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Disaster Management and Early Warning System: Human Rights Perspective

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Abstract:

The origins of a disaster lie in nature and as well as in various human activities. Economically well-off and technologically advanced countries have failed in discovering proper solutions to disasters. The mere presence of hazard does not lead to disaster, there must be vulnerability also. Disaster plus vulnerability leads to damage. Making high probabilities from an undesirable event to low probabilities is disaster management. Risk analysis plays an important role in disaster management. Disaster management means the organization, planning and indication of measures preparing for, responding to and, initial recovery from disasters. Geographic Information System (GIS) and Remote Sensing play a very important role in disaster management and risk reduction. Early warning system is very useful in taking care of measures relating to pre-disaster mitigation and preparedness measures, emergency relief and reconstruction efforts. The problems and multiple human rights challenges posed by natural disasters are mainly of humanitarian nature and it is observed that the human rights of disaster victims are not sufficiently taken care of. In June 2006, the UN Inter-Agency Standing Committee (IASC) adopted Operational Guidelines on Human Rights and Natural Disasters, which are aimed at protecting the rights of persons affected by natural disasters. Human rights-based approach should be considered as one of the measures to increase accountability for warning and it must be ensured that warnings should reach the each and one who are residing in disaster prone areas.

Keywords: *Disaster Management, Environment, Human rights, Warnings, Natural Disasters*

Introduction:

In the last 25 years of the 21st Century we have witnessed a lot of disasters like Tsunamis, Earthquakes, Storms and Nuclear Plant Emergencies etc. and COVID-19 pandemic. The origins of a disaster lie in nature and as well as in various human activities. "India, due to its, physiographic and climatic conditions is one of the most disaster-prone areas of the world. Vulnerability to disasters/emergencies of Chemical, Biological, Radiological and Nuclear (CBRN) origin also exists. Heightened vulnerabilities to disaster risks can be related to increasing population, urbanisation, industrialisation, development within high-risk zones, environmental degradation, and climate change"[2]. Economically well-off and technologically advanced countries have failed in discovering proper solutions to disasters. More lives were lost in poorer countries, but economic losses were high in rich countries. Due to disasters, there will be many consequences for health viz. out breaking of diseases, unsafe food and water, chemical and radiation contamination. Sometimes disasters are political in nature and can lead to political conflict in a country.

Human rights is a generic term and it embraces civil rights, civil liberties and social, economic and cultural rights. The basic principle governing the concept of human rights is respect for

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[2] National Disaster Management Plan, 2016. P. 28. Available at https://ndma.gov.in/images/policyplan/dmplan /National %20Disaster%20 Management%20Plan%20May%202016.pdf (Last Visited August 3, 2020)

human personality and its absolute worth, regardless of his religion, culture, race, language, sex or nationality. These rights are required for the adequate development of the human personality and for human happiness. "Every individual residing in any part of the world is entitled to exercise these basic rights merely by virtue of having been born as human being"[3].

The paper is based on doctrinal approach, based on secondary material, to study into the interface between Disaster management and human rights and the need for providing an efficient and effective Early Warning System ensuring protection of human lives. An endeavour is made in the paper to analyse the various national and international legal instruments, institutional mechanisms addressed to protect the human rights from climate change prone disasters with effective early warning system.

Definition of Disaster:

The mere presence of hazard does not lead to disaster, there must be vulnerability also. Disaster plus vulnerability leads to damage. Sendai Framework for Disaster Risk Reduction, 2015 defines disaster as "a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources"[4]. Disaster Management Act, 2005 defines disaster as "a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area"[5].

