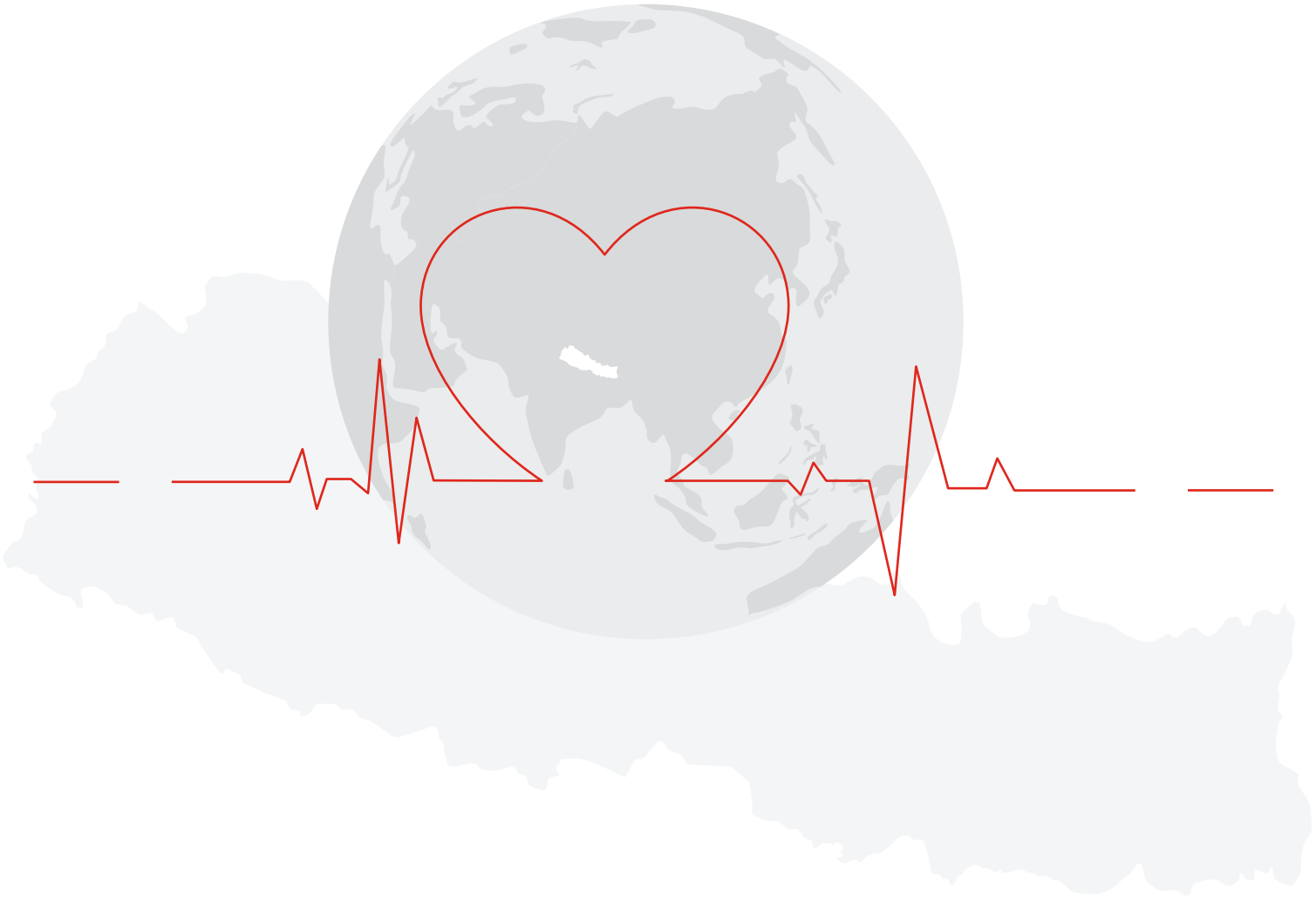
Country-based climate papers
for National Society programming, policy
influencing and humanitarian diplomacy

Climate change impacts on health:
Nepal assessment



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Climate
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Executive summary

Nepal is highly vulnerable to the impacts of climate change due to a combination of political, geographic and social factors. This vulnerability is especially pronounced in densely populated and haphazardly urbanized areas, as well as in critical river valleys such as the Kathmandu Valley. Nepal's climate-related challenges have a direct and profound effect on public health. They increase risks from extreme weather events, deteriorating air quality and climate-sensitive diseases, which disproportionately affect already vulnerable populations.

