

BUILDING RESILIENCE: CLIMATE CHANGE, HEALTH AND WASH NEXUS IN THE ASIA PACIFIC REGION

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CLIMATE CHANGE AND HEALTH

Climate change refers to the long-term statistical shift in weather, including changes in the average weather condition and its distribution, i.e: weather events¹. Despite certain resistance, there is a global recognition of climate change's presence, human's role in it, and its impact on human health. Climate change has been recognized to have both a direct and indirect global impact on health and livelihood through multiple pathways.²

Alterations in one or more climate variables that could impact the survival, reproduction, or distribution of disease pathogens and hosts, as well as the availability and means of their transmission environments. The average global temperature has been and will continue to rise. The increased temperature is expected to alter the conditional environment of vectors, bacteria, viruses, and other types of pathogens, changing how vector-borne diseases can form and shifting in precipitation can contribute to how water-borne diseases disseminate across populations³.

While the Asia Pacific Region sees more climate-related disasters and extreme weather events than other regions, the health impact has not been clearly indicated⁴. Yet, extreme weather events such as tsunami/hurricane and heavy rainfall can contaminate clean water sources, catalyze or spread disease outbreaks to locations previously might not have had them⁵. Excess stagnant water from rainfall or flooding also creates ideal breeding grounds for vectors, pathogens and bacteria. Vector-borne diseases, respiratory diseases, infectious diseases, and water-borne diseases resulted from climate

events and disasters are all threats to human health.

Tropics and sub-tropics areas in the Asia Pacific Region face risks from increased in vector-borne diseases such as malaria, dengue hemorrhagic fever, and neglected tropical diseases (NTDs) such as schistosomiasis and should expect to experience more outbreaks in the foreseeable future as a result⁶. Dengue fever cases were found to be increased in El Nino years in Vietnam along with other Asian countries⁷. Diarrhea and enteric diseases can result from water contaminated by either viral or bacterial pathogens. Cholera outbreaks have been observed in following heavy rainfalls and/or flooding events as hygiene conditions declined in Bangladesh⁸.

Countries with already weak health systems and WASH infrastructures are likely to be overwhelmed in the event of an outbreak, unable to manage or contain the disease during the climate event. The long-term disease burden will also have an impact on both the individual and the systems affecting the social and economic conditions of both. However, that is not to say that the developed nations will fare better than developing ones – as evident by the current pandemics of COVID-19, an infectious disease, currently taking place across the globe, where the stress and impact on the health system and socio-economic condition of the United States and other developed nations are apparent.

¹ Wu et al., 2016

² Githeko et al., 2000; Hadwen et al., 2015; Hales et al., 2003; Kumaresan and Sathiakumar, 2010; WHO, 2019; Wu et al., 2016

³ Hales et al., 2003; Hadwen et al., 2015; Kumaresan and Sathiakumar, 2010; WHO, 2019

⁴ Hashim and Hashim, 2016

⁵ Hadwen et al., 2015; Howard et al., 2016; Kumaresan and Sathiakumar, 2010

⁶ Githeko et al., 2000

⁷ Hales et al., 2003

⁸ Howard et al., 2016

While it is too early for information and evidence to link COVID-19 to climate change, this infectious disease is likely not an exemption of the impact of climate change on disease patterns and population health – as infectious diseases are

also catalyzed results of climate change⁹. Therefore, it is not too early to say that an increasing effort in water, sanitation, and hygiene interventions are needed to mitigate the impact of climate change on human health.

WATER, SANITATION, AND HYGIENE (WASH): THE IMPACT PATHWAY



It is acknowledged that the relationship between WASH and climate change has not been clearly defined, adding challenges in identifying a solution¹⁰. Recognizing that *WASH is one pathway in which climate change impact population health* is important for mapping out the causal relationship. Without climate change, weakened WASH systems where the lack of access, coverage and services already have a consequential impact on human health. Climate change can intensify water stress and insecurity, reduce sanitation environment, increase disease outbreaks, reverse WASH achievements, and exacerbate social inequalities¹¹.

