

Climatic Statelessness: Risk Assessment and Policy Options

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Introduction

According to some press reports, the world could be threatened by an unprecedented form of statelessness that would be the consequence of the outright disappearance of the territory of certain states, submerged by rising sea levels as a result of climate change. Already more than 10 years ago, on September 25, 2008, the representative of the Republic of Palau¹ declared before the UN General Assembly, that “Never before in all history has the disappearance of whole nations been such a real possibility.”² A year later, the Maldives government provided a gripping image of this risk by holding a cabinet meeting at 5 meters underwater in wetsuits.³ The UN Secretary-General (2009) and many NGOs largely echoed these concerns, which are now part of the standard narrative revolving around powerful images of “sinking islands” (Bruner 2017), “vanishing islands” (Yamamoto and Esteban 2010), and “disappearing states” (Farbotko 2010; McAdam 2013; Barnett 2017). Recently a press release by the Organization for World Peace stated, for example, that “Some of the worst hit regions include low-lying island nations inundated by rising sea levels, and several are already underwater.”⁴ The scientific climate change impacts and adaptation literature rarely issued such alarmist statements,⁵ but it made no attempt to settle the debate and synthesize existing knowledge⁶ on a topic that, beside media attention, raises fundamental issues regarding sovereignty and human rights (Harrington 2010; Skillington 2017). Surprisingly, even if the Division of International Protection of UN High Commissioner for Human Rights (UNHCR)—one of whose missions is the protection of stateless persons—has addressed the threat in a specific report in 2011 (Park 2011), and although the risk that “atoll island states will eventually be overwhelmed” has been identified since the first Intergovernmental Panel on Climate Change (IPCC) report of 1990 (Roy and Connell 1991, 1071), no study has yet attempted to provide a systematic count of the States likely to disappear.

What are the scientific foundations upon which the image of contemporary Atlantises is based? What are the areas under threat? Is a complete submersion of certain States conceivable and, should that be the case, how can this historically novel form of statelessness be dealt with? After briefly defining and describing statelessness and its legal status, we provide building blocks for answering these questions.

Stateless persons, refugees, internally displaced and environmental migrants

"Refugees, when they are stateless persons by law or in fact are (...) everywhere, in every country, wherever they may be, foreigners (...). They do not have the ultimate recourse that is always available to the 'normal' foreigner: the return to their native land." These words were spoken by novelist Albert Cohen in January 1948 in Geneva during his time as director of the Division for Protection of the International Refugee Organisation (IRO),⁷ which later became the UNHCR.⁸ At the time, the challenge for the IRO was that of millions of persons in Europe were displaced because of World War II, some of whom had been stripped of their citizenship: Jews and Roma who survived the Holocaust, German minorities (*Volksdeutsche*) expelled from the Soviet Union and other Eastern European countries, Russians fleeing Stalinism, etc. The aim was to rescue "every person that no State considers as its national by virtue of its legislation"⁹ and help them obtain a passport (Noiriel 1991).

