Chapter 9
Analysis of Policies and Institutional Framework of HKH Countries

Hari Krishna Nibanupudi and Rajib Shaw

Abstract The Hindu Kush Himalayan (HKH) mountains are known as the water towers of Asia and are the source of the ten major rivers that feed the river basins in plains below. These rivers do not understand political boundaries and traverse many countries on their way to the sea. However, national policies, institutions and regional arrangements (or lack thereof) can determine the positive or negative impacts of these rivers on the communities living in the river basins of the HKH. Several research studies argue that the absence of a robust regional cooperation framework, lack of international legal and policy instruments, and lack of an integrated institutional approach to river basin management are limiting the capacity of the countries of the HKH to optimise the benefits from this vast resource on a basin scale and exacerbating disaster risks. These limitations are also contributing to the high prevalence of poverty and food insecurity in the populated areas of the river basins. The problem has worsened with climate change, which has led to more extreme weather events such as floods and droughts, threatening the lives and livelihoods of the people living in the mountains and plains. This chapter looks at the disaster risk management (DRM) policies and institutional framework of the countries in the HKH region. It examines the status of policy implementation and the macro-level national institutions mandated to implement DRM policies and their effectiveness. It also discusses the role of international drivers, such as the Hyogo Framework for Action and Millennium Development Goals, in the formation of policies.

Keywords Hyogo Framework for Action • Integrated approach • Millennium development goals • Policies • Transboundary • Water policies

H.K. Nibanupudi (✉)
International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal
e-mail: hari.krishna@icimod.org; hari_2068@yahoo.com

R. Shaw
Graduate School of Global Environmental Studies, Kyoto University, Kyoto, Japan
e-mail: shaw.rajib.5u@kyoto-u.ac.jp

H.K. Nibanupudi, R. Shaw (eds.), *Mountain Hazards and Disaster Risk Reduction*,
Disaster Risk Reduction, DOI 10.1007/978-4-431-55242-0_9

9.1 Climate and Disaster Risks Faced by Countries in the HKH Region

Over the past two decades, global commitments and strategies for disaster risk reduction (DRR) have been challenged by a flurry of natural hazards, which are increasing in terms of frequency and intensity. According to the global reinsurance company, Munich Re, in the year 2011, we witnessed the kind of disasters that are expected only once every 1,000 years. With over 300 billion dollars in damages, 2011 was the costliest year in recorded history for losses from natural disasters (Munich Re 2011). In the same year, disasters displaced over 215 million people, with floods accounting for nearly 87 % (GHA 2011). In 2012 and 2013, large-scale floods, landslides and hurricanes devastated populations in parts of India, Nepal, Pakistan and Afghanistan.

Countries in the Hindu Kush Himalayan (HKH) region have a history of devastating earthquakes, floods, landslides, droughts and cyclones, which have caused economic and human losses. The physiographic settings and climatic characteristics of the region favour a high incidence of both geological and hydrometrological hazards (SAARC 2008). Hydrological disasters, such as floods, landslides, mass movements, and droughts, are the most common type of disaster in the HKH, constituting 48 % of total annual disasters (Guha-Sapir et al. 2011). Climate change and climate variability has led to an increase in the frequency and intensity of hydrometeorological hazards in the HKH region. One special elements of the process of climate warming is its impact on glaciers, especially on the development of potentially dangerous glacial lakes within the HKH region.

As Table 9.1 shows, the countries of the HKH region have been particularly affected by deadly disasters in the last few decades The Indian Ocean Tsunami of 2005 shocked most of the nations in the region and prompted them to initiate policy measures to reduce future disaster risks. However, many of the policy and regulatory processes adopted by the countries in the region have lacked effective

Table 9.1 Disaster events and impacts by country in the HKH region, 1980–2009 (Based on EM-DAT from United Nations (2010) and CRED (2014))

Country	No. of disaster events	No. of deaths	No. of people affected ('000)	Damage (million USD)
China	574	148,419	2,549,840	321,545
India	416	141,888	1,501,211	51,645
Pakistan	131	84,841	29,966	8,871
Afghanistan	125	19,304	6,774	497
Bangladesh	229	191,650	316,348	16,273
Nepal	74	10,881	4,507	1,621
Bhutan	9	303	66	5
Myanmar	25	139,095	3,315	2,726

