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## **Preparing for a Warmer World: Towards a Global Governance System to Protect Climate Refugees**

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# Preparing for a Warmer World: Towards a Global Governance System to Protect Climate Refugees

Frank Biermann and Ingrid Boas<sup>1</sup>

## Introduction

The need to mitigate climate change has dominated the debate on global environmental governance until very recently. It is now evident that mitigation efforts have been too little and too late. Climate change is a reality of world politics in the twenty-first century. This reality requires a new, additional focus in both academic research and policy planning: how can we build over the course of the next decades systems of global governance that will cope with the global impacts of climate change? What institutions are in need of redesign and strengthening? To what extent, and in what areas, do we need to create new institutions and governance mechanisms from scratch?

Not much policy research on these questions is available.<sup>2</sup> In light of the most recent scientific findings, which indicate possibly accelerating climatic change, there is thus an urgent need for a new academic research program on what we propose to call “global adaptation governance.” Global adaptation governance will affect most areas of world politics, including many core institutions and organizations of current global governance. The need to adapt to climate change will influence, for example, the structure of global food regimes and the work of the UN Food and Agriculture Organization (FAO); global health governance and the agenda of the World Health Organization (WHO);

1. This research was funded by the European Commission (Global Change and Ecosystem Priority of the Sixth Framework Research Programme, Integrated Project “Adaptation and Mitigation Strategies. Supporting European Climate Policy” [ADAM Project], Contract no 018476). For valuable suggestions and comments, we are grateful to Harro van Asselt, Steffen Bauer, Klaus Dingwerth, Aarti Gupta, Mike Hulme, Henry Neufeldt, Sebastian Oberthür, Kate O'Neill, Philipp Pattberg, Fariborz Zelli, and the reviewers and editors of *GEP*. In addition, Frank Biermann wishes to thank The Energy and Resources Institute, New Delhi, for generous hospitality during a research visit in September and October 2007 where most of his research for this article was undertaken. More information is available at the website of the Climate Refugee Policy Forum, a new initiative set up by the Global Governance Project, a joint program of twelve European research institutions, at <http://www.glogov.org/?pageid=80>.
2. See Biermann 2007 and Biermann and Pattberg 2008 for reviews of global environmental governance research.

global trade in goods whose production will be harmed or helped by climate change; the world economic system and the ability of the International Monetary Fund to address climate-related shocks to national and regional economies; and many other sectors from tourism to transportation or even international security.

One of the most crucial governance needs is, we argue, to address the plight of "climate change refugees," or "climate refugees" in short. Climate change will fundamentally affect the lives of millions of people who will be forced over the next decades to leave their villages and cities to seek refuge in other areas. Although the exact numbers of climate refugees are unknowable and vary from assessment to assessment depending on underlying methods, scenarios, timeframes and assumptions (as laid out below), the available literature indicates that the climate refugee crisis will surpass all known refugee crises in terms of the number of people affected. Many climate refugees may seek refuge in their own countries; others will need to cross borders to find a new home. Some local refugee crises, in particular in the richer countries in the North, may be prevented through adaptation measures such as reinforced coastal protection or changes in agricultural production and water supply management. Many poorer countries, however, are unlikely to be able to initiate sufficient adaptation programs, and climate-induced migration might be the only option for many communities in the South. In these situations, climate refugees will need to rely on effective protection and support from the international community, regardless of whether climate migration will be internal or transnational.

These systems of global governance for the recognition, protection and resettlement of climate refugees stand at the center of this article, as a major building block of the emerging global governance architecture on adaptation to climatic change. Climate refugees have become a staple of popular discourse in recent years, and the image of the nation of Tuvalu requesting refuge in Australia or New Zealand a symbol of the looming crisis.<sup>3</sup> In 2007, the link between climate change and "large-scale migration" even became part of the rationale for awarding the Nobel Peace Prize.<sup>4</sup> Yet there is little systematic academic research on the appraisal of the threat of climate-related mass-migration. Almost

3. According to a news release by Reuters on the Pacific Islands Forum in Fiji on 24–25 October 2006, "Tuvalu is upset that regional heavyweight Australia, a major aid donor but also one of the biggest per capita emitters of the greenhouse gases responsible for global warming, has so far spurned advances to help resettle their people" (*Reuters*, 25 October 2006). Tuvalu has entered into negotiations with New Zealand for more open immigration policies. New Zealand now accepts 75 Tuvaluan people per year. However, this policy is not framed as a resettlement strategy for the Tuvalu nation but as part of a labor program (Patel 2006, 736). The annual 75 Tuvaluan immigrants fall under the Pacific Access Category, which has other restrictions, such as an age limit (Immigration New Zealand 2005, last updated 2009).

4. Norwegian Nobel Committee 2007. The Nobel Peace Prize was awarded jointly to the Intergovernmental Panel on Climate Change and the climate campaigner and former US Vice-President, Albert Gore.

no studies have analyzed such migration from the perspective of global governance reform. This article attempts to address this lacuna.

We proceed in five steps. First, we address the conceptual profusion that is not surprising for such a new area of research and political discourse, and propose a definition of climate refugees that locates the phenomenon in the larger literature on migration. Second, we sketch the scope of the problem based on the available estimates and scenarios. Third, we analyze the current global governance of refugees. Fourth, we draw our findings together and provide a blueprint for a global governance architecture on the recognition, protection, and voluntary resettlement of climate refugees. Finally, we reflect on political constraints that these proposals are likely to face.

## Conceptualizing “Climate Refugees”

Lack of conceptual clarity and consensus is a key problem that hinders research on climate refugees, in particular comparative research programs and data collection. Most assessments so far have addressed the larger phenomenon of “environmental refugees,” a term that was popularized over twenty years ago by the UN Environment Programme (UNEP) in a 1985 report.<sup>5</sup> This report defined environmental refugees broadly as “people who have been forced to leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption (natural and/or triggered by people) that jeopardized their existence and/or seriously affected the quality of their life.”<sup>6</sup> Similarly broad is the influential definition of environmental refugees used by Myers and Kent, who provided some early estimates of environmental refugees in 1995.<sup>7</sup> They conceptualized “environmental refugees” as persons “who can no longer gain a secure livelihood in their traditional homelands because of environmental factors of unusual scope, notably drought, desertification, deforestation, soil erosion, water shortages and climate change, also natural disasters such as cyclones, storm surges and floods.”<sup>8</sup>

The notion of environmental refugees includes climate refugees,<sup>9</sup> although its breadth makes it impossible to specify or quantify climate-related migration. In fact, there does not seem to exist a clear definition of “climate refugees” as of yet. Many studies leave the term undefined or, while purporting to analyze “climate refugees,” still implicitly rely on broader concepts. For instance, Derek Bell, while focusing in his work “on one cause of environmental disruptions, namely, global climate change,” seems to draw on the much broader UNEP concept of environmental refugees without further differentiation.<sup>10</sup> Other studies offer overly complex definitions that are difficult to

5. El-Hinnawi 1985.

6. El-Hinnawi 1985, 4. For a critique of this study, see Suhrke 1994, 478; and [Bates 2002](#), 466.

7. Myers and Kent 1995, 18–19.

8. Myers and Kent 1995, 18–19.

9. See for instance Myers and Kent 1995; and Myers 2002, 611.

10. Bell 2004, 137–139.

operationalize in practice. Not least, the very term “refugee” is—implicitly or explicitly—disputed, and several authors and intergovernmental bodies instead suggest terms such as “migrants” or “displaced persons.”

