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Disaster Preparedness: A Roadmap to Resilient Pakistan

ISSUE #2

Asian Disaster Preparedness Centre (ADPC) with support from Bill and Melinda Gates Foundation (BMGF) is implementing the program 'Strengthening Capacity of Government, Local Humanitarian Organizations and the Private Sector on Preparedness for Response in Asia' in 6 South and South-East Asian countries namely- Nepal, Pakistan, Sri Lanka, Cambodia, Philippines and Myanmar.

The program utilizes a unique networked approach by creating the **Asian Preparedness Partnership (APP)** - a multi-stakeholder regional partnership through the program. APP strives to improve inter-organizational coordination and dialogue between Governments, Local Humanitarian Organization networks and Private Sector networks for enhancing capacities through partnerships, knowledge resources, training and networking opportunities. The program's goal is to strengthen the emergency response capacities in these countries to better prepare for, respond to, and recover from disasters.

With the creation of national partnerships in the program countries and commencement of planned activities, it would be imperative to highlight the value addition of this collaborative approach in the overall humanitarian architecture of each project country. As part of this strategy, communications and outreach can play a critical role in the dissemination of work undertaken to improve and strengthen coordination mechanisms and emergency response capacities of our key stakeholders.

APP
ASIAN PREPAREDNESS PARTNERSHIP

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Raheela Saad

The disaster according to its definition is a serious interruption of the society and community functioning, that also causes huge human, material, economic and environmental losses that often get beyond the capacity and resources of any community or nation to handle.[1]Pakistan is prone to multi-disasters; the geographical composition of most of the parts of the country makes it vulnerable to multiple disasters. Almost all districts and their urban and particularly the rural populations fall prey to major disasters such as earthquakes, floods, high winds, draught, fire and heat and cold wave. The 148 districts of the country including capital territory of Islamabad and 7 tribal agencies of the FATA are either highly prone to floods or the earthquakes. Most of the southern parts of the country also suffer from chronic drought situation and most of the disaster prone areas are inhabited by people from low income groups accounting 7.9 percent[2] of the total population. Each disaster adds to their existing vulnerability and pushes them deeper into poverty during disasters.

Due to the factors that comprise of age, physical ability, gender, health conditions and, dependency on care givers, many children are extremely vulnerable in the event of a disaster. Such events can pose serious risk for their healthy growth, development and overall well-being. The exposures to the disasters and the psychological trauma have lasting repercussions over minds of children. Schools are generally considered to be safer places for millions of children that besides educating the children also perform as greatest socializing institutions after the family. However, the exposure to various disasters, fire eruption, in-school violence and the threat of terrorism validate the need for schools to be prepared for all type of hazard, threats and disasters. The fundamental challenge related to school safety in Pakistan is particularly related to the feebly constructed buildings unable to sustain the disaster affects and cause loss of life. Most of the residential areas in the country also lack building safety codes therefore hardly sustain earthquake, floods and other disaster and cause massive livelihood loss and result to homelessness and extreme poverty.[3]

International Practices of School Safety

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States on 18 March 2015 at the Third UN World Conference on Disaster Risk Reduction. One of its targets is to "substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, through developing their resilience by 2030".

Considering the modern international school safety practices besides a realization of disaster effects, the school safety however, has been a top most priority agenda for nations across the globe

A comprehensive School Safety Framework grew out of a process of top-down visioning and bottom-up advocacy. It emerged out of a broader global shift away from disaster response and towards disaster risk reduction (DRR). This approach to reducing hazard exposure and social vulnerability before a disaster, was facilitated by the establishment of the UN International Strategy for Disaster Reduction (UNISDR) and the adoption of the Hyogo Framework for Action in 2005 (UNISDR, 2005). Schools were an early focus of the new DRR agenda. The goals of the framework are to:

- Protect learners and education workers from death, injury and harm in schools;
- Plan for educational continuity in the face of all

[1] David Smawfield, *Education and Natural Disasters* (London: Bloomsbury Academic, 2013).

[2] "Poverty & Equity Data Portal", *Povertydata.Worldbank.Org*, last modified 2018, accessed January 19, 2018, http://povertydata.worldbank.org/poverty/country/PAK.

[3] Tina Peissker, *The Governance of Climate Change Adaptation in Developing Countries* (Hamburg: Anchor Academic Pub., 2013).

expected hazards and threats;

- Safeguard education sector investments; and
- Strengthen risk reduction and resilience education

The CSSF aims at conducting a hazard hunt exercise which involves identifying all kinds of hazards including those that can cause physical harm such as deep potholes, weak buildings, lack of boundary walls, and hazards that can affect the health of children such as contaminated water sources, absence of toilets and hand-washing facilities as well as those that are outside the school such as fast-moving traffic on the road or open water sources like ponds.The identified risks may be collated, analyzed and prioritized together by the children and school level disaster management committee and finally formulate a school safety plan prior to submitting to the school management committee for incorporating into the school development plan.[4]

Although in other way, the same institution that provides opportunity learning may turn as one of the factor that puts the life of children at risk by ignoring the importance of safety and other relevant considerations.

School Safety in Pakistan

Safety at schools has begun to receive its due attention in Pakistan markedly after the 2005 earthquake, 2010 floods and the Army Public school incidence in 2016. The school children were a major casualty of the 2005 earthquake.[5] It is crucial at this point that children be considered as the most valuable assets and cared for, in the same way. Schools as sites of teaching and learning can deliver their educational mandate only in safe and secure conditions, free from injuries, crime, and violence. Basic school safety and security features are therefore essential at schools. While catastrophic events and human tragedies cannot be eliminated entirely, their negative impact can be mitigated. It was found that school environments displayed some measure of basic safety, though there was a need to focus more on features like ensuring proper maintenance and surveillance systems, as well as on functional safety and security systems and procedures. These basic safety measures however, varies and depends greatly on the socio-economic strata the school belongs to. An important finding was related to the lack of conscious efforts aimed at creating safe and secure environments. It is recommended that schools should focus on the basic safety and security of their physical environments, purposefully plan school-based maintenance, surveillance and collaboration with stakeholders, including outside agencies like law-enforcement and rescue workers.

Gender & Child Cell, NDMA, formulated the Pakistan School Pakistan Safety Framework (PSSF), in line with its national and global commitment to strengthen the awareness and preparedness of students, teachers as well as the community at large, regarding hazards, disasters and potential risks. The formulation of PSSF strengthens Pakistan's alliance to the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) that emphasizes the significance of incorporating DRR in the education sector. The Framework identifies children as agents of change and highlights child-centered disaster risk management as a high priority agenda.

PSSF was developed after a series of National level consultative meetings with the government and private sector stakeholders. The final consensus was developed in the last National Consultative Meeting in August, 2016, where it was recommended that the said Framework should be pretested through a Pilot project and its findings should be reviewed to refine the Framework, before its scale up implementation. The PSSF was pretested through a Pilot project in 68 selected government and private schools across Islamabad, AJ & K and Gilgit Baltistan, with the aim to determine the applicability challenges of the Framework and view its effectiveness in disaster risk management, in the education sector at regional and national level.

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[4]Donald W Hyndman, Norman RhoderickCatto and David W Hyndman, *Natural Hazards And Disasters* , 1st ed. (Toronto: Nelson Education, 2009).

[5]Lawrence J. Fennelly and Marianna A. Perry, *The Handbook for School Safety andSecurity*, 1st ed. (Amsterdam: Elsevier Publishing company, 2015).

National Disaster Management Commission (NDMC) approved the Pakistan School Safety Framework (PSSF) at the 5th meeting of NDMC, under the Chairmanship of former Prime Minister of Islamic Republic of Pakistan, Mr. Shahid Khaqan Abbasi, at the PM office Islamabad on March 28th, 2018. The NDMC proposed for efficient roll-out of the PSSF in the provinces since the increased frequency of disasters calls for a higher level of preparedness and institutional response across the country.

Phase 1 was successfully completed in May 2018 in which 28 Master Trainers, 210 teachers and around 30 evaluators were trained and the subsequent implementation of PSSF in respective schools. Currently, the project is in the second phase of implementation with Head Teacher Orientation Sessions, Refresher training for Trainers and 40 field trainings for teachers in Islamabad and Gilgit/Baltistan. PSSF Scale-Up is being carried out in 500 schools in two phases of 250 schools each. The project aims to train 1500 teachers and 400,000 school children, in collaboration with Federal Directorate of Education (FDE).

Schools are safe learning places — but when disasters occur, it can have far-reaching ramifications. PSSF is an investment in developing knowledge about the root causes of disasters, fostering strategies for increasing school safety, and rigorously imparting trainings for innovative school safety strategies through programs.

Mainstreaming Disaster Risk Reduction into Health Sector in Pakistan: An Opportunity to Prepare for Emergency Response and Disaster Risk Management

Shafi Ullah

Pakistan is prone to a number of natural and human induced disasters due to its peculiar geographic, physiographic and strategic settings. Since its creation, Pakistan has witnessed high magnitude disasters causing wide spread damages to lives and properties and leaving long term consequences in the form of unbearable losses. After the devastating earthquake 2005, the paradigm shift from response centric to proactive approach served the promulgation of National Disaster Management Ordinance 2006 and later became an Act in 2010, it facilitated a robust disaster management system spread over the entire country with its national, provincial and district level chapters, however, the element of health in this entire effort has not been addressed properly. At the government level, the coping mechanism is in place but needs to be strengthened and therefore NDMA is one move away from a response centric approach towards preparedness and prevention of diseases in emergencies by taking up health as a priority, thus bringing about a paradigm shift in its overall disaster risk management agenda.

