Chapter 7
Managing Environmental Migration to Improve Economic and Social Outcomes in Developing Asia and Pacific

Bart W. Édes and François Gemenne

Abstract This paper assesses that millions of persons are displaced annually in the Asia and Pacific region due to large concentrated populations residing in areas exposed to environmental risks. Some of those displaced end up becoming migrants, establishing their home in a new location. Migration influenced by environmental factors is contributing to the urbanization trend in the region. Displacement and migration are expected to increase in the coming years due to the impacts of climate change, and the increasing number of people residing in areas at risk of extreme environmental events or slow-onset phenomenon, such as rising sea levels. In addressing environmentally driven migration, a key policy aim should be to curtail the likelihood of forced displacement. "Climate proofing" of physical infrastructure and government support to vulnerable and poor populations can strengthen resilience. Although environmentally driven migration generally unfolds within a country's borders, it can also take on an international character. For this reason, governments need to collaborate in tackling this challenge. If the threat of environmentally driven migration is properly managed and planned, benefits can accrue to migrants, host communities, and communities of origin.

B.W. Édes (✉)
Governance, Poverty Reduction and Social Development Division, Regional and Sustainable Development Department, Asian Development Bank, 6 ADB Avenue, 1550 Mandaluyong, Metro Manila, Philippines
e-mail: bedes@adb.org

F. Gemenne
CEARC, OVSQ, University of Versailles Saint-Quentin (UVSQ), 11 Boulevard d'Alembert, 78280 Guyancourt Cedex, France

CEDEM, University of Liège, Boulevard du Rectorat, 7/45 Building B31, 4000 Liège, Belgium
e-mail: francois.gemenne@sciencespo.fr; Francois.Gemenne@uvsq.fr; F.Gemenne@ulg.ac.be

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Introduction

Asia and the Pacific is the most disaster-prone region in the world. Millions are displaced annually in the region by extreme environmental events, including monsoons (cyclones), floods, storm surges, and drought. Over the coming decades, climate change is expected to increase the number and severity of storms, and contribute to coastal erosion and rising seas. Combined with large and growing numbers of people living in environmentally precarious areas, these trends, combined with economic inequalities and other societal transformations, will stimulate migration.

Discourse on climate change and migration tends to be dominated by humanitarian catastrophes and doom-and-gloom scenarios in which migration is presented as a threat to security, or as a crisis to be avoided at all costs. This chapter posits that environmental migration can actually be managed and anticipated. Although perhaps counterintuitive, migration need not signal helplessness and a failure of adaptation to climate change.

On the contrary, if governments help to building resilience[1] of environmentally threatened communities, improve the capacity of destination areas to accommodate more inhabitants, and begin to facilitate proactive, voluntary movement away from areas facing the most likely environmental disruption, migration can be harnessed as a practical and powerful tool to enable adaptation, promote sustainable development, and avoid humanitarian crises.

An Urbanizing Region at Risk

Asia and the Pacific will be among the global regions most affected by the impacts of climate change, be they creeping at a gradual pace or sudden catastrophic events. Such impacts include significant temperature increases, changing rainfall patterns, greater monsoon variability, sea-level rise, floods, and more intense tropical cyclones (Cruz et al. 2007). Asia and the Pacific is particularly vulnerable because its already elevated exposure to environmental risks, high population density—particularly along coastlines, and vulnerability of particular social and economic groups.

Asia and the Pacific accounted for around half of the global frequency of intense natural disasters between 1971 and 2010. Intense hydrometeorological disasters accounted for 72 % of intense natural disasters recorded in the region over the same period (ADB 2013a). Future increases in monsoon-related precipitation extremes are very likely in East, South, and Southeast Asia (IPCC 2013).

Within the broad and diverse region, climate change is expected to take the heaviest toll on the Pacific, South Asia, and Southeast Asia. Globally, eight of the ten countries with the largest forecasted population at risk from sea level rise in

[1] "Resilience" is the ability of countries, communities, businesses, and individual households to resist, absorb, recover from, and reorganize in response to natural hazard events, without jeopardizing their sustained socioeconomic advancement and development (ADB 2013b).

