United Nations ESCAP/APPC/2018/4

Economic and Social Council

Distr.: General
18 September 2018

Original: English

Economic and Social Commission for Asia and the Pacific
Midterm Review of the Asian and Pacific Ministerial Declaration on Population and Development

Bangkok, 26–28 November 2018
Item 3 (c) of the provisional agenda*
Thematic discussion on emerging issues and gaps in the implementation of the Programme of Action of the International Conference on Population and Development, the key actions for its further implementation and the recommendations of the Asian and Pacific Ministerial Declaration on Population and Development

Population dynamics, vulnerable groups and resilience to climate change and disasters

Note by the secretariat

Summary

The Asia-Pacific region is the most disaster-prone region in the world, and the impact of climate change is likely to increase the number of people affected by disasters in the region. Vulnerability to these disaster- and climate change-related risks vary across population groups, reflecting the role of social factors such as age, gender, migration status, statelessness, indigenous status and geographic location that marginalize specific groups.

Ensuring effective adaptation to climate change and disaster risk reduction therefore requires understanding the underlying vulnerability of different population groups across the region to build responses that reduce these factors.

The Asian and Pacific Ministerial Declaration on Population and Development calls for action to understand and reduce these vulnerabilities. The present document provides a conceptual framework for understanding the relationship between population, vulnerability and resilience, and suggests measures based on internationally agreed and region-specific development frameworks to reduce risks and build resilience for all groups in the Asia-Pacific region.

I. Introduction

1. Environmental processes, including climate change and disasters, pose multi-causal hazards that interact with other factors to exacerbate existing social and economic pressures. Climate change is projected to slow economic growth, erode food security and create new poverty traps, particularly in urban, coastal and agricultural areas. Climate change intersects with population dynamics in numerous ways. Population size, growth, fertility, migration, age,

* ESCAP/APPC/2018/L.1.

sex composition, spatial distribution and urbanization have implications for who will be affected by climate change and the types of responses that might increase the resilience of vulnerable groups. Climate change also affects and accentuates the social and environmental determinants of health – clean air, safe drinking water, sanitation, sufficient food and secure shelter – influencing nutrition and sexual and reproductive health. Groups who were in vulnerable situations prior to the effects of climate change or disaster suffer greater ill-effects.

2. In Asia and the Pacific, climate change is already increasing the frequency and intensity of disasters, contributing to population displacement, exacerbating conflicts and affecting efforts to reduce poverty and inequality. Slow-onset environmental disasters (such as sea-level rise and drought) create different risks and impacts than sudden-onset disasters (such as cyclones and floods) and require different responses. The impacts of slow-onset disasters are difficult to measure and tend to have gradual impacts on livelihoods and health, such as through declining agricultural yields. Sudden-onset disasters have immediate adverse impacts, in terms of injury, death, displacement and damage to assets, but are also more visible and may mobilize more immediate and effective responses.

3. Vulnerability to climate change is not determined by external climatic conditions alone, but rather through the interaction between ecosystems, climate-related hazards, the built environment, Governments, communities, individuals and other social factors. Those most vulnerable to the adverse effects of climate change are people who already face marginalization in Asia and the Pacific. These population groups have contributed the least to the production of greenhouse gas emissions, which cause climate change.

4. Research indicates that the impacts of climate change and disasters for women and girls, in particular, are far-reaching. Many women will experience multiple risk factors, especially those who are from poorer households, or are single, heads of households, stateless persons, older persons or persons with a disability. Women have different roles and responsibilities in households in relation to caring for young or sick family members and providing food and water. In humanitarian settings, women are disproportionately impacted by the secondary impacts of disasters and conflicts, such as sexual and gender-based violence, and disruptions to health care, water and sanitation, which affect sexual and reproductive health. The centrality of women's roles in social systems also means they have critical roles to play in developing effective responses to climate change, especially in terms of disaster risk reduction, natural resource management, sustainable consumption of goods and services, and reducing environmental degradation.

5. Rapid urbanization across Asia and the Pacific also has profound implications for managing responses to climate change. People from rural areas migrate to urban areas as a strategy to adapt to climate change, disasters and other pressures. Displaced populations also rely on access to urban areas for jobs and services. Internal and international migrant and stateless populations in urban areas are particularly vulnerable to the impacts of disasters, especially those living in marginal, hazard-prone and underserviced land, such as informal settlements. Migration to urban areas also affects the people left behind as they need to respond to the effects of natural disasters and climate change impacting the rural areas. Often, the people left behind are older persons and children, who need to fend for themselves.

6. The present document examines the linkages between population dynamics, climate change and disasters in Asia and the Pacific to inform the upcoming midterm review of the 2019 Asian and Pacific Ministerial

Declaration on Population and Development. The 1994 Programme of Action of the International Conference on Population and Development recognized the importance of environmental factors in shaping population dynamics, development and individual well-being.[1] The 2013 Ministerial Declaration also emphasized the need to forecast climate change consequences and prioritize addressing the needs of people living in fragile ecosystems in planning and decision-making processes.[2]

7. This document first provides an overview of the expected climate change impacts in the region. It then highlights conceptual challenges in understanding vulnerability in relation to climate change, before examining the specific impacts of climate change on different population groups. The final sections outline emerging policy responses and identify recommendations for Governments and other stakeholders.

