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Climate and Disaster Resilience

THE ROLE FOR COMMUNITY-DRIVEN DEVELOPMENT



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THE ROLE FOR COMMUNITY-DRIVEN DEVELOPMENT

Margaret Arnold, Robin Mearns,
Kaori Oshima, and Vivek Prasad

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Acknowledgements

This paper reviews the World Bank's portfolio of community-driven development (CDD) projects that support climate and natural disaster risk management activities. The review is part of a larger effort to document, assess, and promote scalable models and approaches that empower poor communities to manage increasing climate and disaster risk.

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I. Introduction

The World Bank's goals of reducing extreme poverty and ensuring shared prosperity¹ cannot be achieved without addressing the impacts of climate change. Climate change multiplies the existing vulnerability of the poor, pushing those living on the margins even closer to the edge. The World Bank report "Turn Down the Heat: Why a 4°C World Must be Avoided" explored the developmental impacts of 2°C and 4°C of warming above preindustrial levels and established that the effects of a 4°C world will not be evenly distributed, nor would the consequences be simply an extension of those felt at 2°C of warming. The report established that the tropics will be most affected, affecting poorer countries more and that within wealthier countries, the poor will be harder hit (World Bank 2012c). Poor people in developing countries bear the brunt of climate change impacts while contributing very little to its causes. The World Bank recognizes that climate change is an issue of social justice and is wholly committed to helping those that will be the hardest hit to adapt while continuing to support aggressive mitigation efforts (Mearns and Norton, 2010).

Analysis on the "Economics of Adaptation to Climate Change" estimates that the cost of adapting to 2°C of warming above preindustrial levels by 2050 will be in the range of US\$70 to US\$100 billion a year (World Bank 2010a). In line with the "polluter pays" principle, developing countries demand that financing to mitigate and adapt to climate change be provided by wealthy countries in addition to Overseas Development Assistance. So far, US\$2.5 billion has been mobilized globally for climate change adaptation in addition to existing Overseas Development Assistance flows. While the concept of additionality is important, the needs are too urgent and great to ignore the fact that a lot can and should be done with existing development financing. It is imperative to integrate resilience-building approaches into development efforts to help the poor and vulnerable access the financial, technical, and institutional resources necessary to adapt to climate change.

The World Bank is exploring instruments and strategies to help the poor manage risk more effectively in order to move out of poverty and build resilience to increasing climate and disaster risk. This paper is part of a larger effort to document, assess, and promote scalable models and approaches to empower poor communities to manage a climate and disaster risk agenda in support of their development goals and to identify practical ways of getting climate and disaster risk financing directly to the ground level where impacts are felt. Social funds, social protection systems and safety nets, community-driven development (CDD) projects, livelihoods-support,

1. The *Common Vision for the World Bank Group* was approved by the World Bank's Development Committee on April 20, 2013, and states the goals of (1) alleviating extreme poverty by dropping the percentage of people living on US\$1.25 a day to 3 percent by 2030, and (2) promoting shared prosperity by fostering income growth of the bottom 40 percent of the population in each country. The document is available at www.worldbank.org.

and related operational platforms can serve as useful vehicles for promoting community-level resilience to disaster and climate risk.

Community-driven development is an approach “... that gives control over planning decisions and investment resources to community groups and local governments.” Historically, programs using a CDD approach grew out of situations of crisis (financial shock, conflict, and even natural disasters) and were meant as transitional instruments for service delivery where governments (particularly newly installed administrations) lacked capacity to deliver services (Wong 2012). By optimizing the use of community actors, a CDD approach places less stress on government line agencies and at the same time is able to reach very large numbers of poor people. A CDD approach has traditionally been used by Social Funds, which are government agencies or programs that channel grants to communities for small-scale development projects. Social Funds typically finance a mixture of socioeconomic infrastructure (e.g., building or rehabilitating schools, water supply systems, and roads), productive investments (e.g., microfinance and income-generating projects), social services (e.g., supporting nutrition campaigns, literacy programs, youth training, and support to the elderly and disabled), or capacity-building programs (e.g., training for civil and local governments) (World Bank 2009).

This paper examines the World Bank’s CDD portfolio to assess experience to date and to explore the potential for building the resilience of vulnerable communities to climate and disaster risk through CDD programs. It aims to be useful to both the Climate Change Adaptation/Disaster Risk Management practitioner as well as the CDD practitioner. The paper assesses the scale of climate and disaster resilience support provided through CDD projects from 2001–11 and characterizes the forms of support provided. For the climate change adaptation/disaster risk management (DRM) practitioner, it discusses the characteristics of a CDD approach and how they lend themselves to building local-level climate resilience. For the CDD practitioner, the paper describes the types of activities that support resilience building and explores future directions for CDD to become a more effective vehicle for reducing climate and disaster risk. Throughout the paper, project examples are used to demonstrate key points. While a number of resources are provided for working with communities on climate and disaster risk (see annex 1), this paper is not meant to be a detailed manual for integrating DRM and climate change adaptation into CDD operations.

Methodology

A main component of this study consists of a review the Bank’s CDD project database from fiscal years 2001–11.² The database is maintained by the CDD Community of Practice Secretariat housed in the Social Development Department. In addition to the full range of operations normally covered by CDD portfolio reviews (social funds, community-based rural development, and

2. The CDD database lists the CDD portfolio since fiscal 2000, covering all projects that have used a CDD approach in any component of the project. This includes projects that do not necessarily have CDD as their primary focus but allocate a portion of World Bank funding to be used in a manner consistent with the CDD typology. The data are obtained through an end-of-fiscal year annual review of all project appraisal documents for World Bank-funded lending operations. CDD value-added data is extracted from the project appraisal documents and verified with the task team leader before being included in the database. It is accessible at www.worldbank.org/cdd.

rural livelihoods support operations), the review also covers analytical work, including a recent review of the overall CDD portfolio; technical assistance; and operations supported by Climate Investment Funds that utilize a CDD approach, notably the Pilot Program for Climate Resilience (PPCR).³

Project documents for operations included in the CDD project database were reviewed to identify activities that support climate and disaster resilience. While it is true that many investments aimed at improving the general welfare of poor households may contribute to their resilience to climate and disaster risk, this review takes a more conservative approach to identify clear and explicit linkages between project activities and outcomes aimed at reducing risk to climate change and natural hazards. For the purposes of this review, support for “climate resilience” is defined as actions that seek to reduce sensitivity to or increase adaptive capacity in the face of extreme weather events (drought, storm surges, cyclone-induced flooding, etc.) or longer-term climate changes (e.g., changing means of temperature or precipitation). The review also includes CDD operations related to geological hazards, such as earthquakes, landslides, and tsunamis because building risk-management capacity for these hazards is assumed to have much in common with and spillover effects for climate risk management.

Out of 804 CDD projects approved between 2001 and 2011, 161 projects were selected for the review based on an examination of Project Appraisal Documents, Project Documents, or Implementation Completion Reports. Criteria for including a project in the portfolio review were twofold. First, the project needed to allocate 30 percent or more of the overall project amount to CDD. Second, as discussed above, the project documentation had to articulate explicit objectives related to building disaster risk-management capacity and/or increasing adaptive capacity to weather-related hazards or longer-term climate trends. A few projects from the database that allocate less than 30 percent of the total amount to CDD were included as exceptions because they explicitly aim at building climate resilience through a CDD approach. Because the study did not review every project-related document, there may be cases where a project mentions DRM or climate change adaptation-related objectives in other documents (e.g., Operational Manuals) but were not identified as a climate or disaster-related project.

Project documents for CDD climate and disaster resilience projects were then analyzed to assess the scale of investment in community-level resilience building and identify any trends in terms of the type of interventions they support. Project documents and other relevant studies were reviewed to specifically identify how resilience building was being supported and to extract lessons related to good practice or challenges that need to be addressed related to resilience building. Lessons were extracted from Implementation Completion Reports where available but mainly from learning events organized by the Social Resilience and Climate Change cluster of the Social Development Department, which brought together World Bank country office-based task teams via videoconferencing. Two such events were organized (in May and November 2011), including country teams from Bangladesh, Brazil, Bolivia, Ethiopia, India, Mongolia, and Tajikistan, with additional participation from teams in Malawi, Morocco, Tanzania,

3. Known examples include the Strategic Programs for Climate Resilience in Bangladesh, Cambodia, Niger, Samoa, Yemen, and Zambia.

and the Philippines. The teams shared operational experience to exchange lessons and identify common challenges faced in supporting climate resilience through CDD and livelihoods support operations.

As a final caveat, it should be noted that the findings presented here are not based on impact evaluations of CDD projects related to disaster and climate resilience. While available literature on the impact of CDD projects more broadly was drawn on as a resource, this initiative was limited to a desk review of available project documents and the results of the learning events mentioned above. The study did not assess the impact of project activities against resilience-building goals. This is a critical area for further study, as discussed in the final chapter of the report.

II. Why Does a CDD Approach Make Sense for Building Resilience?

Understanding and Fostering Resilience

In order to understand how a CDD approach can help build resilience, it is first necessary to define resilience in a useful way and understand how it relates to climate change. While the concept of resilience is not new, it is experiencing resurgence in the humanitarian and development communities as agencies grapple with conceptualizing and measuring the resilience of communities in the face of climate change. Benson et al. (2012) presents a brief discussion on the evolution of resilience theory and offers a working definition of social resilience: ***“The ability to withstand, recover from, and reorganize in response to crises so that all members of society may develop or maintain the ability to thrive.”*** This definition reflects the growing consensus among development and humanitarian partners that the definition of resilience needs to go beyond the definition traditionally used within the disaster risk management community that frames resilience as the ability to “cope or bounce back” from shocks or extreme events.⁴

In addition to resisting and recovering from shocks, thriving despite crisis in a changing climate also requires the ability to reorganize, that is, to generate new ways of operating or new systemic relationships as necessary. While the starting point to understanding resilience is a clear understanding of existing levels of socioeconomic vulnerability and risk management capacity, climate change entails a number of characteristics that require a more dynamic view of vulnerability and new ways of supporting resilience—they are diverse, long-term, and unpredictable. Adapting to these traits is challenging because they require making decisions under high levels of uncertainty. The 2010 *World Development Report: Development and Climate Change*, echoes this by stating, “Climate change adds an additional source of unknowns for decision makers to manage” and that, “Accepting uncertainty [is] inherent to the climate change problem.”

In this context, it is useful to consider the critical characteristics of resilience and how resilience-building efforts facilitate or promote these characteristics. Martin-Breen and Anderies (2011) identify three core properties of resilience:

- Modularity (networks)
- Diversity and redundancy
- Responsive, regulatory feedbacks

4. Annex 3 provides a full glossary of key terms used throughout the report.

While others have developed more detailed, nuanced lists of resilience characteristics (see, for example, Bahadur et al. 2010), these three core properties resonate throughout most compilations. Based on this, a few broad categories for action can be identified for resilience building:

- Support **bottom-up approaches** that make use of social networks and support autonomous adaptation based on the lived experience of poor communities
- Support communities to increase **diversity** and fallback options (e.g., diversification of livelihoods into activities less sensitive to climate-related or other forms of risk, such as through voluntary migration)
- Enhance **social learning** and sound governance as a form of regulatory feedback (e.g., building capacity in participatory approaches to scenario-based planning or measures to increase social accountability in the use of public finance for climate change response)
- Understand the gender dimensions of climate change and **empower women** as resilience champions.

