

# Integrating Climate and Ecosystems into Community Risk Assessments

## Examples and Lessons Learned from the Partners for Resilience Programme



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Version 3.0, March 2014*

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## **i. Acknowledgements**

We are grateful to Joyce Wong and Hannah Tankard, who authored the first draft of this review. We are also thankful for all the inputs provided by the members of Partners for Resilience (PfR) from all of the partner organizations in the nine PfR countries, who had the challenging task of undertaking this innovative step in applying adjusted Community Risk Assessments. Lastly, the authors are grateful for feedback received by Charlotte Floors, Raimond Duijsens, Bruno Haghebaert and Tialda Veldman.

## **ii. Abbreviations**

CCA	Climate Change Adaptation
CRA	Community Risk Assessment
CMDRR	Community-Managed Disaster Risk Reduction
DRR	Disaster Risk Reduction
EMR	Ecosystem Management and Restoration
M&E	Monitoring and evaluation
NAP	National Adaptation Plan
NLRC	Netherlands Red Cross
PfR	Partners for Resilience
<i>tools+</i>	DRR tools including ecosystem and climate elements
WI	Wetlands International

### iii. Executive Summary

**The Partners for Resilience (PfR) Programme aims at strengthening community resilience to disasters in nine countries around the world.** An initial phase involved conducting Community Risk Assessments (CRA). To move beyond community-focused or “business-as-usual” CRA, the Partners sought to explicitly consider factors related to climate and ecosystems when conducting Community Risk Assessments. This led to the development of “the PfR approach”, in which communities’ risk is understood as a convergence of factors, i.e. from socioeconomic vulnerabilities to non-adaptive management of natural resources in the face of a changing climate.

**Prior to conducting the CRAs, partner organizations carefully selected the project communities through a variety of innovative methods.** Some Partners focused on opportunities for local learning and municipal engagement; others selected communities in proximity within a single river basin or watershed, to benefit from shared opportunities for regional risk analysis. Partners availed themselves of opportunities for joint disaster risk reduction (DRR) action planning, as well as collaboration and advocacy – activities that typically follow the risk-analysis phase.

**Designing “ecosystem-smart” DRR strategies that also promote climate change adaptation (CCA) in the medium to long term has become a main goal of the PfR organizations.** Current DRR tools for conducting CRA were adjusted; for example, *seasonal calendars, risk maps and historical calendars*, were enhanced to include climate related risks and ecosystem issues. Notably, while some communities struggled to understand climate change, adaptation and ecosystem-related issues, Partners sought to overcome challenges posed by the enhanced CRAs by, for instance, using tools such as risk maps to describe how climate risks and ecosystems might be changing over time. Partners supported the process through facilitated discussions to identify, and analyse the changes, trends and linkages between climate and ecosystems over time, looking beyond the boundaries of target villages.

**Overall, PfR’s approach to CRAs generated many valuable lessons, but was not without challenges.** Partners unanimously agreed that the holistic approach to conducting CRAs – despite being demanding in time and resources – broadened their perspective to DRR. Applying the “climate lens”, but to a certain extent also the “eco-lens” and triangulating this information remained most challenging throughout assessment phase, but the modified tools did help to elicit information on past experiences of hazards and use of resources, while exploring how hazards might behave in the future. In the end, by launching this assessment process, communities did improve their knowledge on how to adapt their livelihood practices, and safeguard key ecosystem services in order to reduce vulnerabilities, mitigate recurrent climatic hazards and increase disaster resilience in the face of a changing climate risk.

**As a result of the integrated CRAs, communities continue to learn to develop climate-resilient DRR plans that explicitly consider the role of ecosystems.** This attempt to apply the PfR approach aiming at strengthening community disaster resilience will be crucial to success for the PfR programme.

# 1. Introduction

## 1.1 *Partners for Resilience*

The Partners for Resilience Program (PfR) is a collaboration of CARE Nederland, Cordaid, the Netherlands Red Cross (NLRC), the Red Cross/Red Crescent Climate Centre (“the Climate Centre”), Wetlands International (WI) and over 40 civil society Partners in the global south. PfR’s ecosystem-based and climate-smart approach to disaster risk reduction (DRR) is an inclusive way to strengthen community resilience by breaking the cycles of poverty, risk and vulnerability, which drive mounting economic losses, and impose ever greater costs of relief and rehabilitation on governments and agencies.

The assessment phase of the PfR programme included conducting Community Risk Assessments (CRAs).<sup>1</sup> Notably, PfR sought to go beyond “business-as-usual” during this phase by explicitly taking into account factors related to climate risks and ecosystem services – or benefits to people – when assessing disaster risk at community level.

Partners assessed risk in 391 communities across the nine PfR countries.<sup>2</sup> The most common hazards were droughts and floods. The integrated CRAs<sup>3</sup> demonstrated that risks PfR communities face are rooted in a complex mix of social, political and economic factors; these include diverse socioeconomic vulnerabilities, and hazards frequently triggered by environmental loss and degradation, along with an erratic changing climate.

## 1.2 *Report purpose, structure and outcomes*

This global analysis is designed as a learning exercise to introduce the PfR approach, integrating climate risk and ecosystem components into Community Risk Assessments and subsequent DRR plans. The analysis does not detail how to conduct CRAs, but rather highlights techniques, examples, results and lessons learnt from this experience.

Sections 1 and 2 of the report explain the integrated PfR approach adopted by country teams for selecting project sites, adjusting CRA tools, and applying the adjusted tools in various country contexts. The main challenges and strengths offered by these innovative processes are described.

Section 3 reflects on the benefits but also on the special requirements for pursuing the PfR integrated approach to CRAs: what has the effort to adopt an integrated approach required in terms of additional time and resources? Integrated CRAs have indeed forced Partners to move out of their organizational comfort zones.

