Joint risk assessment – the first step in resilience programming

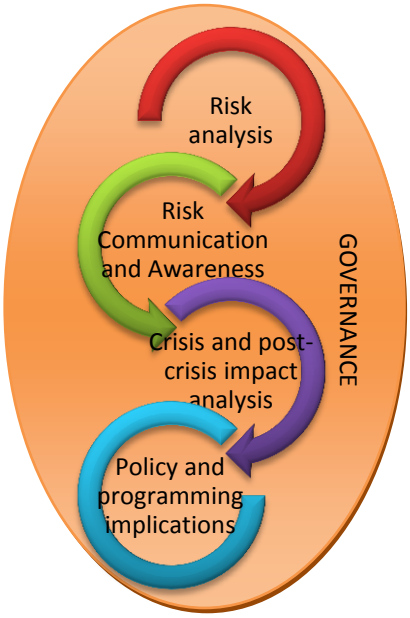
Introduction

Risk assessment is the critical foundation for risk management and building resilience in developing countries. It is the important first step towards obtaining a shared vision of the wider risk landscape, to help determine what risks are to be accepted, mitigated and/or transferred; and the reference guide for prioritizing where the resilience of individuals, communities and governments and their institutions need to be reinforced – by both governments and by the development, humanitarian and climate change adaptation communities.

Risk assessment needs to be comprehensive, and requires a robust governance framework with agreed definitions and rules, to ensure consistent and reliable outcomes. It also needs to be simple, and appropriate for developing country contexts, where complete information and credible data sources may be more difficult to obtain. Effective risk assessment should provide the incentive for development partners to align their efforts towards addressing high priority risks – those that have high probability and high likely impact on the things that people and nations value – whether they are caused by one off big events, or smaller, more regular occurences. To do this, risk assessment outcomes need to be effectively communicated to key policy and programming decision makers, and to the people, communities and government institutions that are at risk.

This paper, part of a series on risk and resilience, outlines a framework for facilitating the joint assessment of risks in developing countries. This is done by applying the G20/OECD Methodological Framework for Disaster Risk Assessment and Risk Financing (available at www.oecd.org/gov/risk/g20oecdframeworkfordisasterriskmanagement.htm) to developing country contexts. More detail on each of the steps is available in the G20/OECD framework, which should be read in conjunction with this paper.

Methodology



Risk assessment guides the optimal allocation of scarce resources to building the resilience of at-risk people, communities and states and their institutions. By identifying and assessing the likelihood and impact of potential shocks and crises, risk assessment provides governments, development, humanitarian, and climate change adaptation partners with the basis for the prioritization of investments in building resilience, in a manner tailored to local conditions, needs and preferences.

The methodology in this paper, which applies the G20/OECD Methodological Framework to developing country contexts, consists of five key components:

1. Governance
2. Risk analysis
3. Risk communication and awareness
4. Crisis and post-crisis impact analysis
5. Policy and programming implications

1: Governance

Scope, objectives, definitions and methodology

- Adopt a comprehensive, all-hazards approach to disaster risk assessment
- Define and communicate objectives
- Agree on definitions of core terms and methodology

Transparency and accountability

- Promote transparency of the methodology used for risk assessment
- Disclose sources of data, information and expert opinion
- Establish reporting mechanisms, both internal and external, and accountability

Multi-level governance, multi-actor participation

- Identify and involve key groups of stakeholders
- Assign a lead co-ordinator, ensure adequate co-ordination amongst stakeholders
- Clearly identify those responsible for local risk assessments and establish a process for co-ordination with the national risk assessment
- Support training programmes in the use of risk assessment methodology, and provide adequate resources

Which risks should be assessed?

The risk assessment should cover the full portfolio of risks: risks of natural and technological hazards, the risk of conflict and violence, the effects of economic shocks, and the flow on effects of global and regional shocks. Risks should include one-off big events (intensive risk) as well as regular smaller scale events (extensive risks). The assessment should facilitate the identification of commonalities and inter-linkages between different possible events, the sequencing of events, the potential for one event to trigger new hazards and multiply exposures, and possible flow-on impacts across borders and between communities.