Note: Damage data are at 2005 prices

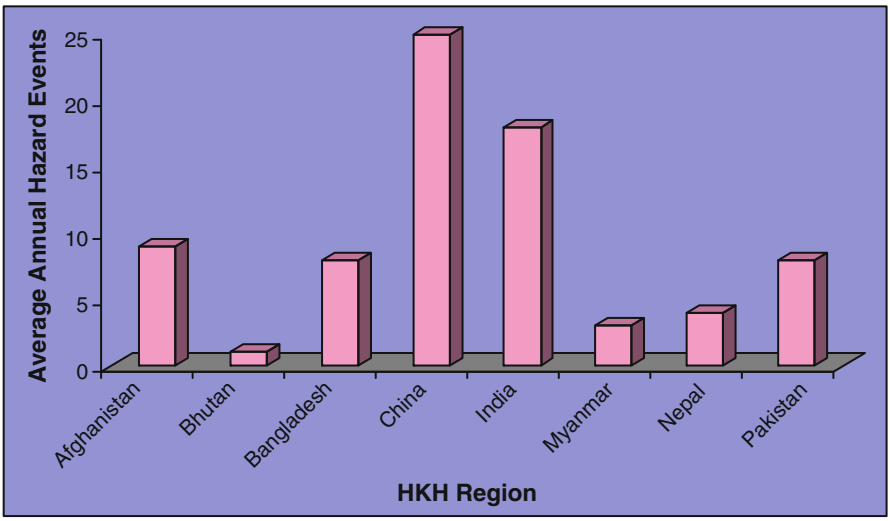

Fig. 9.1 Spatial variation of average annual hazard events in HKH region (Based on EM-DAT from CRED (2014) and Guha-Sapir et al. (2011))

implementation, as evidenced by the catastrophic disasters in the region in the last decade. The Indus floods in Pakistan, Uttarakhand floods in India, the Sichuan earthquake in China are few examples.

The statistics show that the number of people killed on average per event is significantly higher in Asia than elsewhere in the world and that, among all of the water-induced disasters, the number killed is much higher for flash floods (Jonkman 2005). In Nepal, landslides, floods and avalanches destroy important infrastructure worth about USD 9 million and cause about 300 deaths annually. In Afghanistan, 362 people were killed or reported missing, 192 injured and 100,000 displaced as a consequence of flash floods in 2005 (Xue et al. 2009). Exceptional events can exceed these numbers by many times; for example, in 1998 the Yangtze river flood in China caused an estimated USD 31 billion in damage (Kron 2005).

Analysis of the spatial distribution of natural disasters suggests that, as well as the total number of hazard events increasing, the spatial variability of these events is also increasing. This means that, in some places, hazard events are taking place with high to extremely high frequency, whereas in other places they are taking place with a low level of frequency. The middle part of the HKH region (Bangladesh, China, India, Nepal and Pakistan) has experiencing a very high frequency of hazard events; Myanmar and Afghanistan have moderately frequent hazard events; and Bhutan has a low frequency of hazard events (Fig. 9.1). The HKH region has an average of 76 hazard events each year, with the highest number of events in China (25) and India (18) (Nibanupudi and Rawat 2012).

9.2 Risk Versus Policy and Institutions in HKH Countries

The mountain regions, plains, coastal belts and all other ecological zones of the countries that are part of the HKH region are experiencing an increase in the frequency and intensity of disasters. This section looks at the disaster risk facing each of the countries in the HKH and their policy and institutional responses.

9.2.1 Nepal

Nepal, the country of 6,000 rivers, faces frequent floods, landslides and avalanches, as well as occasional droughts, earthquakes and glacial lake outburst floods. The floods in 1993, 1998 and 1999 caused immense loss of human life and property. The monsoon flood in 1999 affected over 8,000 families in the Terai plains and mid hill region. The drought of 1994 affected 35 of the country's 75 districts, destroying 157,628 ha of agricultural crops. The worst ever disaster caused by an earthquake in Nepal was in 1934 when an 8.2 magnitude earthquake killed over 8,000 people. The most talked about natural hazard in Nepal today is glacial lake outburst flood (GLOF). Approximately 14 glacial lakes in Nepal are considered potentially dangerous, according to a report of the Global Fund for Disaster Risk Reduction (GFDRR 2008).

Disaster Risk Management in Nepal

- The Government of Nepal has adopted a National Strategy for Disaster Risk Management.
- A revised draft bill for a new Disaster Management Act is awaiting parliamentary approval.
- Although DRR priorities are reflected in Nepal's development plans and strategies, such as 10th Plan and Three-year Interim Plan, implementation is lacking.
- DRR processes have slowed and become less clear due to a delay in policy implementation. In addition, the delay in the constitution drafting process has weakened political participation and commitment to DRR.
- Efforts of the Nepal Risk Reduction Consortium (Asian Development Bank, Federation of Red Cross and Red Crescent Societies, United Nations Development Programme, United Nations International Strategy for Disaster Risk Reduction, United Nations Office for the Coordination of Humanitarian Affairs and the World Bank) have facilitated implementation of the five flagship elements of the National Strategy for Disaster Risk Management.