II. Climate change in Asia and the Pacific

8. Population dynamics impact the underlying causes of climate change and are impacted by its effects in turn. While approximately 60 per cent of the world's population live in Asia and the Pacific,[3] population size and per capita greenhouse gas emissions do not have a direct relationship in the region. Studies highlight the significance of consumption levels and population structure, rather than population size, when assessing the impact of population growth on climate change.[4] Other evidence suggests that income per person is the primary determinant of environmental impact at the national level.[5]

9. Poorer population groups, with low consumption levels and larger household sizes, are contributing the least to the causes of climate change in the region. Pacific island countries have some of the lowest emissions per capita globally.[6] At the same time, the region has some of the largest emitters in the world, both in absolute and per capita terms.

10. Although not straightforward, this evidence suggests that as income-levels rise, and quality of life improves, emissions per capita tend to increase, which creates a tension between alleviating poverty and efforts to reduce emissions.

11. Projections of future climate change-related impacts in Asia and the Pacific anticipate numerous effects on human settlements. Climate change is expected to increase the frequency and intensity of sudden and slow-onset disasters with significant regional variations. Not all disasters are linked to climate change, but many of those that have large-scale adverse impacts on

[1] *Report of the International Conference on Population and Development, Cairo, 5–13 September 1994* (United Nations publication, Sales No. E.95.XIII.18), chap. I, resolution 1, annex.

[2] E/ESCAP/70/16, sect. I, para. 196.

[3] Economic and Social Commission for Asia and the Pacific (ESCAP), "Fact sheet: population trends in Asia and the Pacific" (November 2013), figure 1.

[4] Qin Zhu and Xizhe Peng, "The impacts of population change on carbon emissions in China during 1978–2008", *Environmental Impact Assessment Review*, vol. 36 (September 2012), pp. 1–8.

[5] David P. Knight, "Economic growth, population growth, and climate change", 26 August 2013.

[6] Intergovernmental Panel on Climate Change, "Small island states", in *Climate Change 2001: Impacts, Adaptation and Vulnerability*, James J. McCarthy and others, eds. (Cambridge, United Kingdom, Cambridge University Press, 2001).

human populations are. Climate change increases hydrometeorological disasters (such as flooding, storms, heat waves and extreme weather events) and climatological disasters (drought, wildfires), not geophysical ones (such as earthquakes and volcanoes).[7]

12. The Asia-Pacific region is already the most disaster-prone region in the world; on average, over 43,000 people per year have lost their lives due to disasters since 1970 and populations affected by disasters in the region consistently represent a disproportionately high proportion of those affected by disaster. The damage from these disasters is estimated at $1.3 trillion. Storms, floods and drought account for some of the main causes of disaster-related death.[8]

13. Climate change is expected to increase flooding, particularly in coastal and urban areas, as well as rivers and mountainous areas, damaging assets, infrastructure and livelihoods, and leading to increasing internal population displacement. Impacts on agricultural productivity are expected to result from hydrological changes in major river basins where 1.5 billion people live (especially the Indus, Ganges, Brahmaputra, Mekong, Yellow, Yangtze, Tarim and Amu and Syr Darya rivers).[9] Shifting precipitation patterns and temperatures in mountainous and low-lying areas are also expected to affect agricultural productivity, contributing to food insecurity and economic instability. Droughts are also predicted to result in water scarcity, livelihood stress and food shortages, increasing malnutrition.

14. In low-lying coastal areas, sea-level rise is likely to contribute to more severe storm surges, inundation, saltwater intrusion, salinization of fresh-water sources and soil. Other impacts include ocean acidification, impacting biodiversity, ecosystem resilience, and fish stocks. Heat-related morbidity and mortality are predicted to increase. Changes in the incidence and geographical distribution of climate-sensitive infectious diseases, including mosquito and water borne diseases are also expected.

15. Many of the impacts of climate change in Asia and the Pacific will be concentrated in densely populated urban and coastal areas. Half of Asia's population – approximately 2.4 billion people – live in low-lying coastal zones and flood plains.[10] This situation is made worse by trends suggesting people are increasingly moving towards coastal and urban areas, rather than away from them. Climate change is also a threat multiplier in the context of conflict and fragile settings, contributing to factors that destabilize already volatile situations.

III. Conceptualizing vulnerability

16. Early understandings of climate-related risk and vulnerability focused on the geography and technical aspects of climate change. Recent approaches

[7] Vinod Thomas and Ramón López, *Global increase in climate-related disasters*, ADB Economics Working Paper Series, No. 466 (Manila, Asian Development Bank, 2015).

[8] *Asia-Pacific Disaster Report 2017: Leave No One Behind - Disaster Resilience for Sustainable* Development (United Nations publication, Sales No. E.17.II.F.16).

[9] Asian Development Bank (ADB), *A Region at Risk: The Human Dimensions of Climate Change in Asia and the Pacific* (Manila, 2017), p. 38.

[10] Intergovernmental Panel on Climate Change, "Asia" in *Climate Change 2014: Impacts, Adaptation and Vulnerability – Part B: Regional Aspects*, Vicente R. Barros and others, eds. (Cambridge, United Kingdom, Cambridge University Press, 2014), p. 1,347.

focus more on the factors that shape how vulnerability is experienced differently across and within population groups – at the national, subnational, community, household and individual levels.

