



Addressing the implications of rising sea levels for international law

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Introduction: Rising Sea Levels

Climate change has emerged as a security issue and major problem for international law. As coastlines rise, as strategic straights widen, countries everywhere will find their maritime boundaries shifting. Most of these changes are not great in terms of territory, but difficult issues of national pride and control could be at stake, but for some the changes are significant. For some—especially low-lying countries, many of them island states—the changes will be overwhelming. A major region affected by rising sea levels is the Arctic Ocean, where the ice melting reveals not just previous inaccessible coast lines, but opens a previously shielded region to trade, exploitation and great power conflict.

The international community reached a consensus by the early 1990s that global warming is real and is causing the continuous rise of sea levels.¹ This threat has resulted in a series of major international agreements, including the 1992 United Nations Framework Convention on Climate Change (UNFCCC), the 1997 Kyoto Protocol and the Paris Climate Convention of 2015. These set targets to reduce the worst emissions and slow global temperature increases. But most UN Member States have been slow to implement their commitments. In almost every country, important economic interests make it difficult to trim use of fossil fuels and chemical emissions. In many Member

States, important segments of opinion are convinced the process is not caused by human actions, or is beyond human ability to control.

The dangers of climate change and sea-level rise may be worst for low-lying states, including many small island countries and countries with large river estuaries like Bangladesh and Egypt. Many are in danger of losing territory. Some are at risk of disappearing entirely. Their people face loss of the livelihoods, displacement, and the fate of watching their homes disappear. The international community has yet to face the consequences; the loss of territory, the expansion of seas, the shifting of maritime borders, the human suffering and rise of massive new waves of indigent people forced to migrate. as a result of climate change.²

The United Nations will have to respond, whether before or after, adjusting international law to accommodate changes that seem certain to come.

The scientific background

Sea levels have been rising since the beginning of the 20th century. Although there are important differences of opinion, the scientific consensus agrees; the change is largely or entirely due to human burning of fossil fuels (coal and peat, natural gas and petroleum products). Today that rise is accelerating. Data

¹ Sadat, Nemat “Small Islands, Rising Seas” August 2009 *UN Chronicle* <https://unchronicle.un.org/article/small-islands-rising-seas>

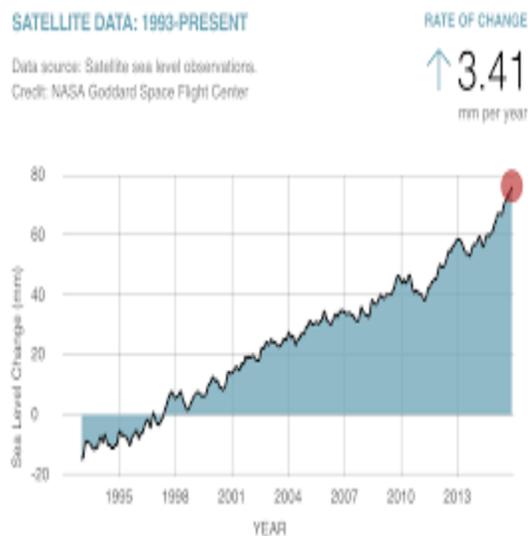
² Terminski, Bogumil, Rising Sea Level and Public International Law: Contemporary Legal Issues and Future Dilemmas (November 19, 2012), <https://ssrn.com/abstract=2178055>



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from satellite radar measurements reveal an accelerating rise of sea levels worldwide of 7.5 centimeters or 3 inches from 1993 to 2017. This equals roughly 30 cm or 12 inches per century.³ Without aggressive action to slow and reverse fossil fuel burning and emission of greenhouse populating gases, this trend is expected to further accelerate during the rest of the 21st century.⁴



Today, the UN sponsored *Intergovernmental Panel on Climate Change* (IPCC), the scientific commission responsible for analyzing and predicting the consequences of climate change, predicts that the average global sea-level could rise by nearly a meter or 39 inches by the year 2100.⁵ Small Island States are the front lines of

sea level rise. As this issue continues to be tabled, millions of lives across the Small Island States will feel the effects of sea level rise due to projected increases nine times higher than the global average.⁶ States with large populations in coastal areas also are vulnerable, none more so those with large estuaries. Most of their territory will become uninhabitable, essentially washing away entire Member States. Others will witness populations losing their property and livelihoods, forced to relocate from vulnerable regions.

