

Citizen Science and Disaster Risk Reduction

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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

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Introduction

Participation of people in science is increasing and citizen science is an platform where this partnership can be strengthened. It is the practice of public participation and collaboration in scientific research to increase knowledge. The idea is that public is a part of data collection, data monitoring and analysis. It means breaking down complex task into simpler parts such that anyone can undertake. This type of collaboration requires researchers and scientist to work with people on various programmes. With the rapid advancement of technology citizen sciences has become more accessible to public. The ever increasing presence of internet, use of smartphones and social media platforms accessibility to and sharing of information has become faster and easier. The citizen science programmes are evaluated for their scientific output, participatory experience, data quality and larger impact on society. It is defines as “within the emerging trend of democratizing science, the participation of nonprofessional scientists in research projects that involve data collection, interpretation, and analysis is often termed citizen science”. Historically citizen science was used in environmental data collection specially undertaken by volunteers. But this has evolved over period of time to focus on broader scientific process such problem statement, analysis, and interpretation. With this insight citizen are stakeholders who primarily define the problem, collect the require information and this is further processed by scientist or researchers. Recent research has also pointed that citizen monitoring can help fill the gaps in existing data. Encompassing both research output and outreach, it is well accepted that community based approaches can be lead to development. The difference between a general stakeholder engagement and a citizen science project is the active engagement of citizens through the project that are influenced by rather than being a characteristic of motivation. Also there are various debates whether all projects done by non-scientists can be included as citizen science work even when there is no doubt that timely and accurate information from community can greatly assist governmental agencies and emergency organisations in disaster risk management.

There are various forms of citizen science - ranging from crowdsourcing to active community participation - and most widely documented in data collection. Among these crowd source citizen weather observation has gained popularity in western countries and is increasing gaining importance in other parts of the world. NASA has designed innovative methods to integrate science to verify satellite data through community level information. Citizen-science programmes may include ecological monitoring programs, online databases, visualization and sharing technologies, etc.

Advantages and Disadvantages of Citizen Science

Adopting citizen science can help citizen's align with science and builds trust between science and the public. It gives people the opportunity to ask question to gain clarity about the programme. It allows people to transfer knowledge from science and provides a platform to exchange information and insights from both ends. As the research is grounded in real world, the accessibility of data and validity of result increases. Furthermore it intensifies the understanding of science, especially of disasters and improves risk awareness and acceptance. The main challenges faced by citizen science are related to time, willingness, professional acceptance of citizen science and practice.

DRR and Citizen Science

Globally it is accepted that inclusion of community is central to effective DRR planning and processes. However community science is newly emerging area in sciences and community based development, planning and disaster resilience. In disaster management and disaster risk reduction, citizen science provides a distinctive pathway to support communities in preparedness, resilience building through knowledge development and hazard identification. It supports solution management and to analyse response and recovery plans and procedures. Citizen science can position citizen as the focal point of process that create knowledge for DRR. It can activate recent current system of public knowledge whose primary objective is to move beyond knowledge production and lead to citizen empowerment. Rather than relying on government to provide data on hazards and risk to work on mitigation and risk reduction efforts, it is highly productive to discover relevant, precise and updated data that can be used for quick action by organisations in field of humanitarian aid, disaster management and climate change. Various community-based intervention relevant to development sector can be replicated for disaster risk reduction. Similarly community based DRR that includes assessing hazard, risk, vulnerabilities and capacity can facilitate getting data of citizen science and DRR programmes. CBDRR is one such programme based on participatory rural appraisal and is found useful by various civil society organisations, NGOs, and researchers. In essence, the data collected for assessment and disaster management plan development can also be used for various evaluation scales from local to national level.

The way forward

The field of disaster risk reduction has benefited from community-based approaches. The SFDRR also recommends in investing managing and strengthening, in people centered technologies in areas of forecasting, early warning systems and communications. Citizen science and DRR can also invest and promote innovations originating and practices from the community. There is growing consensus that encouraging public involvement offers low cost-effective solution to problems of DRR. Promoting and strengthening these innovation through support from the larger scientific and expert community will ultimately bring true ownership and empower the people most affected by disasters. Hence DRR and citizen need to explore more bottom-up approaches that are owned by the community and formalised by institutions to provide wider acceptance and replication of such solutions.

Reference

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