Women are often the designers and builders of community resilience in poor communities.

The final area on empowering women is based on evidence regarding the role of women in building resilience. For example, the experiences of grassroots women leading disaster recovery efforts has grown to include their engagement with local, national, and regional authorities to inform the development of policies and programs that support pro-poor, community-driven resilience building (Arnold and Burton 2011). There are also a number of examples where empowering women to exercise leadership within their communities contributes to climate resilience, ranging from disaster preparedness efforts in Indonesia and Nicaragua, to better forest governance in India and Nepal, to coping with drought in the Horn of Africa (World Bank 2011b).

There is no silver bullet for building the resilience of the poor. It calls for multiple, complementary actions at different geographic and institutional scales. What's more, assessing the impact of interventions to build social resilience is no easy task, particularly in the context of climate change. In their proposal for an adaptation results framework, Brooks et al. (2011) lay out some of the challenges, including:

- Addressing the diverse nature of climate change impacts (extreme events, reduced agricultural productivity, vulnerability of infrastructure, water stress, loss of biodiversity, etc.) and the fact that there is no single metric for adaptation as there is for mitigation (greenhouse gas emissions)
- Addressing the very long timeframes associated with climate change impacts, which may take decades to unfold and therefore decades to see if interventions achieved their intended results
- Dealing with an ever-shifting climate risk baseline
- Getting beyond adaptation as coping with existing climate variability and “climate proofing” business-as-usual development against incremental changes in existing risks.

Therefore, while the success of adaptation measures will only become apparent over a long time period, the challenge is to identify activities that are likely to contribute to resilience.

There are a number of characteristics inherent in the CDD approach that promote the core properties of resilience laid out above. The CDD approach operates on the principles of local empowerment, participatory governance, demand-responsiveness, administrative autonomy, greater downward accountability, and enhanced local capacity. CDD projects are known for delivering cost-effective infrastructure and services that tend to be better maintained due to the high level of ownership that communities have in the project. By involving people in making their own development investment decisions, they have the added benefits of building capacity from the bottom up and making decision makers accountable to the people they serve (Wong 2012). These and other characteristics are explored in greater detail below in terms of their potential contribution to resilience.

Scaling Up for Increasing Climate and Disaster Risk

The Bank's 4 Degree report confirms that the adverse effects of a warming climate are “tilted against many of the world's poorest regions” (World Bank 2012c). Millions of poor people will face greater challenges in terms of extreme events, health impacts, food security, livelihood security, migration, water security, cultural identity, and other risks. Urgent support is needed at the ground level where impacts are being felt, and national governments need to work at a scale greater than ever before.

CDD programs have the potential to deliver resilience support at the scale necessary to address climate change adaptation and increasing disaster risk. CDD has the potential to reach large numbers of poor people directly and has been implemented in 105 countries. While CDD projects often start out as small-scale operations that work outside formal government systems, the second and third generations of these programs often scale up to regional or national levels. Indonesia, for example, has the largest ongoing CDD program that operates in more than 60,000 villages across the country. The Philippines CDD program has invested about US\$118 million in 5,326 community subprojects in the poorest provinces and municipalities covering about 10 million rural poor and is expanding up to the national level. In Nigeria, the third phase of National Fadama Project covers all 37 states of the country, benefitting about 2.2 million households or about 16 million beneficiaries.

Empowering Communities and Reducing Poverty Builds Resilience

Strengthening community-level resilience requires addressing the underlying causes of vulnerability in addition to specific disaster risk management and climate change adaptation activities. For more than three decades, humanitarian and development practitioners alike have been emphasizing the need to address the underlying drivers of vulnerability to natural hazards (e.g., poverty, marginalization, etc.) in order to make progress in reducing the social and economic

Box 1. Building Institutions of the Poor: India's National Rural Livelihoods Mission

The National Rural Livelihoods Mission is scaling up a model that has proven successful in Andhra Pradesh, Rajasthan, and other drought-prone states. The approach begins with empowering poor women through their own self-help groups to progressively build experience with savings and microloans. Over time, federations of self-help groups are supported that increase their bargaining power in gaining access to a wide variety of goods and support services on behalf of their members. The same institutional platform lends itself very well to building climate resilience by mediating access to specialized advice regarding on-farm drought adaptation measures; creating linkages with other government programs such as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) that provides paid labor for eligible households in public works, including building watershed management structures; and facilitating opportunities for family members through labor migration. A GEF project under preparation—the Sustainable Livelihoods and Adaptation to Climate Change project—seeks to strengthen the potential of the National Rural Livelihoods Mission and MGNREGA to jointly leverage investments in climate and livelihood resilience.

costs of disasters.⁵ While the global climate change debate has swung the pendulum back to an emphasis on the hazard/exposure side of the equation, there is a growing recognition that climate resilience will be mainly built by addressing the underlying, nonclimate-related sources of vulnerability (Ribot 2010). CDD projects can support a range of activities that address both the underlying causes and impacts of disasters.

CDD programs can provide communities with a broad platform for empowerment and poverty reduction in addition to a diverse range of risk management options. Over the past decade, CDD programs have become a key operational strategy for national governments as well as numerous international aid agencies for the delivery of services and as a way to promote bottom-up development approaches where existing systems are not working. To date, approximately 105 International Bank for Reconstruction and Development and International Development Association countries have undertaken projects with a CDD approach. Wong (2012) summarizes the evidence of these aspects from 17 rigorous impact evaluations of the World Bank-supported CDD programs. Out of nine projects that reported impacts on the household welfare, seven found positive change. For example in the Nepal Poverty Alleviation Fund, the estimated net program impact for the participants on real per capita consumption growth was 19 percent. Where a participatory well-being ranking was used, a larger decline of 24 percentage points in food insecurity for households in disadvantaged castes or ethnic groups was found. Positive findings were also evident in CDD projects in India (Andhra Pradesh) and the Philippines. Finally, improvements in the access to and use of services, especially in health, education, and drinking water, are evident across the CDD programs reviewed. In Senegal, for example, the National Rural Infrastructure Program improved access to clean water and health services by 22.4 percent and 24.1 percent, respectively, in the treatment areas as compared to the control areas. The National Rural Livelihoods Mission in India (box 1) provides another good example of a broad-based approach to poverty reduction and community empowerment.

5. Important works in this area include those by Sen (1981), Cuny (1983), Wijkman and Timberlake (1984), Anderson and Woodrow (1989), IDS (1989) and OAS (1990). See also the Hyogo Framework for Action at www.unisdr.org.

Local Action to Address Local Impacts of Disasters and Climate Change

The impacts of climate change are local; action to address it must engage those most affected.

Climate science is critical to understanding the potential impacts that communities will be facing in the near and distant future. Yet while the science is improving every day, it is still relatively limited at the local level. This need not be a constraint on thinking about how to build resilience. By drawing on the lived experience of communities, much can be learned about both the impacts of climate change and ways in which autonomous adaptation can be supported. National governments, development agencies, the private sector, and researchers rarely have a good understanding of the strategies poor communities are already implementing to adapt to climate change and increasing disaster risk. The findings of work from Moser et al. (2010) suggest that delivering resources at the local level to support these strategies can be an effective part of long-term investment for building climate resilience.

CDD offers the ability to tailor interventions to the local context. By channeling funds directly to the community level and engaging communities in making the investment decisions, CDD projects can make use of local knowledge and expertise for a more effective outcome. Saint Lucia's Second Disaster Mitigation Project (2009–11) supported the expansion of the Management of Slope Stability in Communities (MoSSaiC) program, which helps communities manage landslide risk. The concept arose in 2004 from discussions with the Government of Saint Lucia and the local social fund that were implementing a project to improve footpath access in a low-income urban community. Rainfall-triggered landslides were known to be a major problem in this and many other communities. However, advice to that point had suggested that little could be done to stabilize the hillsides. Outside experts believed that improved surface water management could provide an inexpensive way of improving urban slope stability and conducted house-by-house discussions with community residents to identify the localized causes of the landside issues and confirm that surface water drainage would improve slope stability. Residents' detailed knowledge of highly localized slope features was combined with the local engineers' knowledge of landslide processes to develop a community-wide drainage plan that then engaged local contractors in its construction. Drains were designed to intercept overland flow of rainfall and capture household water (roof water and grey water) and, at the same time, reduce landslide hazard (Anderson and Holcombe 2013).

Resilience Cannot be Achieved by Working at the Community Level Alone

Scaling up and sustaining community-based resilience calls for bridging the gap between the local, subnational, and national levels, and for understanding the complementary roles of formal and informal institutions. World Bank research (Agarwal et al. 2011; World Bank 2011a) has found that strong local institutions (both formal and informal) are essential for the successful implementation of community-based adaptation strategies. However, there is often a gap in terms of boundary organizations that can effectively link local-level adaptation actions and

Box 2. Pakistan's North West Frontier Province On-Farm Water Management Project

In Pakistan, irrigation and drainage systems faced severe problems, including water scarcity, water-logging and salinity, over-exploitation of groundwater, inadequate operation and maintenance, and insufficient cost recovery. There were no effective fora for farmers to raise their concerns and excessive intervention of the government in irrigation management did not encourage meaningful participation of farmers in the system management. To address the challenge, through the North West Frontier Province On-Farm Water Management Project, Farmer Organizations/Federation of Water Users Associations were established and formally contracted with government agencies for transferred or joint management of the irrigation systems. The farmer bodies participated in the planning, design, construction, and maintenance of irrigation systems and water resources. Farmers also made financial contributions to the capital cost of investments and regular O&M of their irrigation systems. The formal contracts have empowered farmer organizations with clear legal status and roles, which have positively affected farmers' linkages and working relationships with the Irrigation and Drainage Authority. It was found that beneficiary participation was more effective in cases where the irrigation management was formally and fully transferred to farmer organizations.

national and subnational-level planning, and where they exist, their capacity is usually limited and the support they receive from national and subnational agencies is often inadequate. Communities must be connected to higher-level policy, technical assistance and information for effective adaptation and DRM support.

The CDD approach can help to promote the objective of working across scales. CDD programs that have been scaled up work to create linkages between decentralized sector ministries, local government, and community-based initiatives within a “local space”—a concept of intermediate scale above the community and below the regional and national levels. For example, in Benin, the National Community Driven Development Project sought to structurally integrate the CDD approach into the decentralization process, which successfully provided capacity-building opportunities to communities as well as to local governments and sectoral ministries. In Malawi, over the past two decades, the Malawi Social Action Fund evolved from an autonomous (parallel) Social Fund to the Government's main Local Development Financing mechanism. The focus of the project also shifted from emergency response to general local development and livelihoods. The Niger Pilot Program for Climate Resilience provided recommendations for the Community Action Project for Climate Resilience as well as the Phase II of the Community Action Project to integrate the climate dimension into local council development plans, give more responsibilities to community institutions, and envisage the planning/implementation of inter-communal actions to combat climate change (World Bank 2011c).

Women's Empowerment is a Key Ingredient for Resilience

Climate change efforts provide an important opportunity to engage women as active agents of resilience building rather than passive recipients of adaptation support. Women are disproportionately vulnerable to the impacts of extreme events, and this must be addressed when supporting communities' ability to adapt. Perhaps more importantly, however, climate change provides an opportunity for positive social transformation on gender equity. The briefing note on *Gender and Climate Change: Three Things You Should Know* (World Bank 2011b) details the

benefits of empowering women as climate and disaster risk-management champions and documents the impact that women's leadership can have on building climate resilience and promoting low-emissions development pathways.

