



# Characteristics of a Safe and Resilient Community

Community Based Disaster  
Risk Reduction Study

ARUP International Development – September 2011

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***Characteristics of a Safe and Resilient Community***  
**1224200 E 05/2012**

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## Acknowledgments

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The study team would like to thank the IFRC for giving Arup's International Development team the opportunity to complete this study. Our special thanks go to Mohammed Mukhier (IFRC CPRR), Chris Staines (IFRC Tsunami Unit) and Susil Perera (IFRC Asia Pacific Zone) for their technical and procedural support throughout.

We would also like to thank the members of the working group who guided the implementation of this study, and provided invaluable comments and feedback on the draft reports; Rod Snider (American Red Cross), Gail Neudorf (Canadian Red Cross), Robert Roots (British Red Cross), Bhupinder Tomar (IFRC Vietnam), Michael Annear (IFRC Asia Pacific Zone), Kaspar Bro Larsen (Danish Red Cross) and Thorsten Klose (German Red Cross).

Particular thanks go to the National Societies and IFRC delegates who supported our study team during the fieldwork; the Sri Lankan Red Cross Society, the Maldivian Red Crescent Society, the Thai Red Cross Society and Palang Merah Indonesia (PMI). Without their support the primary research would not have been possible and their commitment during the fieldwork made a significant contribution to the final outcomes of the study.

Finally we would like to thank all participants at the output review workshop held in Geneva from 20-21 July 2011 whose feedback and comments have been valuable in finalising this report.

Arup International Development's study team;

Jo da Silva, Victoria Maynard, Elizabeth Parker, John Twigg, Rumana Kabir, Geoffrey Chan, Flora Tonking, Andy Kervel.

## Executive Summary

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The International Federation of the Red Cross (IFRC), as the ‘world’s largest humanitarian and development network’ is committed to building safety and resilience through its Community Based Disaster Risk Reduction (CBDRR) programmes<sup>1</sup>. As a movement the Red Cross-Red Crescent (RCRC) has significant knowledge and experience of implementing CBDRR programmes. However, defining the aims and objectives of such programmes and the critical factors that influence their impact remains a challenge. This is particularly acute when comparing outcomes and approaches between communities, countries and regions.

CBDRR programmes were carried out in over 700 communities as part of the Tsunami Recovery Programme (TRP) alone. The IFRC have identified this as an opportunity to ‘identify and document lessons learned in implementing at scale CBDRR<sup>2</sup> projects to strengthen community safety and resilience....also [to] use its large evidence base to research new ideas and contribute to the wider efforts in improving CBDRR work within the IFRC’ (IFRC, 2010: 2).

This research report on the ***Characteristics of a Safe and Resilient Community*** has been prepared by Arup’s International Development team (Arup ID)<sup>3</sup> on behalf of the IFRC as part of a wider CBDRR Study of the TRP. Specifically, this report draws on the experience of the TRP CBDRR programmes and current literature in order to identify the ‘*characteristics* of safe and resilient communities; to understand how these *characteristics* changed over time and how RCRC interventions have contributed to this change’ (IFRC, 2010: 3).

It is intended that the *characteristics* arising from this research will be used in the design, monitoring and evaluation of future programmes. A first step towards this is the lessons learned report which provides a further output from this study. Other outputs of the study include a “who, what, where” database of RCRC CBDRR projects; and a research report identifying the *key determinants* of a successful CBDRR project.

### Box 1: Additional research questions identified in the concept note (IFRC, 2010)

- ‘What do communities perceive as the most important *characteristics* needed to be safe and resilient?’
- ‘Is there a set of such *characteristics* that are common across all communities despite being located in different countries and settings?’
- ‘How do communities rank their changes in *characteristics*, and how have RCRC interventions contributed to these changes?’
- ‘How do the changes over time reflect shifts in community attitudes and behaviours towards risk?’

<sup>1</sup> IFRC, <http://www.ifrc.org/en/what-we-do/>

<sup>2</sup> The acronym CBDRR is used to include CBDP, CBHFA, CCA, ICBRR, etc.

<sup>3</sup> Arup International Development (Arup ID) operates as a not for profit group within the Arup Group Ltd (Arup). [www.arup.com/internationaldevelopment](http://www.arup.com/internationaldevelopment)

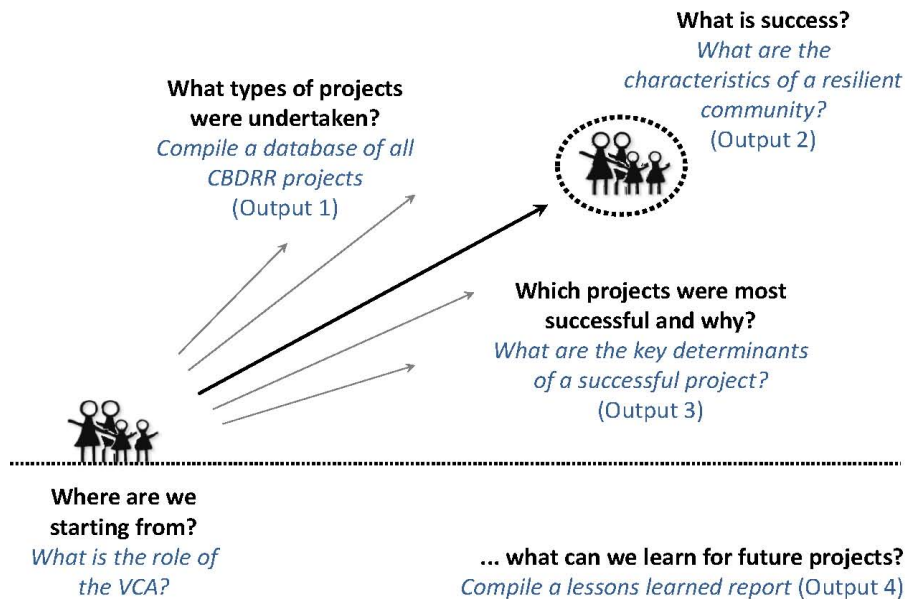


Figure 1 Diagrammatic representation of interrelationship between outputs

## Methodology

This research into the *characteristics* of a safe and resilient community is based on both secondary and primary data sources. A broad-ranging literature review provided a foundation for the study and an understanding of the wider context and debate. This resulted in a conceptual framework and a long list of 19 *characteristics* that then informed the fieldwork methodology.

Fieldwork was undertaken and group discussions were conducted in 30 communities across Sri Lanka, Indonesia, Thailand and the Maldives as part of the fieldwork. These communities were purposively selected to be representative of the diversity across the TRP, in terms of type of community and CBDRR programme. Three exercises carried out in the participatory community workshops identified over 3000 factors, which the communities felt contributed to their safety and resilience. The top five factors from each community workshop were used as the basis for further analysis. The data was cross-referenced and reinforced through complimentary activities including focus group discussions, observational walks, and semi-structured interviews.

An inductive approach to data analysis was taken whereby the themes were allowed to emerge independently from the fieldwork data, and then cross-referenced with the literature review. This process resulted in six *characteristics* of a safe and resilient community. Further detailed analysis of this rich data set provided additional justification and rationale to support each *characteristic*.

The fieldwork data was then retrospectively analysed to understand to what extent these *characteristics* had changed over time in the TRP communities, and whether the RCRC CBDRR programmes had contributed to these changes. This was necessarily subjective based on the communities' perceptions, since baseline assessments had typically not been done, or were not comparable. Nevertheless, it still provides some useful insights.

## Characteristics of a Safe and Resilient Community

The six *characteristics* of a safe and resilient community that emerged from this research study are summarised below.

### Box 2: The *characteristics* of a safe and resilient community

#### A safe and resilient community...

1. ...is knowledgeable and healthy. It has the ability to assess, manage and monitor its risks. It can learn new skills and build on past experiences
2. ...is organised. It has the capacity to identify problems, establish priorities and act.
3. ...is connected. It has relationships with external actors who provide a wider supportive environment, and supply goods and services when needed.
4. ...has infrastructure and services. It has strong housing, transport, power, water and sanitation systems. It has the ability to maintain, repair and renovate them.
5. ...has economic opportunities. It has a diverse range of employment opportunities, income and financial services. It is flexible, resourceful and has the capacity to accept uncertainty and respond (proactively) to change.
6. ...can manage its natural assets. It recognises their value and has the ability to protect, enhance and maintain them.

These *characteristics* recognise the importance of human health and well-being and also individual knowledge and awareness as central to the ability of households individually and collectively to be able to prepare, prevent, respond to and recover from shocks and stresses. Secondly, they acknowledge the importance of assets and access to wider resources beyond the immediate control of the community (Figure 2).



Figure 2 The six *characteristics* of a safe and resilient community.

## Impact of CBDRR programmes

The data gathered suggests that CBDRR programmes have had a positive or neutral impact across all six *characteristics*. The role of RCRC interventions was more obvious for the first four *characteristics* where they were seen to:

- positively influence community **knowledge** and awareness of disasters
- strengthen the systems for **organising** the community to respond to and prepare for disasters
- assist with the formation of effective **connections** between the community and external agencies who can assist the community.
- provide **infrastructure** to help mitigate against strong winds, floods and earthquakes

Since the completion of the programme, whilst a number of communities noted that the strength of the *characteristics* has remained unchanged indicating a sustained impact in key areas, others noted a significant decrease. The sustainability of programme impact is an area where more focus is required.

Overall, the evidence suggests that a significant proportion of communities have changed in their attitudes and behaviours towards risk. Greater awareness and knowledge is witnessed in many instances, resulting in better ability to manage and respond to the impact of shocks and stresses. It could be argued that the provision of infrastructure and other assets supports the translation of knowledge and awareness into practice.

It is not clear to what extent community knowledge, awareness and practice will be transformed and applied to shocks and stresses other than those identified in CBDRR programmes. In other words, do communities now possess the capacity to assess their situation, identify shocks and stresses and devise appropriate responses in an ongoing manner? Are they able to leverage the resources they need to implement plans that will reduce their risk?

Certainly no one programme can have a sufficiently broad scope, time span and budget/ resources to address all of the *characteristics*. Based on existing practice and design of CBDRR programmes they are likely to impact most on the *characteristics* relating to knowledge, organisation and connections. Finding ways to coordinate and integrate CBDRR with other programmes or sectors may also be a productive strategy for enhancing a wider range of *characteristics*.

## Recommendations

The following are high level recommendations or comments for alteration or adoption of the *characteristics* to best suit the work of the RCRC movement:

- **A safe and resilient community is healthy and knowledgeable**

This research strongly suggests that individual ‘knowledge’ and ‘health’ are interrelated foundations of resilience; hence they located in the centre of the diagram (Figure 2). Since these are both significant and distinct programmatic areas of focus for the RCRC there may be merit in dividing *characteristic* 1 into two distinct *characteristics* to ensure adequate and appropriate attention and

prioritisation.<sup>4</sup> This should be straightforward based on reviewing the factors from the literature and fieldwork that contributed to this *characteristic*.

- **Multiple Uses: Wide range of applications for *characteristics***

The *characteristics* can be used for a large number of purposes including monitoring and evaluation. Examples include using them as part of the community selection process (e.g. to identify communities that are particularly weak in certain areas) or to define the programme objectives (e.g. to map out what is realistic for the project to achieve). It is recommended that consideration is given to mainstreaming the *characteristics* in current initiatives to better understand how they can be used to improve practice.

- **Existing Monitoring and Evaluation Frameworks: Links with other tools**

To assist with wide scale adoption of the *characteristics* it may be useful to map the *characteristics* against existing monitoring and evaluation frameworks and tools (e.g. the Hyogo Framework for Action). This would enable PNS/HNS to compare their current approach with what is being proposed by this research report. As many of these existing frameworks fed into the development of the *characteristics* this should be a relatively straightforward activity.

- **Further Research: Verification leading to global application?**

In order to understand the extent to which these *characteristics* are globally representative further application/development is recommended in other geographies (outside of South and South East Asia), and in communities that have not experienced a CBDRR programme to understand if they have different perceptions of resilience. Exploration of the association between *characteristics* and demonstrations of resilience (e.g. the behaviour of a community when responding to or recovering from a shock or stress) could also help to provide insight into whether some *characteristics* matter more than others.

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<sup>4</sup> As suggested by participants at the workshop in Geneva (20-21.07.2011).

## Abbreviations

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ADB	Asian Development Bank
CBAT	Community Based Action Team
CBDRR	Community Based Disaster Risk Reduction
CBFA	Community Based First Aid
CBHFA	Community Based Health and First Aid
CDRT	Community Disaster Risk Team
DRR	Disaster Risk Reduction
EWS	Early Warning System
HNS	Host RCRC National Society
IFRC	International Federation of Red Cross and Red Crescent Societies
NGO	Non-Governmental Organisation
PNS	Partner RCRC National Society
RCRC	Red Cross Red Crescent Movement
PRA	Participatory Rural Appraisal
TRP	Tsunami Recovery Programme
(H)VCA	(Hazard) Vulnerability and Capacity Assessment
VDMC	Village Disaster Management Committee

# 1 Introduction

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The International Federation of the Red Cross (IFRC), as the ‘world’s largest humanitarian and development network’ is committed to building safety and resilience through its Community Based Disaster Risk Reduction (CBDRR) programmes<sup>5</sup>. As a movement the Red Cross-Red Crescent (RCRC) has significant knowledge and experience of implementing CBDRR programmes. However, defining the aims and objectives of such programmes and the critical factors that influence their impact remains a challenge. This is particularly acute when comparing outcomes and approaches between communities, countries and regions.

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This research report on the **Key Characteristics of a Safe and Resilient Community** has been prepared by Arup’s International Development team (Arup ID)<sup>7</sup> on behalf of the IFRC as part of a wider CBDRR Study of the TRP. It draws on the experience of the TRP CBDRR programmes and current literature in order to identify the ‘*characteristics* of safe and resilient communities; to understand how these *characteristics* changed over time; and to explore how RCRC interventions have contributed to this change’ (IFRC, 2010: 2).

It is intended that the *characteristics* arising from this research will be used in the design, monitoring and evaluation of future programmes. A first step towards this is the lessons learned report which provides a further output from this study. Other outputs of the study include a “who, what, where” database of RCRC CBDRR projects; and a research report identifying the *key determinants* of a successful CBDRR programme.

This report is structured as follows:

- Section 2: provides an overview of the **scope and methodology** for the literature review and fieldwork.
- Section 3: presents a summary of the **findings from the literature review** which resulted in a conceptual framework and long list of 19 *characteristics*.
- Section 4: summarises the **findings from the fieldwork** which provided a list of 70 factors grouped under 8 themes which the communities perceived as contributing to their safety and resilience.
- Section 5: includes the combined **analysis** of the literature review and findings from the fieldwork, resulting in six distinct *characteristics* of a safe and resilient community. It also **reviews** the fieldwork data with respect to the

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<sup>5</sup> IFRC, <http://www.ifrc.org/en/what-we-do/>

<sup>6</sup> The acronym CBDRR is used in an all-encompassing manner to include CBDRP, CBHFA, CCA, ICBRR, etc.

<sup>7</sup> Arup International Development (Arup ID) operates as a not for profit group within the Arup Group Ltd (Arup). [www.arup.com/internationaldevelopment](http://www.arup.com/internationaldevelopment)

*characteristics* and reports on how these have changed over time, and how this has been influenced by RCRC CBDRR programmes.

- Section 6: concludes with **recommendations** for future research and suggestions as to how the *characteristics* might be adopted to best suit the work of the RCRC.

