PART B: Other lessons in global good practice

1 Institutional, implementation and coordination arrangements

The following three case studies, from Bangladesh, Thailand and Philippines, provide examples of how institutional arrangements for disaster response, recovery, reconstruction and disaster risk management have evolved in these country contexts. The frequency of the disaster event does substantially influence the extent of refinement these institutions go through based on experiential learning.

Box 1. Good Practice: The Cyclone Preparedness Program in Bangladesh

The Cyclone Preparedness Program (CPP) in Bangladesh is an innovative program to communicate early warning and promote cyclone preparedness through multi-stakeholder partnership and community participation. The program has 43,675 volunteers in 2845 villages covering 11 coastal districts. Following the 1965 cyclone that claimed 20,000 lives the Bangladesh Red Crescent Society (BDRCS) and the Federation of Red Cross and Red Crescent Societies (IFRC) established a cyclone warning system for coastal communities in 1966 with citizens performing the role of 473 team leaders in 299 locations.

The program saw rapid expansion in 1970 when 500,000 people died and millions lost homes, to include pre-disaster preparedness training for 20,310 volunteers in 24 unions of 24 Upazilas (sub districts) and establishment of a telecommunication network connecting 22 coastal stations in 1973. This program secured the support of the country government that lead to the formation of the current CPP. The program is exemplary in its reach to every unit of governance, its ability to inspire citizens to become volunteers, and coordination and collaboration with government agencies. The program has teams at the Zonal level, the Upazilas, the Unions and the Units in villages. Each Unit has five subgroups addressing Warning, Shelter, Rescue, First Aid and Relief.

The CPP transmits cyclone warnings by cooperating with the Bangladesh Meteorological Department (BMD) and sends warnings to villages through a VHF radio system. Volunteers in the villages use a variety of media and flags to inform local people. The CPP trains volunteers on behavior, evacuation, rescue and relief, gender sensitivity, humanitarian values and climate change. Volunteers also conduct public awareness events including cyclone drills and demonstrations. Media tools are used in achieving effective awareness and communication.

Source: World Bank, Asian Preparedness Center (February 2010) Final Report from country exposure visit, India-Emergency Tsunami Reconstruction Project.

Box 2. Good Practice: Department of Disaster Prevention and Mitigation in Thailand

The Department of Disaster Prevention and Mitigation (DDPM) is the apex agency in Thailand that undertakes disaster management coordination between various government agencies. The DDPM coordinates disaster prevention and mitigation at the national level. It also integrates and collaborates between relevant government agencies, local administration representatives and private sector to prepare National Disaster Prevention and Mitigation Plans. It takes action, coordinates the operations, provides assistance to government agencies and also provides immediate relief to disaster-affected persons. The DDPM plays an advisory role and conducts consultations and training for government officials.

The DDPM established the Disaster Prevention and Mitigation Academy (DPMA) to promote education and awareness. One of the flagship programs of DDPM is the Community Based Disaster Risk Management program which involves community members in every phase of disaster management. Another unique and innovative program is called 'Mr. Warning'. This program trains people as early warning communicators and coordinators in emergency situations. It also trains volunteers and helps create one-Tambon-one-search rescue teams so that every Tambon or sub-district has its own search and rescue team. In addition to the above listed activities, DDPM is also involved in production of disaster related tools. DDPM hosts a Disaster Prevention Measures Bureau and Disaster Standard Safety Bureau. DDPM's most significant achievement was its instrumental role in the passage of the Disaster Prevention and Mitigation Act of 2007. Central to all these achievements are its abilities to deal with agencies effectively, promote a collaborative approach and communicate efficiently between organizations.

Source: World Bank, Asian Preparedness Center (February 2010) Final Report from country exposure visit, India-Emergency Tsunami Reconstruction Project.

Box 3. Good Practice: The National Disaster Coordinating Council in the Philippines

The Philippine Disaster Management System is primarily anchored in the Presidential Decree (PD) No. 1566 entitled, 'Strengthening the Philippine Disaster Control Capability and Establishing the National Program on Community Disaster Preparedness'. Taking effect in 1978, this law empowers local leaders and the government to act during emergencies. It requires the national government to extend support to local governments in times of emergencies. This organization is given the maximum power at the national level to lead disaster management. It provides assessment of emergency situations and advises the President on the declaration of a state of calamity. It has set in place 'Disaster Coordinating Councils' at every level of governance in Philippines currently in place in 17 regions, 81 provinces, 113 cities, 1496 Municipalities, and 41,956 Barangays.

The recently enacted Philippine Disaster Risk Reduction and Management Act of 2010 provides for comprehensive multi-sector approach to disaster risk management. It provides for the development, promotion and implementation of the National Disaster Risk Reduction and Management Plan (NDRRMP). It also enforces mainstreaming DRR and climate change adaptation in the development, peace and conflict resolution processes. It has created a National Calamity Fund that can be used for DRR prevention, preparedness activity at every level of administration, as well as established a permanent local DRR Management office in each Local Governance Unit.

Source: World Bank, Asian Preparedness Center (February 2010) Final Report from country exposure visit, India-Emergency Tsunami Reconstruction Project.

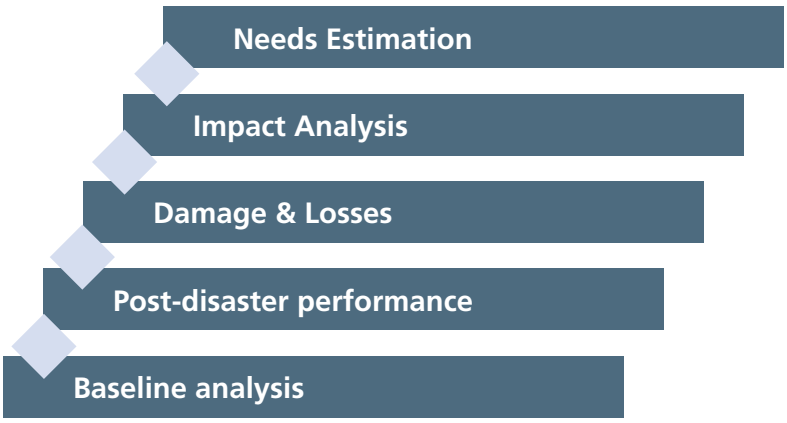
2 Measuring needs and results progress in recovery and reconstruction

2.1 Post disaster needs assessment

A Post Disaster Needs Assessment and Recovery Framework (PDNA/RF) is a government-led exercise that pulls together information into a single, consolidated report. This report provides detailed information on the physical impacts of a disaster, economic value of the damages and losses, human impacts as experienced by affected populations, and related early and long-term recovery needs and priorities. The PDNA/RF is governed by institutional, legalized agreements between the World Bank, the UN system and the European Commission. The PDNA/RF is the primary modality by which these institutions maximize coherence in order to ease the impact of demands placed by international organizations on governments dealing with natural catastrophes.[15]

The PDNA aims to build multi-stakeholder and multi-tier consensus on the strategic underpinnings for medium to long-term reconstruction and recovery planning, prioritization and programming. The overall objective is to undertake a general assessment of needs and to establish a broad baseline and boundary conditions for recovery and reconstruction, so that reconstruction does not become a moving target, and multi-tier stakeholders do not take this as an opportunity to address pre-existing development deficits. PDNAs deliver an integrated picture of needs and recovery frameworks including: state infrastructure and public assets recovery; local infrastructure and assets recovery; private assets recovery; and human recovery and livelihoods restoration. The usual sectoral scope of PDNAs therefore has three parts: social infrastructure; economic or productive infrastructure; and physical infrastructure. Figure 1 below provides a snapshot of the PDNA methodology, starting from the lower rung.