Sea level rise presents a risk in most regions of the world, not just Small Island States. Rising sea levels can result in severe damage to coastal land, infrastructure, and ecosystems to nearly all coastlines. Approximately 70 percent of the world’s coastlines are projected to experience a sea-level change within 20 percent of the Global Mean Sea Level (GMSL).⁷ Although relative sea level is falling in some parts of the world—usually because of post Ice Age land rise—the vast majority of coastlines are experiencing a Relative Sea Level Rise (RSLR).⁸ The differences of impact regarding sea level rise creates an international policy gap when dealing with the question of rising sea levels because not all states will be affected equally.

³ USGCRP (2017). "Climate Science Special Report. Chapter 12: Sea Level Rise".

science2017.globalchange.gov. Retrieved 2018-12-27.

⁴ IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.; [Climate Change 2014 Synthesis Report Fifth Assessment Report, AR5](#)

⁵ COP23 Fiji "How Fiji is affected by climate change" *COP23 Fiji* <https://cop23.com.fj/fiji-and-the-pacific/how-fiji-is-affected-by-climate-change/>

⁶UN Development Programme "Small Island Nations at the Frontline of Climate action" September 18, 2017

<https://www.undp.org/content/undp/en/home/news-centre/news/2017/09/18/small-island-nations-at-the-frontline-of-climate-action-.html>

⁷ IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change

⁸ *ibid*



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The Swallowing Sea

Human-caused climate change and sea level rise has been understood since the 19th century. The process is accelerating, due industrialization and the destruction of natural environments for human habitation or usage. Importantly, these effects were not felt in earnest until the end of the 20th century, slowing responses that would have been much easier before.⁹

Sea level rise from melting Arctic and Antarctic ice sheets is accelerating around the world and the annual rate of rise could more than triple every year by 2100, according to data published in the Proceedings of the American Academy of Sciences (PNAS).¹⁰ The research of the PNAS shows that sea level rise from melting ice sheets is already responsible for half of the 7cm increase observed since 1993. Based on current measurements, the rate of sea level rise is about 3mm per year; however this could triple to reach 10mm per year by 2100.¹¹

Climate change is driving sea level rise through two phenomena: the rapid melting of ice at the poles and the increased concentrations of

greenhouse gases in the atmosphere.¹² This latter phenomenon warms the temperature of the water. Hot water - less dense than cold water - takes up more space, causing the ocean to expand.¹³

Islands already have disappeared. In the summer of 2018, scientists discovered that *Perlamutrovy*, a small island in the Russian Arctic archipelago, is gone.¹⁴ In October, an 11-acre island in Hawaii was washed away by category 5 Hurricane Walaka.¹⁵ A few days later, a local newspaper revealed that an islet off the coast of Japan has sunk underwater. All three islands were small and uninhabitable.

The Republic of Kiribati, an island nation in the Pacific made up of 33 islands with a population of 100,000, is fighting a losing battle against the sea. Former president Anote Tong recounted memories of *Tebunginako*, a once thriving village.¹⁶ Now, only a church is visible above the water when the tide comes in. With an average height of six feet above sea level, Scientists believe that at some point this century, these islands may become uninhabitable as ocean levels rise due to climate change.¹⁷

⁹ R. S. Nerem, B. D. Beckley, J. T. Fasullo, B. D. Hamlington, D. Masters, G. T. Mitchum "Climate-change-driven accelerated sea-level rise" Proceedings of the National Academy of Sciences Feb 2018, 115 (9) 2022-2025; DOI:10.1073/pnas.1717312115 <https://www.noc.ac.uk/news/when-did-modern-rates-sea-level-rise-start>

¹⁰ National Oceanography Centre "When did modern rates of sea level rise start?" March 5, 2013. *National Oceanography Center* <https://www.pnas.org/content/115/9/2022>

¹¹ UN Climate Change News "Global Sea Level Rise is Accelerating- Study" February 13, 2018. *United Nations Climate Change*. <https://unfccc.int/news/global-sea-level-rise-is-accelerating-study>

¹² UN Climate Change "2017 was among top three hottest years on record", *UN Climate Change*, 18 January 2018, <https://unfccc.int/news/2017-was-among-top-three-hottest-years-on-record>; UN Climate Change "2017 was hottest year on record for world's oceans", *UN Climate Change*, 12 January 2018, <https://unfccc.int/news/2017-was-hottest-year-on-record-for-world-s-oceans>

¹³ UN Climate Change "Global Sea level rise is accelerating- study," *UN Climate Change*, 13 February 2018.