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<sup>1</sup> The term Community Risk Assessments (CRAs) is used to represent several, often similar, disaster risk and risk reduction identification techniques, including: Participatory Rural/Relaxed Appraisals, (Community) Vulnerability and Capacity Assessments, and Community-Managed Disaster Risk Reduction.

<sup>2</sup> The nine PfR countries are: Guatemala, Ethiopia, India, Indonesia, Kenya, Mali, Nicaragua, the Philippines and Uganda.

<sup>3</sup> “Integrated CRAs” in the context of PfR refers to community risk assessments that specifically include climate variability and change, ecosystems and disaster risk, and variations thereof; this is achieved by modifying tools originally used in community risk assessments.

The report shows that the integrated PfR approach to CRAs enabled communities to develop sound DRR plans including, for example, contingency plans, self-help groups, early warning systems, and practice reforestation, and water, soil and biodiversity conservation activities. Over the course of the PfR programme, DRR plans continue to be implemented in line with its three strategic directions: strengthening community resilience; strengthening civil society organisations; and policy dialogue for stronger DRR/CCA/EMR policies and resources at all levels.

### 1.3 Methodology

The assessment reflected upon in this document was conducted primarily through a desktop review and analysis of key project documents, including CRA and capacity-building workshop reports and CRA guidance documents.<sup>4</sup> Interviews with local Partner organizations supplemented the documents; two visits by junior researchers through internships in Kenya and the Philippines complemented the assessment, as did a feedback workshop session during the PfR Global Work Conference in The Hague in September 2013.

The selection of PfR experiences in this report reflects the authors' choice of best examples based on material available for review at the time of conducting this analysis.

## 2. Assessment phase: The Partners for Resilience approach

This section demonstrates innovative approaches in site selection and tool development that proved to be important during the Community Risk Assessment process. It highlights the lessons Partners learned from adopting an enhanced approach upon consideration of ecosystem and climate smart elements with the objective to improve ways of working and the quality of risk assessments.

The "PfR approach" to CRA aims to understand communities' risk as the outcome of social, political and economic drivers of vulnerability which may include demographic change, rapid and unplanned urbanization, failed governance, and a scarcity of livelihood options. Natural resources mismanagement and a changing climate

### BOX 1. Definitions

**Climate Change Adaptation:** The process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities (Adapted from IPCC, 2012).

**Ecosystem Services:** The benefits of nature (and agricultural landscapes) to people and households, communities and economies, such as the provision of clean water, soil protection, climate regulation, crop pollination and hazard mitigation. (Adapted from MEA, 2005.)

**Landscape Approach:** Approach seeking to provide tools and concepts for allocating and managing land to achieve social, economic, and environmental objectives in areas where agriculture, mining, and other productive land uses compete with environmental and biodiversity goals. (Adapted from Sayer, J. et al., 2013.)

**Resilience:** 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. (Adapted from IPCC, 2012.)

<sup>4</sup> See Appendix 1 for an overview of key documents that were analysed.

characterized by more extreme events can place additional stress on these already-stressed human and ecological systems. This integrated understanding of risk – using different spatial and time scales – allows for planning of broad-based and far-reaching disaster resilience strategies, in the form of comprehensive local DRR action plans.

**2.1 Site selection**

A number of criteria and methods were used in different countries to inform project site selection. Besides Partners’ own experience and previous work at potential target sites, the human development index, as well as food security and vulnerability rankings, were examined. Potential climate-related impacts as well as ecosystem and watershed-related features were also factored in when selecting PfR target communities. Table 1 summarizes part of this process.

**Table 1. Selection of project sites.**

Criteria for selecting beneficiary communities	Advantages	Example	Results
<i>Communities vulnerable to the same hazard</i>	Facilitators are able to develop expertise in one particular hazard. Furthermore, areas affected by the same hazard have opportunities for joint disaster risk analysis, action planning, collaboration and advocacy.	Mali: drought is a key concern. The PfR team selected villages particularly affected by long-term water shortages.	It was apparent that farmers were not adapting to more long-term droughts. In response, Partners trained farmers on ecosystem-based climate-smart agricultural techniques, such as crop rotation and water and soil conservation.
<i>Communities with a high vulnerability ranking</i>	Project beneficiaries are primarily the most vulnerable communities	Indonesia: WI conducted rapid assessments to rank hazards, vulnerabilities and capacities. Villages with the highest aggregate rankings were then prioritized for project activities.	PfR is advising on Coastal Zoning Legislation for biodiversity conservation and sustainable livelihoods of communities most vulnerable to typhoons, storm surges and sea level rise.
<i>Communities within a single river basin or watershed area</i>	Many project Partners can engage in joint advocacy, capacity-building, planning and funding efforts.	Kenya: project sites are found alongside, and dependent on, the same river. By sharing some of the same hazards, communities can reduce risk using coordinated strategies and the upstream-downstream landscape approach.	Waso River Users Empowerment Platform: newly formed organisation that is strengthening existing community systems for better early warning, early action.



Choosing target communities was not an easy task. Partners often had to choose between communities with the greatest needs, those that could build on existing experience – i.e. in DRR activities – to strengthen their resilience, and those whose geographical location in a watershed offered opportunities for Partners to work in close collaboration. In many cases, once the communities were selected, Partners strategically collaborated with local governments at selected project sites, thus also helping to promote sustainability of PfR activities.

In Guatemala for example, CARE, WI and the technical staff of the municipal planning and risk management department, started working in the implementation of the Bio-Rights scheme: four communities within the Masa sub-basin received financial incentives to reduce disaster risk by restoring key ecosystems, thus mitigating active and potential hazards affecting communities in the watershed.