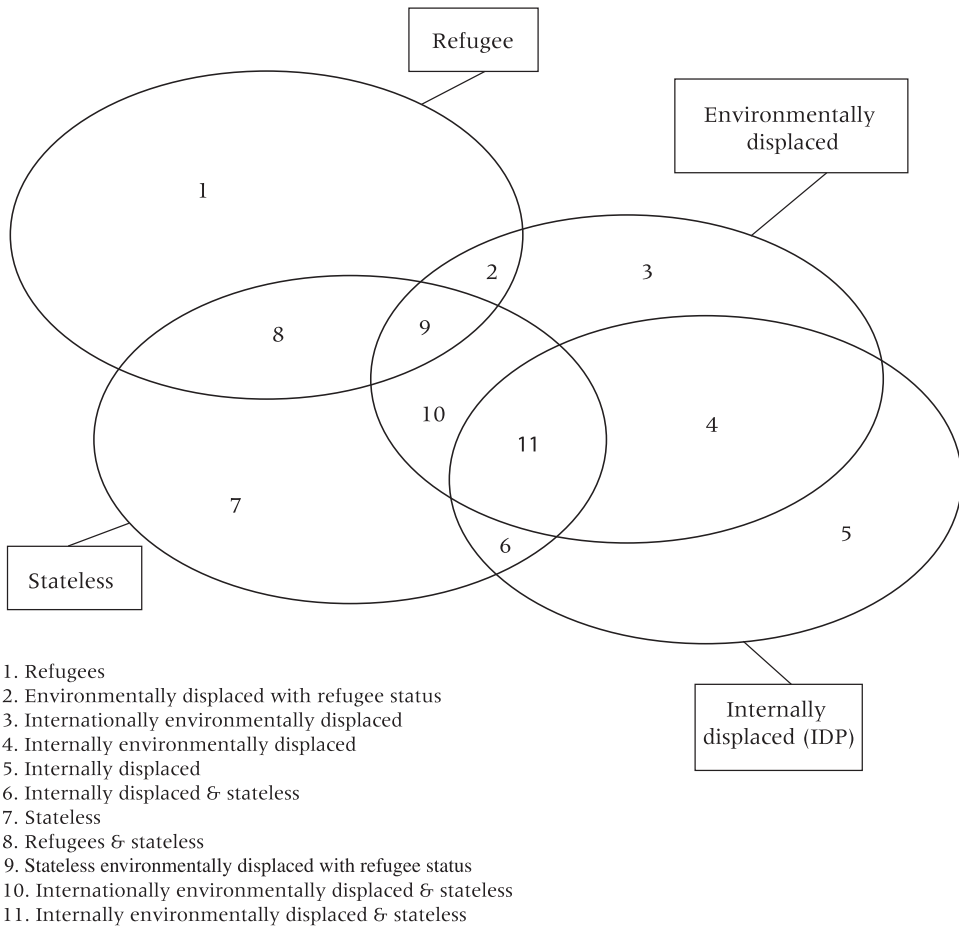
In international law, statelessness can result from a conflict of laws among countries,¹⁰ from administrative breakdown, or from the rejection by a State of a particular population group that is stripped of citizenship (e.g., political opposition groups, ethnic or religious minorities). The emblematic case of such rejection is the Nazi promulgation of the 1935 Nuremberg laws targeting Jews that prompted Hannah Arendt to write in *The Origins of Totalitarianism*: "To be stripped of citizenship is to be stripped of worldliness; it is like returning to a wilderness as cavemen or savages. (...) They could live and die without leaving any trace."¹¹ The UN Convention on the reduction of statelessness that came into effect on December 13, 1975, as well as the 1997 European Convention on citizenship, create an obligation henceforth for States to avoid creating stateless persons and to facilitate the acquisition of citizenship. They refer to Article 15 of the Universal Declaration of Human Rights that provides for every person's right to citizenship, without, however, providing for the consequent obligation of States to grant citizenship. In 1996, the UN General Assembly gave the HCR the general mandate of preventing and reducing statelessness.¹²

Statelessness, as we have just defined it, remains a dramatic problem today. Its extent is difficult to measure because stateless populations are, for obvious reasons, not accurately recorded in censuses by the governments

of the countries in which they reside. The HCR keeps records of 3.9 million stateless persons around the world, but estimates a total of 10 million people, mainly in the Middle East (e.g., Lebanon, Iraq, Syria), Africa (Côte d'Ivoire), countries of the former USSR, and in Asia (Bangladesh, Myanmar, Thailand) (UNHCR 2018b). Statelessness is attributable to various circumstances, mainly linked to historical processes of nation building, the reshaping of borders, or exile that left populations deprived of recognition by any existing State. For example, although they were born and raised in Myanmar for multiple generations, more than one million Rohingya are stateless in the country due to the restrictive application of the citizenship law, which primarily confers citizenship and defines nationhood on the basis of ethnicity. Many Rohingya recently fled to Bangladesh where they remain stateless (UNHCR 2018a). In Ivory Coast, around 700,000 persons are stateless because of a restrictive nationality system and the difficulty of proving their right to citizenship (historical migrants and their descendants; children of unknown parents; border populations; refugees and returnees, etc.) (Adjami 2016). In the Baltic states, the Russian Federation, Uzbekistan, and Ukraine, hundreds of thousands of former USSR citizens have been stateless since the fall of the Iron Curtain because they are not recognized by the new national entities. In Thailand, the UNHCR registers nearly half a million stateless persons. Many are children of refugees from Myanmar who are ineligible for citizenship in both countries. Others are part of local ethnic minorities—the so called hill tribes—and their real number might be much higher than registered.

Most often, stateless people cannot vote and they face restrictions on buying land, seeking legal employment, or traveling freely. In some countries, stateless persons receive a permit that allows them to travel and/or benefit from streamlined naturalization procedures. This is, however, far from always the case, so millions around the world remain in a situation of forced immobility and deprivation of political rights (UNHCR 2014b). The estimated number of 10 million stateless persons can be compared to the 22.5 million refugees who have crossed an international border and to the 40.5 million internally displaced persons (IDPs) (UNHCR 2018b). The total number of people displaced by environmental hazards ("environmental migrants") is much more difficult to grasp due to the multiplicity of causes that drive migration decisions, but only a minority cross international borders (Piguet and Laczko 2014). On that basis, the Internal Displacement Monitoring Centre in Geneva estimates that 18.8 million new internal displacements occurred due to environmental disasters in 2017 (IDMC 2018).