9.2.2 Bhutan

Like Nepal, Bhutan has a major mountain ecosystem. Bhutan hasn't seen a major natural disaster in recent years, but faces multiple hazard risks due to its geophysical position. Bhutan lies in one of the most seismically active regions of the world and is prone to threats from GLOF, climate change and global warming. Landslides are recurrent phenomena, while GLOFs are among the most serious natural hazard potentials in Bhutan. According to a study undertaken in 2001 by the Department of Geology and Mines in collaboration with ICIMOD, there are 2,674 glacial lakes in Bhutan, of which 25 are potentially dangerous and could pose a GLOF threat in the future. GLOFs have occurred in Bhutan in the past in 1957, 1960 and, most recently, in 1994. Bhutan is also witnessing extreme variations in its climate and weather patterns (Mool et al. 2001).

Disaster Risk Management in Bhutan

- The 10th Five Year Plan document of Bhutan highlights the importance of the integration of DRR concerns in the National Development Plan.
- The National Disaster Risk Management Framework formulated in the year 2006 was the first comprehensive multi-stakeholder strategy dealing with disaster management in the country.
- To create legal support for the implementation of the National Disaster Risk Management Framework, the Department of Disaster Management has drafted the National Disaster Management Bill, which envisages the delegation of authority and resources for disaster management. The bill has recently been passed by the Parliament of Bhutan and the government has initiated the process of establishing a National Disaster Management Authority.
- The commitment of the government to DRR is reflected in its plans, policies and strategies, but there is serious gap in implementation, primarily because of the lack of capacity at various levels.
- An institutional system for disaster risk management in line with the Disaster Management Bill needs to be established.
- Lack of a systematic and scientific database for hazards, vulnerabilities and risk at the macro and micro level needs to be addressed. Few agencies at the central and district levels regularly publish and disseminate disaster-related information.

9.2.3 Afghanistan

Afghanistan is a landlocked mountain country in the Hindu Kush mountain region and is prone to a number of natural disasters. Afghanistan is located in one of the most seismically active zones in the world. Most of the earthquake epicentres are located in the Hindu Kush mountains, where many villages, towns and cities are

located. There is a high propensity for widespread death and destruction whenever an earthquake, landslide, mudslide, debris flow, avalanche or flood occurs in Afghanistan. The 2014 mudslide in the village of Abi Barak, in Badakhshan Province killed around 2,700 people and affected 14,000 others. The mudslide followed days of flash floods across nine northern Afghan provinces, which killed more than 160 people, displaced 16,000 others and affected a further 50,000 (IFRC 2014).

Disaster Risk Management in Afghanistan

- The institutional capacity to deal with disaster impacts is building slowly in Afghanistan, which is recovering from years of conflict. Some sizeable gains have been made in terms of reconstructing infrastructure, providing social services, building flood mitigation structures and carrying out environmental conservation projects.
- The Afghanistan National Disaster Management Authority is the focal point for disaster management and has a coordinative role during emergency operations.
- The United Nations has existing mechanisms in place called the Provincial Mapping of United Nations Activities (PMUNA) and Afghan Info (with the Central Statistics Office), which are fed into the Afghanistan National Disaster Management Authority's information management, monitoring and evaluation system.

9.2.4 Pakistan

Pakistan shares the Hindu Kush mountain region with India and Afghanistan. The mountain ranges in the extreme north of Pakistan provide a perennial source of inflow into the rivers, which occasionally flood the provinces of Punjab and Sindh, while hill torrential rains tend to affect the hilly areas of the North Western Frontier Province, Balochistan and the Federally Administered Northern Areas. Flash floods are common in the northern areas of the country and cause great loss of life. The devastating Indus river floods in 2010 inundated a fifth of Pakistan's total land area and displaced over 20 million people in the Khyber Pakhtunkhwa, Sindh, Punjab and Baluchistan regions of Pakistan. Apart from floods, Pakistan is also highly vulnerable to earthquakes and landslides. The mountain ranges of the Koh-e-Sulieman, Indo-Kohistan, Hindu Kush and Karakorum are highly vulnerable to earthquakes, while the regions of Kashmir, Federally Administered Northern Areas and parts of the North West Frontier Province are particularly vulnerable to landslide hazard (PDKN 2014).

Disaster Risk Management in Pakistan

- An institutional structure for disaster risk management was created through the National Disaster Management Ordinance to provide a legal framework for the establishment of a comprehensive disaster management system.