17. There are important differences between concepts of hazards, exposure, vulnerability, coping capacity, adaptive capacity and resilience. Hazards refer to the effects of climate change on geophysical systems (i.e. floods, droughts, sea-level rise). The degree of vulnerability to hazards experienced by individuals and communities depends on a combination of factors, including the degree of exposure to a hazard (likelihood of it occurring), susceptibility to its impacts (the conditions which make people vulnerable – poverty levels, quality of housing and infrastructure), presence of coping capacities (i.e. immediate availability of relief, medical and emergency services, insurance), systemic inequalities (such as patriarchal structures) and adaptive capacities (long-term processes, including adult literacy rates, gender parity, good governance, disaster risk preparedness).[11] Resilience refers to the capacity of a population, system or individual to cope with changes in exposure to hazards.

18. Climate change and disasters have the greatest impacts when they affect vulnerable populations, which are highly susceptible to adverse impacts and are without strong coping and adaptive capacities. At the household and individual levels, factors such as gender, age, income, ethnicity, health, migration status, and education are additional factors that influence how people are affected. While the impacts of climate change and disasters may be reduced or averted at the national level, vulnerable groups may still experience severe impacts at a household or individual level. For example, disaster risk reduction measures might be well established in a country, yet these initiatives may not be inclusive of minority groups, such as migrants, stateless or indigenous people. For example, migrants may not be aware of evacuation procedures, or may be discriminated against by emergency services, limiting their access to humanitarian assistance. In slow-onset contexts, stateless populations may not be considered eligible for government relief and other forms of social protection.

IV. Population dynamics, climate change and impacts on vulnerable groups in Asia and the Pacific

19. Demographic change in Asia and the Pacific has implications for how climate change will be felt across the region. Many countries have transitioned from high fertility and mortality to low fertility and mortality, leading to longer life expectancy and increasing ageing populations. Overall levels of poverty, maternal mortality and HIV infection rates have decreased, but remain high, especially among specific population groups, notably women and girls, indigenous people, irregular migrants, stateless people and older persons, and other persistent challenges remain in terms of access to services, representation, decent housing and social protection.[12] In the context of climate change, this uneven socioeconomic landscape and variable availability of health and social services directly impacts the coping and adaptive capacities of vulnerable groups.

20. There are at least seven dimensions through which to analyse the relationship between climate change, disasters and vulnerability in Asia and

[11] Bündnis Entwicklung Hilft, *World Risk Report 2017: Analysis and Prospects* (Berlin, 2017).

[12] ESCAP, *Sustaining Progress on Population and Development in Asia and the Pacific: 20 Years after ICPD* (ST/ESCAP/2670), p. 17.

the Pacific. Gender is a critical cross-cutting consideration. Understanding the linkages between climate change and disasters and health, human mobility, urbanization, indigenous populations, statelessness and youth are also critical.

A. Gender

21. Deteriorating environmental conditions increase the burden on women's time, income, health, nutrition and social support systems.[13] Women in Asia and the Pacific face high levels of discrimination and this also affects their participation in environmental decision-making. They experience formal and informal constraints, including additional responsibilities in domestic settings and restricted access to assets, including land and property. Women's vulnerability to climate change is further influenced by their age, ethnicity, marital status, socioeconomic status, migration status, education and living conditions.

22. Sex disaggregated data indicates that women are unevenly affected by disasters. Women made up the largest proportion of the dead following disasters in Bangladesh, Indonesia, India, Myanmar and Nepal between 1991 and 2015.[14] In some countries, women and girls may be discouraged from learning to swim due to cultural concerns about modesty, placing them at higher risk of drowning during floods. During disasters, social norms regulating behaviour are less likely to be followed, increasing risks of gender-based violence and sexual assault. Incidences of gender-based violence are also known to increase when food, water and housing is scarce, especially during displacement.

Box 1
Climate change-human trafficking nexus

Human trafficking risks increase during humanitarian crises, as people become desperate and exposed to dangerous and exploitative forms of migration. In the Philippines, following Typhoon Haiyan in 2013, increased rates of trafficking were recorded. Traffickers targeted internally displaced persons, women-headed-households and children who lost their parents. Similar trends were recorded in Bangladesh following Cyclone Sidr in 2007 and Cyclone Aila in 2009. Following Cyclone Sidr, reports indicate that victims of trafficking were forced into prostitution and labour along the Bangladesh-India border.

Source: International Organization for Migration (IOM), *The Climate Change-Human Trafficking Nexus* (Bangkok, 2016).

23. Climate change also affects sexual and reproductive health and rights. Disasters often result in polluted water. Pregnant women and young children are more likely to experience illness from contaminated water. Reduced access to safe drinking water and proper sanitation also increases risks of water-borne diseases, diarrhoea, and cholera. Damaged toilets and disrupted water supplies can also mean that women and girls forgo daily hygiene practices, which can be extremely difficult to manage during menstruation. Not being able to access

[13] *Gender, the Environment and Sustainable Development in Asia and the Pacific* (United Nations publication, Sales No. E.17.II.F.18).

[14] United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women), *Action Not Words: Confronting Gender Inequality through Climate Change Action and Disaster Risk Reduction in Asia – An Overview of Progress in Asia with Evidence from Bangladesh, Cambodia and Viet Nam* (Bangkok, 2016).

toilets can mean women wait until after dark, or refrain from drinking water during the day, increasing risks of urinary tract infections. Searching for privacy after dark can also place women at increased risk of sexual assault.