Climate change can affect the water cycle, which in turn affects the safe drinking water supply and sanitation services. Rainfalls and floods can spread contamination and the lack of hygiene and exposure to contaminated water likely lead to diarrhea outbreaks. NTDs and other water-related diseases are prevalent where water supply chain and sanitation infrastructures are fragile and furtherly exacerbate health risks¹². Inadequate waste management systems, improper disposal and management of liquid and

solid human and animal waste would worsen the contamination cycle during a climate disaster.

Floods can damage buildings, roads, water supply systems, and sanitation, and waste management facilities affecting water security, quality, and availability of clean water for the population. Floods can also prevent access to locations and resources such as hospitals and supply distribution centers – these are not exclusive problems for developing countries but also developed countries.

Drought can affect food production, leading to famine and malnutrition, and the malnourished body is more susceptible to infection. Drought reduces clean water resources available for consumption, washing, and other sanitation needs – creating higher risks of disease outbreaks. Clean water during drought often is prioritized for cooking rather than hygiene, increasing the risk of unhygienic practices and water-related diseases¹³.

Drought can also catalyze the condition for saline or salt intrusion into freshwater resources which are a significant threat to both the water and sanitation system and human health and livelihood. Communities experiencing saline

⁹ Hales et al., 2003; Kumaresan and Sathiakumar, 2010; WHO, 2019

¹⁰ WfW, 2020

¹¹ Kohlitz et al., 2017

¹² Hales et al., 2003; WHO, 2019

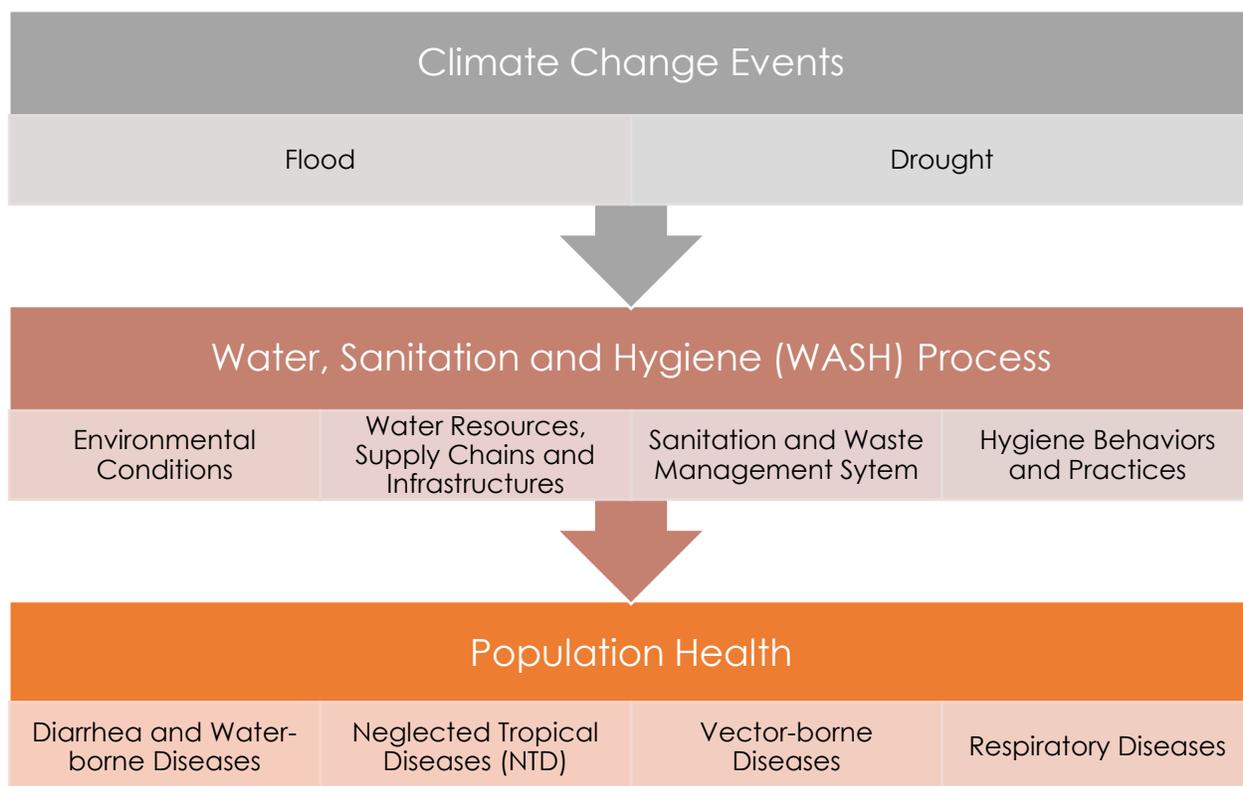
¹³ Hales et al., 2003; Howard et al., 2016

