

---

# THE CLOCK IS TICKING FOR BANGLADESH: POLICY RECOMMENDATIONS AND STRATEGIES FOR MITIGATING EFFECTS OF CLIMATE CHANGE

---

So Youn Kim  
Carleton University

*Abstract: Climate change is one of the most important issues in Bangladesh. Environmental and human security risks accompanied by climate change make the Bangladeshi population highly vulnerable to violent conflicts over resources.<sup>1</sup> Especially, in slums, where many climate refugees end up, the situation may be even worse. It is estimated that by 2050, there will be one billion global climate migrants, thirty million of whom will be Bangladeshi.<sup>2</sup> According to the Bangladeshi Prime Minister Sheikh Hasina, this situation will lead to “social disorder, political instability, cross-border conflict and upheavals.”<sup>3</sup> Since the prospect of climate change seems an inevitable phenomenon, the Bangladeshi government should design policies to fit its current situation. This paper proposes three different policies for the Bangladeshi government. First, a pro-active policy needs to be established to address the occurrence of natural disasters stemming from climate change. This policy would include education and public awareness for the Bangladeshi people to minimize potential damage. Second, a resettlement policy needs to be arranged to help climate refugees/migrants recover. Finally, the third policy needs to focus on mobilizing both local people and NGOs to deal with the crisis.*

## Introduction: The Scope of the Problem

Bangladesh has a large population of 162 million inhabitants and Gross National Income (GNI) per capita of USD 1,330.<sup>4</sup> Its small geographical

---

1 Nicole Detraz, “Environmental Security and Gender: Necessary Shifts in an Evolving Debate,” *Security Studies* 18, no. 2 (2009), 347.

2 *Climate Displacement in Bangladesh The Need for Urgent Housing, Land and Property (HLP) Rights Solutions* (Geneva: Displacement Solutions, 2012), 13.

3 Ben Saul, “The Security Risks of Climate Change Displacement in Bangladesh,” *Journal of Human Security* 8, no. 2 (2012), 7.

4 The World Bank, “Bangladesh,” The World Bank Group, 2018, <https://data.worldbank.org/country/bangladesh>.

size relative to its population makes Bangladesh one of the most densely populated countries in the world.<sup>5</sup> Agriculture is the most important industry in Bangladesh; approximately 87 percent of rural households—accounting for 70 percent of the Bangladesh population—depends on agriculture for their income, and 16.5 percent of its GDP derives from this industry.<sup>6</sup> In agricultural societies like Bangladesh, newly emerging environmental threats through climate change like periodic flooding and drought become more deadly. Moreover, the impact of these threats can be magnified by existing high poverty levels in Bangladesh. These factors make Bangladesh more vulnerable to climate change.<sup>7</sup> Various natural disasters are already occurring in Bangladesh. Flooding, cyclones, storm surges, water logging, salinity intrusion, riverbank erosion, coastal erosion, rising sea levels, and land loss will be exacerbated by the effects of climate change. In particular, sea level rise is the worst consequence of climate change as the experts expect the thirty percent of Bangladeshi land to be subsumed by 2080.<sup>8</sup> Consequently, people will lose their homes and be obliged to migrate. However, due to a lack of affordable housing, there is a danger that they will end up in slums, where particularly vulnerable groups are under the threat of violence because of the absence of police and protection measures. Addressing the issue through an awareness-raising campaign will make people more prepared in the event of disaster. In addition, a resettlement policy, which deals with both regional and domestic migration, will address the consequences of climate change migration such as violence and the existence of slums. A community-based approach is effective and sustainable, allowing both policymakers and the general public to see the issue through the eyes of the local population.