<https://www.un.org/press/en/2018/gal3581.doc.htm><https://unfccc.int/news/global-sea-level-rise-is-accelerating-study>

¹⁴ Staalesen, Atle. 2019. "The Arctic Island that Disappeared." *The Barents Observer*, 22 February 2019, <https://thebarentsobserver.com/en/arctic/2019/02/arctic-island-disappeared>

¹⁵ Kotecki, Peter. 2018. "An Intense storm has wiped out a remote Hawaiian island, and it's a sign of things to come." *Business Insider*, 25 October 2018,

<https://www.businessinsider.com/hurricane-walaka-hawaii-east-island-disappearing-2018-10>

¹⁶ Reed, Brian. 2010. "A Kiribati Village slowly succumbs to the Sea around it." *NPR*, 1 December 2010, <https://www.npr.org/sections/twotwo-way/2010/12/01/131708517/a-kiribati-village-slowly-succumbs-to-the-sea-around-it>

¹⁷ Human Rights Watch. 2018. "Interview: Climate Change and the disappearing islands of Kiribati." *Human Rights Watch*, 15 June:



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However, experts warned that larger islands are not safe from rising sea levels. A recent study estimated that about 1.79 million square kilometers of lands (that is about three times the size of California) would be lost to the sea by 2100. The scenario was described as "catastrophic" by the authors and it would have huge implications around the world. For some states affected by sea level rise populations in low-lying areas can be successfully relocated to higher ground, such as Papua New Guinea's Carteret Islands. For states like *Kiribati* or the *Maldives* there is no higher ground to flee to.

Fleeing the Sea, Human Rights, and International Law

Rising sea levels continue to threaten the livelihoods of regions that currently rest near sea level. Much of the land losses will be those that are important in the production of food, such as the delta of the Nile. Places like Bangladesh would no longer be safe to live in.¹⁸

The World Bank estimates that climate change will hit *East Africa* hard, forcing more than 10 million people to flee their homes by 2050.¹⁹ This will cause increased in migration and displaced persons. This new phenomenon is known as environmental migration. The land that a population currently inhabits may become uninhabitable and will force the civilians to relocate.²⁰

<https://www.hrw.org/news/2018/06/15/interview-climate-change-and-disappearing-islands-kiribati>

¹⁸ Samson, Diane. 2019. "3 Islands disappeared in 2018 and more islands could go under in the near future." *Tech Times*, 10 June:

<https://www.techtimes.com/articles/244263/20190610/3-islands-disappeared-in-2018-and-more-islands-could-go-under-in-the-near-future.htm>

¹⁹ UN Environment. 2018. *Rising Sea Levels- How to Stop a city from sinking*. 3 July.

<https://www.unenvironment.org/news-and-stories/story/rising-sea-levels-how-stop-city-sinking>

Under 1951 Convention Relating to the Status of Refugees, status of refugee is not accorded to people displaced as a result of climate change consequences.²¹ This means that civilians are forced to migrate because of climate change and may not be granted international refugee status.

Migration and relocation are not new, and often happen as a result of warfare and conflict. In this case though things are different. Sea level rise could consume whole states, and lead to a diaspora of people to higher ground. While examples of states ceasing to be have occurred, notably in the breakup of Yugoslavia, those have all been political events in which the territory became a new or expanded political entity which becomes subject to a new name and identity subsequent to international law.²²

Even with the threat of mass migration and litigation against major greenhouse polluters, the problem of climate change refugees has been left unresolved. Under international law, people displaced by climate change are not recognized as a group with defined rights or as a group in need of special protection. After intense lobbying by the Maldives, there was a breakthrough in March 2008 when the UN Human Rights Council passed a resolution that climate change "poses an immediate and far-reaching threat to people and communities around the world."²³ The inclusion of sea level rise in relation to international law illustrated its

²⁰ The World Bank. 2018. *Groundswell: Preparing for Internal Climate Migration*. 19 March.