24. The gendered dimensions of food security, natural resource management, energy use and waste management are also critical. Women farmers produce 45-80 per cent of food in developing countries, depending on the location. Structural factors restrict women farmers' access to credit and technology that can increase their productivity and resilience. Women experience the brunt of impacts stemming from poor access to modern energy sources in everyday household activities of growing and preparing food, washing, and in relation to education and employment. Reliable energy, especially clean energy, has transformative potential to improve women's quality of life. Women also play critical roles in managing waste at household and community levels. In some Indian cities, for example, up to 80 per cent of waste is collected by women.[15]

B. Health

25. Climate change has numerous health implications for already at-risk populations. Heat stress from rising temperatures increases heart attacks, strokes, respiratory failure and heat stroke. Temperature extremes affect physiological functioning, moods, behaviour, and workplace safety, particularly for lower paid outdoor workers, and people working in poorly ventilated factories. Heat wave mortality and morbidity increases have already been reported in Asia, with urban residents of informal settlements, lower socioeconomic and minority ethnic groups more exposed to heat risks than others.[16]

26. Climate change also has implications for infectious diseases. Increasing temperatures and humidity in densely populated urban areas increases the likelihood of transmission of mosquito-borne diseases, especially dengue fever and malaria, affecting people in poor quality housing and informal settlements, who lack adequate access to health information and services.

27. Altered rainfall and poorer agricultural yields increase malnutrition risks. Pregnant and lactating women, young children and the elderly are particularly vulnerable to malnutrition, which can have long-term developmental consequences for children resulting in permanent disadvantage. Malnutrition risks are higher for displaced children who may also have reduced access to sanitation and water. Stress caused during disasters can also affect mothers' breast milk production and breast-milk substitutes pose serious health risks where clean water is not available.[17]

28. Uneven accessibility, affordability and quality of health services across the region exacerbates climate-related health risks. Older people, especially older women and people with a disability, face additional challenges accessing health services. The prevalence of people with disability is expected to increase as a result of malnutrition, diarrhoeal disease, changing distribution of infectious diseases, and increasing injuries from disasters. Persons with disabilities face

[15] Swedish International Development Cooperation Agency, "Brief: gender and the environment" (March 2016), pp.2-3.

[16] Asia Pacific-HealthGaen, *AP-HealthGAEN Report 2011: An Asia Pacific Spotlight on Health Inequality* (2011), p.115.

[17] Shifting temperatures may also result in lower malaria risks in other areas, see *Population Dynamics and Climate Change* (United Nations publication, Sales No. E.09.III.H4), p. 138.

barriers accessing information and resources that might assist their capacity to adapt to climate change.[18] Other groups, such as migrants and stateless people, also face health challenges in the context of climate change through limited access to national health systems.

C. Human mobility

29. Human mobility in the context of climate change takes different forms. Sudden-onset disasters may immediately displace people, but displacement is not necessarily permanent. Slow-onset disasters may slowly displace people or contribute to pre-emptive migration or planned relocation. It is helpful to understand at least three forms of human mobility in the context of climate change (noting that they overlap and that distinctions between forced and voluntary movement are often unclear):

- Migration undertaken voluntarily, for example labour migration in response to livelihood and environmental pressures that can be internal or international or migration undertaken as a form of pre-emptive adaptation
- Displacement, which is a form of forced migration that can be internal or cross-border
- Planned relocation, which implies a permanent resettlement of communities or individuals and their assets in another location[19]

30. Labour migration is an important climate change adaptation strategy, enabling people to diversify livelihoods affected by factors such as declining agricultural yields from drought, rising temperatures, excessive and variable rainfall.[20] Remittances provide a source of investment in skill development, and support daily expenses, health and education, building household resilience.[21] As of 2017, women comprise 48.4 per cent of all international migrants, and over half of migrants in the Economic and Social Commission in Asia and the Pacific (ESCAP) region;[22] women migrants can therefore play a key role in building resilience. However, they are especially vulnerable to abuse, especially when concentrated in vulnerable sectors such as domestic work.

31. Research suggests that women tend to send a higher proportion of their income home as remittances, even though they generally earn less than men. Women also tend to send money more regularly and for longer periods, which means they spend more on remittance transfer fees, illustrating the importance of reducing transfer fees and making alternative transfer options accessible to maximize the positive benefits of migration.[23] Target 10.c of Sustainable Development Goal 10 aims to reduce the transaction costs of migrants' remittances to less than 3 per cent.

---

[18] Fred Smith and others, *Disability and Climate Resilience: A Literature Review* (London, Leonard Cheshire Disability and Inclusive Development Centre, 2017), p. 25.

[19] IOM, "Glossary: migration, environment and climate change: evidence for policy (MECLEP)" (Geneva, 2014).

[20] Intergovernmental Panel on Climate Change, "Human security" in *Climate Change 2014*.

[21] ADB, *A Region at Risk*.

[22] United Nations, Department of Economic and Social Affairs, Population Division, *International Migration Report 2017* (ST/ESA/SER.A/403).

[23] IOM, "Information sheet: gender, migration and remittances" (2004).

Box 2
Climate change and displacement

Since 2010, over 190 million people have been displaced by sudden-onset disasters, more than three times those displaced by conflict. In 2017 alone, sudden-onset disasters displaced 18.8 million people. Most of these disasters were climate and weather-related and occurred in East Asia and the Pacific. Future projections of climate-related displacement are difficult to quantify. Estimates reported by the Intergovernmental Panel on Climate Change predict that a sea level rise of 2 metres would result in significant land loss by 2100, displacing an estimated 187 million people, mostly in Asia.