2050 are located in South Asia and Southeast Asia (Wheeler 2011). In addition, most large Asian delta areas are sinking due to groundwater withdrawal, floodplain engineering, and trapping of sediments by dams (IPCC 2013). Sea-level rise threatens critical rice production areas along coasts and in delta areas, e.g., Bangladesh and the Mekong Delta area (IPCC 2013).

There is also a serious risk of greater food insecurity and the breakdown of food systems linked to warming, drought, flooding, and precipitation variability and extremes in Asia and the Pacific, particularly for poorer populations. Climate change is also projected to reduce raw water quality and pose risks to drinking water quality even with conventional treatment, due to interacting factors of higher temperatures, increased sediment, nutrient, and pollutant loadings from heavy rainfall; heightened concentration of pollutants during droughts; and disruption of treatment facilities during floods (IPCC 2014). Climate change is also expected to exacerbate poverty and health problems, which will interplay with other environmental disruptions.

Combined, these developments could contribute to population displacements of unprecedented scale in the coming decades. According to the International Displacement Monitoring Centre, more than 90 million[2] people—equivalent to Viet Nam's entire population—were displaced by storms, floods, mudslides, and typhoons (cyclones) in Asia and the Pacific in the 5 years 2009–2013. The accompanying table shows that the countries experiencing the largest displacement due to weather in 2013 are all in developing Asia.

While most displaced persons go back home when circumstances permit, many cannot return to their communities, or choose to settle elsewhere for reasons that often relate to safety, security, or livelihood opportunities. In addition, untold numbers leave their homes partly because of creeping environmental threats, such as farmers fleeing rural areas after a string of drought years, or fisherfolk gradually pushed away from coastlines by erosion and storm surges.

Between May and August 2010 alone, some 10 million people were displaced in Pakistan by unusually heavy monsoon rains, and another 15 million were forced to depart their homes in the People's Republic of China due to flooding. In November 2013, one of the strongest tropical storms ever recorded—anywhere—pummelled the Visayas region of the Philippines, dislocating four million people, or about one-third of the population in this central section of the country.

Small island developing countries often have a higher relative disaster risk than larger countries because most of their population and assets are exposed to hazards such as tropical cyclones, while their economies may be concentrated in one or a few vulnerable sectors, such as tourism (UNISDR 2011). The Pacific includes lightly populated states facing the long-term prospects of inundation due to sea rise, especially Tuvalu and Kiribati. In fact, in June 2014, a family from Tuvalu was granted residency on humanitarian grounds by the Immigration and Protection Tribunal in New Zealand after claiming to be threatened by climate change in its home country.

[2] The figure includes weather-related events which displaced at least 100,000 people. Source: IDMC annual estimates of displacement due to disasters: http://www.internal-displacement.org/publications.

In March 2014, the Marshall Islands experienced the worst king tides in more than three decades, forcing evacuation of people in various areas including Majuro Atoll, which in some places is just 30 cm above sea level. In Carteret Islands, situated 53 km northeast of Bougainville in Papua New Guinea, storm surges and invasive high tides over the years have led to start-stop efforts to relocate the population to Bougainville to escape persistent flooding. Eight thousand kilometres to the north, on the Bering Sea coast, hundreds of residents of Newtok, Alaska, are in the process of relocating to higher ground as their village is expected to be fully submerged within a handful of years. The Ninglick River, which empties into the sea, is fast eroding the land around the community. Thawing permafrost and diminishing sea ice are reducing natural barriers to wave erosion.

Asian countries with the largest number of persons displaced by weather-related natural disasters in 2013

Country	Displaced event	Month	Total displaced (per event)	Total displaced (per country)
Philippines	Typhoon Haiyan (local name Yolanda)	November	4,095,000	6,721,000
	Typhoon Trami (local name: Maring)	August	1,744,000	
	Typhoon Nari (local name: Santi)	October	406,000	
	Tropical Storm Shanshan (local name Crising)	February	223,000	
	Typhoon Utor (local name Labuyo)	August	129,000	
	Floods (intertropical convergence zone effects)	October	124,000	
People's Republic of China	Floods	June–July	1,577,000	4,878,000
	Typhoon Fitow	October	826,000	
	Typhoon Usagi	September	587,000	
	Typhoon Utor	August	513,000	
	Typhoon Soulik	July	500,000	
	Floods	July–August	354,000	
	Typhoon Trami	August	190,000	
	Typhoon Haiyan	November	181,000	
	Hainan Floods	December	150,000	
India	Floods	June–October	1,042,000	2,042,000
	Tropical Cyclone Phailin	October	1,000,000	
Bangladesh	Tropical Cyclone Mahasen	May	1,100,000	1,100,000
Viet Nam	Typhoon Haiyan	November	800,000	1,015,000
	Typhoon Nari	Mid-October	109,000	
	Typhoon Wutip	End September–October	106,000	