Historically, the main climate-related challenges Nepal has experienced are flash floods and landslides, but now there is an increasing incidence of drought and heat exposure. Urban areas, which are particularly lacking in environmental resilience, are highly susceptible to flooding, extreme heat and water scarcity. Poverty and migration are significant factors that exacerbate climate-sensitive health risks, further increasing poverty and leading to greater economic insecurity and rapid, hazardous urban growth.

Nepal's climate faces significant changes. It is highly diverse because of the country's wide geographic range, from the high Himalayan mountains to the low-lying Gangetic plains. It is dominated by monsoon patterns. Temperature increases are projected to continue, with the greatest warming expected in the high mountains and western regions. Rainfall patterns are also evolving and are expected to become more erratic, with drier winters and wetter monsoon summers, potentially leading to more frequent and severe droughts and floods. The retreat of glaciers and increased risk of glacial lake outburst floods are expected to exacerbate these water-related hazards.

For individuals most at risk from climate-sensitive health impacts, their susceptibility is increased where multiple vulnerability factors intersect. This makes these groups more prone to harm, discrimination and disadvantage. Vulnerability factors will depend on the climate exposure pathway, but may relate to geographic location, socio-economic status and the resilience of local health systems. Other aspects such as health status, gender and sociocultural conditions worsen this susceptibility. Broadly, low-income households and women are the most vulnerable to climate change, economic hardship and social disadvantages, which often compound the risks they face and reduce their resilience.

According to Nepal's revised 2023 poverty line, one-fifth of the population currently lives in poverty, with incidence varying across the seven provinces. While migration and the resulting remittances can significantly improve living standards and reduce poverty, these coping strategies are susceptible to economic and climate shocks due to inadequate supportive policies and a weak labour market.

Nepal's economy is especially sensitive to disruptions in the agricultural sector. Beyond agriculture, most jobs are in services and manufacturing. These tend to be small-scale and informal, with significant vulnerability to heat stress and air pollution. Air pollution is among the top risk factors for death and disability in Nepal. It presents a serious public health challenge, driving non-communicable diseases, increasing mortality and creating economic strain by reducing productivity and overburdening the healthcare system.

Climate change is worsening food insecurity and malnutrition, with extreme events such as drought decreasing agricultural productivity. Urban agglomerations in Nepal are expanding as peri-urban areas merge, converting farmland into urban spaces. However, poor urban design in major cities, with inadequate waste management and sanitation, fosters breeding grounds for disease vectors. In Nepal's mountainous communities, climate impacts like droughts heavily disrupt farming, leading to stress, anxiety, weakened social ties and potential displacement.

Women often bear greater risks and burdens from climate change due to poverty, displacement, limited access to healthcare and the impact of traditional roles, responsibilities and cultural norms. Men's migration for work leaves women with full responsibility for household and caregiving duties, heightening their climate vulnerability. In rural Nepal, women handle climate-sensitive tasks like farming and collecting firewood and water, increasing their exposure to climate impacts. Despite these responsibilities, many lack decision-making power. Women in urban slums face additional health risks, including exposure to gender-based and sexual violence.

The health challenges facing Nepal's most vulnerable populations vary widely. Officially, sensitivity to climate-induced hazards and extremes is measured by the prevalence of 12 specific health risks. However, particulate matter ($PM_{2.5}$) significantly impacts life expectancy, reducing it by an average of 3.4 years. In southern Nepal, life expectancy drops even further because of air pollution, by up to 5.1 years.

Notably, in 2022, Nepal experienced its most severe dengue outbreak to date, marking the first occurrence of cases in consecutive years. This disrupted the typical two-year cycle observed in previous decades. Rising temperatures now threaten to make vectorborne diseases like dengue endemic in highland areas where they were previously uncommon.

Despite significant policy efforts, the health sector still lacks clarity on the distinction between anticipatory action and preparedness. Improved policy guidelines are needed, along with a legal framework for anticipatory action and clearer thresholds for action. Strengthening cross-sector coordination, building human resource capacity and enhancing community awareness are crucial for effective climate adaptation, especially for vulnerable groups.

