

Learning from recovery after Hurricane Mitch

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This paper reviews how Nicaragua has recovered from Hurricane Mitch of October 1998. In particular, it examines how the assumptions and claims that were made during initial recovery planning have proven relevant in light of subsequent development.² One must consider the response to Hurricane Mitch from the perspective of the broader trends that have driven recovery, including household, community and government initiatives and the wider economic context. Recovery efforts have not 'transformed' Nicaragua. In fact, market upheavals and livelihood changes in rural areas have had a more profound impact on poverty profiles than recovery programmes. Social protection programmes have been piloted, but patron–client ties and relations with aid providers are still more reliable sources of support in a time of crisis. Risk reduction has become more deeply integrated into the rural development discourse than was the case before the disaster, but risk reduction initiatives continue to place undue emphasis on hazard response rather than addressing vulnerability.

Keywords: disaster recovery, disaster risk reduction, Hurricane Mitch, linking relief, rehabilitation and development (LRRD)

Introduction

Hurricane Mitch of October 1998 is the most damaging meteorological event to occur in the Central American region in the past century. The hurricane claimed an estimated 9,000 lives and affected an estimated 11 per cent of the population of Central America. Nearly 500,000 people were displaced (Mansilla, 2008). Damage is estimated at USD 6 billion, affecting poor semi-subsistence rural farmers, commercial agriculture, urban dwellers and basic infrastructure. The aid response was also unprecedented, with more than USD 9 billion pledged for relief and recovery (Mansilla, 2008).

In the specific case of Nicaragua, there were an estimated 3,000 deaths, 1,000 missing persons and 870,000 injured persons. Losses also included damage to 50,000 homes, as well as to 340 schools, 90 health centres, 40 health posts and six hospitals (ECLAC, 1999). Fifty-nine per cent of Nicaragua's municipalities were affected (Mansilla, 2008). The flow of aid to Nicaragua was also significant, with more than USD 2 billion provided between 1998 and 2001 (Mansilla, 2008).

Following the 1972 earthquake that devastated Managua, then Nicaraguan President Anastasio Somoza Debayle referred to the reconstruction effort as a 'revolution

of opportunities'. However, aside from opportunities for corruption, which absorbed the majority of resources after the earthquake, these opportunities were missed. After Hurricane Mitch, Central American countries and the international community agreed to act on an assumption that the recovery effort was an opportunity for 'transformation'. Mitch created pressures to accelerate debt reduction to provide additional resources for recovery. Much of the infrastructure destroyed by the hurricane has indeed been 'built back better', but little effort has been made to assess who has benefited from these improvements over time. Major transformations have been under way for the past 10 years or so, but their nature has rarely been evaluated with reference to original recovery objectives, emerging needs and changing priorities.

This research is based on a literature review, interviews with stakeholders at the national level and field studies in three municipalities that were heavily affected by Hurricane Mitch: Dipilto, San Francisco Libre and Terrabona. The methodology is based on a territorial approach that centres on these three areas of Nicaragua, which were not only heavily affected by Mitch, but which also experience a very high frequency of drought (including the 1997–98 El Niño drought that immediately preceded Hurricane Mitch) and which represent different political and economic settings. Interviews primarily focused on the constellations of key stakeholders and chosen sample communities in each of these three areas. This territorial approach highlights how public, private and civil society actors, as well as the rural population, have interacted over the past decade in the reconstruction process. While not aiming to provide a full representative sample, the field sites were chosen to illustrate three very different trajectories of change. The spotlight is on Nicaragua, as opposed to the region, due to significant differences in the socio-political context in the Mitch-affected countries, which would have rendered comparisons among the specific communities studied largely irrelevant.

This paper presents the findings of a review of how Nicaragua has recovered from Hurricane Mitch over the past ten years, concentrating on how assumptions and claims made during initial recovery planning have proven relevant in light of subsequent development. The study considers the aid response from the perspective of the broader trends that have driven recovery, including household, community and government initiatives and the wider economic and market-related context. This methodological focus was selected in order to reflect critically on goals for linking relief, rehabilitation and development (LRRD) by illustrating the different intentions and perceptions of 'development' that the relief, risk reduction and rehabilitation efforts were actually intended to be linked to. The objective was thus to unpack the normative LRRD discourse by highlighting the diverse and often inharmonious normative aims governing realisation of recovery efforts. The research does not seek to follow direct causal relationships among the outputs and outcomes of aid interventions and ultimate recovery impacts, but instead concentrates on analysis of the relevance of aid efforts within recovery processes more generally. An underlying hypothesis is that these local and national development trajectories are currently given insufficient attention in recovery planning. This paper examines three aspects of recovery:

- the role of state and civil society in humanitarian action and recovery;
- the relationships among poverty, sustainability and recovery processes; and
- risk reduction and the changing nature of vulnerability.

