

Integrating Risk Reduction Strategies for a Sustainable Disaster Management in Nigeria

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Abstract- Disasters, both natural and man-made, are important factors that not only bring about widespread damages and socio-economic losses, but seriously retard human progress. At the same time, human societies, now more than ever before, are faced with delicate issues of achieving development and ensuring that development processes are sustained. Since the end of the last century, the issue of sustainability of developmental processes had become an issue of much dialogue and academic discourse, which has substantially dominated multilateral and international relations. This paper examines how disaster management strategies can be integrated with those of sustainable development. The paper discusses the disaster management cycle and shows how development considerations contribute to all its aspects. It concluded that for sustainable disaster management to be achieved and risk to disaster reduced, environmental considerations must be a central part of government and industry decision-making process.

Index Terms- Development, Disaster, Management, Risk, Strategies, Sustainability

I. INTRODUCTION

Disaster is a sudden event such as flood, storm or accident which causes great damage or suffering. A disaster describes a situation where the occurrence of abnormal infrequent events that has impact on vulnerable communities, causing substantial damage, disruption and possible casualties and leaving the affected communities unable to function normally without external assistance.

Otero and Marti (1995) define disaster again, as emergency caused by natural hazards or human-induced actions and resulting in a significant change in circumstances over relatively short period of time. Typical examples are death, displacement, diseases, loss of crops, damage to physical and service infrastructure, depletion of natural and social capitals etc. A broad definition of disasters includes the fact that they are dramatic, sudden, unscheduled events that are often accompanied by large losses of human lives, suffering and affliction to a society or significant part of it and a temporary breakdown of prevailing lifelines and systems. Such events cause considerable material damages and interrupt normal functioning of an economy and of society in general.

Disasters and emergencies have turned back the hands of development clock by destroying years of efforts and labour and by so doing perpetuating poverty and underdevelopment through

the destruction of infrastructure and other socio-economic investments. It consequently drains both national and international development funds through rehabilitation and reconstruction efforts of both local and international monetary funds (Moreno, 2001, UNCHS).

During the past four decades, disasters have caused major losses of human life and livelihoods; destruction of economic and social infrastructure and significant environmental damage. Moves towards sustainable development and poverty reduction initiatives are threatened by disasters triggered by hazards of hydro-metrological, geological and environmental origin often amplified by human activities or technology. Natural disasters such as hurricanes wipe out years of urban development by destroying infrastructure, housing and injuring or killing thousands of people.

Developing nations in particular, experience pervasive risks of devastation, human and property loss resulting from natural disasters. According to Henderson (2004), this level of risk is attributable to socio-economic stress, aging and inadequate physical infrastructure, weak education, preparedness for disaster, insufficient fiscal and economic resources to carefully implement the preparedness, response, mitigation and recovery components of integrated emergency management.

In spite of high vulnerabilities of African countries to environmental and technological disasters, poverty and diseases, disaster is hardly regarded to be an integral part of the urban-national development strategies. Disaster management is seen merely as an emergency relief doing exercise and not as an integral part of national development (Ojo, 2005).

A report "Before Disaster Strikes" by Tearfund (2005) an NGO based in the United Kingdom asserts that 98 per cent of people killed by natural disasters now come from developing countries and that by 2015 half of the people living in the developing world will be highly vulnerable to floods and storms. Based on the environmental conditions and socio-economic development paradigm in Nigeria, it is assumed that we are included (Olokesusi, 2005).

The occurrence of disaster offers a good opportunity to formulate forward-looking policy concepts pertaining to social development and equity, economic growth, environmental quality, and sustainability. However, to be successful, the integration of holistic disaster reduction strategies into development policies is imperative and necessary to solve a broad range of social, economic, and environmental problems. The integration will require the participation of sectors of the economy such as environment, finance, industry, transport, construction, education and health. it would of course involve

different forms of management than in the case of emergency or disaster management.

