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Chapter · January 2013

DOI: 10.13140/RG.2.1.1852.6320

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DISASTER RISK REDUCTION, AN OVERVIEW

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ABSTRACT: The rapid economic and social development in recent decades has created new forms of vulnerability to natural hazards and increased existing ones. In recent years, more than half of the world's population has established residence in cities and urban centres. This process of population concentration, coupled with the increasing number of inhabitants of the planet has led in many parts of the world to an unprecedented urban development. Under these conditions, new population centres are characterised in many parts of the world by a lack of proper planning and therefore the generation of new risks to people. According to the International Strategy for Disaster Reduction (UNISDR), in addition to traditional natural hazards, others have been generated by the increasing number of informal settlements, social inequality, environmental degradation and the process of global climate change. This paper is focus on those problems with the aim to provide a introduction on the Disaster Risk Reduction.

1. INTRODUCTION

The rapid economic and social development in recent decades has created new forms of vulnerability to natural hazards and increased existing ones. In recent years, more than half of the world's population has established residence in cities and urban centres. The population concentration, coupled with the increasing number of inhabitants of the planet has led in some parts of the world to an exceptional urban development. Under these conditions, new population centres are characterised by a lack of proper planning and therefore the generation of new risks to people. According to the International Strategy for Disaster Reduction (UNISDR), in addition to traditional natural hazards, others have been generated by the increasing number of informal settlements, social inequality, environmental degradation and the process of global climate change.

Economic losses related to natural disasters have increased considerably in recent decades. While in the 60s, losses were around 57,500 million euros, in the 70s, they amounted to 105,300 million, 162,800 million in the 80s and 502,200 million euros in the 90s, according to

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Munich RE (2002). Although most of these losses are concentrated in developed countries, it is obvious that the estimates do not take into account the economic effects of disasters on the poorest countries, where costs in terms of human lives, livelihoods and reconstruction of shattered infrastructure are higher. Currently, 85 % of people exposed to earthquakes, tropical cyclones, floods and droughts live in countries where human development is medium or low. By contrast, the countries with high human development contain 15% of the exposed population, but suffer only 1.8% of deaths from disasters.

The effects of natural disasters have a high degree of dependence on prior development policies. The problems arising from disorganized economic growth can lead to a lack of planning in urban development and increased risk of disaster. However, this need not necessarily be so. Human development can also help us reduce disaster risk. Therefore, the present challenge to the international community is to mainstream disaster risk reduction in development planning in order to anticipate and prevent disaster risk by integrating the potential threats in the design and implementation of development policies.

2. DISASTER RISK REDUCTION

According to the terminology of UNISDR (2009), Disaster Risk Reduction (DRR) *is the concept and practice of reducing disaster risk through systematic efforts aimed at the analysis and management of the causal factors of disasters, including the reduction of the level of exposure to threats, the reduction of vulnerability of people and property, the wise management of soil and environment, and the improvement of preparedness for adverse events.*

Disaster Risk Reduction is a comprehensive approach that includes identification, evaluation, and of course reducing disaster risk. The nature of these actions is very wide including political, technical, social and economic tasks. These practices fall within the definition of advice on policies, legislation, disaster preparedness plans, agricultural, insurance plans, etc. This is achieved according to UNISDR by the following actions:

- Incorporating Disaster Risk Reduction into the plans and programmes of socio-economic development through the transfer of funds, technology and knowledge to vulnerable communities.

- Including DRR strategies and programmes to reduce poverty to increase their resilience to disasters.

- Increasing resistance to disasters of basic infrastructure to ensure universal access to education, primary care and emergency health.

- Taking into account the key role of women in DRR especially for community development, natural resource management, prevention of drought, water management and subsistence agriculture.

- Managing urban growth and planning to reduce risks and prevent disasters and mitigate their effects. Risk assessments should be incorporated into building codes and planning to avoid economic and personal losses.

2.1. Topic one; casualties by type of natural disaster

UNISDR (2004) made the above estimate of casualties by type of natural disaster. According to the FAO, the main natural hazards are tropical cyclones, earthquakes, floods and droughts. These four are responsible for 94% of those killed by natural disasters.

- **Earthquakes:** An annual average of 130 million people are exposed to seismic risk. Countries like the Islamic Republic of Iran, Afghanistan and India account for the greatest relative vulnerability (percentage of people who died over those exposed). Other countries with intermediate development and high populations in urban areas, such as Turkey and the Russian Federation, also show a high relative vulnerability. Finally, countries such as Armenia and Guinea have suffered exceptional disasters in recent years.