## 2.2 Adjusting Community Risk Assessments to the PfR approach

As each Partner organization offers a different type of technical expertise, the nine PfR countries held workshops to train each other on the DRR, climate and ecosystem-related topics most relevant for delivering the PfR integrated approach. During the workshops, Partners established how each would adapt existing CRAs tools, aimed at considering climate and ecosystem issues in their risk assessments and later in their risk reduction plans. The major approaches adopted by PfR country teams for developing integrated CRAs are presented below in Table 2.

**Table 2. How Partners revised their traditional Community Risk Assessment processes to account for climate and ecosystem-related factors.**

Method to Revise Tools	Example	Results
<i>Partners continue to use their own tools but make use of their 'complementarity' relying on each other for specific advice: e.g. when incorporating climate and ecosystem considerations into existing tools</i>	In Nicaragua, Wetlands International advised its PfR Partners to introduce EMR into their own CRA process in order to expand analysis beyond community-based DRR.	<ul style="list-style-type: none"> <li>CARE now considers the impact of reduced forest cover on increasing landslide vulnerability.</li> <li>The Nicaraguan Red Cross now considers new issues alongside emergency response measures, such as watershed management and deforestation.</li> </ul>
<i>Partners adapt only a few Community Risk Assessment tools to ensure climate and ecosystem risks are included in these.</i>	<ul style="list-style-type: none"> <li>The Philippines applied an ecosystem and climate lens to three tools only: <i>seasonal calendar</i>, <i>historical calendar</i>, and <i>risk maps</i>.</li> <li>Partners tested the tools in 28 communities and developed a comprehensive DRR lobbying and advocacy strategy.</li> </ul>	<ul style="list-style-type: none"> <li>A narrower focus enabled, Partners to expand analysis to a broader geographical scale and gain better understanding of the evolution of climate through time as well as the root causes of risk as related to the environment.</li> </ul>
<i>Partners use a single Community Risk Assessment process to ensure that climate and ecosystems are</i>	<ul style="list-style-type: none"> <li>PfR India team developed a single CRA tool incorporating ecosystem factors, with which they conducted a landscape and ecosystem profile; a hazard and</li> </ul>	<ul style="list-style-type: none"> <li>Information on a community's risk profile including, ecosystems and climate characteristics were systematically collected and</li> </ul>



*incorporated into community disaster risk assessments throughout.*

vulnerability assessment; and a risk reduction plan.

- PfR team is developing “the cluster approach” for comprehensive DRR whereby regional risk and ecosystem assessments and categorizations of hazards are made in clusters of 200+ villages, enabling them to pursue joint advocacy and action.

analysed jointly by WI and Cordaid.

- All villages along the coastal cluster suffering from tidal floods are now implementing coastal greening to be sustainably protected from cyclones and storm surges.
- Coordinated actions in these landscape clusters are leading to proactive regional advocacy and land use planning for DRR.

Assessing risk using *tools+*, DRR tools that include ecosystem and climate elements , delivered a vast amount of information allowing for a clearer understanding of a community’s risk factors, including its underlying causes. PfR country teams, aware of the high levels of risk most communities faced, had to prioritize along with beneficiaries what to attend to and how: vulnerable communities’ identified needs usually went way beyond PfR’s scope.

By using the PfR integrated approach – safeguarding each community’s natural livelihoods base and tackling climate risks for DRR – the Partner organizations sought to balance strengthening disaster resilience with a long-term perspective through protection of existing development gains. Using *tools+* may reward Partners’ and communities’ additional efforts made during CRAs by bringing a solid base for reinforced DRR strategies.

*“A seasonal calendar tells you how the communities work; their planting season, harvesting season; it helps you come up with plans.”*

Malik Roba, Kenya Red Cross Society

### **2.3 Overview of results: Using enhanced Community Risk Assessment tools**

Sharing each organization’s methodology, with the aim of identifying commonalities and differences in approaches and tools, has proved an excellent opportunity for Partners to discuss which tools are most helpful for capturing climate and ecosystem related risk factors, and how the analysis conducted using those adjusted tools may help shape disaster risk reduction measures underpinned by consideration for climate change adaptation and sound ecosystem management and restoration.

Information sharing has taken place through exchange visits, which provided an opportunity for Partners to observe and learn from what their colleagues were doing elsewhere, and through organization of training workshops facilitated by global technical advisors from Wetlands International and the Climate Centre who worked with PfR teams using CRA tools.<sup>5</sup>

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<sup>5</sup> In Ethiopia, Guatemala, Kenya, Nicaragua and Uganda, training workshops were also jointly facilitated by a Climate Centre adviser.

Most PfR Partners noted that with “a few tweaks”, some CRA tools are particularly effective for gathering information relevant to climate, ecosystems and disaster risk reduction. Tables 3 and 4 show how Partners enhanced some CRA tools to specifically include ecosystems and climate components within the traditional analysis of hazards, vulnerabilities and capacities.

**Table 3. Results from the use of CRA tools+.**

Tool	Modification or relevance	Results
<i>Seasonal calendar</i>	Adapted seasonal calendars explicitly include ecosystem and climate components, i.e. availability of natural resources, weather patterns and harvest cycles. These elements enable community members to discuss whether certain patterns are changing. Some seasonal calendars use different colours to note abnormalities, and facilitators prompt participants to compare today with 10, 20 or 30 years ago.	<ul style="list-style-type: none"> <li>Philippines: discussion about how certain patterns, particularly weather and harvest cycles, had changed.</li> <li>Indonesia: information was collected for all variables: time; livelihoods dependent on natural resources; and adaptation that has already and can take place. The timeline incorporated in the modified seasonal calendars allowed communities to discuss better planting times or types of agriculture and livelihoods.</li> </ul>
<i>Historical profile/calendar</i>	A historical calendar that specifically discusses changes in climate, ecosystems and the frequency/severity of disasters over time, as well as the social/cultural history of an area. Facilitators play a critical role in focusing discussion on trends, especially changes observed in weather patterns and extremes.	<ul style="list-style-type: none"> <li>Nicaragua: Reflections allowed for seeing climate change as something that is happening <i>over time</i>, rather than overnight.</li> <li>Philippines: discussion was generated on how climate may change in the future.</li> </ul>
<i>Disaster/hazard profile</i>	Develop a toolbox that includes a method for how to conduct a time and trend analysis for the hazard profile.	Philippines: one community made a graph of all flood events and their depth in the last 20 years, allowing beneficiaries to identify if flooding events had actually worsened <i>over time</i> .
<i>'Hazard- tree' analysis</i>	Depicted as a tree, the sources of vulnerability and drivers/catalysts are the tree's roots, the hazard is depicted as the trunk, and the impacts of the hazard are the branches/fruits.	Kenya: prompted community members to identify and analyze the drivers of hazards, and the sources of vulnerability. It was effective for increasing understanding of how underlying vulnerability factors, such as ecosystem degradation, can contribute to increased disaster risk.