The objective of this paper is to integrate the risk reduction strategies with that of sustainable development and encourage disaster management cycle along sustainable ways.

II. SUSTAINABLE DEVELOPMENT (AN OVERVIEW)

It is undisputable that natural resources provide the major attractions for foreign earnings and must therefore be exploited, But the economy serves as the major stressor of the environment unless if a balance is maintained between use and conservation of environmental resources. (Bakkes and Van Woerden, 1997). A strong national economy should, therefore, not only be capable of addressing the developmental needs of the people but should be a key factor in protecting the environment. This is to say the development should go beyond economic growth (Daly, 1996). The focus of development economics therefore should be on sustainability development processes not merely on economic development. It is on this basis that nations of the world now vigorously pursue what is universally called sustainable development (Mashi, 2005).

In consequence of this, there has been growing change in the way environmental and developmental policies, programs, and projects are now formulated and implemented in many countries of the world (Colby, 1995; Serageldin, 1995). There is now a sort of new developmental environmentalism, characterized by greater precision in factoring environmental costs and benefits in policy making. It puts local people in the centre of environmental strategies, diagnoses and addresses behavioural causes of environmental damage, and recognizes the political dimensions of environmental reform (Christiansen, 1991).

An important recommendation of the United Nations Conference on Environment and Development (The Earth Summit) held in Rio de Janeiro, in 1992, was that individual countries should prepare strategies and plans that contain real commitments and targets, and sustainable measures in order to make progress on the problems affecting global environment (Mashi, 2005). Agenda 21 (1992) one of the summit's major output calls for a comprehensive program of action needed throughout the world to achieve a more sustainable pattern of development for the next century. Agenda 21 placed great emphasis on the need for all sectors of society to participate in the formation of effective national development strategies for sustainable development (Mashi, 2005). Since the summit, many countries are trying to relate sustainable development to their national policy-makers. Sustainable development is viewed as vital necessity to reconcile the two basic aspirations of a society, namely economic development and job creation, and environmental protection of limited natural resources (Hatcher, 1995).

At the end of last millennium, the term 'sustainability' became an overall guiding principle for human development, Its success stems from the underlying reflections of existential problems of mankind perceived at that time: increasing concern over exploitation of natural resources and economic development at the expense of environmental quality (Mashi, 2005).

The word 'sustainability' means different things to different people, to some it means integration of the social, economic, and

environmental domains while to some, the continuity of the currently preferred quality of life (Gbadegesin and Emuh, 2005). To some it is a development which "meets the needs of the present without compromising the ability of the future to meet their own needs". Since it is generally recognize that the world's present development path is not sustainable, in spite of the substantial efforts to achieve this goal in the last decade, the world community is now focusing attention on what is need to be done in its quest to achieve sustainable development. The challenge for us as a society is to agree on practical definition of sustainability and then develop a road map to achieve it. The road map should include policies, incentives, and research and development agendas.

The emerging public philosophy of sustainability is a call to ethical responsibility. It focuses directly on the values that are precondition to a just sustainable world. In seeking a public philosophy of sustainability, we clearly affirm sustainability itself as a moral value. We interpret sustainability broadly to mean a condition in which natural systems and social survives and thrive together indefinitely. Today it becomes a basic human responsibility to ensure that both natural and human systems are sustained in a condition of health – for the sake of earth (Gbadegesin and Emuh, 2005).

The term 'Sustainable Development' was brought into common use by the World Commission on Environment and Development. It's much quoted but vague definition refers to development which "seeks to meet the needs and aspirations of the present without compromising the ability to meet those needs of the future", (Brundtland, 1987). A less imprecise definition by Brundtland (1991) is "a process in which the exploitation of resources, the direction of investments, the orientation of technical departments and institutional change are all in harmony, and enhance both current and future potentials to meet human needs and aspirations."

