



Complementing Natural Disasters Management: The Role of Social Protection

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Abstract. Natural disasters have a huge impact on social and economic welfare. Policies to manage them need to be integrated and well grounded to the specificities of natural hazards as well as local capacities in terms of fiscal, administrative and economic capabilities. A well designed natural disasters management strategy crucially depends on carefully assessing and planning responses before, during and after the disaster occurs. This policy note discusses the complementary role that Social Protection can play in the formation of an effective strategy for natural disasters management.

¹ This note was prepared by Renos Vakis (Human Development Network, The World Bank) with inputs and suggestions from Jeanine Braithwaite, Margaret Grosh, Robert Holzmann, Valerie Kozel, Carlo del Ninno, Samantha de Silva and Sandor Sipos. Comments and suggestions can be sent to rvakis@worldbank.org.

“Disaster vulnerability in developing countries may very well be the most critical challenge facing development in the new millennium. Rapid population growth, urbanization, environmental degradation, and global climate change are all contributing to an increase in the frequency and magnitude of disasters. And their most deadly impact is on the lives and living environment of the poor.”

James Wolfensohn and Didier Cherpitel

Introduction

Natural disasters are defined as events (shocks) that are triggered by natural phenomena or natural hazards (such as earthquakes, hurricanes, floods). In recent years, there has been renewed interest on natural disasters and their management. In considering appropriate responses and strategies, a number of elements related to natural disasters need to be taken into account. First, it is important to note that **human activities** can also contribute in the creation of a disaster (such as land slides due to deforestation or flooding as a result of overgrazing or poor farming practices). Second, the **type of natural disaster and probability of occurrence** matters. While hydro-meteorological hazards are more recurrent in nature (floods), geophysical hazards which occur less frequently, can potentially be more destructive (earthquakes). Third, the response can differ greatly depending on whether the natural disaster is a **sudden one-time event** (hurricane) vs. one that **develops over time** (droughts). Finally, the **localization and extent** of the natural disaster can affect the capacity to address it. For example, tropical storms that are localized within a particular region of a country will have different consequences compared to massive country wide floods that cover two thirds of the country.

Such distinctions and considerations are important in designing policies to manage natural disasters. As natural disasters have a huge and long lasting impact on social and economic welfare, policies to manage them need to be integrated and well grounded to the specificities of natural hazards as well as local capacities in terms of

fiscal, administrative and technical capabilities. In addition, a well designed natural disasters management strategy crucially depends on carefully assessing and planning responses before, during and after the disaster occurs. To be effective, such a strategy also needs to be well functioning and in place before the disaster occurs.

This paper discusses natural disasters within the general framework of Social Risk Management and highlights the complementary role that Social Protection can play in the formation and response of an effective strategy for Natural Disasters Management System. In exploring these issues, the paper outlines a number of Social Protection analytical and operational instruments that can be used in practice to address natural disasters and outlines a number of pending issues and knowledge gaps where more work is needed.

The socio-economic costs of natural disasters

The overall costs of natural disasters to society can be very large. At the macro level, while difficult to measure², existing empirical evidence suggests that their impact is substantial. For example, a recent study estimates that economic costs of natural disasters have risen 15 times since the 1950s, amounting to more than \$650 billion in material losses in the 1990s (IMF, 2003). The same study also estimates that in the last 20 years, more than 4 billion people have been affected by natural disasters.

Still the impact of natural disaster depends on a number of factors. First, the size of the impact needs to be assessed in relation to the size of the economy. Smaller countries will be more likely to experience sharper decreases in GDP than larger ones (Charveriat, 2000). In addition, the extent of localization of the natural disaster also matters. In the recent case of hurricane Katrina, there has been a large but at the same

² For example, national accounts are more likely to register new physical construction activities after a natural disaster rather the loss of assets.

time local impact in the local economy of the affected regions. By contrast, four years after Hurricane Mitch, the GDP in Honduras was 6% below pre-disaster projections. Similarly, risk exposure to natural disasters can change over time and thus their impact. For example, Bangladesh is less vulnerable to floods since it reduced its reliance on the rain-fed summer crops which had been susceptible to the floods (Dorosh et al. 2004, Benson, 1997).