The four categories that we have just listed (stateless persons, refugees, IDPs, environmental migrants) overlap to a variable degree so that a conceptual clarification is necessary. Thus, stateless persons are sometimes, although not always, refugees as defined in Article 2 of the 1951 Refugee Convention (persons who have reasonable grounds to fear persecution

FIGURE 1 Graphical representation of 11 conceivable population profiles.

because of their race, religion, nationality, membership of a particular social group, or political beliefs and who are outside the country of which they are a national). Environmentally displaced persons, for their part, are rarely in a position to claim the status of refugee unless their home State has deliberately failed in its duty to provide protection because of their membership of a particular social group.

Figure 1 provides a graphic representation of the 11 conceivable population profiles. The following examples illustrate the different cases of statelessness: Intersection 7 corresponds to classic statelessness cases such as local ethnic minorities not recognized as nationals in Thailand; intersection 8 corresponds to stateless persons who have crossed an international border and are considered refugees, such as the Rohingya in Bangladesh.¹³ The cases of statelessness that are of interest for the purposes of this article because they are linked to the loss of territory (environmental drivers) correspond to intersections 9 and 10. Intersection 9 would include people

losing their nationality because of the submersion of their country. In case 10, they would be recognized as refugees.¹⁴ Intersection 11 designates internal displacement of stateless persons because of environmental hazards without loss of territory. Finally, Intersection 6 corresponds to internal displacements of previously stateless persons for nonenvironmental reasons. The case of people who have to leave a sinking nation but manage to keep a nationality—thanks to mechanisms to which we will return—corresponds to intersection 3.

Let us attempt to get a clearer picture by looking at the forecasts of climatologists and geophysicists and by evaluating the size of the populations concerned before coming back to the specific issue of the disappearance of island States.

The consequences of climate change on sea levels and populations

In its most recent assessment, the IPCC predicts different rates of mean sea-level rise (MSLR) by the year 2100, according to four scenarios of CO₂ concentration in the atmosphere (representative concentration pathways or RCPs). The ranges vary from 0.44 [0.28–0.61] m (RCP2.6), 0.53 [0.36–0.71] m (RCP4.5), 0.55 [0.38–0.73] m (RCP6.0) to 0.74 [0.52–0.98] m (RCP8.5) (IPCC 2014: 1180). The worst-case scenario is a rise of almost 1 meter by the end of the twenty-first century. Even though the rise in the sea level will not be uniform around the globe, approximately 95 percent of the ocean area will experience a rise by the end of this century (IPCC 2014, 1140). More recent studies point toward higher values of up to 3 meters linked to a faster melting of Antarctica's ice sheets. A synthesis of the opinions of 90 sea-level experts points toward a range of 0.7–1.2 m by 2100 and 2–3 meters by 2300 (Horton et al. 2014). In a new study, Bamber and colleagues note that uncertainties are high among experts but that a rise of more than 2 meters by 2100 is considered plausible within a “business as usual” scenario of CO₂ emissions (Bamber et al. 2019).

Coastal erosion, the risk of flooding, saltwater infiltration, and the associated risk of a drinkable water shortage not only endanger the populations that live at sea level but also those who live several meters above (Curtis and Bergmans 2018). Moreover, the direct impact on population is only a narrow aspect of wider consequences on such issues as biodiversity, food production, and health. On this basis, many scientists define vulnerable low elevation coastal zones (LECZs)¹⁵ as those situated as high as 10 meters above sea level (Guzman et al. 2010).¹⁶ These zones only account for 2.2 percent of the surface of the Earth's land mass but are home to 10.5 percent of its population,¹⁷ approximately 600 million people, in their vast majority inhabiting the deltas of the great rivers and estuaries of South Asia (the Indus River and the Ganges-Brahmaputra) and East Asia

(Mekong, Yangtze, and Pearl Rivers). These two regions alone are home to 75 percent of the endangered populations. Jones and O'Neill (2016) have elaborated demographic projections of the evolution of these populations controlling for various scenarios of economic growth, migration, and sea-level rise as a result of greenhouse gas emissions. Their forecasts for the end of the century vary from 740 to 1145 million people living in LECZs.¹⁸ More immediately exposed during the same time frame, the populations living less than 1 meter above sea level add up to approximately 150 million. In particular, this includes certain coastal cities of major economic importance such as Rio de Janeiro, Shanghai, Mumbai, and Cotonou (De Sherbinin, Schiller, and Pulsipher 2007; Dossou and Glehouenou-Dossou 2007; Leichenko and Thomas 2012).