As stated in UK Sustainable Development Strategies (1994), most societies aspire to achieve economic development to secure rising standards of living, both for themselves and for future generations. They also seek to protect and enhance their environment, now and for future. Reconciling these two aspirations of society is at the heart of sustainable development. Sustainable development, which includes community development, environmental protection, natural resources conservation, and local economic development, is becoming more widely practised all over the world. Since sustainable development planning requires civic planners and private developers to understand a number of new disciplines and to address their interconnections, it has been difficult for working professionals to gain an overview and access to specific implementation strategies.

Although there is growing consensus about the magnitude and nature of problems, there is still intense debate about the priorities among the issues. Moreover, since the released of the 1987 UN Brundtland Report (Our Common Future) and subsequent introduction of the term "sustainable development" into everyday language, there has been extensive dialogue about the type of policy instruments to employ the relative degree of government intervention required. While discussions are useful about the effectiveness of regulatory regimes versus market mechanisms, or some combination of these, our land, air and

water continue to become increasingly degraded. If one accepts the immediacy and urgency of acting now, and the necessity for institutional restructuring, fundamental change in the way we make decisions and the way we do business, many different kinds of policy levers will be required to achieve the necessary scale of change in this decade, especially as it affects risk reduction and disaster management.

2.1 DISASTER MANAGEMENT CYCLE AND SUSTAINABLE DEVELOPMENT

Disaster management aims to reduce, or, avoid the potential losses from hazards, assure prompt and appropriate assistance to victims of disaster, and achieve rapid and effective recovery. The Disaster management cycle illustrates the on-going process by which governments, businesses, and civil society plan for and reduce the impact of disasters, react during and immediately following a disaster, and take steps to recover after a disaster has occurred. Appropriate actions at all points in the cycle lead to greater preparedness, better warnings, reduced vulnerability or the prevention of disasters during the next iteration of the cycle. The complete disaster management cycle includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property, and infrastructure.

The mitigation and preparedness phases occur as disaster management improvements are made in anticipation of a disaster event. Developmental considerations play a key role in contributing to the mitigation and preparation of a community to effectively confront a disaster. As a disaster occurs, disaster management actors, in particular humanitarian, organizations become involved in the immediate response and long-term recovery phases. The four disaster management phases illustrated here do not always, or even generally, occur in isolation or in this precise order. Often phases of the cycle overlap and the length of each phase greatly depends on the severity of the disaster.

Developmental considerations contribute to all aspects of the disaster management cycle. One of the main goals of disaster management, and one of its strongest links with development, is the promotion of sustainable livelihoods and their protection and recovery during disasters and emergencies. Where this goal is achieved, people have a greater capacity to deal with disasters and their recovery is more rapid and long lasting. In a development oriented disaster management approach, the objectives are to reduce hazards, prevent disasters, and prepare for emergencies. Therefore, developmental considerations are strongly represented in the mitigation and preparedness phases of the disaster management cycle. Inappropriate development processes can lead to increased vulnerability to disasters and loss of preparedness for emergency situations.

2.1.1 MITIGATION

Mitigation activities actually eliminate or reduce the probability of disaster occurrence, or reduce the effects of unavoidable disasters. Mitigation measures include building codes; vulnerability analyses updates; zoning and land use management; building regulations and safety codes; preventive health care; and public education.

Mitigation will depend on the incorporation of appropriate measures in national and regional development planning. Its

effectiveness will also depend on the availability of information on hazards, emergency risks, and the countermeasures to be taken. The mitigation phase, and indeed the whole disaster management cycle, includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property, and infrastructure.

2.1.2 PREPAREDNESS

The goal of emergency preparedness programs is to achieve a satisfactory level of readiness to respond to any emergency situation through programs that strengthen the technical and managerial capacity of governments, organizations, and communities. These measures can be described as logistical readiness to deal with disasters and can be enhanced by having response mechanisms and procedures, rehearsals, developing long-term and short-term strategies, public education and building early warning systems. Preparedness can also take the form of ensuring that strategic reserves of food, equipment, water, medicines and other essentials are maintained in cases of national or local catastrophes.