<https://www.worldbank.org/en/news/infographic/2018/03/19/groundswell---preparing-for-internal-climate-migration>

²¹ Hioureas, Christina, 2017. *Effects of Rising Sea Levels on Maritime Boundaries*.

https://www.un.org/depts/los/consultative_process/icp18_presentations/hioureas.pdf

²² Alexandra R. Harrington. (2010). *Citizens of the World. Proceedings of the Annual Meeting (American Society of International Law)*, 104, 55-57.

doi:10.5305/procanmeetasil.104.0055

²³ Sadat, Nemat. 2009. *UN Chronicle*.



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importance and urgency around the world, especially with ongoing climate reports.²⁴

United Nations Action

Amid ongoing concerns regarding sea level rise, the UN has proven capable of action in the past. UN Environment initiatives have provided critical support for nations without the means to financially make needed improvements possible. Most prominent of these agreements and resolutions has been *the Paris Climate Agreement of 2015*, which assisted in codifying international efforts around resiliency, adaptation, and the mitigation of climate change.²⁵ Of particular note on the issue of increasing coastal resiliency in the face of sea level rise have been programs from *UN Office for Project Services (UNOPS)*, *the Adaptation Fund*, *the UN Development Programme (UNDP)*, and *the Least Developed Countries Fund*.

Essentially, these programs offer states fearing sea level rise to gather additional funding to improve coastal resiliency and protect shorelines. For instance, UN Environment was alerted to the needs of Tanzanian coastal communities. In collaboration with *United Nations Office for Project Services (UNOPS)*, and with funding from the Global Environment Facility, UN Environment supported the Government of Tanzania to build extensive seawalls along Tanzania's coast, including over 2,400 miles of defense structures. The walls stop the shores from disintegrating and are scattered with scenic viewpoints for residents to enjoy. Further inland, a network of drainage systems was carved-out to channel floodwaters to the

ocean. For example, sea walls have been constructed in seven sites along Tanzania's coast, with financial support from the Adaptation Fund, the Least Developed Countries Fund, and the Government of Tanzania. The project restored vast areas of mangrove and coral habitats, as natural barriers against wave surges. This formed part of a strategy that seeks to build resilience to climate change by improving natural ecosystems.

Thus, the UN has used its capabilities to provide options to countries without necessary funding to adequately respond to sea level rise to protect urban centers, and to protect other environments as well. The UN has provided support for various avenues of environmental research, most famously in the UN Intergovernmental Panel on Climate Change, which provides information to governments to respond to crises. The UN also established committees and working groups to ensure the inclusion of the effects of sea-level rise in the Sustainable *Development Goals* (SDGs), its program to ensure coordination and maximum effectiveness of the global battle against poverty.

Additional work has been carried out by the UN to provide support for storms and other disasters. The increasing number of natural disasters and dangers linked to climate change, highlighted in a major UN report represents "another strong wake-up call" to the world, which must be countered by finding sustainable solutions quickly, UN Secretary-General António Guterres has said.²⁶

UN initiatives have shown what can be done, but also left most of the task un-started. In most countries, efforts to combat sea level rise have

²⁴ UN Climate Change "Global Sea level rise is accelerating- study"

²⁵ "What is the Paris Agreement?" *United Nations Climate Change*, n.d., <https://unfccc.int/process-and-meetings/the-paris-agreement/what-is-the-paris-agreement>

²⁶ Change, Climate. 2019. "New UN Global Climate Report 'another strong wake-up call' over global warming: Guterres." UN News, 28 March. <https://news.un.org/en/node/1035681/new-un-global-climate-report-another-strong-wake-up-call-over-global-warming-guterres-2>



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barely started. Legal reforms have been especially slow. Slowing all these efforts is lack of commitment, hesitancy to restrict polluting industries, and lack of funding.

Country and Bloc Positions

African States: With the extensive coastlines of Africa threatened by rising sea levels, several African states have taken advantage of UN offerings of support to improve coastal resiliency and protect coastal communities. A significant body of African states have also joined with the small island states to form an alliance of states concerned with sea level rise and other effects of climate change. Furthermore, several African states including Togo and South Africa have been pushing for improving legal codes regarding climate migrants from coastal areas and criminal jurisdiction. Strong proponents of acting in the face of the changing climate include Egypt, Madagascar, Togo, and South Africa. Meanwhile more interior states are concerned about other aspects of climate change including famine, drought, and refugee crises. Among these states include Mali, Namibia, Rwanda, and Zimbabwe.