Most of this displacement is expected to be temporary and internal; however, people also pre-emptively move to new areas in anticipation of environmental impacts. Factors that influence migration decisions include considerations such as resources to adapt in situ, availability of hazards mapping, disaster risk reduction advice, recovery assistance and options for local livelihood diversification. Whether people attempt internal or international migration is shaped by variables such as income, assets, affordability of migration pathways, porosity and proximity of borders, receptivity of host populations, networks and information about migration opportunities.

32. Migrants' increased vulnerability to disasters also needs to be recognized in disaster prevention and preparedness. Migrants' access to protection during disasters is influenced by language barriers, irregular status, confiscated or lost identity documents, discrimination, exclusion from social welfare support and emergency plans. During the 2011 floods in Thailand, migrants who could not speak Thai were among the worst affected.[24]

33. In discussions on mobility, people who are unable to move such as stateless populations without identity documents and people with limited resources, should be highlighted as they are among the most vulnerable. For example, research in the Pacific has shown that although people are already migrating in response to climate pressures, a significant number of people who wish to migrate are unable to do so due to lack of finances.[25] Special attention is needed to ensure these trapped population groups are included in disaster risk reduction and climate change adaptation efforts and are able to access safe migration pathways.

D. Urbanization

34. In 2018, it is likely that for the first time in history, the Asia-Pacific region's urban population will be larger than its rural population. Many emerging climate risks affect urban areas, especially in informal settlements of low-income countries. Seventeen of the world's 25 cities most exposed to a one-metre sea level rise are in Asia and the Pacific.[26]

[24] Alessandra Bravi and others, *Migrants in Countries in Crisis: Thailand Case Study - Migration and Natural Disasters – The Impact on Migrants of the 2011 Floods in Thailand* (Vienna, International Centre for Migration Policy Development, 2017).

[25] ESCAP and United Nations University Institute for Environment and Human Security (UNU-EHS), "Fact sheet: climate change and migration in the Pacific - links, attitudes and future scenarios in Nauru, Tuvalu and Kiribati" (2015).

[26] ADB, *A Region at Risk*, p. 33.

35. Cities are destinations for labour migrants adapting to the impacts of climate change and disasters. Informal settlements are attractive to migrants and vulnerable groups due to their affordability and connections to informal work, although they have reduced access to safe and quality housing and basic services, including energy, water, waste management, public security, health and education. Informal settlements are prone to disasters, especially floods and fires. Women and migrants of diverse sexual orientations and gender expressions living in informal settlements are at high risk due to poor security, high rates of gender-based violence and difficulty accessing water for hygiene and sanitation as well as accessing health-care services, including sexual and reproductive health-care services. Out-of-date infrastructure and limited formal disaster preparedness in informal settlements increase the risks of death, injury, exploitation, and displacement.

36. Migration to urban areas also has implications for the people remaining in rural areas. Remittances may be offset by social costs in rural communities of origin, including fragmentation of families and adverse impacts of male migration on women left behind, such as increased work burden, balancing work and family responsibilities all by themselves, and security risks. The absence of parents may also affect children's psychosocial development, health and education. In rural areas, poor and female-headed households are expected to be most affected by climate change, especially those who do not have family members remitting money from elsewhere. People with limited access to land, formal labour markets, social finance, resilient agricultural methods, infrastructure and education in rural areas are also highly vulnerable to disaster risks.

E. Indigenous populations

37. Over 230 million indigenous people live in Asia and the Pacific. Indigenous people comprise 5 per cent of the world's population, but represent 15 per cent of the world's poor, and up to one-third of the rural poor.[27] Indigenous peoples' relationship with land and the environment have far-reaching implications for how they are affected by climate change, especially in relation to health, food security, spirituality and culture. Indigenous people are also more likely to be adversely affected by efforts to reduce the impacts of climate change and disasters. Adaptation and disaster risk reduction initiatives should therefore be sensitive to their effects on access to land for indigenous people, ensuring their access to land and forests.

38. Indigenous people are also highly exposed to disasters, especially when they are not adequately included in disaster reduction planning, especially evacuation planning. Exclusion can occur through discrimination by local authorities and through living in remote locations. Indigenous people also have different health-care needs and preferences, and face additional language and cultural barriers making health services less appropriate and accessible for them.

39. Planned relocation of communities away from environmental hazards, even where it is well planned, is associated with adverse socioeconomic impacts, including loss of incomes and detrimental health and educational outcomes. Loss of cultural heritage, traditional and indigenous knowledge, including local environmental knowledge, are at risk of being lost for communities moving away from ancestral lands.

[27] Asia Pacific-HealthGaen, *AP-HealthGAEN Report 2011*, p. 90.

F. Refugees and stateless populations

40. Stateless populations are at greater risk of experiencing the impacts of climate change and disasters and are less likely to receive assistance. More than 3.2 million people are stateless in the world, with over half (1.7 million) residing in Asia and the Pacific.[28] This includes ethnic groups not recognized as citizens in their countries of residence, and second-generation migrants not registered at birth by their parents in an irregular situation, at risk of becoming stateless. Stateless people were among the most affected by the 2004 Indian Ocean Tsunami and their status as non-citizens often made them ineligible for assistance.[29] In Bangladesh, in June 2017, Cyclone Mora displaced more than 500,000 people, affecting stateless populations such as the Rohingya most intensely.[30] Since August 2017, over 720,000 Rohingya have fled Myanmar to Bangladesh and are living in overcrowded and disaster-prone settlements in low-lying coastal areas.[31] Refugee and stateless women experience high levels of gender-based violence and extreme hardship, especially in relation to sexual and reproductive health, as their access to basic services is amongst the lowest in the region.