- **Tropical cyclones:** An average of 119 million people are exposed to tropical cyclones annually, some of whom experience more than four hurricanes per year. Bangladesh, Honduras and Nicaragua show a high relative vulnerability. These countries have suffered disasters of this kind in recent years. Other countries with very high population concentrations in coastal areas are also highly vulnerable. This is the case of India, the Philippines and Vietnam. Small Island Developing States (SIDs) are also high-risk countries but with great differences between them.

- **Floods:** On average, each year, 196 million people, in over 90 countries, are vulnerable to catastrophic flooding. Predictably, vulnerability to such disasters will increase in coming years due to climate change. Countries with high vulnerability to floods include Somalia, Morocco and Yemen. Venezuela also belongs to this group but due to a single event. In addition, a larger number of people are exposed to floods of lesser magnitude. Normally, these losses are not taken into account in estimates of damage because they are of low severity. However, they do hinder the development of the affected areas.

- **Drought:** Approximately 220 million people are exposed to drought annually. African countries are those with the greatest vulnerability to drought. However, methodological difficulties prevent a complete study and the publishing of solid conclusions about this risk and specific to any country.

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2.2. Topic two; Economics losses

According to the UNISDR (2009) terminology, disaster losses are traditionally classified into:

- ***Direct costs*** *are the damage, including damage to the productive capital stock (industrial plants, standing crops, stock, etc.), Damage to economic infrastructure (transport, energy supply, etc.) and damage to social infrastructure (housing, schools, etc.).*

- ***Indirect costs*** *are secondary disorders that affect the supply of goods and services, such as reduced performance due to destruction or damage of facilities or infrastructure, and loss of earnings due to lower revenue opportunities. Cuts in basic services can have serious consequences, such as disruption of telecommunications or a lack of drinking water. The indirect costs also include health expenditures and lost productivity due to illness, disability and death. However, the gross indirect cost is also partially offset by positive effects related to the rehabilitation and reconstruction, such as reviving the construction sector.*

- ***Side effects*** *are the short and long-term impacts of a disaster throughout the economy and socio-economic conditions. These include effects on, for instance, fiscal and monetary performance, the amount of housing and the external debt, income distribution and the magnitude and incidence of poverty, the consequences of removal or restructuring of certain elements of the economy and the labour force.*

3. CONCLUSIONS AND DISASTER RISK REDUCTION IMPORTANCE

According to the UNISDR, it is estimated that between 1980 and 2000 about 75% of the world's population was affected by a natural disaster at least once. These forces affect both infrastructure and people. The losses resulting from natural disasters have increased by ten in the last 5 decades. Furthermore, the effects of disasters are most pronounced in developing areas, where the population is more exposed to them. In fact, it is estimated that 85% of people exposed to natural hazards live in developing countries. The costs for recovery from disasters in these areas delay their development, which in turn affects development of prevention or mitigation policies to reduce future costs and disaster risks. Moreover, The direct cost for recovery has rocketed in the last ten years (Munich RE, 2002). Furthermore, these costs are an underestimate because they do not include the long-term cost of the future prospects of development of the populations affected. Disasters also endanger food security in affected areas.

The distribution of human losses and victims of natural disasters shows that most are concentrated in underdeveloped areas of Asia, Africa and South America. According to UNISDR, the Asia-Pacific is the most affected area regarding the number of fatalities. It is also the region with the highest proportion of casualties from earthquakes, tropical cyclones, floods. The exception is the high concentration of deaths caused by droughts in Africa. The losses in Latin America and the Caribbean are generally due to disasters related to tropical cyclones and floods. Africa and East Asia also suffer huge losses due to flooding. Europe and North

America present lower levels, both in absolute and relative death mortality for any type of disaster, although earthquakes in Europe cause the largest relative losses.

Similar to assessing the effects on the population, the analysis of the economic losses from disasters is complex. This is mainly due to the information on economic losses and deterioration of livelihoods often being incomplete or inaccurate. When quantifying such losses, insurance companies often ignore both indirect economic losses, such as side effects, so the databases with information on this aspect are biased.

According to available data, it is estimated that the costs of disasters have increased considerably in recent decades. One of the largest insurance companies in the world, Munich RE (2002) estimated that the real annual economic losses have increased tenfold in the last 50 years. It also indicates that at least two thirds of these losses correspond to developed countries. Unlike in loss of life, Europe and North America lead in terms of economic losses from natural disasters. The low loss estimates for underdeveloped regions, like Africa, are because the forecasts do not take into account the impact on the development potential of countries. Furthermore, the reduced material losses are due to the infrastructure deficit that characterizes these countries. However, we must take into account that a small financial loss can have devastating consequences in countries with a very low GDP.

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