Disaster Management:

Making high probabilities from an undesirable event to low probabilities is disaster management. Risk analysis plays an important role in disaster management. Prior to the year 2005 disaster management was under the Ministry of Agriculture, now it under Ministry of Home Affairs. From the year 2005 the India has moved from 'post-disaster reactive approach' to 'proactive approach'. Disaster management means "The organization, planning and application of measures preparing for, responding to and, initial recovery from disasters"[6]. Disaster Management Act, 2005 defines disaster management as "A continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary or expedient" for the following: 1) Prevention of danger or threat of any disaster, 2) Mitigation or reduction of risk of any disaster or its severity or consequences, 3) Capacity-building, 4) Preparedness to deal with any disaster, 5) Prompt response to any threatening disaster situation or disaster, 6) Assessing the severity or magnitude of effects of any disaster 7) Evacuation, rescue and relief, and 8) Rehabilitation and reconstruction"[7]. Therefore, the elements of disaster management are prevention, mitigation, preparedness, field care, tagging and identifying injured persons and taking care of dead persons. The Disaster Management Act, 2005 provides for the setting up of Disaster Management Authorities at National, State and the District levels and National Disaster Response Force (NDRF) at National and State level.

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[3] Harsh Lauterpacht, *'International Law and Human Rights'*, New York, 1950, Pp. 73-75.
[4] *Id* at P. 34.
[5] Section 2 (d) of Disaster management Act, 2005.
[6] *Supra* note 1. P. 37.
[7] Section 2 (e) of Disaster management Act, 2005.

Disaster Risk Reduction: Use of Geographic Information System (GIS):

So far there is no perfect technology that predicts the occurrence of earthquakes. Scientists can only predict but so far there is no perfect theory to say why a Cyclone is moving in a particular direction. If 6.5 or more earthquake on richter scale takes place in Andaman Islands, Tsunami will occur in India within 30 minutes and if an earthquake takes place in Sumatra Island of Indonesia, it will take three to four hours for causing Tsunami in India. Geographic Information System (GIS) and Remote Sensing plays very important role in disaster management and risk reduction. "A geographic information system (GIS) is a framework for gathering, managing, and analyzing data. Rooted in the science of geography, GIS integrates many types of data. It analyzes spatial location and organizes layers of information into visualizations using maps and 3D scenes. With this unique capability, GIS reveals deeper insights into data, such as patterns, relationships, and situations—helping users make smarter decisions"[8]. In a satellite vehicle, sensors are arranged which give information relating to that geo orbit. "Geo Satellites focus only on a particular area, whereas Polar Satellites cover the entire globe and gives information about the entire glob. Generally Polar satellites cover the entire globe within 12 hours. So far, India has only one Satellite relating to ocean information"[9]. The applications and data developed by Geographic Information System can be used in more than a thousand ways and one of such uses is disaster management and risk reduction.

Early Warning System:

Early warning system is very useful in taking care of measures relating to pre-disaster mitigation and preparedness measures, emergency relief and reconstruction efforts. Early warning received very high attention after the 26 December 2004 tsunami, when it became clear that a tsunami warning system and associated public education could have saved thousands of lives. Warning System is a means by which an alert can be disseminated to public. It informs a future danger or disaster. An Early Warning System (EWS) consists of some advanced functions which are not available in the warning system. Early Warning System is "an integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses and others to take timely action to reduce disaster risks in advance of hazardous events"[10]. Earlier, United Nations International Strategy for Disaster Reduction (UNISDR) (now it is renamed as UNDRR) has defined EWS as "technology and associated policies and procedure designed to predict and mitigate the harm of natural and human initiated disasters". Early Warning System has four main functions 1) Risk analysis, 2) Monitoring and Warning, 3) Dissemination and Communication and 4) Response Capability[11].

As a part of risk analysis, in assessing the hazards and vulnerabilities, the fundamental question that comes into the mind is 'how safe is safe enough'? Then, the answer lies in use of Geographic Information System (GIS) and Geo-Spatial Tools in communicating information and warnings to the people who will be exposed to imminent danger of disasters like Cyclones, Tsunamis and Earthquakes. Early Warning System and Multi-hazard Early Warning System are the tools invented by GIS to mitigate the impact of disasters. The spatial database and geo-maps generated with the help of GIS technology will be used in Early Warning System and used for

[8] See https://www.esri.com/en-us/what-is-gis/overview#image1 (Last Visited August 7, 2020)
[9] See https://incois.gov.in/ (Last Visited August 7, 2020)
[10] See https://www.undrr.org/terminology/early-warning-system (Last Visited August 4, 2020)
[11] *Id.*

serving the people in disaster vulnerable areas. Disaster risk information is one of seven global targets set by The Sendai Framework for Disaster Risk Reduction 2015-2030. UNESCO promotes scientific exchange and collaborative efforts in order to establish effective early warning systems for different hazards such as tsunamis, landslides, volcanoes, earthquakes, floods and droughts.