Figure 1. PDNA methodology

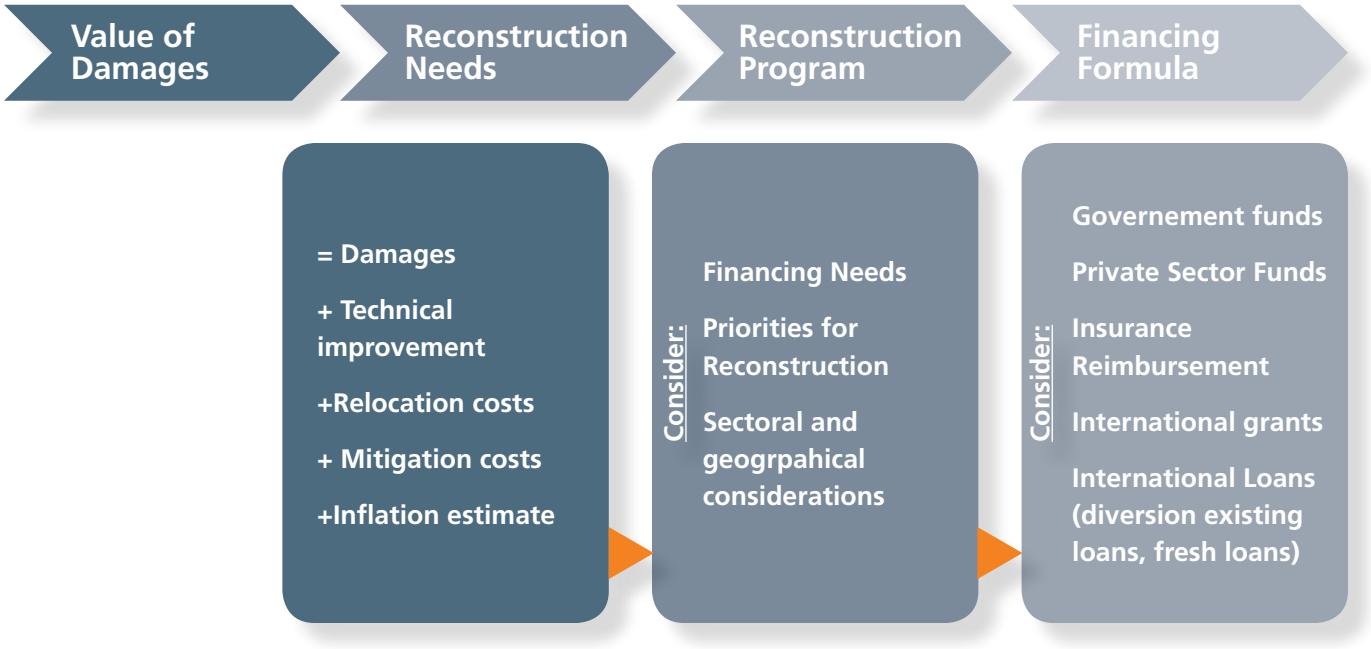


Source: World Bank staff

15 For more information and quick facts on PDNAs, visit: http://oneresponse.info/GlobalClusters/Early%20Recovery/publicdocuments/PDNA-Fast%20facts.doc in the Tsunami Response. London: Tsunami Evaluation Coalition).

The PDNA process entails a number of main steps. These include the quantification and validation of physical damages, followed by development of sector-level recovery and reconstruction strategies in respect of public and private infrastructure, services and livelihoods. Finally, quantification of corresponding needs in respect of the above is done. The PDNA draws a clear distinction between damages and needs and provides a detailed process for needs determination, as shown in figure 2.

Figure 2. PDNA - from damages to needs estimation



Source: World Bank staff

The World Bank has a breadth of experience in conducting PDNAs. With the establishment of GFDRR in 2007 as a partnership amongst donor agencies and partner countries, the World Bank has assisted over 30 disaster-hit countries to assess medium and longer term disaster impacts and recovery needs for sustainable recovery, by using PDNA as a tool to achieve this. The PDNA is a highly effectively instrument for: a) guiding and prioritizing country recovery and reconstruction programs; b) multi-donor funds mobilization, enhanced donor coordination, aid harmonization and leveraging, and; c) mainstreaming disaster risk reduction into country reconstruction and subsequent development strategies.

Another evolving tool for assessing the impact and needs of an affected area is a rapid desk-based assessment. So far, the application of this tool has been limited, but some recent damage and needs assessments in Pakistan have employed these techniques to come up with reasonably accurate estimates for assessing both crisis and disaster damages and needs, particularly in remote or inaccessible areas, such as those where access to the affected areas was not possible either due to security factors or where flood inundation outlasted the period of such assessments. In the case of Queensland, where the reconstruction program has already commenced, a possible quicker route for a PDNA will be a rapid desk-based exercise based on a 'relative to baseline' technique. Based on the usual steps, in the context of the Queensland floods, this could entail:

- **Collection and Desk Review of pre-disaster Asset and Infrastructure Baseline Data** using standard templates circulated to Queensland's Councils and relevant State departments.
- **Collection and Use of Primary Inventory-Based Post-Disaster Damage Data** where available, such as for transport infrastructure, through standard templates.
- **Analytical and Physical Validation of Damage Data** employing various analytical techniques, such as relative-to-baseline or "% damage-based" analyses, disaggregated analysis at various levels, civil society corroboration, remote sensing and aerial data, etc.
- **A quick study of the rates of construction and other inputs** based on rapid state and council level data collection.
- **Broad assumptions on sector-level reconstruction strategies** to develop the necessary boundary conditions, factoring in all expected public and private sector expenditure, and adding possible premiums for building-back-better, safer and smarter.
- **Development of a consolidated damage and needs database** that would serve as a baseline for measuring, monitoring, reporting and evaluating the physical and impact-base progress and performance of the overall reconstruction program – at the QRA, state agency and council levels (or even shire level).

2.2 Measuring progress and performance in recovery and reconstruction

There are a number of cases of international best practice in measuring progress and performance of recovery and reconstruction programs. These include: aid tracking systems for financial flows; funding supply and demand gap analyses; results and outcomes-based reporting; Governance and Accountability Systems; and Social Impact Assessments.

Aid tracking systems for financial flows trace financial flows at the central level. These systems can provide relevant and timely information in the monitoring of reconstruction activities. International experience suggests that a system for managing and tracking information flows, dealing with physical and financial progress in reconstruction or development projects, will likely be more effective in the post-disaster context if it is institutionalized prior to the occurrence of the disaster.

Box 4. Good practice: Tracking Aid Flows in Indonesia post 2004

An encouraging model, called the Reconstruction Expenditure Tracking Analysis Methodology (RETAM), was developed in the aftermath of the 2004 Earthquake and Tsunami in Indonesia to track financial progress. It is a simple accounting tool which tracks sector-wise analysis of the reconstruction needs flowing from the Damage and Needs Assessment conducted immediately after the disaster and refined later with more comprehensive information. This was an alternative to the UN-led Development Assistance Database (DAD) which faced problems in Indonesia.

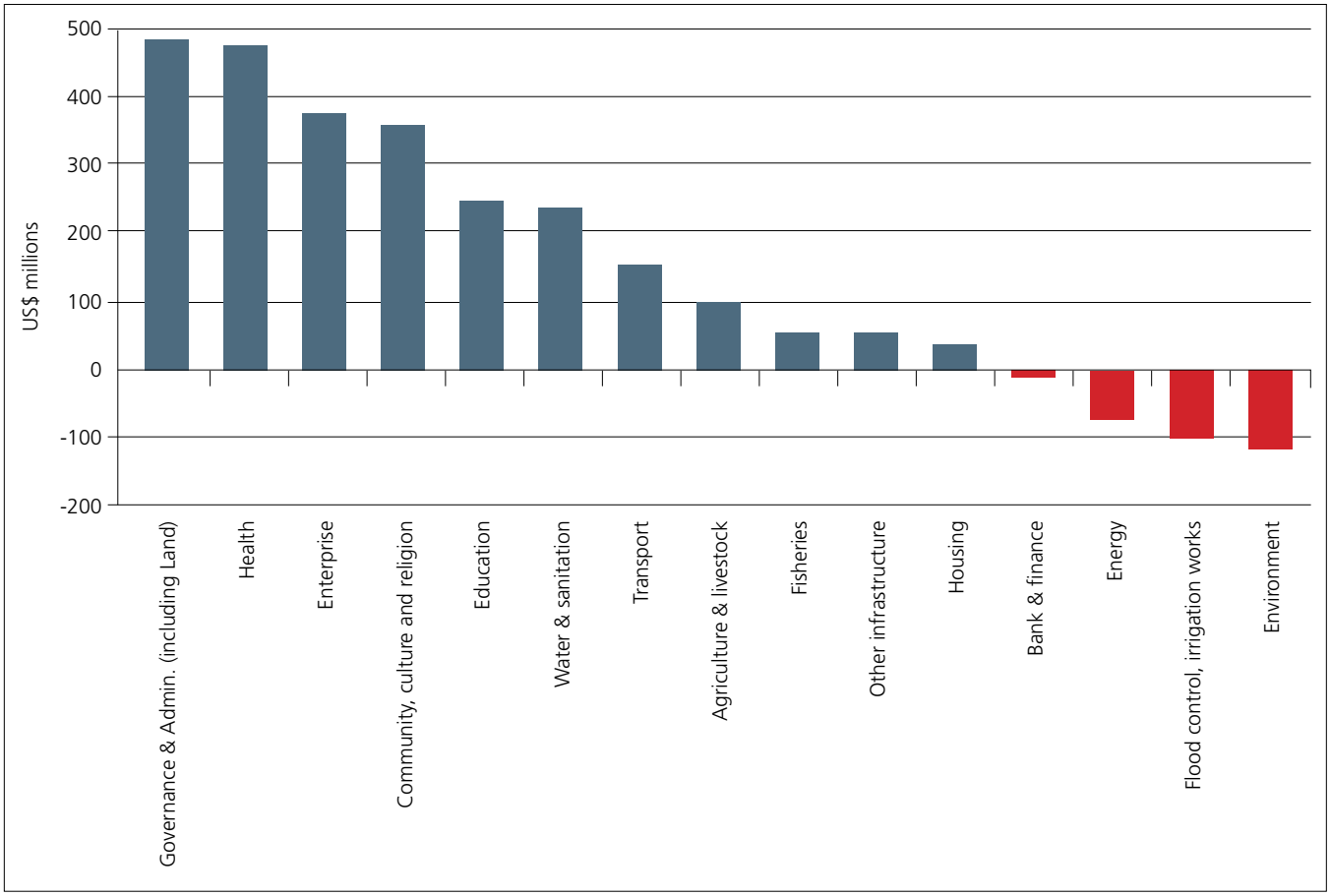
The specific instance of using RETAM as well as general experience from the country provide a set of key lessons in developing an M&E system that helps to track physical and financial progress of reconstruction programs. These lessons can be summed as:

1. Information technology can help but it is important to remember that it is people who need to track the funding. Low-tech, labor intensive data input was superior in Indonesia compared to high-tech information systems such as the DAD.
2. It is important to try to capture every project in the reconstruction program, whether implemented by the government, an NGO or directly by a donor. At the same time, it is also important to pay special attention to the top actors engaged in the bulk of the projects. In Aceh/Nias, for example, the top 20 implementing agencies were responsible for 85 percent of all reconstruction projects in terms of value.
3. Use the Damage and Needs Assessment (DNA) as a starting guide to assess reconstruction portfolio.
4. Match sector-wise expenditure with DNA categories where possible.
5. Commitments and disbursements are more important than pledges. It is essential to avoid double counting by focusing on either the funding or executing agencies. In Aceh, the RETAM focused on executing agencies to track the portfolio of reconstruction projects.
6. Build a master table that has all the projects listed by sector and executing agency. Update it regularly and use it to track project status.

Source: Tracking Financial Flows After Disasters: Reconstruction Expenditure Tracking Analysis Methodology (RETAM)

Funding Supply and Demand gap analyses. A robust system of tracking financial flows which is linked to the identified sector-wide needs, determined either by a PDNA or an equivalent exercise, can help provide information on gaps in funding for sectors at various time intervals during the reconstruction program. This information is extremely useful in re-prioritizing programs in a timely manner in order to divert resources and efforts to under-funded sectors or geographical regions. A graphical example of a similar gap analysis from Aceh/Nias two years after the 2004 Earthquake and Tsunami is presented in the figure 3.

Figure 3. Financing gap in various sectors, Aceh/Nias in Indonesia two years after the 2004 Tsunami



Results and Outcomes-based Reporting, Monitoring and Evaluation (RM&E). Logical and Results Frameworks are two tools for organizing and implementing development projects. The latter approach (RF) simplifies outcome M&E because programs are assessed against outcomes within their designed means, avoiding impracticable or un-attributable higher level achievements. At the operationalization stage, the RF systems are put in place to monitor physical and financial progress for inputs and outputs, combined with periodic measurements of intermediate outcomes. This helps with the problem identification, the design and targeting of solutions, and allows space for timely course corrections.

Cpl Tom Meyer at South Mission Beach after Cyclone Yasi. © The State of Queensland.

Box 5. Good Practice: Results and Intermediate Outcome Monitoring in Pakistan – the 2005 Earthquake Housing Program

The Earthquake Rehabilitation and Reconstruction Authority (ERRA) was the leading government agency responsible for reconstruction programs in Pakistan after the 2005 earthquake. ERRA implemented a multilateral donor-funded rural housing program where a comprehensive system to track physical progress was developed. This system, called Reporting, Monitoring and Evaluation (RME), was used in conjunction with a UN-Habitat-developed Training Management Information System (TRIMS) to monitor the housing program.

ERRA, in partnership with the World Bank and UN-Habitat, developed an approach and software for monitoring the intermediate outcomes (i.e., interim seismic compliance rates) and evaluating the end-program outcomes of the housing program. A simplified by-product of this included a series of color-coded maps that showed sub-district-level houses to be reconstructed and compliance rate at plinth and lintel levels. Compliance was high at plinth but low at lintel levels in most instances. It was a good tool in order to highlight the areas where compliance was low. An investigation of the reasons for low compliance resulted in targeted interventions. The system also noted differences between the physical progress on the ground and the financial progress with data on physical progress punched immediately whereas the actual form, triggering the release of a subsequent tranche, would reach ERRA much later. Every effort was made to minimize the difference in time between the compliance at the field level and release of payment by ERRA. This led to the creation of supplementary non-compliance monitoring and mitigation tools such as the Non-Compliance Referral System (NCRS) and the Compliance Catalogue that suggested retrofitting measures for beneficiaries who had already started reconstruction but were not compliant with the standards set out by ERRA.

However, of crucial importance was the existence of a national-level government database meant for registration of citizens and issuance of national identity cards. Run by the National Database and Registration Authority (NADRA), this pre-existing system and its related technological capacity allowed ERRA to match physical progress with financial grant disbursement data and register eligible beneficiaries electronically.

Source: Information from ERRA.

Governance and Accountability Systems. Participatory and demand-driven grievance redress mechanisms (GRMs) are tools for enhancing good governance and accountability of the reconstruction program, and are therefore critical to the legitimacy and perceived success of reconstruction programs. For this purpose, they are considered as an integral part of reconstruction programs in general, and their M&E component in particular. The nature of a participatory grievance redress mechanism at the project level will be quite different from one at the level of the overall reconstruction program. Designing such a mechanism at the project level should be a priority for any reconstruction effort as it will be used by direct project beneficiaries and become a crucial part in measuring the performance and impact of the project. An example of a system used in Pakistan during the post- 2005 earthquake reconstruction program is cited below in box 6.

Box 6. Example of Grievance Redress Mechanism in Pakistan earthquake 2005

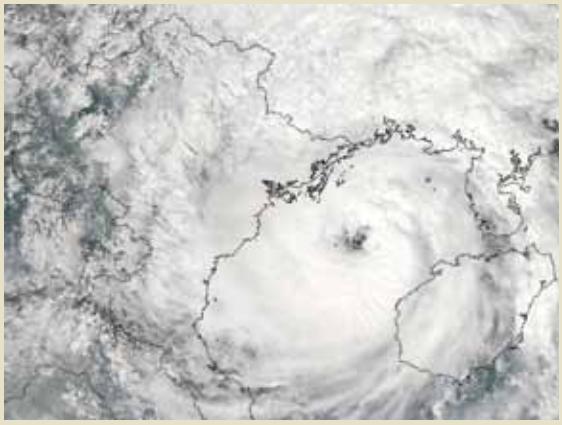
The Earthquake Rehabilitation and Reconstruction Authority (ERRA), set up after the 2005 disaster in Pakistan, included a grievance redress mechanism. The mechanism was fast-track and of an informal nature at the community (village) level, and mostly run by partner organizations which included local and national NGOs. On a formal level, various local government offices at the sub-province (district) level were put in charge to address and resolve complaints. For complaints regarding registration, data errors and payment records, the national-level government authority, dealing with registration of individuals and issuance of identity cards, was given the appropriate authority at sub-provincial (district) level as it already had "data registration offices" in these locations.

However, the system was not without its share of problems. Most local-level records were kept manually which led to significant delays at the time of complaints and staff being overwhelmed by the records. However, the Management Information System was based at headquarters.

Source: Information obtained from ERRA

Social impact assessments complement instruments such as PDNAs. While PDNAs mostly capture the 'what' and 'where', social impact assessments help to illuminate the 'how' of a natural disaster response. They can give insight into local perceptions of need; highlight structural exclusion issues not otherwise reported which need to be factored into designs; provide on-site design and performance feedback; enable more tailored priority setting; and provide information on early warning, especially for sensitive issues such as emerging conflict and corruption. Social analysis can include both initial assessments, conducted as part of the PDNA and which can highlight issues that are likely to emerge and establish a baseline for future monitoring, and ongoing social monitoring to track the impacts of the disaster and aid efforts over time. Domains that can be studied in post-disaster social analysis include: community perceptions of the aid effort; socioeconomic relations; social relations and village institutions. An example below highlights the benefits of conducting social analysis in the aftermath of disaster, identifying also some practical challenges that might emerge.