### Critique of Policy Options

Currently, Bangladesh is having difficulty controlling its population growth along with the increase of climate refugees. Bangladesh, an agriculture dependent country, will find itself at higher risk if its current rate of population growth remains the same.<sup>9</sup> The government has proven itself incapable of domestic reform and has failed to manage farmland use. These are early warning signs

---

5 The World Population Review, “Bangladesh Population 2018,” *The World Population Review*, 2017, <http://worldpopulationreview.com/countries/bangladesh-population/>

6 The World Bank, “Bangladesh: Growing the Economy through Advances in Agriculture,” *The World Bank Group*, 2016, <http://www.worldbank.org/en/results/2016/10/07/bangladesh-growing-economy-through-advances-in-agriculture>

7 Mostafa Mahmud. Naser, “Climate Change and Migration: Law and Policy Perspectives in Bangladesh,” *Asian Journal of Law and Society* 2, no. 1 (2015), 44.

8 Saul, “The Security Risks of Climate Change Displacement in Bangladesh,” 7.

9 Md A. F. Younus, *Vulnerability and Adaptation to Climate Change in Bangladesh: Processes, Assessment and Effects* (New York: Springer Dordrecht Heidelberg, 2014), 21.

that the government is incapable of tackling climate refugee issues effectively. That said, the government of Bangladesh has made some efforts to plan for the effects of climate change. The Ministry of Environment and Forests has published the Bangladesh Climate Change Strategy and Action Plan (BCCSAP). As a part of this plan, the National Adaptation Program of Action (NAPA) came into effect in 2005.<sup>10</sup> Furthermore, thirty-five years ago, the Bangladeshi government invested ten billion US dollars in various programs for the protection of the country from climate change vulnerabilities. Structural flood management schemes, such as building flood shelters, roads and highways beyond the reach of floods, were put in place.<sup>11</sup> However, the government overlooked the need for mobilizing the local population and neglected to raise awareness or devise local-friendly and sustainable plans to deal with the issue. Despite its attempts to adopt a local approach to carrying out climate change adaptation policies, and given physical conditions, the government neither provided nor implemented any detailed guidelines on how, and in what projects local people can be included.

### Preparation Policy – Education

A policy to raise awareness of environmental threats among the Bangladeshi public will help them become involved in promoting security in their communities. By educating and including the public in all stages of project development, the Bangladeshi people will be better informed of and prepared for natural disasters as they learn how to handle and cope with the crisis. People will be able to manage consumption and economic needs, obtain emergency food supplies, cope with uncertainties, and respond to sudden changes.<sup>12</sup> Thus, the government should give its people access to information on how to handle emergency situations in relation to climate change as a way of enhancing the awareness on climate change and helping them prepare and adapt to these changes.

With the help of NGOs, the Bangladeshi government should commit its resources towards education since the knowledge about such issues can increase their own self-adaptation efficacy.<sup>13</sup> Climate awareness affects people's adaptation efficacy against climatic stresses. Such physical, cultural,

---

10 Naser, "Climate Change and Migration: Law and Policy Perspectives in Bangladesh," 41.

11 Younus, *Vulnerability and Adaptation to Climate Change in Bangladesh: Processes, Assessment and Effects*, 19.

12 Mustafa Saroar and Jayant K. Routray, "Climate Awareness and Adaptation Efficacy for Livelihood Security against Sea Level Rise in Coastal Bangladesh," In *Climate change, Human Security and Violent Conflict: Challenges for Societal Stability*, eds. Jürgen Scheffran et al., (Berlin: Springer Berlin Heidelberg, 2012), 576.

13 Ibid., 577.

and information resources that affect an adaptation capacity have a similar influence on their adaptation efficacies.<sup>14</sup> People will be better equipped socio-psychologically through awareness education, and their beliefs and strength of collective action can be enhanced.

A climate awareness raising program will provide people with some extrinsic and tangible benefits in protecting their livelihoods in both the short and long term. For example, the public will be made aware of the importance of conserving resources such as water, food, clothing, energy and electricity. Furthermore, training the public to follow guidelines in emergencies, such as what to bring and how to find the closest shelters, will help the public minimize the human risks of climate change. Teaching the public to regularly listen to the broadcasting of emergency messages via various media (including television and radio) will teach them how to receive information in an emergency. Besides other survival skills, people can be taught to construct temporary shelters above flood paths.<sup>15</sup> Training sessions on rescue, evacuation and first aid will teach them how to escape from areas of crisis as well as help others do the same.