Disaster Management and Human Rights:

The Universal Declaration of Human Rights (UDHR) adopted by United Nations General Assembly on 10th December 1948 is a land mark in the direction of the development of the international protection of human rights. The International Covenant on Civil and Political Rights, 1976 requires States parties 'to respect and to ensure … the rights recognised' in the Covenant and 'to take the necessary steps… to give effect to the rights'[12]. The International Covenant on Economic, Social and Cultural Rights, 1976 also states the same. The General Assembly of the United Nations adopted the historic UN Millennium Declaration in September, 2000[13]. This Declaration could be described as a compendium on human rights, which embraces the whole scheme of human rights with all its dimensions and lays down certain goals – popularly known as 'Millennium Development Goals (MDGs) – to be achieved by the member States in their governance.

The problems and multiple human rights challenges posed by natural disasters are mainly of humanitarian nature and it is observed that the human rights of disaster victims are not sufficiently taken care of. "Unequal access to assistance, discrimination in aid provision, enforced relocation, sexual and gender-based violence, loss of documentation, recruitment of children into fighting forces, unsafe or involuntary return or resettlement, and issues of property restitution are just some of the problems that are often encountered by those affected by the consequences of natural disasters"[14]. In June 2006, the UN Inter-Agency Standing Committee (IASC) adopted Operational Guidelines on Human Rights and Natural Disasters, which are aimed to protect the rights of persons affected by natural disasters.

Conclusion:

Forecast Based Action EWS should be integrated into existing planning process through Law and for which technology and database developed by the Geographic Information System (GIS) is much useful. "As such, the use of early warning system and geospatial technology cannot be discounted because of their ease to applicability and cost-effectiveness with the effective capabilities in disaster mitigation, preparedness, response, and recovery"[15]. "Early warning systems (EWS) can improve resilience of households to climate related hazards, by providing information for early action. However, to be effective, early warning systems must themselves incorporate aspects of resilient systems: diversity, flexibility, local relevance, learning, acceptance of change, consideration of justice and equity. Every individual has the right to information about climate related hazards. Indeed, access to information is not simply a liberty right but a welfare right. Early warning is necessary for the enjoyment of basic human rights

[12] Art. 2 of the International Covenant on Civil and Political Rights, 1976.

[13] Doc E/CN.4/RES/2004/70, 57th Meeting, 21 April, 2004.

[14] Human Rights and Natural Disasters. Available at https://www.refworld.org/pdfid/49a2b8f72.pdf (Last Visited August 7, 2020)

[15] S. Yekeen, A. Balogun and Y. Aina, *'Early Warning Systems and Geospatial Tools: Managing Disasters for Urban Sustainability'*, https://link.springer.com/referenceworkentry/10.1007%2F978-3-319-71061-7_103-1 (Last Visited August 7, 2020)

including the right to life. The success of early warning is not based solely on technical or meteorological systems but is dependent on social systems. Marginalized or impoverished individuals or groups may not receive or be able to respond to warnings. Addressing factors that increase vulnerability, such as poverty, inequality, and lack of education, can help improve outcomes of warning systems"[16].

Apart from the technology based Early warning System, other innovative approaches are required to ensure that EWS could reach and benefit all the people who may be affected by disasters. A human rights-based approach should be considered as one of the measures to increase accountability for warning and it must be ensured that warnings should reach the each and one who are residing in disaster prone areas. Therefore, the need of the day is to enact the law to facilitate effecting Early Warning and Early Response to mitigate the impact of disasters.

[16] UNEP 2015. Early Warning as a Human Right: Building Resilience to Climate Related Hazards. Available at https://wedocs.unep.org/bitstream/handle/20.500.11822/7429/Early_Warning_as_a_Human_Right_1.pdf?sequence=5