Box 7. Social Impact Assessment in the Philippines – 2009 Tropical Storms Ondoy, Pepeng



NASA MODIS Rapid Response Team

In September and October 2009, Tropical Storm Ondoy and Typhoon Pepeng hit the Philippines in rapid succession, affecting Metropolitan Manila, neighboring Rizal province and Central and Northern Luzon. Almost 1,000 people died and 9.3 million people were affected. Damages and loss were extensive, estimated at USD 4.38 billion, almost 2.7 per cent of GDP.

In the aftermath of the disaster, a social impacts assessment was conducted as part of the Post-Disaster Needs Assessment. The analysis contained three main focus areas: livelihoods and coping strategies, social relations and cohesion, and local governance and social accountability. The research was carried out in partnership with local research institutions and civil society organizations. In urban areas, the research was conducted through universities with strong experience in qualitative impact evaluations. The researchers paired up with NGO networks to gain access to affected communities. In rural areas, the PDNA team conducted the research directly. The research teams used participant observation, focus group discussions and in-depth interviews to conduct the research.

The analysis highlighted key issues that would not have been captured using the standard methodology alone. These findings centered around governance, social accountability, people's coping strategies and impacts on vulnerable groups. For example, it found that affected communities lacked aid information, faced a need for improved consultation and complaints mechanisms and, because they were uncertain about relocation, had begun to rebuild makeshift houses. In addition, it found that affected communities had experienced severe disruptions to livelihoods, with farmers and small-scale businesses being particularly badly affected, and that disaster survivors had thus begun to take up unskilled work where available. Evidence was also found of negative coping strategies. Finally, the research found that households faced an increased debt burden.

As a result of the assessment, a set of interventions was incorporated into the PDNA report. These included both short and long-term measures, including cash transfers for vulnerable groups, community block grants to establish basic services, trauma counseling for severely affected individuals and systematic consultation for relocation of affected communities.

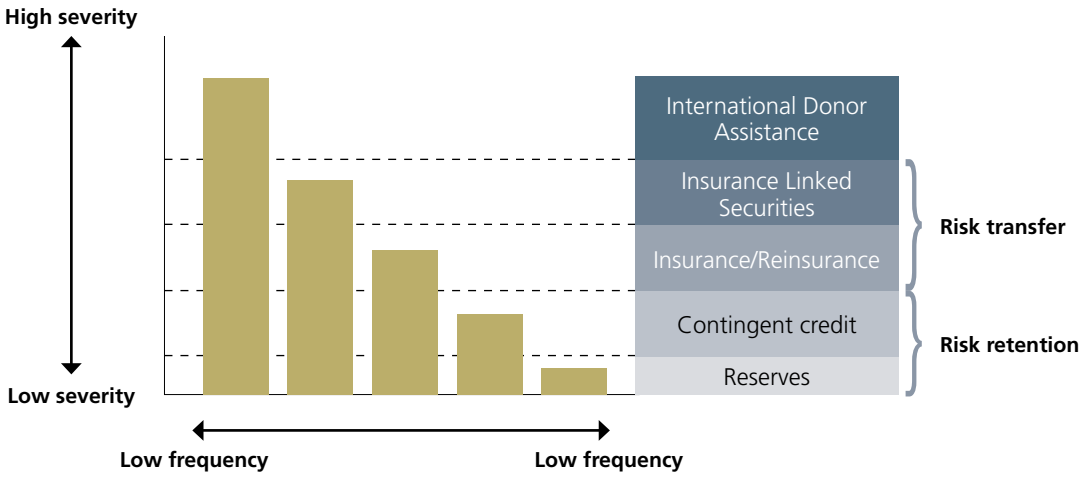
Source: World Bank staff

3 Financing the relief, recovery and reconstruction

3.1 Diversifying sources of risk financing and incentivize resilience

The Queensland reconstruction, like other major natural disasters in the World, will mainly be financed through public expenditures. The Australian government budget will eventually have to rely on spending cuts in other areas, tax increases, or deficit spending. Such an approach typically depends on the political process, which can sometimes stall the securing of the funding. When a disaster strikes, governments need to ensure two key sources of financing for the affected areas: immediate liquidity and reconstruction funding. In the early phase of emergency and recovery, immediate access and ability to disburse money is of vital importance. Ex-ante financing instruments like budget reserves, contingent lines of credit, and transfer mechanisms, such as catastrophe insurance, catastrophe risk pools, weather derivates, catastrophe bonds, and other sovereign risk financing mechanism, can be used. Typically, annual budget reserves are only used to cover the lowest layer of risks, which refers to low severity and high frequency risks such as annually recurring flood or drought. Other financing sources, such as a contingent line of credit, are used to cover medium severity and medium frequency risks, whereas high severity and low frequency risks such as a major earthquake, tsunami or major flash flood are transferred to the risk market. Increasingly, countries which face multiple risks to disasters are using risk layering to diversify their risk financing scheme by using a mixture of sophisticated financial instruments providing risk transfer mechanism to financial markets worldwide (see figure 4). The reconstruction phase is financed by post-disaster financing which includes public funding mobilization through deficit spending, tax increase, spending cuts, and loans.

Figure 4. Types of risk and possible sources of funding



Source: Cummins and Mahul (2009)

Experience from developed countries shows the idiosyncratic nature of the flood insurance market reflected in the wide variability of market penetration rates. These can range from less than 10 percent in Austria and Belgium to more than 95 percent in the UK. The basis of the high penetration rate is a Public-Private Partnership between the government and the Association of British Insurers (ABI). There is a formal agreement for British insurers to continue

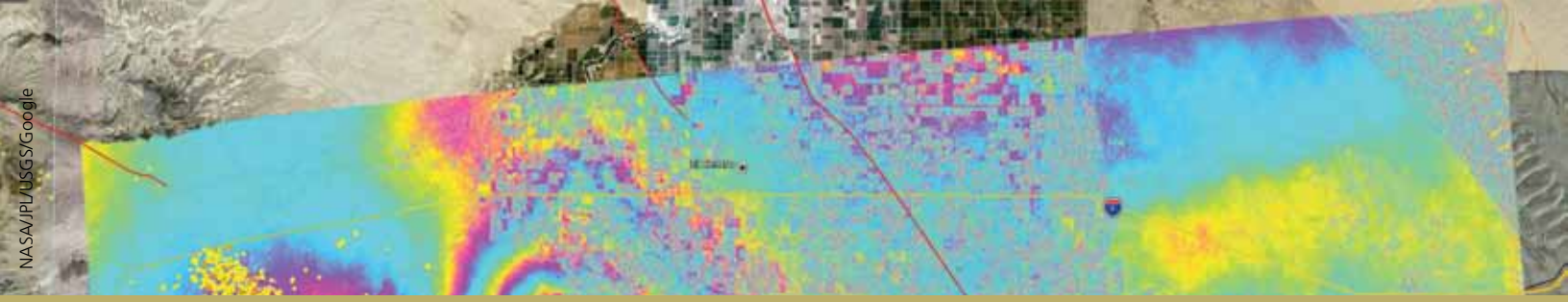
to provide flood insurance in high risk zones, which is conditional on 5-year plan by government to invest in defenses to reduce vulnerability of high risk households. It excludes new buildings. Insurers in low-risk zones share the cost of expected losses in high-risk zones.

The insurance of public assets is a particular challenge in Queensland after this year's flooding. Risk pooling at the Local Council level, perhaps using part of the NDRRA proceeds to obtain reinsurance coverage, could offer significant leverage and cost benefits for insuring public assets similar to the Mexican FONDEN example outlined as a case study in box 8.

Global good practice links reconstruction financing to incentives for building resilience during reconstruction of both public and private assets. Many existing disaster funding schemes, such as the NDRRA, have not explicitly set resilience as criteria for obtaining funding assistance. Private domains, such as housing reconstruction, where compliance to particular standards is enforced through regulations or codes and not through funding incentive, are often beyond the reach of a publicly funded reconstruction program. Improvement or higher construction standard for mitigation can be defined as criteria for obtaining additional funding support on top of the basic cost for asset replacement.

3.2 Using reconstruction spending to accelerate community recovery

Large reconstruction spending following a major disaster has been increasingly used as an opportunity to revitalize regional and local economy. The delivery of large scale infrastructure rehabilitation investment creates jobs and brings significant amount of cash. If designed properly, such investment can accelerate community recovery and transform local economy. Closer links between major recovery programs can be pursued, for example between road and infrastructure reconstruction with local economic recovery through local employment creation and small business opportunities. The role of local governments, local community groups, volunteers and champions in identifying risks and the appropriate resilience actions can be made as a part of a special technical assistance and capacity building (cross-cutting) program. A network of extension workers and reconstruction consultants dispatched to the regions usually provides the necessary know-how to help community build their resilience.