- The National Disaster Management Commission was established as the apex policy-making body, with the National Disaster Management Authority as its executive arm. Provincial/Regional Disaster Management Commissions and Authorities and District Disaster Management Authorities have also been established at the provincial/regional and district levels.
- There is a lack of awareness among institutions and communities of the need to undertake DRR as an integral part of sustainable development.
- The availability of human resources trained in DRR is very limited.
- The Pakistan Meteorological Department, Water and Power Development Authority and Federal Flood Commission collect, archive and disseminate data on hydrometeorological hazards, but dissemination is not streamlined to local communities.
- The National Disaster Management Authority, in close coordination with the Ministry of Education, has developed a comprehensive strategy to integrate DRR into school education. The curriculum wing of the Ministry of Education has finalised the DRR related curricula, which covers all hazards, for grades 1–12. The DRR concepts are in Urdu and English languages for children from grades 1 to 5. For students from grades 6 to 12 this information has been included in the geography and social studies curriculum. Some public as well as private universities have started to offer specialised courses in disaster management.
- The University of Peshawar has established the Disaster Preparedness Center, which offers specialised courses in disaster management. The Princeton University in Islamabad has introduced a master of business administration in disaster management and other universities, including the Hazara University and Karakorum International University, offer research courses related to disaster management. The NDMA is working on the integration of DRR education into the training academies of the civil servants of Pakistan.

9.2.5 India

India receives annual precipitation of 400 million ha m. Of the annual rainfall, 75 % is received during the four monsoon months (June-September) and, as a result, almost all rivers carry heavy discharge during this period. An area of 40 million ha is considered vulnerable to floods and the average area affected by floods annually is about 8 million ha. Floods in the Indo-Gangetic-Brahmaputra plains are an annual feature. About 30 million people are affected by floods every year. On average, a few hundred lives are lost, millions are rendered homeless and several hectares of crops are damaged every year. Around 68 % of the arable land in India is prone to drought to varying degrees (GFDRR 2012). At the high altitudes in the Himalayan states of India, avalanches are common. According to the Snow and Avalanche Study Center, a project of the Defence Research and Development

Organization (DRDO), on average, around 30 people are killed every year due to avalanches in the Indian Himalayas (ADRC 2012)

Disaster Risk Management in India

- The Government of India has formulated the National Disaster Management Act, which has created suitable institutional infrastructure such as the National Disaster Management Authority and National Institute for Disaster Management.
- India's 11th Five Year Plan also emphasises the need for, and importance of, mainstreaming DRR into development planning process and programmes.
- Every state and department at the national level is in the process of developing its own Disaster Management Plan. In addition to this, a Crisis Management Plan is being prepared by the Ministry of Home Affairs in coordination with other ministries to respond to emergencies of different types.
- Different state governments and organisations such as the Geological Survey of India, India Meteorological Department, Central Water Commission, National Remote Sensing Agency, India Institute of Remote Sensing, Indian Space Research Organization, National Spatial Data Infrastructure, and National Agricultural Drought Assessment and Monitoring System are creating a database for disasters.
- The India Disaster Knowledge Network is being developed for knowledge sharing and development among various stakeholders, but access to this knowledge base is restricted.
- The Central Board of School Education, one of the most widely recognised boards of school education in India, and various State Education Boards have included disaster management in the secondary school curriculum. Supplementary textbooks have been prepared and the Central Board has conducted extensive training programmes for teachers.
- Several universities have started professional courses on disaster management.

9.2.6 China

China is one of the countries most affected by natural disasters in the HKH. China is prone to floods, droughts, earthquakes, typhoons and landslides. The losses caused by these five main natural disasters make up 80–90 % of the total annual disaster loss in the country. China has had six of the world's top ten deadliest natural disasters of all time. The 1887 Yellow River flood ranked second in death toll for both floods and natural disasters, claiming between 0.9 and 2 million lives. China has also had three of the top ten most fatal earthquakes in the world, of which the 1556 Shaanxi earthquake reportedly killed more than 800,000 people and is listed as the deadliest earthquake of all times and the third deadliest natural disaster. In more recent times, the 2008 Sichuan earthquake, which claimed the lives of close to 70,000, was the greatest since 1976 (GFDRR 2012).

Disaster Risk Management in China

- The China National Committee for Disaster Reduction is comprised of 30 ministries and departments, including relevant military agencies and social groups.
- The National Committee for Disaster Reduction functions as an inter-agency coordination body under the State Council, which is responsible for studying and formulating principles, policies and plans for DRR, providing guidance to local governments in DRR, and coordinating major disaster activities.
- The National Disaster Reduction Center was established in 2002 and serves as a centre for disaster information sharing and provides technical support to the National Committee for Disaster Reduction.
- Of a total of 31 provinces (including 4 cities directly under the central government), 15 have established a provincial committee for DRR to coordinate response and relief to natural disasters.
- There is no institutional mechanism in place for comprehensive disaster risk management at all levels in China.