When properly designed, CDD projects can also contribute to women's empowerment, which, in turn, builds resilience. Well-designed CDD projects are an effective tool for empowering women at the local level in developing countries, using measures to promote the capacity building and participation of women throughout the whole project cycle. For example, in pastoral communities of Kenya and Ethiopia, livelihood diversification made possible through capacity-building support to women's savings and loans groups helped communities better manage the risks associated with the 2005–08 drought cycle by generating income, preserving assets, and enhancing food security. In this case, women played an important leadership role, inspired in part by exchange visits across the Kenyan–Ethiopia border. In India, the National Rural Livelihoods Mission also has a strong focus on women's empowerment, working to strengthen women's self-help groups and progressively building experience with savings and microloans (see box 1).

III. What Has Been the Investment Thus Far of CDD in Resilience?

Between 2001–11, the World Bank’s overall CDD portfolio averaged US\$2.27 billion a year in new lending commitments (figure 1). There were a total of 375 CDD projects undergoing implementation when this review was conducted. Regionally, most projects are being implemented in the Africa Region, followed by Latin America and the Caribbean and South Asia. Sectorally, the bulk of the portfolio is with Agriculture and Rural Development, followed by Social Protection, Social Development and Urban Development.

Over fiscal 2001–11, 161 CDD projects invested US\$12 billion in climate resilience. This portfolio review looked at World Bank-supported CDD projects that were approved over an 11-year period, from fiscal 2001 through fiscal 2011. The value of the project components (World Bank funding plus any co-financing) that contribute to building climate and disaster resilience is US\$12 billion, more than US\$1 billion per year over this period.

Figure 1. CDD Lending Amounts from Fiscal 2001–11

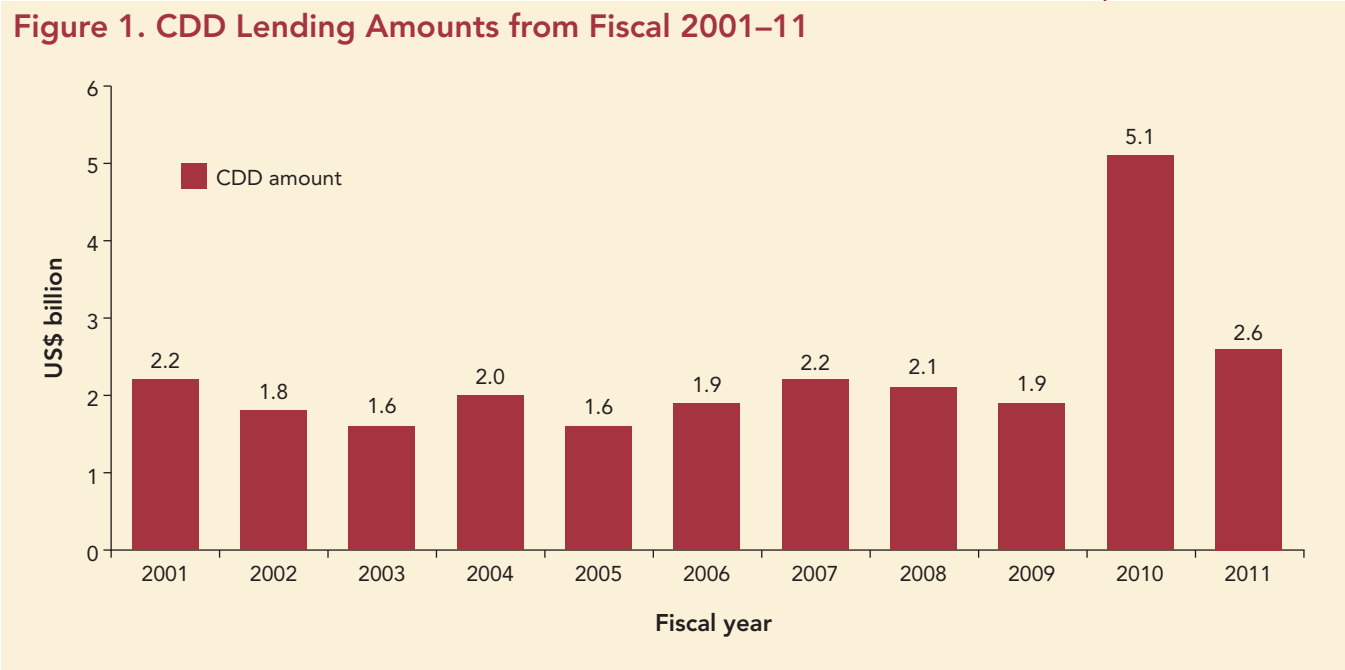
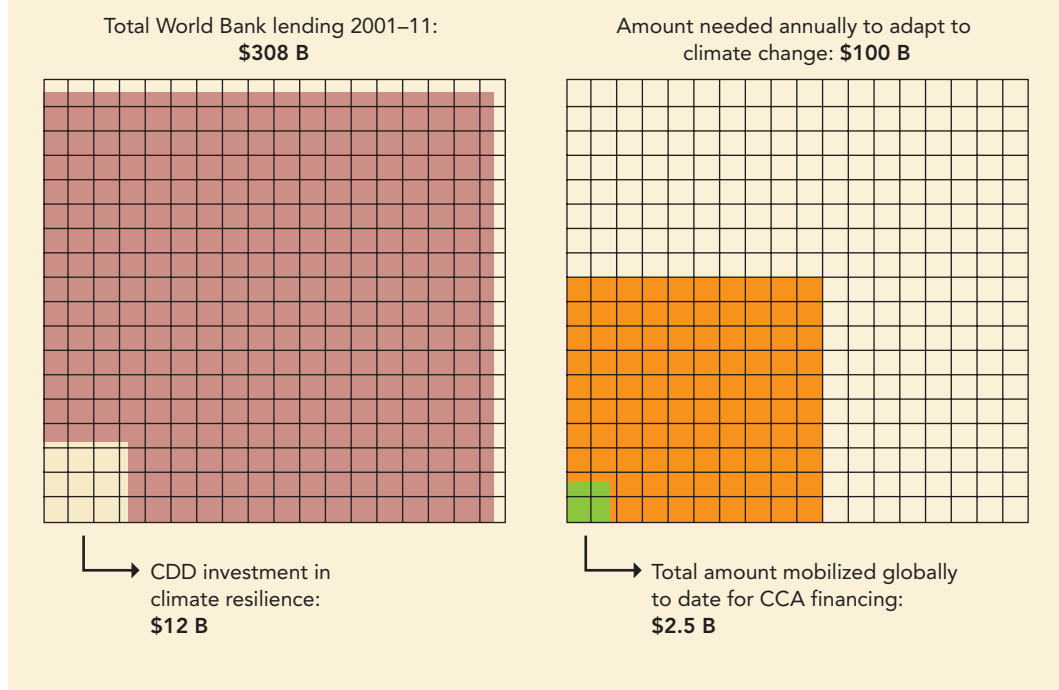


Figure 2. Comparison of CDD Resilience Investment to Climate Adaptation Funding



While US\$1 billion annually is a significant investment, the needs are enormously greater. It is important to put these numbers into perspective. International climate law⁶ stipulates that developed countries provide “new and additional” climate change financing to developing countries. While there is no consensus on how to determine additionality and how the concept applies to developed-country financial pledges, the concept is critical to reaching an international agreement and making progress to address climate change. As mentioned previously, the World Bank estimates that the cost of adapting to 2°C of warming above preindustrial levels by 2050 will be approximately US\$100 billion a year (World Bank 2010a), and in the absence of urgent mitigation action, we are likely to reach 4°C of warming by 2100 (World Bank 2012a). To date, only US\$2.5 billion has been mobilized globally for climate change adaptation in addition to existing Overseas Development Assistance flows. It is an injustice to make the poor pay for a problem they did not create. It is arguably an even greater injustice, however, if development agencies fail to ensure that existing development support effectively contributes to building the resilience of the poor to climate change.

6. See, for example, United Nations Framework Convention on Climate Change (UNFCCC) (1992, Art. 4.3), the Kyoto Protocol (1997, Art. 11.2), the Bali Action Plan (2007, Para 1e), and the Copenhagen Accord (2009, para 8).

The CDD “climate/disaster resilience portfolio” can be looked at through different lenses that offer some insights into the types of interventions, key entry points for supporting resilience, and supporting efforts along an “adaptation spectrum.” Interventions to support climate and disaster resilience through CDD include a number of public and private goods both for disaster response and recovery and for ex ante risk reduction. Projects could include any one or a combination of the following activities (see table 1 for a few examples):

- Construction or reconstruction/repair of productive or protective infrastructure
- Labor-intensive public works
- Building institutions of the poor: social capital and community mobilization
- Safety nets/cash transfers for disaster relief/recovery or longer-term resilience
- Microfinance services, including savings and credit
- Weather insurance
- Disaster risk management/early warning and response capacity
- Natural resource-based livelihood support
- Agriculture-based livelihood support
- Livelihood diversification support
- Policy support (district, state, or national level)
- Capacity development for collective action
- Improved access to climate information
- Climate resilient planning

CDD Support to Disaster Recovery and Reduction

Perhaps one of the simplest ways to classify CDD resilience projects is according to whether they support post-disaster recovery and reconstruction or ex ante risk climate and disaster risk reduction. Looking at the portfolio of 161 projects over the 11-year period, one may expect to see a trend corresponding to the evolution that has taken place over the past years within the humanitarian and development communities of shifting from a reactive, post-disaster response approach to one of proactive, ex ante risk reduction. While no such clear trend emerges across the entire portfolio, there are a couple of noticeable aspects regarding disaster risk management:

- **While not in the original design, a number of ongoing CDD programs have provided effective disaster response and recovery support.** When CDD programs were up and running in places where a natural disaster struck, their on-the-ground presence allowed a rapid and flexible response to local emergency needs. The use of CDD “infrastructure” (e.g., established village committees and processes for resource flows and implementation) are quite adaptable to delivering in emergencies. A review of impact evaluations of 17 CDD programs (Wong 2012), noted that while five countries suffered setbacks in implementing their CDD programs when a disaster struck, several programs were able to serve as community safety nets in response to the emergency (see box 3 for examples).

Box 3. CDD Projects Responding to Disasters

In **Madagascar**, the Community Development Fund Project supported communal development plans, subprojects in communities, and capacity building of community associations and officials. When cyclones hit the country in 2004, the already-established local participatory platform of the project executing unit served as a vehicle for emergency response, including the distribution of nutritional supplements and other provisions for pregnant and lactating women and children under five; critical medicines to combat outbreaks of disease, such as respiratory infections, pneumonia, and malaria; and the distribution of drinking water, soap, and water treatment kits. More recently, several Madagascar social funds have also helped promote climate resilient norms in social and productive infrastructure (e.g., schools and health centers).