The conclusion provides an overview of the main post-Mitch institutional changes that have taken place in Nicaragua and assesses the extent to which one can attribute them to the Mitch response.

The return of the state and civil society

To contextualise the developmental aspects of recovery after Hurricane Mitch it is essential to recall that the initial massive aid response was a humanitarian operation with many of the characteristics and deficiencies inherent in such a form of action. The 'relief phase' was dominated by huge donations, which in many respects required bypass structures to move aid fast. These continued until larger recovery efforts began one to two years after the hurricane. In this initial period, the Nicaraguan state and civil society were often ignored and sometimes treated as an obstacle to the international relief operation.

Nicaragua was then still classified as a 'post-conflict' country. Some peacebuilding programmes were still being implemented in the north of the country, and high levels of discontent existed among resettled former combatants. Due to recent experience of conflict, the international humanitarian community was especially cautious about working closely with national institutions, particularly given their perceived failures to maintain humanitarian principles during the chronic political emergencies in the Great Lakes Region and the Balkans a few years before. Hurricane Mitch was a natural phenomenon, but there was uncertainty and unease about whether the disaster it caused was to be treated as 'natural' or 'man-made', or as some kind of unpleasant hybrid, which some humanitarian agencies used to justify failure to engage effectively with the state (Christoplos, 2000).

Speed was the first priority in the early recovery phase after Mitch. The need to disburse outweighed the need to reflect on disaster risks, sustainable development or functional communities. In an attempt to manage these pipeline pressures, the countries in the region and major donors agreed to put recovery in a long-term context. This agreement resulted in the 'Stockholm Declaration' of May 1999, which outlined principles for this process and was in many respects one of the first international commitments associating good donorship with a patient perspective on how to link relief, rehabilitation and development. The Stockholm Declaration called on Central American countries and the international community to work together to:

- reduce the social and ecological vulnerability of the region (the overriding goal);
- apply transparency and good governance in recovery efforts;
- work to consolidate democracy and good governance and reinforce governmental decentralisation with the active participation of civil society;

- promote respect for human rights and equality between women and men;
- accord special attention to the rights of children, of ethnic groups and other minorities;
- coordinate donor efforts based on priorities set by the recipient countries; and
- intensify efforts to reduce the external debt burden of the countries of the region.

A major intention of the Stockholm Declaration was to avoid the risk of the large international response undermining the capacities and legitimacy of the states of the region.

However, this was easier said than done. Disbursement pressures emerged from two areas: agencies, which were eager to demonstrate action on the ground; and civil society advocates, who were quick to attack donors for ‘broken promises’ when pledges failed to be linked to disbursement. The Stockholm Declaration was nonetheless a groundbreaking approach to LRRD as it lifted the process above relatively technical concerns about who should do what and when, to acknowledge instead that LRRD is a political process requiring political leadership, direction, integrity and open dialogue.

As with most efforts to promote LRRD, the primary goal with regard to ‘linking’ in the early years after Mitch was to achieve enhanced coordination in two respects: *among* aid agencies; and *between* the international community and Nicaraguan actors. Over time, the ways in which the Mitch response has merged with the longer-term development trajectories have meant moving beyond mere ‘aid coordination’ to becoming instead an aspect of the process of harmonisation among donor interventions and alignment with national policies that are currently recognised as being the basis for promoting aid effectiveness. Today, the Stockholm Declaration has been all but forgotten, but the findings of this research suggest that it was the start of a process that has profoundly influenced relations among the Nicaraguan state, civil society and the international community over the past decade.

Poverty, sustainable development and economic recovery

The interplay of forces that have steered development perspectives in the recovery process can be seen in the changing approaches to rural poverty, sustainable development and economic recovery. In early 1998, before Hurricane Mitch, the Ministry of Agriculture and Forestry (MAGFOR) developed a ‘Road Map for Modernizing Rural Nicaragua’ as part of the national strategy for development, which charted a largely technocratic and neoliberal path to agriculture-led economic growth and poverty alleviation. At the time, donors viewed this road map as an innovative vision for restructuring the agricultural sector to reflect prevailing realities and governmental capacities. In the document, little mention was made of the need to target support at the poor and there was virtually no mention of the environment. Market forces were expected to address these issues. In the years following Mitch, these policies changed. Even though it is impossible to verify fully how much the disaster influenced

policy, it is clear that the hurricane stimulated a rethink. The changes that occurred in the 'road map' and associated policies and the (lack of) alignment between rural recovery programming and these policies illustrate how a disaster, such as Mitch, can inform policy and the extent to which pre-existing policies affect post-disaster perceptions of how poverty should be alleviated.