Natural disasters have a large impact on poverty. The poor are particularly exposed to natural disasters and have limited access to risk management instruments. Indeed, while empirical studies show how households are partially able to smooth consumption after a natural disaster, the evidence also suggests that poor households are less able to cope than the non-poor (Vakis et al., 2004). Many households use sub-optimal or even harmful coping options such as reducing consumption expenditures of food, health and education services, trying to increase incomes by sending children to work. In addition, as the poor are more likely to reside in hazardous locations and in substandard housing, it makes them more susceptible to natural disasters. Finally, exposure to natural hazards (and to that extent natural disasters) affects income generating decisions which can have long term implications in the form of lower future income streams, longer recovery and poverty traps.

Based on such costs and welfare losses, developing integrated natural disaster management strategies is crucial. Still, forming such strategies requires a better understanding of who is exposed, evaluating existing instruments and setting up adequate monitoring and response systems. The social risk management framework can be used to explore these issues.

Social Risk Management and Natural Disasters

Natural disasters fit “naturally” within the Social Risk Management (SRM) framework. The SRM framework explores how society manages risks, with the main idea being that all individuals, households and communities are exposed to multiple risks from different sources. Still, the poor are more vulnerable since they are typically more exposed to risks and have access to fewer risk management instruments that can permit them to deal with these risks. This exposure to risks and lack of addressing it has two important consequences: (i) the poor are severely affected when shocks do occur, accentuating their poverty; and (ii) the poor become more risk averse and unwilling (or unable) to engage in risky but higher return activities. As such, social risk management aims at providing instruments that allow the poor (but also the non-poor) to minimize the impact of exposure to risk and change their behavior in a way that helps them exit poverty and lower vulnerability (Holzmann, 2000 and 2001).

SRM instruments can be used at different moments in the risk cycle. **Ex-ante** measures aim to avoid the risk from occurring (risk prevention), or, if this is not possible, to reduce its impact (risk mitigation). For example, **prevention** strategies include measures designed to reduce risks in the labor market (the risk of unemployment for instance), health care (such as vaccination, use of mosquito nets or information campaigns) or standards (such as building standards in areas prone to earthquakes). Whereas preventive strategies reduce the probability of the risk occurring, **mitigation** strategies help individuals reduce the impact of a future risky event. For example, households may pool uncorrelated risks through informal or formal insurance mechanisms. Finally, **ex-post coping** strategies are designed to relieve the impact of the risk once it has occurred. Some examples of coping are drawing from individual savings or borrowing. Similarly, the government may also provide ex-post support in cases of catastrophic events or in the aftermath of an economic shock (Box 1).

The SRM framework also considers a variety set of arrangements to deal with risk management. **Informal** arrangements perhaps constitute the main source of risk management for the majority of the world's poor. In the absence of (or with incomplete) market institutions and public support, individual households respond to risk by protecting themselves through informal and personal arrangements. In addition, **market based** arrangements can also provide households and individuals with various financial products offered to help them deal with risk (like insurance and credit). Finally, **public** arrangements can provide a range of SRM support like unemployment or old age insurance, disability benefits, direct cash assistance or public works programs. Through its legislative abilities, government can also introduce prevention strategies (such as building codes in disaster prone areas).

Box 1. Social Risk Management and Natural Disasters

The SRM framework can provide useful insights for designing an effective natural disaster management strategy.

Ex-ante mitigation and prevention. In terms of prevention, instruments may include actions to reduce risk exposure to natural disaster risk, such as constructing levees to avoid flooding or resettlement. Mitigation actions can include improving households and communities' ability to absorb the impact of natural disaster (e.g. with land use management techniques or improved building codes). In addition, preparedness actions can also include the establishment of mechanisms for effecting response and recovery via natural disaster-specific agencies or the development of early warning monitoring systems.

Ex-post – coping. In the immediate aftermath of natural disasters, emergency actions may include search-and-rescue, food-aid, emergency medical assistance, evacuation or the construction of temporary shelters. During the medium-term, actions may focus on rehabilitation by helping households maintain a minimum level of consumption and preserve their assets base and transition towards normalcy (repair basic infrastructure and facilities). The long-term reconstruction phase focuses on physical reordering of the community and of the physical environment. Emphasis on setting up ex-ante mechanisms to address natural disasters should be considered at this stage.