intrusion suffer not just from the decrease of safe freshwater quantity and quality but also face loss in agriculture, economics, nutrition, and health¹⁴.

In 2019, Vietnam communities in the Mekong Delta experienced a rainy season followed by a historic drought condition and the saltwater intrusion event that followed affected agriculture production, health, and livelihood of the people in this region. Access to safe freshwater for domestic use became limited – facing health risks associated with low water and hygiene issues,

particularly at the onset of COVID-19 outbreak in South East Asia and Vietnam in early 2020.

Thrive/East Meets West Foundation (TN/EMWF) is among some of the organizations that provided emergency response and relief to alleviate the health and livelihood crisis of this climate event. TN/EMWF's response efforts included the provision of water storage containers to poor households and water filter kiosks to increase access to fresh water in the Ben Tre Province.



ADAPTIVE ACTIONS FOR CLIMATE CHANGE IN WASH

Climate resilience is the ability in which systems and people can anticipate, adapt and recover from climate disasters while still able to reduce vulnerability, ensure livelihood, accelerate and sustain recovery and development all the while preserving cultural integrity¹⁵. All of which require commitments and contributions from the high-level stakeholders as well as local actors involving in WASH in the Asia Pacific Region (Annex 1).

Stakeholders' involvement should include all groups, communities, and members who would be impacted by climate change and whose health would be at risk as a result of a compromised WASH pathway. Stakeholders can provide valuable input in the process to strengthen the understanding of risks and vulnerability, the accuracy of adaptations, and identify appropriate

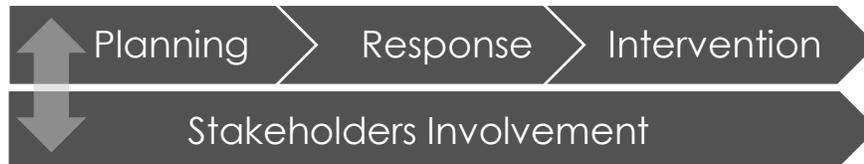
¹⁴ Hadwen, 2015

¹⁵ UNICEF, 2015

sharing and dissemination of key knowledge and evidence¹⁶. Key players could be responsible for spearheading and facilitating climate resilience

planning, responding and interventions to build adaptive capacity

Climate Change Adaptive Actions Process



Planning for climate resilience should include both short- and long-term strategies with strong consideration for the local context. Developing localized approaches for climate response can both mitigate and slow-onset environmental changes in the community, starting with known and experienced climate change disasters and risks¹⁷.

Communities often are already dealing with climate change impacts daily – therefore, local government and communities can provide useful perspective and practical in anticipating and planning solutions for the nexus between climate change, WASH, and health – as well as the plan to scale up to national level policy and strategies.

Supported by the Department of Foreign Affairs and Trade (DFAT) Australia to implement their "Water for Women" initiative, TN/EMWF is collaborating with the Vietnam Women's Union to organize a women-led contest for innovations and solutions in WASH and climate change in the Mekong Delta, aiming to encourage innovative thinking and involvement in climate change planning and solution by women and minorities groups in the region.

Identifying and understanding existing strategies and direction for climate change can give insight into national priorities and which initiatives can be strengthened. Adding climate change initiatives to current national Water Safety Plan (WSP), suggested by WHO¹⁸, is both a risk management

approach and a guide for communities to plan how to manage their water supplies, including technologies and infrastructures, safeguarding resources, driving policies in not just water but sanitation and hygiene while also monitoring the

LEAVE NO ONE BEHIND

Planning, responding and implementing adaptive climate resilience actions in WASH needs to continuously consider and involve people who already face high risks in health due to the lack of safe and accessible WASH access and coverage.