During the preparedness phase, governments, organizations, and individuals develop plans to save lives, minimize disaster damage, and enhance disaster response operations. Preparedness measures include preparedness plans; emergency exercises/training; warning systems; emergency communications systems; evacuations plans and training; resource inventories; emergency personnel/contact lists; mutual aid agreements; and public information/education. As with mitigations efforts, preparedness actions depend on the incorporation of appropriate measures in national and regional development plans. In addition, their effectiveness depends on the availability of information on hazards, emergency risks and the countermeasures to be taken, and on the degree to which government agencies, non-governmental organizations and the general public are able to make use of this information.

2.1.3 RESPONSE

The aim of emergency response is to provide immediate assistance to maintain life, improve health and support the morale of the affected population. Such assistance may range from providing specific but limited aid, such as assisting refugees with transport, temporary shelter, and food, to establishing semi-permanent settlement in camps and other locations. It also may involve initial repairs to damaged infrastructure. The focus in the response phase is on meeting the basic needs of the people until more permanent and sustainable solutions can be found. Humanitarian organizations are often strongly present in this phase of the disaster management cycle.

2.1.4 RECOVERY

As the emergency is brought under control, the affected population is capable of undertaking a growing number of activities aimed at restoring their lives and the infrastructure that supports them. There is no distinct point at which immediate relief changes into recovery and then into long-term sustainable development. There will be many opportunities during the recovery period to enhance prevention and increase preparedness, thus reducing vulnerability. Ideally, there should be a smooth transition from recovery to on-going development.

Recovery activities continue until all systems return to normal or better. Recovery measures, both short and long term, include returning vital life-support systems to minimum operating standards; temporary housing; public information; health and safety education; reconstruction; counselling programs; and economic impact studies. Information resources and services include data collection related to rebuilding, and documentation of lessons learned.

2.2 DISASTER RISK REDUCTION AND STRATEGIES

The ISDR (2000) defines disaster risk reduction as the “systematic development and application of policies, strategies and practices to minimize vulnerabilities and disaster risk throughout a society, to avoid or limit adverse impacts of hazards, within a broader context to sustainable development”. The World Conference on Natural Disaster Reduction held in the city of Yokohama, Japan in 1994 (UN/ISDR, 2004) adopted the following principles, strategies and plan for actions for a safer world:

- Risk assessment is a required step for the adoption of adequate and successful disaster reduction policies and measures.
- Disaster prevention and preparedness are of primary importance in reducing the need for disaster relief.
- Disaster prevention and preparedness should be considered integral aspects of development policy and planning at national, regional, multilateral and international levels.
- The development and strengthening of capacities to prevent, reduce and mitigate disasters is a top priority area to be addressed so as to provide a strong basis for follow-up activities to the International Decade for Natural Disaster Reduction (IDNDR).
- Early warnings of impending disasters and their effective dissemination are key factors to successful disaster prevention and preparedness.
- Prevention measures are more effective when they involve participation at all levels from the local community through the national government to the regional and international level.
- Vulnerability can be reduced by the application of proper designs and patterns of development focused on target groups by appropriate education and training of the whole community.
- The international community accepts the need to share the necessary technology to prevent, reduce and mitigate disasters.
- Environmental protection as a component of sustainable development consistent with poverty alleviation is imperative in the prevention and mitigation of natural disasters.
- Each country bears the primary responsibility for protecting its people, infrastructure and other national assets from impact of natural disasters.

What the IDNDR and the Yokohama Plan of Action put in motion is an irreversible and beneficial, political and social process. This is what International Strategy For Disaster Risk

Reduction, launched by the General Assembly of the UN as a successor of International Decade For Natural Disaster Reduction (IDNDR) in 2000 to provide a global framework for action, is building upon: fostering more awareness, more public commitment, more knowledge and partnerships to implement risk reduction measures of all kinds at all levels (Ote, 2005).