What is the objective of the risk assessment?

The overall objective of the risk assessment is to prioritise development policy, programming and investments towards the particular 'layer' of risk being assessed: the individual, the community, or the government and its institutions.

Note that this risk assessment methodology could also be used to look at programmatic risk – the risk of failure to achieve programme aims and objectives, or of causing harm through the intervention - or institutional risk - risks to the aid provider: security, fiduciary failure, reputational loss, domestic political damage, etc.

Whatever the objective, it must be clearly communicated to the contributors of data, information and expert opinion; so as to determine the type and quality of data required, and the most suitable methodology and risk communication tools.

How can we agree on definitions and methodology?

A common understanding of core terminology will help support a consistent approach to risk assessment and therefore facilitate coherent and comparable outcomes. Common definitions will also help promote transparency and accountability in both risk assessment and programme prioritisation. Useful guidance on risk terms can be found in UNISDR's terminology list[1]. Methodology is discussed in Part 2 of this paper.

How should we approach transparency and accountability?

The following principles should be followed:

- Make the results easy to understand
- Record methods used, and levels of uncertainty
- Justify choices about including or excluding certain risks
- Identify sources of data
- Agree a protocol for using expert opinion to avoid bias and conflict of interest
- Clarify limitations on the accuracy or completeness of the data
- Consider independent evaluation of results

While open access to risk data and models is the ultimate goal, decisions on disclosure of data and the results of the risk assessment should also take into account other considerations such as cost of providing data, privacy, confidentiality and security. Partial access to data, for example providing access to data on natural disaster hazards, but not to data on other risks, may be one intermediate option.

Which key stakeholders should we involve?

Four key groups of stakeholders are involved in the risk assessment process:

- Those providing inputs and data *(including academics, local and international scientists, experts, development actors, think tanks, operators of critical infrastructure, and the broader private sector)*
- Those using the results to prioritise and guide policy and programming decisions *(including development, humanitarian and climate change actors, and government)*
- Risk owners, who are responsible for managing the impacts of each risk *(including individuals,*

[1] www.unisdr.org/we/inform/terminology

communities, private sector, and state institutions)

- Stakeholders whose lives, assets or resources are exposed to risk

Who should lead the risk assessment?

The choice of lead for this process is important – but it will also vary from context to context. Whoever is chosen must have sufficient political authority to ensure that the results of the risk assessment are effectively translated into policy and programming.

For national risk assessments, the natural lead will be in government – and there are strong arguments for assigning this role to the Ministry of Finance, to ensure that appropriate budgetary allocations follow the priorities identified in the assessment. In more complicated contexts, such as fragile states and protracted crises, other actors may be called upon as leads. In these contexts the lead could be a significant donor, significant either in terms of aid flows or neutrality and independence, or capacity for influence; the Resident or Humanitarian Coordinator of the UN system, or the Representative of one of the Bretton Woods Institutions.

For community and individual risk assessments, the lead should be a person who is perceived to represent the range of interests of the community. In exceptional circumstances, the leadership role could also be played by a prominent actor in the international community.

Why should we do a risk assessment jointly?

There are numerous benefits to conducting risk assessments jointly – especially jointly between donors. These include:

- Increasing the amount of information available (from numerous sources) and thus the ability to triangulate
- Reducing the cost of the analysis
- Reducing individual actor bias
- General agreement about which risks should be prioritised
- Ownership by different policy communities – development, climate change and humanitarian – and thus ability to use a range of instruments to target the risks identified

How should different assessments be co-ordinated?

Where possible, national risk assessments should also take into account the results of sub-national, or community assessments; and vice-versa.

What training will be needed?

Training in the risk assessment methodology, data collection, analysis and communication, and to build capacity to better understand risks where there is limited information, may be required, especially in countries where scientific and analytical capacities are not fully developed. Lessons from the evolving process should also be documented, shared and learnt.