In sum, there is no consensus definition of “climate refugees.” In this section, we develop a first approximation. Our definition is based on practical needs to (a) assist in the development of quantified assessments and scenarios in order to gain insights in expected numbers and origins of climate-related refugees; and (b) assist in the development of political responses and global governance mechanisms for the recognition, protection and resettlement of climate refugees, which would need to build on a precise characterization of persons covered by such a protection regime. Both needs are not necessarily compatible since definitional needs of scenario-builders and of political decision-makers might not overlap. However, we believe that the definition advanced in this section is able to fulfill the needs of both communities.

The definition of climate refugees needs to address (a) the cause of migration, namely the type of environmental harm or climate-change impact that would create this category of climate refugees; and (b) the type of migration, namely whether it is voluntarily or “forced,” temporary or permanent, and transnational or internal; and, related to this, (c) the appropriate terminology, that is, whether the term “refugee” is justified in the first place.

### *The Cause of Migration*

While climate change is likely to have a large number of impacts, and most impacts are likely to have multiple causes, for both analytical and political reasons it is imperative to specify climate refugees as a sub-category of environmentally induced migrations. Analytically, this specification is crucial in order to advance knowledge on the likely increase in transnational and internal migration due to climate change. Further, the coupling of migration predictions to climate scenarios requires a clear definition of climate refugees. Politically, it is essential to specify climate refugees because of the link of this type of migrants with the overall climate regime and its emerging debates on liability, compensation, equity, and common but differentiated responsibilities.

To arrive at a conceptualization of “climate refugees” that is analytically valuable and politically acceptable and meaningful for a global governance regime, we propose a restrictive notion of climate change-induced alterations of the environment. Our first restriction excludes climate change impacts that have no plausible, or only a marginal link with forced migration, such as heat waves and the spread of tropical diseases. Our second restriction excludes forced migration that is caused by measures that are related to the mitigation of, and adaptation to, global warming. These include the construction of dams to prevent water scarcity or flooding and mitigation programs such as the large-scale plantation of biofuels crops that might negatively affect the livelihood of rural communities who could be forced to migrate. Including these causes of migration would overly compound the problem of climate refugees with other causes of

migration. Our third restriction excludes migration related to other types of environmental degradation, for example industrial accidents or pollution, or disasters unrelated to human activities, such as volcano eruptions. These types of refugees require equal levels of care and protection through national governments and the international community, yet of a different kind that is more akin to traditional disaster relief programs. They should thus be dealt with by different institutions.

Our fourth restriction excludes secondary, or indirect, impacts of climate change, such as international or national conflicts over diminishing natural resources that might cause additional migration.<sup>11</sup> In other words, if people flee their homes because of more frequent and more severe storms and floods, or because of increasing drought, we would see them as protected by the regime on climate refugees that we develop in this article. However, if this deterioration of the local environment results in regional violent conflicts that causes additional migration, we would see different institutions and different governance mechanisms as appropriate to deal with the specific problems of war and conflict refugees. The reason for the fourth restriction is similar to the second and third, that is, including victims of war and violent conflict, even if causally related to diminishing resources, will water down the core causes of climate-related migration in a way that would make the concept analytically (for purposes of scenario-development) and politically (for purposes of legal and political protection regimes) meaningless.

In sum, we propose to restrict the notion of climate refugees to the victims of a set of three direct, largely undisputed climate change impacts: sea-level rise, extreme weather events, and drought and water scarcity. Extreme weather events and drought and water scarcity are only partially related to climate change, yet their severity, scale and/or occurrence is predicted to sharply increase because of climate change. Thus, it seems imperative not to restrict the notion of climate refugees to migration caused by sea-level rise alone, but to also include victims of more severe tropical storms, and increasing and more frequent water scarcity and drought. The problems of multi-causality—also of different time-scales of effects—in the case of victims of storms, drought and water scarcity should be resolved in a political process, which we outline in more detail below. It should not be resolved by the a priori exclusion of this large group of people from the definition of climate refugees.

### *The Type of Migration*

The literature on environmental refugees suggests further specifications that could be useful in conceptualizing climate refugees. Some authors propose to restrict the term “refugee” to people who are forced, with immediate effect, to leave their homes, and to use for other people terms such as “emigrants” or “mi-

11. See also Christian Aid 2007, 5–6 and 14, on migration and conflict.

grants."<sup>12</sup> A study by the UN University Institute for Environment and Human Security distinguished, for instance, between three categories of environmental refugees ("environmentally motivated migrants, environmentally forced migrants, and environmental refugees"),<sup>13</sup> and another study, commissioned by Greenpeace, differentiates even between five categories of climate refugees depending on the degree to which the flight has been voluntary, forced or anticipatory, and whether environmental degradation is the main or merely an additional cause of migration.<sup>14</sup>

Yet it remains doubtful to what extent these academic classifications can help with predicting and resolving climate refugee crises. Such distinctions are considerably vague if they were to be operationalized for scenarios or for a legal and political protection regime. It is unclear, for example, how categories such as involuntariness and anticipation can be applied in practice. Who decides and how is it determined whether people flee by choice or by force? In many cases, the distinction between voluntary "migrants" and forced "refugees" will simply correlate with adaptive capacity and the strength of financial and institutional resources, which makes the added analytical benefit of the distinction doubtful. Its practical implications are minimal in any case. The construction of long-term scenarios of climate change impacts that model sea-level rise or water scarcity will not be affected by additional distinctions between migrants, emigrants, and refugees.

The legal operationalization of such distinctions could have severe ethical implications and political consequences. Distinguishing between climate refugees, migrants and emigrants according to the degree of "voluntariness" of their relocation would artificially minimize the scale of the problem and could create different levels of protection and support without much basis in political, legal, or ethical criteria. A large group of people who managed to relocate in time because of information from climate scenarios, experiences with repeated extreme weather events, or political intervention such as through resettlement programs would be denied the status of "refugees," but would rather be classified as people who voluntarily opted to leave their land. This could place these people outside any (future) global governance mechanism that regulates the recognition, protection, resettlement and compensation of people who have to make way to climate change. In sum, adopting voluntariness as a defining criterion would be either analytically not useful or morally dubious.

For similar reasons, for the definition of climate refugees we do not see much value in the distinction often made in the refugee literature on whether environmentally related migration is temporary or permanent. For one, this distinction helps little in the immediate aftermath of an environmental disaster. Second, the distinction between temporary or permanent refuge, while it may

12. See for example Bates 2002; and Suhrke 1994.

13. See Renaud et al. 2007, 29.

14. Jakobeit and Methmann 2007, 11.



have some relevance in other refugee situations, is largely irrelevant regarding migration due to the main climate change impacts, notably sea-level rise. Often there will be a gradual increase in the frequency of extreme events, floods, or droughts that can first be resolved through temporary evacuation but eventually will require permanent resettlement. International support will be needed in all situations, and it seems neither justified nor needed to differentiate here in the overall definition of the phenomenon of climate refugees.

