

A Practitioner's View of Disaster Management in Nepal: Organisation, System, Problems and Prospects

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# A Practitioner's View of Disaster Management in Nepal: Organisation, System, Problems and Prospects

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***Meen B. Poudyal Chhetri***

*Nepal is one of the world's disaster-prone countries. Geophysical and socio-economic conditions in the country have made her vulnerable to various types of natural disasters—flooding, landslides, fire, earthquakes, gales, hailstorms, lightning, the bursting of glacier lakes, drought, epidemics, avalanches, and so on. However, flood, landslide and fire hazards are particular and recurrent natural disasters in Nepal.*

*The Ministry of Home Affairs is the focal agency for disaster management in Nepal, particularly for immediate rescue and relief work. The Ministry also formulates national policies and implements programmes in relation to natural disasters. Preparedness and mitigation, immediate rescue and relief work, data collection and dissemination, and the mobilisation of funds and resources are also dealt with. It has a network throughout the country to cope with natural disasters. There are 75 administrative districts in the country, and in each there is a Chief District Officer who acts as crisis manager in times of natural disasters. The Ministry also plays a significant role in activities before, during and after disasters.*

*Moreover, various agencies of His Majesty's Government of Nepal are involved in disaster prevention and mitigation work through close co-operation with a number of friendly nations, international bilateral and multilateral agencies, INGOs and NGOs. In addition, research and training programmes have been carried out to raise public awareness in the country.*

**Key Words: Natural disasters; geophysical; precipitation; environment; coordination; early warning; public awareness**

## **Introduction**

Nepal, of its nature, is a country prone to disasters. The reasons for this include her rugged and fragile geophysical structure, very high peaks, high angle of slopes and complex geology, her very remote, rural and difficult geophysical situation, variable climatic conditions, active tectonic processes and unplanned settlement. Apart from the above factors, the lack of coordination among agencies related to disaster management, and of clear-cut job descriptions for those agencies, resource constraints, the shortage of technical manpower, an increasing population, weak economic conditions, a lack of public awareness, a low literacy rate, the absence of modern technology, undeveloped early-warning systems and so on are other factors which have made Nepal vulnerable to most types of natural disaster.

In view of the above situation, mass education, well trained technical manpower, advanced technology and sufficient means and resources are needed to reduce the incidence and effect

natural disasters. Moreover, disaster management courses must be included in the school and university curricula, and various types of programmes launched to raise public awareness. Early-warning systems need to be developed, as this sector is still at a primitive stage in Nepal. Similarly, systems of hazard mapping, vulnerability assessment and risk analysis also have to be developed. For all this, there is a necessity for strong political determination, and for effective policy formulation and implementation. Apart from the above, the formulation of Natural Disaster Management Regulations and amendments to the existing Act are needed, to clarify and specify the jobs and responsibilities of the agencies related to disaster management.

Despite the above problems, various agencies of His Majesty's Government of Nepal are involved in disaster prevention and mitigation work in close co-operation with a number of friendly nations, international bilateral and multilateral agencies, INGOs and NGOs. In addition, research and training programmes have been carried out to raise public awareness in the country.

### **Disaster scenarios**

Nepal is prone to various types of natural disasters. Due to her complex geophysical condition and poor socio-economic situation, she is facing various types of natural disasters: flooding, landslides, fire, earthquakes, gales, hailstorms, lightning, the bursting of glacier lakes, drought, epidemics, avalanches, and so on. In addition, a number of organisational weaknesses, resource constraints and an absence of modern technology are the other major factors that have hindered efforts to cope with natural disasters in Nepal.

Most parts of the country are seismically active, and the geomorphology is hence very fragile. Constant tectonic action, of different degrees, along with weather conditions of varying intensity, have adverse effects on the stability of the earth's surface and of river courses. The physiography of the earth is slowly changing, due to its own tectonic action and to universal planetary action. Such changes are more pronounced in Asia (Oceania) and South America, and of all areas of the world the Himalayan region and some pockets of Oceania are the most active; and the major part of the Himalayas lie in Nepal. The Himalayan region of Nepal is one of the severest flood hazard zones in the world: in addition to heavy precipitation, the steepness of watersheds and river channels contributes to large flood magnitudes. The Middle Hills are very prone to landslides, and the Tarai to flood and fire. As a result, floods, landslides and fire are the most frequent natural disasters in Nepal, occurring almost every year in one part of the country or the other.