Source: International Displacement Monitoring Centre (2014), Global Estimates (2014): People Internally Displaced by Disasters, Geneva

In addition to being on the frontline of the impacts of climate change, Asia and the Pacific has experienced massive and rapid socioeconomic transformation and industrialization. It boasts a population of about 4.4 billion people, about three-fifths of the world's total. The region is also home to the most important source of migrants worldwide (about 80 million out of 200,000,000). Mobility has increased substantially in recent years, due to rising incomes, regional integration, and greater access to communications and transportation.

Indeed, one of the most striking demographic trends in the region in recent decades has been an increase in the level and complexity of population mobility. Migration within countries, especially from rural to urban and peri-urban areas, has had major societal impacts. Environmentally induced migration has contributed to increasing urbanization. Existing migration corridors and channels, both internal and international, are expected to be travelled by future migrants.

Patterns of migration within Asia and the Pacific—and between this vast region and others—are complex. Most migration takes place within countries, although there is substantial international movement. This is influenced by a range of factors, including geography; cultural, historical, and political links; employment opportunities; and government policies. Climate change can be expected to both accentuate and alter these trends as it mingles with other motivations for people to relocate.

A major current running through the socioeconomic development of Asia and the Pacific is urbanization. By the middle of this century, Asia's urban population is expected to increase by 1.4 billion, and will account for over 50 % of the global population (UNDESA 2012).

Environmental migration is intertwined with urbanization, and at the same time strengthens it. Many of those displaced by Typhoon Haiyan (2013) in the Visayas region of the Philippines relocated to larger urban centers in the country, including Cebu City and Metro Manila.

Several large Asian cities have grown swiftly over the past two decades and now struggle to support their large populations. Environmentally driven migration will add to the strain. Further, the urban destinations of many migrants are themselves at great risk due to climate change. The movement of people to cities puts pressure on governments to improve urban planning. With an increasing inflow of people, needed actions include zoning laws and incentives that encourage people to settle in less vulnerable areas, and greater investment in basic infrastructure. Many Asian cities lack the carrying capacity to accommodate continued growth without major changes. Urban development patterns will therefore need to be rethought so that cities can grow in a more sustainable way and provide adequate services to their populations, including new arrivals driven by environmental and other reasons.

A particular feature of Asian urbanization has been the emergence of "mega-cities"—large, complex urban areas of 10 million or more. The massive growth of these urban agglomerationsin coastal areas has enlarged the number of people exposed to the risks posed by climate change. It is ironic that many of the vulnerable urban areas being fed by environmental migration are actually at great risk themselves due to short- or long-term hazards such as intense storms and rising seas. Climate change is expected to increase the frequency of extreme events—especially floods—in coastal megacities. Due to population growth, the number of people exposed to these flooding events, and at risk of displacement, will also grow.

If cities are planned and managed in anticipation of further large in-migration, they can act as transformational agents that reduce urban poverty and energize an entire country. Unplanned cities contribute to poverty and create vulnerability as evidenced by living circumstances in slums and informal settlements. Involving stakeholders and taking a holistic approach to urban development cannot only reinforce the role of cities as engines of growth, but also promote improved positive interactions with rural areas (Yuen 2014).

Using Migration as a Tool of Adaptation

Long-term environmental change, rising seas, coastal erosion, and reduced agricultural productivity will stimulate future migration (Lilleor and Van den Broeck 2011). Where environmental conditions slowly worsen, those who have sufficient resources, information and contacts, and are sufficiently motivated or entrepreneurial, will migrate in search of a better life elsewhere. Those with few assets will move later, or not at all, unless a sudden catastrophic event presents them with no immediate alternative. The most vulnerable households are able to use migration to cope with environmental stress, but their migration is an emergency response that creates conditions of debt and increased vulnerability, rather than reducing them (Warner and Afif 2013). Migration decisions depend on many factors, including availability of insurance before a major storm, the effectiveness of emergency relief, the presence of income-producing opportunities, and whether or not homes, businesses, and equipment remain intact and usable (Newland 2011).