What is the role for Social Protection for Natural Disaster Management?

In considering the role of Social Protection for natural disasters, some issues need to be clarified. First, Social Protection instruments should not be considered alone but rather as a part of a larger set of risk management arrangements. In this sense, social protection can offer **complementarities** to existing mechanisms and systems and strengthen natural disaster management systems that are in place. As such, they should not crowd out other risk management arrangements (informal, market-based or public) but instead be evaluated with other options based on existing capacities, resources and potential benefits of each arrangement.

Second, an **emphasis on ex-ante** instruments is crucial. Historically, the response to natural disasters has been an ex-post one, focusing on emergency and relief. Despite efforts to design and plan, little has been done to address risk mitigation or risk prevention aspects of natural disasters. While this may be understandable when one considers a country's limited resources, capacities and other development short term priorities, the long terms costs (and forgone benefits) from an emphasis on ex-ante instruments are large. For example, a recent study estimates that \$1 in pre-disaster risk management activities can prevent \$ 7 disaster losses (USGS).³ Even if such estimates are crude, the fact remains that all natural hazards are known unknowns (we know their probability of occurring). As such, emphasis on ex-ante, counter-cyclical planning is feasible, and Social Protection can offer some options.

Finally, an effective natural disasters system requires some pre-requisites. For example, such a **system** needs to be **in place** prior to the disaster occurring. Existing programs need to have **flexibility** to adjust and scale up easily so that they can respond in a timely manner. Similarly, **capacity** aspects and **coordination** efforts among

³ Still, in assessing the magnitude and importance of such savings, one also needs to contextualize and evaluate them jointly with other aspects like the low probability associated with natural disasters.

government, non-government, private sector and other actors will greatly affect the effectiveness of the system. These are all important issues and need to be carefully considered.

With these ideas in mind, the paper turns to the following question: what can Social Protection do for natural disaster management?

Information systems and analytical inputs

Good **analytical work** is essential in designing a natural disaster strategy. Social Protection operationalizes the SRM framework through various analytical instruments such as Risk and Vulnerability Assessments, integrating risk analysis in Poverty Assessments or as stand alone analytical pieces (for examples see Subbarao and Christiaensen, 2004, World Bank, 2005b and World Bank, 2005a respectively). Such tools are useful as they can provide support to understand a country's specific vulnerability to a natural disaster, identify gaps in policy instruments, identify possible instruments for interventions, evaluate direct and indirect costs and provide inputs for policy design.

Similarly, **information systems** can play a huge role in the effectiveness of natural disasters management strategies. For example, early warning systems can help to monitor natural hazards, plan response activities, identify affected populations and their needs, assess the flexibility of existing instruments or the functioning of markets or facilitate targeting of beneficiaries. Social Protection can complement and support these efforts via a variety of ways such as the collection of on natural disasters data via new risk modules that have been developed and are widely integrated in household surveys.⁴ Similarly, recent advances in poverty mapping techniques have improved the estimate of vulnerable populations such as orphans or people with disabilities, providing a more accurate input for planning (for example Hoogeveen, 2005, applies

⁴ Recent examples of such modules can be found in household surveys in Guatemala, Afghanistan and Kenya.

poverty mapping techniques to estimate disaggregated populations of people with disabilities in Uganda).

Social Protection instruments in practice: a brief overview

Cash transfers programs provide direct assistance in the form of cash to the poor. They can be unconditional or conditional. While unconditional cash transfers impose no restrictions on the use or requirements to receive them, conditional cash transfers are contingent upon certain behavior, usually related to investments in human capital such as sending children to school or bringing them to health centers on a regular basis. In this sense, they seek to address both short-term structural poverty objectives via the income support but also break intergenerational transmission of poverty through long-term accumulation of human capital.