Such natural disasters cause thousands of human casualties, and the destruction of physical property worth billions of rupees. The earthquakes of 1934, 1980 and 1988, and the flood of July 1993, were the most devastating natural disasters, which not only caused heavy loss of life and property but also adversely affected the development process of the country as a whole—and it is thus a great challenge to the nation to protect infrastructure and property from frequent natural disasters. It is clear why Nepal is considered a disaster-prone country. Table 1 summarises the loss of life in disasters from 1983 to 2000, and Table 2 the loss of life and physical property in the year 2000.

It seems from these two tables that the impact of natural disaster events is not being reduced. This is so mainly because of rapid population growth (2.3 per cent per annum), unplanned settlement and a lack of public awareness.

**Table 1. Loss of life in natural disasters in Nepal, 1983–2000**

Type of disaster	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Earthquakes	-	-	-	-	-	721	-	-	-	2	-	-	-	3	-	-	-	-	726
Floods and landslides	293	363	420	315	391	328	680	307	93	71	1336	49	203	258	83	273	193	173	5656
Fire	69	57	52	96	62	23	109	46	90	97	43	43	73	61	65	54	39	38	1079
Epidemics	217	521	915	1101	426	427	879	503	725	1128	100	626	520	494	951	840	1207	141	11580
Gales, hailstorms and lightning	N/A	N/A	N/A	N/A	2	N/A	28	57	63	20	45	47	34	75	49	23	22	26	465
Avalanches	-	-	-	-	-	14	20	-	-	-	-	-	43	4	12	-	5	-	98
Stampedes	-	-	-	-	-	71	-	-	-	-	-	-	-	-	-	-	-	-	71
<b>Total</b>	<b>579</b>	<b>941</b>	<b>1387</b>	<b>1512</b>	<b>881</b>	<b>1584</b>	<b>1716</b>	<b>913</b>	<b>971</b>	<b>1318</b>	<b>1524</b>	<b>765</b>	<b>873</b>	<b>895</b>	<b>1160</b>	<b>1190</b>	<b>1466</b>	<b>378</b>	<b>20053</b>

**Table 2. Loss of life and property in natural disasters in Nepal, 2000**

Types of disaster	People dead	People missing	People injured	Families affected	Livestock losses	Houses destroyed	Cattle sheds destroyed	Land loss (in hectares)	Estimated losses (millions of NRs*)
1 Floods and landslides	173	17	100	15,617	822	5417	392	889	932.1251
2 Fire	37	-	22	1254	147	1371	138	-	81.037843
3 Epidemics	141	-	-	735	-	-	-	-	-
4 Gales	3	-	2	59	2	57	3	-	1.56016
5 Hailstorms	-	-	-	7165	14	-	-	-	124.776513
6 Lightning	23	-	38	70	32	41	7	-	1.9905
<b>Totals</b>	<b>377</b>	<b>17</b>	<b>162</b>	<b>24,900</b>	<b>1017</b>	<b>6886</b>	<b>540</b>	<b>889</b>	<b>1141.490116</b>

\* US\$1.00 = NRs 74.35 (as at 26th January 2001)

### **Agencies involved in disaster management**

The following national governmental and non-governmental agencies are involved in the work of disaster prevention and mitigation in Nepal:

Ministry of Home Affairs  
Ministry of Water Resources  
Ministry of Physical Planning and Construction  
Ministry of Health  
Ministry of Finance  
Ministry of Defense  
Ministry of Foreign Affairs  
Ministry of Information and Communication  
Ministry of Forest and Soil Conservation  
Ministry of Agriculture and Co-operatives  
Ministry of Education and Sports  
Ministry of Science and Technology  
Ministry of Children, Women and Social Welfare  
Ministry of Industries, Commerce and Supplies  
Secretariat of the National Planning Commission  
Royal Nepal Army  
Nepal Police Force  
Nepal Red Cross Society  
Nepal Scouts  
Department of Water-Induced Disaster Prevention  
Department of Mines and Geology  
Department of Hydrology and Meteorology  
Department of Forest and Soil Conservation