Aligned with the Nepal Red Cross Society's Climate and Environment Policy and associated framework, the following programmatic recommendations aim to address climate-sensitive health risks and meet the needs of the most at-risk populations:

- Strengthen community-based surveillance systems to address prioritized climate-sensitive health risks, such as dengue, and enhance coordination with official epidemic and outbreak surveillance programmes for an effective public health response.

- Expand successful campaigns – like the Junior and Youth Red Cross (JYRC) tree plantation campaign, The Changemaker, Y-Adapt training and other locally defined activities – to more provinces, fostering broader participation and greater impact.

- Develop and strengthen risk assessments, early warning systems and early action protocols. Revise existing multi-hazard protocols, with an emphasis on mitigating, and adapting and responding to, health risks, and integrating with public health systems.

- Increase mental health programming within the National Society's community-based health initiatives, including communication strategies to raise awareness about how climate poses risks to mental health and well-being.

- Provide training in psychosocial support, psychological first aid, coping skills, de-escalation techniques and working with people in distress to enhance volunteer and staff effectiveness.

- Ensure mental health risks and outcomes are included within resilience and adaptation initiatives.

- Incorporate mitigation strategies for health risks into climate-smart livelihood initiatives, focusing on climate-sensitive sectors such as agriculture, water and sanitation to ensure adaptive actions are health-conscious.

To address climate-sensitive health risks and enhance community resilience, the following actions are recommended for the Nepalese authorities and the international community:

- **Promote locally led action:** Strengthen the role of community health workers, Female Community Health Volunteers andd Nepal Red Cross volunteers to reach vulnerable populations. Support community-based surveillance and anticipatory actions to manage climate adaptation efforts and protect public health.

- **Integrate climate-smart adaptations into urban planning:** Incorporate long-term heat mitigation and air pollution strategies into urban planning and design. The Nepal Red Cross Society can play a key role in promoting these adaptations to help urban communities manage rising temperatures and their associated health risks.

- **Address intersectional health vulnerabilities:** Ensure that women, low-income households and other at-risk groups are at the centre of climate–health action. Collect and analyse data disaggregated by sex, age and other relevant local factors to develop inclusive, equitable solutions tailored to individual needs.

- **Strengthen mental health and psychosocial support programmes:** Prioritize the development and implementation of mental health and psychosocial support programmes to help communities cope with the mental health challenges posed by climate change.

- **Enhance the implementation of climate-specific health policy:** Improve policy frameworks by involving vulnerable groups, outlining the specific health impacts of climate change and enhancing community education. Address gaps in awareness-raising and knowledge transfer to support effective climate adaptation at the local level.

- **Use innovative financing to enhance community resilience, strategically channelling investments into local capacities in vulnerable areas:** Prioritize prearranged financing and the development of new financial tools, targeting key sectors such as health, water management, food security and ecosystem conservation. Such mechanisms empower communities to effectively respond and adapt to climate shocks and long-term environmental changes, fostering sustainable resilience.

Introduction

Nepal is widely recognized as being highly vulnerable to the impacts of climate change. This vulnerability is compounded by a mix of political, geographic and social factors, which amplify the country's susceptibility to climate crises. Its densely populated, haphazardly urbanized cities are particularly vulnerable, as are critical river valleys such as the Kathmandu Valley. Nepal's climate-related challenges have a direct and profound effect on public health, with increased risks from extreme weather events, deteriorating air quality and the spread of climate-sensitive diseases. These place already vulnerable populations at greater risk.

While flash floods and landslides were the most frequent hazards over the last 40 years, the incidence of drought and heat exposure is increasing (World Bank Group, 2022). These climate-related threats disproportionately affect vulnerable populations, straining Nepal's public health system and infrastructure. Urban settlements, with limited resilience to these environmental challenges, are especially at risk of flooding, heat extremes and water scarcity. As climate change intensifies, the need for effective adaptation strategies – including public health interventions, early warning systems and community-level engagement – has become increasingly urgent.