In the case of natural disasters caused by climate change, people often depend on external assistance seeking material and non-material support from local governments and NGOs rather than devising their own solutions. Such a tendency toward dependence should be discouraged through awareness education, as it weakens people's own efficient adaptation.<sup>16</sup> The more people depend on external help, the less they will be able to survive flooding before rescue teams arrive on the scene. When natural disasters like flooding destroy homes, people need to make sure they have enough food and clothing to survive. Through education, people will learn how to be prepared for future crises, and this is especially true for people who are poorer, less resilient and unable to cope. This kind of education might include campaigns for large audiences, education for young students in schools, and young volunteers. The participation of volunteers in a crisis will also minimize the burden on the Bangladeshi government.

To prevent deforestation and to recreate the natural defences of the country against storms, the government can educate its civilians about the importance of the mangroves, which can provide resistance to incoming storms and monsoons. Education about what action to undertake to improve the current situation will enable civilians to plant and replenish the forest.

---

14 Ibid., 589.

15 Sovacool, Benjamin K. et al., "Improving Climate Change Adaptation in Least Developed Asia," *Environmental Science & Policy* 21 (2012): 121.

16 Saroar, "Climate Awareness and Adaptation Efficacy for Livelihood Security against Sea Level Rise in Coastal Bangladesh," 590.

Before deforestation, mangrove forests provided at least 500m of natural defenses against storms; now, they only provide 12-50m of protection in most locations.<sup>17</sup> The government should make people aware of the consequences of illegal deforestation and logging. Educated citizens are more likely to make greater efforts to preserve their overall environment that includes afforesting mangroves.

The Bangladeshi government can also encourage farmers to adopt different “wetting and drying (AWD) methods of irrigation,” different types of fertilizers, growing non-rice crops, and integrating straw stubbles into rice paddies as a substitute for producing rice paddies under irrigated settings, which have contributed to massive GHG emissions in Bangladesh.<sup>18</sup>

The natural disasters caused by changing climate patterns can trigger many diseases and illnesses such as diarrhea, skin diseases, malaria, mental disorders and dengue. The Bangladeshi government’s raising awareness campaign about climate change related diseases will benefit civilians as they learn how to prevent and cope with such diseases. A case in point was a health awareness campaign on palliative care conducted in a small village of Villupuram in India. It entailed distribution of pamphlets, poster presentations, and door-to-door delivery of information.<sup>19</sup> By increasing people’s understanding of the local health system and its services, the Bangladeshi government can encourage individuals’ ability to better cope with health problems that are related to climate change.<sup>20</sup>

### **Resettlement Policy – Adaptation Plan**

The second policy recommendation is a practical resettlement policy. The Bangladeshi government should mobilize NGOs and local governments to provide humanitarian assistance to migrants. This policy includes building institutional frameworks to protect and manage climate-induced migration. Local governments should monitor internal and external migration to help them resettle migrants more effectively. The government should aid the resettlement and rehabilitation of climate refugees in Bangladesh. All the stakeholders must take part; communities, local governments, civil society organizations, and the private sector (development partners) need to be involved to effectively apply

---

17 Sovacool et al., “Improving Climate Change Adaptation in Least Developed Asia,” 117.

18 World Bank, *Climate-Smart Agriculture in Bangladesh* (Washington D.C. : The World Bank, 2017), 1.

19 Ankit Chandra et al., “Impact of Health Awareness Campaign in Improving the Perception of the Community about Palliative Care: A Pre- and Post-intervention Study in Rural Tamil Nadu,” *Indian J Palliat Care* 22, no. 4 (2016): 467.

20 Rashid, Sabina F., “Urban Poverty, Climate Change and Health Risks for Slum Dwellers in Bangladesh.” (Tokyo: Springer, 2018), 59.

this resettlement plan, which will enable efficient use of every crucial human resource and contribute to the safeguarding of human security.