9.2.7 Myanmar

In Myanmar, flooding accounts for 11 % of all disasters. Between 1910 and 2000, there were 12 major floods. Over two million people are exposed to flood hazard in Myanmar every year. The mountainous and hilly areas in Kayin, Kachin, Shan, Mon and Chin states are threatened by flash floods. In Kachin, the snow at higher altitudes melts and causes frequent flash floods at the beginning of summer (ADPC 2007).

Disaster Risk Management in Myanmar

- The National Disaster Preparedness Central Committee has been formed under the chair of the prime minister and is the apex body for disaster management in Myanmar.
- The roles and responsibilities of the different ministries have been set out for the warning stage, disaster stage and rehabilitation stage.
- The Ministry of Social Welfare, Relief and Resettlement's 30-year Long-term Plan (2001–2030) mentions DRR as a priority.
- However, Myanmar lacks an overarching disaster management law and there is also a lack of clarity on how to integrate DRR into each ministry.
- There is no national multi-sectoral platform for DRR.
- A systematic, standardised and comprehensive risk assessment based on hazard and vulnerability information is lacking.

9.2.8 *Bangladesh*

Bangladesh lies less than 10 m above sea level and 80 % of its land is flood plain. Each year about 26,000 km^2 (around 18 %) of the country is flooded, killing thousands of people and destroying millions of homes. The 1998 floods in Bangladesh affected more than 75 % of country's land mass. Bangladesh has experienced some of the most devastating cyclones to hit the globe in recorded history, the major ones among them being Bhola (1970) and Gorky (1991). Cyclone Bhola is marked as the deadliest tropical cyclone in history and claimed nearly 300,000 lives. Similarly, Cyclone Gorky in 1991 claimed nearly 140,000 lives, in addition to destroying property worth several millions of dollars. The modelled number of people present in hazard zones in Bangladesh is 4,641,060 for cyclones, 642,277 for droughts, 19,279,960 for floods, 3,758 for landslides and 1,330,958 for earthquakes (GFDRR 2012).

Disaster Risk Management in Bangladesh

- A National Disaster Management Act and National Disaster Management Plan (2010–2015) have been formulated.
- Around 644 Union Risk Profiles and Local Disaster Risk Reduction Action Plans have been formulated and about 60,000 small-scale risk reduction interventions have been implemented.
- Training on Comprehensive Disaster Management approaches has been imparted to 800 Union Disaster Management Committees, 100 journalists, 150 university teachers, and 150 trainers working for public and private training institutes, academies and resource centres. A large number of members of civil society have also been trained.
- A multi-sectoral National Platform for Disaster Risk Reduction has been established.
- Key challenges remain in relation to the decentralisation of decision-making processes, resource allocation for DRR interventions and the capacity of local government bodies, especially those newly elected.

9.3 Policies, Legislation and Initiatives in HKH Countries and the Hyogo Framework for Action

The massive humanitarian tragedy caused by the Indian Ocean Tsunami of December 2004 and the Kashmir earthquake in 2005 have alerted Asian nations to the need to enhance DRR efforts. Against this backdrop, the world conference on DRR held at Hyogo, Kobe, Japan in 2005 brought together over 160 countries and produced Hyogo Framework of Action. The framework has subsequently been adopted by 168 countries. The Hyogo Framework for Action provides a comprehensive, action-oriented response to international concerns about the growing

impacts of disasters on individuals, communities and national development. This response is elaborated in the framework's three strategic goals (investment in DRR, urban risk reduction, and strengthened linkages between DRR and climate change adaptation) and five priorities for action (make DRR a priority, improve risk information and early warning, build a culture of safety and resilience, reduce the risks in key sectors and strengthen preparedness for response). The responsibilities of the different actors for implementation and follow-up are defined, particularly for the states, regional organisations, international organisations and the United Nations International Strategy for Disaster Reduction, while the primary responsibility lies with states (UNISDR 2011).

The Hyogo Framework for Action was inspired by the Beijing Action for Disaster Risk Reduction in Asia, the first Session of the Global Platform for Disaster Risk Reduction, and the Delhi 2007 Ministerial Declaration. The framework has provided much needed impetus for DRR in Asia, triggering new initiatives, institutions and stakeholders within the region. All of these developments over the last 5 years have helped most Asian nations, particularly the nations in the HKH region, to make substantial progress in terms of policies, technologies and institutions for addressing DRR.