Due to their characteristics, some CRA tools have allowed Partners to integrate spatial dimensions directly. That has been the case for risk-map tools explained in the table

below. Adjustments have aimed at expanding their scale of work in order to include the community and its surrounding landscapes to understand how land and the use of natural resources can be critical components of a community risk profile.

**Table 4. Results from the use of CRA mapping tools+.**

Tool	Modification or relevance	Results
<i>Risk and resource mapping</i>	Traditional resource maps are adapted to incorporate risk maps, usually as an overlay. Risk maps identify areas most likely to be impacted by different hazards. The combined map allows analysis of land use and environmental changes, such as deforestation, which can contribute to increasing risks.	Mali: initially Partners struggled to combine risks into the mapping exercise but eventually the final output allowed for easier visualisation of the changes taking place, with the added benefit that risk maps enabled better understanding of the changing climate risks.
<i>Hazard-vision mapping</i>	<ul style="list-style-type: none"> <li>• The hazard-vision map is an addition to the risk and resource map.</li> <li>• Kenya: vision maps designed to depict communities’ desired future situation (e.g. in drought prone areas it may show good forest coverage, adequate water sources, and diversified livelihoods).</li> <li>• Philippines: predicted future hazards were overlaid on top of the present risks map.</li> </ul>	<ul style="list-style-type: none"> <li>• Kenya: process of map creation prompted discussion of EMR, CCA and DRR activities that can contribute to achieving the community’s vision.</li> <li>• Philippines: map output visually provoked communities to reassess potential risks, such as considering the extent of future flooding.</li> </ul>
<i>Ecosystem mapping</i>	Specialised knowledge of the ecology, forestry, biodiversity and land use of an area, as well as Geographical Information Systems are required for comprehensive ecosystem mapping. PfR Indonesia used WI’s ecosystem specialism to conduct ecosystem mapping at the community level along the CRAs.	Indonesia: map outputs gathered information on specific characteristics of each ecosystem type; identification of current, past and potential ecosystem status and threats; the level of ecosystem degradation; and where and to what extent the ecosystems can be restored.

**BOX 2. What is an ecosystem mapping tool?**  
 Ecosystem mapping is regarded as a quick and comprehensive tool to obtain information on the condition of the ecosystem at targeted sites. The meaningful linkages to DRR are made by the CRA team, advised by DRR and ecosystem specialists and crosschecked with details by villagers and users of natural resources.

## ***2.4 Harmonization of tools and methods aiming at comprehensive CRA***

Using the PfR Approach has been both exciting and challenging for the PfR organizations. It has certainly required a new way of thinking as they applied these integrated CRA tools (tools+) in the field, using a new set of climate and eco layers in their analysis.

Due to the facts that climate information was not always at hand and that Partners were not always familiar with technical climate or eco terms, CRAs required additional time to complete as well as a willingness to learn in the process. The use of an integrated PfR approach hence, meant harmonizing risk assessment tools and learning the advantages of tools+ with target communities.

Despite an initial struggle to square current and new concepts and adapt to varying institutional procedures and personalities, Partners began to realize that tools+ would lead to a richer holistic analysis and even to put a stronger monitoring and evaluation (M&E) system in place. They began using maps of the watersheds of interest and thinking of risk in “landscape terms” – how land or water is being used in villages upstream, for example, and how this may have an effect on their health and their resilience to recurring hazards. Partners also began preparing communities for climate extremes, making use of forecast info to develop early warning systems.

What’s more, by requiring Partners to move out of their comfort zones, the use of tools+ has also triggered higher communication, cooperation, mutual support and learning through sharing among implementing organizations. They have learnt that strengthening community disaster resiliency requires relying on each organization’s expertise to foster joint contributions as well as involving all parties in addressing community needs in a holistic manner.

### **BOX 3. Collaboration among PfR partner organizations**

In Mali, Partners built a “centre of expertise” to work together, which then helped organize their response during the subsequent crisis.

In Ethiopia and Kenya, Partners are carrying out joint monitoring of sustainable DRR measures.

In many countries, there is an increased number of stakeholders involved in the project (government institutions, NGOs, universities, private sector).

Using the PfR approach to DRR, has meant involving villagers in every step, introducing them to climate and ecological issues in a familiar way and making the analysis fit the context of their daily lives. This collective effort has allowed broadening the traditional community-based DRR approach with beneficiaries taking ownership of the process, higher levels of institutional engagement hence, well-targeted DRR plans.

Currently communities are able to develop both DRR contingency plans and local development plans, based on the results of these comprehensive CRAs. For instance communities in Mali are now able to carry out their own CRA and risk monitoring in order to periodically update their DRR plans. Most communities have already begun implementing actions as of the second year of the PfR program and are empowered enough to demand dialogue with government, DRR and development funding agencies.

In Kenya, for example, community organizations have jointly advocated for additional funding using the CRA results and have succeeded in interesting donors to partially support community DRR action plans not yet funded by the PfR programme.