As migration may be necessary, it is important for Bangladesh to facilitate regional cooperation with other South Asian countries. Of particular importance is India, as India shares borders with Bangladesh. India is a democracy and has a growing economy capable of providing economic opportunities, and because of the shared cultural heritage between India and Bangladesh, they have similar languages. It is an especially good migration destination for the Bangladeshi people. However, India's view on Bangladeshi migration is an impediment. One of India's cities, Assam, is largely opposed to illegal migration from Bangladesh because its citizens believe that illegal migrants will change the local demographics, incite violence, dominate employment, exploit natural resources and take away land from tribal peoples. Still, India's current ability to stop migration is limited.<sup>21</sup> As a part of this resettlement policy, the Bangladeshi government should invite the Indian government to have official meetings together to discuss the size of the movement into India, the manner in which migrants are received by host communities, the political response from local Indian governments, and the ways to mitigate the anti-foreign sentiment rampant in these Indian host cities.<sup>22</sup>

Environmental degradation and natural disasters make people homeless and jobless, causing migration. Thus, environmental migration has structural roots in poverty and unemployment. Poor people have lower adaptive capacities to environmental pressures than wealthy people due to lack of resources, including money and knowledge, which might otherwise help them to endure environmental effects. The resettlement policy of Bangladesh should focus on poor people who live in high risk areas and who are not protected by the government. Climate refugees migrating to urban areas are a catalyst for poverty and hardship. They could trigger unrest and violence against those among them who are more marginalized such as children and women.<sup>23</sup> For better settlement, it is important to check slums where climate refugees frequently end up. Slum dwellers are socially marginalized, cut off from their traditional communities and face social and security problems because they are excluded from basic services, comfortable housing, clean water, health care and education. It is important for the Bangladeshi government to make coordinated planning and policy on urbanization and poverty, a priority.<sup>24</sup> The Bangladeshi government should work with insurance companies to provide

---

21 Saul, "The Security Risks of Climate Change Displacement in Bangladesh," 8.

22 Ibid, 17.

23 Saroar, "Climate Awareness and Adaptation Efficacy for Livelihood Security against Sea Level Rise in Coastal Bangladesh," 602.

24 Saul, "The Security Risks of Climate Change Displacement in Bangladesh," 26.

affordable insurance products for coastal dwellers who are vulnerable to flooding, so that with insurance payments, they can offset the damages and resettle in new areas smoothly.<sup>25</sup> Job training for less skilled climate refugees is also effective to help them find new jobs where they resettle.

It is important to recognize that this kind of climate change fuels violence and conflicts over resources. Migration to neighboring countries, as well as domestic migration to mostly urban cities should be monitored by the Bangladeshi government. Once again, slums created by climate refugees are the targets of crime and conflict. The Agargaon slum is the biggest slum in Dhaka, the largest city in Bangladesh. Its residents are prone to crime, smuggling and drug trafficking. Security forces, such as the police, find its narrow and winding paths inaccessible. Groups of mastans (local goons) participate in gun fights in order to dominate and gain control of the slums.<sup>26</sup> All types of crime, such as drugs and alcohol dealing, land grabbing, gambling, illegal arms dealing, murder, kidnapping and domestic violence are very frequent in these slums.

To help climate refugees resettle in these new areas, it is important to improve current conditions. Climate change will act as a supplier and producer of stress and insecurity. It is vital for the Bangladeshi government to intervene with effective enforcement mechanisms and police forces to help climate refugees better adapt to living in new circumstances. The relocation of a population within its domain makes the government responsible for the management and distribution of land. As a part of this resettlement policy, it is important to re-establish control over the land to be distributed. Since large areas of land are at risk of submersion due to rising sea levels and the pre-existing population density of Bangladesh, the threat posed by climate change is particularly pronounced. By 2051, only 0.07 acres of agricultural land per person in Bangladesh will be left.<sup>27</sup> As such, it is vital to stimulate resettlement by providing settlement locations and a proper infrastructure. Land is needed for the relocation of communities to build houses, maintain livelihoods and engage in farming activities. Khas land is “deemed” to be owned by a state mentioned in register VIII, whose application is not limited to agricultural and non-agricultural lands, (such as forests and cities) and rivers. The land can be used for development of the state.<sup>28</sup> However, currently eighty-eight percent of khas (state owned land) are illegally owned by powerful elites and other

25 Salauddin and Ashikuzzaman, “Nature and extent of population displacement due to climate change triggered disasters in south-western coastal region of Bangladesh,” *International Journal of Climate Change Strategies and Management* 4, no. 1 (2012): 64.