When the earthquake and tsunami hit Aceh, **Indonesia** in 2004, Phase III of the Urban Poverty Project was under preparation and the Kecamatan Development Project was ongoing in Aceh. The post-disaster project provided supplemental support to Urban Poverty Project III to address the particular needs of recovery. It provided grants for the reconstruction and rehabilitation of community infrastructure in the areas identified to be most in need. The project provided effective disaster recovery support and had the added benefit of supporting the psychological recovery process of affected people by empowering them to be the drivers of the reconstruction process of their communities.

- **Within a number of long-running CDD programs in hazard-prone countries, there is an evolution from a reactive to a more proactive risk management approach.** In a number of cases, ongoing CDD programs have become de facto emergency response and recovery mechanisms. In these programs, there were explicit efforts to integrate disaster risk reduction into the reconstruction efforts, and in some cases there are initiatives to integrate a more proactive risk management approach to both natural hazards and longer-term climate change (see box 4).

Box 4. Strengthening Resilience in Bangladesh

When **Bangladesh** was hit by Cyclone Sidr in 2007 and Cyclone Aila in 2009, the first phase of the Empowerment and Livelihood Project, which began in 2003, provided effective recovery support. In 2012, building on this experience, the second phase of the project, locally referred to as “Nuton Jibon (New Life),” considered vulnerability to natural hazards in the project design. The project aims to support the rural poor to improve their livelihoods, quality of life, and strengthen their resilience to climate variability, natural hazards, and other shocks. In addition to poverty and market accessibility, criteria for the selection of subdistricts are also based on criteria related to natural hazard exposure. The focus on building institutions of the poor through direct financing to village-level institutions has been maintained with an enhanced focus on building preparedness to hazard events and long-term resilience.

Once a village has adopted the program, it follows a sequence of planning and implementation steps that make up the Village Development Cycle. Communities undertake a participatory planning process to determine local priorities and the best use for their funds. Given the core risk reduction and resilience goals of the proposed project, one of the key steps for the communities is participatory vulnerability analyses, which result in disaster preparedness plans and investments that enable villages to better anticipate, withstand, and recover from shocks and disasters. For example, the locations and design of community centers, rural roads, tube wells, and other works are informed by the vulnerability analysis. The analysis and subsequent risk reduction efforts are fully integrated into the Village Development Cycle and, collectively, they make up the “Resilience Cycle” named by the project.

Table 1. Examples of CDD Project Support

Country	Project (Year)	Description of Approach/Support
India	Rajasthan Rural Livelihoods Project (2010–16)	The climate adaptation component supports various adaptation approaches at the household and community level in the areas of community water resources management, diversification of farm and nonfarm livelihoods, and climate risk management tools. It also provides assistance to the state's policy framework on climate change adaptation and knowledge development for climate resilience.
Zambia	Emergency Drought Recovery Project (2002–05)	The project combined an immediate response of public works component with medium- to long-term capacity-building efforts for the country to cope with natural events. It strengthened the government's early warning system, drought management arrangements, and a cohesive and responsive longer-term safety net framework at the central and the district government levels.
Algeria	Rural Employment Project (2003–08)	In the Soil Erosion Control component, activities such as reforestation, riverbank management, terracing and biological control, flood control infrastructure, and forestry rehabilitation are selected by a participatory approach. The Agricultural Development component supported activities including rain-fed and irrigated fruit tree plantations, land clearing, rural roads upgrading and rehabilitation, small livestock production, beekeeping, and handicraft activities with specific consideration given to women's participation.
Lao PDR	Agricultural Development Project (2000–08)	The project increased crop production and farm income of poor small-scale subsistence farmers through the provision of a secure irrigation system during the dry season, improved water control during the wet season, better on-farm water management, better farming practices through extension and on-farm research, and access to improved seeds and production diversification. It also supported social infrastructure (water supplies, sanitation, and access roads), resulted in both direct social and economic benefits to all rural households in the project area. Income-generating activities under the Village Investment for the Poor component specifically targeted poor landless households.

Different Sectors Supported by CDD Projects

Resilience efforts supported through CDD approaches have focused on a number of sectors over the period reviewed, with **Agriculture and Rural Development comprising more than half of the support**. Social Protection is the second largest area of focus, with 12 percent of the resilience lending. Social protection programs, which are comprised of both social assistance (e.g., cash transfers, school feeding, targeted food assistance, and subsidies) and social insurance

Figure 3. Share of CDD and Climate Resilience Lending by Sector (2001–11)

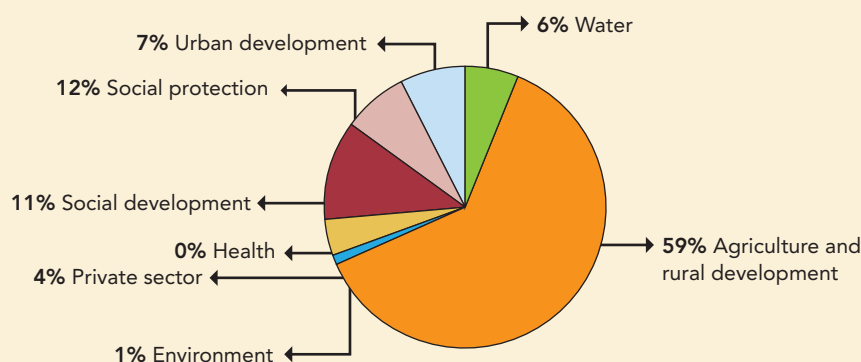
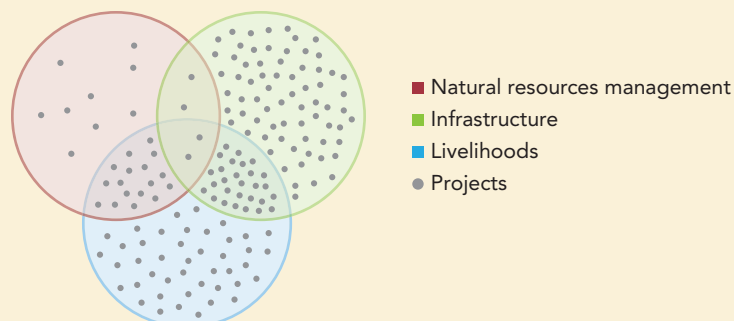


Figure 4. Entry Points for CDD and Climate Resilience

(such as old-age, survivorship, disability pensions, and unemployment insurance), sometimes use a CDD approach in their projects and are another powerful tool to reduce vulnerability and build resilience. A broader, more detailed view and guidance on using social protection as a tool for climate resilience is presented in greater detail in other studies, including “Social Protection for Climate Resilience” (World Bank 2012b) and “Building Resilience to Disasters and Climate Change through Social Protection” (World Bank 2013).

Table 2. Examples of Projects by Areas of Support

Support Areas			Country	Project	Year
NRM	-	-	Nigeria	Local Empowerment and Environmental Management Project	2004
NRM	-	-	Yemen	Sana'a Basin Water Management Project	2003
NRM	-	-	Philippines	Participatory Irrigation Development Project	2009
-	Infra	-	Honduras	Social Investment Fund	2001
-	Infra	-	Cameroon	Urban and Water Development Support	2007
-	Infra	-	Tonga	Post Tsunami Reconstruction Project	2011
-	-	Livelihoods	Brazil	Rural Poverty Reduction Projects—Bahia/Ceara	2001
NRM	-	Livelihoods	Ethiopia	Productive Safety Net Project	2007
-	-	Livelihoods	Bangladesh	Empowerment and Livelihood Improvement “Nuton Jibon” Project	2010
-	Infra	Livelihoods	Zambia	Emergency Drought Recovery Project	2003
-	Infra	Livelihoods	Malawi	Social Action Fund	2003
-	Infra	Livelihoods	Ghana	Community-based Rural Development Project	2004
NRM	Infra	Livelihoods	Mongolia	Sustainable Livelihoods Program II	2011
NRM	-	Livelihoods	Turkey	Anatolia Watershed Rehabilitation Project	2004
NRM	-	Livelihoods	India	Rajasthan Rural Livelihoods Project	2011
NRM	Infra	-	Tanzania	Water Sector Support Project	2007
NRM	Infra	-	Nicaragua	Poverty Reduction and Local Development Project	2001
NRM	Infra	Livelihoods	Armenia	Natural Resources Management and Poverty Reduction Project	2002
NRM	Infra	Livelihoods	India	Orissa Rural Livelihoods Project	2009

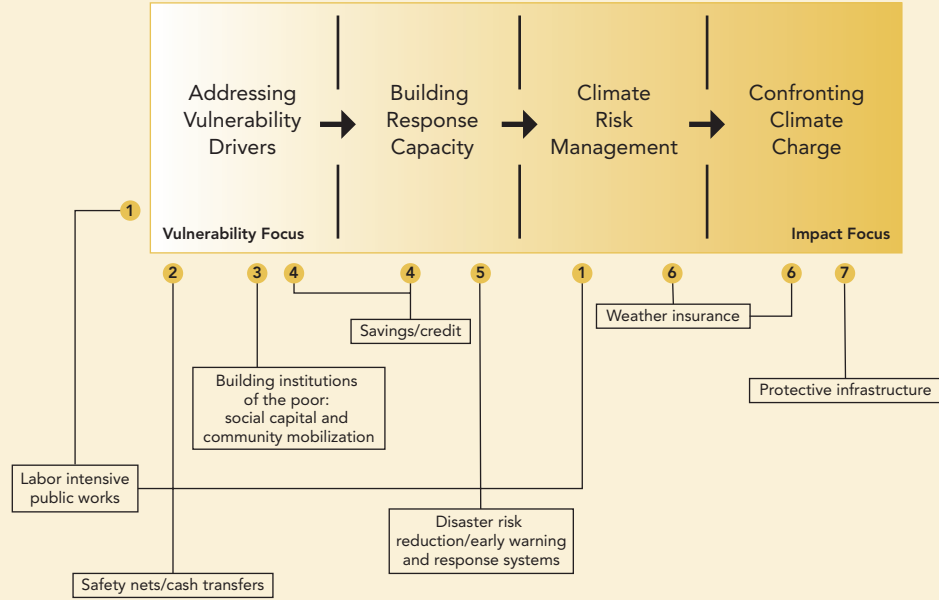
Regardless of the sector, CDD project components focused on disaster and climate resilience adopt one or more of three key entry points: livelihood support, natural resource management, and/or infrastructure. The majority of CDD resilience projects support infrastructure interventions, followed by livelihood support and natural resource management. A few projects support two of the areas, and two of the 161 projects reviewed cover all three areas. (Table 2 provides some illustrative examples.) CDD projects are typically designed with villages or a local administrative grouping as the unit of operations. As the impacts of disasters and climate change do not limit themselves to administrative boundaries, it may be useful to design CDD programs with a particular hazard area or risk profile in mind, particularly when there is a focus on natural resource management activities.

CDD Activities Along an Adaptation Continuum

Another useful way to categorize CDD resilience activities is to situate them along an “adaptation continuum.” The idea of an adaptation continuum was first suggested by a team at the World Resources Institute (McGray et al. 2007) to help clarify the relationship between development and adaptation. Development activities that address the underlying causes of human vulnerability lie at one end of the continuum, and at the opposite end, there are more specialized interventions targeting distinct impacts of climate change that fall outside the realm of “traditional” development. In between the two extremes lies a broad spectrum of interventions that focus on addressing the underlying causes of vulnerability or on specific climate impacts to varying degrees (see also Ribot 2010). Figure 5 positions a number of typical instruments supported by CDD and climate resilience projects along such a continuum.