Under the One UN DRM Joint Program during 2009-2012, NDMA has been able to mainstream disaster risk reduction into 10 important federal level ministries and departments including health. NDMA has established National and Ministerial level working group and provide technical support to these ministries in mainstreaming. But after the devolution due to the 18th amendment in the constitution that took place in 2011, most of ministries became part of the provincial chapters. With regards to health, Pakistan has been a part of the Alma Ata Declaration for its effective implementation in the country as well as being a signatory to the Millennium Development Goals 2015 and Sustainable Development Goals 2030. Post 18th amendment of the constitution, the provinces have now been empowered and given autonomy in the field of health to improve the indicators pledged under these international obligations. There is now a need to make more efforts to strengthen the existing systems in terms of overall coordination between central and provincial chapters, equity and developing uniform standards in order to reduce the overall vulnerability of health issues among common masses, especially during disasters and emergencies.

Various international entities put their efforts to reduce the risk of hazards and strengthening of health systems during disasters. Noteworthy are the WHO's International Health Regulations (IHR 2005), and Hyogo Framework for Action (HFA, 2005-2015) on DRR, followed by the Sendai Framework for Disaster Risk Reduction (SFDRR 2015-2030) has laid down seven (07) fundamental principles agreed in an International Conference held during 2016 in Bangkok, Thailand, on the implementation of the health aspects of the SFDRR, which has served the basis of guidance for mainstreaming Disaster Risk Reduction into Health Sector. The task of building bridge between DRR and Health stakeholders in Pakistan is not an easy one as many challenges would need to be addressed to build the systems in addition to identifying core competencies required at various levels and properly channelizing those competencies in the right direction.

Key healthcare challenges in Pakistan to face during disasters and emergencies

The overall health status in Pakistan has improved since 1990 at a much slower pace in relation to its neighboring countries. The increase in life expectancy at birth, from 64 years to 70 years in the recent years. It is; however, higher than the life expectancy at birth in India and Bangladesh, but significantly lower than in Sri Lanka, Indonesia and Malaysia. Women continue to face the risk of limited access to reproductive health services and pregnancy related morbidity and mortality. Nearly 11,000 women die annually while giving birth, signifying one of the highest maternal mortality rates in the Region.

According to WHO, health is defined as a state of complete physical, mental and social wellbeing and not

merely an absence of disease or infirmity. As per this definition, health is the overall wellbeing that includes the aspect of societal factors. At a field level, the maximum damage takes place in terms of disruption of normal life and dealing with mortality and morbidity of the displaced and affected population. The major challenges in health care as narrated in a breakdown of disaster management cycle;

Healthcare challenges after the impact of disaster

After a major disaster, the need for search, rescue and first aid is likely to be so great that organized relief services will be able to meet only a small fraction of the demand. The golden hour, i.e. the first hour which is referred to as the golden hour is the most critical time that defines the future outcome of the injured patient is not taken seriously. In Pakistan, most cases go unchecked and non-referred as there is no particular emergency ambulance service except Punjab and in some parts of Khyber Pakhtunkhwa & AJ&K that can immediately attend to the patients on site as part of pre-hospital care. Further, no uniform standards for emergency response trainings available in the country. It has been observed that all organizations imparting the first aid trainings use their own guidelines.

Healthcare challenges during the Relief Phase

This phase begins when assistance from outside starts to reach the disaster hit area. The type and quantity of humanitarian relief supplies are usually determined by two main factors, firstly the type of disaster, since distinct events have different effects on the population and secondly the type and quantity of supplies available locally. Major challenges foreseen during the relief phases can be categorized as the availability of medical supplies, epidemiologic surveillance and control of transmission of communicable diseases, emergency vehicles for quick referral

Healthcare challenges during the rehabilitation phase

This phase in a disaster should lead to restoration of pre-disaster health conditions. Rehabilitation of health starts from the very first moment of a disaster. It is normally observed that measures decided in a hurry tend to obstruct re-establishment of normal health conditions of life. Besides, medical provisions by external agencies of sophisticated medical care for a temporary period have negative effects. On the withdrawal of such care, the population is left with a new level of expectation which simply cannot be fulfilled.

Healthcare challenges during mitigation and preparedness phase

With the current health response systems in place, emergency preparedness would require to focus on a programme of long term development activities whose goals are to strengthen the overall capacity and capability of a country to manage efficiently any type of health emergency and bring about an orderly transition from relief through recovery, and back to sustained development. The major challenges in pre-disaster phase here would be to ensure that appropriate systems, procedures and resources should be in place to provide prompt and effective health assistance to disaster victims, thus facilitating relief measures and rehabilitation of services.

Health sector a priority for mainstreaming disaster risk reduction (opportunities in creating safer health system)

With the available data on challenges that health care sector faces during emergencies, there is a dire need of integrating DRR into health sector to reduce the vulnerabilities and risk of health facilities, reduce burden of diseases, mortality and chances of morbidity of the vulnerable population. During recent decade, a lot of work has been done in disaster risk reduction across the world; however, after the Hyogo Framework of Action and Sendai Framework for DRR publishing, there is a clear cut pathway to establish systems that have the DRR component in health sector. It is noteworthy that there are seven (07) global targets set for achieving the SFDRR in which four (04) targets (I, II, IV & VII) are directly related to Health;

I. Reduce global disaster mortality
II. Reduce the number of affected people globally.
III. Reduce disaster economic loss
IV. Reduce disaster damage to critical infrastructure and services

V. Increase the number of countries with national and local DRR strategies

VI. Enhance international cooperation

VII. Increase the availability of and access to multi-hazard EWS and disaster risk information

The implementation of the health aspects of SFDRR were taken in consideration during an international conference during 2016 at Bangkok, Thailand and recommended seven fundamental principles that could assist countries in systematic integration of Disaster Risk Reduction in the National Health Policies and Strategies.

Road map for implementation of health aspects of Sendai Framework for Disaster Risk Reduction (SFDRR, 2015-2030)

Pakistan being a signatory of the SFDRR can take up the initiatives to mainstream DRR into Health sector by engaging the National Disaster Management Authority (NDMA) in close coordination of National Health Emergency Preparedness and Response Network (NHEPRN) under the Ministry of National Health Services Regulations and Coordination (NHSR&C). The seven fundamental principles can be implemented in Pakistan through a road map given below;

Principle-1: *Promote systematic integration of health into national and sub-national disaster risk reduction policies and plans and the inclusion of emergency and disaster risk management programmes in national and sub-national health strategies.*

NDMA has developed National Disaster Management Plan (NDMP, 2012-2022) and National Disaster Risk Reduction Policy 2013 while health is missing in these policies level documents. In order to integrate health and DRR plans and policies, a steering committee and technical advisory committee at National and Provincial level need to be established to oversee the entire process of integration. Moreover, according to National Disaster Management Act 2010, sector specific National, Provincial and District level disaster management plans and contingency plans are developed to cope with all types of disasters. Therefore, health focused disaster management plans and programmes at all level are need of the hour.

Principle-2: *Enhance cooperation between health authorities and other relevant stakeholders to strengthen country capacity for disaster risk management for health, the implementation of the International Health Regulations (2005) and building of resilient health systems.*

The health professionals have been typically trained in dealing with health issues, however due to advent of frequent disasters, complicated health hazards issues arise and further leave severe impact on health facilities. Therefore, it remains a high priority to develop the capacity of health professionals in disaster risk management and risk communication to safe guard against health hazards and protect health assets during any emergency. For this purpose, both horizontal and vertical coordination mechanisms between disaster management authorities and health ministry/departments needs to be established to conduct an exact resource mapping and to organize meetings of Standing Core Committee of International Health Regulation, Pakistan chapter, health cluster, National and Provincial DRR forums and to develop a multi-sectoral dash board system to roll out information sharing at all level.

Principle-3: *Stimulate people-centered public and private investment in emergency and disaster risk reduction, including in health facilities and infrastructure.*

Before embarking on a process to develop an emergency response mechanism, a detailed study of health care facilities and need analysis is required to be conducted as a first step. Primarily the assessments need to be done in terms of what is available versus what is required. To fill the gap of what is required, private companies can be engaged in different structural and non-structural activities for integrating DRR into health with especial focus on establishing DRR resilient health facilities in needed locations. Furthermore, the private sector can be engaged in the development of referral plan for emergencies, establishment of pre-fabricated health structures and warehouses, management of waste disposal of hospitals (bio-hazard wastes) and capacity building of health practitioners on health focused disaster management practices.

Principle-4: *Integrate disaster risk reduction into health education and training and strengthen capacity building of health workers in disaster risk reduction.*

In order to come up with a sustainable capacity development approach for mainstreaming DRR into health, it is necessary to make contents of DRR a part of curriculum of Pakistan Medical Schools and Nursing Council and develop training toolkits on the same subject. The capacity of the health practitioners can be developed on Communicable Disease Control (CDC), Hospital Preparedness for Emergencies (HOPE), regular exercises on Hospital Incident Command System (HICS), and Community Action on Disaster Response (CADRE). A central database of the master trainers and volunteers need to be established and backed by mobile application to access all the health workers in case of emergency and disaster.