Box 8. FONDEN: Natural Disaster Fund in Mexico

Mexico has a long history of natural disaster exposure. Mexico is a seismically active country located along the world's "fire belt" where 80% of the world's seismic and volcanic activity takes place. Mexico is one of the countries most severely affected by tropical storms. It is one of the few regions of the world that can be affected simultaneously by two independent cyclone regions, the North Atlantic and the North Pacific.

The event in Mexico that resulted in major institutional approaches to natural disasters was the earthquake in Mexico City in 1985. This earthquake killed 6,000 people, injured 30,000 others and left a total of 150,000 victims. After the earthquake, the government of Mexico established the National Civil Protection System (SINAPROC) as the main mechanism for interagency coordination of disaster efforts, and undertook measures to focus on the economic impacts of natural disasters.

In 1994, legislation was passed to require federal, state and municipal assets to be privately insured. In 1996, the government created the Fund for Natural Disasters in the Ministry of Finance, called FONDEN. At inception, FONDEN was a budgetary tool to allocate funds on an annual basis to pay for expected expenditures for disaster losses. FONDEN was subsequently modified in 1999 by the creation of a catastrophe reserve fund within FONDEN that accumulates the unspent disaster budget of each year. However, in practice FONDEN is not able to build up reserve over years.

FONDEN is allowed to develop its own catastrophe risk financing strategy, relying on private risk transfer instruments such as reinsurance and catastrophe bonds. This helps the FONDEN to increase its financial independence and overcome some political economy issues:

- If the financial needs exceed the resources available in the FONDEN, an emergency budget reallocation may take time as it may be approved by the Parliament;
- In years of non disasters and lower fiscal resources, the annual budget allocation tends to be reduced or even canceled by the Federal Government.

In March 2006, the Government of Mexico purchased a US$450 million catastrophe coverage, of which US$160 million was issued as a catastrophe bond, to cover against the risk of earthquakes (with a return period of 100 years or more). The Mexican earthquake bond, which has been sold to institutional investors in the United States and Europe, acts like an insurance policy for the Mexican government. Investors paid US$160 million into a single-purpose reinsurer created for the Government of Mexico. If an earthquake of a specified magnitude occurs in designated areas of the country within the three year period of the contract (2006-2009), the government will be able to draw from these funds. If no disaster occurs during the life of the fund, the money will be returned to the investors. This is the first time a sovereign country has issued a catastrophe bond.

The World Bank is currently assisting the Government of Mexico to issue a new catastrophe bond to replace the first one which arrived at maturity in 2009. After the CatMex matured in 2009, Mexico decided to further diversify its coverage by pooling multiple risks in multiple regions. In October 2009, it issued a multi-peril cat bond using the World Bank's newly established MultiCat Program. The Federal government issued a four-tranche cat bond (totaling US$290 million) with a three-year maturity, called MultiCat Mexico. It provides (binary) parametric insurance to FONDEN against earthquake risk in three regions around Mexico City and hurricanes on the Atlantic and Pacific coasts. The cat bond will repay the principal to investors unless an earthquake or hurricane triggers a transfer of the funds to the Mexican government. The Government of Mexico is also investigating a reinsurance placement using the reported damage to FONDEN as the insurance index.

Source: Olivier Mahul, "FONDEN: National Disaster Fund in Mexico"

4 Economic recovery

Experiences of past disaster show that the effect of disaster to regional macro variables such as gross domestic product, and unemployment can be managed if the ensuing response is strong and fast. Hence, the short to medium term process of economic recovery is contingent upon whether the overall reconstruction program is well implemented. Growth can resume quickly and unemployment may decline if the program went smoothly. However, there are also a number of challenges, especially the transition from the reconstruction program to regular public expenditures. The reconstruction process may also divert workers from their old jobs to new jobs created by reconstruction boom, while leaving the productive economy unattended.

Box 9. Lesson from successful economic recovery program in developed countries

Experience from economic recovery programs in developed countries highlight the following factors:

- **Provide access to finance for business affected by the disaster**. Immediate post-disaster grants and loans can be essential to the survival of local businesses.
- **Establish collaboration between stakeholders early in the recovery process**. In the immediate aftermath of the 2008 Iowa floods, key stakeholders in Cedar Rapids (business owners, local officials, emergency services) met daily to triage important issues and make strategic decisions. Two years later, this has led to a collaborative long-term recovery process and a strengthened regional network.
- **A good pre-disaster plan helps to accelerate rapid recovery.** Developing a hierarchy of recovery program with federal, state and local government prior to disaster can save valuable time afterward.

Source: Summarized from National Association of Development Organization 2010, "Restoring Regional Economies in the wake of Disaster"

5 Strategic communication

Large scale recovery programs need to be inclusive, involving multi-tier stakeholders at all levels down to the community. Their aim is to:

- fill the voids in internal and external communications;
- strengthen media relations which are already strong;
- produce well-researched, cost effective outreach material (electronic/ print) that will strengthen the work of community liaison workers in the councils;
- and ensure timely and well-coordinated efforts to not only disseminate information as well as receive feed-back that can be incorporated into the workplan.

Extending outreach to the individual and family level. The objective of a well-designed media and communication strategy is not just to create awareness about QRAs activities among the various stakeholders including affected people, donors, opinion leaders in the public and private sectors and the wide public but also to ensure that vital information reaches the last family member on the road. This also includes rural and indigenous communities. It is equally important to showcase and project achievements of QRA in order to ensure credibility of QRA among the councils on one hand, and boost the confidence of donors to continue support projects in the affected areas.

Local media play a critical role. Radio transmission is able to cover a large land area and is a particularly accessible medium for lower income groups, including women in their homes. Apart from radio's uses to supply information after sudden onset disasters, skillfully produced radio dramas can be used to help reduce ongoing disaster risks and raise awareness and education efforts. In Afghanistan, for example, a long-running BBC soap opera in local languages has been shown to change listeners' attitudes and behaviors towards risks such as landmines and infectious diseases. Ensuring good communication with local communities is crucial from perspectives of both ethics and efficiency. One lesson from the response to the 1998 Afghanistan earthquakes is that agencies could set up short-wave radio to broadcast relief objectives to survivors, where local capacity to do this exists.

Examples and experience from across the world also show that building information-sharing partnerships between local government and civil society networks go a long way. Public information work should be simply to spread the word that the assistance is available, that it works, and that it's free. Some frequently used methods to accomplish this:

- **Creating and Maintaining Meeting List(s):** creating and maintaining a listing of meeting information should be a high priority. These lists should contain information such as the day, time, and location (a street address is preferred), and whether the meeting is open to the public. Meeting lists need to be updated on a regular basis to serve their purpose.
- **Posters:** These are notices used to inform the public about how and where to contact, as for instance depicted in figure 5. Good judgment is used when creating and posting these notices in the absence of any centralized guidelines. Even how and where these notices are posted should be evaluated carefully. A simple message explaining who is available and how to contact relevant agencies or people fulfills the desired approach.

Figure 5. Institutional advert (ERRA) and poster providing information on accessing funds

Box 10. Good Practice from Pakistan's ERRA and its Public Information Campaign

In October 2005, an earthquake of 7.6 Richter scale hit Pakistan leaving 73,000 people dead and more than 70,000 severely injured, rendering around 3 million persons shelterless and destroying and damaging approx 600,000 houses. By Jan-Mar 2006 a multi-stakeholder consultation, led by the government for developing its rural housing policy, had been concluded and the government announced its flagship "Rural Housing Reconstruction Program" of around 5 billion US$ by the Earthquake Reconstruction and Rehabilitation Authority (ERRA).

The ERRA was set up as an implementing agency after the devastating earthquake in Pakistan in October 2005 by the Governments of Pakistan. In early 2006, it released its first phase of a Public Information Campaign (PIC) coinciding with the launch of the Rural Housing Reconstruction Program. Various Advertisements were released, posters printed, and numerous radio and TV spots and programs relayed. In addition, news and current affairs programs on radio, terrestrial TV, and cable TV were broadcasted independently. The messaging was intense and relentless with numerous feedback channels.

The PIC launched also two fictional characters into the public domain - Chacha Chairman and Manzoor – who developed a loyal fan following. Information reached far and wide, due to the combined efforts of the housing team, partner organizations, assistance and inspection teams, and the HRCs, with further support from the communication team. The dissemination of structural design solutions and construction guidelines was reproduced in a poster, popularly called the 10-point poster, which was followed closely by the communities and was visible all over the affected area. The final step of the campaign was to ensure that ERRA's Program Monitoring Framework would incorporate feedback from beneficiaries to assist ERRA to strengthen the RHRP.