CDD programs already include poverty reduction goals that address the underlying causes of vulnerability. In the face of increasing climate and disaster risk, it is important to analyze whether those development goals can still be achieved in the face of increasing climate and disaster risk. In addition, it would be beneficial for CDD programs to address both (general) vulnerability and (climate and disaster) impacts. CDD activities could be included in high-risk areas that address specific impacts of climate change and natural hazards and that encourage households and communities to change risk behavior.

Figure 5. Activities Along an “Adaptation Continuum”



Source: McGray et al. 2007.

IV. How Can CDD Support Resilience More Effectively?

It is important to note the limitations of this portfolio review in assessing the experience of CDD projects related to building resilience to disaster and climate risk. The review was limited to available data, which included the CDD project database for fiscal 2001–11, and the respective project documents. For completed projects, Implementation Completion Reports were included, and broader evaluation reports of CDD programs were also reviewed. This initiative has also built on the experience shared among project teams working on CDD projects related to disaster and climate resilience.

Moving forward, it would be beneficial to undertake some specific impact evaluations on the impact of CDD programs on building resilience at the community level. Based on the review, however, there are clearly a number of CDD projects and programs that are moving toward a more proactive, strategic, and holistic approach to building resilience to disasters and climate change. There are several lessons that emerge and some important challenges to flag if CDD programs are to reach their full potential as effective platforms for resilience building. The following recommendations are suggested to strengthen CDD's contribution to resilience building.

Information is Key and Must Blend Climate Science with Local Knowledge

There is a need to bring the climate science into the planning discussions for CDD projects in order to avoid maladaptation. Maladaptation refers to actions or investments that do not take potential climate change impacts into account and may inadvertently increase exposure or vulnerability to climate risk rather than decrease it. Such investments may provide a short-term benefit, but in the longer-term could end up doing more harm than good. Examples include agricultural investments that decrease livelihood and food security if the climate becomes unsuitable for particular crops, promoting human settlements in an area that will become highly risky due to climate change, or infrastructure that overlooks climate impacts and ends up having a shorter life span than expected (OECD 2012).

In many country programs, the impetus for taking action on climate change adaptation is usually current climate shocks. And for the most part, project documents reviewed for this paper indicate that CDD projects addressing disaster risk are doing so based on current levels of climate variability. Taking a more proactive approach to reducing risk before disaster hits is certainly a positive and worthwhile investment. The Red Cross/Red Crescent Climate Centre

Box 5. Zambia Strengthening Climate Resilience Project

The Phase II PPCR project in Zambia, approved in May 2013, provides subgrants to support participatory adaptation at the community, ward, and district level. On the planning side, the project engages established nongovernmental organization partners to work with targeted community/farmers groups to identify local adaptation priorities and develop climate-resilient plans. In this process, the nongovernmental organizations will work closely with traditional leaders as well as district-level technical staff to assess community exposure and vulnerability to both climate-related disasters and long-term climate trends. The priority activities will consider both short-term and long-term measures (i.e., responses to current climate variability as well as how projected changes in climate are likely to interact with future population and asset exposure (taking into account demographic changes, location of physical infrastructure, and changes in livelihoods)). The planning process takes into account the different vulnerabilities experienced by people distinguished by income level, gender, age, and ethnic group. The facilitators aim to establish “adaptive processes,” whereby community groups could assess their vulnerability at regular intervals and integrate lessons learned into the investments supported by the subgrants.

(2012) has put forth a list of minimum standards for making local investments in disaster risk management “climate smart.” The minimum standards serve as a practical tool to help communities and local governments integrate changing climate risks into their efforts to reduce risk to extreme events and disasters.

For other sectors, practitioners could start with some basic information on future climate scenarios to see how the planned investment will be affected.⁷ Beyond this, engaging the climate science community in the planning discussions could go further to help avoid maladaptive investments and build awareness on climate change at the local level.

Since climate science is limited at the local level, community members must be recognized as equal partners with expertise and experience in building resilience rather than merely as project beneficiaries. Poor communities are dealing with localized, recurrent “everyday” disasters that are the result of persisting poverty, environmental degradation, social marginalization, and other factors unrelated to natural hazards or climate change. The strategies that communities use to manage risk are often poorly understood or ignored by governments and development partners. The design of future CDD programs should develop a better understanding of the “autonomous adaptation” and social innovations that are taking place at the local level on a daily basis so that they can be effectively supported. Tools such as participatory scenario development (World Bank 2011a) can help. It will also be important to provide CDD practitioners and community facilitators with some training on climate change and disaster risk management issues. The PPCR Phase II supported project in Zambia provides a good example.

Find the Entry Points

In the absence of recurrent extreme events, it may be challenging to identify the key entry points to engage communities in more proactive disaster and climate risk management. As noted above, managing current extreme events is a common and useful entry point to focus communities and local and national governments on the need to manage risk with a more

7. A good resource is the World Bank’s Climate Change Knowledge Portal, <http://sdwebx.worldbank.org/>.

proactive, ex ante approach. In other cases, the very long time horizons involved in climate change discussions may seem less relevant to stakeholders, particularly to poor communities that are likely managing a variety of more pressing, nonclimate-related risks on a day-to-day basis. However, there are often activities that can deliver important co-benefits in terms of building resilience to disasters and climate change together with other developmental gains. For example, public works programs, such as those supported through Ethiopia's Productive Safety Net Program, support the dual goals of ensuring livelihoods and food security as well as climate risk management by providing participants with cash for work focused on activities such as land terracing, reforestation, and the like. Another example is the Management of Slope Stability in Communities program in the Caribbean, which, as described earlier, designed a drainage system for improved surface water management that captured rainfall (roof water and grey water) for household use, and at the same time reduced landslide risk by diverting the rainwater.

Keeping it simple helps. While many communities are already feeling the impacts of climate change, they may not understand the climate drivers of the changes they are experiencing. They may have a general sense that weather patterns are changing without understanding why or what more is to come. Climate change information can be confusing, and people can be put off by the science and jargon. The Red Cross/Red Crescent Climate Centre (2007) offers useful advice on how community facilitators can become comfortable talking about climate change and how to relate weather events being experienced by communities to climate change. Overall, the guidance recommends keeping language simple to ensure that planning for climate change remains rooted in local priorities and understanding. This may not involve discussing climate change at all, but instead asking questions about observed changes in the weather to raise awareness and to get people thinking about building resilience.

Other tools, such as spatial planning, may also help communities visualize risk that may be more difficult to grasp in the short term. For example, by comparing the coast line of 50 years ago with today's, communities are able to see how coastal erosion progresses. Or, by simulating the impacts of climate change, communities can make more informed decisions on whether to protect a settlement or relocate. In Samoa, for example, an overlay of maps showing how the coastline had changed due to erosion led the chiefs to ban sand mining, a difficult decision that may not have been otherwise taken.

Maintain Flexibility in CDD Programs Dealing with Climate and Disaster Risk

Climate change means making decisions under conditions of uncertainty, which will require flexible, "learning-by-doing" approaches. Rather than designing an investment for a specific climate scenario or level of exposure, investments will need to be designed to allow for the unknowns about climate impacts. CDD programs have demonstrated their flexibility for post-disaster response in a number of countries. In Indonesia, efforts were rapidly mobilized following the disasters in Aceh (2004 tsunami), Yogyakarta, and Central Java (2006 earthquake) and in Central Java (2010 Mt. Merapi eruption). On the same day, the government declared it safe for residents to return to their neighborhoods, trained already-established facilitators in the communities to work with beneficiaries to assess needs, prepare community settlement plans, and

allocate block grants. The key is to have programs in place before the onset of extreme events, with flexible targeting, financing, and implementation arrangements (Jha, Bloch, and Lamond 2011). The same flexibility is needed for activities focused on broader resilience building in order to integrate learning along the way and adjust to changing community vulnerabilities.

Promote Cross-Disciplinary and Cross-Ministerial Cooperation

Increasing climate and disaster risk require interdisciplinary approaches and cooperation across sectors and ministries. A number of the CDD programs reviewed demonstrated the benefits of promoting collaboration between different government programs and policies, both horizontally and vertically. For example, in India National Rural Livelihood Mission, strategic links were made to the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA). Schemes under this act provide 100 days of wage labor per year to eligible poor households. The public works made under MGNREGA include watershed management and landscape restoration, thereby helping to build resilience at the landscape level as well as at the household level through short-term wage employment.

Despite their achieving a measure of success in fostering cross-sectoral ways of working, many of the projects reviewed illustrated the challenges of collaboration. Sources of funding and new, dedicated sources of climate finance in particular, may offer opportunities to seek new forms of collaboration, but this also runs the risk of driving a wedge between ministries and agencies who face powerful institutional incentives to try to capture such funds and control the agenda in ways that suit their own purposes. This can happen institutionally as well within the World Bank if a specific sector is managing a CDD program and unintentionally limits the choice of resilience building investment options. The Zambia PPCR and the Ethiopia Productive Safety Net Program both provide additional examples of intersectoral and cross-ministerial collaboration.

Provide Incentives for Innovation

There is a need to provide incentives for innovation in resilience building. Climate resilience is not about finding a silver bullet. Rather, it is usually a question of introducing simple new practices (e.g., sustainable land management technologies such as terracing, water harvesting, and agroforestry) or combining existing practices in new ways. In addition to technology, there may be other forms of innovation related to institutional forms that allows for the adoption or scaling up of new practices. Access to information on the part of potential users is often a major constraint, as are incentives to adopt innovations. Vulnerable communities need greater access to the right information, such as good seasonal forecasts, early warning systems, and knowledge of innovative practices. Information and communication technology can play an important role in providing users with direct access to better climate information. In a number of African countries, for example, local stakeholders are increasingly relying on SMS or Internet distribution lists that provide hazard warnings.

There are a few projects that include specific mechanisms to support innovation. China's Heilongjiang Dairy Project included a climate change mitigation component that supported

research programs to assess climate change through experimental technology. During implementation, the component increased the number of research topics funded from 6 to 16 because of its success in identifying innovative technologies for application by farmers. The Zambia PPCR project is piloting a way to promote innovation by providing community groups and individuals with grants for climate adaptation activities that meet certain criteria. Recipients of the grants will be first identified by local poverty assessment groups and then awarded grants based on their engagement in visible, transformative, or innovative adaptation practices. Grants are also earmarked for women-headed households in order to promote women as resilience champions.

Explore Risk Financing Options

CDD resilience projects may tap into a broader range of financing instruments than conventional CDD projects in order to manage risk. CDD serves as an effective delivery mechanism for recovery support down to community level. As discussed earlier, a number CDD programs became de facto recovery support programs after being hit with a disaster. With this goal in mind, CDD project design could plan for contingencies by including a Zero Sum Contingent Component, which is a nonfunded component that can receive reallocations from other components in the event of an emergency. Governments could also link a CDD program with a CAT-DDO (Development Policy Loan with a Differed Draw Down Option), which would help the government manage fiscal risk and at the same time provide rapid access to funds that can be channeled to scale up a CDD program for emergency response and recovery.