## 2 Research Methodology

This research on the *characteristics* of a safe and resilient community is based on both primary and secondary data; there are two main inputs (Figure 3):

- Literature Review
- Fieldwork

The literature review provided a foundation for the study and set the specific questions this study addresses within an understanding of the wider context and debate. This resulted in a conceptual framework to understand a safe and resilient community and a long list of 17 *characteristics* of a safe and resilient community. These were used to inform the fieldwork methodology.

The field work was carried out in 30 communities across Sri Lanka, Indonesia, Thailand and the Maldives included participatory workshops, focus group discussions, observational walks, and semi-structured interviews. The exercises carried out in the participatory community workshops provide key data which was verified through other activities.

An inductive approach to data analysis was taken whereby themes were allowed to emerge from each of the individual data sources. The two data sets were then synthesised, analysed and brought together in order to identify a limited set of *characteristics* of a safe and resilient community. This approach enabled the factors contributing to a safe and resilient community, as understood by a wide range of academics and practitioners to be combined with perspectives from the community and local stakeholders.

It is important to note that this study considers the *characteristics* of a safe and resilient community in its entirety. Communities become progressively safer and more resilient over time due to the cumulative impact of their actions and interventions by others. The *characteristics* are relevant to inform the design, monitoring or evaluation of CBDRR (and other DRR) programmes, but not all *characteristics* will be relevant to specific programmes.

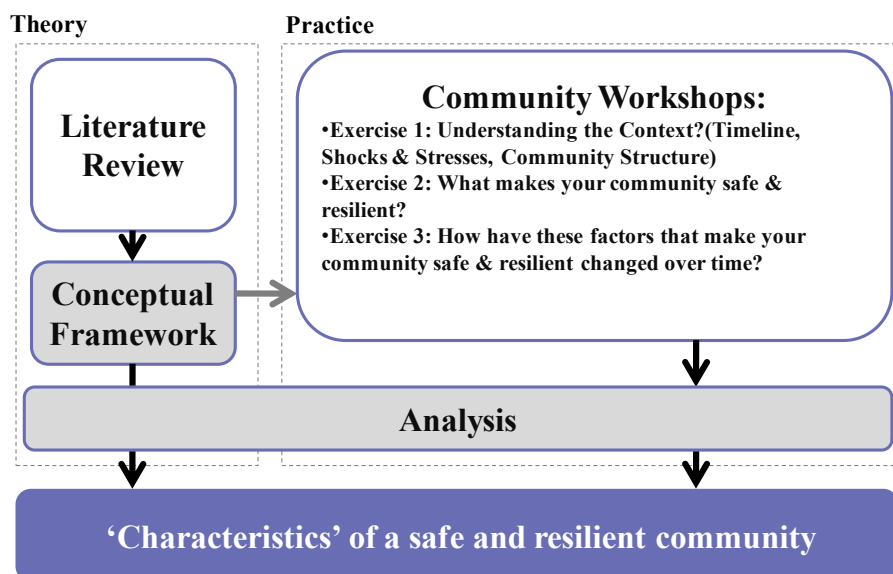


Figure 3: Simplified representation of research methodology

## 2.1 Literature Review

The desk-based literature review made reference to both peer reviewed publications as well as ‘grey literature’ as secondary data sources. An initial scoping study and consultation with key stakeholders and personnel within the IFRC<sup>8</sup> identified 25 key documents ( including 15 resilience frameworks) that formed the basis of the review (Table 1). A synopsis of the documents can be found in Appendix B1.

The purpose of the literature view was to compile a ‘long list’ of *characteristics* from the large number and variety of factors and indicators proposed in other frameworks and research. The intention was that this list would be ‘developed from community-provided data’ as a result of participatory field research (IFRC, 2010:3).

Table 1: Key documents included in literature review

- ADPC (2006) *Critical Guidelines: Community Based Disaster Risk Management*
- American Red Cross (2010) *CBDRR Household Guide and Assessment Tool*
- Arup (2010) *Rapid Resilience Report*
- Arup (2009) *ASPIRE User Manual*
- Bahadur et al (2010) *The resilience renaissance? Unpacking of resilience for tackling climate change and disasters*
- Canadian Red Cross (2010) *Measuring Community Resilience: A tool for baseline survey, program monitoring and progress reporting of a CBDRR Program*
- Community Resilience Project Team (2000) *The Community Resilience Manual*
- Cutter, S et al (2010) *Disaster Resilience Indicators for Benchmarking Baseline Conditions*
- IFRC (2008) *A Framework for Community Safety and Resilience*
- IFRC (2004) *World Disasters Report 2004: Focus on Community Resilience*
- IOTWS (2007) *Manual on evaluating coastal community resilience to hazards*
- Monday, J (2002) *Building Back Better: Creating a Sustainable Community After Disaster*
- Mayunga, J (2007) *Understanding and Applying the Concept of a Community Disaster Resilience : A capital –based approach*
- National Research Council (2009) *Applications of Social Network Analysis for Building Community Disaster Resilience: Workshop Summary*
- Normandin et al (2007) *City Strength in Times of Turbulence: Strategic Resilience Indicators*
- O’Rourke (2008) *Critical Infrastructure, Interdependencies, and Resilience*
- Pasteur, K (2011) *From Vulnerability to Resilience: A Framework for Analysis and Action to Build Community Resilience*
- Pooley, J et al (2010) *Indicators of Community Resilience*
- Tearfund (2005) *Mainstreaming Disaster Risk Reduction: A tool for development organisations*
- Twigg, J. ( 2009, 2<sup>nd</sup> Ed) *Characteristics of a Disaster Resilient Community*
- Sanderson, D (2010) *Integrating Development and Disaster Management Concepts to Reduce Vulnerability in Low Income Settlements*
- UN ISDR (2005) *Hyogo Framework for Action 2005 – 2015*
- UN ISDR (2008) *Indicators of Progress: Guidance on Measuring the Reduction of Disaster Risks and the Implementation of the Hyogo Framework for Action*
- UN ISDR (2010) *Making Cities Resilient: My City is Getting Ready*
- Elasha et al (2005) *Sustainable livelihood approach for assessing community resilience to climate change*

<sup>8</sup> IFRC CBDRR Study working Group

## 2.2 Fieldwork

The TRP following the 2004 Indian Ocean Tsunami represents ‘the biggest disaster recovery operation in [the RCRC movement’s] history’ (IFRC, 2009:5), and included CBDRR programmes in over 700 communities. The scope of this study includes all CBDRR projects in the four worst affected countries (Sri Lanka, Indonesia, Thailand and the Maldives) representing approximately 90% of the communities assisted.

Primary data was collected through qualitative fieldwork undertaken by Arup ID, in partnership with HNS from January-March 2011. 30 communities across Sri Lanka, Indonesia, Thailand and the Maldives were purposively selected for the fieldwork to be representative of the diversity across the TRP, in terms of type of community and CBDRR programme.

### Community Selection

The number of communities selected in each country reflected the scale and distribution of TRP CBDRR programmes implemented (Table 2). Within each country communities were selected to reflect the diversity between communities (eg. location, urban / rural, in-situ / resettled communities), as well as funding by different Partner National Societies (PNS). Some inland communities that were not directly affected by the tsunami were included.

The study team endeavoured to make the community and key informant selection criteria as clear and transparent as possible. Despite this, communication of these criteria to the four different HNS, and reliance on them to recommend communities means that biases may have been introduced.

	Sri Lanka		Indonesia		Maldives		Thailand	
	Communities assisted	Communities included in fieldwork	Communities assisted	Communities included in fieldwork	Communities assisted	Communities included in fieldwork	Communities assisted	Communities included in fieldwork
IFRC	20	3	23	2	11	2	7	2
American Red Cross	193	5	100	3			55	2
Belgian Red Cross			91	2				
British Red Cross	11		20	1	6	2		
Canadian Red Cross			43	3				
Danish Red Cross	7	1	16	1				
French Red Cross			3	1				
Total	231	9	296	13	17	4	62	4

Table 2: CBDRR programmes in Sri Lanka, Indonesia, Thailand and the Maldives.

The sample only included communities where CBDRR programmes had been undertaken as part of the TRP (Table 3). This facilitated contact and cooperation from the community in carrying out the study. However, the data collected is likely to have been influenced by the CBDRR programmes. There would be merit in exploring community perspectives on safety and resilience where there have been no previous interventions.

Table 3: Communities included in the fieldwork

Country	PNS	Village	District
Indonesia	American Red Cross	Deah Glumpang	Banda Aceh
	American Red Cross	Gampong Cot	Aceh Besar
	American Red Cross	Jaboi	Pulau Weh
	British Red Cross	Pulot	Aceh Besar
	Belgian Red Cross	Pedekok	Aceh Tengah
	Belgian Red Cross	Pepalang	Aceh Tengah
	Canadian Red Cross	Cot Langsat	Aceh Jaya
	Canadian Red Cross	Mireuk Lamreudeup	Aceh Besar
	Canadian Red Cross	Patek Fajar	Aceh Jaya
	Danish Red Cross	Pasi Pawang	Aceh Jaya
	French Red Cross	Bener Mulie	Aceh Tengah
	IFRC	Sidodadi	Langsa
IFRC	Suak Ribee	Aceh Barat	
Maldives	British Red Cross	Buruni	Thaa Atoll
	British Red Cross	Isdhoo	Laamu Atoll
	IFRC	Hulhuddhufaaruu	Raa Atoll
	IFRC	Maafushi	Kaafu Atoll
Sri Lanka	American Red Cross	Badulla North	Badulla
	American Red Cross	Duwa Pitipanaa	Gampaha
	American Red Cross	Egodawewa	Matale
	American Red Cross	Kadiranawaththa	Colombo City
	American Red Cross	Korawella South	Greater Colombo
	American Red Cross	Moragalla	Kalutura
	Danish Red Cross	Buddhama	Monaragala
	IFRC	Mabina North	Gampaha
	IFRC	Radella	Ratnapura
Thailand	American Red Cross	Koh Mook Island	Trang
	American Red Cross	Laem Makham	Trang
	IFRC and American Red Cross	Thung Ma Hnang	Satun
	IFRC	Thung Sa Boe	Satun

## Participatory research methodology

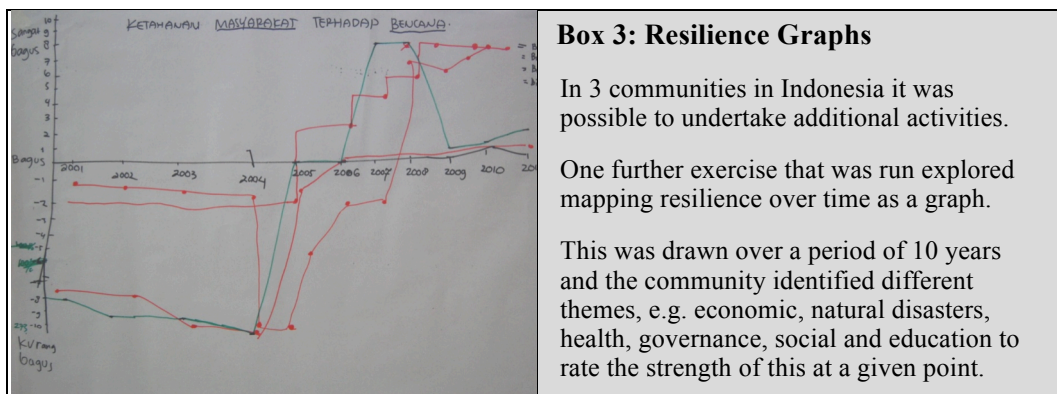
A participatory research methodology was designed which was informed by the findings from the literature review. The fieldwork included community workshops, focus group discussions, observational walks and semi-structured interviews. Key informant interviews were also conducted with representatives of a range of stakeholders including government, RCRC and NGOs. Key data was obtained from the community workshops whilst the other activities provided supporting information to enable triangulation and cross checking of information.

Three exercises were developed in order to ask the communities:

- ‘what are the factors that contribute to your safety and resilience?’
- ‘how have these factors changed in time since the implementation of the RCRC programme?’

These exercises were conceived as variations on those typically employed in Hazard Vulnerability and Capacity Assessments (HVCA) and routinely undertaken as part of CBDRR programmes (see Box 4). The intention was that they would be familiar to the community and RCRC staff.

The fieldwork was designed to be flexible in order to accommodate changes due to extreme weather conditions, urgent community activities and travel delays. As anticipated the full suite of exercises was not carried out in every community. In Sri Lanka, extreme flooding meant that it was only possible to carry out the workshop as planned (or with only minor variations) in 27 out of 30 communities. Conversely in Indonesia an additional exercise was introduced in some communities to verify other data (see Box 3).



### Box 3: Resilience Graphs

In 3 communities in Indonesia it was possible to undertake additional activities.

One further exercise that was run explored mapping resilience over time as a graph.

This was drawn over a period of 10 years and the community identified different themes, e.g. economic, natural disasters, health, governance, social and education to rate the strength of this at a given point.

The aim was to involve about 30 participants who were representative of the diversity of gender, age and roles in the community. These criteria were communicated from a national level to a branch or village level; village leaders or branches were then typically responsible for identifying participants. However, selection of individuals tended to focus on those with an interest in attending the event, a role in CBDRR programmes, or those with time available. Consequently, the participants may not have been fully representative of the whole community. This is likely to be more acute in more heterogeneous villages.

More detailed information on the fieldwork methodology can be found in Appendix A2.



## 3 Findings: Literature Review

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### 3.1 Overview

The literature reviewed highlighted significant diversity in approaches to defining and understanding safety and resilience within a community context. This in turn has resulted in a wide variety of conceptual models, definitions and indicators. Nevertheless, there are commonalities between approaches and some key themes that emerge.

#### Origins of Community Safety & Resilience

The concept of resilience originates from the field of ecology in the 1970s and has since been adopted by many disciplines including sociology, economics and psychology (Mayunga, 2008). It typically relates to the ability of systems to respond and adapt effectively to changing circumstances. The resilience of communities (which includes safety) is an emerging field that has resulted in a significant increase in the subject literature over recent years. To some extent this has grown out of the DRR agenda with a focus on shocks and stresses resulting from natural hazards. Hence community resilience is referred to as ‘the capacity or ability of a community to anticipate, prepare for and respond to, and recover quickly from impacts of disaster’ (Mayunga, 2008:2), or ‘the ability of a system, community or society to resist, absorb, cope with and recover from the effects of hazards’ (Pasteur, 2011:13).

Several CBDRR approaches, including those of various RCRC societies, build directly on the Hyogo Framework. This framework recognised the importance of awareness and preparedness in enabling communities to respond and recover from disasters, and has underpinned most DRR initiatives over the last decade. The concept of community resilience has gained traction as DRR has progressively moved away from a ‘predict and prevent’ paradigm in the context of specific hazards, to building the capacity of communities who face a wide range of shocks and stresses. Resilience is a more relevant approach when considering the risks associated with climate change, due to the inherent uncertainties in predicting the impact of climate change and how this manifest itself in terms of shocks (e.g. severe storms) or accumulation of stresses (e.g. malaria). For example, Normandin argues: ‘Anticipation strategies work against known problems, while resilient strategies are better against unknown problems’ (2007:2).

Community safety and resilience has also emerged separately from a developmental perspective within the context of sustainability. For example Monday in her paper entitled ‘Building Back Better: Creating a Sustainable Community after a Disaster’ recognises the importance of resilience in creating ‘a community that can endure into the future’ (Monday, 2002:3). This is related to the ability of a community to be self-deterministic with capacity ‘to adapt to and influence the course of environmental, social and economic change’ (US IOTWS, 2007:1-3). Finally, there are livelihood based approaches which seek to reduce vulnerability by building assets, thereby combining disaster and development methodologies (Sanderson, 2009; Pasteur, 2011).