In the context of natural disasters, recent experiences indicate that cash transfer programs can play a useful role (Box 2). First, cash transfers can provide households with the highest flexibility in terms of how to use them, which is particularly important during a natural disaster. Similarly (especially in the case of conditional cash transfers) they can deter the use of harmful coping strategies that often occurs after shocks like natural disasters, for example increases in child labor incidences, or reductions in food consumption (de Janvry et al., 2006). Moreover, once the administrative infrastructure is in place, the cost of operating cash transfer programs is often far less than the cost of providing assistance in kind. These lower costs and inherent flexibility that can be given to cash transfer programs to scale up during emergencies are attributes that make them important instruments for natural disaster management.

Box 2. Cash transfers and Natural Disasters

Sri Lanka – Tsunami. A cash grant program for tsunami-affected families was initiated by the government and supported by the livelihood component of the Bank’s assistance program. First, families affected by the disaster were identified by local official (*Grama Niladhari*, the administrator of the lowest administrative unit of about 5 villages), who sent the list of families up to the Divisional Secretaries (DS). The aggregated lists at the DS divisional level were then sent to the commercial bank branches in affected areas that created accounts in the names of these families. Finally, the funds from the Treasury were transferred to the relevant banks who in turn credited the accounts created in the names of the beneficiaries. The cash transfers given were for US\$50 per family (4 installments were given, with the first occurring 3 months after the tsunami). These transfers supplemented three other assistance programs including a one-time payment to families who have suffered deaths, a dry-ration program and a housing grant intended for families who suffered full or partial destruction of housing.

Nicaragua – Drought. Since 2000, Nicaragua has been implementing a program of cash transfers for poor families, the Red de Protección Social (RPS). The transfers are conditional on children’s school attendance and visits to health service providers. Recent qualitative and quantitative evaluations have shown a large positive impact of the program on human capital investment (food consumption/nutrition, education and health). Building on this positive experience, the Government of Nicaragua with the support of the World Bank is designing a pilot that aims at targeting cash transfers to families that are vulnerable to exogenous aggregate shocks (such as droughts). There are two program objectives: (i) enhance households’ capacity for income diversification and reduce poverty by strengthening households’ ex-ante risk management strategies that aim at improving human and physical capital accumulation, thus reducing short and long-run vulnerabilities to shocks (e.g. exposure to drought); and (ii) reduce the impact of aggregate shocks on human and physical capital investments by decreasing the need for ex-post, adverse coping mechanisms (children dropping out of school, nutrition deficiencies in early childhood) through cash transfers. As such, the pilot aims at reducing both short-term and long-term adverse impacts on human capital, preventing poverty traps and breaking the intergenerational transmission of poverty. The program will focus on 6 municipalities in a region frequently affected by droughts.

Public works programs play an important counter-cyclical instrument in a country’s programmatic portfolio. They have been indeed widely used to counter natural disaster and other shocks. Public works programs typically provide unskilled manual workers with short-term employment on projects such as road construction and maintenance, irrigation infrastructure, reforestation, and soil conservation. This type of program has been used in many countries.

After natural disasters, public works programs can provide a number of benefits. First, they direct income transfers to affected households which can allow households meet consumption shortfalls and other immediate needs. The labor intensive nature of workfare programs also provides employment relief that can be used to create and

restore infrastructure in the affected areas hit by a natural disaster (like clean up, restoration of roads, housing). In addition, their relatively administrative simplicity makes them easy to be adapted in various other existing delivery mechanisms such as being implemented under social fund arrangements. That implies that resources can be quickly mobilized and the benefits too.

Social funds allow poor people to become actively involved in the development of their communities by supporting small projects ranging from infrastructure and social services to training and micro-enterprise development identified by the communities. They are typically managed by a wide range of actors, including local governments, NGOs, line ministries, community groups and local project committees.

Social funds have demonstrated to be amongst the most flexible and innovative instruments in times of emergency (Independent Evaluation Unit, 2006). A number of social funds' attributes are especially beneficial in the management of natural disasters (Box 3). First, their ability to respond rapidly in the aftermath of natural disaster is in part due to simplified procedures, good management and operational autonomy, and the approach itself which takes advantage of a wide range of available implementation capacity. In addition, having a social fund in place and on location in affected areas, social fund teams can act immediately in concert with municipal governments and other agencies to prioritize and implement projects where they were most needed. The existing established relationships with communities and local leaders guarantee community participation at all stages of the project cycle and facilitates effective targeting and recovery. Finally, social funds can also be used as a channeling device to direct relief from donors. This can be especially crucial as the first hours or days of a natural disaster are often the most crucial in terms of minimizing additional loss of life.