The dramatic consequences of sea-level rise will affect hundreds of millions of people. Even if protective measures can be taken, as we will see below, this phenomenon is much more likely to generate lasting population displacements than other environmental consequences of global climate change such as increase in temperatures, droughts, tropical cyclones, and wildfires (Cattaneo et al. 2019). But to what extent will sea-level rise also lead to the disappearance of entire States?

The endangered States

Among coastal independent countries, the Netherlands, Bahrain, Azerbaijan, Denmark, and Vietnam have the largest land areas with an elevation of less than 5 meters above sea level in proportion to the total land area. These countries have respectively 59, 39, 20, 18, and 18 percent of their total land area with an elevation less than 5 meters.¹⁹ While this is substantial, it is still far from posing a threat of complete submersion.

Where the risk of climatic statelessness exists, it is only in the specific case of the island nations situated at particularly low sea levels. These islands could become uninhabitable before being entirely submerged (Julca and Paddison 2010). Sea-level rise could endanger vital infrastructures, disrupt freshwater supplies, and agricultural activities because of soil and aquiferous salinization, and jeopardize the survival of island communities (Nurse and McLean 2014).

One can point in this regard to the historical example of Holland Island off the coast of Maryland in the United States, which was abandoned at the beginning of the twentieth century following a local acceleration in sea-level rise (Arenstam Gibbons and Nicholls 2006). Between 1850 and 1900, Holland Island was still a growing community but the upland area where people lived was steadily diminishing. After 1900, the island experienced a decrease in population with final abandonment in 1920. Abandonment followed a vicious circle as the population fell below a level that could support critical community services and the community lost faith in its future.

Holland Island, and indeed most endangered islands, are not, however, independent States. The Carteret Atoll, for example, whose inhabitants have been presented in the media as the first climate refugees and have been targeted by different relocation schemes, has a maximum altitude of 1.5 meters, and is part of Papua New Guinea; a relatively mountainous State whose permanence is not endangered in any way (Connell 2016). The same applies to small island colonies and overseas territories such as Bora Bora, Tahiti, and Turks and Caicos.

Ultimately, the number of countries in real danger of being submerged is quite small. There exists, for the moment, no list based on a systematic methodology, and proper forecasts should take into account tectonic movements that affect the local rate of sea-level rise as well as the dynamic response of reef islands (Webb and Kench 2010). However, even if the processes affecting the geomorphology of island areas are complex, the simple criterion of maximum altitude allows for an initial estimate. Among the 39 States that are members of the Alliance of Small Island States (AOSIS²⁰), only three have a maximum altitude below 10 meters: the Maldives (418,000 inhabitants, maximum altitude 5 meters),²¹ Tuvalu (11,000 inhabitants, 4 meters), and the Marshall Islands (53,000 inhabitants, 10 meters). The Bahamas (387,000 inhabitants, 63 meters), Nauru (11,000 inhabitants, 71 meters), and Kiribati (112,000 inhabitants, 81 meters) have, for their part, maximum altitudes below 100 meters. Tokelau (1,200 inhabitants, 5 meters) is generally considered very vulnerable but is under the sovereignty of New Zealand, as is Niue (1,600 inhabitants, 66 meters). Palau's maximum altitude is 242 meters. In the case of the Bahamas,²² the mountainous topography of some islands which allows settlements above sea level, but also the financial means at the country's disposal for taking protective measures, make disappearance highly unlikely. Nauru and Kiribati could however become uninhabitable for a large share of their population. Nauru is constituted of a central arid plateau surrounded by a narrow inhabitable coastal strip. In Kiribati, the mean altitude of inhabited atolls lies between 3 and 4 meters and the 81 meters highest point is situated on Banaba, a tiny 6.9 sq. km. island. On this basis, a reasonable estimate is that there are five States in danger of being submerged to the point of becoming uninhabitable (the Maldives, Tuvalu, the Marshall Islands, Nauru, and Kiribati) and around 600,000 potential stateless persons currently living in these countries. These figures are considerably lower than the estimate of 40 endangered States mentioned above in endnote 5. They are, however, far from being negligible, and it is vital to consider their implications since the issue of the disappearance of a State as a result of climate change and that of the fate of its citizens is unprecedented in international law and can only partially be resolved on the basis of the procedures foreseen in the three "classic" cases of the disappearance of a State: absorption by another State, merger with another State, or creation of a new entity. Moreover,

these procedures themselves remain contested (Campbell 2010; Raimana Lallemand 2009).

What are the possible policy responses?