2: Risk Analysis

Hazard identification and analysis

- Identify hazards that could have an adverse or disruptive impact on people, assets, and the economy
- Generate a range of hazard scenarios and determine the likelihood of selected hazard events
- Collect and disseminate data

Vulnerability, capacities and impact analysis

- Identify and inventory exposed populations, assets and economic activities
- Identify the underlying factors that create exposure, including political economy factors
- Estimate the potential impacts

Risk evaluation

- Based on hazard, exposure and vulnerability analyses, evaluate risk
- Assess the level of uncertainty

Risk monitoring and re-evaluation

- Monitor hazards and exposure over time, and update
- Identify emerging risk and potential future risks

How should hazards be identified?

Consultations with scientists, the private sector, civil society, academics and other experts will help ensure all relevant hazards are captured. Clear criteria should be used to determine which events are significant enough, or imminent enough, to analyse. Significant events are those that could impact on things that are valued by the individual, community or government institution. To determine which events are imminent, the assessment could decide to exclude, for example, events that are unlikely to occur within the next five or ten years. It is important to include both extensive risks and intensive risks – extensive risks may have a more immediate impact on vulnerable populations than less probable intenstive risks.

What should be included in scenarios?

The following should be considered:

- Hazard type, primary and follow-on hazards
- Occurrence – where does it take place, and what area is affected

- Intensity – how strong is the event, and what could amplify it (eg failure in critical systems or infrastructure, breaks in supply chains, population movements, environmental damage)?
- Time – seasonal? How long does the event last?
- Cause – what is the cause or trigger? How does the event unfold over time?
- Warning – can warnings be provided? Is there time to prepare?
- Who and what is affected directly – people, assets, environment and/or economy
- Interdependencies and spill-overs – what and who could be affected indirectly?
- Reference incidents – what can be learnt from historical occurrences?
- Further information – levels of preparedness, confidence in the data, etc?

How can likelihood be determined?

For random events, such as terrorist attacks and social unrest: intent and opportunity, economic and social trends and threat analyses.

For natural hazards: using international and national scientific models (refer Table 5 in the G20/OECD Framework).

For economic events: by looking at economic indicators and trends.

Expert opinion can also be used to help determine likelihoods – however care must be taken to control for bias.

How is data collected?

Data collection will deepen as the assessment proceeds. Sources of data include national monitoring systems and historical archives, international databanks and data from think tanks. The private sector may also be a good source of data, and may have solid up to date models and analysis. Data should be collected in a consistent format so that it can be shared between national, sub-national and community analysis exercises.

How should vulnerability be assessed?

Vulnerability includes notions of exposure and resilience. People, assets and environmental and economic resources that are exposed to each hazard should have been identified during the scenario phase.

What underlying factors should be analysed?

Factors that should be analysed include those outlined in the OECD Factsheet – What does resilience mean for donors?[2]. Data sources and models that may assist in this analysis are included in Tables 6, 7 and 8 in the G20/OECD Framework. Other useful resources can be found in the World Bank's 2011 World Development Report[3]. Trends in resilience are also important – factors such as urbanisation and (seasonal) migration, population growth, technological change, shifts in culture and norms, economic and environmental factors and climate change may affect the profile of resilience over time, or at different points during the year. Political economy analysis should also be included.

How are hazards and vulnerabilities put together to create impact assessments?

The impacts of shocks can be both direct and indirect, and are best measured in relation to the things that people, communities and governments value. For ease of analysis, it is probably easier to quantify the impact in monetary terms. Firstly, assess the probable nature and extent of harm to people, assets and the economy. Then, quantify this assessment by measuring the costs of responding to the shock, whether this is through assistance to affected populations (perhaps using standard unit costs), the cost of rebuilding or replacing lost or damaged assets (or strengthening assets now at risk), supporting or rebuilding lost livelihoods and/or repairing or adapting to environmental damage. Finally, add economic losses, including costs attributable to economic damage and negative impacts on factors such as growth. Any potential insurance payouts should then be deducted.