Health and environmental scientists, professional risk managers and the general public strongly disagree about the seriousness of many risks. Most members of the public are concerned about long-term effects of risks, equity and fairness issues, lack of personal control, and pace of technological diffusion into their cultural environment, whereas professional risk managers focus on the task to minimize the probability of adverse effects caused by potentially hazardous agent or activity (Gbadegesin and Emuh, 2005).

The ISDR has the objective of reducing human, social, economic and environmental losses due to natural hazards and related technological and environmental phenomena. The ISDR aims at building disaster resilient communities by promoting increase awareness of the importance of disaster reduction as an integral component of sustainable development.

In Africa, the African Regional Strategy for Disaster Reduction with a common goal towards a disaster reduction that underpins the aim of New Partnership for Africa’s Development (NEPAD) has been developed (Nierkerk, 2004). According to Ote (2005) the strategy clearly stipulates the importance of a clear development focus towards solving disaster risk related issues in Africa. The objectives of the strategies are to:

- Increase political commitment to disaster.
- Improve identification and assessment of disaster risks.
- Enhance knowledge management for disaster risk reduction.
- Increase public awareness of disaster risk reduction.
- Improve governance of disaster risk reduction institutions.
- Integrate disaster risk reduction into emergency response management.

These objectives are in tandem with the aims of ISDR. The African Union (AU) strategy provides strategic direction towards the achievement of the above stated objectives. However, their attainment by African countries will demand a development shift in focus. It will entail a paradigm shift from an undue emphasis on disaster response to disaster risk management through the factoring of prevention and disaster reduction into sustainable development.

2.3 DISASTER RISK REDUCTION IN NIGERIA

Disaster risk reduction strategies, plans, policies and legislation exists in varied degrees in Nigeria, What has been lacking however, is common goal towards management of disaster that entails effective performance of six inter-related groups of activities namely: development planning, disaster prevention, mitigation, preparedness, response and recovery (Ologe, 2004). National Emergency Management Agency (NEMA) was established to coordinate and facilitate disaster management efforts nationwide. The same instrument that created NEMA stipulates that each State of the Federation should established State Emergency Management Committee (SEMC) to comprise the Governor as the chairman and other related

Departments of the Government to manage disasters in their domains. The Local Government authorities are also to set up the Local Government Emergency Management Committees to address emerging disasters in their respective domains (Ote, 2005).

Unfortunately, twelve years after the establishment of NEMA, many states in Nigeria are yet to establish their disaster management institutions to address the various cases of disaster events occurring in their own domains. In the states where this structure exists, a culture of reaction, which is disaster response with relief materials, is gradually developing with its negative effect of creating a sense of dependency by victims of disasters on external assistance. It has been observed that most of the disasters and emergencies in the communities such as floods, destructive storms, oil spills, wildfires, crop pests, ethno-religious conflicts, etc., being seasonal, are repetitive and cannot be effectively addressed by a reactionary and relief-driven paradigm. The multiplicities of these emergencies across the country with their budgetary implications for interventions could be burdensome and a big drain on national development (Ojo, 2004).

2.4 DISASTER RESISTANT PLANNING AS AN APPROACH TO RISK REDUCTION

As Architects, professionals in construction industry, and stakeholders in the sustenance of the environment, disaster resistant planning could be understood as a disaster risk reduction approach. The approach is used for minimizing the damage and disruption from disaster. It embraces a clear understanding of the relationships of how we manage growth and how we plan and developed our communities (neighbourhoods, buildings, infrastructure and other systems and components). Disaster resistant planning also accommodates how we relate development with the natural environment and the capacity of the environment to resist and to minimize disaster. A disaster resistant community is obtained when the goals of disaster resistant planning are achieved. Disaster resistant communities are sustainable communities in the local context. A sustainable community is defined as the one that uses its resources to meet the current needs while ensuring that adequate resources are available for future generations (UNEP, 1987).