Under the influence of the Hyogo Framework for Action, some of the significant policy and institutional arrangements initiated by countries in the HKH region include:

- The enactment of national disaster management laws (still pending in Nepal and Afghanistan due to political and democratic challenges)
- The creation of national disaster management authorities (NDMAs) under the leadership of the head of the country, with necessary powers and resources to manage disasters efficiently
- The creation of national disaster response forces in India and China for speedy deployment for rescue, evacuation and response after a disaster (other countries to follow the same process)
- The development of a number of provincial and national level institutions to conduct research to advise national governments on different aspects of disasters
- The capacity building of police, civil and military officials at provincial and national levels for managing disasters
- The strengthening of existing infrastructure in disaster prone areas, such as roads, buildings, telecommunication facilities, and evacuation and relief shelters
- The creation of robust early warning systems for cyclones, floods, tsunamis and earthquakes using both terrestrial and satellite-based tools and technologies
- The introduction of disaster education in school curriculum in India, China, Pakistan and Bangladesh (other countries also have made such plans)

However, on the flip side, there has been a lack of horizontal transfer of knowledge and learning on managing disasters between countries in the region. Only those countries or provinces in countries that have faced disasters recently are gearing up with preparedness measures, while no such alertness is seen in other provinces or neighbouring countries. The main actions to be taken before and after a

disaster take place locally. Dependency on federal or international support for resources, capacity and technology will delay response and cost lives, as proved in the Uttarakhand flood in India in 2013. There needs to be a massive administrative reform to make effective DRR and response a matter of performance for administrators. The electorate should take the performance of their elected representatives into account in reducing disaster risk for them. The mid-term review report of the Hyogo Framework for Action (Table 9.2) reveals that most of the countries in the HKH region have adopted the five priority areas recommended by Hyogo Framework for Action and made institutional commitments to implementing them. However, many of these countries, with the exception of China are falling short, in terms of adequate resources, capacities or appropriate policies, in realising most of the Hyogo Framework for Action priorities.

It is clear that the response aspect of managing disasters is still dominant in the minds of decision makers. Disaster management is yet to be seen as an essential part of good governance and integral to development planning. It is important to recognise that disaster management is everybody's business. It is not just the government that is responsible for reducing disaster risk. Every citizen and institution should develop the perspective of risk and safety and preparedness should be fostered in all walks of life. Further, individual safety lies in a safe environment and a safe environment is the product of community action. Safety from hazards and disasters requires collective planning and collective efforts. Collective action involves different cultural entities, groups and individuals identifying common needs and coming together to address these needs. As disasters are on the rise in both urban and rural areas, it is vital to promote collective planning and development to create a safe environment in which people have adequate protection from natural hazards, industrial pollution and unsafe infrastructure development. Governments and local authorities must put more emphasis on strengthening people's capacity to anticipate, cope with and recover from disasters, as an integral part of development programmes.

The small Latin American country of Cuba teaches the world with its culture of disaster preparedness. In Cuba, every school teaches disaster preparedness, every club and every housing society has a disaster contingency plan, and every citizen is aware of what to do before, during and after a disaster to save lives and property (Thompson and Gaviria 2004). Along similar lines, the countries in the HKH region need to conduct a massive awareness and education campaign to promote a culture of disaster preparedness. Most importantly, the countries in the HKH region need to develop expertise in dealing with all types of disasters in different environs. While, many countries in the region have made considerable progress in dealing with coastal disasters and to some extent riverine floods, the same cannot be said for high altitude disasters. For instance, India was appreciated by the international community for its effective response to the cyclone and floods in Odisha in 2013. However, India's response to the high altitude Uttarakhand disaster known as the 'Himalayan Tsunami' was not appreciated as much.

Table 9.2 Implementation of Hyogo Framework for Action recommended DRR priorities in HKH countries until 2011

Country	Status of HFA implementation
HFA Priority 1: Making disaster risk reduction a priority	
India, Bhutan, Nepal and Myanmar	Institutional commitment attained, but achievements are neither comprehensive nor substantial
Pakistan and Bangladesh	Substantial achievement attained but with recognized limitations in capacities and resources
China	Comprehensive achievement with sustained commitment and capacities at all levels
HFA Priority 2: Improving risk information and early warning	
Myanmar	Some progress, but without systematic policy and/or institutional commitment
Bhutan, Nepal and Pakistan	Institutional commitment attained, but achievements are neither comprehensive nor substantial
Bangladesh, China and India	Substantial achievement attained but with recognized limitations in capacities and resources
HFA Priority 3: Building a culture of safety and resilience	
Myanmar	Some progress, but without systematic policy and/or institutional commitment
Bangladesh, Bhutan, Nepal and Pakistan	Institutional commitment attained, but achievements are neither comprehensive nor substantial
China and India	Substantial achievement attained but with recognized limitations in capacities and resources
HFA Priority 4: Reducing the risks in key sectors	
Nepal and Myanmar	Some progress, but without systematic policy and/or institutional commitment
Bangladesh, Pakistan and India	Institutional commitment attained, but achievements are neither comprehensive nor substantial
China	Substantial achievement attained but with recognized limitations in capacities and resources
HFA Priority 5: Strengthen preparedness for response	
Myanmar	Some Progress, but without systematic policy and/or institutional commitment
Bhutan and Nepal	Institutional commitment attained, but achievements are neither comprehensive nor substantial
India, Pakistan and Bangladesh	Substantial achievement attained but with recognized limitations in capacities and resources
China	Comprehensive achievement with sustained commitment and capacities at all level