What about uncertainty?

Both the likelihood of a hazard occurring, and its probable impact (or cost) are subject to uncertainty. This can be shown through the use of ranges. For example, the impact (or cost) of a potential event can be expressed as between USD xx and USD xx.

Where uncertainty is critical, for example where knowledge about a local volcano, or about the political economy of certain events, is limited, further study and analysis to reduce uncertainty may be useful.

How should risk be monitored?

Risks emerge and threats evolve. To help keep the risk assessment up to date, it is useful to make the assessment a regular event, linked perhaps to annual budgetary processes. Early warning mechanisms for

[2] www.oecd.org/dac/governance-development/May%2010%202013%20FINAL%20resilience%20PDF.pdf

[3] http://siteresources.worldbank.org/INTWDRS/Resources/WDR2011_Indicators.pdf

different types of risks are also important, to ensure an early response, which will in most cases be cheaper and more effective.
Also, it may be useful to keep two risk assessments – one for hazards that are likely to occur in the current planning timeframe (perhaps up to 5 years), and another with a longer term timeframe. Then, each time the current risk assessment is updated, hazards that have been listed as part of the longer-term timeframe should be reviewed, to see if they should now be moved into the current, more immediate, risk assessment process.

3: Risk Communication and Awareness

Internal and external communication

- Communicate the results of the risk assessment, and ensure they are used to prioritise development investments

Public awareness strategies

- Implement communication strategies targeting those whose lives, assets and resources are exposed

Tools for interpreting risk analysis

- Use tools that make the risk assessment easy to understand

How can risk assessments be communicated to government policy makers?

Ideally, the results of risk assessments should be used to raise the awareness levels of key decision makers in government and local authorities. This can be achieved by presenting the results to parliamentarians, minsters and local leaders in a formal or informal session, and potentially sharing results with neighbouring countries and regional associations, in the case of risks with cross-border effects. Senior officials in government ministries and local authorities should be involved in the risk assessment process from the start, to ensure ownership. Risk assessments should also be shared with those who are charged with managing the response, including military and civil protection actors, depending on the context.
Greater knowledge of risk profiles should lead to the prioritisation of investments to strengthen resilience in national budgets and development plans, and also help embed risk knowledge into governmental policies, regulations and standards, including at regional and local levels. This should also help governments ask the international to support resilience building efforts.

How can risk assessments be communicated to development actors, including donors?

Major development, humanitarian and climate change actors should be involved in the assessment process from the beginning, to ensure that they own both the process and its results. The outcomes of the assessment should be tabled at relevant planning meetings, such as at donor coordination meetings in-country and at pledging conferences, in UNDAF[4] and PRSP[5] planning processes and in humanitarian Consolidated Appeal[6] workshops,. The results of the risk assessment should also inform every donor's partner country strategy, including showing how policy and programming choices:

- Have been prioritised based on the need to address the highest probability, highest impact risks; and
- How sector and other programmes incorporate measures to build resilience to these risks

Donors can also use this risk analysis to

Who else should be informed of the risk assessment outcomes?

The insurance industry, if one exists, and major business leaders or private sector networks should also be informed of the outcomes of the risk assessment – if this is appropriate for the context. These groups may be useful for lobbying the government and also for helping raise public awareness. The private sector – multinationals, local business and members of the informal economy – have strong incentives for helping build resilience to risks, and may therefore be a key ally and partner for the development community in certain contexts.

Public awareness strategies

Risks should also be communicated to the public, targeting those who are likely to be affected. Messages should be tailored to local conditions, and include preparedness measures and guidelines on what to do in times of crisis or shock – even if those shocks are regular and lower-impact. Guidelines on content will help limit confusion and conflicting messages. Trusted organisations – perhaps faith based organisations, local authorities and leaders, and NGOs and the Red Cross Red Crescent societies – are the most useful

[4] http://toolkit.undg.org/workstream/1-undaf-or-common-programming-tool.html
[5] http://bit.ly/iUrdhL
[6] www.unocha.org/cap/about-the-cap/about-process

conduits of risk messages, but these channels can also be supplemented by mass media campaigns.