The Montevideo Convention on the Rights and Duties of States adopted on December 26, 1933, defines sovereignty as based on the existence of four attributes: a territory, a population, a government, and relations with other States. The precise moment at which a State ceases to be a State is, however, unclear. According to McAdam (2010), it is the absence of population rather than the absence of territory that, for sinking islands, could signal that an entity no longer fits the common four-fold definition. In that context, numerous policy paths can be considered to maintain the basic condition of nationhood. Avoiding submersion, promoting population mobility, and recreating the territory of states elsewhere are the most often discussed, although few current or historical experiments exist. These policies involve complex technological, juridical, and practical issues. We will present a short synthesis, whereas going in too many details would be beyond the scope of this article.

Slowing the process of submersion

Sea-level rise now has an unavoidable dimension in the context of climate change because of the inertia of the earth system, but its future extent will depend on the international community's ability to limit CO₂ emissions which lead to global warming. Uncertainties also remain regarding the evolution of certain islands in the case of rising waters, and the possibility of a vertical growth of corals in certain atolls cannot be ruled out (Kench, Owen, and Ford 2014). Moreover, sea-level rise is a slow process, which makes it possible to contain its consequences through dikes or the backfilling of endangered areas. Malé, the capital of the Maldives, is thus already surrounded by a protective wall; and the Netherlands have long demonstrated that appropriate technologies make it possible to build settlements in and cultivate polders located below sea level. The country has, incidentally, implemented a major program protecting its coasts that highlights the possibility of finding technical solutions to some of the challenges posed by rising waters (Kabat et al. 2009; Hinkel et al. 2018). Such measures are, however, too expensive for most of the endangered States and cannot be implemented everywhere, in particular in cases where the seafloor has a steep gradient. The ambitious project of creating an artificial elevated island in the Maldives, known as HulhuMalé (the New Malé) and expected to host 100,000 people, poses innumerable challenges but should be safe until mean sea-level rise reaches 0.6 meters (Gagain 2012; Hinkel et al. 2018). Over the next decades, one can consider that investments in such

protective measures may to a large extent prevent the submersion of the most endangered States. The issue is to find the funds necessary to finance such risk-reduction projects (Collins 2013; Hinkel et al. 2014). As recently stated by Barnett (2017, 11), “Although the scientific evidence to date is portentous, it is not robust enough to anticipate how and when the collapse of atoll societies will happen, and it cannot account for the ameliorating effects of adaptation. The international community has the responsibility and wherewithal to enact a comprehensive strategy to minimise the risks climate change poses to atolls.” As much as technological, the challenge is thus political.

Facilitating mobility and emigration

Emigration by the victims of rising waters evokes the well-known image of “climate refugees” (Black et al. 2013). Although the media have reported a number of quantitative estimates regarding the overall extent that this phenomenon could assume, these estimates are fragile: It is uncommon for migration to be attributed solely to environmental factors, and the multiple causes behind it make such estimates uncertain (Gemenne 2011; Connell 2013; Hunter, Luna, and Norton 2015; McLeman and Gemenne 2018). Researchers agree, however, that sea-level rise, in the long term, is the dimension of global warming most likely to lead to population displacements, mostly internal in the case of continental countries, and more frequently international in the case of island States standing not far above sea level.

Traditionally, the literature on climate-driven emigration has considered departure as a consequence of the severity of climate disturbance and of the failure of adaptation efforts. More recently, however, migration came to be seen as a possible adaptation strategy in itself (IPCC 2014; Gemenne and Blocher 2017). Paradoxically, the departure of a part of the population can, indeed, enable certain communities to maintain their presence by benefiting from the remittances of the emigrants. In some cases, emigration also contributes to lessening population pressure on fragile resources and complements family planning policies to control unintended childbearing.²³ The State itself can use the diaspora’s resources to improve the protective infrastructure and ensure its long-term existence. Such a survival strategy through emigration would in no way be a novelty for historically highly mobile oceanic societies. Toullelan and Gille (1999, 280–82) have thus highlighted the vital relevance of mobility, over and above the environmental question, in a vast historical study of migration in the Pacific. For them, migration is clearly a component of future solutions for populations affected by climate change: “At the dawn of the third millennium, the problem is not whether the local governments will be able to reduce emigration by developing their countries, but whether emigration will be enough to avoid

major political, economic and social disasters in certain archipelagos in Micronesia and Polynesia.”

Local adaptation through mobility has, however, its limits; and beyond a certain extent, emigration contributes to the disappearance of the State. The emigrants and their descendants gradually become integrated into their host societies, perhaps obtaining citizenship. Statelessness is admittedly avoided, but at the price of the attrition of the national community. This ambivalence with regard to the consequences of mobility explains the contrasted attitude of the States toward emigration as a response to sea-level rise.