### *Terminology*

Some intergovernmental agencies—such as the International Organization for Migration and the Office of the UN High Commissioner for Refugees (UNHCR)—prefer the term “environmentally displaced persons.”<sup>15</sup> They reject the term environmental or climate “refugee” because of the legal rights that the intergovernmental system currently bestows upon “refugees,” that is, persons who cannot avail of the protection of their home state for fear of (political) persecution. On the other hand, it was an intergovernmental agency—UNEP—that popularized the term “environmental refugee” in the 1980s.<sup>16</sup> In 1992, Agenda 21—the influential intergovernmental program of action agreed upon by almost all governments at the 1992 United Nations Conference on Environment and Development—also used the term “environmental refugees” repeatedly.<sup>17</sup> The notion of “climate refugees” appears to find acceptance in some national political debates too. For example, when in opposition, Australia’s Labor Party proposed an international coalition to accept climate refugees from the Pacific<sup>18</sup> in response to the Australian government’s position that rejected the notion of climate refugees.<sup>19</sup> And in 2007 Australia’s Green Party even tabled a Migration Amendment (Climate Refugees) Bill.<sup>20</sup>

We support the use of the term climate “refugee” for two main reasons. First, the distinction between transboundary and internal flight that is a core element of the traditional “refugee” concept does not help much since climate change will cause both transnational and internal flight. Some island nations will effectively cease to exist, and some countries, especially those affected by drought, will be overburdened by the scope of the national predicament. These people will have to find refuge outside of their home country. Some climate refugees might thus cross borders while most will stay within their country. It seems difficult to argue that a global governance mechanism for their protection should bestow a different status, and a different term, depending on whether they have crossed a border. Second, we see no convincing reason to reserve the

15. UNHCR, IOM and RPG 1996; see also discussion in Keane 2004, 215.

16. El-Hinnawi 1985.

17. United Nations 1992a, chapter 12, especially 12.4, 12.46 and 12.47.

18. Albanese and Sercombe 2006.

19. Renaud et al. 2007, 20–21.

20. New South Wales Green Party 2007.



stronger term “refugee” for a category of people that stood at the centre of attention after 1945, and to invent less appropriate terms—such as “climate-related environmentally displaced persons”—for new categories of people who are forced to leave their homes now, with similar grim consequences. The term refugee has strong moral connotations of societal protection in most world cultures and religions. By using this term, the protection of climate refugees will receive the legitimacy and urgency it deserves.

In sum, we propose for both the emerging research program and the political discourse on climate-related migration to define “climate refugees” as people who have to leave their habitats, immediately or in the near future, because of sudden or gradual alterations in their natural environment related to at least one of three impacts of climate change: sea-level rise, extreme weather events, and drought and water scarcity.

This definition covers climate refugees in both industrialized and developing countries. However, in practical terms only climate refugees in poorer developing countries will be an issue of international concern, cooperation and assistance. It is people in developing countries who are most likely to be compelled to leave their homes and communities, owing to low adaptive capacities, their often vulnerable location vis-à-vis climate change events, often high population densities, pre-existing hunger and health problems, low level of per capita income, often weak governance structures, political instability and other factors.<sup>21</sup> The following analysis is thus restricted to climate refugees in Africa, Asia, Latin America, and Oceania.

## Predicting Numbers and Origins of “Climate Refugees”

Developing political responses to the future problem of climate change-induced migration requires assessments of the likely number and origin of climate refugees. This section provides a review of the literature aimed at predicting the likely numbers of climate refugees and the main regions where they will come from.

At the outset, it is important to note that all current predictions are fraught with numerous methodological problems and caveats. Overall, these methodological problems create estimates that tend to be rather pessimistic. First, as noted in the previous section, there is no agreement on the definition of climate, or environmental, refugees. All studies operate with different terminology and definitions, which makes it difficult to compare results. Second, many studies have used rather broad concepts of climate or environmental refugees, which naturally, as Suhrke correctly observes, “invite large numbers.”<sup>22</sup> Third, many assessments build on generalized assumptions about human behavior that are often plausible, but difficult to apply in their general formulations. Many assess-

21. Stern 2006, 92–97; and German Advisory Council on Global Change 2007, 119–120.

22. Suhrke 1994, 478.

ments directly link predictions about changes in environmental parameters with the migration of the current or predicted population living in the affected areas. However, it is merely assumed that these people will eventually decide to flee, and it remains unclear whether, and how many, people at risk choose migration as the main strategy.<sup>23</sup> Fourth, and related to the previous point, some assessments do not account for changes in human behavior, notably adaptation such as through dikes, changes to crops that require less irrigation, improvements in water supply management, local relocation to higher land, or insurance and rehabilitation schemes. Fifth, environmental degradation linked to climate change is one reason for people to migrate, but it is hardly the only and often not even the main cause.<sup>24</sup> All this makes a prediction of numbers of “environmental refugees” or “climate refugees” difficult.<sup>25</sup>

Keeping these shortcomings in mind, this section provides a review of the current state of knowledge on potential numbers and origins of climate refugees. According to Myers, in 1995 there were already 25 million “environmental refugees.”<sup>26</sup> Most current estimates expect this number to rise considerably in the course of the century. Myers estimates that the total number of people at risk from sea-level rise by 2050 is likely to be 162 million. In addition, 50 million people could become refugees due to droughts and other climate change impacts. In total, Myers expects 212 million climate refugees by 2050.<sup>27</sup> The Stern Review on the Economics of Climate Change maintains that Myers and Kent’s earlier estimate of 150–200 million “has not been rigorously tested, but it remains in line with the evidence presented throughout this chapter that climate change will lead to hundreds of millions more people without sufficient water or food to survive or threatened by dangerous floods and increased disease.”<sup>28</sup> More recently, Myers predicted a higher figure of 250 million climate refugees by 2050.<sup>29</sup> While most studies currently focus on the year 2050, the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) offers a more immediate estimate for 2010, of possibly 50 million “environmentally displaced people.”<sup>30</sup> This figure appears more or less in line with predictions that build on longer timeframes. In sum, most estimates currently appear to expect an additional number of climate refugees of about 200–250 million by 2050.

A large proportion of these refugee streams are likely to be caused by extreme weather events, such as tropical cyclones and storm surges. Climate change is less likely to increase the number of tropical cyclones but instead may increase their destructive energy due to warmer sea temperatures.<sup>31</sup> Gradual sea-

23. Black 2001, 7–8; and Castles 2002, 3.

24. Black 2001, 2–7; McGregor 1994, 121–122; Kibreab 1997, 21–23; and Keane 2004, 221.

25. See also Intergovernmental Panel on Climate Change 2007, 365.

26. Myers 2002, 609.

27. Myers 2002, 609 and 611.

28. Stern 2006, 77.

29. In an interview with Christian Aid on 14 March 2007, Christian Aid 2007, 5–6 and 50.

30. UNFCCC Executive Secretary 2007.

31. Emanuel 2005; German Advisory Council on Global Change 2006, 38–39.

level increase is likely a distinct cause for climate-related migration, even though it is analytically difficult to separate from extreme weather events such as storms and floods. Many estimates of people affected by sea-level rise thus include impacts of storm surges and other storm-related events since they are linked to sea-level rise.<sup>32</sup> This possible double-counting should be taken into account when interpreting estimates for affected people due to sea-level rise. According to a number of studies, a temperature increase of 3–4 degrees centigrade could lead in the worst-case scenario (high population level and low economic growth) to 302 million people flooded each year by storm surges by the 2080s, assuming evolving protection mechanisms. However, this would be only 34 million assuming enhanced protection,<sup>33</sup> and even lower if lower temperature targets could be maintained.<sup>34</sup> More than 90 percent of these affected people will be from Africa and Asia.<sup>35</sup>