Principle-5: *Incorporate disaster-related mortality, morbidity and disability data into multi-hazards early warning system, health core indicators and national risk assessments*

The concept of Disease Early Warning System (DEWS) has been introduced by WHO that helps in epidemiological study of incidence and disease prevalence in any community. This helps in preventing the spread of diseases during emergency and timely check of medical emergencies. It is therefore required to develop health threats/Disease Early Warning System at all provinces and linkage with disaster management authorities. The establishment of DEWS alone will not be beneficial without the technical inputs of the international agencies and experts. A proper analysis of information would be required by technical agencies like ministry/departments of health with support form WHO to formulate interventions and reduce the threat of mortality and morbidity. It is also suggested to conduct Multi-Hazard, Vulnerability and Risk Assessment (MHVRA) of health threats/facilities at all level and share information with relevant authorities.

Principle-6: *Advocate for, and support cross-sectoral, trans-boundary collaboration including information sharing, and science and technology for all hazards, including biological hazards.*

Presently the Government of Pakistan recognizes two (2) formal check points out of 67. The remaining 65 check points still need to be assessed and recognized while 3.5 million of migrants from Afghanistan are already living in different camps established by the government of Pakistan. Further, Internal Displaced Population taking place due to the ongoing surgical strikes in the Southern and Northern borders of the country as part of fighting against extremism. Since, due to security concerns, there is limited access to the humanitarian organizations into these areas, very few setups that the army allows are being able to work there. This leaves a big gap in epidemiological disease surveillance, a threat to health care. It is critical to establish emergency services facilities that would cater to the local population and promptly address the health needs, including establishment of first aid service as part of pre hospital care. Further, it remains essential to assess the check points in terms of vulnerability to health and disasters by following the guidelines of International Health Regulations (IHR, 2005).

Principle-7: *Promote coherence and further development of local and national policies and strategies, legal frameworks, regulations, and institutional arrangements.*

The decentralization/devolution process took place as part of the 18th amendment in the constitution, on account of which, health primarily became a provincial subject. This devolution has created certain gaps that need to be fulfilled, one remaining the policies and Acts to be fully implemented, since provinces have now their own autonomy. Each provincial set up has its own reforms and Acts, and there is no uniformity of services. There is still a dire need of a minimal service deliver standard to bring about standardization in the health care delivery, especially during any emergency or hazard. The draft version of Health Act, 2010 can be made a reference for replication in provinces.

As each Province/Region has its own needs with respect to health and disaster risk reduction which may vary somewhat region to region. The implementation of the aforementioned proposed measures requires a collective effort of both National and Provincial/Regional level stakeholders to develop a doable and agreed implementation framework.

Ensuring Nutritional Security in Disasters

Muhammad Amir

Developing countries are more prone to nutritional emergencies after a disasters[1] . It is quite certain in large scale disasters but being malnourished is not linked entirely with large scale disasters. A shock as small as a lean season or temporary loss of livelihoods results in a spike in undernutrition. According to World Health Organization[2] in developing countries protein energy deficiency in children from 6 to 59 months of age, is a normal phenomenon. The fact is in line with the high prevalence of malnutrition in Pakistan. According to the Demographic and Health Survey of Pakistan 2017-18 [3]conducted by the government of Pakistan, a very high number of children under the age of 5 years are stunted. The survey shows that 38% of the children are stunted while 17% out of the total are severely stunted. In addition as high as 53,000 children die of diarrhoea in Pakistan[4] every year, which is also a significant causal factor for malnutrition. According to Pakistan Demographic and Health Survey 2017-18 "Overall, 14% of children under age 5 showed symptoms of ARI, 38% had a fever, and 19% experienced diarrhoea in the 2 weeks preceding the survey". The fragile state of children shows worrying signs for the health and nutritional status in normal conditions which can aggravate after disasters. The question here is that what can be done to prevent a humanitarian crisis with regards to malnutrition in Pakistan where vulnerabilities are high and communities especially rural are not having enough capacities to cope any shock or disaster. The answer is not simple and has to be unfolded in several layers with respect to the malnutrition causal frame work as explained below.

The factors that leads an individual to be malnourished are multi layered and according to the UNICEF 2015[5] Nutrition Framework the causal factors are classified in to three layers. It starts with immediate causes such as continuous starvation due to a sudden disaster resulting in lack of access or availability of food or being diseased i.e. diarrhoea, respiratory tract infection. Intermediate causes which are not very drastic in nature but can cause moderate to acute malnutrition such as lack of food during lean seasons or lack of livelihoods opportunities for daily wagers who are unable to purchase food or lack of knowledge about adequate feeding practices by mothers. At the bottom of the causal factors that can lead to malnutrition are structural causes such as policies, institutional capacities, low literacy ratio, poverty etc. The causal factors some time exists in tandem specially in protracted crises where a situation transits between acute and chronic. This fact highlights the plethora of causal factors directly or indirectly, affects the nutritional security of children under 5 years of age and those pregnant or lactating mothers in Pakistan. Such segments of communities are the most vulnerable during disasters.

It is ironic that malnutrition is not considered as a primary area of focus when a disaster struck .[6] Most of the humanitarian response post disasters are focused

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[1] Clinton 1999, The Epidemiology of Malnutrition in Disasters , https://escholarship.org/uc/item/7799v282

[2] The management of nutrition in major emergencies Geneva, World Health Organization, 2000. http://www.who.int/topics/nutrition/publications/emergencies/en/

[3] Pakistan Demographic and Health Survey 2017 -18, https://dhsprogram.com/pubs/pdf/PR109/PR109.pdf

[4] https://www.dawn. com/news/1381735

[5] UNICEF's approach to scaling up Nutrition, https://www.unicef.org/nutrition/files/Unicef_Nutrition_Strategy.pdf

[6] https://disasterphilanthropy.org/issue -insight/nutrition/

on immediate assistance. It is assumed that malnutrition is a gradual process however if the causal factors are not addressed, a situation soon turns in to a sharp rise in malnutrition. As a rule of thumb we can take disaster preparedness cycle as a bench mark to address malnutrition in disasters. Where we can investigate all the steps of the cycle through a nutrition lenses. From preparation to response and then to recovery, all the stages should be aligned with both prevention and curative measures for children and mothers prone to be malnourished. The following section explains that what could be done in the wake of a disaster when it struck irrespective of its magnitude to prevent and treat malnutrition.

Predictability is possible in the case of malnutrition, an edge that can improve the step of preparedness. Surveillance of nutritional indicators is a major step where data can be collected with regards to malnutrition in the country. Pakistan has a number of surveys that are providing national, provincial and district level statistics to measure the prevalence of malnutrition in the country. Some of the surveys include National Nutrition Survey, Pakistan Demographic and Health Survey, Multi Cluster Indicator Survey and Nutrition Information Systems operated by the government, UN and INGOs. The data sets that are available are more than enough to give us an accurate picture of the situation on the ground hence can lead to a sound planning for responses during disasters. Being the premier department to formulate policies, it would be ideal to have a greater focus of National Disaster Management Authority Pakistan on malnutrition. Furthermore, the National Disaster Management Plan has to be further enriched with guidelines for addressing nutritional security during an emergency as well as preventing a situation to escalate in to a nutritional emergency in itself.

The next step would be prepositioning for addressing any shock or disaster that can lead to morbidity or mortality caused by malnutrition. As stated earlier, malnutrition could be caused by shocks that are not classified as disasters therefore, there is a need for continuous response both from the humanitarian and developmental perspective i.e. humanitarian and developmental nexus. This means that malnutrition is not the domain of a single department which in this case is the department of health or nutrition but it is a multi-sectoral issue that needs to be taken care of from different angles. For example, preparedness to address nutrition during disasters would include access and availability of socially acceptable nutritious food. In addition, stocks for general food distribution shall be prepositioned strategically to prevent an escalation. Similarly, a buffer stock of therapeutic food supplies for treating and prevention of malnutrition should be in place. Thirdly a buffer stock of medicines for treatment shall be required to treat the cases that will lead to prevention of a child being malnourished. Awareness of communities plays an important role in prevention of malnutrition or at least reducing its intensity. Therefore, as part of preparedness mass level awareness is an answer to it. In a nutshell the supply chain of food items, therapeutic foods and medicines combined with education of masses have to be designed in a way that resources can be mobilized with the shortest possible lead time, which in case of Pakistan should be limited to days if not hours. A response phase is explained in the following paragraph.

Addressing malnutrition and its underlying causes is a complex task and only treatment of malnutrition would not work. A combination of efforts which include access to clean drinking water, proper feeding practices, hygiene as simple as hand washing, feeding practices for infants and children less than 5 years of age, access and availability of nutritious balanced diets and treatment of malnourished cases would be required. It is desirable that national level assessment tools to have nutritional indicators. A partial response would be detrimental and a relapse of malnutrition can happen as has been witnessed in the past. The most efficient way for such a situation is the identification of hotspots of malnutrition. It is an established fact that hotspots of malnutrition exist during emergencies or in protracted crisis. The process to identify hotspots is based on measuring the existing malnourished cases and presence of its underlying casus in the communities. A rapid assessment, needs to cover the indicators that are directly linked with malnutrition such as Mid Upper

Arm Circumference Measurement (MUAC), a simple short and easy to apply method to identify malnourished children and women would lead to identification of suspected or confirmed cases and can be referred for immediate assistance. Once addressed, then the recovery phase should be focused on not only treating any new case of malnutrition but also to prevent it through addressing its underlying causes as explained in the following section.