Similarly, in terms of their mid-term impact, social funds can also facilitate the recovery and rehabilitation process. For example, they can be used for the

reconstruction of basic infrastructure such as sanitation, education, and health facilities. Since many of the social funds projects are labor intensive by nature, they can also benefit communities by creating temporary jobs (i.e. acting as a workfare program) at critical times when normal sources of income and employment had been badly disrupted. At the same time, choices made following a disaster will have long term impact. As such, the presence of social funds influence and inform decisions regarding longer term developmental objectives (e.g, beneficiary ownership and accountability for maintenance).

Box 3. Recent experiences from Social Funds and Natural Disasters

Pakistan – Earthquake. In the aftermath of the October 2005 earthquake, the Second Pakistan Poverty Alleviation Fund (PPAF II) has been quick to respond to the regional tragedy. A Disaster Relief Centre was setup and started functioning by the second day of the crisis. To finance this work, the World Bank agreed to reallocate US \$5 million of existing PPAF II project funds to relief activities, and by the first week of operations, the Centre had sent 30 truckloads of relief goods to affected areas through its Partner Organizations (POs). In this initial period, PPAF has also been instrumental in facilitating linkages between POs and those wanting to contribute to the relief effort and other agencies. An Earthquake Relief, Rehabilitation and Reconstruction (E3RP) component of US\$100 has been subsequently added so that PPAF can significantly expand its operations in the areas North West Frontier Province and Azad Jammu Kashmir areas affected by the earthquake. This expansion will be consistent with the main PPAF project objectives of participatory development and social mobilization of communities. However the expected development outcome will be more focused on rebuilding infrastructure such as houses, community buildings, link roads, water and sanitation services, training, social protection and livelihoods restoration for earthquake affected communities.

Madagascar – Cyclone. Two components were subsequently added to the existing Community Development Project (FID IV) & Supplemental Credit. First, a social protection component focused on public works targeted urban communities and was used as a risk mitigation mechanism during the 2004 cyclones. In addition, an Emergency and Disaster relief component was added as part of the supplemental credit. The social fund simplified its procedures reflected in waiving the contribution of beneficiaries for the hardly hit communes and lowering the contribution in other communes. Procurement rules were modified: (i) shorter deadlines for bid invitations, (ii) SME chosen on smaller bid invitation basis, and (iii) it was made possible to use sole source procedures for partners already active in the cyclone-affected areas. Similarly, contracting out to experienced NGOs was permitted under certain conditions, and higher initial advances were granted (50% instead of 10%) to construction work contractors given the harsher conditions for access and transportation. Emergency activities were fully contracted out to UNICEF through an MOU for an amount of \$2.5 million. Contracting out/procurement for reconstruction and rehabilitation of damaged infrastructure was mostly done by the social fund. Finally, technical audits were carried out while implementation was taking place so as to allow the re-orientation of procedures as needed.

Honduras – Hurricane. The Honduras Social Investment Fund (FHIS) played a pivotal role responding to requests from local and central levels to help rebuild the country’s critical local infrastructure after hurricane Mitch in 1998. With the operational flexibility afforded by its legal framework and relatively lean structure, the fund was able to respond to the crisis immediately. It established 11 temporary regional offices, and delegated responsibilities and resources to senior staff appointed as regional directors. Its technical experts reached northern Honduras within hours to assess damage from mudslides that buried extensive areas. Regional offices worked closely with community members and municipal representatives to assess immediate needs to clean up mud and debris, and repair or replace water and sanitation systems, access roads, bridges, health centers, and schools. Recognizing the need for quick action, FHIS simplified its subproject cycle, reducing the required number of steps from 50 to 8, and it increased its use of standardized subprojects and simplified procurement methods. It also established safeguards in each of the regional offices to ensure accountability and transparency. Taking advantage of recently approved, more flexible disbursement procedures, IDA streamlined its disbursements to FHIS, thereby providing the fund with the liquidity it needed to respond to the most urgent local needs. For the first three months after the hurricane hit, IDA credit resources were the only significant funds available, and the agency disbursed 95 percent of its previously approved credit within 12 months.