This report[1] aims to provide insight into how these interrelated factors influence the impact of the climate crisis on health. By analysing these relationships, it will be possible to develop effective responses to protect the health of the most at-risk populations. This review is the result of a close collaboration between the Nepal Red Cross Society, the Finnish Red Cross and the International Federation of Red Cross and Red Crescent Societies (IFRC), with technical support from the Red Cross Red Crescent Climate Centre. It builds on the *Climate Change Impacts on Health and Livelihoods: Nepal Assessment* conducted in 2021. The report emphasizes the National Society's essential contribution to mitigating and addressing the health risks associated with climate change in Nepal. Poverty and migration are identified as the primary factors worsening climate-sensitive health risks. These have negatively impacted socio-economic status, increasing poverty levels further and resulting in greater economic insecurity and rapid and hazardous urban growth.

1. Climate risks in the country

Nepal's climate is highly diverse due to its geographical range, with the high Himalayan mountains in the north and the low-lying Gangetic plains in the south (USAID, 2017) resulting in climates that range from alpine to subtropical (Karki, 2016). The monsoon circulation dominates the rainfall pattern (Kansakar, 2004), with most precipitation occurring between June and September. The long-term average rainfall (based on records for 1991–2020) is almost 1,270mm per year, with July typically the wettest month with 330mm (World Bank Group, nd). Average temperatures vary, with the warmest in the southern terai and Siwalik areas and the coldest in the northern high Himalayas (USAID, 2017).

1 The study integrates both quantitative and qualitative data, combining statistical analysis with insights from semi-structured interviews. Data collection was informed by a literature review, including updates after 2021 to ensure contemporary relevance. This mixed-methods approach provides a comprehensive understanding about climate change and health in Nepal for humanitarian diplomacy, balancing numerical data with in-depth interviewee perspectives.

Temperature increases: Over the past decades, near-surface air temperatures have risen and the average number of cold days per year has declined (MoFE, 2018; WBGCCKP, 2020). Temperature increases are projected to continue (with as many as 19–27 additional hot days per year by 2045), with the greatest warming expected in the high mountains and the western regions (MoFE, 2019).

Rainfall patterns: While rainfall has generally decreased in recent decades (WBGCCKP, 2020), precipitation in the mountains is increasingly falling as rain rather than snow, accelerating glacial melt (USAID, 2017). Rainfall is projected to increase in the future, however, especially in the central and western regions, with drier winters and wetter summers (MoFE, 2019).

Extreme events: The frequency of extreme rainfall events has increased, leading to more flash floods and landslides (Karki *et al*., 2017). Hydrological droughts, particularly over longer timescales (12 months or more), have also become more severe and frequent (Dahal, 2016). Monsoon flooding is projected to increase threefold (WBGCCKP, 2020), and risks of glacial lake outburst floods (GLOFs) will be heightened due to rapid glacial retreat (Dube, 2014). The last GLOF event in 2024 caused the disappearance of Thame village in the Khumbu region (HRRP, 2024). Western Nepal experienced an unprecedented 624mm of rain in a single day in July 2024, the highest recorded rainfall in the country's history (IWMI, 2024).

Climatic variability: Rainfall is expected to become more erratic across Nepal, with drier winters and wetter monsoon summers, which could lead to more frequent droughts and floods. The retreat of glaciers and increased risk of GLOFs will exacerbate water-related hazards such as floods, droughts and landslides. Temperatures in Nepal are rising, especially during the dry months, leading to more hot days per year. The warming is projected to be most intense in the fragile mountain regions where glaciers are rapidly retreating. Having more rain instead of snow in these areas is likely to affect water run-off and increase the risk of flash floods. Drier winters and significantly wetter monsoon seasons are likely in a warming climate, leading to extreme summer floods in the terai, with potentially more landslides in the mid-hills due to heavy rainfall.

2. Who is most at risk?

Where vulnerability factors intersect, such as those related to geographic location, socio-economic status and the resilience of health systems, this increases the susceptibility of those most at risk from climate-related health impacts. Other vulnerability factors include gender, age, disability and ethnicity (UNESCWA, 2020), along with health status. Individuals often face compounded risks due to overlapping identities that make them particularly vulnerable. In Nepal, gender inequalities and sociocultural conditions serve to deepen people's vulnerability. As a result of these specific characteristics or circumstances, individuals are more likely to experience harm, discrimination and disadvantage when exposed to climate-related hazards.

Low-income households and women are the groups most at risk from climate-related health impacts, economic hardship and social inequalities. These factors are interlinked, amplifying their risks and further reducing their resilience, making it more difficult for them to recover and adapt. As a result, these groups are disproportionately vulnerable to and affected by the adverse impacts of climate change.