Initial priorities for post-Mitch rehabilitation remained technocratic, that is, focused on the provision of inputs, capital and rehabilitation of rural roads, primarily for the coffee sector (Secretaría de Cooperación Externa, 1999). There was little explicit mention of the 'road map' as providing a blueprint for post-Mitch programming since the disaster response was seen as requiring a rapid recapitalisation effort followed by a return to 'business as usual'. Little in that initial plan was implemented in the end, but it did contribute to ensuring that rural development was seen as part of the overall recovery process.

By the following year, Mitch had led to greater reflection on the part of MAGFOR and at least partial recognition that many large 'potholes' plagued the road to recovery and rural development—that is, market failures that would not be tackled by a sole focus on further liberalisation (Government of Nicaragua, 1999). The environment was back on the agenda, primarily a newfound emphasis on tree planting and the use of perennial crops on sloping land (coinciding with MAGFOR receiving an expanded mandate in 1998 for responsibility for forestry). This period also saw the start of an analysis of the links between vulnerability, now acknowledged as being related in part to unequal distribution of income, and disaster risk. In addition, MAGFOR admitted that Nicaragua's safety net was 'tattered' and that this required action within the rural development sector and not an approach that viewed it as a separate social welfare issue.

The new approach, though, was presented as a 'sequel' to the road map rather than a change in direction. 'Modernisation' was still promoted as the overall direction and poverty was described as a symptom of the incomplete modernisation process rather than as a result of the majority of the rural population being unable to take advantage of the opportunities for modernisation on offer. The ideas presented for repairing the safety net emphasised the reintroduction of subsidised input provision and especially the need for crop insurance and related measures to encourage farmers to take greater production risks, thereby reaping greater benefits and contributing to modern, export-led growth.

MAGFOR's dismissal of the potential of 'archaic' methods used by farmers to reduce risk was in sharp contrast to the ideas that civil society was putting forth. Both the government and civil society were now in favour of programmes to promote tree planting and perennial crops, but there were significant differences in the details. Civil society saw these approaches as a way to make traditional diversified farming systems more sustainable and thereby stabilise peasant farming. It had its own vision of 'modernisation'.

Civil society organisations, both in Nicaragua and internationally, explicitly associate poverty with the impact of disasters and urge the use of agro-ecological approaches

to reduce risk (see, for example, Baumeister, 2004). Given the level of polemics that emerged from civil society organisations about the need for a shift to agro-ecological methods after Mitch, it is surprising how seldom this observation was carried through and identified as a major priority, either for action or longitudinal empirical reflection. There have been some instances of greater use of watershed planning, but not on the transformative scale envisaged after Mitch. Even the most enthusiastic supporters of these methods acknowledge that their diffusion since the hurricane has been very poor and that their research into the benefits of agro-ecological approaches in preventing erosion after Mitch had little impact on government policies (Holt-Giménez, 2002). Holt-Giménez refers to a 'policy ceiling' preventing lessons regarding sustainable agricultural practices from being adopted on a wider scale. 'Probably less than half a percent of Central America's some four million *campesinos* [peasants] practise what would be considered "sustainable" agriculture' (Holt-Giménez, 2002, p. 3).

A number of small projects promoting these measures preceded and followed Mitch, but their impact on both poverty and the environment has been limited. Our research found significant adoption of new, more sustainable methods—although perhaps not the full 'package' promoted by non-governmental organisations (NGOs)—among coffee producers in Dipilto, but the very high and continuous level of aid inputs there makes this an 'exception that proves the rule'. There were few signs of sustainability in attention to such measures in San Francisco Libre and Terrabona. Even in Dipilto, the impact on the livelihoods of the poor has been negligible because the poor lack land on which to apply these methods.

After a major disaster, grand statements are often made in the media and there is political debate about how both the disaster and the recovery operation are expected to affect long-term poverty trends. The transient poverty created by the disaster is assumed to initiate vicious cycles that will trap a significant proportion of the population in chronic poverty. Recovery investments are seen as a way of preventing this from occurring and even as a tool to reverse ('transform') the pre-existing social, political and economic mechanisms that reproduce chronic poverty. Some macro-level observers conclude, however, that Hurricane Mitch did not have a significant bearing on the overall poverty profile in Nicaragua (see, for instance, Danida, 2002). For the affected population, livelihood opportunities were temporarily lost, such as wage employment in horticultural production and food production on sloping lands degraded by the hurricane. Other opportunities arose through investments in construction, rebuilding of infrastructure for commercial agriculture and a range of food distribution and food-for-work schemes. However, these were only temporary (CCER, 2000). In the three municipalities reviewed there was no significant reduction in poverty in either the 'model' municipality of Dipilto with very high transfers over time, or the two municipalities that were largely forgotten in terms of development investments after the initial recovery period.