G. Youth

41. Young people will experience wide-ranging impacts of climate change at formative stages in their development. Disasters can have devastating impacts on young people, especially where they already have limited knowledge of and access to sexual and reproductive health information, education, and services, contributing to unwanted pregnancies and sexually transmitted diseases. Young people are exposed to migration-related risks, as they are more likely to leave for work.[32] For girls, extreme climate events can also increase the risk of early marriage as a strategy to cope with poverty brought about by climate change.[33] Early marriage is a human rights violation and deprives girls of their childhood, as well as opportunities for education and employment. Climate change also has the potential to affect young people's nutrition, education, mental and physical development, and alter the economic and employment landscape that they face. Young people have the greatest potential to contribute to environmental solutions through uptake of new technology, innovation and research. The large number of youth in Asia and the Pacific requires tailored responses to ensure young people are educated about climate change and equipped to tackle the multiple dimensions of climate-related challenges in future employment.

---

[28] Office of the United Nations High Commissioner for Refugees (UNHCR), *Mid-Year Trends* 2017 (Geneva, 2018).

[29] Jessie Connell, "Statelessness and environmental displacement", *Forced Migration Review*, No. 49 (May 2015), pp. 46-47.

[30] "Rohingya camps in Bangladesh destroyed by Cyclone Mora", *Al Jazeera* (Doha), 1 June 2017.

[31] USA for UNHCR, "Rohingya refugee crisis" (2018). Available at www.unrefugees.org/emergencies/rohingya/?SF_monthly=70141000001AZLUAA4.

[32] ADB, *A Region at Risk*.

[33] Asian-Pacific Resource and Research Centre for Women, "Sex, rights, gender in the age of climate change", *ARROW Briefs* (2017). Available at https://arrow.org.my/wp-content/uploads/2017/10/2RB-WHCC.pdf .

V. Global efforts to address climate change and population challenges

42. Limited protection is offered under international law for people affected by climate change, disasters and other environmental processes in Asia and the Pacific.[34] Global and regional responses have focused on non-binding, state-led agreements that address the underlying causes of vulnerability through inclusive, sustainable development, disaster risk reduction and through improving protections for vulnerable groups in humanitarian settings.

43. The 1994 Programme of Action of the International Conference on Population and Development placed human rights, population, sexual and reproductive health and rights, and the empowerment of women and girls at the forefront of global development. Although environmental concerns, including those related to climate change and natural disasters, did not yet feature prominently in the Programme of Action, it called on Member States to ensure that population, environmental and poverty eradication factors are integrated in sustainable development policies, plans and programmes.[35]

44. Since 1994, concerns for the environment have grown and they provided important foundations for the Millennium Development Goals and the 2030 Agenda for Sustainable Development. The 2030 Agenda recognizes that humanitarian crises and disasters reverse many positive development impacts. Goal 1 (no poverty) aims to increase the resilience of vulnerable groups to extreme climate-related events and other environmental shocks and disasters. Goal 13 (climate action) requires climate change and disaster risk reduction measures be integrated into national policies. Goal 10 (reduced inequalities) encourages orderly, safe, regular and responsible migration that can provide climate change adaptation options for people experiencing environmental pressures. Goal 11 (sustainable cities and communities) aims to reduce deaths and economic losses from disasters. Other relevant Sustainable Development Goals include Goal 3 (good health and well-being), Goal 5 (gender equality), Goal 8 (decent work and economic growth), Goal 6 (clean water and sanitation), Goal 7 (affordable and clean energy), Goal 9 (industry, innovation and infrastructure), Goal 14 (life below water) and Goal 15 (life on land).

45. The Sendai Framework for Disaster Risk Reduction 2015-2030, adopted by 187 Member States of the United Nations, aims to minimize loss of life and damage to critical infrastructure and services from disasters. It promotes country cooperation, aims to increase the number of States with disaster-risk reduction strategies, including substantially increasing multi-hazard mapping and availability of early warning systems by 2030.[36]

46. The United Nations Framework Convention on Climate Change (UNFCCC) adopted in 1992 offers a range of measures to assist mitigation and adaptation, including facilitating human mobility, building resilient socioeconomic and ecological systems, disaster-risk reduction and strengthening

[34] Jane McAdam, "Building international approaches to climate change, disasters, and displacement", *The Windsor Yearbook of Access to Justice*, vol. 33, No. 2 (2016).

[35] *Report of the International Conference on Population and Development, Cairo, 5–13 September 1994* (United Nations publication, Sales No. E.95.XIII.18), chap. I, resolution 1, annex, p. 20.

[36] General Assembly resolution 69/283, paras 27 and 30.

institutional capacities. These measures were reiterated in the Paris Agreement adopted at the twenty-first session of the Conference of the Parties to the United Nations Framework Convention on Climate Change in 2015.

47. The Grand Bargain on humanitarian financing, endorsed at the World Humanitarian Summit in 2016 and adopted by more than 30 humanitarian donors and agencies, identifies best practices, such as improved transparency, use of cash-based programming (where appropriate), multi-year planning and funding, harmonized approaches and better coordination between humanitarian and development actors. It commits countries to building the capacity of local and national responders, especially in fragile and disaster contexts, and where communities are vulnerable to climate change.