This mid-term review of HFA progress in Asia Pacific by UNISDR, did not cover the progress HFA in Afghanistan
Source: UNISDR (2011)

Conclusion and Way Forward

Until recently, the countries in the HKH region looked at disasters mainly from point of view of loss of revenue to the national exchequer and loss of lives. The main focus was administrative response. However, each major catastrophe has contributed to new learning and a systemic change in the way disasters are managed. For instance, in India, the 1977 super cyclone in Andhra Pradesh made the government understand the importance of early warning and evacuation, while the 1999 super cyclone in Orissa focused attention on a coordinated response and relief activities. The administrative response to the 2001 Gujarat earthquake set a benchmark for the government in terms of long-term rehabilitation and reconstruction. Repeated floods with devastating impacts have made communities in Bangladesh enhance their resilience and preparedness through collective action. Finally, the visual impact of Indian Ocean Tsunami, thanks to the television media, prompted national and provincial governments to take structural and non-structural DRR measures seriously.

Need for a Mountain Perspective and Cooperation Between Mountain Countries

It may be difficult for a national disaster management policy to embrace the perspective of a specific ecological region. However, recent massive mountain disasters such as the Uttarakhand floods in India in 2013, annual Seti floods in Nepal, the massive mudslide in Afghanistan in 2014, a spate of landslides in China, and the massive avalanche tragedy that killed dozens of Pakistan soldiers near the Siachen Glacier in 2012, highlight the need for national policies and institutions to develop guidelines and action plans for strengthening national response and preparedness systems to deal with hazards specific to different ecological regions. In addition, considering the fact that the capacity, technology and resources to deal with high altitude disasters are limited in most of the HKH countries, a robust mountain region cooperation framework for DRR is needed.

Similarly, in order to enhance regional security and cooperation, it is essential to have political ownership of the need for DRM. Members of legislative bodies, office bearers of political parties and former ministers who continue to participate in political processes are a link between people and the state. They can encourage the state apparatus to formulate policies and mobilise the public opinion for disaster risk management. A better understanding is needed between political representatives and leaders of the countries of the HKH region, which would be facilitated by a forum especially dedicated to address water issues and hazards. This forum could take the form of an inter-parliamentary forum on water resources or a broader platform that brings politicians together to discuss water issues and

(continued)

(continued)

collaborative solutions in order to enhance overall security in the region (SFG 2010).

The Hyogo Framework for Action emphasises the importance of regional cooperation for DRR. Paragraph 31 of the framework calls on regional organisations with a role in DRR to promote regional programmes for technical cooperation and capacity development; develop methodologies and standards for hazard and vulnerability monitoring and assessment; share information and effectively mobilise resources; and establish or strengthen existing specialised regional collaborative centres, as appropriate, to undertake research, training, education and capacity building in the field of DRR (ASEAN 2007). The success and sustainability of such regional aspirations and actions requires countries to develop a specific understanding of the disaster vulnerability of people in mountain regions. A policy framework and commitment for regional cooperation for DRR is needed among HKH countries and each country in the region should develop a mountain specific disaster management action plan with the active involvement of communities in the mountain region.

Need to Integrate DRR with Sustainable Development Goals

The increasing frequency and intensity of disasters in the HKH region is partly due to the high population density and the unprecedented expansion of development activities in this fragile environment. The rise in tourism in mountain areas has led to a construction boom in unsafe zones, such as river valleys, flood plains and slopes vulnerable to landslides. These often unsustainable construction processes have replaced forests and farmlands and violated laws on land use. While tourism, which is a major revenue generator for mountain areas, should not be discouraged, we should not overlook the importance of agriculture, agro-based cottage industries and animal husbandry to the mountain economy. Mountain regions require special attention in terms of the potential risk of earthquakes as well as flood disasters and land use management. Hazard scenarios and models need to be developed, as well as land zonation maps that demarcate areas prone to floods and landslides. Human habitation should be restricted to safe zones, away from the flood plains and maximum river inundation levels. A realistic mitigation strategy should strike a balance between development and acceptable levels of risk. Future economic development in mountain regions must be based on a sustainable environmental policy.

