea of 12 nautical miles, the exclusive economic zone (EEZ) extends to 200 nautical miles (370 km) from the so-called 'baseline' (usually the low-water line along the coast), and the continental shelf can even extend much farther from this baseline. If the baseline recedes as a result of sea-level rise, the outer limits of the EEZ or continental shelf would recede accordingly. Should an island (and thus the baseline) disappear entirely, the EEZ around such island may also be lost.

This presentation will examine the consequences of sea-level rise for the extent of maritime jurisdictional zones to which coastal States are entitled under international law. In particular the presentation will identify possible ways for the affected coastal States to take timely measures to prevent or mitigate this imminent loss of maritime jurisdictional zones. These measures could be unilateral, regional or at a global level. They imply the invocation of justice in the global environment.

Transcribed plenary speech of Professor Alfred Soons

Under the topics that I would like to discuss with you, after a brief introduction on the Rising Sea Levels, I would like to focus on the loss of Maritime Jurisdiction Zones as a result of shifting baselines and I will pay less attention on the Loss of Land due to rise of Sea Levels. Then I would like to touch on the topic which is related to the theme of the law session which is Law and Justice in the Global Environment and then I will move on to potential adaptations measures to come to the effects of the rising sea level and I will end with few concluding remarks.

When talking about climate change in relation to international law, it is always important to know the facts and the causes that affect the climate change. The cause of global warming is of course the emission of greenhouse gases and we need measures for prevention and mitigation. The whole field of mitigation and prevention of global warming falls under the field of International Environmental Law. Then we move on to speak on the effects of measures for mitigation and adaptation. Again, going back to the causes, the warming of the atmosphere through the greenhouse gases lead to the warming of the ocean which also acts as a reservoir of greenhouse gases resulting acidification of the ocean. This ocean warming and acidification leads to a series of causes or effects such as melting of sea ice especially in the North in the Arctic Ocean, rising of sea level where the predictions given for this year is below 1m but now the predictions are on the verge of increasing above 1m or even more as there is a considerable rise on sea water levels. There are other effects such as the, changing of ocean circulation patterns, impacts on marine organisms and the effects on the fish stock of the ocean. All these changes have international legal consequences.

Concentrating on the effects of sea level rise on maritime limits and boundaries, in particular on Low Lying States (islands) which are very vulnerable as they are states with low coasts, and here in the Indian Ocean the primary example of Low Lying States would be the Maldives and the main potential victim are the South Pacific Island States like Tuvalu, Federated States of Micronesia, Marshall Islands and few others which consist of entirely of Low Lying Islands. Obviously when sea level rises, you lose land and the ocean advances as a result of sea level rise which results a series of questions for the residents of such islands. Questions such as emigration, evacuation or resettlement of the civilians of such states and if no population is left, what happens to the state arise due to the consequences of rise of sea levels. Nevertheless, the focus in this presentation would be on loss of Sea area, or maritime area. The sea areas are very important for island states, sometimes even economically important than their land area due to availability of resources and fisheries and also for security.

Therefore, it is important to briefly understand the maritime zones; territorial sea of all coastal states of 12 nautical miles, exclusive economic zone of 24 nautical miles, continental shelf which can extend beyond 200 nautical miles, and all these are controlled by the United

Nations Convention on Law of the Sea (UNCLOS) to which Sri Lanka is a party and also played an important role in drafting the convention. All these distances are measured from the baseline which is the low water level of the coast which will obviously shift when the sea water level is rising thus, baselines shift inwards which results shifting of the outer limits of the maritime areas correspondingly. In some cases, this inwards shift is only a few meters if the coast is steep, but in coasts of states such as the Bangladesh where the coast only rises to about one metre means that shifting of baseline could mean loss of land in several kilometres to the sea. Effects on the gradient of the coastal area where you have low tide elevations has a significant impact on measuring the breadth of such states' maritime zones. As an example, in the Kingdom of Netherlands, in the Caribbean the Little Curaçao where if the sea level rises half a metre the whole island would disappear. Such other examples are Sipadan of the Coast of Borneo, Isla de Aves of the Caribbean, Venezuela and if the latter island disappear the state of Venezuela would lose thousands of kilometres of sea area as it would no longer generate maritime zones.

Special issue concerned is that of such islands becoming a rock as provided by the Article 121 (3) of UNCLOS which means it can no longer generate 200-nautical mile exclusive economic zone and can only obtain the 12-nautical mile territorial sea. An example of such an instance would be the Okinotorishima which is also known as the Bird Island, 600 miles to the south of Japan where Japan has claimed 200 nautical miles for the "rock" by conservation of it at the expense of millions of dollars

Thereby, there must be potential adaptation measures which can provide solution to the effects of rise of sea level. The first measure would be to conclude delimitation agreements among states adjacent to one another. Secondly, we could move to the artificial conservation of the natural baseline by building artificial sea walls, which is expensive and often impracticable, yet it has been followed by Japan regarding Okinotorishima which may not be suitable in every circumstance. Moving on to legal measures that could be taken, states could unilaterally claim "historical waters" which is done by Sri Lanka regarding its oceanic area in the north. A better way for a solution would be to develop new rules of International Law which provide an entitlement to coastal states to keep pre-existing outer limits of offshore areas by an amendment to the UNCLOS, or by a separate treaty, or by a rule of customary international law. The reason behind such new rule should be different from the current rules governing the coastlines, and it should be providing justice to the victims of global warming and sea level rise.

As an effect of the adaptation of potential methods mentioned above, island of Male in the Maldives, is now in fact becoming completely an artificial island and it shows the effect of the engineering measures taken up by a state. Tuvalu in the South Pacific which consists of a series of islands, if a physical defence is to be built to protect the islands, it would be completely unrealistic. In the main island Funafuti to protect two and a half square kilometres

of land 54km sea defence would be necessary which shows sea defence is not always cost effective.

As conclusion, even though I have dealt with only one issue of climate change and sea level rise, there are many issues of climate change and moreover, many consequences of climate change are unclear. But to provide solutions for such issues, creative or innovative approaches are required.