In India, risk reduction plans developed based on Participatory Risk Assessments are being integrated in formal village development plans to ensure continual ownership. In 2013 two major disasters "tested" the preparedness and resilience in PfR villages. Most preliminary reviews showed the robustness of community-based measures. For example, when comparing two similar river flood events in Bihar 2008 and 2013, there were a 96% drop in instances of waterborne diseases and an 86% drop in damaged/destroyed houses.

#### **BOX 4. Government engagement in strengthening local resilience**

Government entities not used to collaborating (such as environment and civil planning) worked together, and now engage in community interventions to provide technical supervision. In Ethiopia, a government agricultural specialist was appointed to the programme during implementation.

In India alone, the PfR Partners are collaborating with 12 government agencies and four knowledge centres for village capacity building in, for instance, conservation agricultural practices, disaster preparedness and response, aquaculture, and microenterprise management.

Partners in the Philippines are closely working with the government, which has decided to duplicate PfR approaches in nearby areas.

### **3. Lessons learnt from the PfR assessment phase**

Many lessons have been learnt from the PfR assessment phase. Both partner organizations and beneficiaries have gone through a demanding though stimulating eye-opening process in which communities are not seen as islands obliged to face risk on their own. Instead, by situating them in their watershed's landscape, the geographical, environmental and socioeconomic network at the base of their climate-risk profile has shined through the PfR analysis.

The key lessons learnt from the assessment phase of PfR are presented in this last section. Both successes and challenges are to feed our reflection and show the way ahead for the Partners to tackle communities' DRR priorities.

#### ***3.1 Successes of an Integrated Community Risk Assessment approach***

Partners agreed that CRAs conducted under PfR have led to some outcomes that are noticeably different from previous assessments without an integrated approach. This has translated into a clearer understanding of their communities' risk profile, as well as of the work ahead towards increasing disaster resilience.

Some of the most commonly noted outcomes in PfR communities to be addressed in the paragraphs below include: better understanding of early warning early action,

adopting a longer-term view in DRR, the relevance of a landscape approach, and the advantages of participatory CRAs.

*“Joint planning and joint reflection is really key[...]If Partners operate in one area, joint planning and joint reflection is easy. But even if you work in different regions, you can compare the contexts.”*

Sirak Temesgen, Netherlands Red Cross, Pfr Kenya

### **Success 1: Better understanding of the importance of early warning and early action.**

Communities having a better understanding of the root causes of the risk they face can generate proactive discussions about the DRR measures they can implement using timely weather information, climate forecasts, models and scenarios. The tools that focus on disaster impact, such as the historical calendar, allow facilitators to encourage dialogue on existing warning systems. The way these may be modified to take into account changing climate risks over time, and the time needed to plan for and take appropriate action before a hazardous event takes place, can be elucidated as well.

In Nicaragua, the CRA process focused on learning from previous hazard experiences so that communities can be better prepared next time. As a result, proposed community activities included the establishment of local brigades, contingency plans, and monitoring, which would enable early warning early response in the event of an emergency.

*“[Without the Pfr approach] the focus would have been entirely on disaster risk. Communities would not have learned about climate change and it would have been harder to emphasize early warning and early action[...]The climate change emphasis made them reconsider past climate events and contextualize them vis-à-vis today to better understand the current context.”*

Elle Fernandez, Philippine Red Cross Society, Pfr Philippines

### **Success 2: Adopting a longer-term view in DRR towards trends, responses, and resilience.**

Modified *tools+*, such as risk maps and seasonal calendars, allow transition from a village-confined short-term focus to a landscape and longer-term perspective of risk analysis. Understanding longer-term trends, such as changes in farming practices and climate patterns, lays the foundation for discussion about perceptions and expectations for the future, and how the community can strengthen its own disaster resilience.

In India, Pfr organizations used the CRA to identify long-term trends in natural resources, and the connection between their use, depletion and hazard events. As part of programme implementation, amongst other projects, Partners have taken actions such as planting over 80,000 saplings to reduce soil erosion on river banks and improve water regimes, planting 24 hectares of mangroves in the Mahanadi Delta coastline to protect against sea-level rise and coastal erosion, and – in preparation for



floods – renovating 25 village ponds that provide water and sanitation by raising the plinth level of nearly 400 toilets and 300 hand pumps.

### **BOX 5. Outcomes and ways forward in using enhanced CRA tools (*tools+*).**

Partners in Ethiopia are using CRA results for further resource mobilization; they are eligible for new funding sources partly because their aim is addressing the root causes of risks in a holistic manner, applying the PfR approach.

Meanwhile, in Uganda, Partners developed an *early-warning tracking tool* to collaborate when defining early-warning activities with communities based on the CRA results.

Last but not least, WISA and Cordaid in India are collaborating on national and local level policy and advocacy issues aimed at increasing emphasis on DRR and ecosystem management and restoration as a part of community disaster resilience building.

### ***Success 3: Increased understanding of the linkages between ecosystems, climate and disaster risk and the relevance of a landscape approach.***

*“The Partners were able to identify long term trends in resources. [A] Landscape approach helped to understand the system connectivity and related disasters.”*

Anonymous, PfR India

All PfR country teams reported an increased understanding of how ecosystem degradation and loss can contribute to increase vulnerability and the triggering of climate hazards. The risk and resources map, seasonal calendar and hazard tree, reinforced these linkages during the CRAs. Nonetheless, it is important to note that Partners also recognized that some assessments did not include all relevant risk factors due to incomplete or uncertain information (e.g. irrigation projects where the river being used had dried up).