A number of additional social protection instruments can also be used to address natural disasters. For example, **service fee waivers**, which allow poor household access a variety of health, sanitation and education services can be used to reduce the costs of health care and education for affected areas. They can be easy to implement and scale up due to the geographical concentration of the disaster permitting rapid response. Of course, this depends on the capacity of the government and local agencies to provide services and to this extent, local authorities’ participation is important.

Microfinance schemes can also help ex-ante income diversification which can mitigate against widespread natural disasters. For example, the 1988 and 1998 floods in Bangladesh affected primarily peak season economic activities. By allowing households to diversify income earning activities across seasons via microfinance programs, the impact of peak season disasters was reduced (Pitt, 2000). Microfinance instruments can also promote participation in civic and political organizations to invest in preventive measures such as drainage, emergency warning systems, food storage.

Finally, **food transfer** related programs can also address natural disasters. They can take a variety of delivery forms such as direct food relief, food vouchers or food for

work (for example see Del Ninno and Dorosh, 2003). The latter can also extract additional benefits from the combined creation of both temporary employment and infrastructure.

Disability and Natural Disasters

Vulnerable groups like people with disabilities require particular attention in the context of natural disasters. Indeed, disability issues are often overlooked during planning for natural disasters. Nonetheless, natural disasters typically cause an increase of acquired disabilities, which can overtax the country's health and social assistance systems. In addition, assisting people with disabilities at the aftermath of natural disasters may require additional efforts and complications.

In designing natural disaster management strategies a number of areas can be considered with respect to disability. For example, any new construction to replace buildings and infrastructure needs to take advantage of the opportunity to introduce cost-effective, accessible designs --- both for the new contingent of disabled persons, and those who were previously disabled. The tsunami and the earthquake in Pakistan and India brought forth a huge unmet need for physical reconstruction, and a corresponding concern that any new construction be accessible, especially considering the number of disabilities acquired from these disasters. Such improvements of physical accessibility have also been shown to be cost-effective. For example, estimates made for the US and Scandinavian countries found that putting accessibility in at the design stage added less than 1 percent to the cost of new construction (Schroeder and Steinfeld, 1979, Ratzka, 1984 and Cholet, 1979).

Similarly, in the aftermath of natural disasters re-designing a country's health infrastructure it is essential to ensure that rehabilitation becomes part of the health care system with extension into the social system. Facilities need to be made available in close proximity to the hospital for physical and mental rehabilitation. Training that

incorporates aspects of wheel chairs use or prosthetics, emergency care and acute physical or mental medical rehabilitation are key elements of successfully integrating people with disabilities in the society.

Based on the above, integrating disability in the planning phase can improve and enhance the response to natural disasters.

Box 4. Disability and Natural Disasters

One of the few operations that explicitly consider the needs of disabled people after a natural disaster was the Turkey Emergency Earthquake Recovery Loan (EERL), which financed cash transfers to earthquake victims. The EERL consisted of three parts: cash transfers to earthquake victims who suffered property damage; cash transfers to survivors and newly disabled persons who were not covered by social security; and cash transfers to survivors and disabled persons covered by social security. The philosophy of the EERL was that earthquake victims would need temporary assistance to cope with the aftermath of the earthquake, and further, that families who lost their bread-winner to death or who had a disabled member would be further stressed and in need of additional assistance. In 2002, the government estimated that 12.29 percent of the population had a disability, but of course, not all these were caused by the earthquake. Two audits and a beneficiary assessment verified that EERL benefits reached their target population.