For households and community groups, CDD programs can go beyond savings and loans to explore insurance products for risk management. Over the past decade or so, a number of programs have piloted index insurance products for poor farmers or herders to protect their livelihoods from disaster shocks. While these products have produced mixed results in terms of their impact on household welfare, there are some promising models, which indicates the potential for insurance to complement other mechanisms like safety nets. Examples include the Index Based Livestock Insurance Project in Mongolia and insurance products linked to the Productive Safety Net Program in Ethiopia.⁸

Strengthen Monitoring and Evaluation for CDD and Resilience

An important gap in current knowledge is how to assess, measure, monitor, and evaluate climate resilience. Metrics for monitoring and evaluating resilience efforts are lacking. Baselines and counterfactuals are difficult to establish for resilience, and there is no “finish line” due to the constantly shifting climate risk. Most indicators in current use are adapted from standard development indicators or develop lists of resilience characteristic based on the traits of communities that seem to thrive despite shocks. A number of development partners are grappling with the metrics of resilience, mainly focused on establishing leading indicators that may lead to resilience. CDD programs could provide an important laboratory for studying the indicators and impacts of resilience-building efforts.

8. For a detailed review of these and other cases, see Arnold et al., “Insuring Resilience?: What Does the Evidence Tell Us?” (World Bank, forthcoming).

Box 6. Building Resilience to Dzud in Mongolia

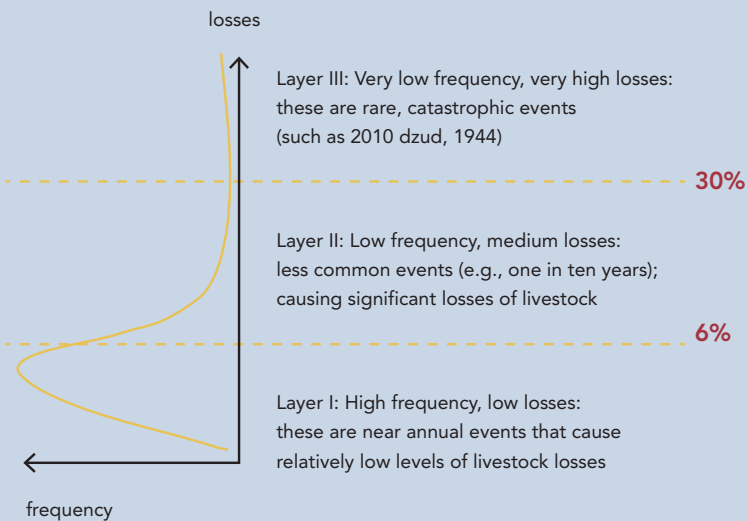
The World Bank-supported rural development program in Mongolia has evolved over the last fifteen years to provide a combination of instruments, including investment operations, policy support, and analytical support, geared to address three conceptually distinct risk layers, all resting on a foundational CDD platform provided by the Sustainable Livelihoods Program.

The **Sustainable Livelihoods Program**, an APL now in its third phase, supports activities to reduce losses in Layer I (up to 6 percent mortality) through pastoral risk management by local herder communities and local authorities including community-based natural resource management, land-use, and contingency reserve planning; financing local public and club goods to improve winter preparedness (hay and fodder production and fodder storage); demonstrating new technologies to improve resilience; distance learning for herders on pasture management and herd management to improve winter preparation; and testing new institutional arrangements for pastoral risk management. In addition, livelihood diversification into less climate-sensitive income-earning activities has been facilitated through access to microfinance; short-term employment has been created through community-managed public investments in small-scale infrastructure; and public investments in health, education, and transportation have helped access markets and wider employment opportunities.

Layer II risks are not easily absorbed by herders. Additional tools required for risk transfer include index-based insurance, which would allow herders to transfer some risk to the private insurance market (between 6 percent and 30 percent of losses), backed by international reinsurance. The **Index-Based Livestock Insurance Project** has been successfully piloted since 2005 and is currently being scaled up to achieve nationwide coverage. Insurance payouts are not based on actual losses at the level of individual households but on aggregate losses at the district level exceeding predetermined risk thresholds. Reaching smaller, more vulnerable herders remains a challenge. This

can be tackled by facilitating marketing through herder groups, keeping premium rates low, and linking insurance with credit to make it more affordable to herders.

Layer III risks are “noninsurable” as losses are too high. This layer requires direct targeted interventions supported by the government for catastrophe losses (30 percent mortality or higher). A combination of approaches may be required at this level, such as public catastrophe coverage and targeted social safety nets. A World Bank-supported study examined herder responses to the 2010 dzud (Fernandez-Gimenez et al., 2012). Findings suggest that collective action among herders can improve resilience up to a certain level, but that government, donor, and humanitarian funding was too little, too late in reaching herders. Cross-level institutions to manage pastoral risk are needed but are currently lacking.



Conceptualizing risk “layers” associated with dzud in Mongolia

This would require improving the overall monitoring, evaluation, and learning systems of CDD programs. As Wong (2012) points out, while the number of rigorous impact evaluations of CDD projects has increased, the number is miniscule when considering over 400 active CDD programs and 25 years of implementation. Wong’s review identified only 17 World Bank official impact evaluations that had been completed on CDD programs. She further identified the need to focus strategic impact evaluations on the issue of sustainability of CDD programs, which is highly relevant to resilience building.

It would be very useful to undertake a longitudinal study to assess how a community either recovered from an extreme event or reduced risk to specific hazards using a CDD approach.

This could go beyond evaluating whether a CDD project allowed faster access to recovery resources in the face of a disaster to assessing CDD activities against indicators related to the core properties of resilience, as discussed earlier. Examples include: whether social networks (modularity) improved community cohesion and provided more effective psychosocial recovery of community members, whether community-level investments provided additional coping mechanisms (diversity and redundancy), or whether communities employed a learning-by-doing approach and adjusted their risk management strategies over time (regulatory feedbacks).

V. Conclusions

Many poor communities in developing countries are already feeling the impacts of climate change. As discussed, the World Bank's 4 Degree report has confirmed that these impacts will worsen and that the poor will be hit the hardest. The poor will bear the brunt of climate change impacts while having contributed very little to its causes. The impacts of climate change mean greater challenges in terms of extreme events, health impacts, food security, livelihood security, migration, water security, cultural identity, and other risks for millions of poor people. There is a true sense of urgency to identify effective tools to help the poor manage increasing risk and build resilience to what may come.

CDD projects have already made a significant investments over the past decade in helping communities deal with disaster and climate risk. They have demonstrated their ability to provide effective and agile responses to disaster emergencies in addition to having positive impacts on poverty reduction and service delivery. There are several characteristics of the CDD approach that lend themselves to supporting resilience building, including the ability to link communities with local and national authorities; flexible approaches that can be tailored to the local context and to changing needs; and the ability to serve as a general platform for empowerment, addressing the underlying causes of vulnerability in addition to specific interventions for disaster and climate risk management. Perhaps most critically, CDD programs have the ability to reach large numbers of poor people directly, which allows governments to work at the scale required in the context of climate change and increasing disaster risk.

This review suggests that there is great potential for a CDD approach to serve as a powerful tool for building disaster and climate resilience at the local level. If this potential is to be realized, there are a number of things that CDD practitioners need to keep in mind, including integrating climate science into program design; identifying appropriate entry points to engage communities on the topic; and, promoting flexibility, cross-sectoral solutions, and cooperation as well as innovation specific to the challenges of increasing disaster and climate risk.

Moving forward, it would be useful to develop more detailed guidance for the CDD practitioner on integrating disaster and climate resilience efforts into CDD programs. This could go beyond the suggestions and resources listed here and build on previous efforts, such as the CDD toolkit on integrating DRM into CDD programs,⁹ which does not address climate change.

9. The formal title of the toolkit is "*Building Resilient Communities: Risk Management and Response to Natural Disasters through Social Funds and Community-Driven Development Operations*" (World Bank 2009). Also see annex 1, Useful Resources for Integrating Disaster and Climate Resilience into CDD programs.

Finally, there is a need for more evidence of impacts on resilience building from past CDD projects. It would be important to undertake specific impact evaluations on the impact of CDD programs on building resilience at the community level. These efforts could provide some important learning to strengthen understanding of resilience and how to measure it. More importantly, it could guide governments, development partners, and communities to improve the effectiveness of resilience-building efforts.

Annex 1.

Useful Resources for Integrating Disaster and Climate Risk Management into CDD Programs

Climate Change and General Information

World Bank's Climate Change Knowledge Portal

<http://sdwebx.worldbank.org/>

The Climate Change Knowledge Portal Beta is a central hub of information, data, and reports about climate change around the world. Aimed at development practitioners, users can query, map, compare, chart, and summarize key climate and climate-related information. The Climate Change Knowledge Portal contains environmental, disaster risk, and socioeconomic datasets as well as synthesis products, such as the Climate Adaptation Country Profiles, which are built and packaged for specific user-focused functions like climate change indices for a particular country. The portal also provides intelligent links to other resources and tools.

Social Resilience and Climate Change Operational Toolkit (World Bank 2011c)

http://www-wds.worldbank.org/external/default/WDSCContentServer/WDSP/IB/2011/12/05/000386194_20111205033312/Rendered/PDF/658860WP00PUBL0lkit0FINAL200PUBLIC0.pdf

This note is written for World Bank task teams and explains how an understanding of the social dimensions of climate change can enhance the sustainability and quality of World Bank-supported operations while mitigating potential risks. The note reviews major challenges involved in addressing the social dimensions of climate change, outlines how social development approaches can help to solve these challenges, highlights the main social development analytical and operational tools in relation to the social dimensions of climate change, and provides operational examples to highlight strategies that focus on the social dimensions of climate change.

Gender and Climate Change: Three Things You Should Know (World Bank 2011b)

<http://www-esd.worldbank.org/sdvpubs/index.cfm?Page=Search&DocID=548&sr=1>

Women's empowerment is critical for climate resilience and much can be done to improve the effectiveness of climate finance and actions on the ground by ensuring that gender relations are taken into account in design, implementation, and measurement of results. This policy brief provides an overview of the gender dimensions of climate change and provides examples of the role that women play in building climate resilience.

Specific Tools to Work with Communities

Participatory Scenario Development Approaches for Identifying Pro-Poor Adaptation Options (Bizikova et al, 2010)

http://climatechange.worldbank.org/sites/default/files/documents/PSD-Pro-Poor-Adaptation_EACC-Social%20.pdf

Participatory scenario development (PSD) is a process that involves the participation of stakeholders to explore the future in a creative and policy-relevant way. PSD is used to identify the effects of alternative responses to emerging challenges, to determine how different groups of stakeholders view the range of possible policy and management options available to them, and to identify the public policies or investment support needed to facilitate effective future actions. PSD approaches help to identify locally relevant pathways of autonomous and planned adaptation in the context of development choices and decisions while informing actors of potential tradeoffs and possible consequences of adaptation actions. The publication provides the theoretical foundations, describes the workshop design and process, and provides a number of cases where PSD has been applied.

Building Resilient Communities: Risk Management and Response to Natural Disasters through Social Funds and Community-Driven Development Operations (World Bank 2009)

http://siteresources.worldbank.org/INTSF/Resources/Building_Resilient_Communities_Complete.pdf

This toolkit is designed to help Task Teams on World Bank social funds and CDD operations identify disaster risk management issues in their programs and projects and to design and implement appropriate responses. The toolkit introduces the concepts and components of community-based disaster risk management and their key relationship to the achievement of the development and poverty reduction objectives of the World Bank, including those of social funds and CDD operations within this context. The nine modules of the toolkit correspond to key thematic areas of community-based disaster risk management. Each module can be used separately or in combination with others. The toolkit is particularly useful to determine the most effective ways to manage operational challenges in relation to the rapid mobilization and scaling up of emergency response operations, but it needs to be updated to integrate climate change concerns.