Continues

Box 10. (Continuation)

The public information program, running from April to June 2006, was very intensive and ensured that information regarding specific projects reached a wide audience. In addition, locally trained social mobilizers were trained to carry messages to the parts of the population that were difficult to reach. Frequent press conferences were held (at least every 15 days), updating the media on the progress. A knowledge management specialist was hired within six months of ERRA's establishment who assisted the various teams in collating experiences and updates, and preparing the Annual Reviews. The media team continued to manage the print and electronic media (TV, newspapers, radio) as well as the call center.

The overall public communication was managed in 3 phases. Phase 1 contained general messages on ERRAs Rural Housing Program and ERRAs policy in general. This phase of about 6 weeks was very intense and used various media including print, radio, TV, community fairs/ gatherings and religious places. Social media, such as Facebook and Twitter, was neither prevalent nor popular. Phase 2 covered messages to motivate people to reconstruct and ways to access their housing grant. This was the longest phase running almost 18 months, for which ERRA partnered with other agencies who implemented the PIC while ERRA supervised it. Phase 3 focused on advanced messages to encourage people to get training and reconstruct seismically safe houses as well as direct information on seismic safety aspects for behavioral change, aiming to foster a culture of compliance.

Communication and information dissemination were seen as critical and in April 2006 communication experts from the world Bank and the private sector come together to help ERRA draft a communications strategy that would encompass its eleven key policy areas. A year later, the World Bank assisted ERRA with a Knowledge Management initiative during which the ERRA staff was trained and helped to write their best case studies. Training sessions were held for government and communications staff in media relations, interviews, case studies, presentation, and community participation.

At the end of almost five years of a sustained public information campaign, there were a number of lessons learnt. Many were local in nature, reinforcing the basic premise that communications has to be customized, the audience clearly identified and messages targeted in a culturally sensitive fashion in each case. The most important lessons for purposes of global learning can be summarized as:

- The more delay in sending out immediate messages creates an information void which gives rise to rumors, uncertainty and anxiety.
- It is very difficult to retrieve a message that has gone out and to control the damage caused by an incorrect message, therefore messages need to be well researched, well thought out and clear.
- In such post-disaster scenarios a sustained and continuous information campaign plays a critical role. It is important to be fully resourced to achieve this.
- Radio proved to be the most effective dissemination medium.
- Feedback channels must be established.
- Message do reach people, they pick and choose. Effective communication in a reconstruction project is not about what governments and project managers "say," but what beneficiaries "hear."
- Messages should be such that they give people a chance to think rather than reasons to panic.

6 Building resilience

6.1 Mainstreaming disaster risk reduction into recovery operations

Disaster risk reduction is not a field that can stand by itself. Since the late 1990s, there has been increasing recognition of the need to "mainstream" disaster risk reduction - that is, to consider and address risks emanating from natural hazards in strategic frameworks and institutional structures, in country and sectoral strategies and policies, and in the design of individual projects in hazard-prone countries. If not planned carefully, the reconstruction process can unwittingly create new forms of vulnerability and exacerbate existing ones, for example through rebuilding in hazard prone zones or failing to apply building codes. Solutions are best derived by integrating disaster risk reduction strategies and measures into the different sectors and viewing disaster risk reduction as an integral component of infrastructural and economic growth rather than as an end in its own right. Consequently, there is a need for interdisciplinary co-operation at all government and local levels for a coordination of sectoral policies regarding environmental protection, physical planning, land use planning, agriculture, transport and urban development, and co-ordination throughout all phases of risk management. To mainstream disaster risk reduction into the different lines of reconstruction, three fundamental steps are needed: i) development of sectoral risk assessments (for example, in the transport sector, mapping vulnerable road stretches); ii) specification of technical guidelines to address the identified vulnerabilities (for example, relocation of roads, higher bridges, structural and bio-engineering solutions), and iii) awareness raising and training (for example, communication of results to local governments and training of engineers).

Mainstreaming can be effectively promoted through resilience coordinators within each main line of reconstruction. These coordinators have the tasks of ensuring related activities reduce flooding and damage where possible, lessen communities' exposure and vulnerability to disasters, mitigate the impacts of flooding, and preserve the natural resources of marine and aquatic ecosystems and associated floodplains.

Box 11. Good Practice: Risk reduction measures in Indonesia after the Indian Ocean tsunami

After the Indian Ocean tsunami (2005-2007), particular emphasis was given to include risk reduction measures into all sectors of recovery in Indonesia. In housing, resilient designs for houses were prepared and circulated, including plans for retrofitting undamaged but still potentially vulnerable dwellings. Throughout the reconstruction period, public information and communication strategies were employed to widen the community's understanding of the various hazards they faced. Public infrastructure was built according to hazard resilient design. The recovery of all major bridges, public facilities and dams was designed and built to resist the multiple hazards that could affect the area in the future, including both seismic and tsunami threats. Spatial planning was assigned an important role in reducing the risks of future disasters. Environmentally fragile zones were designated along the coastline in which no new construction was permitted, in order to protect mangrove regeneration. The layout of towns and cities was designed to avoid the fragile coastal belt while avoiding tsunami risks. Similarly, road alignments were planned with obvious evacuation routes indicated while higher ground locations were provided.

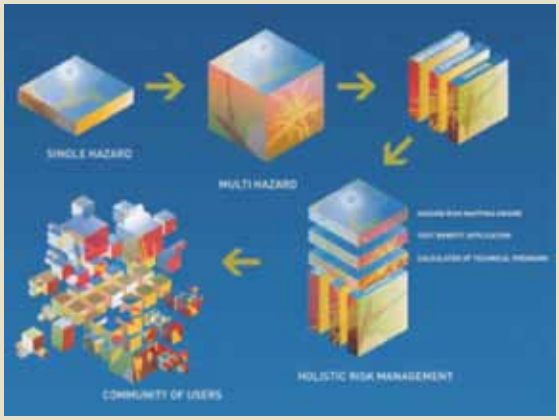
6.2 Understanding risk

Quantifying risk and expected future losses is the first step in a disaster risk reduction program. Impact scenarios, derived from risk assessments, need to be incorporated into sustainable development approaches and reconstruction planning in order to climate- and disaster-proof infrastructure. Risk assessments serve as input, for example, for land use planning, building codes, and catastrophe risk insurance schemes in pre- and post-disaster situations. In short, they support a wide range of decision-making processes for different actors from the public to the private sector. Three factors need to be considered to measure risk:

Risk = Hazards * Exposed Elements * Vulnerability

While the hazard component refers to the severity and probability of hazards in an area, the exposed elements refer to structures, population, and the economy. Vulnerability is defined as the capacity to anticipate, cope with, resist, and recover from the impacts of a natural hazard. It has a physical, social, environmental, and economic dimension. In essence, the risk assessment answers the following questions: i) What is the likelihood of the event?; ii) Who and what is in harm's way?; iii) What are the projected losses due to disaster and climate change impacts?; and iv) What social, economic and physical conditions reduce or amplify the impact?

Box 12. Good Practice in Risk Assessments: Central American Probabilistic Risk Assessment (CAPRA)



The Central American Probabilistic Risk Assessment (CAPRA) initiative aims to strengthen the regional capacity for assessing, understanding and communicating disaster risk. CAPRA is built on a partnership with Central American governments and supported by the Central American Coordination Centre for Disaster Prevention (CEPREDENAC), the Inter-American Development Bank (IDB) and the International Strategy of United Nations for Disaster Reduction (UN-ISDR) and the World Bank.

The main objective is to provide Central American countries with a set of tools to conduct risk assessments which will allow them to better understand the risk of adverse natural events. CAPRA provides a Geographic Information System (GIS)-based platform of information on natural hazard risk, disaster risk analysis and communication. It is a tool that enables decision-makers to manage risks at local, national and regional levels. The ultimate goal of the initiative is to help mainstream disaster risk management into local development to help reduce disaster losses. CAPRA, moving away from the standard single hazard analysis approach, provides a multi-hazard risk assessment based on probabilistic modeling. This risk information can be applied on various levels and in different sectors including health, education, housing, and planning. CAPRA also offers various applications, including a hazard assessment report for territorial planning, a cost-benefit application for analysis of retrofitting projects, and a calculator of technical premiums for insurance. The CAPRA platform also has the potential to assess the impact of climate change by using hazard models derived from climate, rather than historical data. Another advantage of CAPRA is that is functions as a central depository of risk data throughout the covered region.