Low-income households

Nepal's revised 2023 poverty line shows that one-fifth of the population currently lives in poverty (Asian Development Bank, 2024). There is a notable divergence in the circumstances of urban, rural and Kathmandu Valley inhabitants (National Statistics Office, 2024), and the incidence of poverty varies across Nepal's seven provinces, reflecting spatial disparities across the country (World Bank, 2024b). There is also considerable variation in the distribution of people living in poverty. Sudarpaschim (34.2 per cent) and Karnali (26.7 per cent) have the highest percentages, indicating the severity of poverty in these provinces. However, poverty is concentrated in the provinces of Madhesh (25.1 per cent) and Lumbini (22.8 per cent), which have the largest absolute numbers.

While migration and the resulting remittances can improve living standards and reduce poverty, these coping strategies remain vulnerable to economic and climate shocks (World Bank, 2024a). The economy's heavy reliance on remittances makes it particularly susceptible. In 2022, Nepal ranked fourth globally for international outmigration flows driven by temporary labour migration, with the number of migrants surpassing 1 million (IOM, 2024). Progress is further hindered by the absence of targeted policies for households living in poverty and the weakness of the domestic labour market (World Bank, 2024a).

The economy is also particularly vulnerable to shocks affecting the agricultural sector (which employs 62 per cent of the labour force). Outside of agriculture, most jobs are in services and manufacturing and tend to be small-scale and informal, with high exposure to heat stress and air pollution (World Bank, 2024a). With air pollution levels 4.9 times WHO's recommended values in recent years, this is the leading risk factor for death and disability in Nepal. It poses a major public health challenge, contributing to morbidity, mortality and economic strain through lost productivity and overburdened healthcare services (WHO, 2023).

Climate change is also exacerbating food insecurity and malnutrition in Nepal, as extreme events like drought have reduced agricultural productivity by more than three-quarters over the last decade (MoHP, 2022a). This is mainly because most of Nepal's cultivated land is rain-fed, making it vulnerable to erratic rainfall patterns and droughts, as well as flash floods and landslides (Krishnamurthy, 2013; Kathmandu Tribune, 2017). An increase in the occurrence of these climatic hazards has a direct impact on agricultural production and food security, especially in the western and terai regions, where people are affected annually (Neupane, 2022).

Reduced intake of fruits and vegetables accentuates the nutritional gap, combined with shifting dietary patterns driven by socio-economic disparities and market forces that promote consumption of unhealthy products like ultra-processed foods and drinks (MoHP, 2022b). The rise in flood events correlates with increased malnutrition cases in Morang, Bajura, Kaski and Western Rukum districts. Similarly, heavier rainfall events correlate with higher malnutrition cases in the districts of Sarlahi, Bara, Dhading, Humla and Jajarkot. In Rautahat and Achham districts, both flood and heavy rainfall events appear linked to increased malnutrition cases (Neupane, 2022). According to the 2024 Global Hunger Index, 5.7 per cent of the population is undernourished, while almost a quarter of children under five are stunted, 7 per cent are wasted and 2.7 per cent die before reaching their fifth birthday.

Since the earthquake in 2015, many peri-urban areas have connected to each other resulting in urban agglomerations, with farming areas converted into urban environments (Bhattarai *et al*., 2023). The urban design of major cities in Nepal falls short in terms of public health infrastructure, with inadequate waste management systems and poor sanitation creating ideal conditions for vectors to breed (IFRC, 2023).

In addition, in Nepal's mountainous communities, which rely heavily on farming, climate impacts like droughts can significantly affect mental health, leading to increased stress and anxiety as well as disrupted social connections and potential displacement (Dhimal, 2021; UNDRR, 2024). This issue poses a significant challenge to the mental health and well-being of communities in the Hindu Kush Himalayan region (*ibid*.).

Women

Women living in poverty often face higher risks and greater burdens from the impacts of climate change due to existing roles, responsibilities and cultural norms (UNCC, 2023). In Nepal, women face unequal power relations and gender-based barriers due to its patriarchal society (Asian Development Bank, 2010). Challenges for women intersect, and are shaped by a complex interplay of factors including gender, caste, ethnicity, class, geography and cultural traditions. Dalit, indigenous and Madhesi women face discrimination based on caste and ethnicity, while rural women are confronted with poverty, illiteracy and restricted access to healthcare and education. Harmful practices like child marriage and *chhaupadi* (menstrual exile) reflect deeply rooted patriarchal norms (Karuna Foundation, 2024).

