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Sustainable Development and Disaster Management

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Abstract

Disaster is a sudden disturbance to the functioning of a society involving extensive human, material, economic and environmental losses, the intensity and frequency of which keeps varying depending upon several factors including the changes in the climate. Some natural hazards like devastating floods and earthquakes remind us of the nature's destructive potential, especially who are exploiting nature and its resources in the name of development. Disasters and development are closely linked and have a thin line of difference between them, which if not attended can come with a completely opposite outcome. Humans have the responsibility to ensure the conservation, protection, restoration and sustainable use of the ecosystem. This paper explores the ways to sustainably manage and protect the ecosystem to avoid the adverse impacts and various actions necessary for its restoration. The paper also studies various international agreements and agendas in practice concerning the issue. It also traces the evolution of the concepts and practices of sustainable developments, global warming and the major issues that challenge the ways of disaster management.

Keywords: *Global warming, Ecosystem, Natural hazards, Risk reduction, Disaster management, Deforestation*

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INTRODUCTION

The might of the nature is the highest and that should never be underrated. The most ferocious side of nature is seen during disasters. During the natural calamity, the five elements of the earth turn catastrophic. With the passage of time the intensity of the havoc has increased. The more is the population, larger is the destruction. The damages result in the adverse effect on the GDP and budget deficits. An efficient infrastructure and planning is needed to reduce the amount of physical and economic losses which erode the base of *sustainable development*. The losses from natural hazards have been suffered by the people, property and various other assets for many times specially in the hazard-prone areas where these instances are more rapid and people have no or very less actions to ensure their safety. Natural disasters like tornados, hurricanes, heavy rains, floods and earthquakes have caused great extent of damage, multiple deaths and also leave behind the traces of severe health injuries, chronic and infectious diseases, thereby causing physical and emotional trauma. Due to little regard given to the disaster risk, the losses have been at a rising trend in the last decade. As the urban areas continue to develop at a rapid pace, matching efforts also needs to be taken to control the rising disaster risk in the prone areas and to the poor inhabitants who are least equipped to cope with the disaster losses. The disaster risk level is measured with reference to the certainty of occurrence of natural hazards of varying nature and degree to which it is severe. Special protection needs to be ensured for the vulnerable population residing in disaster prone areas. Development should be done in such a way that it ensures lower level of risk from the livelihood of population and infrastructures.

HUMAN ACTIONS

The scientific reasons of natural disasters are due to the movements of plates in the Earth include earthquakes, volcanic eruptions and tsunamis, which is difficult to predict and impossible to stop. If an earthquake is caused under the sea, it can cause a tsunami. Sudden vertical displacement generates the waves that can travel great distances at high speed and

with great force. Therefore, beforehand precautions and arrangements to reduce the possible loss is the best way to be saved from its disastrous effects. Other weather-related disasters include hurricanes, tornados, extreme heat and cold weather, landslides and famines, which can to some extent be predicted. Natural disasters are inevitable; even if there are technologies it cannot be stopped from occurring and can only anticipate its occurrence to take preventive measures. These natural hazards are although naturally occurring event affecting human life but sometimes, they are not natural and are accompanied by some human actions as well. Human actions have always impacted the environment in several ways. Today, the growing population signifies increased agricultural activity which results into large scale deforestation for the purpose of creating suitable land. More use of fossil fuels directly impacts the environment, thereby resulting into changes in global weather patterns. These changes facilitate chances of natural disasters like floods and wildfires. Less trees would mean less rainfall which results causing drought. In Central America for instance, EL-NINO is a natural hazard that adds stress to the existing environment, climate and vulnerability conditions. Therefore, the reasons to catastrophe in agriculture, health and water resources and other related crisis are more related to human actions like over-exploitation of resources, poor planning of land use inadequate technologies, over-population etc. [1]. Global warming indicates the increased level of temperature of earth which is also harmful for the environment, thereby leading to disruption. Global warming refers to an increase in the average temperature of earth's climate which is consequently due to increase in greenhouse gases, such as carbon dioxide, methane and nitrous oxide. Other causes include oil and toxic materials spill, urbanization, radioactive contamination, increase in the amount of solid waste, extinction of plant and animal species, changes in global ecosystem which deteriorate the living condition of many populations, which is known as ecological crisis. The major reason is that more and more people are settling in the high-risk zone, for example, building in floodplains and construction of roads on unstable slopes. Experts say that the number of material damage will see a dramatic rise if not taken care of effectively.

Summits and Conventions

The main agreements are 2030 Agenda for Sustainable Development, Future We Want (Rio June 2012), Yokohama Strategy & Plan for Action of a Safer World (1994) which was the framework which recognized the interrelation between sustainable development and disaster risk reduction, Johannesburg Plan of Implementation (Johannesburg, September 2002), "Hyogo Framework for Action (2005–2015)", the Sendai Framework for DRR (Sendai, Mach 2016) and the 2030 Agenda for Sustainable Development (New York, September 2015). The issues related to water (UNSD) and sanitation risk management was issued by the UN Commission on sustainable development in 2004-05 cycle. There is a 15-year framework of action with seven targets regarding disaster risk reduction in the Sendai Framework for disaster risk reduction (14 to 18 March 2015). One of the most important agendas is the 2030 agenda for sustainable development, which considers the urgent need to reduce the risk of disasters. It emphasizes on the infrastructure which is disaster resilient. Other targets related to education, health and lifestyle are covered under SDG#4, SDG#11 and SDG#9. Over the ten-year period 2005 to 2014, 426,991 lives were lost as a result of natural disasters, 52% of the global total. An estimated 1.4 billion people were affected, representing 85% of the global total. Reported direct losses reached over $0.7 trillion, equivalent to an average $198 million loss per day [2].