These findings mirror other studies of the impact of disasters and recovery on poverty and economic growth. Recent reviews of the response to the India Ocean

tsunami of December 2004 suggest that the disaster and recovery efforts caused more of a 'ripple' than a transformation (Brusset et al., 2009; Christoplos, 2006a), which echo earlier research into the links between disasters and long-term development (Clay and Benson, 2005).

'Picking winners' and food security

Despite the aim of achieving 'transformation' through the recovery effort, there is no evidence that the underlying structures of poverty have been 'transformed' over the past decade by the recovery investments alone. Some things have changed. A shift to higher value products (such as specialty coffees) has had a significant impact on those with the land and financial and social capital to benefit from these investments. Food security has become a national concern in recent years as the Sandinista government seeks to demonstrate its commitments to reducing hunger. But these processes have been driven by overall market trends, post-Mitch natural events, climate change fears and changing political regimes. The nature of poverty today is not the same as it was 10 years ago, but there is no data to suggest either blaming or crediting the planners of recovery programmes for most of these changes. One should note that surprisingly few analyses of post-Mitch investments even ask whether these efforts have contributed to a 'transformation'.

Over the past decade, the main strategy pursued in agricultural recovery and development has been to 'pick winners' who could take advantage of the opportunities of economic development. The assumption (usually implicit and rarely analysed) was that these winners would create jobs, investment or other spin-off effects that would address the poverty and inequity created (or intensified) by Mitch in a sustainable manner. The tiny municipality of Dipilto has received large and relatively steady levels of aid since Mitch for developing the coffee industry, and indeed the income of the coffee producers has improved. 'Picking winners' has worked—for the winners at least—but the positive externalities have not been forthcoming. The jobs created were seasonal and have not had a significant impact on those landless and near-landless households that still live in the settlements built for those who lost their homes in the hurricane. Poverty rates have increased slightly among the poorer half of the population in Dipilto and have remained stable in San Francisco Libre and Terrabona, which received less investments in programming to 'pick winners'. Our research found no evidence that investments in 'picking winners' reduced the poverty or the vulnerability of the poor who were affected by Mitch.

Nonetheless, it would be inappropriate to laud those who called for alternatives or accused the aid community of feeding a neoliberal model that would further enhance poverty. There was also considerable investment in agro-environmental measures, with an equally meagre effect on the overall poverty profile of the Mitch-affected areas. It is impossible to assess the counterfactual of what the '10-year-after' situation for the losers would be if the winners had not been supported. A failure to invest in commercialisation might have led to even greater stagnation in the livelihoods of the poor.

The winners of the recovery process have been the organised commercial actors. With the exception of a few programmes, it is the cooperative sector that has been able to benefit best from recovery programming, and even then, only where it has represented its members. This highlights how organisational capacity has been a precondition for benefiting from recovery investments, rather than an outcome of aid inputs. Capacities, especially those related to social capital, are more important than capitalisation. In Dipilto, there were pre-existing entrepreneurial cooperatives that were able to take advantage of recovery investments. By comparison, horticultural programmes with similar aims to 'pick winners' failed in Terrabona, where these capacities did not exist before the hurricane.

Since the Sandinistas returned to power in 2006, there has been a shift of priorities from 'picking winners' to efforts to improve food security through the provision of livestock and other agricultural inputs. Food security programming does not usually 'pick winners', but this research has found that it does not reach the real losers either. These efforts can reach a somewhat poorer section of the population than conventional economic development efforts, but not those who have the least pre-existing access to productive assets. Some of these efforts, such as investments in home gardens, seem to have a sustainable impact, but livestock investments are more problematic as some families in this research report that they lack the income to provide feed for these animals, a finding repeated in agency interviews.

Most notable, those most affected by Hurricane Mitch are in many cases those who draw least benefit from food security programmes. Those who lost their homes have for the most part received houses in relatively cramped settlements without room for gardens or livestock. Indeed, this was one of the greatest complaints of those interviewed. They described the new crowded settlements as 'like living in Managua', and many houses were abandoned where they did not provide sufficient livelihood opportunities. Those who lost the most in Mitch are dependent on more structural solutions to create access to livelihoods. A link between livelihood support and social protection seems in order, but the research uncovered no concerted attempts to develop such livelihood–social protection synergies in the Mitch recovery process.