In addition to the above, the following international agencies are also involved in disaster prevention and mitigation work in Nepal:

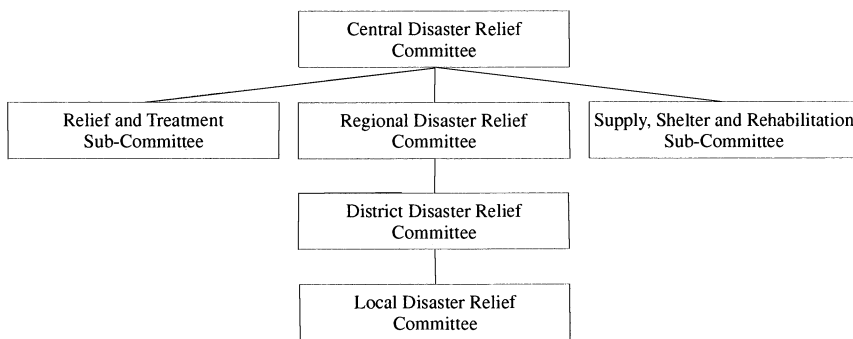
Japan International Cooperation Agency (JICA)  
Asian Disaster Reduction Center (ADRC)  
Asian Disaster Preparedness Center (ADPC)  
United Nations Development Program (UNDP)  
International Center for Integrated Mountain Development (ICIMOD)  
International Red Cross Society (IRCS)  
United States Agency for International Development Mission to Nepal (USAIDMN)  
United Mission to Nepal (UMN)  
Cooperation for American Relief Everywhere (CARE)  
World Food Program (WFP)  
Save the Children Fund (SCF)  
Technical Cooperation of the Federal Republic of Germany (GTZ)  
Lutheran World Service (LWS)

Various other professional and non-governmental organisations in Nepal also provide highly valuable support at the time of disasters.

### **Organizational structure of natural disaster management in Nepal**

The Natural Disaster Relief Act (NDRA) of 1982 has provision for the constitution of an organisational structure through which the various activities of disaster management can be carried out effectively and efficiently (see Figure 1). In accordance with the NDRA, the Central Natural Disaster Relief Committee (CNDRC) was constituted under the Chairmanship of the Minister of Home Affairs in order to formulate and implement policies and programmes for natural disaster relief work, and to undertake other necessary measures related to this. Moreover, the CNDRC prepares specific norms for relief assistance, in cash and/or in kind, to be distributed to disaster victims in the affected area. There is also provision for Regional, District and Local Natural Disaster Relief Committees to undertake relief work immediately. Thus the Central Committee functions as a central agency and District Committees as the field agencies. The Central Committee provides necessary funds, resources and relief materials to the District Committees for distribution to disaster victims. Rescue operations are carried out and relief assistance provided basically by the District Committee, in close coordination and co-operation with other disaster management-related agencies and with various other actors in the district.

**Figure 1. Organisational structure under the NDRA**



Keeping in view the gravity of the disaster, the Central Committee may constitute a Relief and Treatment Sub-Committee (RTSC) and a Supply, Shelter and Rehabilitation Sub-Committee (SSRSC), which provide necessary advice and suggestions to the Central Committee, help to execute its policies and directives and manage the effectiveness of the rescue, relief and rehabilitation work. The Central and District Committees also mobilise army and police personnel in rescue operations.

#### *Role of the Ministry of Home Affairs*

The Ministry of Home Affairs is the focal agency for disaster management in Nepal, particularly for immediate rescue and relief work. The Ministry formulates national policies and implements programmes in relation to natural disasters, and also deals with preparedness and mitigation, immediate rescue and relief work, data collection and dissemination, and the mobilisation of funds and resources. It has a network throughout the country to cope with natural disasters. There are 75 administrative districts in the country, and in each district there is a Chief District Officer who acts as the crisis manager at times of natural disasters. The Ministry also plays a significant role in activities before, during and after disasters.

***Role of the Royal Nepal Army and the Nepal Police Force***

At times of natural disasters the Royal Nepal Army and Nepal Police Force play an important role, especially in carrying out rescue operations. In the event of a large-scale disaster, the Nepal Police establish command posts to facilitate rescue operations. Police officials collect first-hand information on the event and inform the officials concerned. Moreover, the Police Force collect most of the data and information on the disaster, and are the key source for this—it is well known that data and information on disasters play a significant role in mitigating their effects.