## Thinking in systems

Resilience is the result of multiple activities, interactions and relationships and is often considered as an attribute of a system (economic, infrastructure, ecological, social). The Rockefeller Foundation defines systems as: ‘combinations of resources, institutions, individuals, and processes that combine to accomplish a set of specific functions’ (2009:4). This echoes Hamdi who argues that communities can be considered as systems with ‘social and spatial dimensions’ (Hamdi et al, 1997: 67) and that typically members of a community come together to achieve a common objective, even if they are not homogenous in all aspects of their thinking. Sanderson (2010:67) considers that the most useful unit of resilience, with respect to human resilience, is typically the community, regardless of its size. O’Rourke supports this hypothesis and describes how systems overlap to contribute to the ‘wellbeing, security and social fabric of the communities that they serve.’ (2007:23) (Figure 4).

The challenge in defining the extent of the system is overcome by putting local people, who are able to act within their sphere of influence, in the centre of the process. At the same time, a wider enabling environment which recognises the interdependency of local communities on others in terms of policy or access to wider resources is identified. (Twigg, 2009; Pasteur, 2011; US-IOTWS, 2007).

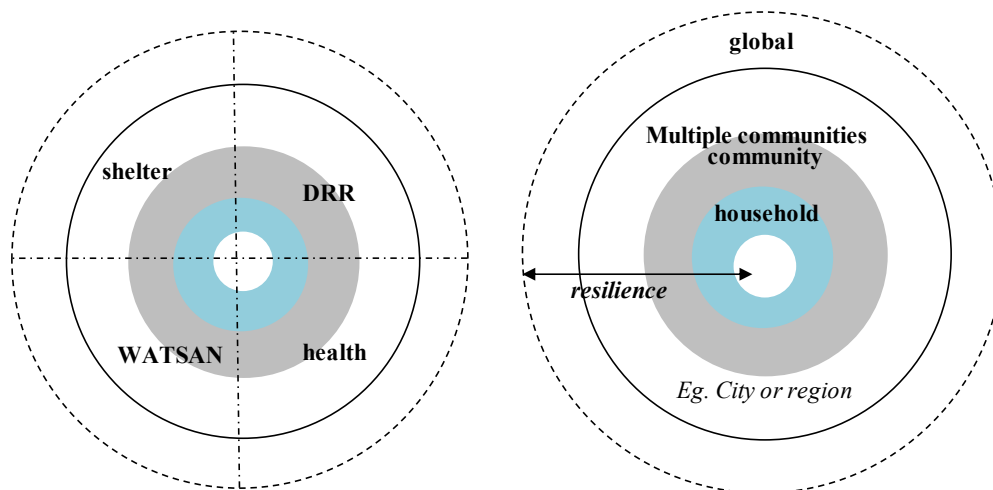


Figure 4 Concepts arising from literature review

## A process not an outcome

A resilient community is a theoretical concept which cannot ever be fully achieved in practice. Twigg emphasises this by stating that ‘no community can be free of risk’ (Twigg, 2009:7). Whilst ADPC considers ‘resilience a moving target and realistically it may not be possible for communities to achieve absolute resilience against hazards or other risk factors’ (ADPC, 2006:25). Building resilience is therefore seen as process, not just an outcome. Moreover it is a process that is multi-sectoral, involving multiple actors; ‘single sector planning cannot solve the complexity of problems posed by natural hazards, nor build resilience to them’ (US-IOTWS, 2007:1-2). Twigg recognises the challenge this presents operationally and argues that ‘no single group or organisation can address every aspect of DRR. DRR thinking sees disasters as complex problems

demanding a collective response from different disciplinary and institutional groups-in other words partnerships' (Twigg, 2009:8).

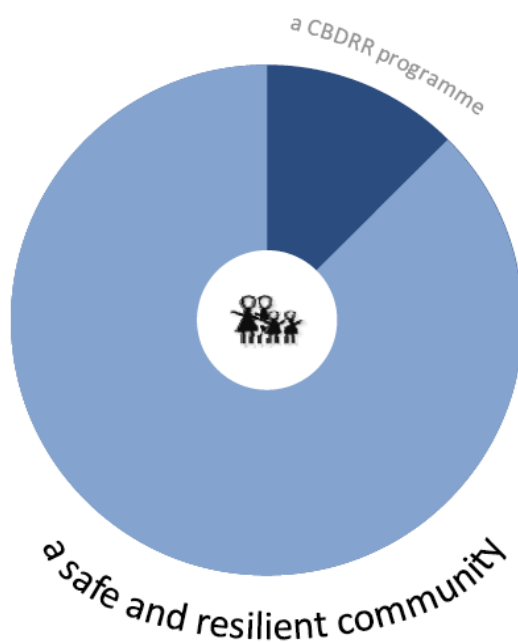


Figure 5 CBDRR programmes contribute to a safe and resilient community

The figure above emphasises the complexity of resilience and consequent challenges of designing CBDRR and other programmes that contribute to achieving safe and resilient communities, and subsequently monitoring and evaluating their impact. Defining the *characteristics* of a safe and resilient community is a step towards this, and provides a basis on which to explore the work of IFRC and the role their CBDRR programmes play. It is not expected that all of the *characteristics* identified will be relevant to all CBDRR programmes.

### 3.2 Factors contributing to safe and resilient communities

The primary purpose of the literature review was to identify a 'long list' of *characteristics* which could be used to inform the fieldwork methodology, and be compared with the data obtained from the fieldwork. This was not straightforward since there were significant differences in the conceptual models, definitions and indicators in the literature which cut across a number of sectors and scales.

Factors contributing to community resilience were extracted from the literature and summarised for each document. These were combined to provide a master list of over 150 factors. Through this process a small number of items identified from the literature were eliminated as being too general and therefore not helpful; for example 'the capacity to cope' which indicates what is required, rather than how it can be achieved.

Various groupings of factors were then explored in order to distil these 150 different factors into a more digestible 'long list' (Section 3.3). The majority of factors could be grouped under 3 key headings: meeting basic needs, ownership of assets and access to external resources.

- **Basic Needs:** Typically these related to water, health, shelter and sanitation<sup>9</sup>, and were seen as the first step to building resilience. For example, Pasteur identifies that ‘securing basic needs such as food is an important outcome related to resilience’ (2011:15) and Sanderson (2010) puts ‘meeting basic needs’ at the centre of his sustainable livelihoods framework, thus establishing it as the foundation for wellbeing.
- **Assets:** These related to a range of assets (physical, natural, financial, social, political and human) over which the community had full ownership and control. In some instances specific assets were cited such as ‘employment’ (Cutter, 2010) while in others more general statements were made, such as ‘has social assets’ (Mayunga, 2007).
- **Access to external resources:** These emphasised the importance of being able to access external resources (i.e. resources that are outside of the community and where the community only had limited or minimal control.) This was particularly important in instances when the asset base of the community is not sufficient to cope with a particular shock or stress.

In addition there were factors which were more specific and related to the capacities of communities (e.g. the ability to learn) or the qualities of assets (e.g. strong, well located).

- **Capacities:** These related to the capacities of the community to adapt to change (Pasteur, 2011), self organise (ADPC, 2006; Arup, 2010) and learn (ADPC, 2006; Arup, 2010; Bahadur, 2010); factors which ultimately enabled the community to mobilise their assets and resources.
- **Qualities:** These provided a description of the resource or assets, such as diverse, strong or located in a variety of areas (O’Rourke, 2008). This suggests the presence of assets alone is insufficient, and it is the quality of those assets which determines the safety and resilience of a community.

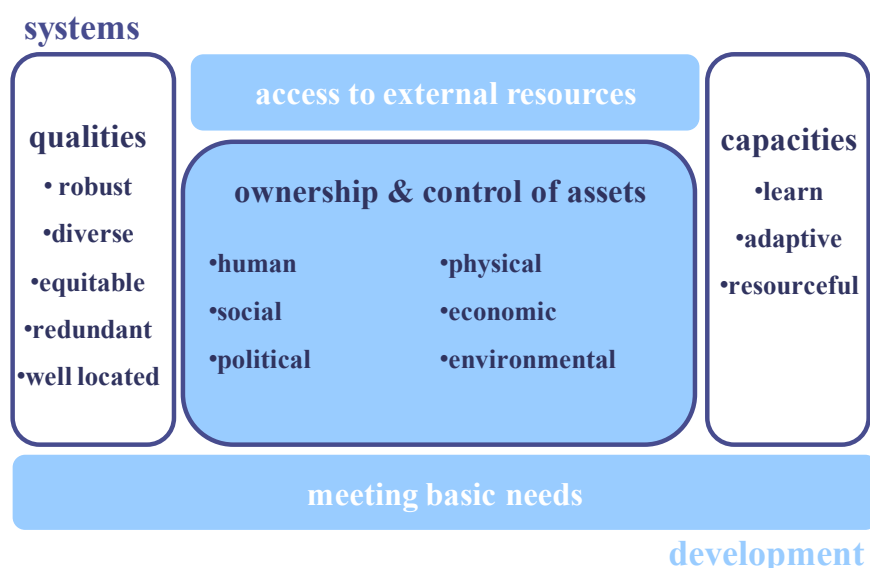


Figure 6 Conceptual framework for Community Resilience.

<sup>9</sup> Defined in the Sphere Standards (2011) as Water; Sanitation and Hygiene Promotion; Food Security, Nutrition and Food Aid; Shelter, Settlement and Non-Food Items; and Health Services.

The asset based terminology was prevalent in development theory and practice. Whilst reference to qualities and capacities (although implicit in some of the development literature), emerged more explicitly in wider ranging literature where resilience is considered as an attribute or behavioural *characteristic* which describes the system (Figure 6).

### 3.3 A ‘long list’ of *Characteristics*

From the literature review a ‘long list’ of *characteristics* of safe and resilient communities was identified as follows:

#### External Resources

A safe and resilient community has access to:

- 1. connections & information**
  - transportation and infrastructure (Cutter, 2010; IOTWS, 2007).
  - communication and information (Twigg, 2009; Cutter, 2010).
  - technical advice (IOTWS, 2007; Twigg, 2009).
- 2. services ( at a scale larger than a community)**
  - municipal services (Cutter, 2010).
  - medical care (Cutter, 2010; Twigg, 2009).
  - government (and other) funding sources (Twigg, 2009; IOTWS, 2007).
- 3. natural resources (at a scale larger than a community)**
  - land (Mayunga, 2007).
  - water (Mayunga, 2007).
  - ecosystem (Mayunga, 2007).

#### Assets

A safe and resilient community has:

- 4. physical assets**
  - public facilities (Mayunga, 2007; Twigg, 2009).
  - housing (Cutter, 2010; Mayunga, 2007).
  - transportation infrastructure e.g. roads, rail, boat etc (Cutter, 2010).
  - stockpiles for emergencies (ADPC, 2006; UNISDR, 2008; IOTWS, 2007; Mayunga, 2007).
- 5. economic assets**
  - livelihood assets (Pasteur, 2011; Twigg, 2009).
  - employment & income (Cutter, 2010; Mayunga, 2007; Twigg, 2009).
  - savings and contingency fund (Mayunga, 2007, UNISDR, 2008; Twigg, 2009).
  - investment (Mayunga, 2007).
  - insurance (Twigg, 2009).
  - business/industry (CRPT, 2000; Mayunga, 2007).
- 6. environmental assets**
  - ownership of natural resources (Bahadur, 2010; Twigg, 2009).

## 7. human assets

- local and traditional knowledge (Bahadur, 2010; Mayunga, 2007; IFRC, 2008; ADPC, 2006; Twigg, 2009).
- skills (Pasteur, 2011; Mayunga, 2007; Twigg, 2009).
- language competency (Cutter, 2010).
- health (Cutter, 2010; Mayunga, 2007; Twigg, 2009).
- education (CRPT, 2000; Mayunga, 2007; Twigg, 2009; IOTWS, 2007).

## 8. social assets

- community cohesion and cooperation (Bahadur, 2010; Mayunga, 2007; Twigg, 2009).
- religion (Cutter, 2010).
- community organisations with collaborative/partnership relationships eg. economic development organisations (Bahadur, 2010; CRPT, 2000; Mayunga, 2007).

## 9. political assets

- effective and flexible governance and institutional structures (Bahadur, 2010, Cutter, 2010, Twigg, 2009).
- representative governance and institutional structures (Twigg, 2009; Bahadur, 2010; Pasteur, 2011; Cutter, 2010).

## Capacities

A safe and resilient community has the capacity to:

### 10. be resourceful

- mobilise resources and services when needed (O'Rourke, 2008; Arup, 2010; Pasteur, 2010; CDRT, 2000).
- visualise and act (Arup, 2010).
- identify problems and establish priorities (Arup, 2010).
- innovate (Cutter, 2010).
- coordinate and provide emergency relief (Twigg, 2009).

### 11. be adaptive/flexible

- adapt to long term trends (organise and re-organise) (Pasteur, 2011; Arup, 2010).
- convert assets (Arup, 2010).
- accept uncertainty and proactively respond to change (Bahadur, 2010; Pasteur, 2011).

### 12. learn

- build on past experiences and integrate it with current knowledge (Arup, 2010; IFRC, 2008; ADPC, 2006; Bahadur, 2010; Twigg, 2009).
- assess, manage and monitor risks (IFRC, 2008; Pasteur, 2011; Bahadur, 2010).
- build back after a disaster in such a way that reduces vulnerability (IFRC, 2008; Pasteur, 2011).

## Qualities

A safe and resilient community has assets /resources that are:

### 13. strong/robust

- robust to withstand external pressure /demands without loss of function (O'Rourke, 2008).
- strong (UNISDR, 2008; Twigg, 2009; IOTWS, 2007).
- increased size e.g. community contingency fund (Twigg, 2009); local employers (CRPT, 2000).

### 14. well located

- geographically distributed so that they are not all affected by a single event (Arup, 2010) e.g. decentralised government (Bahadur, 2010).
- located outside of high risk areas (Twigg, 2009; IOTWS, 2007).

### 15. diverse

- able to meet its needs in a variety of ways e.g. social (variety of internal organisations), economic (multiple employers and employment opportunities), environmental (different groups in an ecosystem) (Arup, 2010; Bahadur, 2010; Cutter, 2010; Pasteur, 2011; CRPT, 2000; Twigg, 2009; IOTWS, 2007).

### 16. redundant

- able to offer spare capacity to accommodate extreme pressure so that alternate options and substitutions are available under stress (O'Rourke, 2008; Arup, 2010; Bahadur, 2010; Twigg, 2009).

### 17. equitable

- equal and allow inclusive access and ownership (Cutter, 2010; CRPT, 2000; Twigg, 2009; Bahadur, 2010).

There were also a number of qualities that were associated with human behaviour and attitude that emerged:

### 18. commitment to reducing risk in the long-term (IFRC, 2008; Twigg, 2009; CRPT, 2000).

### 19. self sufficiency (IFRC, 2008; CRPT, 2000; ADPC, 2006).

The full list of factors identified in the literature review grouped under these 19 *characteristics* is included in Appendix B2.

## 4 Findings: Fieldwork

This section contains a summary of the fieldwork findings as a result of the three exercises conducted during the community workshops (Box 4). The detailed findings from Cot Langsat, Indonesia are included Appendix A3 as an example of the data collected.