48. Other significant global instruments include:

(a) The SIDS Accelerated Modalities of Action (SAMOA) Pathway (Samoa Pathway), representing commitments made by 115 small island developing States to prioritize planning for climate change and disasters by strengthening disaster preparedness and response, emergency relief and evacuation, especially for vulnerable populations;

(b) The Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change, endorsed by 109 States in 2015, combines disaster risk reduction and climate adaptation and emphasises soft dialogue to address displacement. The Agenda offers a toolbox of practices to address displacement at various stages (preparedness for internal displacement, protection during displacement and durable solutions);

(c) The New York Declaration for Refugees and Migrants recognized the adverse effects of climate change and disasters as key drivers of human mobility, paving the way for the global compact on refugees and the Global Compact for Safe, Orderly and Regular Migration. The intergovernmentally negotiated and agreed outcome to be formally adopted by the Member States in December 2018 refers to UNFCCC, the Paris Agreement and the Sendai Framework, and promotes operationalization of the Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change. It urges States to consider the migration implications of climate change, recognizing that adaptation in countries of origin is a priority;

(d) In 2009, the Inter-Agency Standing Committee of the United Nations endorsed the Framework on Durable Solutions for Internally Displaced Persons, which supports planning for long-term sustainable solutions for displaced populations, including people displaced by climate change and disasters;

(e) The New Urban Agenda, presented at the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in 2016, provides a framework for the sustainable management of cities, including improving the resilience of cities to disasters and climate change.

VI. Regional efforts to address climate change in Asia and the Pacific

49. There are several active bilateral, regional and inter-regional cooperation arrangements and dialogues in Asia and the Pacific progressing policy action on climate change and disasters.

50. The Asian and Pacific Ministerial Declaration on Population and Development of the Sixth Asian and Pacific Population Conference in 2013

recognized the increasing challenges posed by disasters, conflicts, complex emergencies, climate change and loss of biodiversity. Ministers and senior officials from 47 countries in Asia and the Pacific acknowledged that these processes adversely affect development gains through increasing vulnerability and inequality. Commitments were made to forecast the consequences of climate change, halt carbon dioxide and greenhouse gas emissions to protect livelihoods and to facilitate adaptation and/or migration with dignity where countries can no longer support the lives of people due to adverse effects of climate change. Commitments were also made to promote the inclusion of affected sections of the population in disaster risk reduction decision-making processes.[37]

51. The Association of Southeast Asian Nations (ASEAN) Community Vision 2025 prioritizes social development and environmental protection, aiming to build a resilient community with enhanced capability to adapt and respond to social and economic vulnerabilities, disasters and climate change.

52. The ASEAN Vision 2025 on Disaster Management, agreed in 2009, draws on the recommendations of the World Humanitarian Summit, providing the foundations for regional cooperation, coordination, technical assistance, and resource mobilization in disaster management and emergency response.

53. Similarly, the Asia Regional Plan for Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 is a key regional document providing both a 15-year plan and a two-year action plan to minimize the impacts of disasters in the region. Commitments include:

(a) By 2020, all countries to establish methodologies to collect disaster loss data and risk profiles, with gender, age, disability disaggregated data;

(b) By 2022, 60 per cent of countries to improve early warning systems, including monitoring and forecast systems, evacuation procedures, analyses of risk, availability and access to early warning information;

(c) By 2030, all countries demonstrate a reduction in disaster-related mortality, affected population, economic losses and damages to critical infrastructure and basic services.

54. The two-year action plan includes commitments to:

(a) Support gender-sensitive disaster risk reduction actions at national and local levels, including universal access to sexual and reproductive health-care services, prevention and response to gender-based violence and women's leadership;

(b) Institutionalize community-based disaster risk management to strengthen resilience of households and communities;

(c) Strengthen education on disaster and climate risk reduction and accelerate the implementation of comprehensive school safety;

(d) Invest in the development of resilient health systems, and design and implementation of inclusive policies to ensure access to social safety nets and primary health-care services, including maternal, newborn and child health, sexual and reproductive health;

[37] E/ESCAP/70/16, sect. I.

(e) Prepare/update disaster preparedness and contingency plans at local, national and regional levels with a multi-stakeholder and multi-sectoral approach, ensuring comprehensive and accessible service and referral mechanisms to promote specific needs of women and children, the elderly, people with disabilities and other at-risk populations.

55. The regional road map for implementing the 2030 Agenda for Sustainable Development in Asia and the Pacific emanating from the Asia-Pacific Forum on Sustainable Development focuses strongly on environmental issues, highlighting the transboundary nature of climate change, disasters, energy security, ecosystem degradation, contamination of oceans, seas and marine resources.

56. The regional track for implementing the New Urban Agenda in Asia and the Pacific has so far comprised a series of consultations attended by the Asia-Pacific countries and partners, recognizing that cities in Asia and the Pacific have the potential to support prosperity and innovation in response to climate change, but that current approaches to urban transformation are unsustainable.

57. Other regional initiatives are being advanced by entities such as the South Asian Association for Regional Cooperation, the Asia-Pacific Regional Coordination Mechanism, the East Asia Summit, the Asia–Pacific Economic Cooperation forum, the Pacific Islands Forum and cooperation frameworks such as the Greater Mekong Subregion. Environmental priorities facing the region are also progressed through the Ministerial Conference on Environment and Development in Asia and the Pacific, an intergovernmental forum operating since 1985.