Emigration is thus clearly encouraged by island States such as Kiribati, which aim to negotiate admission agreements with the richest of the neighboring States. These agreements are seen as a legitimate compensation on the part of the States that are responsible for high CO₂ emissions. To mention the case of a continental State, this is the meaning of the message sent by Bangladesh to the international community during the Copenhagen Conference when its government demanded that borders with neighboring countries be opened.²⁴ While this solution might encounter opposition from the host countries concerned, it will be facilitated for the island States that already have association agreements with other States. Among the islands identified as facing the greatest threat, this is particularly the case of the Marshall Islands which have a specific agreement of cooperation with the United States.²⁵

Other States, however, reject in the name of national integrity the solution of migration agreements because they consider it too easy a way for rich countries to absolve themselves of their historical responsibility with regard to CO₂ emissions. They demand for other actions to limit climate change and to allow population to stay in their homeland. The president of Tuvalu, Apisai Ielemia, declared for example on December 10, 2009, “While Tuvalu faces an uncertain future because of climate change, it is our view that Tuvaluans will remain in Tuvalu. We will fight to keep our country, our culture and our way of living. We are not considering any migration scheme. We believe if the right actions are taken to address climate change, Tuvalu will survive” (McAdam 2011, 111).

The advantage of emigration and, more broadly, mobility in the context of rising waters is that it enables gradual and proactive action (Yamamoto and Esteban 2017). It nevertheless raises huge logistic difficulties (Edwards 2013) and offers only a temporary solution to the specific problem of statelessness that it can even exacerbate over time. Another difficulty lies in the fact that the democratic processes surrounding large-scale emigration are challenging in terms of the right of association and collective self-determination. Moreover the issue of the acceptance of new migrants by other sovereign states is of paramount importance. The recent reaction to refugee and asylum-seeker arrivals in Europe and the United States shows

how easy it is for populist parties to take advantage of the fears of the local population to gain support by promoting border closures. A third way, consisting of displacing not only the citizens but the State itself, is consequently sometimes envisaged.

Recreating sovereign territories

According to many legal experts, it is unlikely that the international community could use the excuse of the physical disappearance of a territory to deprive a State of all legitimacy. For Cournil (2011, 364), "It is likely that the small island States, even if they become uninhabitable, will preserve at least their territorial waters and as a result their inhabitants will not lose their passports." McAdam (2010, 12) argues that "State practice suggests that the international community would be willing to continue to accept maintenance of the status quo even when the facts no longer seem to support the State's existence." On this basis, the recreation of a territory is conceivable. Certain historical examples exist, such as that of "New Iceland," an area next to Lake Winnipeg granted to Icelandic emigrants at the end of the nineteenth century by Canada's governor general so that they could establish their own laws and administer the area autonomously and independently (The Canadian & World Encyclopedia 1998; McAdam 2011). The project was short-lived, but the cases of Liberia and Israel proved more durable, even if they raised many difficulties. The Maldives government has for some years now brought up the solution of providing new territories for island States. Thus, the former president of the Republic declared in 2008 that he was considering the acquisition of a virgin territory in order to establish a new homeland in case the Republic's current territory becomes uninhabitable.²⁶ More recently, various philanthropists suggested, in response to the migration crisis in the Mediterranean, the creation of a separate refugee nation on a purchased island or even a floating artificial entity for which famous architects made proposals (Cohen 2017).

If one seeks inspiration in the postnational literature on diasporas, transnationalism (Basch, Glick-Schiller, and Blanc 1993; Vertovec and Cohen 1999) and virtual States (Rosecrance 2002), one could even imagine an alternative in which a State would assume the shape of a network of citizens dispersed on a global scale. As noted by Mavroudi (2008), the idea according to which citizenship, national identity, and territory are naturally situated in a nation-state with clearly demarcated borders is more and more brought into question. This is in line with recent proposals regarding *nations ex situ* as responses to sinking territories. According to Burkett (2011, 345), "Ex situ nationhood is a status that allows for the continued existence of a sovereign state, afforded all of the rights and benefits of sovereignty amongst the family of states, in perpetuity. In practice, this would require

the creation of a government framework that could exercise authority over a diffuse people.” The author suggests using a political trusteeship system to provide the framework for governing structure.²⁷

The two hypotheses (acquisition of an existing territory and virtual national community), appear, however, unlikely to provide a solution for all disappearing States. The historical experience of placing territories at the disposal of displaced populations highlights the difficulty of such arrangements, and one would have trouble identifying which States would presently be ready to cede a part of their territorial sovereignty over inhabitable and economically viable areas, even against compensation.²⁸ As for the durability of a State and of a citizenship without territory, these appear utopian for the moment and would come up against the prerogatives, including fiscal, of the various States in which the deterritorialized citizens would be physically present. It remains that the process of submersion associated with climate change manifests itself over a very long time frame, allowing the international system to evolve and perhaps one day make true what sounds today like utopias.