Source: Central America Probabilistic Risk Assessment (CAPRA) www.ecapra.org

6.3 Building resilience through integrated river basin management

Experience shows that effective measures for flood prevention have to be undertaken on the level of river basins. Experience suggests that local flood protection measures can have negative effects both on downstream and upstream flows, and it is therefore necessary to take into account the interaction of the effects of individual measures implemented along the entire water course. For flood prevention, protection and mitigation, a good combination of structural, preventive and operative measures during flood events are necessary. This includes building codes and legislation to keep infrastructure away from flood-prone areas, appropriate land use planning, designated floodplains and flood-control structures, mitigation, early-warning systems, correct risk communication, and preparedness of the population. In the past, emphasis was given primarily on structural solutions. Lately, it has been recognized that engineering solutions need to be complemented with environmental defense mechanisms. In some cases, structural flood control systems have exacerbated rather than reduced the extent of flooding, for instance when sediment deposit in river channels raised the height of river channels and strained dike systems. Storing water by means of vegetation, soil, ground and wetlands, all of which are capable of retaining water, should have priority over swift water run-off. Every cubic meter of water not drained away immediately to the next body of water is a gain for the water regimen.

Box 13. Germany Flood Control Act of 2005 after the 2002 Elbe floods

In the summer of 2002, Germany, along with other European countries, was severely hit by floods. As the Elbe River reached an all-time high of 9.4 meters, the city of Dresden suffered extensive physical damage forcing more than 300.000 people to evacuate. In the aftermath of the floods, German federal government passed the 2005 Flood Control Act - an integrative piece of legislation - which harmonized regional and state-level flood planning procedures and set up a binding timeline for implementing flood management measures.

Under the new Act, flood protection is defined as an issue of spatial planning and the main underlying principle of the Act is "Give our rivers more space". The new Act obliges German States to: i) conduct risk assessments, ii) draw up plans coordinating flood protection along the rivers, and iii) designate more areas as flood plains by 2009. Under the Act, planning of new housing areas in flood plains has been, for the first time, explicitly prohibited by German federal law. The legislative framework established the Development Plans the key instrument in managing urban growth. Spatial flood protection was defined as an issue of spatial planning, so that according to the German Statutory Code on Construction and Building from 2005, all land use plans have to indentify flood prone areas. The Act made also provisions to reduce damages appealing that in flood zones, computing centers and oil-fired heating systems, should not be located in the building basements.

Sources: Hellmuth Lange, Heiko Garrelts (2007) Risk Management at the Science–Policy Interface: Two Contrasting Cases in the Field of Flood Protection in Germany, Journal of Environmental Policy & Planning 9: 3-4, 263–279; Frank Friesecke (2004) Precautionary and Sustainable Flood Protection in Germany – Strategies and Instruments of Spatial Planning, 3rd FIG Regional Conference Jakarta, Indonesia, October 3-7, 2004.

Box 14. Water services in New York State

In the 1980s, New York City was facing a difficult policy dilemma in solving the imminent threat to water quality from its watersheds in the Catskill Mountains, north of the City, which resulted from changing agricultural practices and growing urbanization in area. As nonpoint source pollution increased substantially, the officials had to decide between building of a very costly new filtration facility or finding an alternative solution. Instead of paying for a clean-up for the degradation of the water producing environment, the City invested in preserving the rural Catskill environment which provides the City with its clean urban water. A range of measures were adopted, including buying particularly important areas out-right and paying farmers to operate their farms in ways which minimized water pollution. Under the 'Whole Farm Planning', the City pays both the operating costs of the program and the capital costs of pollution control investments on each farm, making sure that these measures are well-integrated into the farmer's business plans, thus also bringing them significant ancillary benefits. Within five years of the program's establishment, 93 percent of farmers in the watershed had decided to participate, making the program one of the most successful non-point pollution control programs in the United States. It has played a major role in stabilizing and reducing watershed pollution loads, enabling the City to avoid having to filter its water supply.

Source: World Bank (2004) Assessing the Economic Value of Ecosystem Conservation, Environment Department Paper No.101 by Stefano Pagiola, Konrad von Ritter, Joshua Bishop. In collaboration with the Nature Conservancy and IUCN—The World Conservation Union.

7 Community engagement in recovery and reconstruction

Community engagement requires clear objectives upfront and needs to be carefully planned. It is indispensable to define the objectives of community engagement before practice is mobilized. To invite communities and stakeholders to participate without a clear idea of the role that they can play in the reconstruction and recovery activities can generate fatigue, frustration, and lead to lack of trust towards the government. In order to be able to effectively engage communities affected by a natural disaster and other stakeholders, it is necessary to: (i) define the objectives and purposes pursued through this engagement; (ii) conduct a stakeholder analysis to identify the characteristics of the different groups involved, their interests in the process and their levels of power; (iii) design strategies tailored according to the characteristics and needs of each group; (iv) establish the human, physical and financial resources needed to implement the strategies; (v) set up a network of community development workers (facilitators) to work directly with affected communities; (vi) establish mechanisms for consultation and participation, and; (vii) design participatory monitory and evaluations systems.

Community engagement requires strong inter-institutional coordination. Since any recovery and reconstruction plan involves several components (such as housing, infrastructure, income, health, education, etc.) many governmental institutions are involved. For that reason, it is necessary to have in place strong inter-institutional coordination mechanisms. Communities should be approached with one voice. To designate responsibility for community engagement in recovery to multiple institutions and a plethora of agencies can create confusion and fatigue in the communities. A good strategy is to assign community development workers to specific communities to coordinate the activities of different institutions.

Participation is a central pillar and skilled facilitators are key to the success of participation goals. Participatory approaches give communities means to identify community needs and be partners in implementing action. Communities need to be equipped with information and knowledge for active participation in design and implementation of local initiatives, to ensure broad awareness of rights and entitlements.

Social inclusion is a continuous contract. Communities are not homogeneous and local recovery plans need to be designed to be socially and gender inclusive, ensuring that plans are responsive to the priorities of the community at large and not of a dominant or elite group. In development practice, this entails ensuring voice and decision-making responsibility be equally open to women, the elderly, youth, religious and cultural minorities, indigenous and other ethnic groups and the disabled. Issues of inclusion will require periodic attention throughout the life of any organization that is active at the community level.

South East Queensland flooding. © Lyle Radford.

Box 15: Inclusive community planning

General guidelines for building in social inclusion include:

- identifying subgroups within a community, especially those at risk of exclusion;
- structuring project rules and procedures to promote their participation;
- determining participatory techniques that can help facilitate their involvement (where existing
- systems of social organization are highly inequitable, new groups may need to be created to enable
- excluded groups to participate);
- ensuring that intermediaries (NGOs, local government, etc.) working with communities have expertise in working with these groups and using participatory techniques;
- investigating how local institutions can be made more responsive and inclusive of these groups;
- including specific indicators related to these groups in monitoring and evaluation systems, and
- involving all stakeholders in monitoring and evaluation;

Early engagement facilitates the community ownership of the process and triggers active participation. The assessment of damages of public and private assets, as well as the estimate of damage and losses conducted through a participatory process, strengthens civic engagement and awareness of recovery and reconstructions efforts.

Box 16: Pakistan earthquake, 2005

The October, 2005 South Asian earthquake, measuring 7.6 on the Richter scale, was arguably the most debilitating natural disaster in Pakistan's history. The Pakistan Poverty Alleviation Fund (PPAF), established in 2000 to reduce poverty and empower the rural and urban poor by providing access to microcredit and grants for infrastructure and capacity-building was critical in the response to this natural disaster. PPAF focused on immediate relief through the provision of shelter, food and medicine. Field coordination units were set up in the earthquake affected areas to monitor relief distribution, provide continuous needs assessment, and report and track grievances and grievance redress. Coordination with PPAF partner organizations and international and national relief agencies was a high priority action. PPAF channeled almost $250 million to rebuild community assets, with significant efforts made to rebuild housing, with PPAF deploying social mobilization teams to support and monitor the reconstruction program. The PPAF deployed over 100 social mobilization teams through its partner organizations. Each team consisted of an engineer and a male and female social organizer and had responsibility for 800–1,000 houses. The teams undertook damage assessments and facilitated social mobilization, the training of homeowners and masons, and quality control and were instrumental in the reconstruction process. Training in psychosocial support was provided to help teams identify post-traumatic stress so that they could adapt their approach accordingly.