Red Cross Red Crescent Climate Guide (Red Cross/Red Crescent Climate Centre (2007)

<http://www.climatecentre.org/site/publications/85?type=3>

The Red Cross/Red Crescent Climate Guide presents five years of experiences from more than thirty national Red Cross and Red Crescent societies, particularly in developing countries. It relates the experiences of Red Cross and Red Crescent staff and volunteers all around the world trying to understand and address the risks of climate change. The guide begins with the basics about climate change: the scientific consensus, the humanitarian consequences, and the general implications for the Red Cross and Red Crescent. This is followed by six thematic modules: (1) Getting Started; (2) Dialogues; (3) Communications; (4) Disaster Management; (5) Community-Based Disaster Risk Reduction; and (6) Health. Each module begins with a background section with real-life Red Cross and Red Crescent experiences and perspectives, followed by a “how-to” section with specific step-by-step guidance. The 140-page guide is available in English, French, Arabic, Spanish, and Russian.

Building Resilient Communities: A Training Manual on Community-Based Disaster Risk Reduction

<http://www.cordaid.org/en/publications/>

[building-resilient-communities-training-manual-community-based-disaster-risk-reduction/](http://www.cordaid.org/en/publications/building-resilient-communities-training-manual-community-based-disaster-risk-reduction/)

The training manual and resource book provides trainers and community facilitators with a comprehensive guide and reference materials to conduct a basic two-week course on Community Driven Disaster Risk Reduction. The manual is divided into four booklets:

- (1) CMDRR Training, Design and Implementation
- (2) Module 1: CMDRR Concepts, Principles and Practices
- (3) Module 2: Facilitating CMDRR Methods and Processes
- (4) Module 3: Sustaining CMDRR

First published by Cordaid in 2007, a revised edition was published in May 2013 to include more attention to Climate Change Adaptation and Eco Systems Management. The guide is available in the following languages: English, Spanish, French, Bahasa Indonesia, Bangla, Tamil, and Hindi.

Annex 2.

List of Projects Reviewed

Year	Project ID	Country	Project Name	Total Bank Loan/Credit (US\$ million)	Climate Resilience Amount (US\$ million)
Africa Region					
2001	P044695	Uganda	National Agricultural Advisory Services Project	45.00	83.40
2002	P069901	Nigeria	Community-Based Urban Development Project	110.00	43.90
	P072996	Niger	Private Irrigation Promotion Project	38.72	39.46
	P050383	Ethiopia	Food Security Project	85.00	77.32
2003	P081773	Ethiopia	Emergency Drought Recovery Project	60.00	55.00
	P075911	Malawi	Social Action Fund	60.00	42.00
	P065991	Niger	Community Action Program	35.00	22.00
	P080612	Zambia	Emergency Drought Recovery Project	50.00	56.38
	P059073	Tanzania	Dar es Salaam Water Supply and Sanitation Project	61.50	126.05
	P002952	Uganda	Northern Uganda Social Action Fund Project	100.00	130.00
	P078058	Kenya	Arid Lands Resource Management Project Phase Two	60.00	46.32
	P080368	Malawi	Emergency Drought Recovery Project	50.00	40.00
	P075915	Ethiopia	Pastoral Community Development Project	30.00	52.00
2004	P074266	Chad	Agricultural Services and Producer Organizations Project	20.00	19.67
	P081368	Mauritania	Community-Based Rural Development	45.00	30.00
	P069892	Nigeria	Local Empowerment and Environmental Management Project	70.00	43.68
	P063622	Nigeria	Second National Fadama Development Project	100.00	81.00
	P075247	Malawi	Community-Based Rural Land Development Project	27.00	13.00
2005	P081482	Ghana	Community-Based Rural development	60.00	91.80
	P085786	Tanzania	Tanzania Second Social Action Fund	150.00	41.00
	P088978	Madagascar	Community Development Fund Project	50.00	28.00
	P064558	Burundi	BI-Agriculture Rehabilitation & Sustainable Land Management	35.00	34.57
2006	P093165	Mozambique	Market Led Smallholder Development in the Zambezi Valley	61.00	38.00
	P085752	Tanzania	Tanzania Agricultural Sector Development Project	90.00	116.00
2007	P087154	Tanzania	Water Sector Support Project	200.00	121.00
	P084002	Cameroon	Urban and Water Development Support Project	80.00	42.00
	P074106	Kenya	Western Kenya CDD and Flood Mitigation Project	86.00	77.60
	P096296	Madagascar	MG-Community Develop. Fund/Additional Financing (FID IV)— Supplemental	18.00	11.30

Year	Project ID	Country	Project Name	Total Bank Loan/Credit (US\$ million)	Climate Resilience Amount (US\$ million)
	P098378	Burkina Faso	Second Phase Community Based Rural Development Project	74.00	48.00
	P098093	Ethiopia	Productive Safety Nets APL II	175.00	175.00
	P100762	Kenya	Kenya Arid Lands Resource Management Project Emergency Additional Financing	60.00	30.00
2008	P107139	Ethiopia	Sustainable Land Management Project	20.00	21.00
	P11117	Ghana	Community Based Rural Development Project Supplemental	22.00	6.50
	P096323	Ethiopia	Tana & Beles Integrated Water Resources Development	45.00	5.75
	P108932	Ethiopia	Pastoral Community Development Project II	80.00	120.80
2009	P111984	Madagascar	Rural Development Support Project Additional Financing	30.00	12.00
	P115952	Tanzania	Additional Financing for Tanzania Second Social Action Fund (TASAF II)	30.00	45.00
	P111633	Uganda	Second Northern Uganda Social Action Fund Project (NUSAF2)	100.00	15.00
2010	P114931	Rwanda	Land Husbandry, Water Harvesting, and Hillside Irrigation	34.00	38.00
	P107343	Burundi	BI—Agro-Pastoral Productivity and Markets Development Project	43.00	26.00
	P113220	Ethiopia	Productive Safety Net APL III	480.00	1,200.00
2011	P121027	Cameroon	Urban and Water Development Support Project Additional Financing	28.70	46.00
	P107598	Mozambique	MZ PROIRRI Sustainable Irrigation Development	70.00	58.00
	P125049	Togo	Emergency Infrastructure Rehabilitation and Energy Project—Additional Financing	9.50	9.50
	P113030	Chad	Local Development Program Support Project II	25.00	40.00
	P124844	Africa—Regional	West Africa Regional Fisheries Program APL A1 Additional Financing	2.00	55.68
	P121120	Malawi	Irrigation, Rural Livelihoods and Agricultural Development Project	12.70	7.50
East Asia and Pacific					
2001	P073025	Indonesia	Kecamatan Development Project (02)	320.20	2170.00
	P065973	Lao PDR	Agricultural Development Project	16.69	12.80
	P062748	Vietnam	Community Based Rural Infrastructure Project	102.78	25.00
2002	P067770	Mongolia	Sustainable Livelihoods Project	18.73	20.87
	P059936	Vietnam	Northern Mountains Poverty Reduction Project	110.00	36.00
2003	P071146	Cambodia	Rural Investment and Local Governance Project	22.00	50.00
	P059931	Indonesia	Water Resources & Irrigation Sector Management Program	70.00	93.00
	P079156	Indonesia	Third Kecamatan Development Project	249.80	71.00
2004	P125648	Indonesia	Community-based Settlement Rehabilitation and Reconstruction Project	11.50	11.50
2005	P092019	Indonesia	Kecamatan Development Project 3B	160.00	46.00

Year	Project ID	Country	Project Name	Total Bank Loan/Credit (US\$ million)	Climate Resilience Amount (US\$ million)
	P096647	Indonesia	Community Recovery in Earthquake affected areas through the Urban Poverty Project	17.90	6.00
2006	P081255	China	Changjiang/Pearl River Watershed Rehabilitation Project	100.00	197.20
	P084742	China	Irrigated Agriculture Intensification Loan III	200.00	110.48
2007	P096439	Mongolia	Sustainable Livelihoods II	33.00	37.01
	P084967	Philippines	Mindanao Rural Development Project—Phase 2	83.75	16.00
	P104185	Indonesia	KDP3 Second Phase—Additional Financing	123.00	40.00
2008	P105002	Indonesia	National Program for Community Empowerment in Rural Areas (PNPM)	231.19	190.62
	P087716	Lao PDR	Khammouane Development Project	9.00	3.00
2009	P108505	Lao PDR	Sustainable Forestry for Rural Development II	10.00	17.50
	P088926	Philippines	Participatory Irrigation Development Project	70.36	92.00
	P096556	China	Eco-Farming Project	120.00	370.00
2010	P099751	China	Sustainable Development in Poor Rural Areas	100.00	64.20
	P113493	Vietnam	Second Northern Mountains Poverty Reduction Project	150.00	93.00
2011	P121075	Cambodia	Ketsana Emergency Reconstruction and Rehabilitation Project	70.00	28.50
	P098078	China	Huai River Basin Flood Management and Drainage Improvement	200.00	299.00
	P114348	Indonesia	Water Resources and Irrigation Sector Management Program 2	202.56	100.00
	P120595	Tonga	Tonga Post Tsunami Reconstruction	5.00	4.20
	P125504	Mongolia	Second Sustainable Livelihoods Project Additional Financing	11.00	2.00
	P121631	Solomon Islands	Additional Financing—Solomon Islands Rural Development Program	6.00	3.00
Europe and Central Asia					
2001	P055068	Georgia	Irrigation & Drainage Community Development Project	27.00	25.51
2002	P057847	Armenia	Natural Resources Management & Poverty Reduction Project	8.30	6.40
	P008860	Tajikistan	Poverty Alleviation 2 Project	13.80	17.72
2003	P077297	Albania	Community Works 2 Project	15.00	12.00
	P055434	Bosnia and Herzegovina	Small-Scale Commercial Agriculture Development Project	12.00	7.70
2004	P077454	Tajikistan	Community Agriculture & Watershed Management Project	10.80	12.00
	P070950	Turkey	Anatolia Watershed Rehabilitation Project	20.00	43.07
2005	P082375	Albania	Natural Resources Development Project	7.00	23.18
2007	P096409	Kyrgyz Republic	Second On-farm Irrigation Project	16.00	2.50
2011	P107617	Azerbaijan	Water Users Association Development Support Project	114.30	89.90