The District Chief of the Royal Nepal Army Unit, the District Police Chief and other army and police officials help the Chief District Officer (who acts as the crisis manager during the time of the disaster) and other disaster managers in mitigating natural disasters in the district. As a result the Royal Nepal Army and the Nepal Police Force play a key role in managing natural disasters in Nepal.

***Rehabilitation programmes***

With regard to rehabilitation, the Ministry of Home Affairs authorises the agencies concerned to carry out rehabilitation programmes immediately after the occurrence of a natural disaster. However, such programmes have not been as effective as anticipated, due to various legal and organisational problems and to resource constraints. According to the Natural Disaster Relief Act, 1982, there is provision for a sub-committee, ie the Supply, Shelter and Rehabilitation Sub-Committee, which is not a permanent body but rather is activated only at times of very serious natural disasters. However, it is considered crucial to establish a permanent committee for rehabilitation and reconstruction planning, at central as well as district level, to be responsible for setting up a permanent sector-wide expert group for different types of disaster, to review damage assessment and to prepare guidelines for resettlement, rehabilitation and reconstruction plans and programmes.

***Finances***

A Central Natural Disaster Aid Fund has been provided, under the control of the Central Natural Disaster Relief Committee. The fund consists of: a) aid, in cash and in kind, provided by His Majesty's Government of Nepal; b) funds received from the Prime Minister's Aid Fund; c) cash and benevolent assistance received from foreign countries, agencies and individuals; and d) funds received from other sources. In addition, provision has been made for a Natural Disaster Aid Fund at Regional, District and Local levels. These funds, in cash and in kind, are those received from His Majesty's Government, the Central Natural Disaster Aid Fund and other sources. However, at present only the Central and District Natural Disaster Aid Funds are in operation, the former releasing finance to the latter according to the need and justification for immediate rescue and relief assistance to the victims of natural disasters.

***The concept of regional co-operation***

In the context of regional co-operation over natural disasters, Nepal, India, Bangladesh, Bhutan and Pakistan have common problems, and one country's disaster situation can affect the others. For instance, if it rains heavily in Nepal, areas of India and Bangladesh may be flooded, and if a cyclone hits any part of India, Pakistan or Bangladesh it may cause heavy rain, and so flooding and landslides, in Nepal. Thus, these countries may be economically and socially affected by a serious natural disaster in a neighbouring country, and all of them therefore have to work together in solving the problems by protecting the environment. The exchange of disaster data and the sharing of information play a very important role in disaster prevention and mitigation. For this

reason, it is very important to establish a Regional Information Centre to help in coping with natural disasters. There should be regional planning and a joint effort to solve disaster-related problems, as uncertainty over natural disasters is a major concern for all the countries of this region. The adoption of wrong methods can be serious, leading to lost opportunities, environmental degradation and loss of life. Therefore, dynamic, committed and concerted action among the countries of the region is highly desirable. With this in view, the establishment of such a centre would help in the search for more effective ways of forecasting risk, of managing the response better and of developing organisational resilience to interruption and to different types of crisis and disasters.

Working together, a proactive plan could be formulated for future disaster management activities among these countries. Moreover, the sharing of experiences and the exchange of views among the experts of these countries would certainly result in fruitful outcomes, which could be used as important tools for disaster prevention and mitigation in the region.

In addition, there are several issues and concerns to be addressed by the countries of the region, with particular regard to raising the height of dams and to other construction work which has affected neighbouring countries. In such cases the centre could also serve as a forum for authorities to meet, and to discuss ways and means of solving the existing problems, and thus helping riparian countries to enhance regional co-operation and mutual understanding.

### **Problems in disaster management in Nepal**

Disaster management is a difficult task. A disaster often happens without warning; the suddenness of a disaster and of the destruction it causes becomes very difficult to manage with a normal administrative set-up. In view of this suddenness, and of limited funds and resources, the government faces a number of severe challenges. Some of the main ones involve issues such as the following: whether or not disaster management policies and regulations are compatible with the present situation; what the role, duties and responsibilities of the various disaster management-related agencies should be; how to accumulate, manage, disburse and distribute funds and other resources; whether or not resource mobilisation is compatible with the needs of the victims; how resource mobilisation can be made simpler and faster; how the duplication of services can be minimised; how co-operation and coordination between the various disaster management agencies can be established; and how mass public awareness can be raised.