Women with diverse sexual orientations and those with disabilities face additional layers of stigma and exclusion (University of Bern, 2022). Women affected by conflict or working as migrant labourers are vulnerable to exploitation and marginalization (UN Women, 2022). The intersecting factors of caste, ethnicity, geography, social norms and systemic inequalities place women from marginalized communities at the greatest risk of discrimination, exclusion and vulnerability. These overlapping inequalities amplify their marginalization, making them the population most at risk from climate-related health impacts.

Men's migration across borders in search of work, leaving women with full responsibility for household and caregiving duties, is seen as a key factor contributing to women's climate vulnerability. This situation not only subjects women to social stigma but also restricts their mobility due to gendered norms (Danish Institute for International Studies, 2024). However, households in Nepal that receive remittances are more likely to invest in flood preparedness when the women who remain behind participate in capacity-building interventions that encourage autonomous adaptation measures, such as precautionary savings and flood preparedness (Danish Institute for International Studies, 2024; IOM, 2024). Therefore, it can be inferred that women who lack income and opportunities for economic autonomy are more vulnerable.

In rural areas of Nepal, women bear primary responsibility for climate-sensitive tasks like collecting firewood and fodder, fetching water and farming, which increases their vulnerability to climate change (MoHP, 2022a). Women are left burdened with looking after children, managing household chores and struggling to maintain agricultural activities and livestock while men are away. Despite this shift in responsibilities, in some cases women still do not have full decision-making power (Sherpa & Bastakot, 2021).

Women living in urban slums face additional health challenges due to their increased exposure to gender-based and sexual violence (UN Women, 2024). Climate change exacerbates issues regarding access to reproductive services, menstrual hygiene management and sexual violence (Women Deliver, 2021).

Climate change is expected to exacerbate poverty, hindering efforts to ensure inclusion of vulnerable populations in climate adaptation strategies. Women, especially those of peak reproductive age, are more likely than men to live in extreme poverty. This gender gap widens during reproductive years as many women transition from paid employment to unpaid childcare responsibilities, increasing their vulnerability (UN Women, 2024). Climate change is expected to disproportionately impact food security for women and girls – an estimated 240 million more women and girls worldwide are expected to have increased food insecurity by 2050, compared with around 130 million more men and boys (*ibid.*). Poor maternal nutrition, especially among adolescent girls, significantly contributes to the intergenerational cycle of malnutrition and poverty (USAID, 2021). Nearly 17 per cent of adolescent girls in Nepal begin childbearing by the age of 19 (Bhandari, 2023). Inadequate infant and young child feeding practices also contribute to the high prevalence of undernutrition (USAID, 2021).

Cross-cutting health concerns impacting those most at risk

As per the Ministry of Health's approach, sensitivity to climate-induced hazards and extremes in the provinces is determined by the prevalence of 12 climate-sensitive health outcomes. These comprise seven vectorborne diseases – dengue, malaria, kala-azar, Japanese encephalitis, scrub typhus, Zika and chikungunya; two waterborne diseases – cholera and acute gastroenteritis; one group of respiratory illnesses – severe acute respiratory infections; mental illness; and undernutrition (MoHP, 2022a).

Another critical concern is air pollution by particulate matter ($PM_{2.5}$ – fine inhalable particles with diameters of 2.5 micrometres or less). These particles pose serious health risks – contributing to heart disease, asthma, low birth weight and increased mortality – as well as reducing visibility. In 2023, Nepal's average $PM_{2.5}$ levels were 8.5 times WHO's annual guideline value, placing Nepal eighth among the most polluted countries globally (IQAir, 2024). This pollution shortens average life expectancy by 3.4 years. In ten districts in southern Nepal the impact is even greater, with life expectancy reduced by up to 5.1 years, due to the uneven distribution of these particulates (EPIC, 2024).