The recovery phase should be linked with reduction of vulnerabilities and increasing the resilience of communities so that they can bear the stress and strain of a disaster of any magnitude. The causal factors of malnutrition stretch from immediate shocks or emergencies to lack of efficiency of policies and institutional capacities of the government departments. For instance, climate change is an indirect causal factor of malnutrition because it erodes the capacity of poor farming communities to produce enough food their consumption or livelihoods. Similarly, less rains and depleting aquafers would affect the per capita water availability and compromising the ability of a household to maintain hygienic conditions. When a community is swirled in multi-faceted poverty, they are more prone to be malnourished. Therefore, malnutrition is an emergency in itself and it is important to be addressed during emergencies, however the causal factors are deep and sometimes hidden. A thorough and comprehensive multi sectoral response could be the answer to address malnutrition. In this regards, the humanitarian- development nexus can be the best tool, where Pakistan can strategies to address the current cases of malnutrition but also invest in future through generating more robust policies, institutional reforms and engagement of local actors and communities to be part of the process. This will enable Pakistan to address malnutrition in totality.

Pakistan; Science of Climate Change and Droughts

Tailal Masood

Pakistan has been rated amongst the 10 countries[1] that are at extreme risk to climate change given their specific social, economic and environmental conditions. The most important climate change potential threats[2] to Pakistan are identified as;

- Increased variability of monsoon;
- Rapid recession of Hindu Kush-Karakoram-Himalayan (HKH) glaciers threatening water inflows into the Indus River
- System (IRS); reduction in capacity of natural reservoirs due to glacier melt and rise in snow line;
- Increased risks of floods and droughts;
- Increased siltation of major dams resulting in greater loss of reservoir capacity;
- Severe water-stressed and heat-stressed conditions in arid and semi-arid regions, leading to reduced agriculture
- productivity and power generation;
- Increased upstream intrusion of saline water in the Indus delta, adversely affecting coastal agriculture, mangroves
- and breeding grounds of fish; and

For a country like Pakistan which is grappling with a long list of issues on social, economic, political and environmental fronts and where development indicators are dwindling; climate change is complicating the already prevailing challenges. These include food insecurity, unsustainable livelihood systems, shortage and abundance of water, disease burden, loss of biodiversity and environmental degradation to name but only a few. The list seems to be unending.

Pakistan has a diverse topography and environmental conditions; with high mountains in the north to coast in the south. In between there are deserts, river basins, plateaus and canal-fed and arid agricultural fields. The climate induced disasters including cyclones, droughts, floods, heavy rains, heat and cold waves etc. recurrently take a heavy toll on
human life, livelihoods, environment and existing development gains.

At start of the last decade, Pakistan witnessed the worst drought (1998–2002) of its history while at the end there were worst floods. This ironic tradition continued as the current decade also started with an unprecedented monsoon spell (floods 2011) followed by floods 2012. Together these three flooding events are estimated to have affected 30 million people in three consecutive years. Climatologists and environmentalists have clearly declared these events the result of climate variability.

Past and Expected Future Climatic Changes over Pakistan

During the last century, average annual temperature over Pakistan increased by 0.6 °C, in agreement with the global trend, with the temperature increase over northern Pakistan being higher than over southern Pakistan (0.8 °C versus 0.5 °C). Precipitation over Pakistan also increased on the average by about 25 %.

Studies based on the ensemble outputs of several Global Circulation Models (GCMs) project that the average temperature over Pakistan will increase in the range 1.3-1.5 °C by 2020s, 2.5-2.8 °C by 2050s, and 3.9-4.4 °C by 2080s, corresponding to an increase in average global surface temperature by 2.8-3.4 °C by the turn of the 21st century. Precipitation is projected to increase slightly in summer and decrease in winter with no significant change in annual precipitation. Furthermore, it is projected that climate change will increase the variability of monsoon rains and enhance the frequency and severity of extreme events such as floods and droughts.

Source: *Planning Commission, Government of Pakistan, Task Force Report on Climate Change, 2010*

Droughts:

Drought in Pakistan has become a frequent phenomenon in the country. Drought differs from other natural disasters in the sense that the effects of drought often accumulate slowly over a considerable period of time and may linger on for years even after the termination of the event. Because of this, drought is often referred to as a "creeping phenomenon." The impacts of drought are less obvious and are spread over larger geographical areas than the area damaged from

[1] *2018 Global Climate Risk Index released by the public policy group Germanwatch*

[2] *Government of Pakistan, Planning Commission, Task force report on Climate Change*

other natural hazards.

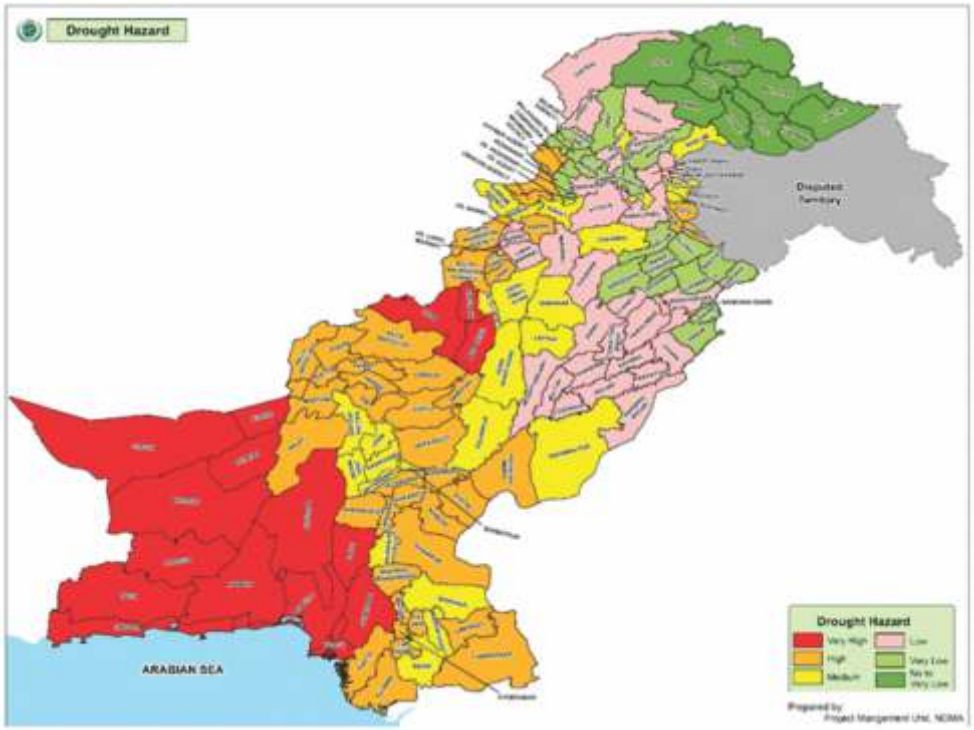
Drought is a period of inadequate or no rain fall over extended time creation soil moisture deficit and hydrological imbalances. Classification of Drought: Drought on different basis is generally classified into three categories

Meteorological Drought	Hydrological Drought	Agricultural Drought
This involves a reduction in rainfall over a region for a specified period (day, month, season, and year) below a specified amount, usually defined as some proportion (percentage) of the long term average for the specified time period. Its definition involves only the precipitation statistics.	This involves a reduction in water resources (stream flows, reservoir levels, ground water, underground aquifers etc) below a specified level for a given period of time. Hydrological drought occurs when a lengthy meteorological drought causes a sharp decline Hydrological drought occurs when a lengthy meteorological drought causes a sharp decline in the levels of ground water, rivers and lakes.	This emerges due to the impact of Meteorological and Hydrological droughts on a particular area of human activity. In order to achieve the optimum growth, crops have particular temperature, moisture and nutrient requirements during their growth cycle. If the moisture availability in particular falls below the optimum amount during the growth cycle, the crop growth will be impaired and yields reduced.

In recent years, droughts are reported to have brought extensive damage to Balochistan, Sindh and Southern Punjab where average annual rainfall is as low as 200-250 mm. The drought of 1998–2002 is considered worst in 50 years, where around 3.3 million from 23 districts were affected. According to a report issued by the Economic Survey of Pakistan, the drought is one of the factors responsible for poor growth performance. Balochistan especially the western and central parts of the province remain in the grip of drought almost all year round.[3] Drought in the country is common; if the monsoon season fails to deliver rains then drought emerges.

Causes of Droughts:

Drought conditions appear over any of the vulnerable zone when the rain producing systems fail in succession. Winter rainfall generally fails when the tracks of western disturbances which move on to our area from the west, remain at a latitude of 35° N or higher. Under such a situation, no secondary western disturbances form below 30°N and consequently Sindh province and parts of Baluchistan can completely go dry. This situation has been found to occur quite often. The situation get aggravated if the subsequent months of April and May also go completely dry and temperatures become very high which is a normal feature of these months. Evapotranspiration tremendously increases and results in perpetual drought. During the summer months June to September, if a monsoon low or monsoon depression which forms over Arabian Sea or over Bay of Bengal fails to reach our areas, the



Source: National Disaster Management Authority (NDMA)

[3] *Noreen Haider, Living with Disasters: Disaster Profiling of Districts of Pakistan*

monsoon rains are very scanty and that too in the northern parts of the country which include northern divisions of Punjab, parts of Khyber Pakhtunkhwa & northern areas.[4]

Since the inception of the country in 1947 to the recent past, Pakistan has been blessed with a fully operational irrigation system and availability of water from the rivers that flow through it. Up till quite recently, the supply of the water was enough to meet the demand of all the end users but the rapid growth in population started putting unprecedented pressure on the irrigation system. The passage of time has degraded it to a large degree and there is a need for its massive restoration and improvement to meet the increased demands.