Other severe problems for disaster management in Nepal include the following: indifference in behaviour; a lack of co-operation and coordination among various disaster management-related agencies; inadequate funds and resources; a lack of roads, transportation and communication facilities; a lack of modern technology; the absence of early-warning systems; and inadequate rehabilitation programmes. In addition, only 39.6 per cent of the total Nepalese population are literate, and in a country where some of the people accept natural disasters as acts of God, it is very difficult to carry out disaster awareness programmes.

It is unfortunate that disaster early-warning systems, except for weather forecasting, are not yet developed in Nepal. There is no forecasting or other type of warning system for floods, landslides and other disasters. That this is so is mainly due to the lack of technical manpower and of adequate resources.

Combining the above with the unyielding geographical features of Nepal, the set of challenges faced here with respect to disaster management are complex and difficult to meet.



### **Measures to solve the problems**

Despite the above problems and limitations of disaster management in Nepal, the selection of proper strategies could help both to solve the problems and simultaneously to mitigate and reduce natural disasters themselves. In this context the amendment of the Natural Disaster Relief Act, 1982, and the formulation of the Natural Disaster Relief Regulations are very necessary, so that the role, functions, duties and responsibilities of all the disaster management-related agencies can be specified, and no agency can ignore or shift its responsibilities. For want of mutual understanding and dialogue between the agencies, duplication of work and delays in rescue and relief work have been experienced in the past. There is thus a need for close co-operation and mutual understanding among all the agencies concerned.

In view of the above situation, well trained technical manpower, advanced technology and sufficient means and resources are needed to reduce the recurrence and the impact of natural disasters. As lack of public awareness is one of the crucial problems in managing disasters in Nepal, it is necessary to work at increasing the literacy rate, although this of course is a lengthy process. Moreover, disaster management courses should be included in school and university curricula, and school teachers, selected students, women leaders, health workers and social workers must be trained to educate others in measures to mitigate natural disasters; in all of this, the people's active participation is essential. Such programmes may convince them that natural disasters are not acts of God, and that preventive measures could help to reduce their impact.

It is also essential to ease legal complications, and to arrange sufficient resources for effective and adequate rehabilitation programmes.

There is an urgent need to improve existing road infrastructure, transportation and communication facilities. In order to prevent the inappropriate construction of buildings, the building code should be strictly implemented. People should be advised to build earthquake-resistant buildings in earthquake-prone areas.

Political determination, sound policy and effective implementation are imperative in carrying out disaster management activities efficiently and effectively. It would be advisable to include a disaster management component in the development plans and programmes of the agencies concerned, for the effective implementation of disaster mitigation measures; considerable funding should be allocated for this purpose.

### **Conclusion**

Although Nepal is facing all the problems described above, it is gradually picking up momentum in improving the disaster management situation. Policy makers have shown interest in looking into these problems from the point of view of economic development, which is gaining strength in the country. Such interest among policy makers might prove to be conducive to using and improving existing scientific and technical knowledge, to reduce vulnerability to natural disasters and environmental degradation. As a developing country, Nepal needs assistance and support from international communities and from friendly nations to strengthen her capabilities for natural disaster prevention and reduction, with early-warning systems as the key element.

In view of the complexities and diversity of disaster management in Nepal, a concrete, effective, practicable and proactive policy is needed. Thus, if the above-mentioned measures could be adopted and implemented by all the agencies concerned, it goes without saying that disaster

management would be more effective and efficient. Lack of coordination, insufficient funds and resources, poor public awareness and resource mobilisation problems have to be addressed through the effective implementation of such measures. Disaster mitigation, early-warning systems, emergency rescue and relief operations, and rehabilitation and recovery plans should involve activities such as training, post-disaster evaluation, the monitoring of relief work, review, and co-operation and coordination between Central, District and Local levels in preparedness and research work. Recovery planning should involve immediate recovery as well as long-term programmes. Political determination, effective and efficient policy implementation and the participation of the public are of prime importance in achieving these goals.

### Notes

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