Drought and water scarcity is the third main climate change impact that may significantly contribute to climate-related migration. A temperature increase of 2–3 degrees centigrade could cause around 800 million–1.8 billion people to suffer from water shortage, assuming low population growth.<sup>36</sup> In the worst-case scenario, the additional number of people experiencing hunger due to climate change could be around 200 million by the 2050s.<sup>37</sup> Moreover, the supply of fresh water will decrease due to glacier retreat.<sup>38</sup> More than one-sixth of the world population currently depends on water supplied by glacier melt, which will further decline in the next decades.<sup>39</sup>

Which regions are most likely affected by these streams of refugees? Table 1 presents some regionalized estimates of the likelihood of three climate-related impacts—sea-level rise, extreme weather events, and drought and water scarcity—in Africa, Asia, Latin America and small island developing states.

It is likely that most refugees from extreme weather events and sea-level rise will come from Africa and Asia. Asia is at high risk of extreme weather events and sea-level rise, and will also be severely affected by drought and water scarcity. Africa is especially vulnerable to drought and water scarcity, but many regions are also at high risk of sea-level rise. Latin America is especially at risk of water stress and drought. Many small islands will be highly affected by even a moderate sea-level rise.<sup>40</sup> However, here fewer people are at risk in absolute terms due to lower population levels.

The direction of these expected global streams of climate refugees is uncer-

32. See Nicholls, Hoozemans, and Marchand 1999, 72–73, on the relation between sea-level rise and storm surges.

33. Warren et al. 2006, 67.

34. See e.g., Arnell et al. 2002, 415, 422 and 429–431; and Warren et al. 2006, 61, 67 and 69.

35. Nicholls, Hoozemans, and Marchand 1999, 80; and Arnell et al. 2002, 431; for more estimates on Asia and Africa, see Nicholls 2004.

36. Warren et al. 2006, 16 and 20. For more estimates see Intergovernmental Panel on Climate Change 2007, 299, table 5.6.

37. Warren et al. 2006, 41.

38. See Intergovernmental Panel on Climate Change 2007, 184 and 187.

39. Barnett, Adam, and Lettenmaier 2005, 303–304 and 307.

40. German Advisory Council on Global Change 2006, 46, 50.

**Table 1**

Climate Change Impacts by Region

<i>People affected each year by 2080s by storm surges with sea-level rise of about 38cm assuming constant protection mechanisms (evolving protection mechanisms)<sup>a</sup></i>					<i>People at risk of water stress by 2085 due to a temperature increase of 2–3 (depending on population level)<sup>d</sup></i>	<i>Estimates related to drought and water stress<sup>e</sup></i>	<i>Additional number of people at risk of hunger by the 2080s<sup>f</sup></i>
<i>Estimated climate refugees due to sea-level rise (slr)<sup>b</sup></i>					<i>Vulnerability to tropical cyclones<sup>c</sup></i>		
<i>Southern Mediterranean: 13 million (6 million) West Africa: 36 million (3 Million) East Africa: 33 million (5 million)</i>					<i>Southeast Africa: low to moderate risk</i>		
<i>South Asia: 98 million (55 million) Southeast Asia: 43 million (21 million)</i>					<i>South Asia: moderate to high risk</i>		
<i>Bangladesh: 26 million by 2050 China: 73 million India: 20 million by 2050</i>					<i>South Asia: moderate risk</i>		
<i>East Asia: 33 million (5 million)</i>					<i>East Asia: moderate to high risk</i>		
<i>South Asia: 98 million (55 million)</i>					<i>South Asia: moderate to high risk</i>		
<i>Southeast Asia: 43 million (21 million)</i>					<i>Southeast Asia: moderate to high risk</i>		
<i>North Africa: 155–599 million South and East Africa: 15–529 million West Africa: 27–517 million</i>					<i>North Africa: 155–599 million South and East Africa: 15–529 million West Africa: 27–517 million</i>		
<i>South Asia: 39–81.2 million West Asia: 95–492 million Central Asia: 14–228 million East Asia: 41–1577 in worst case scenario</i>					<i>South Asia: 39–81.2 million West Asia: 95–492 million Central Asia: 14–228 million East Asia: 41–1577 in worst case scenario</i>		
<i>Millions at risk due to the glacier melt in the Himalayas. 50–60 percent of world population live in the larger Himalaya-Hindu Kush region and could be affected by water stress</i>					<i>Millions at risk due to the glacier melt in the Himalayas. 50–60 percent of world population live in the larger Himalaya-Hindu Kush region and could be affected by water stress</i>		
<i>Expected to rise to 24 countries by 2030</i>					<i>Expected to rise to 24 countries by 2030</i>		
<i>14 African countries currently experience water scarcity.</i>					<i>14 African countries currently experience water scarcity.</i>		
<i>Total: 23–200</i>					<i>Total: 23–200</i>		

Latin America	N/A	Venezuela: 56,000 assuming 1m slr and no adaptation measures Uruguay: 13,000 assuming 1m slr and no adaptation measures	Central America: low to high risk Northern Latin America: low risk	Central America: 5–246 million South America: 72–272 million in the worst-case scenario	Glacier melt in the South American Andes could cause water stress under 37 million people by 2010 and 40 million by 2050	Total: 5–85 million
Small island states	Caribbean: 1,350,000 (560,000) Indian Ocean: 920 thousand (460,000) Pacific: 290,000 (160,000)	1 million	Caribbean: low to moderate risk Indian Ocean: low to moderate risk Pacific: low to high risk	Caribbean: 0–73 million	Water availability could become too low during low rainfall seasons	N/A.

Sources:

- a. Nicholls, Hoozemans, and Marchand 1999, 80–81; for more estimates see Arnell et al. 2002, 429–432.
- b. Africa: first estimate, Myers 2002, 611; second estimate, Myers and Kent 1995, 148; source Asia: Myers 2002, 611; source Latin America: Bijlsma et al. 1996, cited in Nicholls 2003, 16; source small island states: Myers and Kent 1995, 149.
- c. Africa, Latin America and small island states: UNEP/GRID-Arendal 2005; source Asia: first estimate, Munich Re 2004, 76; other estimates, UNEP/GRID-Arendal 2005.
- d. Warren et al. 2006, 18–20.
- e. Africa: Tearfund 2006, 12; Asia: Barnett, Adam, and Lettenmaier 2005, 306; Latin America: Nagy et al. 2006, 10; Small island states: Intergovernmental panel on Climate Change 2007, 695–697; and World Bank 2000, 24.
- f. Warren et al. 2006, 41–42.