In Ethiopia, implementing Partners are now aware of the linkages between risk, climate and ecosystem degradation. Consequently, communities and local governments are more aware of the broad range of DRR implications in terms of timescales and the network of linkages through the landscape. The CRA analysis identified how ecosystems, which are at the base of livelihoods and survivability, were being degraded. A lack of forage, deforestation and poor soil quality had all contributed to exacerbating the impacts of hazards such as droughts. Jointly, PfR and the communities decided on a diversity of resilient development measures contributing to a holistic approach to DRR, like encouraging women to use fuel saving stoves to minimize deforestation and improve their own and their families' health.



Results so far show the challenge of making these linkages visible and meaningful for local DRR practitioners and beneficiaries is being met. Nevertheless, Partners have certainly struggled investing a considerable amount of resources in comprehensive CRAs and dealing -among others- with the high expectations raised in the communities involved.

**BOX 6. Snapshots of using the PfR approach for addressing ecosystem-based risk factors.**

In Nicaragua and Guatemala, Partners designed eco-friendly DRR micro-projects, including recycling domestic water, municipal forest nurseries and firewood-saving stoves. Watershed management plans are also encouraged as part of DRR interventions.

The Philippine Red Cross is carrying out long-term interventions to address underlying causes of disaster risk, rather than usual approaches to prepare communities for evacuation.

PfR Partners in India promoted sustainable agriculture technologies for flood tolerant seed varieties and promotion of grain banks and equitable sharing of water through community-managed irrigation infrastructure.

In Uganda and Ethiopia, Partners encourage livelihood activities that contribute to environmental restoration, such as conservation agriculture, vegetable gardens, village save and loan associations.

In Kenya, Partners developed a river-users' association to link people upstream and downstream the Ewaso-Nyiro basin.

In Indonesia and Mali, Partners are using the bio-rights scheme to help communities make the link between environmental restoration and their livelihoods.

In any case, a wide range of vulnerabilities have been addressed by having greater technical means; environmentally friendly hazard mitigation measures have been designed and most of all: DRR interventions are designed to address the main root causes of risk, rather than just preparing for disaster *response*. Understanding the linkages at the landscape level between hazards, ecosystem services, livelihood activities and climate, has probably been the pivotal key.

***Success 4: Advantages of a participatory Community Risk Assessment***

Many PfR teams noted that the participatory nature of the integrated CRAs and DRR action plan development allowed the communities to recognize their own resources and capacities, which was an empowering and motivating factor stimulating disaster resilience strengthening. This results in *communities assuming ownership over their DRR action plans*.

CARE Uganda noted that through this process, the community was able to see how they were already adapting to changes in weather patterns, e.g.: some farmers had started growing short maturing crops in the face of prolonged drought, and other farmers - near to wetland areas- had transitioned from previously used indigenous varieties of seeds and crops to improved more resistant ones.

*“Partners indicate that the importance of linking DRR-CCA-environment is very relevant to them, it broadens the framework for communities[...]and increases community role in recognizing relationship between variables and how they may be able to act upon the assessment findings.”*

Anonymous, PfR Indonesia

### **3.2 Challenges of the Integrated Community Risk Assessment and the PfR approach**

PfR Partners offered insights into some of the main challenges they have faced when integrating climate and ecosystem factors into their CRA processes and tools.

From most amount information gathered with the *tools+*, analysing all data and particularly establishing the right linkages between climate, ecosystem and vulnerability factors remained difficult for Partners. Making optimal balanced choices of priority actions versus secondary actions was not always simple, like addressing short-term versus long-term risks. Regular CRAs have already proved challenging for PfR country teams in the past, breaking down all data collected using the *tools+*, was sometimes regarded as an additional layer of difficulty.

In this section, where possible, the way Partners addressed the challenge for each limitation is identified.

#### ***Challenge 1. Extracting and triangulating climate and ecosystem-related information during analysis is difficult.***

Whilst collating results, facilitators have had an additional challenge as they had to ensure that tools extract the required information on climate and ecological issues to keep up the PfR approach. As they collected socioeconomic information to shed light over the underlying causes of poverty, Partners needed to train facilitators in participatory result analysis, particularly of the new layers of climate and ecological information. A difficult task, at the community level, has been developing understanding about how and when to triangulate data coming from outside of the community<sup>6</sup> with local<sup>7</sup> information; and the action to take when there is either conflict and/or convergence in this kind of data.

In some countries, the collection of secondary material – such as NAPs, ecosystem mappings or government reports on past events – only took place after the CRAs had already been finalized. This made incorporation, triangulation and subsequent analysis of this valuable information – to complement CRA results – rather demanding.

Some countries have been able to tackle this challenge effectively using other means. For example, PfR Guatemala cross-referenced community hazard maps with secondary information. Where possible Partners in Sololá obtained the most recent aerial photos

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<sup>6</sup> Outside data can include information from the meteorological office, research centres and government institutions.

<sup>7</sup> Local information can include understanding traditional early warning systems and community knowledge of previous disasters.

available, and combined those with sketches produced by the community. The process itself was found to be more engaging and interactive, and solicited greater participation from women. Participants at the villages and facilitators felt that they had created an accurate map of their community and the hazards they face, resulting in a handy product they could use and update in the future.

*"It is important to ensure that the assessments collect information on local wisdom and practice in relation to climate, ecosystems, and disaster risk."*

Yus Rusila Noor, Wetlands International, PfR Indonesia

### ***Challenge 2. Limited understanding of the use of climate change and ecosystem information.***

Across all countries, CCA and the use of climate information for scenario-based planning, is the least understood theme. In some countries, whilst weather patterns (e.g. temperature, rainfall patterns and drought) are understood and can be effective in illustrating issues in the short term, it remained difficult to comprehensively enhance communities' understanding of how to deal with the uncertainty inherent in long-term climate change information.

Faced with a similar problem, Partners in Guatemala provided capacity building for community facilitators and beneficiaries in the integrated CRA process. By generating broad awareness of climate, ecosystems and DRR issues prior to conducting assessments it helped to ensure that relevant information emerging through focus group discussions and interviews was recorded and used for the final CRA analysis.