Disaster Risk Reduction in Agenda 2030

Traditionally, disaster risk management refers to the systematic management of administrative decisions, organizations, operational skills and abilities to implement policies, strategies and coping capacities of the society or individuals to lessen the disaster impacts [3]. The agenda 2030 is committed for the implementation of disaster, and natural disaster risk reduction would provide "an opportunity to encourage increased political commitment and economic investment to reduce risks and take

development action that considers disaster resilience as critical to poverty reduction and key enabler of sustainable development" (UNISDR, 2015) [4].

The goals include reduction of poverty, achieving food security, promotion of sustainable agriculture, maintaining ecosystems, increasing sustainable urbanization and sustainable human settlement. It emphasizes more on reducing the number of deaths and the number of people affected and substantially decreasing direct economic losses. The purpose is to support the least-developed countries through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials.

Sustainable Development

The term sustainable development came into prominence in 1980, when the International Union for the Conservation of Nature and Natural resources (IUCN) presented the World Conservation Strategy (WCS) with "the overall aim of achieving sustainable development through the conservation of living resources [5], a balanced development, which meets the needs of present without compromising with the future needs, a development which not only ensures the present but also the future. Often it is seen that development plans are made without fully considering the future needs and consequences. Be it financial crisis or environmental loss sustainable development proves to be an effective method. Using unsustainable development will result in severe consequences. Example is depending on fossil fuels to meet the energy needs. The basic principle is to live within the environmental limits. Sustainable development is to change the present for a better future. In general, it is seen that measures are taken without analyzing the future consequences. The construction to prevent a calamity is developed without analyzing other factors. Often the measures turn into the exploitation of resources. Poor people are more prone to such risks and they remain exposed to poverty, malnutrition, inadequate technology and marginalization. A twofold structure should be planned which reduces the risk of the disasters as well as protect the interest of the weaker section which suffers the most during such disasters. Sustainable development allows people irreconcilable positions in the environment development debate to search for common ground without appearing to compromise their positions [6]. The 2002 World Summit on Sustainable Development marked an expansion of the standard definition with the widely used pillars of sustainable development: economic, social and environmental. The Johannesburg Declaration created "a collective responsibility to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable development – economic development, social development and environmental protection – at local, national, regional, and global levels" [7].

There is not adequate expenditure by the government in disaster management and due to lack of funds the situation worsens. The funding should be in such a manner that it makes the earliest recovery and reconstruction of public assets along with the morally and economically motivated actions such as compensation, settlements and providing health facilities to the affected households. The efforts should be in a two-hand manner of constructing the economy again and to alleviate poverty. Migration of the human resources to other countries should also be stopped. As water and sanitation problems become breeding grounds for diseases so systems should be made to combat such situation. It is very important to clarify the semantics and to identify some critical weaknesses in concepts and reasoning, weaknesses that have to be addressed if sustainable development is to become a meaningful paradigm of development [8].

Suggestive Measures for Disaster Management

First of all, the local social protection schemes should be utilized as safety nets. The process should lower the risk and achieve well-being of every citizen. Actual data of the losses should be gathered so that the funds for relief should reach each and every household. A separate budget should be made for rehabilitation in such areas. Reallocation of the public resources should be the primary concern. The government should allocate the development of disaster-prone areas to the

private sector. Course related to disaster management should be included in the study material of primary and middle schools because lack of awareness is more destructive. Pre-disaster plan should include the advancement in technologies like remote sensing for earth observation, satellite-based telecommunication and global navigation satellite systems which contribute to more effective disaster risk management and emergency response [9]. Reduction of risk is the best cure for such situations. In this field a lot could be learned from a country like Japan where after the crisis of 2012, the country recovered very fast due to its efficient resource management and training given to its citizens. Enhanced integration of disaster risk concerns into development policy, development plans and individual development initiatives would both strengthen disaster resilience and contribute to sustainable development [10]. In addition to this, a post-disaster plan should be developed which includes food, cash, clothes in return for work. The government should ensure the relief and resettlement for stopping migration. An early warning or forecast should be made for minimizing the intensity of destruction. Collectiveness must be promoted, use of highly sophisticated equipment leads so much energy to be waste. Thus the development strategies should enumerate the facts and do plan for promotion of work for all [11]. A strategy for incentives for investment should be made for reducing poverty. Effective land use plan should be implemented. Construction styles and building code help in management of disasters. Environmental stability could be achieved by agriculture in drought prone areas and by reducing deforestation.

CONCLUSION

Across all stages, disaster risk poses a risk to sustainable development. It is less important to focus on to what extent human actions are responsible for contributing in natural hazards; rather, we should change the actions and channelize them in a direction which aims at sustainable development. The occurrence of natural disasters cannot be stopped so measures are important to be implemented in view of sustainable development. A global system needs to be developed to deal with these horrendous hazards. To achieve the target of sustainable development countries should work in building their capacity to integrate environmental considerations into development plans and strategies, to manage and sustainably use natural resources and ensure that the national wealth is used to promote livelihoods and economic recovery and also effectively evolve policies to reduce poverty and provide social protection to the needy. It could be done by anticipating future risks and reduce its likelihood. Traditionally, the risks have been dealt without addressing the structural elements that contributes to the risk which did not help in reducing its effects. However, now various countries are working on it to give it a successful pace.

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CONFLICT OF INTEREST

Nil

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