What most African countries lack—expect for those with oil wealth like Angola—are the resources to finance adjustment. Unlike other regions, where most attention goes to adjusting international law to mitigate the process of climate change, in Africa most attention goes to reducing the effects through infrastructure investment, allowing people to cope more effectively.

China and Russia: When it comes to addressing climate issues, China is divided. It

strongly supports reforms to international law. International law is the basis of China's UN diplomacy. But it refuses to accept unequal burdens that would unfairly affect its economic development. Although hundreds of millions of Chinese people are at risk due to sea level rise, even more are endangered by poverty. Thus China is investing more in clean energy, especially nuclear power, but continues to rely on coal for generating electricity. It insists on the freedom to make these choices itself.

China has been focused on developing green technologies and turning towards renewable energy sources, but remains the world's largest polluter, with increasing coal powerplant usage. China accepts the Paris Climate Accords, but does not appear to be meeting its targets.²⁷ Given the amount of population on China's coast though, particularly in economic centers like Macau, Hong Kong, and Shanghai, China may be admissible to international action on the issue.²⁸

For Russia, protection of its oil and gas industry is extremely important; oil and gas are the source of more than half the nation's wealth, and over eighty percent of its export income. But Russia support reforms through international law as the best way to achieve fair division of burdens and responsibilities, so long as its interests are protected.

European Union (EU): On sea level rise the 27 Member States of the EU and the EU itself have been global leaders, shaping the consensus in favor of strong legal limits on population, use of fossil fuels, and adjustment to the new environment. European countries like the Netherlands lead in the technology of adjustment to sea level rise. Europe also strongly believes in the obligation of wealthier countries

²⁷ [ibid](#)

²⁸ Holder, Josh, Niko Kommenda, and Jonathan Watts. 2017. "The three-degree world: the cities that will be drowned by global warming." The Guardian, 3 November.

<https://www.theguardian.com/cities/ng-interactive/2017/nov/03/three-degree-world-cities-drowned-global-warming>



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to help poorer ones adjust. The pragmatic argument is only by aiding the poor can further waves of migration be avoided. But the European Union also believes in the moral obligation to help.

Some European Member States like Germany and Poland have been slow to reduce their reliance on coal. Others like Denmark and France have been the fastest to adjust. Strong believers in the importance of change through law, the European Union strongly supports legal measures to engage the entire international community solving the sea level rise change. But some countries such as Poland are reluctant to vote for policies legally requiring them to reduce emissions.²⁹

Most EU Member States aggressively support legal reform on rising sea levels and other climate change phenomena, especially given the EU's support for the Paris Climate Accords of 2015. Notable leaders include Cyprus, Romania, France, and Germany. Each of these states have noted the impacts of sea level rise alongside the legal and international consequences it possesses.

Non-Aligned Movement (NAM): The 120 Member States of the NAM include many facing significant transformations because of sea level rise. Particularly, this body of states has major economic, population, or agricultural centers in low lying regions that will be detrimentally hit by sea level rise. This group of states lacks the financial resources to address the objectives laid out in the Paris Climate Accords of adaptation without the direct involvement of the international community. Thus, this group of

states have been prominent advocates for sea level rise concern alongside the small island nation states, and includes Bangladesh, Egypt, India, Indonesia, Pakistan and Thailand, among others.

For all these countries, changes to international law that are fair, and do not impose unaffordable budgets, are essential. Only through international law can they be assured they are not being singled out for demands. Only through international law can they assure their publics that other Member States are acting in step too.