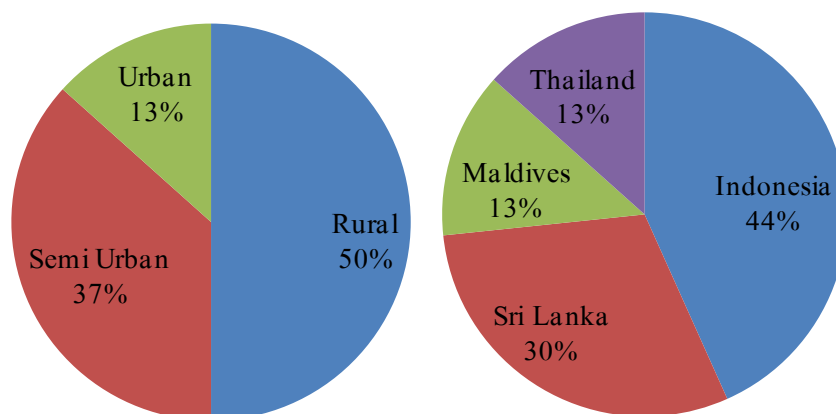


Figure 7: Diversity of Communities

Figure 7 illustrates the diversity in communities where fieldwork was carried out. 15 out of 30 communities involved in the study were located in rural areas, 11 were in semi-urban areas and 4 in urban areas. 13 were located in Indonesia, nine in Sri Lanka and four in both the Maldives and Thailand. Whilst these were chosen to be representative of the TRP programme, the findings from these communities are not a result of a quantitative research study and therefore should not be used to draw inferences or conclusions about the TRP CBDRR programmes overall.

### 4.1 External Resources and Relationships<sup>10</sup>

**The communities identified a wide range of connections within and outside the community including government agencies, non-government agencies and private sector organisations. This highlighted the importance of relationships and emphasised that communities do not operate in isolation, rather they rely on intricate networks for support, services, guidance and information. In particular, the fieldwork indicated the importance of relationships with the government / government agencies. These relationships were the most commonly identified and typically provided a large number of services and support.**

#### Government

The government structures in each of the four countries from a district to a sub-community level was typically well understood by the community (Figure 8).

- Approximately 90% of communities identified a connection to a government official within their community (e.g. head of community; Grama Niladari;

<sup>10</sup> Data collected through Exercise 1: Understanding the Context? See Appendix A, A2 for detailed information on the methodology.

Kepala Desa). Where indicated, the majority of these were considered strong or medium strong.

- Approximately 90% of communities identified a connection to a government agency outside their community at a sub-district level (e.g. council) and 75% at district level. Where indicated, the majority of these were considered strong or medium strong.

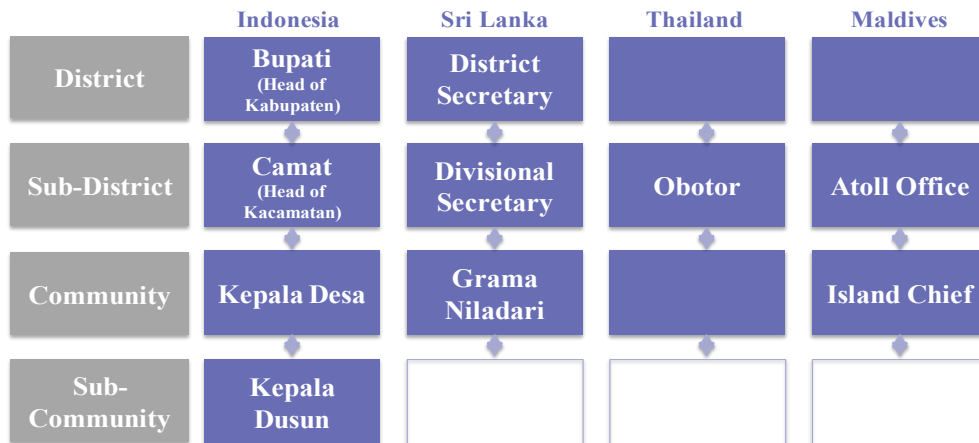


Figure 8 Government Structures from a national to sub-community level.

The link to national government disaster management agencies (Box 5) was typically weak due to lack of resources (people, time and funding) or policy. At the national level, all of the government disaster management agencies were established or significantly restructured after the tsunami. Historically they had a strong focus on disaster preparedness and relief, but have limited capacity to implement relying on close links with the military in order to coordinate relief efforts.

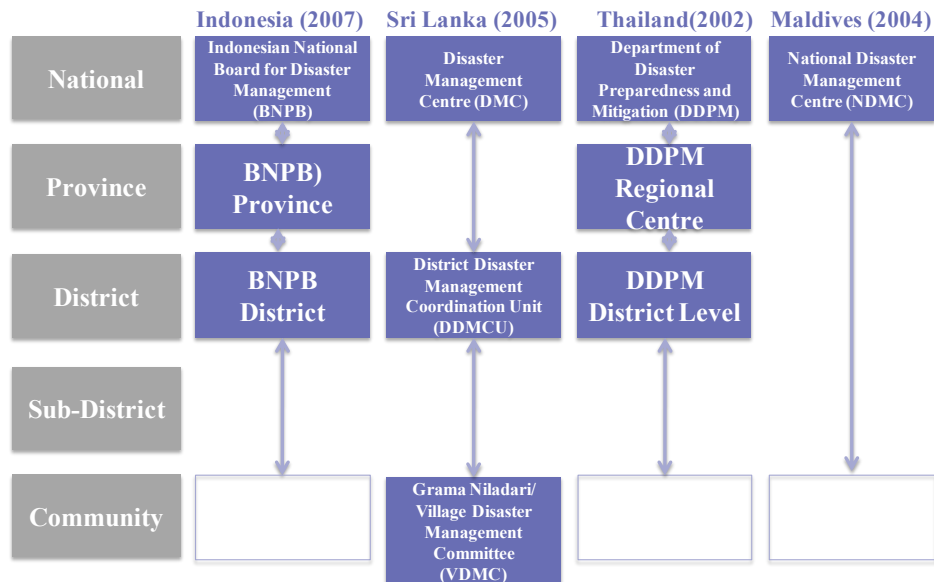


Figure 9 Government disaster management structure across countries<sup>11</sup>

<sup>11</sup> Information gathered through key informant interviews.

## Red Cross and NGOs

Figure 10 illustrates the groups, within the communities, established by the RCRC movement as part of their CBDRR TRP programmes. The top row indicates the ‘coordination team’ within the community, typically including senior community members. The bottom row represents the ‘action teams’ with specialist training who usually respond to disasters.

- Approximately 75% of communities identified a group within their community that had been established or supported by the RCRC (e.g. VDMC, CDRT, CBAT etc.) as part of their CBDRR programme. Some of these groups were identified as having a strong link within the community, whilst others were less well integrated.
- Approximately 75% of communities identified the RCRC as an external organisation whilst half of the communities identified connections with other NGOs, excluding the RCRC.

	Indonesia	Sri Lanka	Thailand	Maldives
Community-Management	Community Disaster Management Committee (CDMC)	Village Disaster Management Committee (VDMC) *	Community Disaster Management Committee (CDMC)	Island Disaster Management Committee (IDMC)
Community-Implement	Community Based Action Team (CBAT)	Specialist Sub – Committee: -First Aid -Camp Management -Early Warning -Search and Rescue -Coordination	Unknown	Unknown

*\*With the exception of the Danish Red Cross programmes who supported a Community Disaster Response Teams (CDRT)*

Figure 10 Community groups tasked with disaster management.

## Others agencies

External relationships were identified as important for a range of services and infrastructure:

- Approximately 75% of communities identified health care services (e.g. a health centre, midwife etc.) and 65% identified learning institutions (e.g. a school) within their community.
- Around half of the communities identified an organisation that provided financial services (e.g. loans, grants, insurance) within their community and just over half identified ones externally. In many cases these were connected to each other; for example, the Samurdhi Bank in Sri Lanka often had representatives inside and outside the community.
- Approximately 70% of the communities identified one or more religious organisation within their community, indicating the importance of religion to many of the communities included in the fieldwork.

## 4.2 Shocks and Stresses<sup>12</sup>

**The communities identified a wide range of different shocks and stresses that affected them including natural hazards, socio-economic and health related issues. This highlighted the diversity of challenges facing communities and the importance of comprehensively understanding these threats when developing programmes to address safety and resilience. In post-disaster situations there is a tendency for DRR programmes to polarise on single hazards.**

In the community workshop, the focus was on understanding the range of shocks and stresses as perceived by the community, and which they felt were most important so that these could be used to explore what makes their community resilient (see 4.3). Those they prioritised do not necessarily reflect the reality in terms of their likelihood and impact<sup>13</sup>. The top 3 shocks and stresses in each community are summarised in 18 categories as shown in Figure 11.

- Of the top 3 issues identified only one was a shock (flooding) and the other 2 were ongoing stresses relating to health (vector borne disease) and water (insufficient water). Issues that were a priority in more than 2 communities included heavy winds and rains, tsunami, unemployment, and earthquakes.
- 22 communities were affected by the 2004 tsunami, but only 6 identified it as a top 3 hazard. None of these communities was in Indonesia. Over the last 5 years there has been significant investment in helping communities in Indonesia prepare for and respond to tsunamis. This hazard may not be a priority because they feel that they prepared as much as possible and are now focussed on other concerns.
- Natural hazards feature strongly as they have a high impact, and are common across countries/communities. This highlights the importance of DRR, and suggests programmes to address these issues may be able to take a more standardised approach. Conversely, there is a wide array of community specific hazards which, although not common across multiple communities, may pose the most significant risk in a particular community.
- Notably, a number of shocks and stresses were not prioritised such as food security, HIV/AIDs, violence, lack of shelter etc., as these were not key concerns for the communities. This may be because they affected individual households rather than the community as a whole.

### Box 5: Shocks, Stresses & Variations in Language

When defining a safe and resilient community rapid onset (shocks) and slow onset (stresses) disasters have an impact in different ways and require different responses and management approaches. In order to understand the *characteristics* in relation to these types of impact we explored both through the fieldwork. ‘Shock’ and ‘stress’ could not always be directly translated into the local languages and alternative words were adopted to indicate the difference between the two. Examples include:

- Sri Lanka: Hazard (Shock) and Problem (Stress)
- Indonesia: Short-term disasters (Shock) and Long-term disasters (Stress)

<sup>12</sup> Data collected through Exercise 1: Understanding the Context? See Appendix A2 for detailed information on the methodology.

<sup>13</sup> This was of lesser importance because the purpose of the exercise was not to inform the design a programme, rather understand the range of shocks and stresses.

### Shocks and Stresses by Country

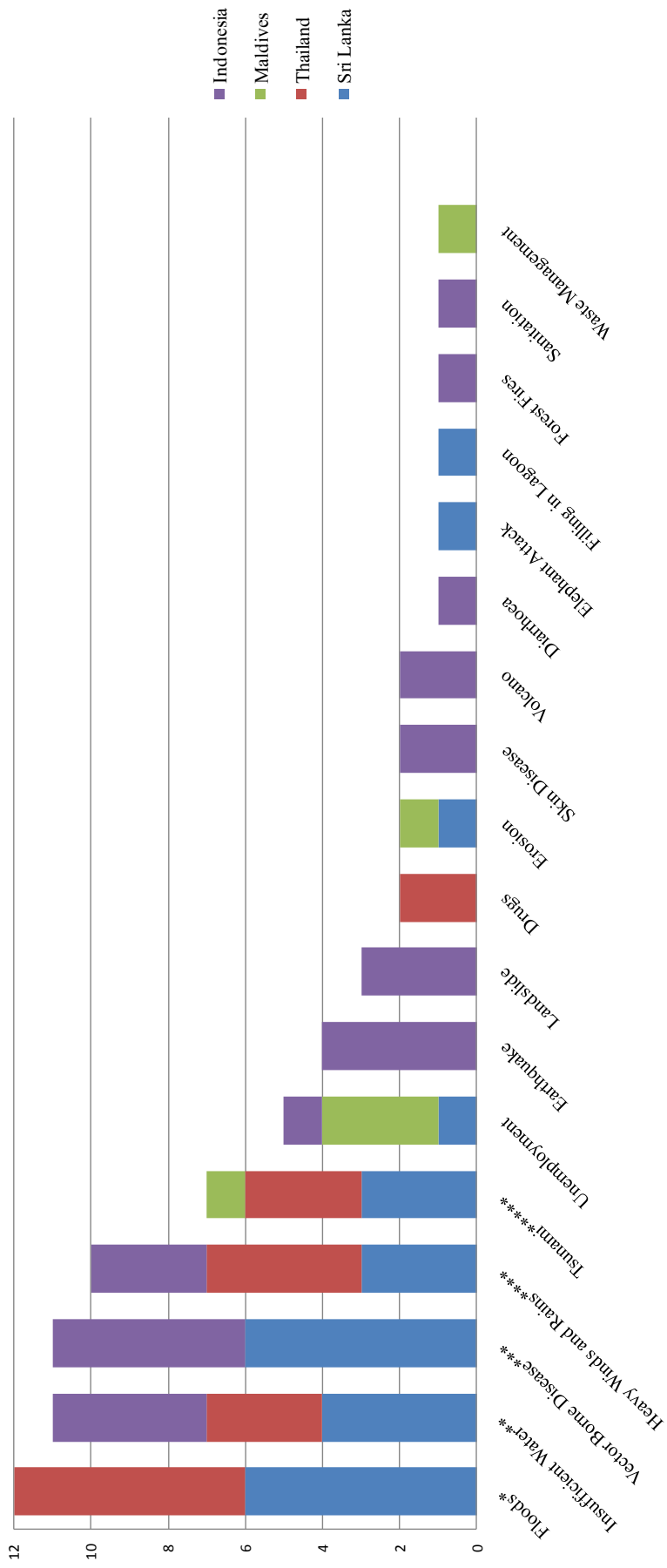


Figure 11 Top 3 shocks and stresses identified across the four countries (13 communities in Indonesia, 9 in Sri Lanka, 4 in both the Maldives & Thailand)

The following categories including the following shocks and stresses identified in the communities:



### 4.3 Factors contributing to safe and resilient communities<sup>14</sup>

The communities identified a very wide range of factors that they perceived as contributing to their safety and resilience. An analysis of the five factors prioritised in each community workshop suggested these could be grouped under 8 themes<sup>15</sup>:

- **Services/infrastructure**
- **Livelihoods**
- **Mitigation**
- **Evacuation**
- **Meeting basic needs**
- **Recovery**
- **Coordination**
- **Knowledge**

Communities were asked ‘what makes your community safe and resilient?’ in the context of the three shocks or stresses they prioritised in Exercise 1 (e.g. floods). They were asked to identify the factors that make them safe and resilient before, during and after experiencing a shock or stress (Box 6). Over 3000 factors were identified and the top five factors in each community were prioritised resulting in a data set of 400 factors.

This data set was distilled to a smaller data set of about 70 summary factors by aggregating comparable factors, based on which 8 thematic groupings emerged (Figure 12). For example, several communities identified factors such as ‘get support and help from the government (fisheries department) for equipment’ (Duwa Pitipanaa, Sri Lanka) or ‘ADB [Asian Development Bank] gave support and equipment to build a pipeline from the mountain’ (Patek Fajar, Indonesia). These were categorised as the summary factor: ‘A safe and resilient community has... support from external actors who provide equipment to prevent or recover from shocks and stresses’ which was included in the Coordination grouping.