A policy package that remains to be defined

Our overview of three policy paths—slowing submersion, facilitating mobility, and recreating territories—shows that each presents significant difficulties and that none will be sufficient to allow a one-size-fits-all solution to climate statelessness. It is much more likely that pragmatic responses, combining various policies, will be required. In a position paper supported by the International Organization for Migration (IOM) and the Norwegian Refugee Council, the UNHCR explored such a combination and considered a middle way between territorial reconstruction and emigration (UNHCR 2009). The UN agency proposes to recognise climatic statelessness in international law, in particular in the UN Framework Convention on Climate Change, and to draw up multilateral agreements providing for the settlement in host countries of populations threatened with statelessness, while also retaining a mixed legal status coupled with guarantees of respect for their culture and social rights (Cournil 2011). The concrete implementation of such agreements remains, however, to be defined, and the difference from the utopia of a virtual national community to be demonstrated. Such a solution may appeal to the humanitarian conscience of host countries, but will place upon them a significant financial burden against limited compensation. Burden-sharing arrangements on the part of the international community will be vital. It will also be essential, as underlined by the UNHCR itself, to guarantee participation in the negotiations of the populations concerned, which are often legitimately unwilling to leave their ancestral territory and, if they are, anxious to maintain their rights (McAdam 2014; Mortreux and Barnett 2009). The experience in the 1960s of attempts at resettling inhabitants of

Nauru island, ravaged by the mining of phosphate, is edifying in this respect: The Nauruans finally rejected the combined offer of New Zealand, Australia, and Great Britain to host them, as well as the subsequent offer of allowing them to settle on Curtis Island, near Australia (McAdam 2010). The complexity of those issues probably explains why, after a surge in proposals around 2010, the policy mix that might address climate statelessness has since attracted less attention. Despite a worldwide initiative launched in 2014 to end statelessness by 2024 (UNHCR 2014a), UNHCR has chosen to dissociate the current situation of statelessness from the future issues linked to climate change and does not address the latter in recent reports. However, the Global Compact on Refugees adopted by the UN General Assembly on December 17, 2018 might reinitiate the process, as it explicitly recognizes in its Paragraph 43 that environmental degradation and natural disasters increasingly interact with the drivers of refugee movements and calls for the establishment of “a global academic network on refugee, other forced displacement, and statelessness issues (. . .) to facilitate research, training and scholarship.”

Conclusion: A marginal yet significant danger

The overview provided in this article shows that the risk of climatic statelessness due to the disappearance of the physical base of entire nations is often overestimated (Barnett 2017). Ultimately, only the nationals of up to five island States are concerned. By the end of the century, their number can be estimated at around half a million, a slim minority, that is, of the ten million people already considered stateless and of the hundreds of millions of people threatened by sea-level rise and more generally by the consequences of climate change on a global scale. Moreover, many adaptation strategies can be envisaged to slow down the ongoing process, such as the construction of dikes and the building of dwellings at higher altitudes. Emigration of a part of the population can contribute to a solution if it results in the transfer of resources to finance adaptation in the country of origin. The creation of virtual states and *ex situ* citizenship may seem farfetched at present, but should not be ruled out for the future.

However, despite being small in scale and probably manageable, climatic statelessness deserves attention from a human rights and legal point of view. In the eyes of international law, all sovereign states are equal and must be treated as such, so the fragile destiny of island states should remain a major cause for concern for the international community. The inhabitants of the handful of islands that are threatened with submersion exemplify, through the extreme and unprecedented character of the danger they face, the extent to which climate change threatens the fundamental rights of one part of humankind.

Notes

1 An island state with around 21,000 inhabitants situated in the Pacific Ocean (Micronesia) to the east of the Philippines and to the north of Indonesia.

2 UNGA 63rd session (September 25, 2008)—UN General Assembly resolution on “Climate Change and Its Possible Security Implications”—UN doc A/63/PV.9, Mr Chin (Palau).

3 “Maldives Cabinet Makes a Splash,” BBC News. 17 October 2009, accessed 13 May 2019. <http://news.bbc.co.uk/2/hi/8311838.stm>.

4 “One Billion Climate Refugees By 2050.” The Organization for World Peace. September 23, 2018, accessed 13 May 2019. <http://theowp.org/one-billion-climate-refugees-by-2050/>.