Social protection and community resilience since Mitch

Recovery can be seen as an arena for the renegotiation of the 'social contract' between the state and citizens in terms of how perceptions of the rights of the population to be protected from suffering caused by disasters have changed over the years. Immediately after Hurricane Mitch, the Liberal Party President of Nicaragua, Arnoldo Alemán, began by playing down the consequences, apparently fearing that an acknowledgement of the extent of the disaster would imply obligations to respond that would exceed the capacity of the state, which at the time was being radically trimmed in accordance with the demands of the Highly Indebted Poor Countries (HIPC) initiative. Once it became apparent that large quantities of aid would arrive, Alemán

reversed his position and began competing with the opposition to be seen as the main source of relief and recovery support, as he tried to demonstrate a commitment to a social contract. In the years that followed, his successors gradually warmed to the idea of including social protection among the responsibilities of the state, but with a marked preference for funding these social protection modalities through aid resources. The recovery effort thus set in motion a rethink of social protection, but with questionable sustainability.

Protection from the impact of disasters must also be considered in the context of rights to protection from the consequences of severe chronic poverty. A major thrust of Nicaragua's poverty reduction strategy has been to create a more 'coherent safety net' to replace the temporary and ad hoc measures that have been employed in the past (Bradshaw and Quiróz Viquez, 2008). Continued chronic food insecurity and malnutrition in a country with seemingly relatively abundant land and natural resources suggests that something is wrong in terms of governance (Sahley et al., 2005). If a 'transformation' of the lives of the chronically poor has not happened, this should at least be attributed in part to a failure of the state to ensure that these resources are used for the benefit of the population.

Although rarely mentioned in the development and recovery discourse of the late 1990s, it is widely assumed today that 'good governance' in dealing with both chronic and transient poverty manifests itself in the quality of social protection institutions (Barrientos and Hulme, 2008). These social protection institutions are assumed to be relevant for determining the context of an effective and reliable disaster response. It is important, therefore, to analyse if and how social protection has figured on the post-Mitch agenda.

Mitch largely predated recent calls for better linking of social protection and disaster response mechanisms, but there were some positive cases of adapting these existing structures to early recovery. Honduras and Nicaragua have been cited as examples of very successful temporary conversion of pre-existing social funds to recovery programmes (World Bank, 2003). Mitch delayed the planned decentralisation of social funds in Nicaragua because priority was given to utilising existing mechanisms as a vehicle for recovery programming (Dijkstra, 2004). These examples show that in terms of flexibility in initial response, a useful and pragmatic link between disaster response and more permanent structures was found.

The positive examples of social protection programming being adapted to Mitch refer to social funds for public works. There is no indication of any efforts to link social transfer programming, in the limited extent to which it exists in Nicaragua, with disaster response. An evaluation of the Nicaraguan Social Protection Network (*Red de Protección Social*, RPS) concluded that the benefits of the programme were very positive, but the role of shocks in creating a demand for these services and the ability of the service to respond to shocks was given scant attention (Maluccio et al., 2005). This is despite the fact that the period under review was 1998–2001 and Mitch heavily affected some of the sites studied. Notwithstanding highly positive assessments of the RPS, political support for the programme was considered to be

‘lukewarm’ while it was operating (Davis, 2003), and it was discontinued when donor funds were exhausted due to a lack of Nicaraguan ownership of what was perceived as a donor initiative (Moore, 2008). Even when it existed, it was far smaller than the World Food Programme’s various forms of support to ‘vulnerable groups’.

Our municipal-level research found that the *de facto* social protection structure that emerged after Mitch is primarily related to the existence of vertical social organisations with access to outside aid to deal with the many small droughts, floods and other hazards facing local communities. Churches, political parties and other organisations are able to call on support from the outside. This provides a modicum of support, but also fragments communities, as people rely on their own patrons and a small circle of neighbours, while they are excluded from assistance that is accessed through rival churches and political organisations. Our findings reveal that, particularly among the populations resettled after Mitch, these vertical structures are perceived as more important than municipal structures.

The complexity of these social networks and the importance of vertical channels to access patronage have meant that the different communities studied display, since Mitch, a complex range of virtuous and vicious cycles of development. Seemingly similar settlements present highly varied capacities to recover, suggesting that one can question the sweeping generalisations often made about the nature of community resilience. Two conclusions can be drawn from this:

- The first is that the existing socioeconomic dynamics within a given community are more important than the models used for designing recovery programming.
- The second is that access to resources for recovery and ongoing externally supported social protection is inevitably fragmented and uneven, as it has more to do with access to patrons than with models of equity.