Most notably, in one country, failure to take an integrated approach in the CRA phase almost led to maladaptation. One of the Partners intended to install a river irrigation system. In the past, the river had never run dry, so the Partners had not considered this as a possibility. But the "perennial" river did dry up. Incorporating landscape and climate change elements during the CRA, could have identified this possibility as it was upstream river management and climate change that likely turned the river seasonal. Lack of full understanding during the assessment phase can lead to harmful initiatives, environmental degradation and the eventual loss of development gains.

*"Information from the [global] Red Cross Red Crescent Climate Centre needs to be validated by locals, otherwise people are sceptical[...] simplification is key, especially for scientific information."*

Elle Fernandez, Philippine Red Cross Society, PfR Philippines

### ***Challenge 3. Working in a disaster-prone area means that participants may be accustomed to receiving relief aid.***

The expectation of aid can hamper the effectiveness of the Community Risk Assessments. In order to make local DRR activities effective, the community needs to take an active role in the identification and implementation of risk reduction activities.

This required a shift in the way of thinking of community members, who instead of receiving e.g. food items, now faced the prospect of taking ownership of disaster resilient development activities that would mostly pay out on longer terms.

For example, the PfR project site in Kenya is located in the Ewaso Nyiro River Basin. This is a region that over the years has received aid from various donor organizations, cultivating a culture of community dependency on relief. Nevertheless, the Partners managed to break the cycle of dependency during the CRA process in Kenya, encouraging community ownership and empowerment by initiating Community Development Committees (CDCs) in charge of applying community DRR action plans. This has proven to be effective for transferring and fostering ownership of risk reduction activities to the community. CDCs are able to track and hold each other accountable for making progress, shifting communities' mindsets from dependency on relief to disaster resiliency strengthening.

*"We have learned many things from PfR. We have learned the meaning of community resilience: it means that the community depends on itself and its own capacities. We have the capacity to feed ourselves and we do not need aid."*

Korbesa resident, PfR Kenya project area

#### 4. Conclusion

*"It was worth it in the end – we have now a better tool as an alliance than as an independent organization."*

Sirak Abebe Temesgen, Netherlands Red Cross, PfR Kenya

PfR country teams certainly made additional efforts when tweaking their CRA tools as a means to capturing climate and ecosystem-related issues. Understanding some of the underlying causes of risk using these *tools+* has required maximizing synergies among Partners. Meanwhile, this approach has allowed for carrying out integrated risk assessments and thus, it represents an opportunity for delivering environmentally sound and climate-smart DRR plans.

Learning has been the key to prepare and convey this integrated PfR approach. Thereby, Partners have realized that the only way to achieve results has been by filling in each other's gaps with their particular expertise, banking on a complementarity of views including traditional knowledge.

As we have seen in this report, many interesting results support this way of addressing community disaster resilience. Examples show the challenges but also the outcomes of bringing risk analysis and risk reduction strategies at broader time and spatial scales not previously considered explicitly in traditional DRR.

Furthermore, this report illustrates that identifying the main linkages between climate, ecosystems and risk is a way to convene multiple actors coming from organizations usually not related to DRR work. By harmonizing their views, the PfR approach leads to a shift from merely focusing on short-term “fixes” and disaster response to addressing the underlying causes of people’s vulnerabilities.

PfR resilience reinforcing strategies have started with informing and empowering vulnerable people at the village and catchment levels. The next phase of the programme will promote the sustainability of its main achievements, along with DRR practitioners and engaging committed decision-makers.

Based on sound knowledge stocktaking, next PfR strategies shall target at introducing its broad approach in policy dialogues with local, regional and national institutions. As partner organizations’ aim is to effectively strengthen community resilience in the face of changing risk patterns, the mainstreaming and financing of long-term risk reduction and resilience activities would be crucial attainments at the closing of the programme.

## 5. Appendix I. Resources Consulted

Country	Resource
Ethiopia	<ul style="list-style-type: none"> <li>VCA Report: SNNPR, Sidama Zone, Boricha Woreda (2008)</li> <li>Baseline Survey Report (2012)</li> </ul>
Kenya	<ul style="list-style-type: none"> <li>Annual Progress Report (2011)</li> <li>Capacity-building Workshop Report (2011)</li> <li>VCA Report: Daaba / Central Division / Isiolo District</li> <li>VCA Report: Biliqo / Merti Division / Isiolo District</li> <li>VCA Report: Korbessa / Cherab Division / Isiolo District</li> <li>VCA Report: Bulesa / Merti Division / Isiolo District</li> <li>VCA and Participatory Disaster Risk Assessment Harmonized</li> <li>Interviews and Site Visit: Kenya Red Cross Society, Netherlands Red Cross</li> </ul>
Mali	<ul style="list-style-type: none"> <li>Annual Progress Report (2011)</li> <li>Toolkit: Mopti (2011)</li> <li>VCA Report: Aouré (Youwarou Community)</li> <li>VCA Report: Sambéri (Deboyé Community)</li> <li>VCA Report: Noga Dialloubé</li> <li>Interview: CARE Mali, Wetlands International</li> </ul>
Uganda	<ul style="list-style-type: none"> <li>Annual Progress Report (2011)</li> <li>VCA Report: Community Led Climate SMART Vulnerability and Capacity Assessment in Ongongoja Sub-county, Katakwi and Akokoro Sub-county / Apac</li> <li>CVCA Report: Risk Mapping and Vulnerability Assessment Under the Partners for Resilience Climate-Proof Disaster Risk Reduction (PfR) in Otuke District</li> <li>Interviews: Cordaid, CARE Uganda</li> </ul>
India	<ul style="list-style-type: none"> <li>Narrative Progress Report (2011)</li> <li>Narrative Progress Report (August, 2012)</li> <li>Narrative Progress Report (2012)</li> <li>Participatory Risk Assessment: Manual of Tools</li> <li>VCA Report: Chilika Basin (2012)</li> <li>Disaster Risk Reduction Plan: Mahanadi Delta</li> <li>Interview: Wetlands International</li> </ul>
Indonesia	<ul style="list-style-type: none"> <li>Technical Progress Report (2011)</li> <li>Participatory Risk Assessment in Wetlands International Indonesia's PfR Project Sites in Ende and Sikka (Nusa Tenggara Timur) (2012)</li> <li>PDRA Report: Renggaesi Village</li> <li>PDRA Report: Runut Village</li> <li>CVCA Report: Oekiu Village</li> <li>Karina KWI and CARITAS Keuskupan Maumere: Modification of PDRA Tools</li> <li>Interviews: Wetlands International Indonesia Program, Karina (Cordaid partner), Netherlands Red Cross</li> </ul>
Philippines	<ul style="list-style-type: none"> <li>Annual Progress Report (2011)</li> <li>Tools for Community Risk Assessments: How to Integrate Climate Change Adaptation and Ecosystem Management &amp; Restoration</li> <li>Tools for Community Risk Assessments: Experiences from the Philippines (2-pager)</li> <li>Case Study: Changing tools in a changing climate: experiences from the Philippines</li> <li>Workshop Report: Analysis of Disaster Risk Using a Regional Approach</li> <li>Workshop Report: Results Regional Risk Assessment, PfR project areas Agusan del Sur and CAMANAVA</li> </ul>