Key lessons of this experience were the inclusion of earthquake relief, rehabilitation and reconstruction financing as an integral part of PPAF's poverty alleviation program and consistent with its development objective of improving access of poor communities to infrastructure through participatory development and social mobilization. PPAF did not change its basic principle that development has to be driven by the communities. Rehabilitation and reconstruction were used as an opportunity not only to strengthen existing community organizations but also to establish new ones. Having an existing local presence was critical for effective disaster assessment and response.

Box 17: 2006 Java Earthquake, Indonesia - Organizing Community-Based Resettlement and Reconstruction

Somewhat hidden from the world by the ongoing flurry of Aceh tsunami recovery, the 2006 Java earthquake with a magnitude of 6.3 on the Richter scale was nevertheless an enormously destructive event. Over 350,000 residential units were lost and 5,760 persons were killed, most from the collapse of non-engineered masonry structures. Using lessons learned from the tsunami experience and resources from the ongoing community based Urban Poverty Project supported by the World Bank, the Indonesian government was able to respond quickly and efficiently. Facilitators were recruited and villages elected boards of trustees, which later were instrumental in organizing community meetings and supervising implementation. Key activities included: (1) identifying beneficiaries, prioritizing the most vulnerable; (2) establishing housing groups of 10-15 families, who choose their leaders and a treasurer; (3) development of detailed plans to apply and use the construction grants for each group;(4) opening of group bank accounts; and (5) approval of plans, disbursement in tranches, and group procurement, construction, and bookkeeping. Training was provided to community members and local workers to ensure earthquake-resistant construction. Later, the community developed plans to rebuild village infrastructure and facilities, with a particular focus on disaster-resilience. Communities conducted self-surveys, prepared thematic maps, analyzed needs and disaster risks, agreed on priority programs, and established procedures for operations and maintenance. Grants for infrastructure were also disbursed in tranches through the selected bank as work progressed.

Adequate understanding of rules and sense of ownership by the community were essential to ensuring good targeting and plans, accountability, and social control of implementation. Involvement of women increased accountability and enhanced the appropriateness of technical solutions. The role of facilitators is crucial, as they both ensure effective communication and adaptability of the program to local situations as well as compliance with program principles. The Government initiated the process by starting a six-month pilot project to build 6, 000 houses, and based on the learning, scaled up the reconstruction. This approach resulted in 270,000 earthquake-resistant-houses were rebuilt in Java within 18 months only. (Housing handbook, The World Bank)

Needs assessment and classification of affected people according to level of damages, losses and resilience. Detailed information on affected people and their socioeconomic and cultural characteristics (e.g. urban, rural, productive sector, level of income, ethnicity, etc.) should be gathered. This information is important so as to: (i) estimate the magnitude of damages and losses; (ii) classify affected people based on their socioeconomic and cultural characteristics, the type and level of losses they face (e.g housing, source of income, etc.), and their level of resilience (capacity to recover from the damage); (iii) establish a baseline to prepare the reconstruction plan, and; (iv) establish the objectives and goals of the recovery program with measurable indicators.

Recovery and reconstruction plans should extend beyond financial assistance. A disaster's impact reverberates beyond uniquely material assets. Families and communities and their social and economic networks are also impacted. Reconstruction plans need to mirror this natural extension beyond financial assistance to support people in rebuilding their lives.

Design participatory monitoring and evaluation systems. Equipping communities with information and knowledge for active participation in design and implementation of local initiatives and building in simple rules and clear

incentives for entitlements and eligibility with social accountability mechanisms and grievance redress enhances impact and sustainability.

Flexible frameworks are required for communities' active participation. Flexibility in design, often through piloting, is essential to allow systems to evolve and adapt better to local demand and capabilities. Flexible program planning and decentralized decision-making mechanisms, situated as close to the community as possible, facilitate quick response to change. Strong communication circuits on program performance and direct feedback loops built into intervention plans that facilitate responsiveness to community concerns are essential. Most successful programs routinely conduct beneficiary assessments, focus group interviews and other forms of evaluation that provide program managers and policymakers with information on whether investments and services provided reflect community priorities, the level and type of participation they have used, their sustainability and their impacts.

Design for scaling up and investing in exit. A fundamental objective in sustainable community-based disaster recovery is to move from isolated islands of successful practice to scaled up, larger impact with results in many communities simultaneously. Principles for scaling up are for the most part the same principles as outlined in Box 23. Arguably the most critical consideration for scaling up is that of ensuring that approval and disbursement processes, governance and decision-making are as decentralized as possible. This improves the likelihood of program benefits being relatively speedily accessible by local groups and also allows for flexibility and adaptive response to changing local circumstances. Clustering program activities into nodal areas or micro regions can be an effective strategy for focusing inputs in the initial stages, rapidly demonstrating results, establishing advocacy for further action, gaining credibility, spreading information and self-mobilizing demand for recovery activities. As coverage are expands, lateral communication between communities and external support agents (civil society, government, private sector) can become very valuable in order to support horizontal learning, build social capital and branch out into new strategic activities. An exit strategy for external support is a critical component of all community-based interventions. A clear distinction must be made between support services that are recurrent or permanent in nature and those that are temporary. For recurrent services, sustainability requires putting in place permanent institutional and financing arrangements at a cost that can be supported over the medium and long term. Temporary services, such as initial intensive capacity-building support to civic associations may, however, not require sustainable financing or permanent institutional structures. For such temporary services, explicit exit strategies need to be designed and implemented.

Box 18: Indonesia Tsunami

In December 2004, the province of Nanggroe Aceh Darussalam was hit by a tsunami and earthquake that claimed over 230,000 lives and destroyed countless schools, houses, places of worship, roads and livelihoods. For rehabilitation and reconstruction purposes, as well as psychological reasons, there was a distinct need to reorganize and empower communities to begin a process of participating and undertaking this massive task, determining for themselves what their needs and priorities would be, and how they were to reconstruct not just their community infrastructure, but also rebuild their communities. In the Meuraxa area of Banda Aceh, almost 3,000 houses were destroyed, land boundaries disappeared, and only 30% of the population survived. Through extensive efforts of Government-hired facilitators (Community Development Workers) and in partnership with local government, the community was supported in carrying a damage assessment, conducting area mapping, identifying beneficiaries and developing reconstruction plans incorporating disaster risk reduction. In order to build back better, the plan includes land consolidation for safer settlements. The Plan includes budget and task allocations for the community, donors and various levels of government. Through this partnership, within 3 years the area was completely reconstructed and transformed into a significantly safer and better settlement. Similar approaches were successfully applied in many different areas of Aceh.

Box 19: Guatemala – Tropical Storm Stan

As a result of the national disaster wrought by Tropical Storm Stan on October 5, 2005, the total economic impact was estimated at US$983 million, equivalent to 3.4% of 2004 GDP. Most (59%) of the losses were sustained by low-income groups and small-scale producers, with little ability to recover what they lost. Tropical Storm Stan resulted in 17,000 homes that were either totally destroyed or declared unfit for human habitation, resulting in the country's worst natural disaster, which was exacerbated by the existing shortage of 1.2 million homes.

The impact of Tropical Storm Stan posed an enormous national challenge for the reconstruction of economic and social infrastructure, requiring an unprecedented degree of inter-agency coordination. It was necessary to restore trust in the State and institutions, expand community participation, and account for the population's social and cultural characteristics. The State's timely, appropriate, effective and transparent engagement was needed to undo damage of past experiences and the lack of credible institutions.

The government designed the *Reconstruction with Transformation* model, which adopted a more inclusive stance and promised comprehensive measures within a framework of development and sustainability. The main features of this model are: participation by the population in setting priorities; applying the subsidiary-with-solidarity principle; strengthening democratic governance and legitimacy; strengthening civic values through joint work and agreements; involving the private sector through the procurement mechanism; incorporating a cultural and gender perspective; and adopting a new integrated and sustainable rural development strategy.

The adopted model gave rise to the National *Reconstruction with Transformation* Plan, which has three major components and three cross-cutting themes: ***C****omponents:* (1) Physical infrastructure and the management of watersheds; (2) Reactivation of output and family income; and (3) Rehabilitation and strengthening of the social fabric. *Cross-cutting themes:* (1) Risk management and integrated management of watersheds; (2) Transparency and accountability; and (3) Decentralization.

The National Coordinator for Reconstruction's Office was responsible for creating and implementing the Plan. It set up an inter-agency team committed to forming 80 new settlements in 15 departments to resettle approximately 7,400 families (50,000 people) who were either victims of the disaster or at imminent risk. Strengthening the social fabric fostered citizen participation, which improved transparency.[16]

16 Source: Aguirre-Cantero. E. The First Tzútujil City of the XXI Century. In: Correa, E. (Comp.) 2011. *Preventive Resettlement for populations at risk of disaster. Experiences from Latin America.* Washington: The World Bank

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