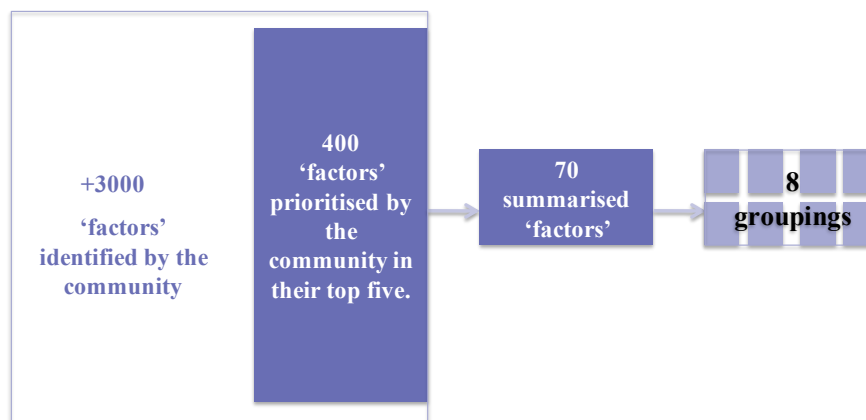


Figure 12 Distillation and grouping of factors

<sup>14</sup> Data collected through Exercise 2: What makes your community safe and resilient? See Box 6 and Appendix B3 for detailed information.

<sup>15</sup> These groupings were identified to facilitate analysis and presentation of the fieldwork findings rather than as *characteristics*.

**Box 6: Exercise 2: What makes your community safe and resilient?**

This exercise was developed specifically to identify and explore the factors that communities perceive as critical for safety and resilience. The key questions that it addressed were:

- What helps your community **prepare for or prevent** a disaster **before** it happens?
- What helps your community **cope** while they are being **affected** by a disaster?
- What helps you community **recover** from a disaster **after** it has happened?
- Which of these factors are **inside** the community and which are **outside**?

The communities completed the following tables:

Shock or stress		Shock or stress			
Inside the community		Before	During	After	
Outside the community		Before	During	After	

For some shocks or stresses such as tsunamis or floods these time distinctions are clear. In this case the group considered all three stages and completed the grid as above.

For others stresses such as unemployment or epidemics it was more challenging to make such clear time distinctions (e.g. if the community have not experienced a ‘recovery’ as it remains ongoing). In these cases the facilitator supported the group to identify the time periods that were appropriate.

Figure 13 presents a completed example of this exercise to illustrate the type of factors the community were identifying. Boxes highlighted in grey have been prioritised by the community as the top five factors.

		2. Floods		
		<i>Before (Prepare &amp; Prevent)</i>	<i>During (Cope)</i>	<i>After(Recover)</i>
<b>Inside the Community</b>	Construct houses and shops	<b>Evacuation (2)</b>	<b>Clean houses (3)</b>	
	<b>Training through different groups inside and outside community (1)</b>	Hospitalisation of those who are injured	Clean road and canal through Shramadana	
	Cut branches off trees (that can cause electrical failure)	Provide first aid	Repair all belongings	
	Form committee (VDMC) and training	Distribute food		
<b>Outside the Community</b>	Inform the RC	Request support from RC	<b>Inform PHI to control mosquitoes (5)</b>	
	<b>Inform the GN (4)</b>	Dry rations/ cooked food from the GN	Shramadana by village committee (VDMC)	
	Inform the DS	Help and support through CBO	Repair or get funds to repair buildings	
	Make all of the members of the committee (VDMC) aware	Inform electricity board and get help		
	Inform other government official	First Aid service through RC		
	Help from Government Agencies			

Figure 13 Example of Exercise 2: ‘What makes your community safe and resilient?’

This list of 68 summary factors grouped according to theme are summarised below. More detailed information on the findings is provided in Appendix B3.

## Services & Infrastructure

A safe and resilient community has services and infrastructure:

1. clean water, typically from multiple sources outside the community
2. constructs, maintains and renovates infrastructure to a variety of reliable water sources e.g. canals, wells, reservoirs and rainwater collection
3. a waste management system
4. access to veterinary assistance
5. permanent shelter
6. sanitation facilities
7. access to medical transport e.g. ambulance
8. a back up source of lighting
9. savings or access to grants and loans
10. good footpaths and roads for transport
11. access to education and vocational training
12. access to...medical treatment

## Livelihoods

A safe and resilient community has livelihood opportunity:

13. can take alternative employment
14. is entrepreneurial
15. work longer/harder hours; take greater risks
16. has livelihoods support from district or national government
17. take a job with lower pay than skills

## Mitigation

A safe and resilient community takes measures to mitigate their hazards:

18. can manage its forests to mitigate landslides, erosion and fires
19. uses water efficiently
20. cleans its homes and environment to mitigate water and vector borne disease
21. has and maintains rivers, drainage and irrigation systems
22. undertakes mitigation activities to address landslides
23. undertakes mitigation activities to address soil erosion

24. undertakes mitigation activities to address drought
25. undertakes mitigation activities to address vector borne disease (e.g. fogging, nets or repellent)
26. builds strong houses to mitigate against wind and rain
27. plants mangroves and trees to mitigate against wind, rain and tsunamis
28. undertakes mitigation activities to address social problems

## Evacuation

A safe and resilient community can evacuate:

29. observes natural changes or environment to provide early warning
30. receives early warning from external media sources
31. has an established place to evacuate to
32. has an early warning communication system
33. has experience and knowledge of evacuation procedures
34. has a pre-prepared 'pack' of valuables and important documents
35. has a pre-prepared evacuation route
36. can evacuate people and property
37. can take shelter in a safe place in houses

## Basic Needs

A safe and resilient community is able to meet its basic needs:

38. stockpiles food and medical supplies
39. stores water
40. can provide relief items (food, shelters, medical etc) to affected people
41. can request assistance to provide water when required
42. can administer first aid
43. has access to food from external agencies
44. can cook and distribute food internally
45. has access to general relief items (food, shelters, medicine etc)

## Recovery

A safe and resilient community is able to recover:

46. cleans its homes and environment as part of the recovery process
47. can repair damaged houses
48. can replant crops and plants if they are damaged

49. has external support to assess and repair the damage of and repair infrastructure e.g. roads and power connections

## Coordination

A safe and resilient community coordinates:

50. has support from external actors who provide equipment to prevent or recover from shocks and stresses
51. has access to technical advice and support from external agencies
52. organises community recreational activities
53. can communicate, internally and externally
54. exchanges information with the government and other actors
55. coordinates with external actors
56. coordinates with government agencies
57. has community organisations, internal support mechanisms and coordination mechanisms
58. coordinates with the Red Cross
59. can request assistance from a number of different actors when required

## Knowledgeable

A safe and resilient community is knowledgeable:

60. can assess how prepared it is
61. practices good personal hygiene
62. does not put itself at greater risk
63. can undertake search and rescue activities
64. has had training on shocks and stresses
65. has a high level of awareness about maintaining good hygiene and sanitation practices
66. has a high level of awareness about the shock or stress
67. can undertake damage assessments
68. stays calm and does not panic

## 4.4 Reliance on others

**The majority of factors identified were undertaken by the community themselves, although some rely on coordination with external actors.**

- More than 80% of the factors identified were undertaken or facilitated by the communities either by themselves or in collaboration with external actors.
- Less than 20% of the factors that contributed to the safety and resilience of the community were undertaken without their involvement. These were typically provision of services (e.g. health), construction of infrastructure (e.g. road piling or electrical connections) or provision of relief items (Figure 14).

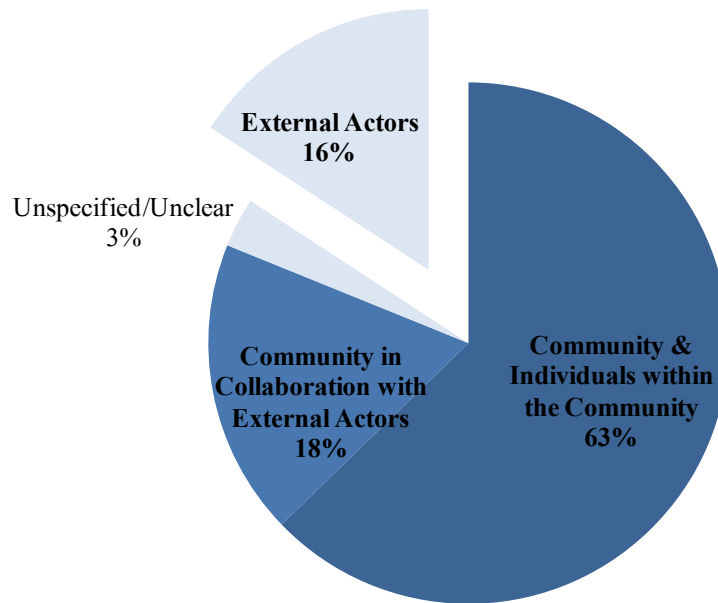


Figure 14 Responsibility for factors contributing to community safety and resilience.

## 4.5 Changes to factors contributing to safe and resilient communities<sup>16</sup>

**Communities generally considered there to be an improvement in the factors during implementation of the CBDRR programmes. This is particularly evident for factors relating to: coordination, evacuation, knowledge, mitigation and meeting basic needs. These were areas that were specifically targeted by CBDRR programmes. Since the completion of the CBDRR programmes, the community typically rated factors as unchanged or minimally changed, or reduced in the case of some factors.**

The participants in the community workshops were asked to rate how the five factors of safety and resilience that they had previously prioritised (see 4.3) had changed in strength over time, and where possible, they were also asked to provide an explanation for why these changes had occurred. The community rated

<sup>16</sup> Data collected through Exercise 3: How have the things that make your community safe and resilient changed over time? See Box 2 and Appendix A2 for detailed information on the methodology.

each factor on a numerical scale: 0 (weakest) to 10 (strongest). They provide ratings at three moments in time: before the CBDRR programme, on completion of the CBDRR programme, and now. This process was intended to capture the direction of change rather than the extent of change.

This exercise was necessarily subjective based on the communities' perceptions, since baseline assessments had typically not been done, or were not comparable. Nevertheless, it still provides some useful insights.

This data was processed by comparing the ratings:

- a) Before and after the CBDRR programme
- b) After the CBDRR programme and now (i.e. the day of the community workshop).

This was used to determine whether, for the time period between the two ratings, the factor was:

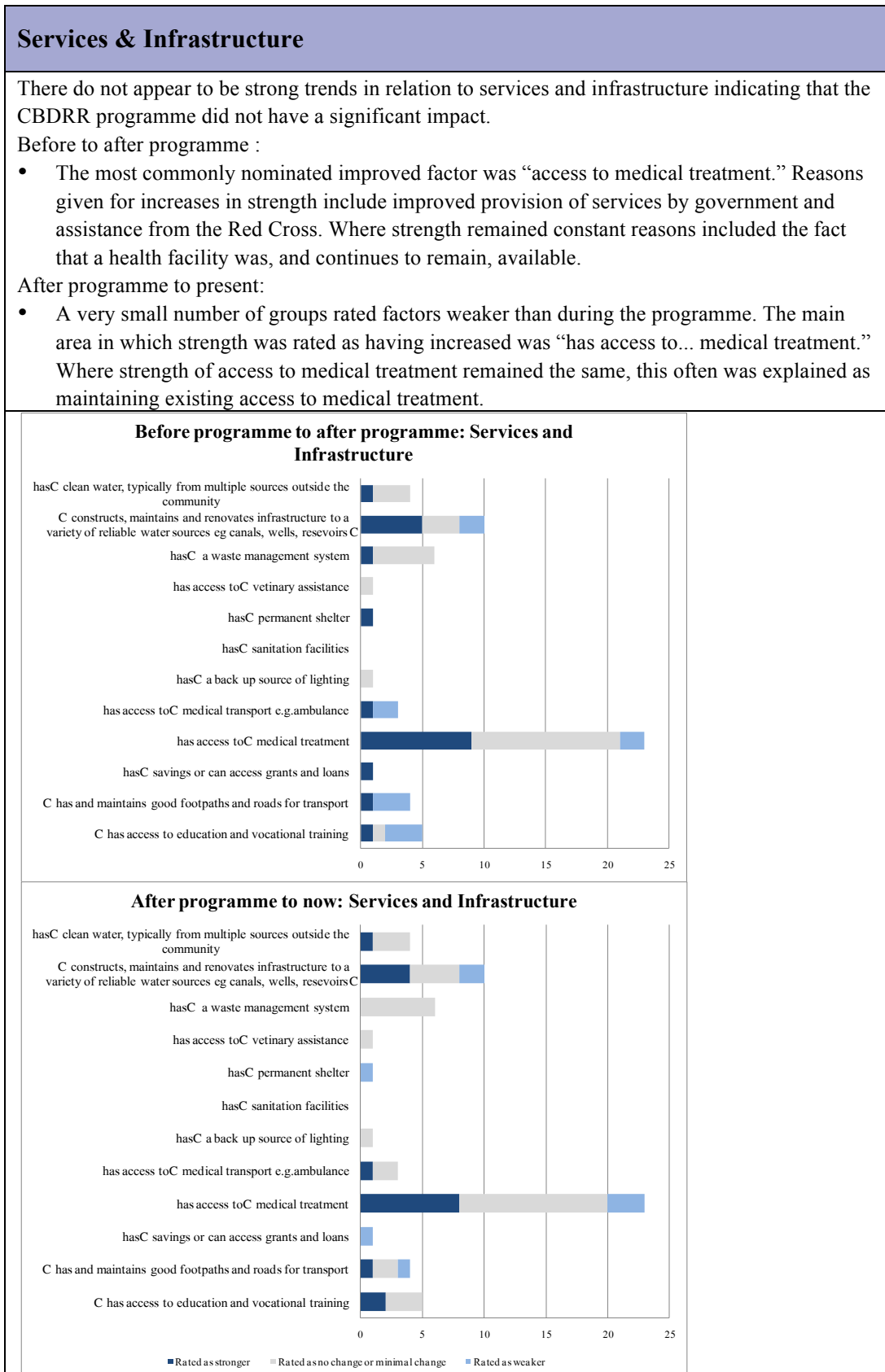
- Increased / Stronger (a change of a magnitude greater than +1)
- Decreased / Weaker<sup>17</sup> (a change of a magnitude less than -1)
- Unchanged or minimally changed (a change in value of a magnitude between -1 and 1)

A summary of the findings based on the groupings identified in section 4.3 is included in Table 4.

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<sup>17</sup> In a very few cases a decrease in strength suggests a positive change and an increase indicates a negative change. For example, if advocacy was conducted to request that infrastructure be built, once the infrastructure has been built a decline in strength occurs because the advocacy is no longer required.

Table 4: Summary of fieldwork findings: How have the factors that make your community safe and resilient changed over time?



## Livelihoods

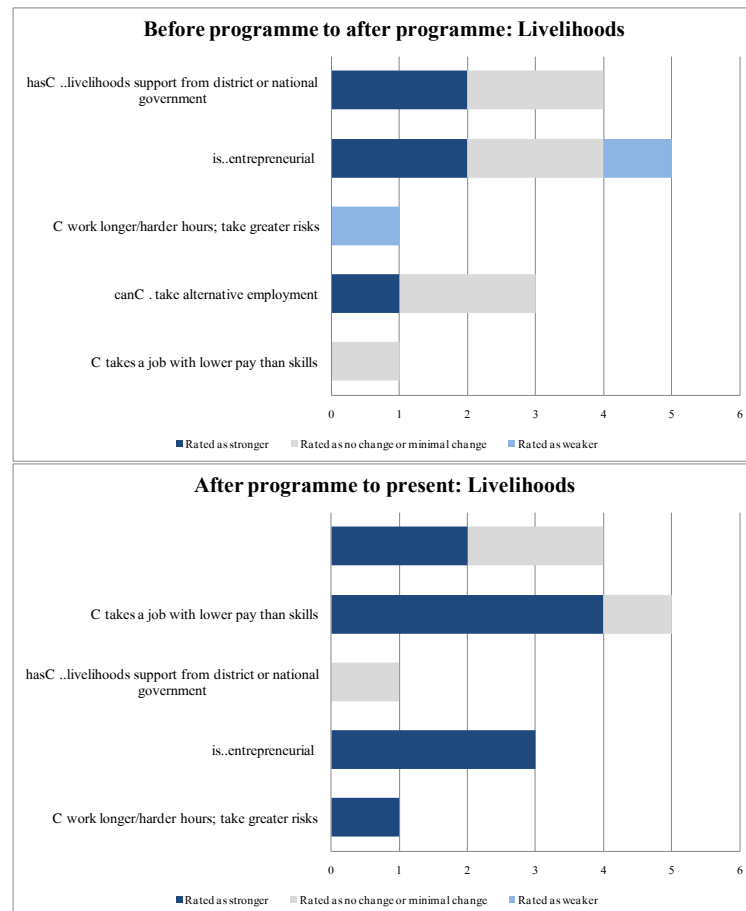
The comments from the communities suggest that when strength increases occurred, they were not the result of a CBDRR programme<sup>18</sup>.