58. Notably, Pacific Island Governments have displayed particular commitment to working together to address climate change and disaster-related challenges, including migration and displacement issues, captured in the Framework for Pacific Regionalism and the Framework for Resilient Development in the Pacific: An Integrated Approach to Address Climate Change and Disaster Risk Management. The Framework for Resilient Development in the Pacific has three strategic goals: (a) strengthened integrated adaptation and risk reduction to enhance resilience to climate change and disasters; (b) low-carbon development; (c) strengthened disaster preparedness, response and recovery. It also progresses the region to voluntary commitments on human mobility in relation to climate change, including integrating human mobility considerations into disaster risk reduction, expanding regional labour migration schemes and options for planned relocation.

59. Numerous countries in the Pacific have developed national development strategies which link labour mobility, climate change adaptation and sustainable development outcomes, including Kiribati, the Federated States of Micronesia and Tuvalu. Other national policies in the Pacific focus on addressing internal displacement and planned relocation, especially in Fiji and Vanuatu. Regional labour mobility is also being supported through New Zealand's Regional Seasonal Employment scheme and Australia's Seasonal Worker Programme. The Australian Government has also announced a new Pacific Labour Scheme which from 2018 will give Pacific Islanders from countries highly vulnerable to climate change (Kiribati, Nauru and Tuvalu) the opportunity to work in rural and regional Australia for up to three years.

60. However, existing labour mobility schemes have raised challenges in terms of low participation from women and high costs relative to earnings for Pacific migrant workers.[38] Remittance transfer costs are also high in the Pacific, which detracts from the effectiveness of labour migration as a poverty reduction strategy. Women and men also tend to have different migration experiences at every stage of the migration cycle (pre-departure, transit, arrival, stay and return). There is a critical need to support, equip and empower migrants to reduce risks of exploitation and to improve working conditions and ensure labour rights for all workers, including migrant workers, addressing exploitative practices in labour markets.

VII. Conclusion and recommendations

61. When climate change is combined with other risks, hazards and vulnerabilities – such as limited disaster preparedness, weak governance structures, environmental degradation, population growth, poverty and poor urban planning – its negative impacts are intensified. Linking social and demographic data to the geography of anticipated climate-related hazards is crucial to developing more effective and comprehensive disaster risk reduction and adaptation approaches that are sensitive to the specific needs of vulnerable groups.

62. Priority needs to be given to participatory multi-hazard mapping; improving early warning systems, building codes and compliance; and mainstreaming migration into planning, with a focus on building resilient, inclusive and sustainable cities to enhance the resilience of populations and vulnerable groups.

63. When implementing the Programme of Action of the International Conference on Population and Development in the context of climate change and increased disasters, member States could consider the following actions:

(a) Identify specific vulnerabilities of different population groups such as children, older persons, persons with disabilities and others with regards to climate change and disasters and include their specific vulnerabilities and needs in risk reduction and adaptation strategies and policies. In addition, give these groups a voice when developing plans, strategies and policies;

(b) Recognize specific vulnerabilities and needs of women with regards to climate change and disasters and support them as "green entrepreneurs" as they are often more engaged than men in environmental issues such as food security, water and sanitation, and renewable energies. Ensure and strengthen women's leadership and participation in decision-making on policies related to climate change and disasters;

(c) Adapt health systems to climate-related challenges, including preparing for epidemics and increases in vector-borne diseases and establishing heat health warning systems. In the context of disasters, increase capacity to undertake rapid health assessments and respond to needs of displaced populations; improve responses to sexual/reproductive, maternal, newborn and child health; ensure continuum plans are in place for those needing HIV treatment; and safeguard the rights and health of victims of gender-based violence;

[38] Yvonne Underhill-Sem and Evelyn Marsters, *Labour Mobility in the Pacific: A Systematic Literature Review of Development Impacts* (Auckland, New Zealand Institute for Pacific Research, 2017).

(d) Design coherent strategies with regards to relocation of people away from hazards by establishing planned relocation safeguards, mapping and protecting traditional knowledge and cultural heritage, and increasing education about relocation risks at all levels of government;

(e) Mainstream migration into national planning through: identifying institutional focal points to lead on environment, climate change and migration within domestic, regional and global policy; implementing recommendations of the Nansen Initiative on the protection of cross-border displaced persons; developing durable solutions for internally displaced populations, those at-risk of displacement and for people living in informal settlements; considering voluntary labour migration as a possible climate change adaptation strategy; committing to the achievement of the objectives of the Global Compact for Safe, Orderly and Regular Migration; and reducing remittance transfer fees;

(f) Strengthen the resilience of cities to disasters by implementing the New Urban Agenda; recognize women, migrants, stateless populations and other vulnerable groups as key stakeholders in urban policies and urban disaster risk reduction plans, as per the Sendai Framework; upgrade informal settlements and ensure access to basic services for all. Ensure that urban planning prepares for increased rural-to-urban migration, especially from areas expected to be highly affected by climate change, disasters and other environmental pressures.

64. These measures require strengthening of data collection efforts and linking population data with geospatial data and statistics on climate change and disasters. Countries should invest in capacity-building to collect, tabulate and disseminate disaggregated data. Data-collection methodologies should be harmonized to move towards integrated regional data-collection systems. Once data has been collected, it must be made publicly available in a timely manner.