	<ul style="list-style-type: none"> <li>• Workshop Lesson Plan: Analysis of disaster risk using a regional approach</li> <li>• VCA Report: Barangay Potrero / Malabon City</li> <li>• VCA Report: Sitio Gulayan / Barangay Catmon / Malabon City</li> <li>• VCA Report: Kayan East / Tadian / Mountain Province</li> <li>• VCA Report: Kayan West / Tadian / Mountain Province</li> <li>• Interview: Philippines Red Cross</li> </ul>
Guatemala	<ul style="list-style-type: none"> <li>• Annual Progress Report (2011)</li> <li>• VCA Report: Aldea La Palma, Municipio San Bartolome Jocotenango (Depto del Quiché)</li> <li>• VCA Report: Caserío Patulup, Sacapulas (Depto del Quiché)</li> <li>• VCA Report: Caserío Laguna Seca II, Municipio de Joyabaj (Depto del Quiché)</li> <li>• VCA Report: Comunidad Chuiquisis, Santa Cruz del Quiche (Depto del Quiché)</li> <li>• VCA Report: Caserío Chupacbalam, Sacapulas (Depto del Quiché)</li> <li>• Interviews: Cruz Roja Guatemalteca, CARITAS, CARE Guatemala</li> </ul>
Nicaragua	<ul style="list-style-type: none"> <li>• Annual Progress Report (2011)</li> <li>• VCA Report: Apanaje / Las Sabanas / Madriz</li> <li>• VCA Report: Buena Vista / Las Sabanas / Madriz</li> <li>• VCA Report: El Rodeo / San Jose de Cusmapa / Madriz</li> <li>• VCA Report: El Pegador / Las Sabanas / Madriz</li> <li>• VCA Report: Valle de Sonis / Somoto / Madriz</li> <li>• Interviews: Cruz Roja Nicaragüense, INPRHU Somoto (partner of CARE), CARE Nicaragua</li> </ul>



## 6. Recommended Resources

**CARE. Climate Vulnerability and Capacity Assessment – A handbook.**  
[http://www.careclimatechange.org/cvca/CARE\\_CVCAHandbook.pdf](http://www.careclimatechange.org/cvca/CARE_CVCAHandbook.pdf)

**Cordaid. CMDRR Training and Design**  
[http://www.cordaid.org/media/publications/Booklet\\_1\\_CMDRR\\_Training\\_Design\\_and\\_Implementation.pdf](http://www.cordaid.org/media/publications/Booklet_1_CMDRR_Training_Design_and_Implementation.pdf)

**IFRC. VCA Toolbox** <http://www.ifrc.org/Global/Publications/disasters/vca/vca-toolbox-en.pdf> **IFRC.** 2006/2008. *How to do a VCA. A practical step-by-step guide for Red Cross Red Crescent staff and volunteers.* Last accessed June 2013:  
<http://www.ifrc.org/Global/Publications/disasters/vca/how-to-do-vca-en.pdf>

IPCC, 2012: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, UK, and New York, NY, USA, 582 pp.

Millennium Ecosystem Assessment, 2005. Ecosystems and Human Well-Being: Wetlands and Water. Synthesis. World Resources Institute, Washington, D.C.

**Red Cross Red Crescent Climate Centre.** 2012. How can climate change be considered in Vulnerability and Capacity Assessments?  
<http://www.climatecentre.org/downloads/File/VCA%20guidance/VCA-CC-for%20practitioners-JUN2012.pdf>

**Red Cross Red Crescent Climate Centre.** 2012. *Minimum Standards for local climate-smart Disaster Risk Reduction.* Last accessed June 2013:  
<http://www.climatecentre.org/site/minimumstandards>

Sayer, J. et al. Ten principles for a Landscape Approach to reconciling agriculture, conservation and other competing land uses. Proceedings of the National Academy of Sciences. Available at: <http://www.pnas.org/content/110/21/8349.full>

**Wetlands International.** 2013. *Integrating ecosystems in resilience practice: Criteria for Ecosystem-Smart Disaster Risk Reduction and Climate Change Adaptation.* Last accessed June 2013:  
<http://www.wetlands.org/LinkClick.aspx?fileticket=zqRNpMjMw4%3d&tabid=56>

**Website:**

**Partners for Resilience:** [www.Partnersforresilience.nl](http://www.Partnersforresilience.nl)