Reduction of risk

In the wake of disasters there is generally assumed to be a ‘window of opportunity’ to address disaster risk. One should not take such an assumption for granted (Christoplos, 2006b). The early post-Mitch conceptualisation of the ‘window’ for using a disaster event to reduce risk falls into three categories. One stresses primarily the need/potential to promote preparedness for disaster response (Durán Vargas, 1999; INCAE and HIID, 1998). Others emphasise how socio-environmental aspects of recovery may reduce risk (Bradshaw, Zambrada Godoy and Zúniga Hamlin, 2000; Barahona et al., 1999). Still others suggest that economic recovery should be designed to integrate risk reduction (INCAE and HIID, 1998).

Recovery efforts were seen as providing an opportunity to initiate more effective ‘mainstreaming’ of disaster risk reduction concerns in the overall development process, and to increase attention to the environmental impacts of conventional development efforts. Evidence from the municipalities studied and from agency interviews in Managua shows that some advances in mainstreaming have been

achieved, but that this process has not been linear, and the most important steps have incorporated few explicit links to recovery programming, per se. Indeed, interviews suggest that the 'bad conscience' about failures to act on the mainstreaming agenda during earlier post-Mitch recovery has been a significant driving force in later years as disaster risk reduction programming has expanded.

During the first five years after Mitch, there were some clear statements of commitment to risk reduction, such as the 'Strategic Framework for Vulnerability and Disasters Reduction in Central America'. There were also glaring omissions of significant mention of disaster risk in many important reports, especially those addressing poverty. Most major donors made scant allocations to disaster risk reduction in the early years after Mitch (Danida, 2002). Sweden made explicit commitments to risk reduction and included assessment of the overall impact on risk reduction in its evaluation of its activities, but a review acknowledged that '[i]n spite of this . . . activities within these areas have not been a major priority for Swedish development cooperation in Central America – neither before nor after Mitch' (Frühling, 2002, p. 6).

After an initial lull, there was a 'paper hurricane' of disaster risk reduction-related laws, policies and plans (Rocha, 2007). A report five years after Mitch cites improvement in plans and policies, but not much implementation or integration (United Nations Development Programme, 2003). A more recent evaluation of the European Commission's Humanitarian Aid Department Disaster Preparedness Programme (DIPECHO) Action Plans in Central America draws attention to many successful individual initiatives, as well as to a lack of strategic orientation and dangers of 'projection' despite concerted mainstreaming efforts (Lavell, Hidalgo and Zuniga, 2008).

Interviews in Managua and in municipalities revealed strong awareness of the importance of reducing risk (albeit with an undue emphasis on hazards rather than vulnerability) combined with frustration over the lack of progress and the erratic nature of addressing these issues due to project orientation and limited investment of municipal and state resources. It is important to stress, however, that this is a major advance from the time of Mitch, when risk reduction was not on the agenda at all.

Decentralisation has been a central theme in recommendations for risk reduction after Mitch (see, for example, Valdés, Amador and Moreira, 2000). The major area of practical focus regarding decentralised and participatory disaster risk reduction during the past five years has been municipal risk mapping. A large number of maps have been prepared (up to 80, although reports differ regarding the total). These maps primarily concentrate on hazards and are oriented towards land use planning and relief response. Success or failure in creating local ownership and sustainability in disaster risk reduction depends on municipal government deciding that disaster risk reduction involves not only producing 'pretty maps' (Rocha, 2007), but also acting on the information collected in those maps. In the municipalities studied, these maps have had some bearing on disaster preparedness plans and to a lesser extent on some aspects of land use planning, but they were not mentioned as a major influence on municipal priorities and investment plans.

It is also important that these maps accurately reflect the landscape of risk facing the municipalities. DIPECHO programming has been criticised for being unduly focused on floods and landslides and response to sudden onset disasters (Lavell Hidalgo and Zuniga, 2008). Slow onset hazards, such as drought, are less likely to be labelled as 'disasters'. Interviewees expressed concern about the sudden onset hazards focus of these mapping efforts, highlighting their detachment from an understanding of the factors of vulnerability that turn these less visible hazards into risk.

In discussing the sustainability of municipal-level interventions, interviewees related a range of work needed to identify environmental problems and disaster risks. But virtually all of those interviewed reported that very little is being implemented. The few activities that have been implemented are directly funded by outside sources and are recognised as being unsustainable unless local resources are allocated for follow-up, to cover recurrent costs and to move beyond pilots.