tain. Most refugees may stay in their countries and regions,<sup>41</sup> especially in the case of coastal erosion and sea-level rise. For example, Christian Aid expects that only 5 million climate refugees will cross international borders.<sup>42</sup> However, international migration is not excluded. The German Advisory Council on Global Change believes that increasing climate change could incite a mass migration from Central America and the Caribbean islands to the United States, combined with more migration within Central America.<sup>43</sup> A similar claim is made in a recent study by the Development, Concepts and Doctrine Centre (DCDC) Global Strategic Trend Programme of the United Kingdom's Ministry of Defence, which draws on a scenario for 2007–2036. This report projects large-scale population movements across international borders, noting that “in particular, Sub-Saharan populations *will* be drawn towards the Mediterranean, Europe and the Middle East, while in Southern Asia coastal inundation, environmental pressure on land and acute economic competition *will* affect large populations in Bangladesh and on the East coast of India.”<sup>44</sup>

Taken together, even though the exact number of climate refugees is hardly certain given the diverse methodological problems, and even though these methodological problems are likely to sketch an overly pessimistic picture, large migration flows over the course of this century are plausible. The total number of people at risk of becoming climate refugees by 2050 could well be around or over 200 million, even though this number is a rough estimate with a large margin of error, depending on the different conditions and factors considered in the estimate.<sup>45</sup> This would mean twenty times more refugees than are at present protected by the UNHCR.<sup>46</sup>

## The Current Global Governance of Climate Refugees

To what extent is the current global governance system able to deal with the crisis that may emerge in the decades to come? The main global institution dealing with refugees is the regime provided for by the 1951 Geneva Convention Relating to the Status of Refugees and its 1967 Protocol Relating to the Status of Refugees. These institutions are restricted to individual political refugees who flee their countries because of state-led persecution, and thus do not cover climate refugees.<sup>47</sup> A broader definition of refugees has been adopted in two regional conventions, the 1969 Organization of African Unity Convention Gov-

41. Clark 2006; German Advisory Council on Global Change 2007, 118 and 128.

42. Christian Aid 2007, 6.

43. German Advisory Council on Global Change 2007, 151 and 163.

44. Development, Concepts and Doctrine Centre 2007, 29. Emphasis original.

45. For a meta-analysis of the different estimates, see Hansen 2008.

46. The United Nations High Commissioner for Refugees covered 11.4 million refugees in 2007 (UNHCR 2008, 23–25). This is a rather restrictive number and does not include, for instance, roughly 4.6 million Palestinian refugees who fall under the mandate of the United Nations Relief and Works Agency for Palestinian Refugees in the Near East (UNRWA). UNHCR 2008, 23.

47. McGregor 1994, 126.

erning the Specific Aspects of Refugee Problems in Africa and the 1984 Cartagena Declaration on Refugees (concerning refugees from Central America, Mexico and Panama).<sup>48</sup> Both regional conventions cover also people fleeing from events seriously disturbing public order,<sup>49</sup> and the African convention applies to groups too.<sup>50</sup> Even though the extension of protection to people affected by a seriously disturbed public order and to groups may open the two regional conventions—which happen to cover regions most severely affected by future climate change—to include climate refugees, both conventions were originally not intended to protect these types of refugees.<sup>51</sup>

The main agency in the United Nations system for the protection of refugees is the United Nations High Commissioner for Refugees (UNHCR). Its primary focus is (political) refugees protected under the Geneva Convention and the Protocol of 1967,<sup>52</sup> and thus it does not cover environmental or climate refugees. By the end of 2007, 11.4 million refugees fell under the formal mandate of the UNHCR.<sup>53</sup> Given the restrictive definition of political refugee under the Geneva convention, the executive committee of UNHCR and the UN General Assembly permitted the agency to extend its activities towards other groups, such as former refugees who have returned to their homeland, internally displaced people, and people who are stateless or whose nationality is disputed, even though these people have a different legal status and are formally not referred to as “refugees.”<sup>54</sup> In total, by the end of 2006 the UNHCR dealt with 32.9 million people and by the end of 2007 with 31.7 million,<sup>55</sup> including “refugees, asylum seekers, returnees, stateless people and a portion of the world’s internally displaced persons (IDPs).”<sup>56</sup>

In the current regime, most climate refugees could be conceptualized as internally displaced persons. The UNHCR has a variety of programs for such people, even though the High Commissioner maintains not to have a specific mandate over them.<sup>57</sup> Environmentally internally displaced persons also fall under the Guiding Principles on Internal Displacement of the Office of the High Commissioner for Human Rights.<sup>58</sup> However, the concept of “environ-

48. Keane 2004, 216; OAU 1969, article I.2.; Cartagena Declaration on Refugees 1984, art. III.3.

49. OAU 1969, article I.2; Cartagena Declaration on Refugees 1984, art. III.3.

50. See discussion in McGregor 1994, 127.

51. Renaud et al. 2007, 12; McGregor 1994, 127; and Keane 2004, 216.

52. “Refugees include persons recognized under the 1951 *Convention relating to the Status of Refugees*; its 1967 Protocol; the 1969 OAU *Convention Governing the Specific Aspects of Refugee Problems in Africa*; those recognized in accordance with the UNHCR Statute; persons granted complementary forms of protection; or, those enjoying “temporary protection.” (United Nations High Commissioner for Refugees 2007a, 3, emphasis in original). See also United Nations High Commissioner for Refugees 2007b.

53. UNHCR 2008, 23–25.

54. UNHCR 2007b.

55. UNHCR 2008, 23.

56. UNHCR 2006a, 1; see also UNHCR 2008, 24.

57. UNHCR 2006b, 5 and 12.

58. Office of the High Commissioner for Human Rights 1998, Introduction article 2; and Keane 2004, 217.



mentally internally displaced person” serves, according to Keane, only “as a descriptive term, not as a status that confers obligations on states.”<sup>59</sup> The Guiding Principles state for example that the primary duty to provide protection and humanitarian assistance lays with national authorities,<sup>60</sup> and the 2006 Operational Guidelines on Human Rights and Natural Disasters “Protecting Persons Affected By Natural Disasters” from the Inter-Agency Standing Committee directed to internally displaced people, places primary responsibility on national authorities of affected countries with assistance of humanitarian agencies.<sup>61</sup> No duties or obligations of other states are mentioned.

In sum, the current legal regime on refugees provides only marginal protection, with no specific mandate, to climate refugees. The main responsibility is placed with their home countries, which contradicts the global responsibility for the victims of climate change. In addition, the maximum number of persons the UNHCR can currently deal with is merely a small fraction of the additional number of climate refugees that many studies predict for 2050. It is doubtful whether these governance arrangements can cope with the looming climate refugee crisis.<sup>62</sup>

One reform option within the present institutional setting could be to extend the mandate of the 1951 Geneva Convention and of the UNHCR to cover also “climate refugees.” This has been proposed recently by the Republic of the Maldives,<sup>63</sup> but does not find much support in the literature.<sup>64</sup> Politically it would seem unlikely that donor countries would allow the current refugee regime with its fixed set of refugee rights to be extended to cover a group of refugees that is 20 times larger than that which is currently covered. Related to this, such extension could produce a trade-off between climate refugees and the (political) refugees that are protected under the Geneva Convention. Most importantly, however, climate refugees require a different kind of protection. Most climate refugees will not leave their home countries, and will still be able to enjoy protection of their governments. Also, many potentially affected population centers—notably low-lying coasts and islands—can be predicted within limits. Climate-related migrations can therefore be planned and organized with the support of their governments and public agencies, exactly the opposite of the political or religious persecution faced by political refugees.