References

ADPC (2007) Myanmar hazard profile. Asian Disaster Preparedness Center. http://www.adpc.net/v2007/IKM/ONLINE%20DOCUMENTS/downloads/2009/Hazard%20Profile%20of%20Myanmar.pdf. Accessed 10 July 2014

ADRC (2012) Country disaster report, India. Asian Disaster Reduction Center and Disaster Management Division Ministry of Home Affairs Government of India. http://www.adrc.asia/countryreport/IND/2012/IND_CR2012B.pdf. Accessed 10 July 2014

ASEAN (2007) Background note for promoting regional cooperation mechanisms on disaster reduction. In: 2nd Asian ministerial conference on disaster risk reduction, 7–8 Nov 2007, New Delhi, India

CRED (2014) EM-DAT: the international disaster database. Centre for Research on the Epidemiology of Disasters, Université Catholique de Louvain, Brussels. www.emdat.be. Accessed 18 Sept 2014

GFDRR (2008) Nepal country hazard assessment. Global Fund for Disaster Risk Reduction. http://www.gfdrr.org/gfdrr/sites/gfdrr.org/files/documents/Nepal_HazardAssessment_Part2.pdf. Accessed 10 July 2014

GFDRR (2012) Disaster risk management in South Asia: a regional review. Global Facility for Disaster Reduction and Recovery. The World Bank, Washington

GHA (2011) Global humanitarian assessment report, 2011. Development Initiatives, Somerset, United Kingdom. http://www.globalhumanitarianassistance.org/reports. Accessed 10 July 2014

Guha-Sapir D, Vos F, Below R, Ponserre S (2011) Annual disaster statistical review 2010: the numbers and trends. CRED, Brussels. http://www.cred.be/sites/default/files/ADSR_2010.pdf. Accessed 10 July 2014

IFRC (2014) Information bulletin Afghanistan: floods and landslide. International Federation of Red Cross and Red Crescent Societies (IFRC) (online), 8 May 2014. http://www.ifrc.org/docs/Appeals/rpts14/IBafgFFLSn2-080514.pdf. Accessed 10 July 2014

Jonkman SN (2005) Global perspectives on loss of human life caused by floods. Nat Hazards 34:151–175

Kron W (2005) Flood risk hazard, values, vulnerability. Water Int 30(1):58–68

Mool PK, Bajracharya SR, Joshi SP (2001) Inventory of glaciers, glacial lakes and glacial lake outburst floods: monitoring and early warning systems in the Hindu Kush-Himalayan Region. ICIMOD, Kathmandu. http://lib.icimod.org/record/7511. Accessed 10 July 2014

Munich Re (2011) Worldwide distribution of natural catastrophes in 2011. Munich Re NatCatSERVICE (online), 4 Jan 2012. http://www.munichre.com/en/media-relations/publications/press-releases/2012/2012-01-04-press-release/index.html. Accessed 10 July 2014

Nibanupudi HK, Rawat PK (2012) Environmental concerns for DRR in the HKH region. In: Gupta AK, Nair SS (eds) Ecosystem approach to disaster risk reduction. National Institute of Disaster Management, New Delhi

PDKN (2014) Pakistan hazard profile. Pakistan Disaster Knowledge Network. http://www.saarc-sadkn.org/countries/pakistan/hazard_profile.aspx. Accessed 10 July 2014

SAARC (2008) SAARC workshop on climate change and disasters: emerging trends and future strategies. South Asian Association for Regional Cooperation (SAARC) Disaster Management Center, New Delhi. www.saarc-sdmc.nic.in. Accessed 10 July 2014

SFG (2010) International workshop report: Benefits of cooperation in the Himalayan river basin countries, Singapore, 2–3 Dec 2010. Strategic Foresight Group, Mumbai

Thompson M, Gaviria I (2004) Weathering the storm: lessons in risk reduction from Cuba. Oxfam America, Boston. www.oxfamamerica.org/cuba. Accessed 10 July 2014

UNISDR (2011) Hyogo Framework for Action progress in Asia Pacific: regional synthesis report 2009–2011. United Nations International Strategy for Disaster Risk Reduction, Geneva. http://www.unisdr.org/we/inform/publications/21158. Accessed 10 July 2014

United Nations (2010) The Asia Pacific disaster report: reducing disaster vulnerability and building resilience in Asia and the Pacific. United Nations and Economic and Social Commission for Asia and the Pacific (ESCAP), Bangkok

Xue X, Guo J, Han BS, Sun QW, Liu LC (2009) The effect of climate warming and permafrost thaw on desertification in the Qinghai-Tibetan Plateau. Geomorphology 108:182–190