

New Technologies and Disaster Risk Reduction

Rajib Shaw, Co-Founder RIKA



ABOUT RIKA

RIKA is a social entrepreneurship startup (DIPP-29629) with an aim of bringing research into the core of disaster management activities in India and other parts of South Asia. Resonating the Sendai declaration in relation to the need for widening the scope of Science and Technology in the disaster management, we at RIKA envision to act as a bridge connecting academic research, policy makers and field practitioners to make informed decisions and use of new technologies

E : rika.india.com@gmail.com

W: www.rikaindia.com



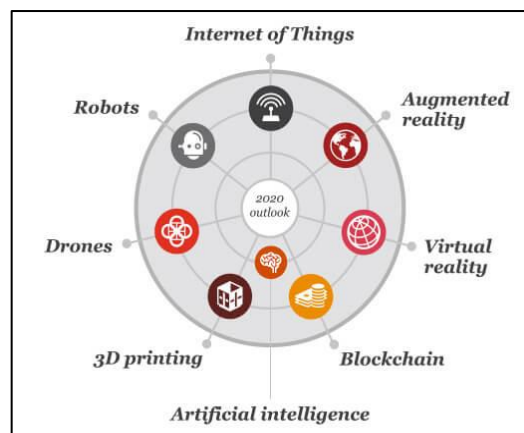
Introduction

Science and technology is the root of informed decision making in disaster risk reduction (DRR). Role of science and technology has got enhance attention in the Sendai Framework for Disaster Risk Reduction (SFDRR) and there has been prominent global and several regional initiatives to enhance multi stakeholder partnership in implementing science based decision-making. The Sendai Framework emphasizes the role of science and technology. It calls to prioritize the development and dissemination of science-based risk knowledge, methodologies and tools, science and technology work on DRR through existing networks and research institutions and strengthened interface between science and policy to support all four priority areas (1). It is often considered that eight technologies which will re-shape the future, are as follow: **Internet of Things, Augmented reality, Virtual reality, Block-chains, Artificial Intelligence, 3D printing, Drones, and Robotics.** The advancement of new technologies urges us to consider its possible application in disaster risk reduction. Some of these technologies are implemented or used in different forms of innovations in disaster risk reduction.

What is happening at global and national level?

The Sendai Framework for Disaster Risk Reduction 2015-2030 shifts the focus from managing disasters to managing risks. Such a shift requires a better understanding of risk in all its dimensions of hazards, exposure and vulnerability.

Disaster risk governance that ensures disaster risk is factored into planning and development at all levels across all sectors as well as in disaster preparedness, rehabilitation, recovery and reconstruction; and cost-benefit analysis to support prioritization of investments in disaster risk reduction (DRR) for long-term resilience. Shaw R., Izumi T. and Shiwaku K. (2017): Science technology in disaster risk reduction in Asia: post Sendai developments, in Science and Technology in Disaster risk reduction in Asia: potentials and challenges, page 3 to 16.



New Technologies: Case of Japan

Japan, being a highly disaster prone country, has been pro-active in using the new technologies in a systematic way. Following are some of the initiatives in Japan:

Drones: Drones have been used systematically after the 2011 East Japan Earthquake and tsunami, especially for the radiation measurement. There is new aviation law, and licensing system for drone pilots depending on the height and contents of operation. 31 drone schools are established in different parts of the country to facilitate drone pilots. There would be more than 143,000 drone pilots required for different sectors including disaster risk reduction.

Artificial Intelligence (AI): AI has been used for different types of big data analysis, especially post disaster response mechanism. A consortium of AI and Disaster Risk Reduction is formed with the relevant ministry, university and research partners, major mobile network providers and social networking companies. Disaster drills are performed in Tokyo with scenario earthquake and AI is utilized in analyzing the SNS messages and to understand the needs of the victims, which is used

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At global level, the United Nations Science Technology Advisory Group (STAG) for Disaster Risk Reduction (*Chaired by Professor Rajib Shaw, Co-Founder of RIKA*), has taken up this in different global forum, and has been discussing of possible cooperation at global level. Actions have already started in many developed countries for systematic use of these technologies in pre-disaster preparedness, response and relief and recovery processes. In India, there needs to have more synergistic efforts in using these technologies. Technologies remain with the private sectors; and it is required to bring them into process of implementation.

What needs to be done

Developing an ecosystem which nurture these technologies

A technology and innovation ecosystem platform is required which enhances the research and development of these technologies with specific focus on DRR. This needs collaboration with higher education institutes and R/D companies which are keen to contribute to the field of DRR.

Policy Relevance: Systematic use of these technologies in DRR

Specific policy guidance is required for these technologies use in DRR. While the development of the technology is important, it is equally important that there is an overall policy framework for these technologies, and its usage in DRR.

Capacity building

The relief, rescue institutions as well as state disaster management authorities need to be sensitized for the use of these technologies. Capacity building at different levels are required is to use of these technologies under the overall policy framework of DRR.

Pilot use of some of these technologies on priority basis

While the policy and national level ecosystem development may need some time, it is required to start some state level pilot implementation, and look at the importance of these technologies before during and after the disaster. Several technologies can be prioritized for this purpose, based on the local context.