In sum, the problem of climate refugees is at its core a problem of development policy. It requires institutions that take account of this special character.

59. Keane 2004, 217.

60. Office of the High Commissioner for Human Rights 1998, principle 3.

61. Inter-Agency Standing Committee Working Group 2006, 9–10.

62. See also Oliver-Smith 2009, on the need for legally binding policies to address mass climate migration.

63. See discussion in Biermann and Boas 2008.

64. See the discussion in German Advisory Council on Global Change 2007, 174 and 204–207; the Council eventually argues against extension of the UN regime. See also the discussion in McGregor 1994, 126–127, rejecting the extension of the definition in the Geneva Convention. See also Renaud et al. 2007, 34, with further references.

## Towards a Sui Generis Regime for Governing the Climate Refugee Crisis

For these reasons, we argue against the extension of the definition of refugees in the Geneva Convention to cover climate refugees. Instead, we argue for a sui generis regime for the recognition, protection, and resettlement of climate refugees. This sui generis regime must be tailored to the needs of the climate refugees, and it must be appropriately financed and supported by the international community. This section lays out the central elements of such a regime. We address (1) its core governing principles, (2) its legal-institutional character, and (3) its organizational setting. The following section will address financial support and compensation.

### *Principles*

A sui generis regime for the recognition, protection, and resettlement of climate refugees must build on a set of core principles tailored for the specific problem, including its political, legal, and ethical dimensions. We suggest five principles to serve as a basis for the institutional development of the regime:

**(1) The Principle of Planned Re-location and Resettlement.** Even though climate change impacts will eventually manifest themselves in unpredictable singular events—such as storms, floods or droughts—the increase in magnitude and frequency of such events can be predicted, and the consequential need for local populations to leave regions that suffer from increased risk can be foreseen. The governance of climate refugees can thus be better organized and planned than in the case of victims of political turmoil or war, and can be carried out in planned, voluntary relocation and resettlement programs—sometimes over many years and decades. Thus, at the core of a regime on climate refugees is not programs on emergency response and disaster relief, but instead, planned and voluntary resettlement over longer periods of time.

**(2) The Principle of Resettlement Instead of Temporary Asylum.** Over the long term, most climate refugees—especially victims of sea-level rise—will not be able to return to their homes. Thus, the underlying assumption in current refugee governance that refugees may return once state-led persecution in their home countries has ended, needs to be replaced by an institutional design that conceives of (most) climate refugees as permanent immigrants to the regions or countries that accept them.

**(3) The Principle of Collective Rights for Local Populations.** The Geneva Convention is based on individual persecution. This has included quasi-collective titles—for example when entire ethnic or religious groups in a country are judged as being persecuted—but essentially the regime is designed for individual state-based persecution. A climate refugee regime, however, would need to be tailored for collectives of people, such as populations of cer-

tain villages, cities, regions, provinces or—as in the case of small island states—of entire nations.

**(4) The Principle of International Assistance for Domestic Measures.** Climate refugees enjoy in principle the protection of their own countries, and in many cases, serious climate change impacts will affect only parts of a country. Thus, an international regime for climate refugees will focus less on the protection of persons outside their states than on supporting governments, local communities, and support agencies to protect people within their own territory. The governance challenge of protecting and resettling climate refugees is thus essentially about international assistance and funding for the domestic support and resettlement programs of affected countries that have requested such support.

**(5) The Principle of International Burden-sharing.** Climate change is a global problem in causation and consequences, and the industrialized countries bear most of the moral responsibility for its victims. This suggests also for the protection of climate refugees the adoption of institutional elements from existing agreements on climate or from similar areas. These could include: the principle of common but differentiated responsibilities and respective capabilities (which suggests that richer countries have to bear higher costs for the protection of climate refugees); the principle of reimbursement of full incremental costs of affected countries incurred through resettlement of climate refugees; and the principle of double-weighted decision-making procedures, which would give both developing and industrialized countries equal clout in a new institution on climate refugees.

### *Institutional Setting*

These five principles are not linked to a specific institutional form. Theoretically, governments could agree on a new treaty on climate refugees, such as the “cross-sectoral multilateral convention” on climate refugees that was recently proposed by the German Advisory Council on Global Change.<sup>65</sup> Such an independent convention, however, could require a lengthy negotiation process on core principles and would weaken the link with the climate policy process and its particular agreements on equity, responsibility, and international cooperation.

The five principles of a climate refugee regime suggest instead a Protocol on Recognition, Protection and Resettlement of Climate Refugees (“Climate Refugee Protocol”) to the United Nations Framework Convention on Climate Change. Such a protocol could build on the political support from almost all countries as parties to the climate convention. It could draw on widely agreed principles, such as common but differentiated responsibilities and the reimbursement of full incremental costs. It could support the protection of climate refugees by interlinking their protection with the overall climate regime, including progress in climate science that defines risks for people in certain re-

65. German Advisory Council on Global Change 2007, 129, see also 205, 206–207.

gions. For developing countries, a protocol on climate refugees based on the principle of common but differentiated responsibilities and full incremental costs could become a major negotiation goal given the increasing pressure from the North to integrate advanced developing countries in a global mitigation regime of quantified reduction and limitation objectives.<sup>66</sup>

Concerning procedural operationalization, the protocol could provide for an executive committee on the recognition, protection and resettlement of climate refugees. Such a committee could function under the authority of the Conference of the Parties to the UN Climate Convention, which could serve as the Meeting of the Parties to the climate refugee protocol. This executive committee would maintain a list of specified administrative areas (such as villages, islands, districts) under the jurisdiction of member states whose population is determined to be "in need of relocation due to climate change" or "threatened by having to relocate due to climate change." Any state party to the protocol—and in fact only state parties—would be entitled to propose areas under its jurisdiction for inclusion into the list of affected areas. In line with the sovereignty principle of the United Nations, inclusion of affected areas, as well as the type of support measures to be chosen, would be determined only upon formal proposal from the government of the affected country.<sup>67</sup>

While the composition and procedures of this executive committee will likely be contentious in negotiations, it would appear reasonable to follow examples such as the Montreal Protocol on Substances that Deplete the Ozone Layer, which is governed by committees with equal number of affected countries and donor countries with double-weighted majority rule. This would allow both the affected developing countries and the donor countries to hold a collective veto right over the future evolution and implementation of the regime.

In addition, affected countries as well as the executive committee and meeting of the parties to the refugee protocol will need to rely on regular and specific scientific advice, especially regarding estimates about regional climate change impacts. It will thus be vital that a specialized scientific body supports governments and the executive committee and meeting of the parties. This could be either a sub-group of the existing advisory committee under the climate convention, or a newly created body serving just the climate refugee protocol. Likewise, the Intergovernmental Panel on Climate Change could support the process through timely, focused assessments.