Before programme to after programme:

- “Is...entrepreneurial” was the most frequently raised indicator in regards to livelihoods. The ratings for this indicator suggest that at the end of the programme this indicator was maintained at the same strength or was made stronger. Most of the stronger ratings came from one community in Thailand and were cited as being due to individual initiatives. Most of the unchanged or weaker levels came from a different community in Thailand and were said to be due to lack of external support to solve the problem.

After programme to present:

- Interestingly, most of the responses on being entrepreneurial and taking alternative employment identified further increases in strength since the programme finished. Again, responses from two communities in Thailand made up the majority of responses in these areas.



<sup>18</sup> The majority of detailed accounts of the reasons why each item has changed come from Indonesian communities. Hence, when reasons for changes are given in this section, there is a tendency for perspectives from Indonesian communities to be strongly represented.

## Mitigation

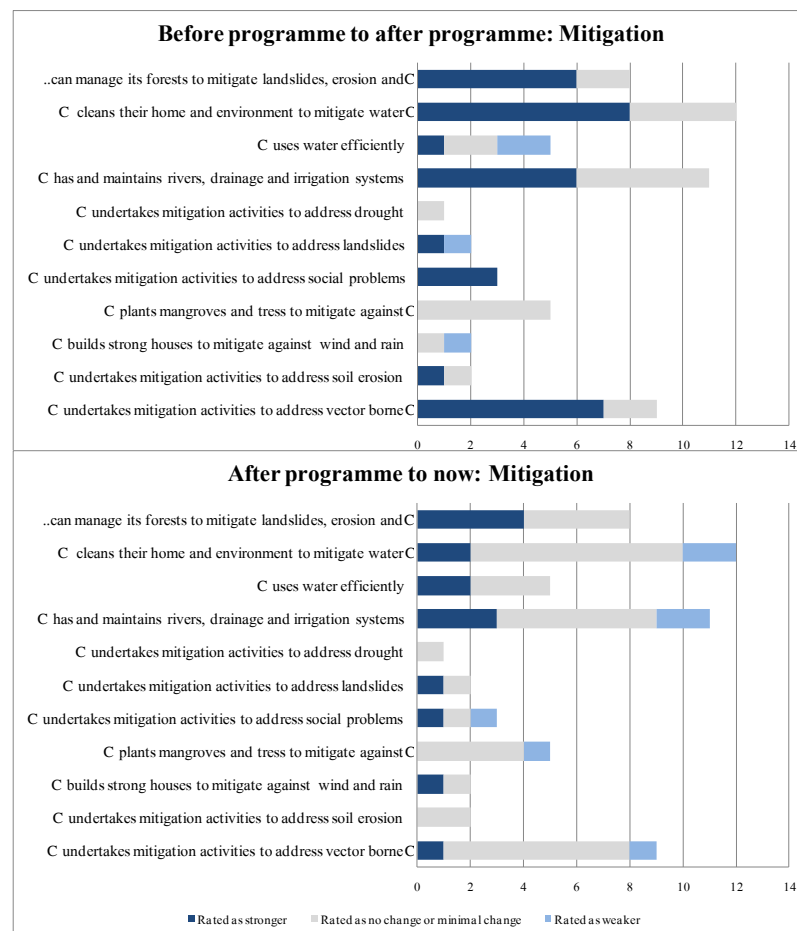
Far fewer increases in strength were noted in the second period compared to the first. In the second period, factors were far more often rated as being unchanged or minimally changed.

Before to after programme:

- The majority of responses for indicators on cleaning homes, the environment and drainage identified these as stronger at the end of the programme. Many of these responses were from Indonesia and noted more regular practice of *gotong royong* (community self-help).
- For ‘...plants mangroves and trees to mitigate against wind, rain and tsunamis’ the majority of responses rated this as unchanged.

After programme to present:

- A few responses noted a drop off in strength in regards to vector borne disease mitigation, cleaning and maintenance of homes, environment and drainage and social problem mitigation. Reasons for lack of change varied. In some cases this is because mitigation infrastructure had been built so no further action was required. In other cases it reflected a lack of activity since the programme finished. Lack of activity also translated as a change for the weaker by some communities.



## Evacuation

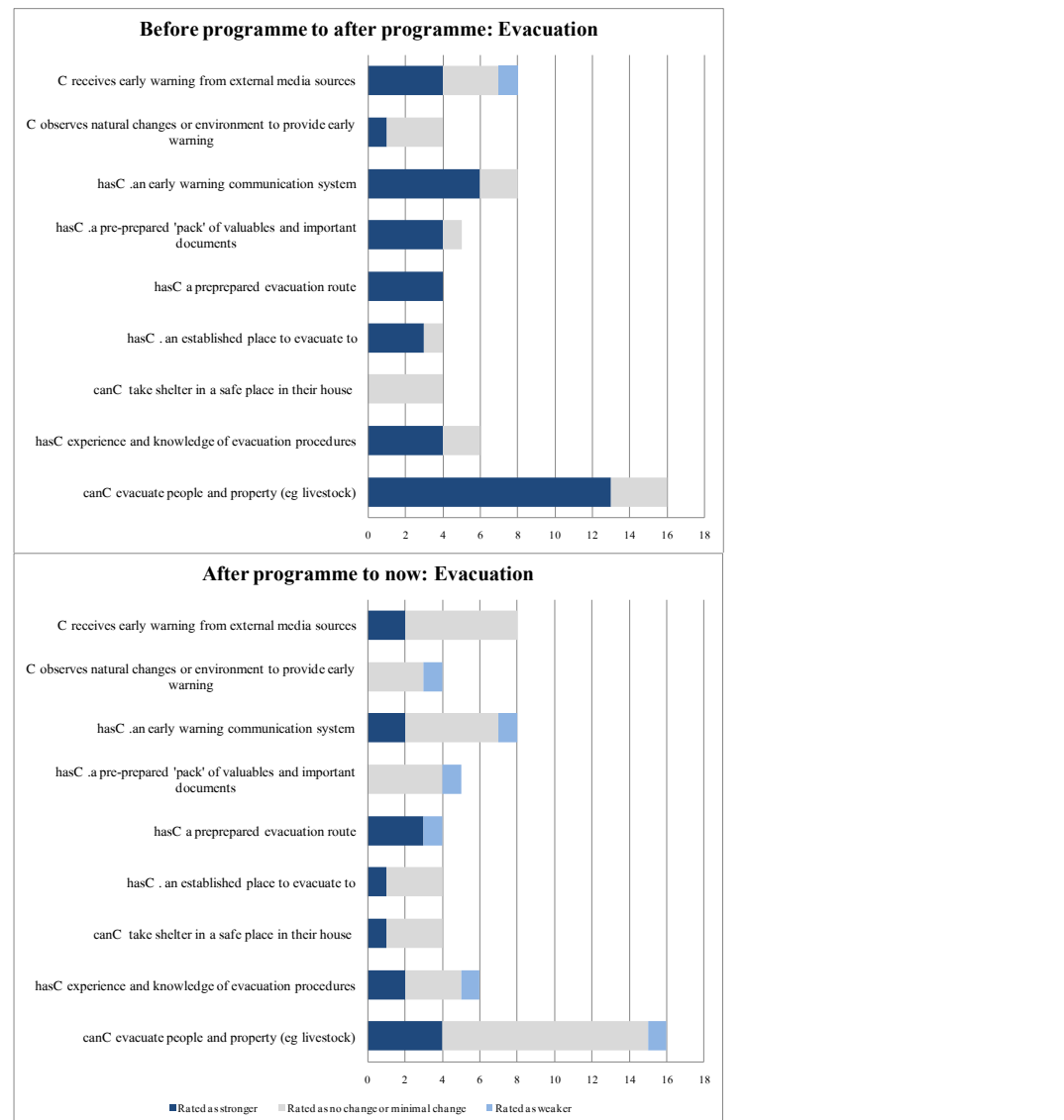
These factors improved during the first period but were much less often rated as having increased in strength for the second period.

Before programme to after programme:

- Strength of the factors relating to evacuation had almost universally been rated as either being maintained or increased. Almost all responses in regards to “can evacuate people and property” noted an increase in strength. Reasons given for this include evacuation training and increased community knowledge and awareness. Provision of evacuation routes was also cited as a factor.

After programme to present:

- Ratings predominantly reflect maintenance of about the same level of strength. Some indicators, such as “has... a safe house” and “has... experience and knowledge of evacuation procedures” had already been rated at their maximum by some groups.



## Recovery

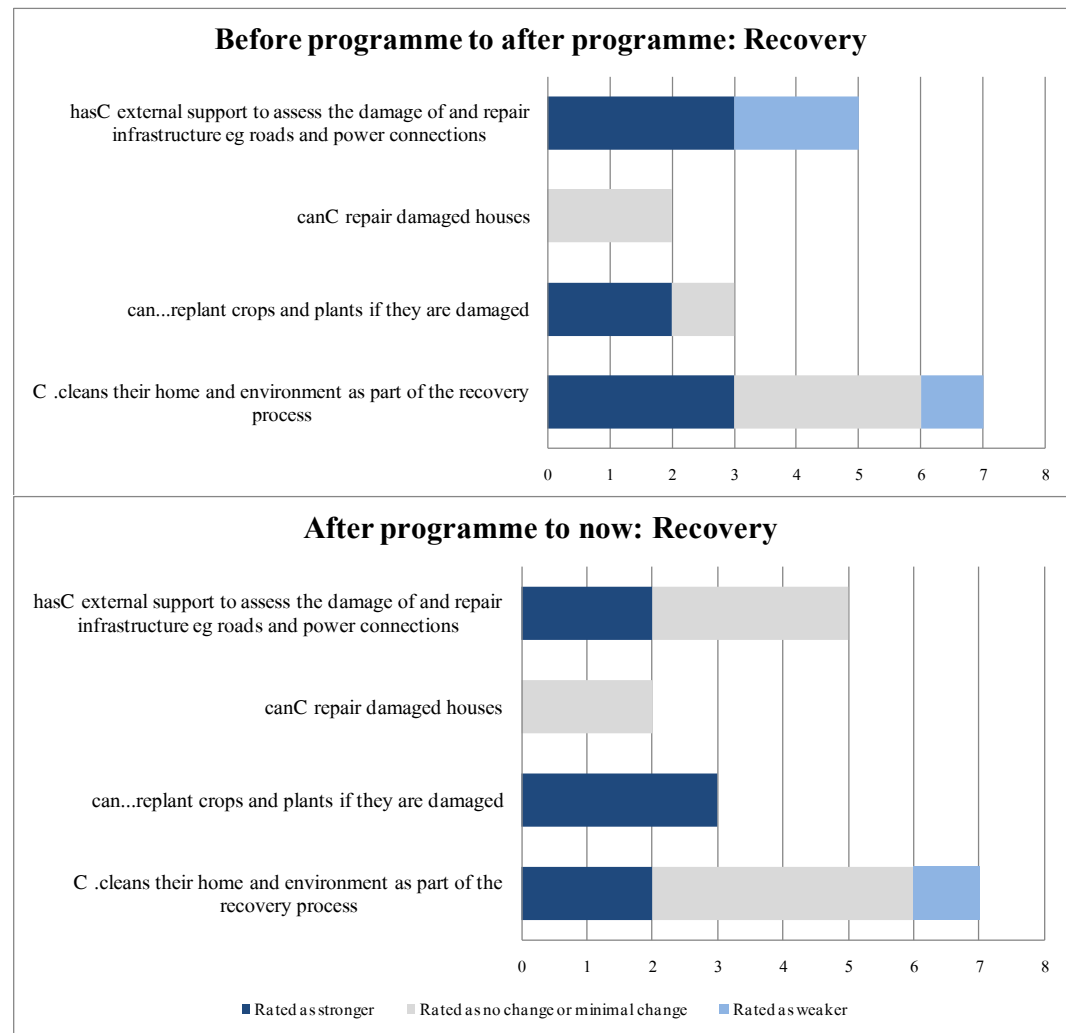
The number of factors that increased in strength was greater during the period before to after the programme than after the programme to present.

Before programme to after programme:

- Improvements in planting crops and cleaning homes and the environment were sometimes noted as being due to increased external support and the formation of coordinating bodies within the community.

After programme to present:

- Factors were typically rated as either stronger or unchanged with only one response rating cleaning of home and environment as weaker. The weaker rating was due to a decrease in cleaning activity (*gotong royong*) in an Indonesian community.



## Meeting Basic Needs

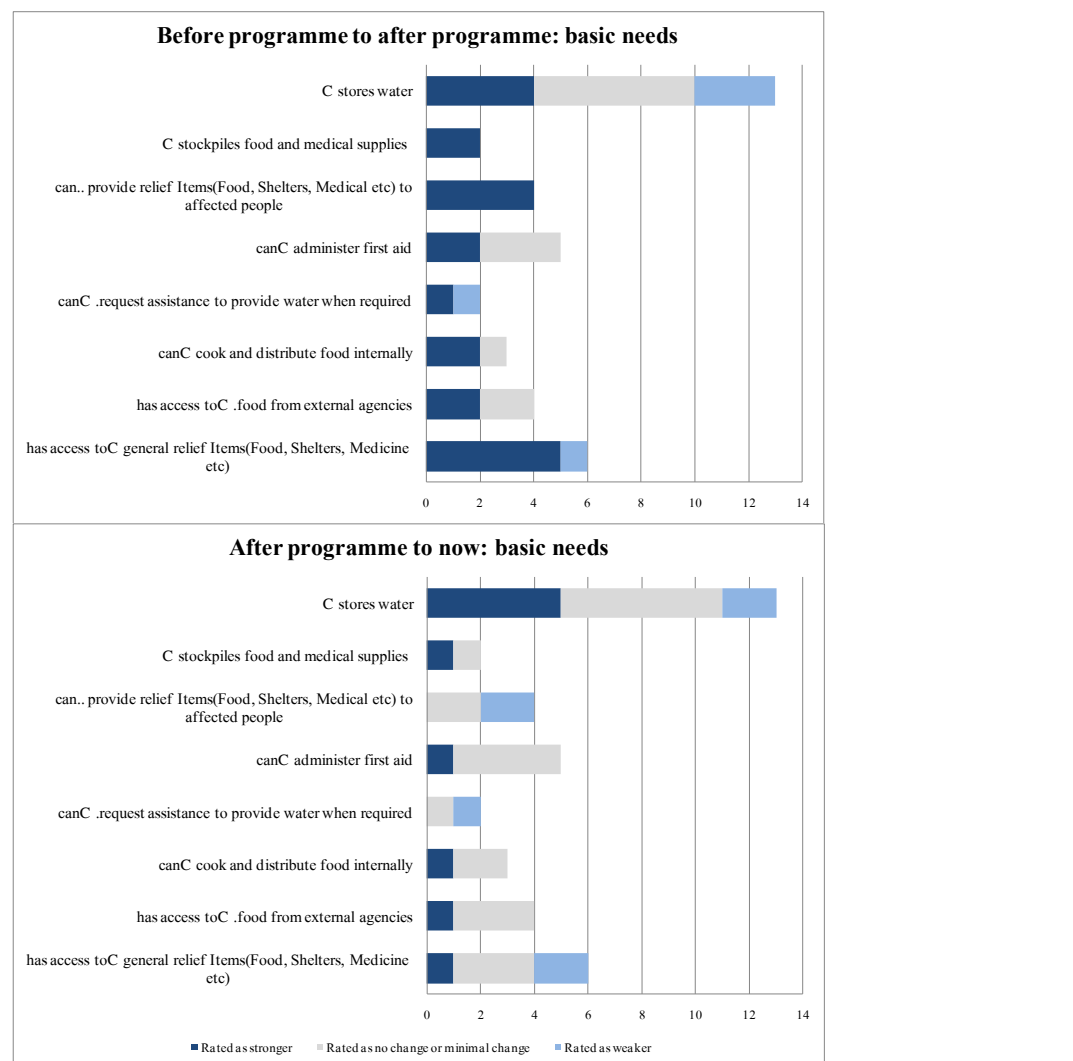
Communities rated a greater increase in the strength of the factors in the period from before to after the programme. The main factors which communities rated as being weaker in the post-programme period were related to general relief items. In most cases, stronger ratings in the second period followed a rating in the first period of no change or weaker.