Cities and towns like any human settlements are subject to various types of forces-physical, economic, social and administrative which influences their forms and structures. For instance, disaster of any nature whether natural or man-induced could exact so much force as to disrupt the socio-economic and political balance of the settlements, cause property damage and loss of human lives. The application of town planning tools such as contained in the building regulations and sub-division by-laws of the local government could help to coordinate the various forces and consequently ensures a disaster free environment.

Therefore, the application of town planning principles and indeed town planning tools (Development Plan and Development Control Mechanisms) in pre-event planning could be seen as a future oriented problem solving strategy which recognizes the relationship between planning, preparedness, response and recovery.

In summary, the relevance of town planning in disaster risk reduction is that it allows for a futuristic projection of potential

disaster and then allows us to formulate how we can mitigate it before it occurs.

III. INTEGRATING RISK REDUCTION STRATEGIES WITH SUSTAINABLE DEVELOPMENT

There is now an international acknowledgement that efforts to reduce disaster risk must be systematically integrated into policies, plans and programmes for sustainable development and poverty reduction, and supported through bilateral, regional and international cooperation, including partnerships.

Sustainable development, poverty reduction, good governance and disaster risk reduction are mutually supportive objectives, and in order to meet the challenges ahead, accelerated efforts must be made to build necessary capacities at the community and national levels to manage and reduce risk. Such an approach is to be recognized as an important element for the achieving internationally agreed development goals, including those contained in the Millennium Declaration (Mashi, 2005).

Since sustainable development is about the environment, risk reduction strategies must be synergized with sustainable development strategies (UNDP, 1997).

Furthermore, because disaster represent a development challenge, the UN General Assembly passed a resolution 58/214 of 23 December,2003 for the purpose of convening the World Conference on Disaster Reduction which was held on 18-22 January, 2005 in Kobe, Hyogo, Japan. The major outcomes of this conference are:

- Ensure that disaster risk reduction is a national and local priority with strong institutional basis for implementation.
- Identify, assess and monitor disaster risks and enhance early warning.
- Use knowledge, innovation and education to build a culture of safety and resilience at all levels.
- Reducing the underlying risk factors.
- Strengthened disaster preparedness for collective response at all levels.
- Encouraging governments to address problems created by mega cities, the location of settlements in high-risk areas and other man-made determinants of disaster.
- Encouraging governments to incorporate disaster risk reduction into national planning processes, including building codes.

The Millennium Development Goals have recently become a blueprint and roadmap for development after its endorsement by 189 world leaders in September 2000. It provides a yardstick for measuring the development progress of any nation. All of these targets touch upon areas which are closely linked to vulnerability to natural hazards, such as eradicating extreme poverty and hunger, achieving universal primary education, promoting gender equality, ensuring environmental stability and partnerships for development. For example, the goal of improving the lives of thousands of slum dwellers around the world living in high-risk areas by 2020; involves poverty reduction, proper land use planning and the improved understanding of vulnerability to disasters in densely populated areas.

According to Mashi (2005), Olaleye (2005), and Soyinka-Onilaja (2005), the provision of six among such goals which are directly relevant to the objective of linking risk reduction strategies to those of sustainable development are briefly examined below.

Goal 1: Eradicating extreme poverty and hunger

Extreme poverty and hunger has many consequences in relation to disaster risk reduction and the human condition in general. Extreme poverty lowers one's coping mechanism during and after the disaster and increases one's vulnerability to the debilitating impact of the disaster. The poorer you are, the more likely it is that you will live in a disaster prone area. As a nation, we have the political will to initiate and implement reforms that will bring about meaningful progress. Such include:

- Strengthening and diversifying livelihoods
- Encouraging responsible foreign investment
- A flexible and participatory approach to urban planning
- Building social security, including access to health education
- The provision of risk/loss spreading mechanisms for those excluded from insurance cover