Year	Project ID	Country	Project Name	Total Bank Loan/Credit (US\$ million)	Climate Resilience Amount (US\$ million)
Latin America and Caribbean					
2001	P064906	Nicaragua	Poverty Reduction and Local Development Project	60.00	1.00
	P064895	Honduras	Social Investment Fund Project (05)	60.00	30.00
	P057649	Brazil	Rural Poverty Reduction Project—Bahia	54.35	11.00
	P073035	Honduras	Access to Land Pilot (PACTA)	8.00	1.17
	P050875	Brazil	Rural Poverty Reduction Project—Ceara	37.50	11.00
2002	P039437	Ecuador	Poverty Reduction and Local Rural Development (PROLOCAL)	25.20	35.88
	P066170	Brazil	Rural Poverty Reduction Project—Rio Grande do Norte	22.50	15.00
	P074085	Brazil	Rural Poverty Reduction Project—Sergipe	20.80	14.50
2003	P076837	Jamaica	National Community Development Project	15.00	13.00
2004	P064914	Honduras	Forests and Rural Productivity	20.00	21.60
	P080830	Brazil	Maranhao Integrated Program: Rural Poverty Reduction Project	30.00	19.00
2006	P052256	Brazil	Rural Poverty Reduction Project—Minas Gerais	35.00	26.00
	P093787	Brazil	Bahia State Integrated Project: Rural Poverty	54.35	33.00
	P100791	Brazil	Additional Financing for the Rural Poverty Reduction Project—Ceara	37.50	22.00
2007	P082651	Brazil	APL 1 Para Integrated Rural Development Project	60.00	58.00
	P101879	Brazil	Additional Financing for the Rural Poverty Reduction Project—Pernambuco	30.00	30.00
	P089011	Brazil	Municipal APL1: Uberaba	17.27	15.36
	P089839	Haiti	Haiti Rural Water and Sanitation Project	5.00	2.50
2008	P108974	Nicaragua	Nicaragua Hurricane Felix Emergency Recovery Project	17.00	15.70
	P106699	Haiti	Urban Community Driven Development Project (PRODEPUR)	15.70	6.68
	P083997	Brazil	Alto Solimoes Basic Services and Sustainable Development Project in Support of the Zona Franca Verde Program	24.25	13.54
	P102446	Argentina	AR Additional Financing Small Farmer Development Project (PROINDER)	45.00	118.00
2009	P104752	Brazil	Para/ffba Second Rural Poverty Reduction	20.90	12.00
	P114775	Haiti	Community-Driven Development (CDD) Additional Financing	8.00	10.00
	P110614	Brazil	Sergipe State Integrated Project: Rural Poverty	20.80	11.00
2010	P107666	Peru	Water Resources Management Modernization	10.00	14.00
	P118139	Haiti	Rural Community Driven Development—Additional Financing II	15.00	41.00
	P101508	Brazil	Rio de Janeiro Sustainable Rural Development Project	39.50	55.00
	P110617	Brazil	Bahia State Integrated Rural Poverty Additional Financing	30.00	32.00
	P107416	Guatemala	Expanding Opportunities for Vulnerable Groups	114.50	35.00
2011	P121833	Haiti	Housing Reconstruction—Urban Community Driven Development Additional Financing	30.00	30.00

Year	Project ID	Country	Project Name	Total Bank Loan/Credit (US\$ million)	Climate Resilience Amount (US\$ million)
Middle East and North Africa					
2001	P062714	Yemen	Irrigation Improvement Project	21.30	22.30
2003	P076784	Algeria	Second Rural Employment Project	95.00	124.20
	P072317	Tunisia	Northwest Mountainous and Forestry Areas Development Project	34.00	38.20
	P064981	Yemen	Sana'a Basin Water Management Project	24.00	23.40
	P069124	Morocco	Rainfed Agriculture Development Project	26.80	26.30
2007	P100026	Morocco	National Initiative for Human Development Support Project (INDH)	100.00	250.00
	P089259	Yemen	Rainfed Agriculture and Livestock Project	20.00	22.83
2009	P107037	Yemen	Yemen-Water Sector Support	90.00	160.00
2011	P117355	Djibouti	Rural Community Development & Water Mobilization/PRODERMO	6.13	3.35
South Asia					
2001	P067216	India	Karnataka Watershed Development Project	100.40	118.00
	P071092	Pakistan	North West Frontier Province On-Farm Water Management Project	21.35	12.82
	P059143	Bangladesh	Second Poverty Alleviation Microfinance Project (Microfinance II)	151.00	39.00
2002	P040610	India	Rajasthan Water Sector Restructuring Project	140.00	179.26
	P071033	India	Karnataka Community-Based Tank Management Project	98.90	67.91
2003	P053578	Bangladesh	Social Investment Fund	18.24	18.00
	P071272	India	Andhra Pradesh Rural Poverty Reduction Project	150.03	135.00
	P078550	India	Uttaranchal Decentralized Watershed Development Project	69.62	87.49
	P082977	Pakistan	Second Poverty Alleviation Fund Project	238.00	68.00
	P073369	India	Maharashtra Rural Water Supply and Sanitation "Jalswarajya" Project	181.00	111.00
	P078997	Pakistan	Sindh On-Farm Water Management Project	61.14	68.84
	P082621	Pakistan	NWFP Community Infrastructure Project II (NWFP CIP2)	37.10	23.00
	P074872	Sri Lanka	Community Development and Livelihood Improvement "Gemi Diriya" Project	51.00	42.50
2005	P094513	India	Emergency Tsunami Reconstruction Project	465.00	545.00
	P094193	Maldives	Post Tsunami Emergency Relief and Reconstruction Project	14.00	9.50
2006	P093720	India	Himachal Pradesh Mid-Himalayan Watershed Development Project	60.00	74.00
	P099043	Pakistan	NWFP-OFWM—Earthquake Additional Financing	10.00	10.00
	P099038	Pakistan	Additional Financing for Rehabilitating Earthquake Affected Communities	100.00	100.00
2007	P090768	India	Tamil Nadu Irrigated Agriculture Modernization and Water-Bodies Restoration and Management Project	485.00	249.50
	P100789	India	Andhra Pradesh Community-Based Tank Management Project	189.00	145.00
	P083187	India	Uttaranchal Rural Water Supply and Sanitation Project	120.00	105.00

Year	Project ID	Country	Project Name	Total Bank Loan/Credit (US\$ million)	Climate Resilience Amount (US\$ million)
	P104393	Pakistan	Additional Financing for Rehabilitating Earthquake Affected Communities II	138.00	3.50
	P090764	India	Bihar Rural Livelihoods Project—"JEEVIKA"	63.00	33.00
2008	P089378	Pakistan	Balochistan Small Scale Irrigation Project	25.00	17.00
	P040712	Bangladesh	Water Management Improvement Project	102.26	116.00
	P102328	India	Karnataka Community Based Tank Management Project (Supplement)	64.00	68.99
	P084302	Pakistan	Sindh Water Sector Improvement Project Phase I	150.20	83.10
	P104724	India	Andhra Pradesh Rural Poverty Reduction: Drought Adaptive Initiative Project	65.00	60.00
2009	P093478	India	Orissa Rural Livelihoods Project	82.40	52.00
	P105075	Pakistan	Third Pakistan Poverty Alleviation Fund Project	250.00	115.00
2010	P119152	Sri Lanka	Additional Financing Community Livelihoods in Conflict Affected Areas Project	12.00	11.00
	P087145	Sri Lanka	Second Community Development and Livelihood Improvement Project	75.00	45.00
	P073886	Bangladesh	EMPOWERMENT AND LIVELIHOOD IMPROVEMENT "NUTON JIBON" PROJECT	115.00	20.00
2011	P102329	India	Rajasthan Rural Livelihoods Project (RRLP)	183.80	114.60
	P125855	Sri Lanka	Second Additional Financing for P086747 the Community Livelihoods in Conflict Affected Areas Project	48.00	79.00

Annex 3.

Glossary of Key Terms

Adaptation: In human systems, the process of adjustment to actual or expected climate and its effects in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate (Field et al. 2012).

Adaptive capacity: The combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities (Field et al. 2012).

Autonomous adaptation: Adaptation that does not constitute a conscious response to climatic stimuli but is triggered by ecological changes in natural systems and by market or welfare changes in human systems (i.e., any system in which human organizations play a major role). Often, but not always, the term is synonymous with “society” or “social system” (e.g., agricultural system, political system, economic system, etc.). Also referred to as spontaneous adaptation (Field et al. 2012).

Climate change: A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes, external forcings, or persistent anthropogenic changes in the composition of the atmosphere or in land use (Field et al. 2012).

Climate (change) scenario: A plausible and often simplified representation of the future climate based on an internally consistent set of climatological relationships and assumptions, typically constructed for explicit use as input to climate change impact models. A “climate change scenario” is the difference between a climate scenario and the current climate (Field et al. 2012).

Climate proofing: A process that makes projects, strategies, policies, and measures resilient to climate change, including climate variability, by systematically examining programming documents and projects to identify ways to minimize climate change risks and optimize adaptation (i.e., climate risk screening) and integrating these ways into programming and projects (i.e., mainstreaming) (Asian Development Bank 2005).

Climate variability: Variations in the mean state and other statistics (such as standard deviations, the occurrence of extremes, etc.) of the climate at all spatial and temporal scales beyond that of individual weather events. Variability may be due to natural internal processes within the climate system (internal variability) or to variations in natural or anthropogenic external forcing (external variability). (Field et al. 2012).

Coping: The use of available skills, resources, and opportunities to address, manage, and overcome adverse conditions with the aim of achieving basic functioning in the short to medium term (Field et al. 2012).

Disaster: A serious disruption in the functioning of a community or society involving widespread human, material, economic, or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources. Disaster impacts may include loss of life, injury, disease, and other negative effects on human physical, mental, and social well being, together with damage to property, destruction of assets, loss of services, social and economic disruption, and environmental degradation (UNISDR 2009).

Disaster risk: The likelihood over a specified time period of severe alterations in the normal functioning of a community or a society due to hazardous physical events interacting with vulnerable social conditions, leading to widespread adverse human, material, economic, or environmental effects that require an immediate emergency response to satisfy critical human needs and that may require external support for recovery (Field et al. 2012). UNISDR defines disaster risk as potential disaster losses in lives, health status, livelihoods, assets, and services, which could occur in a particular community or society over some specified future time period (UNISDR 2009).

Disaster risk management: Processes for designing, implementing, and evaluating strategies, policies, and measures to improve the understanding of disaster risk, foster risk reduction and transfer, and promote continuous improvement in disaster preparedness, response, and recovery practices with the explicit purpose of increasing human security, wellbeing, quality of life, and sustainable development (Field et al. 2012).

Exposure: The presence of people, livelihoods; environmental services and resources; infrastructure; or economic, social, or cultural assets in places that could be adversely affected (Field et al. 2012).

Hazard: The potential occurrence of a natural or human-induced physical event that may cause loss of life, injury, or other health impacts as well as damage and loss to property, infrastructure, livelihoods, service provision, and environmental resources (Parry et al. 2007; Field et al. 2012). Examples of natural hazards are earthquakes, landslides, droughts, floods, storms, and tsunamis, while unnatural hazards include deaths and damages that result from human acts of omission and commission (World Bank 2010b).

Maladaptation: Actions or investments that do not take potential climate change impacts into account and may inadvertently increase exposure or vulnerability to climate risk rather than decrease it (authors).

Resilience: In this report, “the ability to withstand, recover from, and reorganize in response to crises so that all members of society may develop or maintain the ability to thrive” (Benson et al. 2012). In the IPCC report (Field et al. 2012), it is defined as the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions.

Social learning: The process by which agents and organizations continuously frame and reframe the issues at stake and develop enhanced content and relational capabilities to deal with common problems, which individuals often cannot resolve on their own (Nilsson and Swartling 2009).

Vulnerability: The degree to which a system is susceptible to or unable to cope with the adverse effects of climate change, including climate variability. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity (Parry et al. 2007).

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