Displacement risk increases when populations that lack the resources for planned migration experience higher exposure to extreme weather events, in both rural and urban areas, particularly in developing countries with low income. Expanding opportunities for mobility can reduce vulnerability for such populations. Changes in migration patterns can be responses to both extreme weather events and longer-term climate variability and change, and migration can also be an effective adaptation strategy (IPCC 2014).

Migration can contribute to improved livelihoods, and provide resources to environmentally threatened communities to strengthen their capacity to withstand natural hazards. Out-migration can serve as a way of coping with climate change, and as a mechanism to reduce poverty and increase resilience in affected areas. For example, migrants from rural areas can migrate to take urban jobs and remit funds to their home communities. Seasonal and temporary migration can generate large development impacts, at least on the households that supply workers (Gibson et al. 2013).

In fragile environments, migration is a common response to extreme vulnerability and is essential in satisfying basic needs. It can lead to improved livelihoods or act as a sort of insurance strategy for households through diversification of income sources (Foresight 2011).

Migrant networks can contribute to improved resilience to disasters by implementing humanitarian, adaptation, and development projects, facilitating access to information, lobbying in the political sphere, and channelling donations and remittances (Barnett and Webber 2010; ADB 2012).

Migration also can benefit communities of destination, most notably by addressing labor and skill shortages in growing urban areas of destination, stimulating economies through entrepreneurial activities, and filling demographic gaps created by aging populations (Foresight 2011).

While there is fear in many developed countries that immigration from less developed states will result in the loss of jobs, particularly for less skilled workers, the evidence does not bear this out. On the contrary, migration tends to stimulate investment, induce task specialization of host country workers, and possibly even raise demand for all workers. Evidence shows that migrants respond to demand for their labour, so enhancing legal migration opportunities for low-skilled workers does not necessarily increase total immigration as long as there is enforcement of labour regulations applicable to employers (Dadush 2013).

International cooperation is critical to addressing the cross-border aspects of migration. There are existing guidelines, principles, and agreements that can and should be utilized by sovereign states. For example, ASEAN member states have negotiated a framework to facilitate movement of skilled labour and professionals.

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Adapting and Building Resilience

In addressing environmentally driven migration, a key aim should be to curtail the likelihood that slow onset climatic changes or extreme environmental events lead to *forced* displacement of a short- or longer term nature. The obvious priority is climate change mitigation, i.e., a reduction in greenhouse gas emissions. Yet changes in weather patterns over recent years and decades are extremely unlikely to be altered by any realistic scenario of reduced emissions. Thus, complementary efforts of climate change adaptation are required.

Adaptation efforts that reduce migration compelled by environmental events include flood protection; land reclamation; engineering for more productive land use (such as terraces, wind-breaks, and irrigation); and the development of crop varieties that are more resistant to flooding, drought, higher temperatures, and increased salinity (Newland 2011). Adaptation is also being advanced through the mainstreaming of climate adaptation action into subnational development planning, early warning systems, integrated water resources management, agroforestry, and coastal reforestation of mangroves (IPCC 2014).

Many people living in the above mentioned Carteret Islands have resisted relocation and have instead taken active adaptation measures with the aim of remaining in their communities. Residents have built seawalls and planted mangroves in an effort to stave off the encroaching sea. While their efforts may in the longer term prove unsustainable, they have strengthened their resilience. The attitude of these island dwellers is similar to that of others living in low-lying parts of Asia and the Pacific. They do not wish to abandon their land and culture.

Unfortunately for small islands, the efficacy of traditional community coping strategies is expected to be substantially reduced in the future. One can expect, over time, a loss of livelihoods, coastal settlements, infrastructure, ecosystem services, and economic stability in such islands (IPCC 2014).

In Cuttack, a flood-prone city in India that lies between two cities, a federation of women's savings groups have used hand-held Global Position System devices to map all 331 informal slum settlements in the city. The resulting accurate digital maps enable the government to identify dwellings a risk of flooding, and to contact local leaders before rising waters pose a danger. The maps have also been used in determining use of public funds for slum upgrading (Scherr 2014).