The research in Nicaragua sought to comprehend to what extent the climate change discourse had influenced the discussion on disaster risk reduction, and understand how it had affected the recovery process during the 10-year period since Mitch. It was hypothesised that 'risk management' would now be at least partially replaced by 'adaptation to climate change', mostly in response to the changed donor language. The findings indicate that although climate change was mentioned consistently, it was principally in the context of reducing greenhouse gas emissions, rather than adapting to the consequences of climate change. Thus, if climate change has replaced disaster risk reduction in the risk discourse, it has done so only to permit a move away from the concept of reducing risk and vulnerability. Instead, the focus is on the role of activities to reduce greenhouse gas emissions to protect people from droughts and floods, rather than adaptation to climate change. Forestry projects as a way to cash in on the 1997 Kyoto Protocol's Clean Development Mechanism while also protecting areas from soil erosion and flooding are a good example of where these synergies are thought to exist, but it is likely that most projects will not have this dual component.

The confusion surrounding the purpose and use of risk/hazard maps described above is in some ways symbolic of the confusion surrounding the level on which the action needs to take place to reduce vulnerability to hazards, including those additional threats posed by climate change. This illustrates how the disaster management discourse in Nicaragua has yet to acknowledge that many development processes themselves have increased vulnerability to hazards. This also suggests that there are great challenges in ensuring that underlying vulnerability to climate change features more prominently in future thinking about disaster risk.

Interviews in Managua and discussions in the communities indicate that the scope of climate change may not be fully understood. The roles and responsibilities of government and other organisations in shaping policy to respond to climate change, that is, reducing greenhouse gas emissions and designing adaptation measures in response to and in anticipation of climate change, are also unclear. Most likely, the same factors constraining disaster risk reduction will influence the implementation of adaptation to climate change.

Perhaps the ultimate indicator of sustainable commitment and ownership of disaster risk reduction objectives is readiness to cover costs from state resources. The modalities of the 2005 Paris Declaration on Aid Effectiveness imply a reliance on allocations from the treasury rather than donor-financed projects. If the international aid community is really moving in this direction (which is far from certain in Nicaragua), disaster risk reduction will only remain a priority if aid is matched by local and national government resources. The prospects for this are not good. Ninety per cent of funding for the Sistema Nacional para la Prevención, Mitigación y Atención de Desastres (SINAPRED) (National System for Disaster Prevention, Mitigation and Response) comes from donors (Linneker and Rodríguez Badilla, 2007).

Part of the justification for investing in poverty alleviation as an element of disaster recovery is that vulnerability to disasters is related to (some may even claim it is synonymous with) poverty, and that therefore recovery that reduces future disaster risks must emphasise poverty reduction. Interviews confirmed, explicitly or through the conceptual frameworks described, that approaches to recovery and risk reduction have remained primarily oriented towards analysing hazards, and to some extent risk, but that vulnerability analysis is very limited. Attention is given to how to respond to natural hazards, but not the socioeconomic factors that determine who can avoid these risks or respond effectively. It is here that the links between disaster risk reduction efforts and poverty alleviation have failed to materialise in the post-Mitch recovery process. Without an understanding of the multitude of structural and local factors that create vulnerability, there is no conceptual basis for justifying an explicit poverty focus when addressing disaster impacts and risks.

Perhaps the most glaring example of how the lack of vulnerability analysis has led to a failure to address high levels of risk is how rural poverty alleviation efforts have very often been limited to those with sufficient land to utilise effectively the resources provided. There is a form of triage that has left out the landless or has been based on implicit (but largely untested) assumptions that they can and will benefit from labour opportunities on larger farms. A vulnerability analysis could clarify which households can indeed benefit from labour opportunities and seasonal aspects of their vulnerability, perhaps thereby revealing important gaps. Such an analysis, though, has not been conducted.

Conclusion

Early fears that the Mitch response would undermine the leadership of the state and the engagement of civil society were exaggerated. The problems that occurred were instead a reflection of a failure on the part of the international community to understand Nicaraguan organisations and institutional frameworks. For the most part, this was inevitable given the time frames and modalities of humanitarian response.

Despite these deficiencies, institutions have developed. There is now a far better legal and structural environment for dealing with risk and recovery. Human resource investments have resulted in the existence of a large number of staff in government

and civil society who know what should be done before and after a disaster. The primary gap is that the organisations in which these people work lack the financial resources and political incentives to address the segmentation of economic growth, poverty alleviation and environmental protection at the local level. Relief response remains the most politically attractive and financially accessible approach to dealing with disasters, even though legal frameworks and prevailing knowledge would seem to suggest alternative priorities related to risk reduction and indeed changes in prevailing development paradigms.

