Response to Climate Risk

Information and Communications Technology (ICT)

CLIMATE RESPONSE

Disaster response in view of recent events of hurricane in the Philippines, and bushfires in Australia requires additional effort to mobilise local and international large scale relief efforts.

Collaboration of organisations and processes has to be a priority. It is apparent that there is a pressing need to make the right information available to the right people at the right time to enable flexibility for gathering essential resources, such as water, food and medical aid.

Access to knowledge and information is critical to ensure that responses make the best use of available resources. And yet immediate crisis response is only part of the story.

Risk management begins with mitigation. Climate mitigation and adaptation activities and projects have to be financed on an increasing scale. The recent IPCC AR5 report found that Earth's climate is warming, and the rate has increased over the past few decades. The ocean is warming, and becoming more acidic, and the level of ice and snow in the cryosphere is decreasing, causing sea levels to rise.

INFORMATION MANAGEMENT

The number of detailed scientific reports, anecdotal evidence from local knowledge, findings and observations is accelerating to the point of information overload.

Knowledge management of climate related information resources is an imperative to ensure tracking of data in context.

This can be accomplished with best practice Information and Communications Technology (ICT). Collection, storage and ready access to information can be mobilised for global access.

Climate-related processes can be automated, to enable internet access by workflow role for individuals and organisations.

Decisions can be informed by interactive, location-based mobile applications.

Instead of multiple uncoordinated efforts, consolidation of pathways to climate data can be orchestrated to ensure effective use of resources, people, finance and information.

Realtime translation of conversations, data and information can promote improved response to the world's greatest challenge, by facilitating collaboration amongst all stakeholder groups engaged in climate related activities.

CLIMATE CLOUD

Information and Communication Technology (ICT) Infrastructure can provide the basis for a co-ordinated global response to the diverse activities of stakeholders engaged in addressing climate change.

ICT can facilitate collaboration amongst people and organisations. Mobility and the internet can promote more efficient processes in response to climate change, with less bureaucracy.

The prerequisite is to establish common terms and taxonomies for search, access and display of climate related information resources.
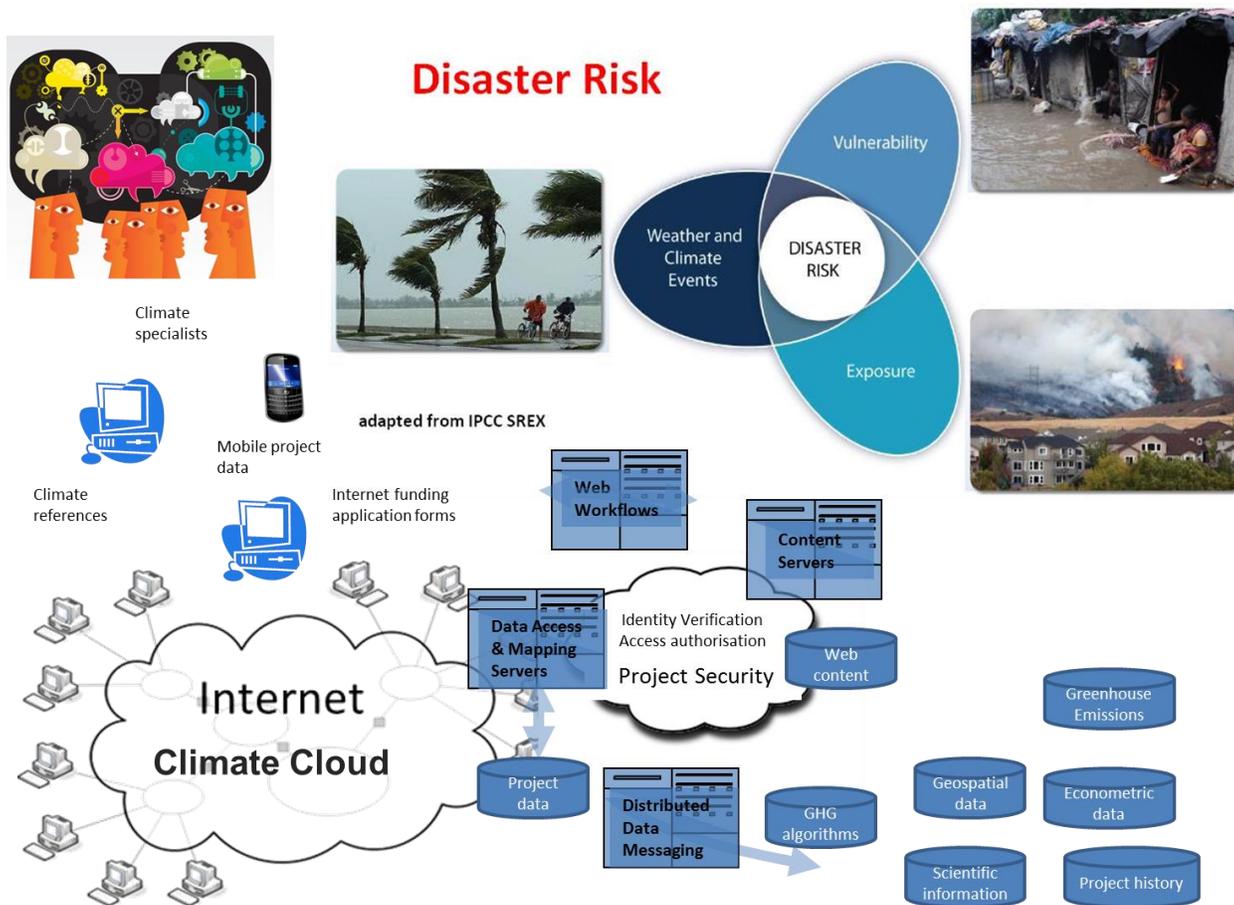