There are three basic core needs that must be satisfied to strengthen resilience and provide a sturdy foundation for inclusive, sustainable development in the face of disaster risks. These needs include conducting a risk assessment (understanding who and what is at risk), risk reduction (reducing impact of specific natural hazards), and residual risk management (minimizing further indirect and secondary consequences following a major event) (ADB 2013b).

Risk assessment at the community level involves determining vulnerability to natural hazards while taking into account exposure, sensitivity, and adaptive capacity. Such an assessment may involve the formulation of a detailed plan of exposed areas and vulnerable spots that factor in the physical environment and demographic

data (such as where people are living and their socio-economic status). Planning and zoning measures are increasingly being adopted to limit settlement in high-risk areas. Most of those displaced in December 2011 in the southern Philippines by Tropical Storm Washi were living in informal settlements. The settlements were officially recognized as high-risk areas, but poor people were forced to build there and to use techniques and lightweight materials unable to withstand floods (Internal Displacement Monitoring Centre 2013).

After the destructive Indian Ocean tsumami of December 2004, buffer zones were declared in various coastal areas (e.g., in Sri Lanka, Indonesia's Aceh Province). Construction of houses, buildings, markets, etc. was curtailed within 200 or more meters from the sea. Although a prudent measure, establishing a buffer zone can also be controversial in affected coastal communities as people may already live in restricted areas (or demand to return to such areas to rebuild destroyed homes). Further, varying topography along a coast may warrant adjusting the depth of a buffer zone from place to place. Finally the impact of buffer zones on livelihoods and community cohesion also should also be taken into account.

Resilience can also be enhanced by "climate proofing" the construction of physical infrastructure to ensure that design standards take into account disaster risks. Such standards can make a major difference in human well-being, as structural damage is a leading cause of initial displacement after a severe storm. Considerations including choice of site, the integrity of the building foundation, elevation above the ground, and impact-resistant walls. Efforts can also be made to protect and reinforce natural tools, such as drainage channels, wetlands, natural reservoirs, and shoreline buffers.

Other engineered options to reduce exposure and vulnerability include flood levees, water storage facilities, flood and typhoon (cyclone) shelters, storm and wastewater management, transport and road infrastructure improvements, elevated and floating houses, and reinforcement of power plants and electricity transmission grids.

When Severe Tropical Storm Washi struck the east coast of Mindanao island in the southern Philippines, it displaced 430,900 people. A case study of the storm response made a number of recommendations to limit the impact of future severe storms. One recommendation was to provide government and civil society actors the skills and information to act on hazard and risk maps, and improve the provision of relief assistance. The report noted that, "the risk of disaster-related displacement will continue to rise unless local officials more effectively address the exposure of vulnerable communities to natural hazards and displacement" (IDMC 2013).

Disaster risk management bolsters the resilience of vulnerable communities. Climate-proofing of urban infrastructure can be a key part of disaster-risk management in the context of climate change. The 2005 Hyogo Framework for Action (HFA) provides a comprehensive 10-year plan for disaster risk management that has been adopted by 168 member states of the United Nations. The HFA is built upon five priority actions and provides resources for improving disaster resilience.

In 2005, the Association of Southeast Asian Nations (ASEAN) countries reaffirmed and complemented these priorities in the ASEAN Agreement on

Disaster Management and Emergency Response. Yet regional cooperation should be strengthened in the field of disaster risk management, especially with regard to technology and knowledge transfer. Overall, disaster risk management should be more consistently mainstreamed into adaptation policies, with a view to preventing forced displacement.

In the case of strengthening the capacity of cities to withstand environmental assault, pursuit of risk-resilient urban development requires enabling measures related to urban governance and both human and financial resources. These measures include participatory urban development strategies, adoption of a systems approach for urban planning and management, and improved coordination among urban institutions (ADB 2013c).