In 2022, Nepal also experienced its most significant dengue outbreak to date, with 54,784 cases reported across all 77 districts. Bagmati Province bore the highest incidence, while Kathmandu recorded the largest share of cases (26 per cent) (Pokharel *et al.*, 2023). From June to December 2023, Nepal recorded a further 51,243 dengue cases across all 77 districts (IFRC, 2023). This marked the first time dengue cases occurred in consecutive years, breaking the typical two-year dengue cycle observed in previous decades (*ibid.*). Dengue transmission is highly sensitive to rising temperatures, which speed up the development cycle of the *Aedes* mosquito, the primary vector for the disease (Liu *et al.*, 2023). In Nepal, temperatures have been rising and are expected to continue increasing, especially in the high mountain and Himalayan regions (Government of Nepal, 2021). This increase poses the risk of vectorborne diseases such as dengue becoming endemic in highland areas where they were previously uncommon.

3. Policy commitments on health and climate change

In addition to analysing the impacts of climate change on health and livelihoods, IFRC's 2021 Nepal assessment highlighted several key policies addressing these challenges. These included the National Adaptation Programme of Action (NAPA) to Climate Change (2010), the National Health Policy 2076 (2019), the National Climate Change Policy (2019), the Nepal Health Sector Strategy 2015–2020, and the Second Nationally Determined Contribution (2020).

Notably, the Health National Adaptation Plan (2023–2030) builds on these efforts by setting cross-sectoral goals to establish a climate-resilient health system. The plan emphasizes:

- capacity building
- improving disease surveillance and response systems
- promoting climate-resilient infrastructure and technologies
- integrating climate adaptation into health policies
- fostering partnerships for effective collaboration

Further, the Environment Protection Regulation 2077 (2020) outlines a comprehensive set of rules and procedures for the protection and management of the environment. It details:

- requirements for environmental impact assessment
- responsibilities of various stakeholders
- procedures for obtaining environmental clearances
- obligations for monitoring and reporting on environmental quality
- penalties for non-compliance
- mechanisms for public participation in environmental decision-making processes

Its scope encompasses pollution control, waste management, biodiversity conservation and environmental impact assessment (MoFE, 2020).

Despite significant efforts in policy development, the distinction between anticipatory action and preparedness in the health sector remains unclear. While both aim to reduce the impact of disasters, they differ in timing, intent and execution. The main objective of anticipatory action focuses on reducing immediate risks: taking proactive measures immediately before a hazard is encountered, based on early warnings or forecasts. Preparedness, by contrast, refers to capacity building over the longer term to enhance a community's or system's ability to respond to and recover from disasters. This distinction is essential, as both are required, each complementing the other. Anticipatory actions mitigate immediate risks, while preparedness strengthens health systems to handle future emergencies sustainably.

Improving policy guidelines and establishing a legal framework specifically for anticipatory action is crucial, as distinguishing it clearly from preparedness can help ensure that resources are used efficiently. There are also gaps in defining standard thresholds and trigger mechanisms for anticipatory actions. Strengthening coordination and communication across sectors, building human resource capacity and enhancing community awareness and knowledge transfer are essential to ensure effective climate adaptation, especially among the most vulnerable groups.

4. Programmatic recommendations for mitigating risks

The National Society has made considerable progress in climate change adaptation and environmental sustainability across 15 districts, utilizing climate-smart programming and nature-based solutions. Furthermore, the Nepal Red Cross Society has initiated numerous local initiatives with the objective of enhancing community health and climate resilience. These include the reinforcement of early warning systems and the implementation of heat action plans. In addition, initiatives such as the Junior/Youth Red Cross (JYRC) tree plantation campaign, The Changemaker campaign and Y-Adapt training programmes across various provinces are promoting youth-led climate action, empowering young leaders to contribute to climate resilience efforts.

The society's Climate and Environment Policy and associated framework address the increasing intensity, frequency and uncertainty of weather and climate-related hazards, shocks and stresses (including epidemic and pandemic risks) (Nepal Red Cross Society, 2023). The following actions have been designed in line with this policy and framework to meet the needs of the most at-risk populations:

- **Strengthen epidemic and pandemic preparedness, using a community-based surveillance approach that responds to climate-sensitive health risks in line with local priorities and needs.** This approach should link with and strengthen the official Epidemic and Outbreak Surveillance Programme, ensuring a coordinated and effective public health response. It should include dengue.

- **Maximize the potential of the JYRC youth and volunteer network by expanding successful campaigns that raise awareness of climate-induced health risks and promote anticipatory actions.** This includes campaigns such as the JYRC tree plantation campaign, The Changemaker, Y-Adapt training and other locally defined awareness activities. Further expansion of these initiatives to more provinces and areas would amplify the positive impact of JYRC's efforts and encourage broader participation.