5 A 2009 publication by the United Nations University in Bonn and the Columbia University Earth Institute is an exception as it ambiguously mentions that sea-level rise could submerge entire parts of 40 sovereign nations (Warner et al. 2009, 27-28). For Yamamoto, “...several island nations will probably become submerged in the course of the next century, forcing the relocation of their inhabitants to other countries” (2010, 1). Finally, McLeman notes that the forecast of sea-level rise “...holds the prospect of something for which no direct modern-day analog exists – the disappearance of the habitable land mass of an entire nation, and the rendering of its population physically stateless” (McLeman 2013, 198).

6 The IPCC mentions the threat in the chapter on human security of its fifth assessment report on global warming (“Climate change will affect the integrity of states through impacts on critical infrastructure, threats to territorial integrity, and geopolitical rivalry. ... With projected high levels of sea-level rise beyond the end of this century, the physical integrity of low-lying islands is under threat”) but does not provide any stocktake (Adger et al. 2014, 20).

7 International Refugee Organization Division for Legal and Political Protection—Presentation before the Eligibility and

Protection Commission (A. Cohen 2002 [1948]: 49–87).

8 The UNHCR was created on January 1, 1951.

9 New York Convention of September 28, 1954, relating to the status of stateless persons, and 1961 Convention on the Reduction of Statelessness.

10 For example, the child of a migrant born in a host country cannot acquire citizenship in that country. At the same time, that child will be unable to claim citizenship of the parents’ country of origin.

11 Arendt 1973 [1951], 300.

12 General Assembly Resolution GA/RES/50/152, February 9, 1996.

13 Bangladesh is not party to the 1951 Refugee Convention or its 1967 Protocol, but the UNHCR considers the Rohingya to be refugees.

14 Intersections 9 and 10 can, in theory, also correspond to the case of previously stateless persons having to cross a border for environmental reasons without having experienced the disappearance of their prior country of residence.

15 LECZs (Low elevation coastal zones). Data used by MacGranahan (2007), based on the *Shuttle Radar Topography Mission (SRTM) elevation data set* (Farr and Kobrick 2000). These zones also take into account the populations living at altitudes below sea level to the extent that they live in coastal areas (polder areas for example).

16 Other authors use an altitude of 5 meters (Dasgupta et al. 2009).

17 The population data were compiled on the basis of national censuses within the framework of the GRUMP (Global Rural-Urban Mapping Project) run by the CIESIN (Center for International Earth Science Information Network—Columbia University), accessible at <http://sedac.ciesin.columbia.edu/gpw> (accessed May 13, 2019).

18 See also Neumann et al. (2015).

19 Source: NASA's Earth Observing System Data and Information System (EOSDIS)—Hosted by CIRES at Columbia University Data compiled by the World Bank: <https://data.worldbank.org/indicator/EN.POP.EEL5M.ZS> (accessed May 13, 2019).

20 <https://www.aosis.org/home/> (accessed October 10, 2019).

21 Sources for population data: United Nations, Department of Economic and Social Affairs, Population Division (2017). World Population Prospects; for altitude data: *Encyclopaedia Universalis*, <http://www.universalis-edu.com/atlas/> and <http://www.floodmap.net/>.

22 An estimated 12 percent of its territory would be flooded by a sea-level rise of one meter, 30 percent by 3 meters, and 60 percent by 5 meters (Dasgupta et al. 2009).

23 The annual rate of population change (2010–2015) in the five countries most at risk of submersion is respectively +2.76 percent in the Maldives, +0.87 percent in Tuvalu, +0.21 percent in the Marshall Islands, +2.32 percent in Nauru and +1.82 percent in Kiribati. Source: UN Department of Economic and Social Affairs, Population Division (2017).

24 “Copenhague: les pays pauvres espèrent du concret.” 11 December 2009, accessed May 17, 2019. <http://www.swissinfo.ch/fre/index.html?cid=7872412>.

25 The Republic of the Marshall Islands is a sovereign state in free association with the United States. Both countries signed a Compact of Association on June 25, 1983. Under the Compact, the United States has full responsibility for security and defense of the Marshall Islands.

26 Ramesh, Randeep. “Paradise Almost Lost: Maldives Seek to Buy a New Homeland.” *The Guardian*. November 9, 2008, accessed May 17, 2019. <https://www.theguardian.com/environment/2008/nov/10/maldives-climate-change>.

27 For an overview of the legal debates regarding those issues, see Gerrard and Wannier (2013).

28 It should be noted, however, that Indonesia has announced that it is considering renting out to “climate change refugees” some of its 17,500 islands: “Indonesia Offers Space to ‘Climate Refugees’.” June 5, 2009, accessed 17 May 2019. <https://p.dw.com/p/Ls9N>.

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