Small Island States: This bloc is an exceptional moral force on this issue. The threat posed to them by rising sea levels has been the centerpiece of climate change negotiations, the main issue emphasized by Small Island Developing States (SIDS). They banded together over sea level rise and other impacts from climate change within the General Assembly. The world's smallest island and low-lying coastal countries, the Member States most susceptible to change in climate, forged a coalition called the *Alliance of Small Island States* (AOSIS). Today AOSIS has 44 members, 39 of whom are UN Member States.³⁰

Most are small in territory and population, but very vulnerable. While AOSIS represents more than one quarter of the world's countries, together they account for less than one per cent of global carbon emissions.³¹ More than other Member States, these rely on reforms through international law to ensure their survival, or failing that, the fair treatment of their people. They push for climate accountability within

²⁹ Cockburn, Harry. 2019. "Climate Crisis: Rising Sea level and catastrophic storm surges could displace 280 Million people, UN warns." *Independent*, 29 August. <https://www.independent.co.uk/environment/climate-crisis-sea-level-rise-un-ipcc-report-global-warming-a9083891.html>

³⁰ 'Small island states and diplomacy: nothing so concentrates the mind', *The Economist*, 21 September

2019, <https://www.economist.com/international/2019/09/19/island-states-have-had-an-outsized-influence-on-climate-policy>

³¹ Sadat, Nemat. 2009. UN Chronicle.



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organizations like the 2015 Paris Climate Accords and funding to secure coastlines and population centers in order to preserve their territory for as long as possible. Among the more prominent members are Kiribati, Tuvalu, the Federated States of Micronesia, and the Maldives.

United States: Historically the US was concerned regarding rising sea levels and other aspects of climate change. However, under the Trump administration the focus of US policy on climate related issues changed dramatically, against international action, most notably by withdrawing the Paris Agreement on Climate Change and its legal obligations. Escaping the fetters of international law is a principle theme of President Trump's foreign policies.

The US is extremely vulnerable to sea level rise, particularly in metropolitan areas like Miami and the impacts of storms in Florida, New Jersey, New York, North Carolina, Texas and Virginia.³² There is a tension here, with the needing to respond, but refusing to do it under the shackles of international law.

Proposals for Action

The United Nations has several precedents to act upon in order to assist in addressing issues related to sea level rise and its derivative issues. Major possibilities of action include

- **Create a new international legal obligation to help people displaced by sea level rise.** This could include a legal right to emigrate as refugees with economic rights such as freedom to work in their new homelands, or the rights of citizenship. Financing could be

essential to make such a system work. Opposition would have to be offset.

- **Shift responsibility for efforts to slow or reverse sea- level rise** from Member States to the international community, by creating a new legal system to compel states to act aggressively to meet their Paris targets.
- **Increasing support for resiliency and adaptation activities** particularly in the development of coastal infrastructure like seawalls and the development of previously damaged wetlands and mangrove forests. The Paris Climate Agreement offers a framework to increase funding for these kinds of programs, though the cost for them may quickly become considerable.
- **Increasing support for the study of sea level rise impacts.** Rather than action—which always is controversial—it might be easier for Member States to agree to study the issue more. The Paris Climate Agreement offers the opportunity to coordinate the research initiatives of signatories, which offers an opportunity to have a global study of sea level rise. A comprehensive study of the impacts of sea level rise on regions and globally could allow for states to better respond to the emerging crisis and plan out their own responses. Some Member States would see this as avoiding action. Others would welcome the delay.
- **Passing a resolution calling for adjusting international law to require more emissions control** in order to prevent the acceleration of warming

³² Cockburn, Harry. 2019. "Climate Crisis: Rising Sea level and catastrophic storm surges could displace 280 Million people, UN warns."



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temperatures. The Paris Climate Agreement sets an emission goal, but without the ability to have punishments for defectors the Agreement may not be as effective as hoped.

- **Legal measures to support specific Member States.** Rather than legislate for the entire international community, it might be easier to target action at the worst affected. While outside of the discussion of the notable Paris Climate Agreement, this may end up being an effective though costly solution for the international community to pursue. Countries that do not benefit or must pay for such measures could be expected to resist.
- **Tell Member States they are on their own.** Call for independent action by the 193 UN Member State States, for at-risk states to pursue their own means for population security and state survival. This would run counter to the spirit of

the Paris Climate Agreement, but might be popular with nationalistic governments facing demands to pay for changes due to problems they historically caused.

- **Revise international humanitarian law to protect climate migrants fleeing rising waters.** Rather than focus specifically on changing law relating to the Law of the Sea or sea level rise, focus on humanitarian law, such as the Geneva Conventions or the Universal declaration of Human Rights (UDoHR). Reforming international legal codes to provide for the support of those fleeing sea level rise would increase the capabilities of the international community to provide for climate migrants and those left behind.



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