Almost all the semi-arid and arid areas of Pakistan experience drought with varied intensity. The severity of drought reached its climax in low rainfall zones including most of Balochistan, southern parts of Sindh and southeastern parts of Punjab. Districts affected by severe droughts in Pakistan are;

Province	Districts
Balochistan	**Severe** - Nushki, Kharan, Washuk, Panjgure, Kech, Gawader and Awaran **Moderate** - Killah Abdullah, Chaghi, and Pishin
Punjab	**Severe** - Bahawalnagar, Bahawalpur, Rahim Yar Khan, Rajanpur, Dera Ghazi Khan, Muzafargarh and Bhakkar **Moderate** - Chakwal, Jhelum, Khushab, Attock, Mianwali and Layyah
Sindh	**Severe** - Kharparkar, Umerkot, kambar-Shahdad kot, Dadu and Jamshoro **Moderate** - Karachi, Thatta, Badin, Mir Pur Khas, Benaziabad and Khairpur

Source: National Disaster Management Authority (NDMA)

Effects associated with Drought:

Drought often referred as a creeping disaster, as the effects of drought often accumulate slowly over a considerable period of time and may linger for years together after the termination of the event. Such a state of affairs often keeps the people hopeful for the good times to come soon. Further, their attachments with their homes and surroundings make them hesitant to leave their home towns. Only under inevitable circumstances, some partial migration takes place.

Adverse effects of Droughts

- Killings of people and livestock due to famine.
- Diseases.
- Deterioration of nutritional status.
- Reduction in resources of drinking and irrigation-water.
- Decline in the ground-water tables, where available.
- Social disruption due to migration.
- Increased rates of inflation.
- Desertification.
- Environmental degradation, due to contamination of soil, water and atmosphere through the deaths of livestock and human beings.

The policy and institutional response to climate change in Pakistan

Pakistan has an impressive record when it comes to legislation and formulation of policies, signing and ratification of international covenants and establishment of institutions that deal with different aspects of environment including climate change and disaster management. Although the country was founded in 1947, the areas that now constitute Pakistan have more than 150 year long history of environment related legislation. However the implementation of policies, rules and laws and effectiveness of the institutions has been a major issue.

The first institutional effort to manage environment in Pakistan was made back in 1974 with the establishment of Environment and Urban Affairs Division at federal level. One decade later, in 1983 Pakistan Environmental Protection Ordinance came into force that led to the establishment at federal level of a high level Pakistan Environmental Protection Council (PEPC) and environmental protection agencies at federal and provincial levels. The ordinance also provided for the Environment Impact Assessment as a pre-requisite for future development activity. Another decade later, in 1992 Pakistan developed its national conservation strategy. However it took Pakistan more than a decade to prepare its first and only communication on climate change (in 2003). It took the country another decade to draft its first climate change policy (in 2012).

In 2011 a full-fledged federal ministry of Climate Change was created. Earlier the Planning Commission of Pakistan took the lead and constituted a Task Force on Climate Change that brought its report in 2010

[4] Noreen Haider, Living with Disasters: Disaster Profiling of Districts of Pakistan:

which led to the formulation of Pakistan's Draft Policy on Climate Change. The National Disaster Management Framework was drawn in 2006 coupled with the National Disaster Management Ordinance through which was created an interconnected institutional setup comprising NDMA and NDMC, Provincial and Regional DMAs and Commissions and DDMAs. Although these institutions and policies owe their creation and enactment to Kashmir Earthquake 2005 and later to the Floods 2010, these are very welcome steps indeed. During these years Pakistan also contributed in the preparation of SAARC Climate Change Framework and in 2012 rolled out a National Sustainable Development Strategy.

Most of these initiatives, need to be converted into concrete plans and program bringing them to a level where they could actually start delivering and addressing the challenges being posed by climate change and climate induced hazards and disasters.

Drought Mitigation (Drought):

- Undertake a detailed drought risk, vulnerability and capacity study across Pakistan
- The drought is a creeping disaster and offers sufficient time for early warnings, of the order of a few months or a season. Droughts can be predicted very accurately if early-warnings are reliable and fully authentic. Institutions such as Pakistan Meteorological Department, which is the most suitable agency, need to be strengthened to achieve self-sufficiency in this field.
- Promote and support mass tree plantation campaigns. The government should take the lead by
- planting trees with the support of local communities on government lands (reserved grazing lands)
- Promote drought resistant and water efficient tree, fruit and crop varieties. The plantation of native trees should be promoted.
- Improve on farm water conservation and management techniques including sprinkle, drip and
- pitcher irrigation
- Promote technology of making fodder blocks, and modern fodder storage and supplementing
- Techniques

Contributions Towards the Resilience of Internally Displaced Return Families in KP Merged Districts (formerly FATA)

Fareed Ullah

FATA remains one of the least developed regions in Pakistan having experienced man-made, as well as natural disasters for many years. From 2008 to 2014 more than 5 million people were displaced from the FATA due to the security operations by the military against non-state armed groups.

Although the return process has been lauded as a success, many unmet needs remain and require concerted efforts from all stakeholders to ensure the sustainability of the process. One of the outstanding shortfalls noted was lack of a similar incentive to rehabilitate and reconstruct basic facilities to enable returnees to access services they had been accustomed to in the displacement areas. Due to several years of neglect and a lack of maintenance, most of the facilities including dwelling and other infrastructure, are dilapidated and in dire need of repairs. This meant that many of the returnees especially children, girls and women lacked educational opportunities, had challenges in accessing health facilities, or lacked clean drinking water.

Ensuring a smooth transition to long-term recovery and development of the return IDPs families in North Waziristan and South Waziristan, Participatory Rural Development Society (PRDS) a national organization working for the humanitarian relief and sustainable development is supporting the immediate needs through housing construction, livelihood support and improved water supply schemes, providing communities with a basis to rebuild their lives, following disaster.

With the funding support of various international humanitarian donors and UN agencies the organization improved, installed, repaired and rehabilitated existing water systems with integrated water safety components to create more durable water supply options at community and institutional level. (with alternate electrification modality). The organization extensively contributed to improve and increase water storage at community, household and institutional level. Constructed, rehabilitated and improved safe and adequate sanitation facilities through community led models with focus on component sharing modalities for the most vulnerable, supported by strong community mobilization. Damaged basic WASH facilities in schools and health centers were rehabilitated.

In addition to the PRDS project support to ensure the return families access to adequate and potable water and improved sanitation, sensitization on hygiene education through awareness campaigns were carried out with general masses.

Through hygiene education the general masses encouraged to participate in plantation campaigns,

adopt local and community based solution which can discourage the wastage of clean drinking water and mobilize communities by increasing water use efficiency of the crops and to switch off from conventional agriculture to conservative agriculture like adopting water use efficient methods of irrigation i.e. Sprinkler, Basin and Drip irrigation.

PRDS is committed to contribute and play a vital role in minimizing the prevailing water related issues with the organization given means and resources and it is for this reason PRDS has integrated healthy environmental consideration while implementing its project.

Resilience is a component of an integrated approach to all PRDS projects across the KP and its merged districts (Formerly FATA)." Today PRDS is a strong advocate of helping communities become more resilient, to help break the cycle of moving from one disaster to the next. Since 2010 the organization is supporting projects embracing reconstruction/housing, livelihood rehabilitation, restoration of water schemes and Community-Based Disaster Risk Management.

This approach recognizes that most aspects of community life are related, with projects focusing on different aspects of need, providing complimentary overlapping benefits to others.

Tweaking the Response System: A Case History from Pakistan's Civil Society

Syed Hasan Rizvi

In comparison to the staunch, well-off tiers, resilience as a practice, is not something new to marginalized segments of society. In fact people stuck in multi-dimensional poverty do it every day when they repeatedly get struck by external shocks. They put up a good fight and most often than not, survive in face of worst circumstances. May it be deteriorating health, unstable security, man-made disasters, lack of safety nets, malnutrition, or above all, natural disasters. It is the astonishing ability of human kind to win against all odds; the X factor, the bounce back capacity; which ultimately makes us so remarkable. The obvious question then is; "why is it so hard for Pakistan to recover from repeated natural disasters if Pakistanis are so resilient". This is precisely what this article intends to discuss.

This article uses an example of institutional level disaster preparedness effort from 2007 when a wider collaboration between civil society and state actors, supported by the UN cluster system, resulted in an all indigenous disaster responsiveness in 5 districts of Balochistan and Sindh provinces of Pakistan. These efforts were led by an Irish NGO called Concern Worldwide.[1] The resilience established by these joint efforts was able to bear the hit from a high magnitude flood emergency resulting from cyclone Yemyin in 2008, affecting 2 million people in total, in the mentioned provinces. The writer was an avid witness and a passionate response worker to the joint efforts as well as to the relief and rehabilitation efforts after the floods. While names and some finer details have been changed pending institutional approvals, overall utmost effort have been made to maintain the flow of events and especially the zeal with which all the efforts were undertaken.