- **Implement anticipatory actions for prioritized climate-sensitive health risks as a fundamental part of climate-smart programming.** This involves developing and strengthening risk assessments, early warning systems and early action protocols, while ensuring effective communication and coordination strategies are in place. This includes revising existing protocols that take a multi-hazard approach – such as those for floods and urban heatwaves – with a particular emphasis on mitigating health risks and integrating with health systems.

- **Increase community-level mental health programming for climate risks within the National Society's community-based health programme.** This includes implementing a communication strategy to disseminate essential information on climate-related risks to mental health and well-being.

- **Incorporate capacity-strengthening processes for Nepal Red Cross volunteers and staff.** Key elements include training in psychosocial support, psychological first aid, coping skills, de-escalation techniques, working with people in distress, reducing mental health impacts, long-term stress, promoting sustainable development and strengthening climate adaptation strategies.

- **Improve climate-informed health surveillance through working closely with local municipal authorities.** Key actions include making their Health Plan more climate-sensitive and implementing activities for disaster risk reduction and low-cost mitigation, such as construction of recharge ponds, as well as preparedness actions in certain strategic areas, led by the local ward office and surrounding communities. Strengthen climate-informed health surveillance, linked to early warning and early action at community level, to detect infectious disease outbreaks related to changes in climate patterns.

- **Include mental health in resilience or adaptation programmes.** Ensure mental health risks and outcomes are included in these programmes.

- **Integrate a mitigation approach for climate-sensitive health risks into the climate-smart livelihoods programme.** Key actions include identifying and addressing health risks linked to climate-sensitive sectors such as agriculture, water and sanitation, and ensuring adaptive actions are health-conscious.

5. Recommendations to national and international actors

- **Make locally led action the foundation of addressing climate-sensitive health risks.** It is essential to strengthen the role of community health workers, Female Community Health Volunteers and Nepal Red Cross volunteers in reaching the most at-risk and vulnerable populations. By enhancing their capabilities, these key players will be better equipped to understand health risks related to climate change, identify those most at risk and develop sustainable solutions. This includes supporting initiatives such as community-based surveillance and anticipatory actions, allowing these local actors to manage climate adaptation efforts and safeguard community health over the long term.

- **In urban planning, act now to address the consequences of heat and air pollution as climate-sensitive health risks.** A long-term approach to urban planning and design focused on heat mitigation and reducing air pollution is crucial for addressing heat-related health risks, providing a strong foundation for immediate and future challenges. The National Society can play a pivotal role by promoting the integration of climate-smart adaptations into programmes that target urban populations, ensuring communities are better equipped to face rising temperatures and their associated health impacts.

- **Keep the intersectionality of health vulnerabilities at the centre of action.** Women and low-income households, among the most at-risk groups, require sustainable and effective responses to reduce climate-related health risks. By designing, analysing and utilizing high-quality gender equality data – disaggregated by sex, age and other relevant local factors – programmes can be tailored to individual needs, ensuring no one is left behind and creating solutions that are equitable and inclusive for all.

- **Address the burden of climate change on mental health.** Strengthening the development and implementation of mental health and psychosocial support programmes is imperative. By prioritizing this focus, the Nepal Red Cross Society can ensure mental health needs are met, providing the necessary support to help communities cope with the challenges posed by climate change impacts.

- **Enhance the efficacy of health policy implementation by making this climate-specific.** It is essential that this provides opportunities for more in-depth participation of vulnerable groups, outlines the specific health consequences of climate change and places greater emphasis on community education as a key strategy for mitigation and adaptation. It is also crucial to fill gaps, notably where there is only limited emphasis on awareness-raising and knowledge transfer in relation to climate adaptation at the community level.

- **Enhance community resilience through innovative financing, strategically directing investments towards local capacities in the most vulnerable communities to maximize their impact.** It is necessary to increase the use of prearranged finance and support the creation and scale-up of innovative financing tools. This approach can address needs in critical sectors – such as health systems, water management, food security and ecosystem conservation – and ensure resources effectively reach those in need and get utilized in a timely manner. By fostering innovative financial mechanisms, comprehensive and sustainable resilience can be built, empowering communities to anticipate, absorb and adapt to climate shocks and long-term changes.

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