Before programme to after programme.

- Increased strength in access to general relief items was cited as being due to communities being stronger and better able to help each other, better support through advocacy to government and better support from the Red Cross.
- Some communities noted that CBDRR programmes did little to target the availability of water.

After programme to present.

- With regards to storage of water several communities noted an increase in strength. In one case this was because water tanks were provided to the community.



## Coordination

Some communities rated the strength of coordination on the extent to which coordination activities are conducted rather than on their capacity to coordinate effectively. In some instances cited here, the decreased rating is actually due to positive outcomes that have reduced the need for such activity.

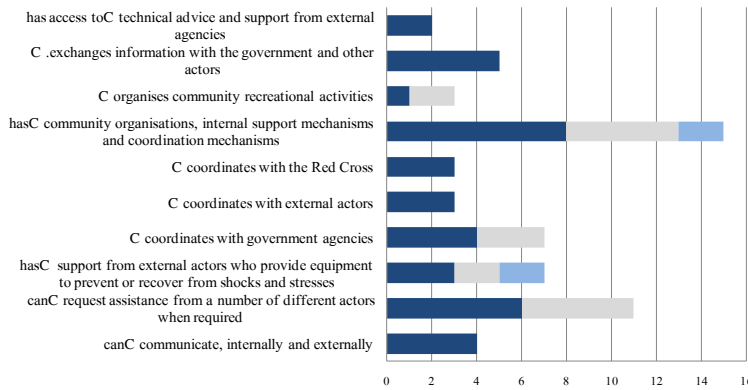
Before programme to after programme:

- “has... community organisation, internal support mechanisms and coordination mechanisms” was typically rated as stronger. Reasons given for this included formation of CBAT and disaster management committees and activities conducted by these groups.
- For external support and the ability to request external assistance, reasons given for unchanged levels include that community capacity to make reports to government was already close to maximum and that the CBDRR programme had no impact. Reasons given for weaker levels include that goods such as mosquito nets were not distributed in this period, whereas previously they were. Reasons for increases in strength included assistance from the Red Cross and establishment of groups for DRR.

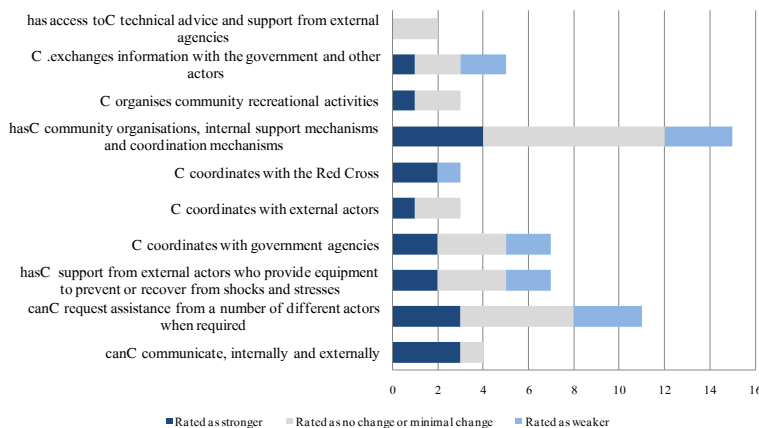
After programme to present:

- Some instances of a further increase in strength of coordination were noted for all indicators except for “has access to... technical advice and support from external agencies.” Some observed that weakening was due to the programme finishing. Another noted that reporting was no longer necessary, and hence weaker, because the problems reported had been addressed. One of the reasons given for improved coordination was that the community has made proposals to the government and have received support for these.

**Before programme to after programme: Coordination**



**After programme to now: Coordination**



■ Rated as stronger    ■ Rated as no change or minimal change    ■ Rated as weaker

## Knowledge

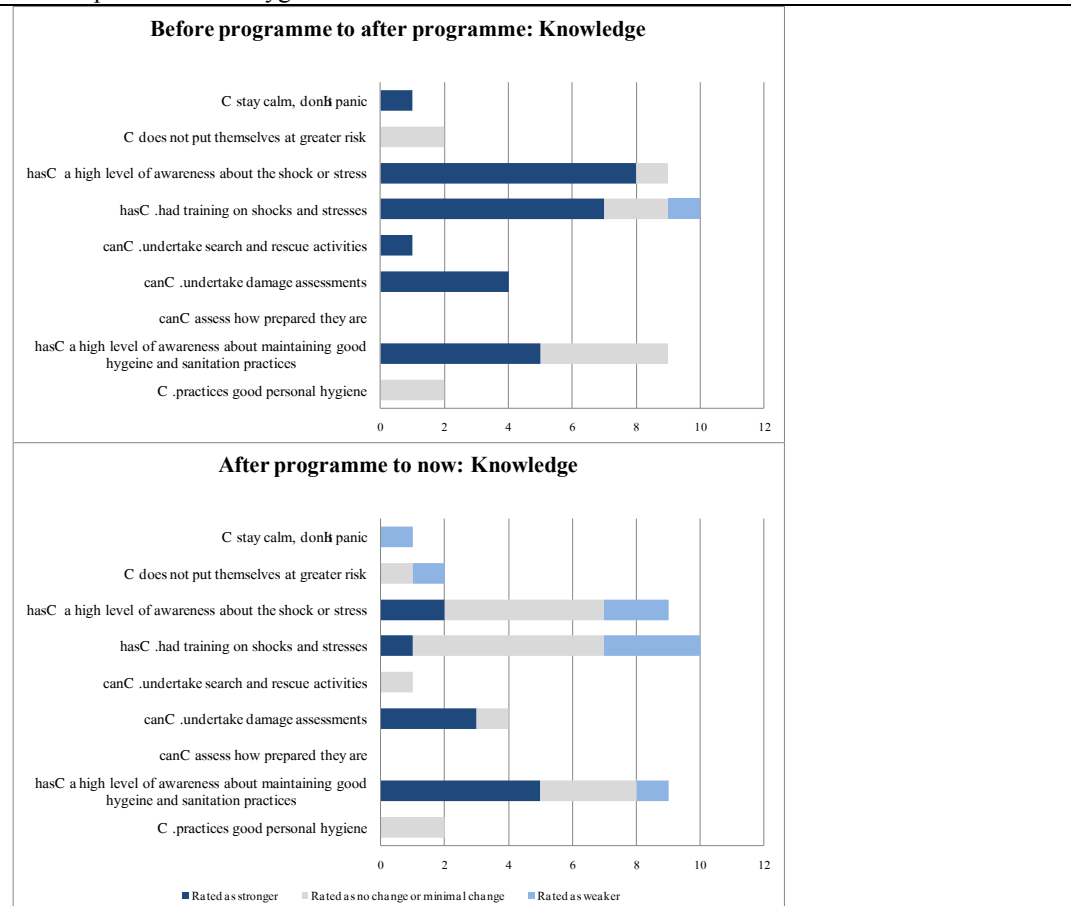
With the exception of “undertaking damage assessments and “maintaining good health practices” far fewer of these factors were rated as stronger in the second period compared to the first. For “has... a high level of awareness about shocks or stresses” all of the factors that were rated as weaker in the second period had previously increased in the strength during the first period. Of the few cases where training on shocks and stresses decreased in the second period, most had increased in the first period.

Before programme to after programme:

- Most of the responses on training and awareness of shocks and stresses noted improvements in strength. Some responses indicated no change or minimal change and very few noted a decrease in strength during this period.
- In some cases increase in strength was due to CBDRR programmes raising community awareness, for example for malaria. In the area of damage assessment, CBDRR programme activities were also stated to have increased community knowledge.

After programme to present:

- For training and awareness of shocks and stresses most of the responses noted maintenance of the existing level, with a few rating these stronger or weaker.
- While a number of communities noted that there had been no training activities since the end of the programme, some noted this as no change in strength while others rated this as decrease.
- Many of the responses in regard to undertaking damage assessment and awareness of health practices considered these to have become stronger since the programme finished. The reasons for the continued increase in damage assessment were not clear. Reasons given for the increases in health awareness were improved health promotion activities and community adoption of better hygiene and sanitation behaviours.



## 5 Analysis

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This section is structured in two parts as follows:

- The first section draws on the findings from the literature review and the fieldwork to develop a set of *characteristics* of a safe and resilient community.
- The second section discusses the retrospective analysis of the fieldwork data based on these *characteristics* in order to understand to what extent these *characteristics* had changed over time in the TRP communities, and whether the RCRC CBDRR programmes had contributed to these changes.

### 5.1 What are the *characteristics* of a safe and resilient community?

The factors supporting the ‘long list’ from the literature review (section 3.3) and the factors from the fieldwork research (section 4.3) comprise a rich and extensive data set. The data was input into a spreadsheet to enable data to be sorted and categorised, then manipulated in order to compare and contrast the findings. This was approached in three steps.

- A. The 68 summary factors identified through the fieldwork were cross referenced against the ‘long list’ literature review categories relating to basic needs, assets, and external resources.
- There was considerable overlap and alignment between the two data sets.
  - The majority of factors related to assets, hence it proved helpful to disaggregate this category into physical, economic, environmental, social and human assets.
  - The factors relating to basic needs (food, health, water and shelter) and assets (particularly physical assets) overlapped significantly. These factors were also often the driver for seeking external assistance (e.g. food distribution). Hence, the factors relating to meeting basic needs were considered as a critical component of community safety and resilience within those other categories.
  - Factors identified in the literature review as political assets (item 9. from the ‘long list’) either did not appear in the fieldwork data, or were associated with access to a wider network of external resources and relationships. For instance, ‘representative governance and institutional structures’ (Twigg, 2009; Bahadur, 2010; Pasteur, 2011; Cutter, 2010). Rather this type of political asset was more often associated with access to a wider network of external resources and relationships.

This suggested that the *characteristics* are clustered around five asset groups (physical, economic, environmental, social and human) as well, access to external resources, as a sixth group (Appendix B4).

- B. The 400 factors identified in the fieldwork were cross-referenced against the ‘long list’ literature review categories relating to qualities and capacities.
- As these categories are not as tangible as those addressed in step A it was necessary to review the original data collected in the community to ensure that the summary data was being correctly interpreted.

This analysis reinforced the view that ownership of assets and external resources is not solely sufficient, rather their attributes and properties are critical to understanding what makes a community safe and resilient.

- C. The factors identified in the literature review and fieldwork were clustered around five asset groups (physical, economic, environmental, social and human) as well, access to external resources, as a sixth group (Table 5-11). The attributes associated with each were then derived from the clustered data. This resulted in six *characteristics* of a safe and resilient community.

## Human Assets

Table 5: Literature review and fieldwork factors associated with human assets.

Human Assets
...local and traditional knowledge (Bahadur,2010; Mayunga, 2007; IFRC, 2008; ADPC, 2006; Twigg, 2009) and current
has...experience and knowledge of evacuation procedures has...a pre-prepared 'pack' of valuables and important documents ...practices good personal hygiene ...does not put itself at greater risk has...a high level of awareness about maintaining good hygiene and sanitation practices has...had training on shocks and stresses has... a high level of awareness about the shock or stress ...observes natural changes or environment to provide early warning ...stays calm and does not panic ...uses water efficiently
...skills (Pasteur, 2011; Mayunga, 2007; Twigg, 2009)
can...evacuate people and property can...administer first aid can...cook and distribute food internally can...assess how prepared it is can...undertake search and rescue activities can...undertake damage assessments
...language competency (Cutter, 2010)
can...communicate, internally and externally
...health (Cutter, 2010; Mayunga, 2007; Twigg, 2009)
(See Physical Assets: Medical Care)
...education (CRPT, 2000; Mayunga, 2007; Twigg, 2009; IOTWS, 2007)
(See Physical Assets: Education) ...has access to education and vocational training
<i>Key: Blue text indicates addition/augmentation to literature review Black text (no shading) indicates identified in communities</i>

The field data strongly supports the idea that human health and knowledge are central to the creation of a safe and resilient community. The literature review noted the value of 'local and traditional knowledge' (Bahadur, 2010; Mayunga, 2007; IFRC, 2008; ADPC, 2006; Twigg, 2009). This was corroborated by the fieldwork findings which also emphasise the importance of dissemination and access to more contemporary knowledge. This was considered particularly important when there were no locally relevant or traditional customs still in practice, or when the community were exposed to new information such as first

aid training provided by the RCRC CBDRR programmes. ‘Skills’ (Pasteur, 2011; Mayunga, 2007; Twigg, 2009) were noted as critical in many publications and the fieldwork findings substantiated this by providing illustrative examples such as ‘...can undertake damage assessments’ or ‘can... assess how prepared they are’.

Health (Cutter, 2010; Mayunga, 2007; Twigg, 2009) and being healthy (mentally and physically) was not specifically identified in the community fieldwork. However, many of the fieldwork factors are instrumental in contributing to good health (e.g. ‘can administer first aid’ or ‘has access to medical treatment’<sup>19</sup>). Additionally the fact that many of the stresses identified (Figure 11) were directly health related indicates that good health is an important component for a safe and resilient community. There is clearly a strong link between the services that are provided (e.g. healthcare and education) and the strength of individual human assets. (see Physical Assets and External Resources)

A wide range of ‘capacities’ was repeatedly identified in connection with this *characteristic*, such as being resourceful, adaptive or having the ability to learn. The importance of having the capacity to learn by ‘building on past experiences and integrating it with current knowledge’ (Arup, 2010; ADPC, 2006; Bahadur, 2010; Twigg, 2009) relates to the ability to ‘assess, manage and monitor risks’ (IFRC, 2008; Pasteur, 2011; Bahadur, 2010). Examples from the fieldwork include ‘ a high level of awareness about maintaining good hygiene and sanitation practices’ and ‘observes natural changes or environment to provide early warning’.

Being ‘resourceful’ was significant in terms of provision of relief items during times of need. In particular, there was an emphasis on the capacity to ‘identify problems, establish priorities and act’ (Arup, 2010) in a timely fashion, especially when responding to a shock or stress, and from the fieldwork ‘can evacuate people and property’ and ‘can... undertake search and rescue activities’.