Concern had been working in Pakistan since 1998 and had responded effectively to all small and large scale emergencies including Afghan refugee influx after 9/11, the earthquake of 2005 and various floods and other disasters throughout the country. It must be noted that any and all the efforts were only commissioned if and only if the Government of Pakistan initiated a call for support from international community. The three stages for disaster response which practitioners of this sector know are rescue, relief and rehabilitation. Concern was institutionally active in relief and rehabilitation. It is important to realize that back then Pakistani masses were still struggling with the stigma associated with large scale disasters. The newly established National Disaster Management Authority (NDMA) required a lot of institutional strengthening. It wasn't uncommon at that time to term any natural disaster a result of sins by communities. Any scientific approach towards preparedness was challenged by conservatives. Only a handful of clerics supported preparedness and majority thought that leading a pro-Iran or pro-Arabic lifestyle would save them from the wrath of the titans, so to speak. It was in this wider reality that in 2007, their management group led by the then country director, Ms. Dorothy Blane initiated a series of concrete steps to decrease response time and prevent life and material losses; optimize Concern's emergency response, if you will. We will look on the examples of Balochistan and Sindh provinces as this particular case study utilizes example of 2008 floods in these two provinces.

Series of internal and external discussions were held with all staff, with NDMA, with civil society organizations registered with Government of Pakistan and with UNOCHA (United Nations Office for the Coordination of Humanitarian Affairs). A national level emergency roll out was commissioned with Concern's own resources. Without any new human resource, existing teams voluntarily worked hard and for long hours to implement various measures. A critical review of previous responses was carried out bringing out areas for improvement. Capacity building of existing

[1] Permission from Concern Worldwide has been duly obtained for full disclosure.

staff in programmes, finance and administration was carried out. Institutional assessments of civil society organizations registered with the Government of Pakistan and actively working in disaster prone districts of the country, came next. Concern's Quetta office (it did not maintain a Sindh office at that time) formed two teams one for Balochistan and one for Sindh. Both teams comprised of two members each as one female and one male. These teams were trained in institutional assessments utilizing Concern's long tested tools for initiating new partnerships. Administration facilitated in establishing most efficient logistics routes to cover several districts in one go. One full day was reserved for institutional assessment of one civil society organization which was to include financial assessment, physical verification of project sites, extensive discussions with the upper management and cross verification from rights holders. The writer was part of Team-B which covered Sindh. We went from Karachi, to Thatha, Badin, Hyderabad, Mirpur Khaas, Tando Allah Yaar and Tharparkar districts. Team-A met with various stakeholders in Balochistan covering all districts, including those extremely volatile security wise at that time. Special gratitude was rendered to the LEAs for their knowledge of the activity and willingness to help out it required. During the course of one month, both teams met with a total of 60 NGOs, effectively covering all disaster prone areas. Special emphasis was given to organizations who had active presence in said areas. Upon return, another week was spend to analyse the collected information and selection of 30 NGOs as long term emergency response partners for Concern Worldwide. The third step was to sign Memorandum of Understandings with these 12 NGOs which was actually achieved quite quickly due to the excellent support rendered by the finance and administrative sections. Concern then launched a capacity building programme to equip core group staff of these 12 NGOs (and some project based staff as well) with the essential skills and knowledge to deal with natural disasters. Two training events were conducted for the 30 NGOs, 15 in Sindh and 15 in Balochistan. Each training spanned over 3 days covering several critical areas including DRR (Disaster Risk Reduction), Gender Equality, Sphere Standards, Early Warning Systems, wider humanitarian standards, camp management, monitoring and record keeping (including maintaining muster rolls in distributions) and some less relevant but required areas such as project designing for emergency responses. Once initial systems were in place, Concern in its Quetta office initiated an inventory of non edible items for 5,000 families. Each package included mosquito nets, water purification tablets, utensils, tool kits, blankets and items specific to women's needs among others.

It was at this time when the 2008 floods hit Sindh and Balochistan. The emergency roll out Concern had commissioned worked perfectly. While immediate information was continuously being received, it was within 3 hours after the government declared an emergency that full needs assessment report was developed and inventory stock dispatched to most damaged districts in both provinces. Material aid was received by families settling on embankments within 2 days through the local NGO partners with whom Concern had signed MoUs. This was down from previous 5 days response time and a major achievement by all counts. Trainings helped the partners in maintaining smooth functioning of distribution sites. All the progress was continuously reported to UNOCHA for relevant clusters. NDMA was assisted where they required including sharing of needs assessment reports that helped them in sending their own emergency inventory. The immediate response paved way for rehabilitation projects (again with Concern's own funds) in 3 districts of Balochistan (Awaran, Jhal Magsi and Lasbela) and two districts of Sindh (Thatha and Badin). In later stages, emergency inventories were also established with selected partners in both provinces, further reducing the response time as dispatch of goods was made from within the district in case of a natural disaster.

It is hoped that this case may be considered as a best practice by readers with possibilities of replication in own spheres and geographical areas. Especially in the wake of recent crackdown on NGOs by the Government of Pakistan, such examples can rightly be considered an asset and if nothing else, need due recognition at organizational level.

Disaster Preparedness: A Roadmap to Resilient Pakistan

Sahid Mahmood

The Disaster Management Cycle (DMC) consists of two major components, pre-disaster initiatives including prevention, mitigation and preparedness and post-disaster intervention comprising of rescue, relief, rehabilitation and reconstruction. While the later is called reactive response, the first one is known as a proactive approach to disasters management and, hence, it is a component of the resilience building and/or disasters risk reduction (DRR).

International Federation defines disaster preparedness as measures taken to prepare for and reduce the effects of disasters. That is, to predict and, where possible, prevent disasters, mitigate their impact on vulnerable populations, and respond to and effectively cope with their consequences.[1]

According to the United Nations International Strategy for Disaster Reduction (UNISDR), Disaster Preparedness is the knowledge and capacities of governments, organisations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current hazard events or conditions. Preparedness is based on a sound analysis of disaster risks and good linkages with early warning systems and includes such activities as contingency planning, the stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information, and associated training and field exercises. A preparedness plan establishes arrangements in advance to enable timely, effective and appropriate responses to specific potential hazardous events or emerging disaster situations that might threaten society or the environment.[2]

The Sendai Framework for Disaster Risk Reduction 2015-2030 provides a global blueprint to prevent and reduce disaster risk to achieve resilient and sustainable development. The Sendai Framework lays guiding principles, four priorities for action and seven global targets, and converges with the 2030 Agenda for Sustainable Development on the criticality of risk-sensitive development. Notably, both the 2030 Agenda and the Sendai Framework highlight the importance of building coherence across international agendas and frameworks.[3]

Pakistan is vulnerable to a wide range of natural and human-induced disasters that have caused a substantial loss to life and property. In recent years, Pakistan has been hit by a series of natural disasters. In October 2005, there was a 7.6 magnitude earthquake and in 2010 through 2014 there was severe flooding. These disasters had a massive cumulative effect on the lives and livelihood of people at the micro level as well as affected the overall national economy. According to the World Bank study conducted in 2015, on average, approximately 3 million people are affected by natural catastrophes each year in Pakistan, which equates to approximately 1.6% of the total population.[4] The study reveals that Pakistan faces a major financing challenge from natural catastrophes, with flooding causing an estimated annual economic impact of 3–4% of the federal budget. The report estimates the annual economic impact of flooding in Pakistan at US$1.2 billion to US$1.8 billion, equivalent to 0.5–0.8% of national gross domestic product (GDP).[5] A study conducted by LEAD[6] reveals that on an average, 80% of the disasters are climate related. The climate-only disaster losses are measured at 1% of GDP for the period 2005-2013.[7] Since 2010 flood, Pakistan is consistently ranked among the top 10 countries that have been most affected by the impacts of weather-

[1] https://www.thenews.com.pk/print/336214 -pakistan-among-top -10-countries-directly-affected-by-climate-changes
[2] https://www.unisdr.org/files/2909_Disasterpreparednessforeffectiveresponse.pdf
[3] https://www.unisdr.org/we/coor dinate/sendai-framework
[4] https://openknowledge.worldbank.org/bitstream/handle/10986/21920/103648.pdf?sequence=6&isAllowed=y
[5] https://openknowledge.worldbank.org/bitstream/handle/10986/21920/103648.pdf?sequence=6&isAllowed=y
[6] Leadership for Environment & Development (LEAD) Pakistan
[7] http://www.lead.org.pk/lead/attachments/briefings/LPNB3.pdf

related events (storms, floods, heat waves etc.).[8]

The Government of Pakistan has taken a number of steps since 2005 to cope up with natural and human-induced disasters. The National Disaster Management Authority (NDMA) was established which is the lead federal agency to deal with the whole spectrum of Disaster Management (DM) in Pakistan. It was raised in 2007 through National Disaster Management Ordinance and was finally provided parliamentary cover by an act of Parliament in 2010. It is the executive arm of the National Disaster Management Commission (NDMC), which was established under the Chairmanship of the Prime Minister of Pakistan, as an apex policy-making body in the field of Disaster Management. NDMA aims to develop sustainable operational capacity and professional competence to coordinate the emergency response of the Federal Government in the event of a national level disaster.[9] Since then, Pakistan has developed policies, plans, strategies and has taken other necessary measures to build disaster resilience and to deal with future disasters. Some of the measures that have been taken by the government and other stakeholders including but not limited to the undermentioned points;

We should also be cognizant of the institutional challenges that remain unaddressed or arise from current arrangements like reliance on military instead of capacitating state institutions and testing their capacities. This reinforces trust and acceptance of the Pakistan Army as it has always responded timely and extensively whenever called upon. At the same time this highlights the failure of State to invest in building civilian capacity to predict and adequately respond to disasters. A research brief from the Strauss Centre points out that sometimes legislation/policy exists but failure to implement it surfaces as a structural /institutional issue. 'For example, the Canal and Drainage Act prohibits any construction on flood plains but the government has no capacity to go after illegal settlements and implement the law'.