Affordable, risk-relevant insurance also builds resilience and improves livelihoods and security. In rural areas, farmers can plant crops with the confidence that if disaster strikes, they will be compensated for their losses. Yet very few people living in vulnerable settings in developing Asia and the Pacific have insurance. In March 2014, ADB and the Government of Bangladesh agreed to develop innovative crop insurance products that give small-holder farmers in Bangladesh income protection from extreme storms. The demonstration project, financed by the Governments of Bangladesh and Japan, will design and pilot crop insurance products over a 3-year period in selected parts of the country.

Public works and cash transfer programs are also being utilized to strengthen resilience of vulnerable communities. Other practical forms of social assistance for use before, during or after disasters include food banks, subsidized healthcare and basic services for those who cannot afford them, and disaster and humanitarian relief. A study carried out to support Ho Chi Minh City, Viet Nam to adapt and cope with climate change and variability identified two main measures to reduce poverty and vulnerability of poor people: (1) livelihood protection and interventions to promote diversification for households and protect food security and incomes, and (2) social protection and health insurance schemes (ADB 2010). These recommendations are also highly relevant to many rural and urban communities elsewhere in Asia and the Pacific.

While government must play the leading role in guiding climate change adaptation within individual countries, findings from a micro-scale analysis in Can Tho, Viet Nam warrant reflection. The analysis found that "actual adaptation measures are often based on action and agency at household level, rather than on formal broad-scale strategies driven and implemented by state agencies or local government." It further "illustrated that the actual financial costs and human resources have to by the households themselves" (Birkmann et al. 2010).

Facilitating Movement

A key policy challenge for decision makers in Asia and the Pacific will be how to harness migration's potential as an adaptation strategy to climate change. Policy

and program interventions will be required to enable people to use existing migration channels, as well as new ones. A particular group that requires attention are poorer residents of large cities vulnerable to climate change impacts. They often live in areas most at risk of experiencing both gradual and sudden environmental hazards. It is important that mechanisms and resources be made available to the poorest populations to encourage their participation in migration as a way of adapting to climate change. Too often, these vulnerable populations are given inadequate attention when policies are made. Any initiative policymakers design to aim at better assisting those who leave should not forget those who are forced to stay; one should work toward the establishment of a genuine right to mobility.

While most climate change-related migration will occur within countries, there is likely to be an increase in international migration as well. Although most migration in Asia and the Pacific is within countries, there is considerable movement of people across borders within the region, and between Asia and the Pacific and other parts of the world. Decisions about what persons to legally admit into a country are of course the domain of governments. Thus, more dialogue and cooperation among governments is needed to constructively address cross-border population movements.

A promising area for international cooperation is the negotiation of agreements between migrant-sending countries and countries that are experiencing labour shortages. Advanced industrialized economies with declining fertility rates and aging populations could benefit by welcoming more migrant workers from disaster-prone developing countries with people interested in earning higher wages abroad. Under the Recognized Seasonal Employer partnership between New Zealand and several Pacific island countries, a few thousand low-skilled workers are employed in New Zealand's horticultural and viticulture sectors. The migrants can work from seven to nine months each year, and may return the following year. The Pacific countries[3] involved include several that are very vulnerable to climate change. Separately, some developed countries in other world regions (e.g., United States, Finland) have adopted policies allowing those who have fled natural disasters to seek at least temporary asylum.

The "Colombo Process" has since 2003 provided a forum for Asian (and other) states to discuss effective management of overseas employment programs. These and other examples provide a base for discussions on how to cooperate in the management of future migration, including migration driven by climate-related factors. In addition, the Nansen Initiative, launched in October 2012, has organized subregional discussions among government officials on human mobility in the context of disasters and climate change in Asia and the Pacific.

Rather than establishing a new category of climate-induced migrants—which is very difficult for a number of methodological and political reasons, countries will probably prefer to work within currently recognized migration categories when addressing climate-related migration. Few, if any, destination countries are willing

[3] Kiribati, Samoa, Tonga, Tuvalu, and Vanuatu.

to accept a new category of "climate change migrants." Many migration channels are already in place, and the demographic reality in those low fertility and aging countries is that there will be an increased need for migration to sustain their workforces in the future.

Social protection, provided through mechanisms like cash transfers and active labour market programs, can facilitate migration by lowering costs for migrants. It can help migrants connect with labour markets, develop job-relevant skills, subsidize acquisition of administrative and legal documentation, and direct costs and opportunity costs of relocation, such as compensation for lost assets and earnings. Social protection can also support social networks that facilitate migration and, as noted earlier, reduce risk through insurance (Johnson and Krishnamurthy 2010).