Goal 2: Promoting gender equality and empowerment of women

Gender influences the type of hazard which an individual is exposed and an individual's access to recourses with which to build resilience to hazard and to recover from disaster. When structural constraints in society result in the exclusion of women from decision making or economic, risk will be unevenly spread. A look at the lives of female refugees and internally displaced persons will reveal how difficult it is for them to care for their families, especially the female headed households. We need more women in legislative positions to push for laws that will promote land reforms, ownership of dwellings, inheritance and employment rights, equal access to health, education, an justice.

Goal 4: Reducing child mortality

Children are at greater risk of being affected, injured or killed by disaster impact than adults. It is perhaps the indirect impact of disasters that have the greatest toll on children and interact with national mortality levels. Most important here is the loss livelihoods that can lead to extreme poverty and homelessness for children left behind.

Appropriate safety nets, such as help for extended families with the capacity to absorb orphans or well-run orphanages, can support many children. But for those children born into families whose livelihoods and homes have been taken away by disaster impact, the chances of survival in the first years of life will be reduced.

Goal 6: Combating HIV/AIDS, malaria and other diseases

For many people, natural hazard and shock is felt in many pressures. HIV/AIDS and other diseases can undermine individual and collective coping capacity, just as disaster impact can take away development gains and livelihoods, making people more vulnerable to illness.

Interventions to strengthen basic health care provision, family health care and preventative health planning can play roles in strengthening society and building capacity with which to resist natural hazard. Innovative development policy is required for those instances where natural hazard coincides with high rates of illness.

Goal 7: Ensuring environmental sustainability

This goal is to be achieved through the integration of principles of sustainable development into national policies and programmes, thus reversing the loss of environmental resources; by halving, by 2015 the proportion of people without sustainable access to safe drinking water, and by achieving a significant improvement in the lives of at least 100 million slum dwellers. The link between environmental degradation and disaster occurrence is very obvious; for example, deforestation and soil erosion increase mudslides, landslides and flash flooding, while desertification increases drought and famine.

We can mainstream many good practices into projects to sustain the environment, thus preventing disaster or at least mitigating its impact when it inevitably occurs.

Goal 8: Developing a global partnership for development

The most important components of this goal relate to trade, debt relief and aid. Success rests to a large extent the willingness of developed countries to meet their commitments. More progress has been made in debt relief under the Heavily Indebted Poor Countries (HIPC) initiative.

In forefront for linking disaster risk reduction and sustainable development is the UN Institute of International Strategy for Disaster Reduction (ISDR). The ISDR has succeeded in building regional and international partnerships for disaster risk reduction and disseminating good practice.

IV. CONCLUSION

Both natural and man-made disasters occur as a result of the failure of the built environment to structurally, functionally, environmentally and socially resist the physical forces of natural hazards and to provide the functional support necessary for recovery. The effects of natural and man-made disasters are usually in the form of loss of lives, property damage and socio-economic disruption.

For development to be sustainable, risk to disaster reduced, emergency management to be successful, environmental consideration must be a central part of decision-making process of government and industry. Environmental protection requires collective action. For this to happen, decisions about economic development ought to take account of the costs of environmental degradation, potential pollution and waste, vulnerability to hazard, mitigation and responding to hazards, and the value of response that are consumed, and conversely of the value of any environmental improvements to be made. Thus, key objective of risk reduction and sustainable development policy is to ensure that environmental costs and benefits are, properly and fully taken into account in public and private sector decisions.

Finally, in order to translate sustainable development principles into disaster risk reduction practices, several requirements must be met. The requirements: are better information is needed about environmental impacts, development of suitable mechanisms in the private sector to ensure that information is brought to bear on the decisions being taken, and brought fully into the decision making process, placing greater emphasis on resource efficiency, and making environmental considerations a central part of the decision-making process within government and industry.

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