Pakistan is paving its way across the DRR mainstreaming and integration agenda however pace needs to be enhanced to ensure that we meet our international commitments and are able to build capacities, as localized as possible to minimize the impact of disasters.

For communities to decipher scientific data or implement DRR some basic amenities need to be ensured and a certain awareness level needs to be reached – this takes us back to investment in social/human capital and integrating DRR across governance. Similarly, it needs to be recognized that other disasters like cyclones and heat waves are increasing in frequency and intensity. They should therefore, be given importance and priority along with earthquakes and floods. It is also important that institutions spear heading DRR in Pakistan revisit their missions and visions to include DRR along with disaster management and response so that DRR becomes as institutional responsibility.

Being amongst the top 10 countries which are worst affectees of climate change, Pakistan needs to brace itself and hit home with integration of DRR within the governance umbrella as it will be the corner stone for building resilient communities. With the commitments of high level officials in the International Conference on Disaster Management on 20th June 2018, we hope that the political and institutional will stays strong and translates into effective actions at desired pace.

1. Disaster Framework (2007),[10] National Contingency Plan to Manage Industrial /Technical Disasters, Disasters at Port Terminals, Disasters Emanating from Chem Bio-Terrorists' Threats (2010)[11]
2. National Disaster Risk Reduction Policy (2013)[12]
3. National Disaster Management Plan with sub-volumes on Human Resource Development Plan on Disaster Management (Vol. I), Multi-Hazard Early Warning System Plan (Vol. II), Instructors' Guidelines on Community Based Disaster Risk Management (Vol. III)[13]
4. Contingency planning for monsoon floods
5. In February 2018, NDMA established Pakistan

[8] https://www.thenews.com.pk/print/336214 -pakistan-among-top -10-countries-directly-affected-by -climate-changes

[9] http://www.ndma.gov.pk/files/NDMA -Act.pdf

[10] http://www.ndma.gov.pk/plans/National%20Disaster%20Risk%20Management%20Framework -2007.pdf

[11] http://www.ndma.gov.pk/plans/National%20Contingency%20Plan%20to%20Manage%20Industrial_Technical%20Disasters2010.pdf

[12] http://www.ndma.gov.pk/plans/drrpolicy2013.pdf

[13] http://www.ndma.gov.pk/plans/NDMP -EWP-Vol%20II.pdf

Resilience Partnership (PRP) with National Humanitarian Network (NHN), Private Sector (FPCCI) and other Stakeholders (PID & Academia) and an agreement signed to enhance capacities through Knowledge Resources, Training, and Networking opportunities.

6. NDMA has formulated a National Level Strategy for bringing all volunteers under National Umbrella to achieve synergy of response during disasters. NDMA with the collaboration of NHN and ActionAid, Pakistan has launched Surge Emergency Response Team (SERT) National Roster on 23 February 2018. The National Roster would not only be helpful in deployment of resources in case of an emergency at the national level but will also be useful while collaborating our resources during extension of aid to the other countries in emergency situations.

In order to strengthen disaster risk governance, the government has to invest in disaster risk reduction to enhance disaster preparedness for effective response. Some of the possible measures are suggested for further improvement;

1. Consolidation of Disaster Management Legislation: At the moment, there are several legislations are in place including the Civil Defence Act (1952), the Calamity Act (1958), the NDMA Act (2010) and ERRA Act (2011). There is a need to consolidate all these Acts into a comprehensive National Disaster Management Act.
2. Revision of National Disaster Response Plan (NDRP), DRR Policy and other associated strategies that have been developed some years back due to the changing environment, technologies, the merger of old departments and raising of new departments demand revision
3. Developing National Policy Framework Guidelines on Coastal Earthquake and Tsunami Hazards in order to be prepared to prevent and mitigate disasters due to tsunami and coastal earthquakes.
4. Continuous coordination and liaison with national and international stakeholders to develop a pool of knowledge and experience sharing in the field of resilience building and disaster management
5. Continuous capacity building of civil society and communities to raise awareness and prepare them to better combat such adversities being the usual first responders
6. NDMA needs to adopt a paradigm shift approach to disaster risk management from a response-oriented to a proactive, integrated and holistic approach aligned with global frameworks including the Sendai Framework for DRR and Sustainable Development Goals.

The Policy and Institutional Response to Climate Change in Pakistan

Sana Zulfiqar

Pakistan has a long history and holds an impressive record when it comes to the legislation and formulation of policies, signing and ratification of international covenants and establishment of institutions that deal with different aspects of environment including climate change and disaster management. The implementation of these policies, rules and laws and effectiveness of the institutions has been a major issue in Pakistan. This is manifested in the state of environment, recurrence of natural and manmade hazards turning into outright disasters of considerable magnitude, unchecked population explosion, energy and water crisis, food insecurity, unsustainability of livelihoods, poor natural resource management, and low levels of human development to name but a few dimensions of the environmental governance failure in Pakistan.

This below table presents a chronology of key legislative, policy and institutional efforts made by the federal, provincial and state/regional governments to deal with environmental issues. Although the climate change specific efforts made by the government date back only to early nineties following the Earth Summit of 1992, a large number of laws and policies that are or have been in force in Pakistan directly or indirectly deal with issues that are linked with climate change in one way or other. The list given in this section is not exhaustive as it does not contain all the laws and policies dealing directly or indirectly with Climate Change.

Most of these initiatives, need to be converted into concrete plans and program bringing them to a level where they could actually start delivering and addressing the challenges being posed by climate change and climate induced hazards and disasters.

Chronology of key policy and institutional efforts made by Pakistan to deal with climate change and related issues

Year	Efforts and Commitments
2017	- Pakistan Climate Change Act is approved.
2015	- National Forest policy is approved.
2013	- National DRR policy is approved
2012	- National Sustainable Development Strategy is rolled out. - Pakistan Access to Genetic Resources and Benefit-sharing Act is drafted. - National DRR policy is drafted.
2011	- Ministry of Climate Change is established at Federal level replacing its predecessor Ministry of Environment following the 18th Constitutional Amendment which devolves environment management to the provinces. - National Climate Change Policy is drafted. - National Water Policy is drafted. - Senate's Standing Committee on Climate Change is constituted.
2010	- Biodiversity Action Plan is rolled out. - National Forest Policy is approved. - National Rangeland Policy is approved. - National Disaster Management Act comes into force.
2009	- The task force on Food Security brings out its report. - National Drinking Water Policy is approved by the cabinet. - Pakistan ratifies Cartagena Protocol on Bio-safety that entered into force on September 11th, 2003.

2008	- Prime Minister of Pakistan sets up a task force on Food Security. - Planning Commission constitutes a National Task Force on Climate Change. - Pakistan ratifies POPs that came into force on September, 2003.
2007	- Planning Commission of Pakistan rolls out a strategy document 'Vision 2030'. The document also takes into account climate change. - National Disaster Management Ordinance comes into force.
2006	- National Sanitation Policy is approved. - CDM Cell in Ministry of Environment starts functioning. - CDM Operational Strategy is rolled out. - National Energy Conservation Policy is approved. - National Renewable Energy Policy is approved. - Policy for Development of Renewable Energy for Power Generation is approved. - National Disaster Management Framework is rolled out.
2005	- A Clean Development Mechanism (CDM) Cell is established in Ministry of Environment. - Mid Term Development Framework (MTDF) 2005-10 replaces the conventional five year plans. The document also takes into climate change. - National Environment Policy is approved. - Pakistan ratifies PIC that entered into force on 24th February 2004. - Pakistan ratifies Kyoto Protocol that came into force in 2005.
2004	- Cabinet's committee on climate change is converted into Prime Minister's Committee on Climate Change.
2003	- Ministry of Finance prepares Poverty Reduction Strategy Paper that touches upon various dimensions of environment including climate change. - Pakistan prepares and submits to UNFCC its first National Communication on Climate Change.
2002	- National Action Program to Combat Desertification is launched. - Emergency Services Ordinance comes into force to deal with emergencies including disasters in an effective manner. - Global Change Impact Study Center (GCISC) starts functioning. The Center also serves as secretariat of Prime Minister's Committee on Climate Change. GCISC is the only public sector entity entirely devoted to research on climate change.
2001	- National Environment Quality Standards are formed. - A Drought Emergency Relief Assistance Project is launched in response to the drought of 1999-2001. - A new local government system based upon Local Government Ordinance is established throughout Pakistan. The ordinance had certain provisions to deal with disasters. - Pakistan Environment Protection Council approves National Environment Action Plan (NEAP). - The rules for Pollution Charges for Industry are framed. - Pakistan signs Stockholm Convention on Persistent Organic pollutants (POPs) that calls for the protection of human health and the environment from the harmful impacts of persistent organic pollutants (POPs). It was adopted on 22nd May 2001 in Stockholm, Sweden. - Pakistan signs Cartagena Protocol on Bio-safety that deals with the safe handling, storage and trans-boundary movement of the Genetically Modified Organisms (GMO). Cartagena Protocol was adopted on June 2001, in Cartagena, Spain.
2000	- Prime Minister's Disaster Relief Fund is established. - Federal Cabinet's committee for the Implementation of National Conservation Strategy is reconstituted and notified.