While internal migration to safer areas within most developing Asian countries is feasible, the situation of small Pacific islands is very much different. Residents of island states may have few practical domestic options. Significant barriers exist to migration, including the expense of traveling, visa requirements in other countries, and problems associated with accessing housing, services, and work in new destinations" (Barnett and Chamberlain 2010).

Emigration from the Pacific tends to closely follow certain paths, such as from Polynesia and islands governed in free association with New Zealand and the United States, to destinations in Australia, New Zealand, and the United States (Bedford 2000). "Once migrants from the Pacific Islands have established themselves in their new destinations, they help others in their social networks to overcome the barriers to migration. Thus, migration from places where the legal barriers are minimal—for example from Niue to New Zealand or from rural to urban areas within island states—tends to follow distinct patterns as people move to places where they have family and friends who can help them settle" (Barnett and Chamberlain 2010).

Migrants are typically often among the most marginalized groups in society. Governments should take action to reduce their vulnerability and risk, and protect them from abuses." In particular, governments should "provide migrants with access to the same basic services as current residents (education, health, water, and sanitation); actively promote a positive image of migrants to facilitate their integration into receiving communities; apply internationally recognized standards and principles on human mobility, as well as good practice on involuntary resettlement; and codify and enforce land ownership" (ADB 2012).

Under various possible scenarios, many low-lying countries in the Pacific (and elsewhere—like the Maldives) may be at least partially submerged within this century unless very substantial sums are invested in physical infrastructure that can keep the rising sea at bay. Along with low elevation coastal areas in developing Asia, remaining in place may not be an option for the children, grandchildren or great grandchildren of people presently residing in such places. Yet preparatory action undertaken now can ease the adjustment over time as carefully managed resettlement is organized and implemented.

Conclusion

By acting now, governments can reduce the prospects of humanitarian crises and manage the increased migration flows that are anticipated. If properly managed, facilitated relocation of environmentally threatened populations can be beneficial for the migrants, the host communities and the communities of origin. This poses a specific challenge in Asia and the Pacific because of the high environmental exposure of the region, and because of its demographic growth and growing urbanization.

This chapter has sought to highlight some of the challenges that need to be addressed for better management of environmental migration in the region. Policy choices by Asian and Pacific governments will determine if the future patterns of mobility related to climate impacts in the region are characterized by forced displacement or by voluntary, planned migration. Timely action and international cooperation can turn climate-induced migration from a threat into an opportunity to improve livelihoods, reduce poverty, meet labour force needs, boost economies, and strengthen links between communities and countries.

I must be kept in mind that the poorest and most vulnerable are often unable to move to more secure locations even as climatic conditions worsen. These populations will need particular attention in the elaboration of disaster risk management and adaptation policies, and in the extension of social protection coverage. In many cases, migration will need to be facilitated, not avoided.

At the same time, those who wish to stay should, within practical constraints, have the possibility to do so. Among other things, this means that livelihoods will need to be protected, so that forced displacement does not occur. The most cost-effective way for a country to strengthen resilience and reduce climate-related risks over the medium-term is by incorporating risk reduction into development planning, land use policies, building standards, and environmental management. Such an approach can, over time, lessen more intensive risks by directing development to less exposed areas, mitigating hazards, reducing vulnerability, and curtailing forced migration (UNISDR 2011).

Climate-induced migration can be addressed through a variety of policy interventions but needs to be firmly established within a development agenda. Too often, the displacement of people by climate change has been presented as a threat and addressed from a security standpoint, prompting maladaptive policy responses.

Governments should provide the most vulnerable communities with migration options, including where feasible the right to stay where they live. This will not come without cost. Yet there are a variety of means by action on environmental migration can be financed, including risk-based

(continued)

insurance mechanisms, and incorporating negative externalities into fiscal measures.

The way we will address environmental migration will be a key element of the way we will face climate change. Future policies and actions on climate change adaptation should systematically integrate considerations of possible displacement of populations. Doing so will reduce the incidence of humanitarian crises, and better highlight the role of migration as a tool for the promotion of sustainable development.

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