Conclusions and Future Directions

Natural disasters have a huge impact on social and economic welfare. Policies to manage them need to be integrated and well grounded to the specificities of natural hazards as well as local capacities in terms of fiscal, administrative and economic capabilities. In addition, monitoring and response mechanisms need to be in place beforehand, while potential instruments should have the ability to respond in a timely and flexibly manner by allowing them to be scaled up as needed. As such, a well designed natural disasters management strategy is based on carefully assessing and planning before, during and after the disaster occurs. In this context, the note offers a brief overview of how the Social Risk Management framework and Social Protection instruments can provide insights and complement the formation of effective strategies for natural disaster management.

In moving forward, additional work is underway at the Work Bank to explore and streamline these issues as well as to provide operational know-how on different aspects of Social Protection interventions pertinent to natural disasters. For example, new ongoing **research** is dealing with many existing knowledge gaps, such as designing better techniques and data requirements to measure the impact and cost of natural disasters or providing guidelines and analytical tools to allow agencies better plan limited resources for natural disaster management between risk prevention, mitigation and coping instruments. Analytical work is also underway to explore the differences in impact and policy response between various types of natural disasters but also within a general context of other, non-natural hazard related risks.

Similarly, ongoing initiatives with close collaboration and coordination with regional teams aim to mainstream existing knowledge and lessons learned from **operational work** in a systematic way. For example, work is currently underway to provide specific operational guidelines for inclusion of vulnerable group in natural disasters interventions. Such and other insights will help strengthen regional responses and allow agencies and projects teams to better form a more concise natural disasters strategy which allows innovative adaptation and utilization of Social Protection instruments (for example, combining social funds with cash transfers).

Finally, the cross-thematic aspects of natural disaster management also imply that in exploring the complementary role of Social Protection, efforts to harmonize **processes** and **roles** with the multiple actors are needed both internal and external. Current efforts include the Social Protection's sector participation with the Natural Disasters Management Steering Committee (led by the World Bank's Hazard Risk Management unit) and ongoing inter-agency dialogue on issues of natural disasters and disability.

New knowledge that arises from all these activities will greatly contribute towards the effectiveness of the natural disasters management agenda.

References

- Albala-Bertrand J.M. 2004, "Natural Disasters and Growth: A Macroeconomic Model for Sudden Disaster Impacts" H. Kunreuther & A. Rose (eds) *The Economics of Natural Hazards*.
- APEC, 2001. "Social Safety Nets Response to Crisis: Lessons and Guidelines from Asia and Latin America", APEC Working Group, mimeo.
- Auffret, Philippe, 2003. "High Consumption Volatility: The Impact of Natural Disasters?" Policy Research Working Paper No. 2962. World Bank. Washington, DC.
- Benson, Charlotte, 1997. "The Cost of Disasters. Development at Risk? Natural Disasters and the Third World." ed. John Twigg, Oxford: The UK National Co-ordination Committee for the International Decade for Natural Disaster Reduction.
- Baldacci, Emanuele, 2005: "Covariate Shocks and Social Protection Response in Latin America and the Caribbean: Lessons Learned and Knowledge Gaps." The World Bank. Mimeo.
- Charvériat, Céline, 2000. "Natural Disasters in Latin America and the Caribbean: An Overview of Risk." Working Paper #434. Inter-American Development Bank.
- Chollet Deborah J., 1979. A cost-benefit Analysis of accessibility. U.S. Department of Housing and Urban Development, Washington.
- Debarati Guha-Sapir, David Hargitt, and Philippe Hoyois, 2004. "Thirty Years of Natural Disasters 1974-2003: The Numbers." Brussels: Center for Research on the Epidemiology of Disasters [CRED].
- De Janvry Alain, Frederico Finan, Elisabeth Sadoulet, and Renos Vakis, 2005. "Can Conditional Cash Transfers Serve as Safety Nets in Keeping Children at School and from Working when Exposed to Shocks?" forthcoming in *Journal of Development Economics*.
- Dercon, Stefan, 2004. "Growth and shocks: evidence from rural Ethiopia," *Journal of Development Economics*, Elsevier, vol. 74(2), pages 309-329.

Del Ninno, C. and P. A. Dorosh, 2003. "Impacts of in-kind transfers on household food consumption: Evidence from targeted food programmes in Bangladesh." *Journal of Development Studies* 40 (1): 48-78.