Climate resilience programming should also be inclusive and comprehensive of the most vulnerable groups, who would be even more vulnerable in light of climate change and climate disasters.

Marginalized groups are likely to be furtherly left behind when water resources, quantity, and quality and sanitation conditions decline. Building the sector and system's capacity to support and ability to mitigate these risks is essential in building climate change resilience.

¹⁶ UNICEF, 2015

¹⁷ WFW, 2020

¹⁸ UNICEF, 2015

implementation. At the same time, recognizing that water management isn't the only factor in building climate change resilience. Sanitation and hygiene are equally important components in mitigating the health risks of climate change. The

Adaptive responses should focus on how to integrate and coordinate the existing tools available for a greater impact on the ground. Currently available tools include the World Health Organization (WHO) Water Safety Planning, United Nations Children's Fund (UNICEF) Resilient WASH Guidelines²⁰, Climate Vulnerability Assessments, and WHO/UNICEF WASH Fit in Health Care Facilities. Understand how the different tools can support climate-resilient in WASH services can solidify the roles between WASH and climate change. Multisectoral collaboration is necessary to adequately respond to the holistic and complex impact of short- and long-term climate change impact.

The Asia Pacific Region is expected to experience major climate devastation to its agriculture and natural resources²¹ – thus response measures need to take into consideration the capacity and ability to implement measures to mitigate and reduce the further burden and harms upon the population. Social and economic factors play a significant role in managing climate change, and response efforts should also anticipate issues in

Intervention programs focusing on strengthening WASH implementation capacity, raising hygiene knowledge awareness, protecting water infrastructures, improving water quality, ensuring water security and access for the population as well as waste management initiatives all have the potential to mitigate or even prevent potential WASH-related disease outbreaks from a high impact climate change event. Continuous monitoring and forecasting of climate

mainstreaming of integrated water resource management (IWRM) framework for system planning in the Pacific Island Countries to protect water resources has been recommended as a holistic approach in WASH planning¹⁹.

system and capacity that were not considered during the prevention phase.

Strong data and evidence are important both for decision making, policy advocacy and changes and filling in any knowledge gap in the systems that were missed in the planning phase. Adaptation of resilient technologies, updating of current water management technologies, and improving current water management services are some approaches to be considered for adaptive response²².

In Cambodia, climate response initiative took place via the provision of climate resilience latrines in Kratie Province by TN/EMWF, funded by UNICEF and collaborated with the Provincial Department of Rural Development (PDRD), where traditional latrines designs were modified to mitigate the impact of high-level flooding in rural Cambodia. In Vietnam, through a partnership with National Centre for Water Supply and Sanitation, TN/EMWF working to develop a guidebook to support the pilot implementation of a Climate Resilient Water Safety Plan in Long Thanh Province.

risks can improve the efficiency of water distribution and usage.

Interventions first need to assess and recognize the most vulnerable groups who are impacted by the climate event before planning and implementing – designing of the program should be inclusive, holistic and timely of the short- and long-term risks with the understanding that constrains in resources often time lead to scarcity

¹⁹ Hadwen et al., 2015

²⁰ UNICEF, 2015

²¹ Hashim and Hashim, 2016

²² Wu et al., 2016

and marginalization of the most vulnerable groups.

Implementation should build upon existing WASH management practices and direct communities toward specific global WASH goals such as the Sustainable Development Goals 6 (SDG 6). Working toward global goals can be an incentive for government involvement, where the integration of climate change policy and reforms

into national or sub-national strategies has been done in the planning stage.

Such strategies are being done in Myanmar with UN Environment and UN-Habitat, aiming to strengthen institutional capacity to address climate change. Other strategies include building system capacity to manage the country's water resources to build resilience against climate change in Afghanistan by the UN Environment, through the Asia Pacific Adaptation Network (APAN)²³

PUBLIC-PRIVATE PARTNERSHIP (PPP) FOR CLIMATE RESILIENCE

Identifying and strengthening how communities are governed and manage their water resources can build climate resilience where it matters the most. While stakeholder engagement is important for sustainable planning of WASH governance and management, the involvement of the private sector and developing Public-Private Partnership (PPP) can also improve WASH system resiliency.

