
The Role Of Information And Communication Technology (ICT) In DRR

Background

Technical advancements give extraordinary chances to assemble resilience and extend availability. Experiences from the area and around the globe have demonstrated that disaster prevention and preparedness, empowered by correspondence and space innovations, can be significantly more successful and less expensive than any time in recent memory. Space innovations have demonstrated very powerfully in a disaster observing, early warning, and crisis response endeavours. The impacts of disasters on populations incorporate quick passing and handicaps and disease outbreaks caused by ecologic movements. For instance, the 2010 earthquake in Haiti and Cyclone Nargis, which hit Myanmar in 2008, killed 225, 000 and 80, 000 individuals, separately, in merely minutes; wrecked human services offices; and left numerous homeless. In spite of the fact that entire counteractive action of disasters events is past human abilities, the unfavourable effect of any disaster on human lives and their jobs can be limited by taking satisfactory early warning, preparedness and mitigations measures.

Information and Communication Technology (ICT) frameworks assume a vital job for actualizing such preventive measures. “The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events” – is known as Disaster Risk Reduction. Countries ought to likewise have disaster data methodologies to oversee baseline data, which might be utilized for pre-disaster preparedness, amid disaster emergency response, and post-disaster requirements for damage and loss evaluation, rehabilitation and reconstruction. Such data could be gathered through concentrated risk mapping and evaluation of significant disaster inclined territories.

Zone of innovation for DRR has extended and grown quickly as of late, especially to mapping warning and response. Advanced information instruments, particularly topographical data frameworks, are altering our potential ability to break down hazards, risks and defenselessness, and plan for disasters. Disaster organizers make broad databases identifying with necessities (for instance of defenseless individuals and their areas) and assets, for example, human limits and emergency gear. The vehicle and dissemination of alleviation merchandise can be checked through ware following frameworks.

Problem Statement

In general, very few developing countries have the assets to install, operate and maintain the vital ICT framework, despite well-intentioned approach statements to this impact. Again, in numerous countries with moderate or large amounts of ICT entrance, access to ICTs keeps on being confined by financial factors and also government approaches, lack of education, and social boundaries of sexual orientation, ethnicity, religion and caste. Governments which have the assets may not actualize ICT-accommodating arrangements or may not put resources into

resilient power and media transmission frameworks that decentralize data age and sharing, and democratize basic leadership. Additionally, nearby laws, security conventions or between authoritative competitions may entangle the sharing of specific kinds of information. Recorded information and nearby maps are as often as possible not accessible in advanced configuration as well as needs legitimate meta information. Accessible information might be obsolete or gathered utilizing diverse techniques. Meteorological information, estimates and investigations are frequently out of reach or limitless to the individuals who require the data most in light of an absence of the important aptitudes to decipher, process and incorporate the information. The test is picking up duty to integrate ICT tool effectively with proper data sharing, giving positive political, social and monetary conditions for recognizing, empowering, and applying a blend of ICTs.

The purpose of this study is to investigate the role of ICT in Disaster Risk Reduction in the context of a national and international arena. The paper aims to be useful and will hope to give a new viewpoint to a long-existing lacking of ICT with linking DRR and furthermore investigates what could be the scope of research in this particular field using innovative technologies.

Literature Review

Some researchers have studied out this issue from different point of view through their previous studies and proposed as well as provided different types of solutions and methods on different areas around the world regarding this concern had been proposed and discussed some studies highlight the different digital technologies and their use to reduce disaster risks. Academy of ICT Essentials for Government Leaders module series introduces DRM and the important role of ICTs in assessing disaster risk and reducing its impact (Lee, 2010). GIS-based frameworks enhance the nature of the examination of hazard vulnerabilities and capacity assessments, manage advancement arranging and help organizers in the choice of mitigation measures. Communications frameworks have likewise turned out to be basic for giving emergency communication and time to time relief and response measures.

The utility of the framework through a presentation of original survey data about individual DRR among residents of California which marks a critical step towards the better measurement of success of intractable policy initiatives through the introduction of a novel measure of DRR. In the context of Bangladesh, is topping the world positioning of nations most seriously hit by cyclones and tempest floods ever, the nation demonstrates the case of how a proper satellite-based early cautioning framework is essential for disaster mitigation. The administration saw itself in need to build up an early cautioning framework after the executioner tropical typhoons of 1971 (300 thousand deaths, 1.3 million individuals homeless) and 1991 (138 thousand deaths). In 1994, the notice framework demonstrated its value as another staggering tornado of proportional force struck the archipelago. A definitive effect of this cyclone was ordinarily less contrasted with the unfortunate 1971 and 1991 occasions. An ICT arrangement, for the most part, includes innovation, programming and information measures such as Database, Web Applications, GIS, Sensors, Commercial-off-the-Shelf Software, Free and Open Source Software. A decent ICT framework is set up in Bangladesh, yet scopes exist in expanding ICT applications uses to upgrade coordinated data administration for limiting hazard particular risks in an opportune way.

Another study reveals the utilization of ICTs in all parts of the disaster life cycle, especially for

disaster risk reduction (DRR) and DRM in the region. It additionally means to take a look at great practices and developing advances that can be utilized for building e-resilience in the area. Another research attempted to highlight the role of ITC in the management of natural disasters in India. Furthermore Yap (2011) argues that we also need to clarify how ICTs can address barriers to interagency coordination and collaboration, and how the new technologies can help evaluate the effectiveness and financial performance of disaster response programs. It also closes with recommendations for ICT practitioners and researchers on how the use of ICTs in disaster management in developing countries may be made more effective. Careem et al. (2006) discussed Sahana which is a Free and Open Source Software (FOSS) application that aims to be a comprehensive solution for information management in relief operations, recovery and rehabilitation. It investigates the alignment between FOSS development and humanitarian applications and describes the anatomy of the Sahana system.

Research Gap

More research is needed on the issue of innovation of Earthquake Forecasting System which can minimize the upcoming hazard in megacities like Dhaka. The second area needing attention is good governance in this sector through e-governance is a key challenging area for us with a comprehensive action plan. Besides these, the local level needs information to take action to reduce disaster risk. Many local agencies are still beyond the budget for accessing ICT capacities. So incorporating ICT tools with CBDRM is another need. Furthermore, regular maintenance, repairing and updating of both hardware and software is another big challenge. All of these gaps need quantitative analysis for further research.

Methodology

The work on different elements of the topic has been categorized. Secondary data has been used in this paper. The necessary data has been collected via online sources, journals, documents, statistics, etc. Secondary data execute the main purpose of this issue and amounts of earlier researches related to the study are included to reach the concluding opinion of this assessment. The paper has been completed through some of the scientific processes maintaining the steps in sequence.

All data have been processed and analyzed with the help of conventional statistical techniques. The research is both qualitative and quantitative in nature with discussion outputs and recommendations.

Findings and Discussion

A standout amongst other known programming and information stages are Ushahidi, a non-benefit organization which has made intelligent data destinations for various disasters, including the Kenyan election crisis of 2007–2008, the Haiti and Chile earthquake in 2010 and the Christchurch earthquake in New Zealand in 2011. Another open source software “Sahana” disaster management system deployed amid 2004, Indian Ocean Tsunami which contributed to the relief and rehabilitation periods of the Southern Leyte landslides and perceives the enormous lift to the preparedness for future disasters.