Dorosh, P. A., Carlo del Ninno and Quazi Shahabuddin (eds), 2004. "The 1998 Floods and Beyond: Towards Comprehensive Food Security in Bangladesh." The University Press Limited.

Datt, G. and H. Hoogeveen, 2003. "El Niño or El Peso? Crisis, Poverty and Income Distribution in the Philippines." *World Development* Vol. 31, No. 7, pp. 1103 – 1124.

Fay, Mariane, Francis Ghesquiere and Tova Solo, 2003. "Natural Disasters and the Urban Poor". En Breve # 32. The World Bank.

Harvey, Paul, 2005. "Cash and vouchers in emergencies". Discussion Paper. Humanitarian Policy Group, ODI.

Holzmann, Robert, 2001. "Risk and Vulnerability: The Forward Looking Role of Social Protection in a Globalizing World". Social Protection Discussion Paper No. 0109. The World Bank.

Holzmann, Robert and Steen Jorgensen, 2000. "Social Risk Management: A New Conceptual Framework for Social Protection, and Beyond". Social Protection Discussion Paper No. 0006. The World Bank.

Hoogeveen, Johannes., Emil Tesliuc, Renos Vakis and Stefan Dercon, 2004. "A Guide to the Analysis of Risk, Vulnerability and Vulnerable Groups". Social Protection Unit, Human Development Network. The World Bank. Washington, DC.

Hoogeveen, Johannes, 2005. "Measuring Welfare for Small but Vulnerable Groups Poverty and Disability in Uganda." Social Protection Discussion Paper No. 0109. The World Bank.

Hazard Risk Management, The World Bank.

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/EXTDISMGMT/0,,menuPK:341021~pagePK:149018~piPK:149093~theSitePK:341015,00.html>

International Monetary Fund, 2003. "Finance and Development." Washington, D.C.

Independent Evaluations Unit, 2006. "Hazards of Nature, Risks to Development," Washington, D.C.: Independent Evaluations Unit, World Bank.

Pitt, M., 2000. "The Relevance of Microfinance for Disaster Mitigation," Brown University, mimeo.

ProVention Consortium. <http://www.proventionconsortium.org/toolkit.htm>

Schroeder Steven and Edward Steinfeld, 1979. The estimated cost of accessible buildings. U.S. Department of Housing and Urban Development, Washington.

Ratzka Adolf 1984. The cost of disabling environments. Swedish Council for Building Research D9:1984, Stockholm.

Subbarao, Kalandhi, 2003. "Systemic Shocks and Social Protection: Role and Effectiveness of Public Works Programs", Social Protection Discussion Paper Series, No.0302.

Subbarao, Kalandhi & Christiaensen, Luc. J., 2004. "Toward an understanding of household vulnerability in rural Kenya," Policy Research Working Paper Series 3326, The World Bank.

Vakis Renos, Diana Kruger and Andrew D. Mason, 2004. Shocks and Coffee: Lessons from Nicaragua Social Protection Discussion Paper No. 0415, World Bank.

Warren, David, 2003. "Coping with a Natural Disaster: Hurricane Mitch and the Honduran Social Investment Fund" in Spectrum, Social Protection, World Bank.

World Bank, 2000, "Social Protection Sector Strategy: From Social Safety Net to Springboard," Social Protection, World Bank, Washington DC.

World Bank, 2002. "Managing Economic Crises and Natural Disasters", chapter 9 in World Development Report 2000/2001, Washington, D.C.

World Bank, 2005a. "Shocks and Social Protection: Lessons from the Central American Coffee Crisis". World Bank. Washington, DC.

World Bank, 2005b "Zambia Poverty and Vulnerability Assessment." World Bank, Washington DC.



Summary Findings

Natural disasters have a huge impact on social and economic welfare. Policies to manage them need to be integrated and well grounded to the specificities of natural hazards as well as local capacities in terms of fiscal, administrative and economic capabilities. A well designed natural disasters management strategy crucially depends on carefully assessing and planning responses before, during and after the disaster occurs. This policy note discusses the complementary role that Social Protection can play in the formation of an effective strategy for natural disasters management.

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