How should the role of risk owners be communicated?

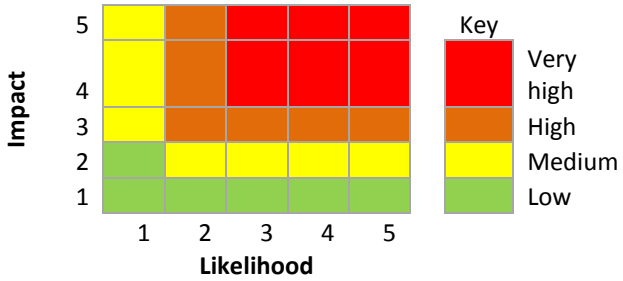
OECD research has shown that the most effective way to manage risks and shocks is to break them down into layers. This will allow these risks and shocks to be managed at the most appropriate level. The research shows that we should not expect individuals to deal with catastrophic risks, such as major natural disasters, by themselves. Equally, the analysis discourages government policy that aims to remove all risk from individuals and communities, as evidence, particularly in the agricultural sector, shows that this creates perverse incentives and can encourage overly risky behaviour. Instead we need a more holistic risk management approach that focuses on both the interactions between different types of risks, and between the strategies designed to manage those risks.

As part of the risk communication strategy, it will be useful to communicate who, or which organisation or ministry, is responsible for managing each of the high probability, high impact risks. This will help provide incentives for paying proper attention to addressing those risks, and help support public accountability.

What tools can be used to communicate risk assessments effectively?

All stakeholders need clear, consistent and persistent messages to internalise information, change perceptions and move towards taking appropriate action.

For policymakers, a risk matrix, where risk outcomes are plotted visually, can be a useful communication and decision making tool:



For other audiences, useful awareness raising tools include: mock evacuations and drills, inserting risk awareness into school curriculums and community discussions, plays and puppet shows, media campaigns on preparedness measure, risk maps showing spatial distribution of hazards and concentration of impacts and financial costs, and web-based databases and tools.

4: Crisis and post-crisis impact analysis

Impact assessment

- Conduct structured, consistent impact assessments
- Re-evaluate risk assessments

Quantification

- Collect and disseminate data on economic losses, insured and uninsured financial losses and other crisis impacts
- Collect and disseminate data on the government and international community response, on gaps, and on projected recovery and resilience needs

Why are impact assessments important?

A structured, well planned impact assessment can help identify the strengths and weaknesses of the risk assessment process, especially through information on:

- the nature and extent of the hazard
- the effect of the shock on people, assets and the economy, and
- the effectiveness of various aspects of the response

An impact assessment may also provide the data and impetus for beginning a risk assessment process, so as to inform future policy and programming decisions, in countries where risk assessments are not yet a systematic part of the planning process.

Crises and shocks also provide an opportunity to take stock of the 'real' levels of individual, community and institutional resilience, and thus of the impact of government policies and investments, and of the work of the development, humanitarian and climate change communities. They may provide useful learning experiences on:

- where the different actors may need to work more closely together in the future,
- where programmes may need to be tweaked to produce better results,
- where there are key gaps in policy and resilience strengthening programming, and
- the effectiveness of the governance structure around the risk assessment process.

How should an impact assessment be conducted?

Data for impact assessments will be more complete if they include extensive risk – frequently occurring,

localised and less severe impacts – as well as catastrophic risks.
However, reporting burdens from data collection must be carefully considered when designing data formats and considering the timing and complexity of the requests.
Loss data can also be collected from the insurance industry, where this is present.
The collection of data on spending on the response to the shock or crisis, either by individuals and communities, or by local authorities, governments, and by the international community, will be useful in quantifying impact in the future. Databases such as UN-OCHA's Financial Tracking System[7] may be useful in determining the cost of the international community response. Other loss databases are outlined in Table 9 of the G20/OECD Framework.