1999	- Pakistan signs Rotterdam Convention on Prior Informed Consent (PIC) for certain Hazardous Chemicals and Pesticides in International Trade. This Convention promotes shared responsibility and cooperation among parties in the international
1998	- National Power Policy is approved.
1997	- Environmental Protection Act comes into force that supersedes the 1983 ordinance. - Pakistan ratifies UNCLOS that had entered into force in 1994. - Pakistan Ratifies UNCCD that entered into force on 26th December 1996. - Pakistan signs Kyoto Protocol to UNFCCC that deals with mitigation of climate change so as to reverse the pace of climate change; and promote the carbon sequestration and carbon credits i.e. Certified Emission Reduction (CER) trading. The Protocol was adopted in 1997.
1996	- AJK Environmental Protection Act comes into force. - Sarhad Provincial Conservation strategy is approved.
1995	- National Power Policy is revised. - Agricultural Pesticides (Second Amendment) Ordinance comes into force. - Cabinet's Committee on Climate Change is constituted as a policy coordination forum for dealing with climate change.
1994	- National Power Policy is developed. - Karachi Port Trust Ordinance comes into force. Besides other matters, the ordinance also deals with marine pollution. - Pakistan ratifies Basel Convention. - Pakistan signs United Nations Convention to Combat Desertification (UNCCD).This Convention attempts to combat desertification and mitigate the effects of drought in countries experiencing serious drought/ desertification. It is supported by international cooperation and presents an integrated approach for sustainable development in the affected areas. The Convention was adopted in Paris on 17th June 1994. - Pakistan ratifies UNFCC that came into force in 1994. - Pakistan ratifies UNCBD that entered into force on January, 1993.
1993	- National Environment Quality Standards are formed. - - The 25 year (1993-2018) Forestry Sector Master Plan is prepared by Government of Pakistan.
1992	- The National Conservation Strategy is approved that was a first effort to present a comprehensive overview of environment and its related issues in Pakistan and a strategy to deal with them. - Pakistan signs the Basel Convention that deals with the controlled trans-boundary movement of Hazardous Wastes and their disposal. The Convention was adopted on 22nd March 1989, and entered into force on 5th May 1992. - Pakistan ratifies Montreal Protocol that entered into force in January, 1989. - Pakistan ratifies the Vienna Convention for the protection of the Ozone layer. The convention highlights the need to protect the Ozone layer for conserving environment for the present and future generations. The Convention was adopted on 22nd March 1985 and came into force in 1988. - Pakistan signs United Nations Framework Convention on Climate Change (UNFCCC). The convention provides the broad guidelines to protect the Climate of the planet. It was adopted in 1992. - Pakistan signs the Convention on Biological Diversity (UNCBD) which is about the conservation and wise use of different biological resources (plants and animals). It was adopted in 1992 at the Rio de Janeiro, Brazil.

1989	- Pakistan signs Montreal Protocol on Substances that deplete the Ozone Layer. The protocol calls the nations to take appropriate measures to protect human health and the environment from human activities which change or are likely to change the ozone layer, by reducing the emissions of certain substances that deplete or change the Ozone Layer. The Protocol was adopted in 1987.
1988	- The first Federal Minister of State for Environment is appointed.
1987	- Pakistan ratifies the Convention on the Conservation of Migratory Species.
1983	- Sindh Fisheries Rules are framed. - Pakistan Environmental Protection Ordinance comes into force that leads to the establishment at federal level of a high level Pakistan Environmental Protection Council (PEPC) and environmental protection agencies at federal and provincial levels. The ordinance also provided for the Environment Impact Assessment as a pre-requisite for future development activity.
1982	- Pakistan signs the United Nations Convention on the Law of the Sea (UNCLOS) which deals with the peaceful uses of the seas and oceans, the equitable and efficient utilization and conservation of their resources, and the study, protection and preservation of the marine environment. The Convention was adopted in 1982.
1981	- Pakistan signs Convention on the Conservation of Migratory Species.
1979	- Islamabad Wildlife (protection, preservation, conservation and management) Ordinance comes into force.
1978	- Rules for Protected Forests (Rangelands) are formed.
1977	- Federal Flood Commission is constituted.
1976	- Territorial Waters and Maritime Zones Act comes into force. - Pakistan ratifies the Ramsar Convention that had come into force in 1975. - Pakistan ratifies CITES in April 1976 that had come into force on 1st July 1975. - Pakistan ratifies Convention Concerning the Protection of the World Cultural and Natural Heritage.
1975	- Exclusive Fishery Zone Act comes into force. - Cutting of Trees (Prohibition) Act comes into force. - NWFP Wildlife (protection, conservation and management) Act comes into force. - Northern Areas Wildlife Preservation Act comes into force. - Azad Jammu and Kashmir Wildlife Act comes into force.
1974	- First ever National Disaster [management] Plan is prepared. - Punjab Wildlife (Protection, preservation, conservation and management) Act comes into force. - Environment and Urban Affairs Division (EUAD) is established in the Ministry of Housing and Works. Its establishment was in response to 1972 Stockholm Declaration of UN Conference on Human Environment.
1973	- Pakistan signs the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This convention deals with co-operation among countries for the protection of certain endangered species of the wild animals and plants, and prevent their over exploitation through international trade. The Convention was adopted on 3rd March 1973.
1972	- Sindh wildlife protection ordinance comes into force
1971	- The Agricultural Pesticides Ordinance comes into force. - Pakistan signs the Ramsar convention that deals with the protection of water bodies of international importance and their attached biodiversity, along with promoting wise use of allied resources. The Convention was adopted in 1971 at Ramsar, Iran. There are 19 Ramsar sites in Pakistan.

1970	- The Fourth Five Year Plan (1970-75) incorporates a flood control program. - Balochistan Fisheries Ordinance comes into force.
1969	- Motor Vehicles Rules are framed.
1965	- Motor Vehicles Ordinance comes into force
1964	West Pakistan Firewood and Charcoal (Restriction) Act comes into force. It limits the burning of firewood and charcoal in factories, brick kilns and lime kilns.
1961	- West Pakistan Goat Restriction rules are formulated.
1959	- West Pakistan Wildlife Protection Ordinance comes into force. - West Pakistan Goat (Restriction) Ordinance comes into force
1958	- National Calamities (Prevention and Relief) Act comes into force.
1956	- Karachi Joint Water Board Rules are framed.
1952	- The Punjab Development of Damaged Areas Act comes into force and provides that government can declare any area as damaged and undertake drainage and sewerage work.
1951	- Civil Defense Department is created.
1949	- Karachi Joint Water Board Ordinance comes into force. The Ordinance and rules prohibit fouling of water supplies, water works and water tanks.
1936	- Hazara Forest Act comes into force
1934	- Punjab Minor Canals Act comes into force. - The Factories Act comes into force and allows provincial governments to establish rules for factories.
1927	- The Forest Act comes into force and is still the basic charter for the forest departments in Pakistan.
1923	- Merchant Shipping Act comes into force.
1894	- Government of British India formulates a policy to deal with the issue of shrinking forests.
1883	- Land Improvement Loans Act comes into force.
1882	- Easement Act comes into force. Section 7 of this act deals with the pollution of waters.
1873	- The Canal and Drainage Act comes into force.
1860	- Pakistan Penal Code enforced by the provinces has certain sections dealing environment related issues including air pollution. These sections include 268, 269, 277, 290, 291, 426 and 430. Section 268 deals with Public Nuisance and Section 278 imposes a fine of 500 rupees on any person who intentionally vitiates the atmosphere so as to make it "noxious to the health of other persons in general. Section 277 prohibits fouling of water or public springs or reservoirs.

This section has greatly benefitted from the following sources:

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Partnership with Academia

Academic research plays a vital role in development of a country. This is equally true for disaster management. The research brings new dimensions and learnings which helps to improve the established systems. NHN with the support of ADPC has initiated a program of supporting university student in their research on DRR related subjects. This support aims to encourage students to take up research on topics related to national priority. As a pilot project 9 research thesis of 17 students from Center of Disaster Preparedness and Management, University of Peshawar were supported in their M.Sc. research. The students developed research papers on subjects relating to assessments of industrial and natural hazards, mediation of technology in DRR and deforestation cause and its effects. The students and the University management highly appreciated the support which has encouraged students to contribute to Resilience building of Pakistan.









National Humanitarian Network Pakistan (NHN) is a volunteer network, founded in 2010 as a result of an interactive dialogue in National Disaster Management Authority (NDMA) to act as an independent and vibrant voice to engage with stakeholders throughout Pakistan for promotion of humanitarian values by influencing policies and building capacities to ensure right based humanitarian response.

NHN has been given the mandate by its members to represent the local/national NGOs on the forums and platforms related to the whole spectrum of humanitarian activities ranging from Disaster Preparedness & Disaster Risk Reduction (DP/DRR) to Response and Recovery & Rehabilitation. Structurally, the primary function of NHN is to take a lead on issues of collective and shared importance, especially the issues where a united stance is considered more effective than individual members' tackling the issue on their own. This would imply that NHN steers clear of the functions and activities that are not of a collective nature and might bring the secretariat in a conflict of interest with the members. The NHN would best remain focused on strengthening the collective and shared values, stances, capacities and standards of the humanitarian community.

NHN

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