Inclusion in the list of populations "in need of relocation due to climate

66. Biermann 2005.

67. An anonymous reviewer for *Global Environmental Politics* suggested a first step would be to establish baseline scenarios, that is, the amount and direction of migration that would have happened without climate change. Climate refugees would then only be the additional refugees that go beyond the baseline scenario. While we accept the logic of this suggestion, we do not see any feasible application of calculating baseline scenarios that would withstand the pressure of political influence and negotiations. Moreover, given the likely large numbers of climate refugees as estimated in most scenarios reviewed above, the effect of subtracting a baseline of migration would be rather small for most regions.

change” or “threatened by having to relocate due to climate change” would trigger specific rights and support mechanisms, including financial support, voluntary resettlement programs over several years, together with the purchase of new land, and, especially in the case of small island states, organized international migration. It is likely that these rights will be restricted to inhabitants of countries that are not listed in Annex I to the climate convention, that is, developing countries as defined in the climate regime.

Creating a legal framework for “climate refugees” will require adjustments in the existing institutional framework for political refugees under the Geneva Convention and related agreements and national legislation. A differentiation between the legal status of political refugees protected by the Geneva Convention and the legal status of climate refugees protected by a UNFCCC Protocol on Recognition, Protection, and Resettlement of Climate Refugees requires some terminological adjustment within the UNHCR regime, but is legally and practically unproblematic. In particular, a legal instrument on climate refugees would not require an amendment of the 1951 Geneva Convention Relating to the Status of Refugees and its Protocol, since these instruments define the term “refugee” only for the purposes of their own regime, which will remain unchanged.<sup>68</sup>

Within climate negotiations, some governments and think tanks have proposed an “adaptation protocol” to the climate convention.<sup>69</sup> Here is not the place to discuss the disadvantages and advantages of such a broader legal instrument, which would address a much wider range of issues than covered in this article. However, it is important to note that the core elements that we propose for a UNFCCC Protocol on Recognition, Protection, and Resettlement of Climate Refugees could theoretically also be incorporated into a broader adaptation protocol as long as key elements of our proposal—such as the financial support mechanism and its principles—are preserved. Integration of the protection of climate refugees into a broader adaptation protocol could allow for more holistic adaptation planning in regions at risk, which will include in many cases a combination of adaptation and voluntary resettlement programs. However, such an integration of the climate refugee problem in a larger context also places refugees in competition with other interests in affected areas. This might endanger the effective protection and financial support of the people—often the poorest—for whom adaptation is no option and who have to leave their homes and resettle elsewhere. These potential conflicts thus need to be prevented if a larger legal instrument is being negotiated.

68. See Article 1.a.2 of the 1951 Geneva Convention (UNHCR 2007c): “For the purposes of the present Convention, the term ‘refugee’ shall apply to any person who: . . . owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his [sic] nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his [sic] former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it.”

69. Okereke and Mann et al. 2007, 36–37; and Ayers, Alam, and Huq 2010.

### *Organizational Setting*

Dealing with the resettlement of millions of climate refugees over the course of the century will require not only a new legal regime, but also one or several international agencies to deal with this task. Given different causes of climate-related flight that range from extreme weather events to water scarcity and drought, it is unlikely that one single agency could be assigned the exclusive, or main, task of dealing with climate refugees. Instead, a more appropriate and likely model will be the designation of a network of agencies that serve as “implementing agencies,” under the authority of the meeting of the parties to the climate refugee protocol, in their respective area of expertise and depending on type and circumstances of populations in need of assistance and relocation.

A crucial role might lie with the UN Development Programme (UNDP) and the World Bank, both of which could serve as implementing agencies for the climate refugee protocol. UNEP, even though it lacks a strong operational mandate, may provide invaluable further assistance in terms of scientific research and synthesis, information dissemination, strategic legal and political advice, and other core functions of this program.<sup>70</sup> A small coordinating secretariat to the protocol on climate refugees would be needed, possibly as a subdivision of the UNFCCC secretariat in Bonn. In addition, the UNHCR will play a role, even though it would be unlikely to be the main agency given the special characteristics of the climate refugee crisis. Yet the expertise of the High Commissioner in view of emergencies, as well as its legal and technical expertise in dealing with refugee crises, will be indispensable also for the protection of climate refugees.<sup>71</sup>

### **Governance Mechanisms for Financial Support and Compensation of Climate Refugees**

The protection and resettlement of possibly over 200 million climate refugees over the course of this century will require substantial funds. Since climate refugees will often (though not exclusively) live in poorer developing countries and generally seek refuge in their own or neighboring countries, the funds will largely have to come from the international community. From a global governance perspective, there are three types of financial mechanisms for climate ref-

70. A world environment organization—or UN Environment Organization as it is currently debated as a potential successor to UNEP—could have a significant role also in the protection of climate refugees. On the concept of a world environment organization, see Biermann 2000 and Biermann, Olwen and van der Grijp 2009.

71. According to Article 9 of the Statute of the High Commissioner (2007d), the UN General Assembly may request the High Commissioner “to engage in such additional activities, including repatriation and resettlement . . . within the limits of the resources at his [sic] disposal.” This proviso could form the basis for a formal mandate, through the UN General Assembly, to assist in implementing a protocol on climate refugees to the climate convention.

ugees: general development funding agencies, environment-related funds, or a new funding agency to be created especially for climate refugees.

Regarding development agencies, the World Bank group and the UNDP are probably most relevant at present, though others will have to play a role too (for example the WHO or the FAO). These agencies will need to integrate climate change impacts into their work programs, and most are in the process of doing so. In addition, there are a number of specialized environmental funds. Some climate programs of developing countries are reimbursed through the Global Environment Facility (GEF). The climate regime provides for three special funds to assist developing countries: an Adaptation Fund under the 1997 Kyoto Protocol financed through a 2 percent levy on transactions under the Protocol's Clean Development Mechanism (CDM), to fund adaptation projects in developing countries; a Special Climate Change Fund to finance adaptation projects to strengthen developing countries' adaptive capacity; and a Least Developed Countries Fund to assist the least developed countries in preparing their National Adaptation Programs of Actions.<sup>72</sup>

Yet while the protection of climate refugees will in principle fall under the terms of these funds, it is questionable whether they are the most appropriate mechanisms for the specific funding problem of climate refugees. For one, the level of funding is not enough even for the current purposes of the funds.<sup>73</sup> Most funds are based on the principle of voluntary contributions by governments. At present, merely US\$ 85 million has been collected for the Least Developed Countries Fund, the Special Climate Change Fund, separate Adaptation Fund donations and the GEF Special Priority on Adaptation, with additional US\$ 95.8 million having been pledged.<sup>74</sup> An increase in public funding from the governments of industrialized countries is unlikely or at least uncertain given other national priorities (including other climate-related priorities). The only fund that is independent from governments—the Adaptation Fund—is projected to generate US\$ 160–950 million in total until 2012.<sup>75</sup> A further increase in the levy on projects under the CDM to fill up the Adaptation Fund is possible, yet would create quasi-fiscal incentives against environmentally beneficial projects. Several proposals seek to address this issue, including novel funding mechanisms such as the Climate Impact Relief Fund proposed by Müller,<sup>76</sup> the International Air Travel Adaptation Levy developed by Müller and Hepburn (projected to raise US\$ 4–10,000 million each year),<sup>77</sup> or climate change insurance schemes.<sup>78</sup>