26 Saroar, “Climate awareness and adaptation efficacy for livelihood security against sea level rise in coastal Bangladesh” 603.

27 Naser, “Climate change and migration: Law and policy perspectives in Bangladesh,” 48.

28 Chancery Research and Consultants Trust, s.v. “Khas Land,” 2018.

interest groups.<sup>29</sup> The Bangladeshi government must implement an effective land management system to reclaim and distribute these lands fairly to climate migrants for their resettlement. For this, land laws should be revised and clarified for the dissemination of land near the sea and rivers. Section 54 of the Land Management Manual (1990) prioritizes dissemination of Khas lands, and section 56 prioritizes such distribution to families whose lands are utilized for farming or that have suffered water erosion. Families whose lands were flooded due to sea level rise could be given the highest rank in obtaining khas lands.<sup>30</sup> Rational plans and controls to “optimize land” are a vital part of this climate change adaptation plan.<sup>31</sup>

### **Proactive/Adaptation Policy – Local Level Approach**

The Bangladeshi government should devise a community-oriented risk reduction policy and strategy that uses local knowledge, does not threaten environmental security, and ensures the security of the local people. Community-based activities need to be deeply rooted in societies so that people are able to express what they really need and what they prioritize; problems can be noticed and dealt with correctly as responsive measures are devised and applied. This policy will strengthen social cohesion and cooperation within the community and build confidence among individuals, families, and communities by allowing them to be prepared for disasters and their mitigation.

People in the community are the ones who suffer most from the adverse effects of natural disasters, so communities should be the “frontier” to respond immediately to this destructive situation. Thus, communities can devise their own coping and survival strategies when they face the situation and respond to it before any government or NGO arrives. Such management by the community will effectively help people because communities are the main actors that develop and apply important measures when faced with disaster; in this way, they ensure human security. Community-based risk reduction will take into consideration the most important component—the particular context of the community.<sup>32</sup>

The main objective of risk reduction with community-based policies is to reduce vulnerabilities, ensuring ecological and environmental security as important tenets of a sustainable policy toward climate change.<sup>33</sup> Building secure, disaster-resilient and developed communities is the goal of this

---

29 Naser, “Climate change and migration: Law and policy perspectives in Bangladesh,” 48.

30 *Ibid.*, 49.

31 *Ibid.*, 48.

32 Umma Habiba et al., “Community-Based Disaster Risk Reduction Approaches in Bangladesh.” In *Disaster Risk Reduction Approaches in Bangladesh*, (Tokyo: Springer 2013), 261.

33 Detraz, “Environmental Security and Gender: Necessary Shifts in an Evolving Debate,” 347.



approach. This policy approach is participatory in that it includes local people at every level who thereby become responsive in terms of considering the perceptions of the community. This multi-disciplinary approach combines local knowledge with science and new technology. It also empowers people by giving them more access to and control of resources and primary services. For example, in Tajikistan in 1999, a substantial number of local specialists, engineers and workers participated in the “Slope Stabilization Project”. After the project was completed, the community carried out “its own follow-up” actions that included the reconstruction of other pathways, forestation and public education.<sup>34</sup> It is important to make the most of natural resources such as rainwater which can be used in harvesting. Stored rainwater can be used for drinking and cooking purposes, offering feasible options. Annually, rainfall in Bangladesh is 2,350 mm and this should be spread uniformly across the country.<sup>35</sup> Many types of rainwater harvesting models can be used in homes and at the community level. Rainwater harvesting, especially in rural areas, provides alternative water sources to salinity and drought-affected areas as long as this water’s pH value and quality are maintained at normal conditions. In the case of drought, when water tanks are empty and people collect drinking water using filters, this harvesting is very useful. Rainwater used for agriculture will be more important in the future.<sup>36</sup> These sustainable measures will ensure ecological security for the environment.<sup>37</sup>