The Vietnam Context: The Government of Vietnam (GoV) has been proactive in responding to the challenges of increasing access to and ensuring the sustainability of rural water supply and sanitation services. Sustained efforts to increase access to water services, with a focus on delivering infrastructure to rural populations, has resulted in impressive results over the past 15 years: as of 2015, 97.6% of Vietnam's population had access to improved water supply services. In rural areas, 87.5% of the country's rural population has access to hygienic water, compared to 55.7% in 1990.

The private sector has been increasingly engaging to address gaps in the provision of

water services. An estimated 500 private enterprises are currently delivering piped water supply directly to households across Viet Nam. However, most of the small and medium private water enterprises cannot obtain good operation and maintenance and cope with climate change and environmental challenges such as saltwater intrusion which has steadily worsened over the last few decades in Mekong delta. This threatens the water supply and could severely disrupt the daily lives of its residents.

Investment in WASH must go beyond the provision of access and service through infrastructure development. *Involving and maintaining PPP gives the private sector space and accountability in WASH development, including climate change planning, addressing enterprise limitation and contributing to the need for innovations and initiatives.* It is essential to have a technical backstop for sustainable operation and maintenance and knowledge hub of sharing and learning new approaches in implementing climate-resilient WASH in Vietnam.

CONCLUSION

There is still not enough data and evidence to firmly confirm the impact of climate change, health, and WASH nexus on the human

population due to the siloed nature of research in these topic areas. This is an obstacle to produce quality evidence for climate and health policy

²³ UNEP, 2018

advocacy. Climate change does not happen overnight and needs to be monitor and record accordingly to understand all of the risks and impacts on the health system, and to provide concrete rationales for influencing policy, practice, and even building infrastructures.

However, *recognizing this causal link and understanding that climate change's health impact can happen through*

WASH is important for key WASH actors and government entities to take appropriate measures in policy and mitigation. A holistic approach to further study and examination of this nexus is needed to understand the complexities between the systems and the environment they exist in for accurate and timely action in planning, responding and interventions.

ANNEX 1

Climate Change Actors and Stakeholders in the Asia Pacific Region

United Nations Children's Fund (UNICEF); United Nations Development Programme (UNDP); United Nations Environment (UNEP); World Health Organization (WHO); United Nation Women (UN Women); United States Agency for International Development (USAID); Food and Agriculture Organization (FAO); Department of Foreign Affairs and Trade (DFAT); Global Water Partnership (GWP); Global Adaptation Network; Asian Development Bank (ADPB); World Bank; Stockholm Environment Institute (SEI); Institute for Global Environment Strategies (IGES); Regional Resource Centre for Asia and the Pacific (RRC.AP); Save the Children; International Federation of Red Cross and Red Crescent Societies (IFRC); ActionAid; CARE International; Catholic Relief Service (CRS); Oxfam; World Wildlife Fund (WWF); The Center for People and Forests; SNV; Plan International; GRET; United Nation Framework Convention on Climate Change; Intergovernmental Panel on Climate Change (IPCC); The Institute for Sustainable Futures, University of Technology Sydney (UTS-ISF); Asia Pacific Adaptation Network (APAN)

*Established in 2008, the **Vietnam Climate Change Working Group** is a forum for an international and non-governmental organization to exchange, access, and learn about current progress in climate change in Vietnam with main focus on Coordination, Advocacy and Capacity Building.*

Group members include the NGO Resource Centre; Oxfam Great Britain; CARE; Catholic Relief Services (CRS); SNV; The Center for People and Forests (RECOFTC); Thrive Networks/East Meets West Foundation (TN/EMWF); World Wildlife Fund (WWF); Challenge to Change, and Sustainable Rural Development (SRD) whose work in climate change comprises of awareness and behavior change, adaptation, mitigation, and policy.

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