5: Policy and programming implications

- Use the results of risk assessments to help in setting priorities and making decisions about risk that are to be accepted, prevented, reduced or transferred

How can risk assessment be used in setting policy and designing programmes?
Risk assessment helps to:

- Identify the most significant threats in each context
- Identify the people, assets and environmental and economic resources that are most exposed to risk
- Weigh up the relative costs and benefits of different strategies to mitigate the impact of these risks
- Establish priorities amongst these mitigation strategies, and
- Make the appropriate policy changes and programming decisions to implement the strategies – including implementing measures to build resilience into existing and future humanitarian, stabilisation, climate change and development programmes.

How should development actors and donors make the required trade-offs between risks?
Cost benefit analysis will be a useful tool in determining whether risks should be accepted, prevented, mitigated or transferred. However, financial cost is not the only factor to take into consideration. Policymakers and humanitarian, development and climate change actors will also need to look at other factors that are valued in a particular context, especially the social, economic and environmental costs of the identified risks. Together, all these factors will help determine whether the risks that have been assessed can be accepted, or whether they must be addressed.

How should trade-offs be made on how to address unacceptable risks?
If risks exceed acceptable levels, trade-offs about how to address them will need to be made. Ideally, policy and programming decisions should aim to prevent all unacceptable risks; often, however, this will not be financially viable. Prevention may also be physically impossible, especially if the risk is the result of a global shock, a cross border event, or a major natural hazard, or in contexts where levels of resilience are extremely low.
Therefore, in most cases, optimal strategies will need to focus on building the resilience of the people, communities and institutions at risk by a mix of policy and programming work that will include:

- empowering those at risk,
- mitigating hazards, and,
- where feasible, through risk transfer strategies, either to the markets, or to the international humanitarian response community.

Challenges that still need to be addressed

The collection and analysis of information is fundamental in defining needs and risks, and in designing and measuring appropriate resilience-building operations. Too often, information and analyses are fragmented between different forms of data systems (surveillance and early warning systems, assessments, impact and cost benefit analyses), that are carried out at different geographical scales, across different timeframes or cycles of time, involving a myriad of uncoordinated actors. Further, it is extremely rare to have an overall analysis of how natural hazards, man-made trends and the effects of seasonality and long-term trends (or disaster drivers) contribute to risk and needs in the same project area.

[7] http://fts.unocha.org/

The challenge is thus how to construct a common analysis system that unites and makes sense of the three key dimensions of data collection and analysis for resilience-building:

- Merging different forms of data and analysis: merging surveillance, early warning, assessments and impact analyses.
- Combining different thematics: incorporating risk and needs analyses according to natural hazards, man-made threats, seasonal impacts and the effects of long-term trends driving change in risk and needs.
- Using data and analysis with varying parameters: information that may vary by (i) scale: from household to global; (ii) timeframe: from weekly to periodic multi-year exercises; and, (iii) coordinating a multitude of actors collecting data in isolation, from local to global actors, including humanitarian and development agencies, thematic and sector-specific and special-interest actors, all with different mandates and different methodolgoies for collecting data.

This paper is part of a series on Risk and Resilience, which includes:

What does "resilience" mean for donors? – clarifying what resilience means in practice

What are the right incentives to help donors support resilience? – Investigating the role of incentives (and disincentives) in encouraging coherent donor support for resilience

How should donors communicate about risk and resilience? – Guidance on good practice on communicating about risks, opportunities and the results achieved from resilience programming

Joint risk analysis – the first step in resilience programming – Adapting the G20/OECD methodological framework for disaster risk assessment for resilience programming

From good idea to good practice – options to make resilience work – Building on what has been learnt so far, a set of options to help ensure that resilience becomes an integral part of donor programming

www.oecd.org/dac/governance-development/risk-resilience.htm