Basing the disaster reduction plan on the centrality of local communities rather than on a top-down government intervention will create a better understanding of community dynamics, perceptions, and needs. It is important to recognize that local knowledge and capabilities be considered and enhanced. NGOs provide important links between public authorities and communities before and after disaster crises. NGOs offer a variety of supports including services to vulnerable groups of people, capacity building, community outreach and mobilization, advocacy and awareness-raising related to the reduction of health risks, hygiene promotion and resilience. NGOs are driven by communities that have particular interests, and they become the “voices” of these communities.<sup>38</sup>

NGOs have local knowledge and understand the context of the situation to manage and adapt to natural disasters stemming from climate change. So

34 *A Guide to Community-based Disaster Risk Reduction in Central Asia* (Geneva: United Nations Office for Disaster Risk Reduction), 14.

35 Habiba, “Community-Based Disaster Risk Reduction Approaches in Bangladesh,” 274.

36 *Ibid.*

37 Detraz, “Environmental Security and Gender: Necessary Shifts in an Evolving Debate,” 347.

38 Gulsan Ara Parvin, et al., “Urban Risk Reduction Approaches in Bangladesh,” in *Disaster Risk Reduction Approaches in Bangladesh*, edited by Rajib Shaw et al., (Tokyo: Springer Berlin Heidelberg, 2013), 253.

being inclusive of vulnerable people in the planning of disaster risk-reduction, and implementing partnerships with local and national level organizations help to ensure sustainability and that the environment is successfully secured.<sup>39</sup> Furthermore, city corporations, municipalities, and city development authorities can direct building and construction rules and regulations, and land-use measures frequently. Communities can participate in the evaluation of risk and resilience of natural disasters stemming from climate change where municipal development authorities facilitate the process. NGOs should combine this local knowledge and scientific understanding with technologies to understand the bigger picture of the risks involved. This helps to build a common understanding of the risks.<sup>40</sup> These preparations and early warning processes require community members' knowledge, and they can guarantee that the public will be more informed through practices such as drills and simulation exercises. Communities and education institutions where local NGOs take part can minimize the impacts of natural disasters. For example, five hundred villages in Aceh, Sri Lanka conducted projects involving teams of volunteers after the destructive impact of a tsunami and an earthquake that hit Aceh. They helped in devising necessary skills for the emergency during a disaster and conducted a public awareness-raising campaign complete with evacuation simulation exercises. In fact, 400,000 people are benefitting from this "grass roots early warning system."<sup>41</sup>

## Conclusion

All in all, three policy recommendations were introduced. As the economy of Bangladesh is based on agriculture, it is relatively powerless to significantly alter or reduce the CO<sub>2</sub> emissions that drive climate change. Instead of preventing or stopping climate change, Bangladesh needs to devise policies that can prepare and adjust to changing conditions. As a proactive policy, education to raise public awareness for better preparation is recommended. This policy ensures the security of the population by making the Bangladeshi people better prepared. Second, as part of an adaptive strategy, a resettlement policy addressing possible consequences must be discussed and focused on resolving the problems of security as it relates to climate refugees. Finally, a community-oriented policy, in-between a reactive and adaptive policy, is encouraged. It aims to ensure security by involving local people, and protects ecological security by offering sustainable methods that do not threaten the environment. Hopefully, the Bangladeshi government will take into

---

39 Ibid.

40 Ibid., 250.

41 Habiba, "Community-Based Disaster Risk Reduction Approaches in Bangladesh," 261.

consideration these options as effective measures to combat natural disaster crises due to climate change. Climate change should be viewed from a long-term perspective. All the mechanisms recommended here have a long-term outlook that enables people to better prepare, better adjust and be better focused.