Figure 1: Response to Climate Risk

RESPONSE TO CLIMATE RISK

Well designed ICT can provide the following responses to the problems identified in the 2013 IPCC SREX Report.

"Confidence in projecting changes in the direction and magnitude of climate extremes depends on many factors, including the type of extreme, the region and season, the amount and quality of observational data, the level of understanding of the underlying processes, and the reliability of their simulation in models."

Clearly there is a requirement to provide access to scientific data from a search capability. Facilitation of communication amongst peers is going to ensure that data is interpreted consistently and accurately. There is also an implication that flexible response mechanisms have to be devised. Meaning that interpretation of risk as it relates to the exposure and vulnerability of communities to climate extremes has to be change enabled and changes to addressing risk readily communicated.

"Data on disasters and disaster risk reduction are lacking at the local level, which can constrain improvements in local vulnerability reduction"

Local knowledge databases can help mobilise disaster relief. Appropriate sharing of information across communities with similar problems can also improve rapid response. The key is providing data access and dissemination.

"Humanitarian relief is often required when disaster risk reduction measures are absent or inadequate relief and reconstruction assistance."

Logistics for the supply of relief and reconstruction resources can be automated to improve responses times. Data can be collected and shared about response mechanisms and resources for

- risk reduction
- disaster relief
- reconstruction projects

"Attention to the temporal and spatial dynamics of exposure and vulnerability is particularly important given that the design and implementation of adaptation and disaster risk management strategies and policies can reduce risk in the short term, but may increase exposure and vulnerability over the longer term (high agreement, medium evidence)"

A course of action has to be determined with the best possible information. Communication and collaboration with peer groups is essential for mobilising best path solutions to problems. In addition to checklists and approvals processes, a review mechanism can ensure that mistakes are avoided. Making information accessible in a way that is easy to understand, and enabling specialist advice services, can provide assistance with decision making.

"Closer integration of disaster risk management and climate change adaptation, along with the incorporation of both into local, sub-national, national, and international development policies and practices, could provide benefits at all scales."

Information resources can be logged against multiple categories. Internet searching for information can be tailored by common search terms. Practical information and specialist expertise can be provided in a way that is easy to access by stakeholder organisations and individuals

"Opportunities exist to create synergies in international finance for disaster risk management and adaptation to climate change, but these have not yet been fully realized."

One way to identify synergies for disaster risk management, mitigation and adaptation to climate change is to codify information in a standard way. Identification of synergies can be facilitated by semantics to provide consistent pathways to relevant information for common scenarios.

"Stronger efforts at the international level do not necessarily lead to substantive and rapid results at the local level"

Local knowledge can be codified and presented in context with scientific and economic data.

"Integration of local knowledge with additional scientific and technical knowledge can improve disaster risk reduction and climate change"

Harvesting local knowledge is critical. A combination of scientific, technical and economic resources, can help communities to develop realistic solutions on the ground. Sharing of subject matter expertise, problem solving in similar situations is an important currency for propagating best practice.

Being able to access knowledge and information in the context of geography, can ensure cost effective climate mitigation & adaptation projects. And of course, for disaster relief and reconstruction, it is essential that communications are established to enable access to knowledge and expertise when the need arises.

REFERENCES

IPCC, 2012: Summary for Policymakers. In: Managing the Risks of Extreme Events and Disasters to Advance

Climate Change Adaptation [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea,

K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A Special Report of Working Groups

I and II of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK, and

New York, NY, USA, pp. 3-21.