Yet independently of these debates, it is doubtful whether climate refugees

72. Paavola and Adger 2002, 12; and Richards 2003, 6–7.

73. UNFCCC Executive Secretary 2007.

74. Müller and Hepburn 2006, 7.

75. Müller and Hepburn 2006, 7.

76. Müller 2002, 89–91.

77. Müller and Hepburn 2006.

78. See for example Müller 2006, 5; and Bals et al. 2005.



can be best protected through inclusion in these general funding mechanisms. This would put climate refugees in competition with other concerns, be it mitigation, as in the case of GEF funding, or overall adaptation, as in the case of the adaptation funds, where adaptation measures might be motivated through additional concerns such as the protection of powerful economic interests. Integrating climate refugees in general environmental funding schemes might blur the specific moral link between climate refugees and potential donor countries, and hinder claims for compensation, liability and responsibility from industrialized countries. Thus, as in our previous discussion of the institutional setting that would govern the recognition, protection, and resettlement of climate refugees, the best option appears also here to be the creation of an at least partially *sui generis* regime for the financing of the protection of climate refugees, such as a Climate Refugee Protection and Resettlement Fund.<sup>79</sup> While the operational aspects of this fund could be linked with other financial mechanisms to increase efficiency, the governance of the fund should be independent and stand under the authority of the meeting of the parties to the UNFCCC Protocol on Recognition, Protection, and Resettlement of Climate Refugees.

A key question for this new facility specifically for climate refugees will be the amount of funding required from the international community and the funding principles. For mitigation programs under the climate convention, industrialized countries have committed to reimburse developing countries the agreed full incremental costs, a concept originally developed in the 1990 London amendments of the ozone regime.<sup>80</sup> Similar provisions apply to adaptation.<sup>81</sup> In addition, the climate convention obliges industrialized countries to assist the most vulnerable countries in meeting adaptation costs (article 4.4) and gives special rights to least developed countries (article 4.9). This suggests extending the principle of reimbursement of full incremental costs to the protection and resettlement of climate refugees, at least to those situations where general causality with climate change is undisputed, namely sea-level rise. For other situations in which climate change is only one causal factor to account for environmental degradation—for example in the case of water scarcity—the principle of additional funding instead of full reimbursement is probably more appropriate.

We thus suggest four principles that would govern the Climate Refugee Protection and Resettlement Fund. First, all funds provided are on a grant basis. To the extent that larger development projects financed through loans include the resettlement of climate refugees, the particular costs of the resettlement elements will be fully reimbursed as a grant. Second, all funds provided for the Climate Refugee Protection and Resettlement Fund are new and additional, to pre-

79. See also the German Advisory Council on Global Change, which proposed an Environmental Migration Fund. German Advisory Council on Global Change 2007, 211.

80. See Biermann 1997 in more detail on the operation of the principle.

81. See article 4 paragraph 3 of the United Nations Framework Convention on Climate Change (United Nations 1992b).

vent competition with other sustainable development needs. Third, in the case of sea-level rise refugees, the Climate Refugee Protection and Resettlement Fund reimburses the full agreed incremental costs of developing countries incurred in protecting and relocating these refugees (no matter from which country they come), taking into account that a large part of the financial transfer will be channeled through international development agencies. In cases where climate change is only one cause of environmental degradation, the fund will pay for parts of the protection and relocation costs, the exact amount of which will be determined in intergovernmental negotiation. Fourth, the meeting of the parties to the UNFCCC Protocol on Recognition, Protection and Resettlement of Climate Refugees, or committees under its authority, maintain the right to define a list of designated populations as "climate refugees in need of relocation," to determine the amount of reimbursement and type of assistance, and to take all other measures related to the governance of the fund.

## **The Politics of Climate Refugees: Constraints and Limitations**

This blueprint of a governance system would ensure, we argue, the sufficient and timely recognition, protection, and resettlement of climate refugees. Yet the question arises to what extent this proposal would be acceptable to decision-makers. To begin with, the political process that we have described would need to overcome significant practical hurdles. How to deal, for example, with requests under this protocol from countries with autocratic governments or with a record of human-rights violations; shall the executive committee under this protocol grant all financial and administrative support to these governments? Or, how to deal with rent-seeking behavior by countries that try to misuse the climate refugee protocol to increase foreign funding? Such problems are likely, yet are not different from those faced by existing mechanisms of international support, from World Bank loans to GEF projects. We are confident that by large measure, such problems can be dealt with in political processes, and that the double-weighted voting system that we propose would support compromise and creative, tailor-made solutions.

More difficult is that the system that we propose would pose a significant financial burden on donor countries. Resettlement, re-training and re-integration of millions of people from the low-lying coastal regions of Africa and Asia is well likely to surpass all financial transfers under multilateral and bilateral development cooperation schemes. Are donor countries ready for it? At present, the indications are not promising. The protection of those who are especially vulnerable to climate change is effectively a fringe issue in climate negotiations, despite the new adaptation funding mechanisms that have been set up in recent years. Yet climate change impacts are less prominent so far, and current efforts cannot predict what governments will decide should the scenario predictions that we reviewed above hold. One important factor is the likely security and stability implications of large-scale climate change impacts. It is perhaps not surprising that the largest attention the problem has found in the North so

far is among military and defense planners. Early support for climate refugees might not only attenuate human suffering; it might also prevent violent conflict. Investment in the protection of climate refugees is also investment in global security in the 21<sup>st</sup> century. This rationale of self-interest may well change current Northern attitudes to the financial support of climate change adaptation programs in the poorer nations in the South.<sup>82</sup>

## Conclusion

Climate change threatens to cause the largest refugee crisis in human history. As we described in this article, more than 200 million people, largely in Africa and Asia, might be forced to leave their homes to seek refuge in other places or countries over the course of the century. However, the existing governance mechanisms are not sufficiently equipped to deal with this looming crisis. The situation calls for new governance. In this article, we have outlined a blueprint for a global governance architecture for the protection and resettlement of climate refugees. We argue against the extension of the definition of refugees under the 1951 Geneva Convention Relating to the Status of Refugees, and instead call for a new legal instrument specifically tailored for the needs of climate refugees—a Protocol on Recognition, Protection, and Resettlement of Climate Refugees to the United Nations Framework Convention on Climate Change—as well as a separate funding mechanism, the Climate Refugee Protection and Resettlement Fund.

The serious impacts of climate change that will compel millions of people to leave their homes are largely predicted only for the second half of this century, based on the current state of climate science. However, the broad predictability of the regions where major climate change impacts, such as sea-level rise, are likely to cause harm and dislocation allows for preparation and planning. We have thus framed our proposal deliberately not in terms of emergency response and disaster relief, but of planned and organized voluntary resettlement programs. When it comes to sea-level rise in particular, there is no need to wait for extreme weather events to strike and islands and coastal regions to be flooded. All areas that cannot be protected through increased coastal defenses for practical or economic reasons need to be included early in long-term resettlement and reintegration programs that make the process acceptable for the affected people. This, however, calls for early action in terms of setting up effective and appropriate governance mechanisms. The planning for a climate refugee protocol and the related institutional settings cannot wait until 2050 when it might be too late for orderly and organized responses. It must begin now.

82. Another strategy could be—as suggested by one reviewer for *Global Environmental Politics*—to broaden the scope of the protocol proposed here to also include climate refugees in industrialized countries, for example in the Arctic or in the Mediterranean. This could increase attention and support in the industrialized countries, but might well blur the attention on the poorer refugees in Africa and Asia who cannot avail of any support, unlike refugees in richer countries.

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