



Disaster Risk Reduction in the Information Age

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Project Summary

The Disaster Risk Reduction in the Information Age (RISK) Project will help policy-makers, development agencies, and other practitioners by providing knowledge about innovative and effective use of Information and Communication Technologies (ICTs) to improve community resilience in the face of natural disasters. The RISK Project will work in tandem with the World Bank's Global Facility for Disaster Risk and Reduction (GFDRR), as well as the Bank's regional disaster risk management response teams.

Since the 1990s, natural disasters have killed on average some 60,000 people a year and have also undermined decades of investment in infrastructure and social development. Developing countries' losses due to natural disasters are estimated to be 20 times greater (as a percentage of GDP) than those of industrialized nations. For example, during the 1990s the cumulative loss of economic assets due to natural disasters is estimated at about 16% for Nicaragua (World Bank, 2008). This loss included network infrastructure (e.g. bridges, power transmission lines, pipelines, etc.) and most visibly, urban infrastructure. Climate change is expected to increase this vulnerability. Developing countries are at highest risk from climate change because they lack the financial and material resources, including technological and institutional capacity, to prepare and to respond. In this context, it is important to support leading international initiatives such as the International Strategy for Disaster Reduction (UN/ISDR), aimed at building disaster-resilient communities through more integrated sustainable development. The ISRD has recognized the important role that can be played by information and communication technologies (ICTs) in fostering disaster resilience.

infoDev is a global partnership of international development agencies that provides trusted knowledge to demonstrate the transformational impact of ICTs in developing countries. infoDev has been a pioneer in promoting innovative uses of ICTs as tools for poverty reduction and sustainable development. After more than a decade in the ICT for development arena, infoDev possesses the depth of experience to equip donors, development agencies, policy-makers, and developing countries with the knowledge, tools, and best practices to understand at a deeper level the link between ICT and development. Hosted by the World Bank, infoDev leverages its direct access to the expertise and other resources of the World Bank Group to advise on the integration of ICTs in key sectors such as health, education, agriculture and environment, as well as disaster risk management. infoDev is therefore well-positioned to offer a comprehensive and integrated solution for building disaster preparedness, including by exploring new areas of research, capacity building activities and developing innovative pilot projects.

Project Description

The overall development objective of the RISK Project is to survey the current state of information and communication systems and tools applied to disaster risk management and provide new mechanisms to enhance existing capacity.

The project is designed to:

- ✓ Document and assess previous success in the use of ICTs in disaster risk management;
- ✓ Raise awareness of the benefits of ICT-based information sharing systems at an early stage in disaster prevention efforts;

- ✓ Provide tools to increase the capacity of disaster risk management practitioners, development agencies, and governments for informed decision making for sustainable development in the context of natural threats;
- ✓ Identify best practices for the application of ICTs in disaster risk management that can be adjusted for local needs.

There is a growing body of research that points to the value of using ICTs in disaster management:

Geographic information system (GIS) technology, for example, is used to monitor information about physical assets to provide more accurate information on how to protect investments in infrastructure; to determine what hazards might potentially impact a region or a specific project; and most importantly to determine the alternatives available to reduce the direct and indirect impacts; e.g. World Bank Mitigation Information and Risk Information System is a user-friendly computer-based tool for risk assessment of critical infrastructure.

ICT-based early warning systems can mitigate the impact of natural disasters. In a vivid example, if an effective tsunami early warning system had been in place in the Indian Ocean region in December 2004, thousands of lives might have been saved. The Web 2.0 phenomenon—blogs, social networks, wikis, RSS feeds, virtual worlds (Facebook, Second Life, YouTube, Wikipedia), and Open Source Software (OSS) have added a collaborative dimension to ICT-based networks while providing innovative ways for communicating information about natural disasters. Handheld information devices, such as smart-phones, offer improved access to computers in less developed countries. Nonetheless, the use of ICT devices and systems is still limited in many countries and alternative models are needed to provide connectivity in low and no-bandwidth environments.

The RISK project will address the following central questions:

- ✓ What are the potential benefits of adapting ICTs during early stages of disaster risk management?
- ✓ What role do knowledge management systems and information sharing play in disaster risk management and prevention?

The planned project will be undertaken in two phases producing the following outputs:

Phase I – *ICT-Based Knowledge in Disaster Risk Management*

Component 1: Disaster risk management is most efficient when based on adequate *ex-ante* risk identification. Working with leading experts, the initial task will include a review of best practice in the field of using ICTs in disaster prevention and risk reduction, including information sharing platforms and emerging technologies. Research will result in the development of a Knowledge Map “Disaster Risk Management in the Information Age: - A Best Practice Guide for Development Agencies, Policy Makers, and Practitioners”, outlining the contribution of current technology in disaster risk management and lessons learned from 25-years of World Bank operations and over 500 projects programs in this field.

Component 2: This research will be complemented with a series of symposia on ICTs for natural disaster risk management that will bring together international development agencies, policy-makers, researchers and practitioners from around the world. This analysis will result in a set of best practice guidelines for disaster mitigation as well as intervention to strengthen risk financing systems for recovery and reconstruction in developing countries.

Component 3: On the basis of this acquired knowledge, an ICT-based toolkit for natural disaster risk management will be launched to promote sustainable development oriented towards disaster risk mitigation. This Web-based toolkit will contain guidelines, checklists, and practice notes; a live resource for policy-makers, practitioners, and other stakeholders.

Phase II— Building Local Capacity for More Resilient Local Communities

Component 4: To promote the results of this research, capacity-building workshops using the ICT-based toolkit will be held to strengthen local capacity on natural disaster risk management. Past experience in development projects has shown that South-South knowledge and expertise sharing has resulted in some of the most effective and efficient solutions to common development challenges.

Component 5: With the intention of replicating and scaling-up the best existing practices of ICT-based initiatives identified in the knowledge map, RISK will finance a selective number of sub-projects. These sub-projects could involve transferring the approach used in one country to a neighboring country, or may involve providing grants to existing successful initiatives and schemes with potential to be replicated over a wider geographical area.

Program Workplan and Costing

The implementation plan foresees two phases – a research phase and an operational phase— that extend over a period of three years. The link between the two is that the experience gained in the first phase will guide the second phase. The precise costing and duration of the components of the action is subject to further discussion with interested donors, but as a general indication, the table below gives an approximate costing of the proposed activities:

Expected Outputs	Duration	Cost (in US\$)
Phase I		
Component 1 - Best practice review and knowledge map	18-months (2008-09)	500,000
Component 2 - Global Symposia on ICT for disaster risk management	(2009)	500,000
Component 3 - Web-based toolkit “ICT in Disaster Risk Management”	8-months (2009-10)	500,000
Phase II		
Component 4 - Regional Capacity Building workshops in selected “hot spot” countries	A minimum of five workshops (2010-11)	1,500,000
Component 5 - Sub-projects	Up to five sub-projects (2010-11)	1,500,000
TOTAL		4,500,000

Key Partners

infoDev will be responsible for the implementation of the project in partnership with the Global Facility for disaster Reduction and Recovery (GFDRR). *infoDev* will also seek advice during project preparation and implementation from other partners such as Innovative Support to Emergencies, Diseases and Disasters (InSTEDD), LIRNEasia, IBM, Microsoft, ESRI; UN / ISDR; and institutional and regional partners, including UN OCHA and FAO.