One area where the repercussions of Hurricane Mitch can still be felt is in the nature of aid relations. The declarations, coordination structures and macro plans of the Mitch era may be long forgotten, but one can observe a process of change starting from that time. Even if attribution of how much the hurricane affected these relations cannot be strictly verified, this study has detected the echoes of a process of change that began back then. It is not possible to prove that the current attention to risk was sparked by Mitch or to state with certainty that the dialogue that started with the Stockholm Declaration has helped to generate approaches to harmonisation and alignment that characterise the current discourse, but it is likely.

One can discern two stages in relations between donors and Nicaraguan actors on recovery-related issues. In hindsight, the Stockholm Declaration cannot be said to have achieved its objectives in a sustainable manner. However, it did ask the right questions and it did create an initial impetus for a number of changes that have borne fruit in different ways. The Stockholm Declaration set the stage for what was for some time a positive process of moving towards aims that would later be codified in the Paris Declaration. It provided an international seal of approval for recognition of civil society as being more than 'implementing partners'. Despite as yet modest outcomes, it did (after some delays) help to put risk reduction on to the agendas of government and civil society. It also helped to ensure that transparency was and is part of Nicaraguan political discourse, despite great challenges in putting this principle into practice. The hurricane and the response have changed the rural landscape in large areas of (primarily) rural Nicaragua. Apart from these new settlement patterns, most of the claims made in 1998 and 1999 about the profound nature of the impact on livelihoods and development have proven false.

So, ultimately, has disaster risk been reduced? Most of those interviewed at the municipal level felt that things were the same or somewhat better. At the national level, there is more pessimism. Despite major gains in terms of policies, awareness, skills, organisational development and legal structures, the impact of small disasters appears to be greater. There are said to be more fatalities (although reliable comparable statistics are not available) and greater flood-related destruction to housing and livelihoods. An institutional framework is now in place, but it remains seriously under-resourced. Furthermore, given the improvements in many respects in responding to hazards, this indicates that growing risk derives from increasing vulnerability. One can observe little progress in getting to grips with vulnerability.

The intentions of recovery after Mitch were to bridge the gap that existed in prevailing concepts of disaster. When the hurricane struck, there existed a dichotomy

wherein disaster was merely associated with response and development was focused on economic growth. The bridge that was to be built after Mitch was to consist of a holistic perspective on hazards, risk and vulnerability. Today, the conceptual and formal institutional superstructure of that bridge has been established, but apart from a few pilot efforts, there is little traffic flowing across it. The main reasons for this are as follows:

- a lack of state and municipal budgetary resources to move from words to action;
- risk has become only a secondary priority, to be acted on only if there is international funding available;
- risk remains overly associated with hazards and response, at the expense of concerns related to vulnerability;
- vulnerability reduction is seen as a task that is too ambiguous and overwhelming to analyse, and there is a perceived absence of tools to integrate vulnerability analysis into development planning; and
- there is an assumption that reducing vulnerability is too expensive to undertake, so there is hesitancy about investing in the transaction costs of coordinating and mobilising the actors that would need to be involved in addressing vulnerability to disasters.

Hence, despite the bridge, vulnerability reduction remains lost in the gaps caused by the segmentation of economic development, poverty alleviation and environmental protection efforts. An awareness of the implications of climate change should combat this segmentation, but thus far, it is instead getting stuck in these very same lacunae. Application of the lessons of Mitch could contribute to overcoming these gaps, but these challenges have not been linked in the national discourse. Climate change is just starting to raise attention to the need to look again at how to overcome these obstacles, but the financial, human and organisational capacities to act remain as they were. This research found that Nicaragua has made great progress in hazard assessment and, to an extent, in understanding risk management. However, the skills, methods and the financial resources to conduct a serious analysis of vulnerability do not exist, and therefore the equation of how disasters and development contribute to risk remains incomplete.

Vulnerability is primarily a product of the same factors that generate poverty, above all the lack of livelihood opportunities for those who do not have the assets required to take advantage of existing economic development trajectories. But poverty is not vulnerability. One interviewee stated that it was wrong to assume that poverty generates vulnerability, since in a high-risk context, it is vulnerability that generates poverty. The findings from the three municipalities studied confirm that this is indeed the case and that the failure to understand how vulnerability can generate poverty can be seen in the abandoned houses and impoverished resettlement zones. This is a challenge for recovery planning, but one that can be tackled only by acknowledging the capacity gaps that exist in vulnerability analysis.

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