There were few fieldwork factors that exhibited ‘qualities’ of these human assets, for example the communities did not note the need for ‘strong knowledge’ or ‘well-located’ skills.

The fieldwork findings also reflect the inter-connectedness and complexity of human assets which are required to support many of the other asset bases. For example, skills required for communication (social); knowledge about natural resource management (environmental); and appropriate construction methods (physical). This is also reflected in the literature where Mayunga argues that ‘human capital is probably one of the most important determinants of resilience among other forms of capital’ (2007: 8). This weight of evidence supports the use of this *characteristic* as a ‘key stone’, underpinning the strength of many of the other *characteristics*.

This *characteristic* has been summarised as:

**A safe and resilient community is knowledgeable and healthy. It has the ability to assess, manage and monitor its risks. It can learn new skills and build on past experiences.**

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<sup>19</sup> This later example can be found in External Resources: A safe and resilient community is connected.

Examples of factors that were frequently mentioned and may form the basis of future indicators include:

- Extra hygiene (shower). (Pedekok, Aceh Tengah, Indonesia)

*e.g. % of community members that practices good hygiene & sanitation practices*

- Set up a safety pack (with valuables and important documents) (Korawella South, Greater Colombo, Sri Lanka)

*e.g. % of community members that have knowledge about evacuation procedures (eg route, pre-prepared 'pack' of valuables and warning signal)*

- Help the injured by using first aid training experience (Laem Makham, Trang, Thailand)

*e.g. % of community members that can administer first aid*

## Social Assets

Table 6: Literature review and fieldwork factors associated with social assets.

Social Assets
...community cohesion and cooperation (Bahadur, 2010; Mayunga, 2007; Twigg, 2009)
...undertakes mitigation activities to address social problems ...cleans their home and environment as part of the recovery process has...community organisations, internal support mechanisms and coordination mechanisms ...organises community recreational activities
...religion (Cutter, 2010)
...community organisations with collaborative/partnership relationships eg. economic development organisations (Bahadur, 2010; CRPT, 2000; Mayunga, 2007) <i>See External Resources,</i> <i>...representative governance and institutional structures (Twigg, 2009; Bahadur, 2010; Pasteur, 2011; Cutter, 2010)</i>
<i>Key: Black text (no shading) indicates identified in communities</i>

The literature review identified the importance of ‘community cohesion and cooperation’ (Bahadur, 2010; Mayunga, 2007; Twigg, 2009), which is strongly mirrored in the factors identified in the fieldwork including a safe and resilient community ‘has community organisations, internal support mechanisms and coordination mechanisms’ and ‘organises community recreational activities’.

Religion (Cutter, 2010) and ‘community organisations with collaborative/partnership relationships’ (Bahadur, 2010; CRPT, 2000; Mayunga, 2007) were not explicitly raised as factors in the fieldwork. However 70% of the communities identified a religious organisation within their community and also indicated strong connections between different organisations.

The fieldwork factor ‘cleans its homes and environment as part of the recovery process’ is included in this *characteristic* because this was often done using traditional community work parties, for example *gotong royong* in Indonesia and *Shramadana* campaigns in Sri Lanka. These provide good examples of communities coming together with a clear understanding of roles, responsibilities and purpose.

The fieldwork factors of safety and resilience that relate to socio-political assets sit across a number of the previous fieldwork groupings (evacuation, coordination, and mitigation). This highlights the importance of community organisation as an enabling factor to undertake a range of activities, specifically those concerned with shocks and stresses.

The literature review identified that a safe and resilient community was ‘equal and allowed inclusive access and ownership’ (Cutter, 2010; Twigg, 2009; CRPT, 2000; Bahadur, 2010). Whilst this was not explicitly supported by the community fieldwork findings, and was certainly not raised as an ongoing concern, there was certainly awareness that in times of need it was important to protect or assist the more vulnerable members of the community. ‘Administer first aid to the needy/injured people’ (Kadiranawaththa, Colombo City, Sri Lanka) and ‘Vulnerable people evacuate the blasting zone and move to a safe place’ (Pulot, Aceh Besar, Indonesia).

Finally the factors identified in the fieldwork rely strongly on the resourcefulness of the community to ‘identify problems, establish priorities and act’ (Arup, 2010) to ensure they can mobilise themselves and be self sufficient. This is reinforced by IOTWS who notes it is critical to have ‘social and cultural networks [which] promote self-reliant communities’ (2007) and the IFRC who note that ‘they are able to do much for themselves and can sustain their basic community functions and structures despite the impact of disasters (2008).

This *characteristic* has been summarised as:

**A safe and resilient community is organised. It has the capacity to identify problems, establish priorities and act.**

Examples of factors that were frequently mentioned and may form the basis of future indicators include:

- Do Gotong Royong at the end of each month (Patek Fajar, Aceh Jaya, Indonesia)

*e.g. % of community members who participate in community ‘work parties’*

- Organise anti drug sports, talk about drugs in Friday prayers (Laem Makham, Trang, Thailand)

*e.g. Number of active community organisations or % of community members who are members of 2 or more community organisations*

## External Resources

External resources were recognised as comprising three distinct themes in the literature review: connections and information (Cutter, 2010; IOTWS, 2007; Twigg, 2009); natural resources (Mayunga, 2007); and services (Cutter, 2010; Twigg, 2009; IOTWS, 2007). This was largely supported by the fieldwork findings which provided a number of examples for ‘connections and information’ (e.g. ‘...coordinates with government agencies’ and ‘receives early warning from external media sources’) and ‘services’ (e.g. ‘has access to veterinary assistance’ and ‘has access to medical transport’) (Table 7).

Table 7: Literature review and fieldwork factors associated with access to external resources.

<b>External Resources</b>
<b>Connections &amp; Information</b>
...transportation and infrastructure (Cutter, 2010; IOTWS, 2007)
has...a back up source of lighting (See C: transportation infrastructure e.g. roads, rail, boat etc )
...communication and information (Twigg, 2009; Cutter, 2010)
...exchanges information with the government and other actors ...coordinates with external actors ...coordinates with government agencies ...coordinates with the Red Cross ...receives early warning from external media sources...an early warning communication system
...technical advice (IOTWS, 2007; Twigg, 2009) & support
has... support from external actors who provide equipment to prevent or recover from shocks and stresses can...request assistance from a number of different actors when required has access to...technical advice and support from external agencies can...replant crops and plants if they are damaged has... external support to assess the damage of and repair infrastructure e.g. roads and power connections has access to...food from external agencies has access to...general relief items (food, shelters, medicine etc) can...request assistance to provide water when required
<b>Services</b>
...municipal services (Cutter, 2010)
has... a waste management system
...medical care (Cutter, 2010; Twigg, 2009)
has access to...medical treatment has access to...medical transport e.g. ambulance
...government (and other) funding sources (Twigg, 2009; IOTWS, 2007)
has access to...veterinary assistance
<b>Natural Resources</b>
...land (Mayunga, 2007)
...water (Mayunga, 2007)
has...clean water, typically from multiple sources outside the community
...ecosystem (Mayunga, 2007)
<b>Political Assets</b>
...effective and flexible governance and institutional structures (Bahadur, 2010; Cutter, 2010; Twigg, 2009)
...representative governance and institutional structures (Twigg, 2009; Bahadur, 2010; Pasteur, 2011; Cutter, 2010)
has...livelihoods support from district or national government
<i>Key: Blue text indicates addition/augmentation to literature review Black text (no shading) indicates identified in communities</i>

The fieldwork findings did not align directly with the literature review regarding access to external natural resources (land, ecosystem services) with the possible exception of ‘water’ (e.g. ‘...has clean water, typically from multiple sources outside the community’). Communities did not often raise the question of accessing external natural resources which may be because the majority of the communities are dependent on local ecosystems.

Defining a resource as external to the community and an asset as internal is helpful conceptually, but the reality in a community is that there is not often a clear distinction. For example in instances when services are funded externally but managed locally or when infrastructure is built by others but maintained by the community. However access to external support and resources is a critical component of community resilience and where the boundary line lies should be reviewed on a community by community basis.

The fieldwork findings also indicated that political assets were typically external to the community and accessed via links to district government committees or representatives. The importance of a supportive legislative and policy environment was identified in the communities with examples such as: ‘has livelihoods support from district or national government’.

There was a clear convergence between capacities such as ‘mobilise resources and services when needed’ (O’Rourke, 2009; Arup, 2010; Pasteur, 2011; CDRT, 2000) and the factors identified in the fieldwork such as ‘a safe and resilient community can request assistance from a number of different actors when required’, and ‘has access to technical advice and support from external agencies’. This underpins the importance of external relationships to provide assistance, as well as the ability of the community to mobilise themselves to access it.

This *characteristic* has been summarised as:

**A safe and resilient community is connected. It has relationships with external actors who provide a wider supportive environment, and supply goods and services when needed.**

Examples of factors that are were frequently mentioned and may form the basis of future indicators include:

- Food distribution (dry rations) by organisations (Korawella South, Greater Colombo, Sri Lanka)

*e.g. % of community members who have access to external relief*

- Inform GoSI/ NGOs to provide water, first aid and other relief items (Buddhama, Monaragala Sri Lanka)

*e.g Number of external organisations with whom the community has strong, active relationship*

- Coordination with the sub-district (Deah Glumpang, Banda Aceh, Indonesia)

*e.g. Number of individuals within the community who represent the community and manage relationships with external organisations*

- Listen to the radio and TV news (Thung Sa Boe, Satun, Thailand)

*e.g. % of community members who have access to external media sources*

- The government conducts a clinic (Radella, Ratnapura Sri Lanka)

*e.g. % of community members who have access to health care*

- Through getting water from several institutions on motors (trucks) (Moragalla, Kalutura, Sri Lanka)

*e.g. % of community members who have access to clean water*

## Physical Assets

Table 8: Literature review and fieldwork factors relating to physical assets

Physical Assets
...public facilities (Mayunga, 2007; Twigg, 2009)
has.... an established place to evacuate to (See External Resources for further discussion of service provision)
...housing (Cutter, 2010; Mayunga, 2007)
has...permanent shelter can...take shelter in a safe place in houses ...builds strong houses to mitigate against wind, rain and tsunamis
...transportation infrastructure eg roads, rail, boat etc (Cutter;2010)
...has and maintains good footpaths and roads for transport has...a pre prepared evacuation route
...stockpiles for emergencies (ADPC, 2006; UNISDR, 2008; IOTWS, 2007; Mayunga, 2007)
...stockpiles food and medical supplies can...provide relief items (food, shelters, medical etc) to affected people ...stores water
...constructs, maintains and renovates a variety of reliable water sources eg canals, wells, tanks, reservoirs and rainwater collection
has...sanitation facilities
...has and maintains rivers, drainage and irrigation systems ...undertakes mitigation activities to address landslides by building walls or drainage channels ...undertakes mitigation activities to address soil erosion by building walls and artificial reefs ...undertakes mitigation activities to address drought ...undertakes mitigation activities to address vector borne disease (eg fogging, nets or repellent)
<i>Key: Blue text indicates addition/augmentation to literature review Black text (no shading) indicates identified in communities</i>

Housing was an asset identified by Cutter (2010) and Mayunga (2007). This was reinforced by the communities who also indicated that having ‘permanent shelter’, ‘in a safe place in their house’ and ‘...build[ing] strong houses to mitigate against wind, rain and tsunamis’ made them safer and more resilient.

This example also illustrates some of the qualities that were regularly identified in this group, the most common being ‘strong’, ‘robust’ and ‘redundant’ with respect to much of the infrastructure. These were echoed in the literature review and the fieldwork. For instance Cot Langsat, Indonesia, identified that it had a pre-arranged ‘agreement in the community to stay in permanent housing during strong wind’ and in Jaboi, Indonesia, the ‘SIBAT and PMI help evacuate the community to a safe place using the evacuation road’.

Examples of physical assets that were identified in both the literature review and the fieldwork included transport, power, water and sanitation systems and relief items. The latter two examples were frequently mentioned by a large number of communities addressing a range of shocks and stresses, from tsunamis to droughts and cyclones. These focus on the importance of meeting basic needs, as well as the fact that failing to meet these needs can cause additional stress; for example insufficient water, leading to poor hygiene practices that generate health problems.

Few communities explicitly identified ownership of ‘...public facilities’ (Mayunga, 2007; Twigg, 2009) as a stand-alone factor that increased their safety and resilience however they were frequently referenced when discussing access to services such as healthcare (e.g. medical centres), communication systems (e.g. early warning systems) and education (e.g. schools).

Mitigation activities that require infrastructure e.g. retaining walls, artificial reefs, drainage channels or equipment (e.g. mosquito nets) were often mentioned by the communities indicating a commitment to reducing risk in the long term (IFRC, 2008; Twigg, 2009; CRPT, 2000). For communities prevention activities are critical and they recognise the importance of proactively and pre-emptively addressing risk. Drainage in particular was the most frequently mentioned as flooding causes a large number of secondary problems including landslides, vector borne disease, sanitation issues and insufficient drinking water.

Identified in the literature review but notable in their absence from the fieldwork findings were ‘equal and inclusive access and ownership’ and ‘geographically dispersed’. However there was significant anecdotal evidence, such as that collected in the transect walks in the communities that these factors were typically considered. For example in Raddella, Sri Lanka, the community stored medical equipment in a number of different locations that had been assessed as being less vulnerable to flooding and in Deah Geulumpang, Indonesia, they explained that a weakness of their CBDRR programme was that ‘PMI criteria for CBAT [membership] excluded people who rent’ and that this was not considered fair.

This *characteristic* has been summarised as:

**A safe and resilient community has infrastructure and services. It has strong housing, transport, power, water and sanitation systems. It has the ability to maintain, repair and renovate them.**

Examples of factors that were frequently mentioned and may form the basis of future indicators include:

- Having a permanent shelter (Hulhuddhufaaruu, Raa Atoll, Maldives)

*e.g. % of community members that live in housing that is appropriate for the local climate & hazards*

- Set up evacuation centre facilities (Laem Makham, Trang, Thailand)

*e.g. Number of established safe evacuation places within/close to the community*

- Stock dry rations (Radella, Ratnapura, Sri Lanka)

*e.g. % of community members that stockpile food*

- Develop water storage system for the whole village (Koh Mook Island, Trang, Thailand)

*e.g. % of community members that has access to clean water for drinking and washing*

## Economic Assets

Table 9: Literature review and fieldwork factors relating to access to economic assets

Economic Assets
...employment & income (Cutter, 2010; Mayunga, 2007; Twigg, 2009)
is..entrepreneurial ...working longer/harder hours; take greater risks ..take a job with lower pay than skills can.... take alternative employment
...savings and contingency fund (Mayunga, 2007; UNISDR, 2008; Twigg, 2009)
has...savings or can access grants and loans
...investment ( Mayunga, 2007)
...insurance (Twigg, 2009)
...business/industry (CRPT, 2000; Mayunga, 2007)
<i>Key: Black text (no shading) indicates identified in communities</i>

Of the economic assets that were identified in the fieldwork the greatest emphasis was placed on the importance of ‘employment & income’ (Cutter,2010; Mayunga, 2007; Twigg, 2009). For example the communities indicated that they need to be ‘entrepreneurial’ and ‘work longer/harder hours; take greater risks’ in order to generate sufficient income. Having savings was also considered to be an important factor within the community.

Additional support or reserve economic assets such as ‘insurance’ (Twigg, 2009) and ‘investment’ (Mayunga, 2007) were not raised as critical factors by the communities, although this does not necessarily indicate that they do not play an important role. Rather it is supposed that these are additional layers of resilience that become important once the key conditions of employment, savings and access to loans are met. The communities included in this sample may not have raised these as key issues because they are currently concerned with securing the fundamental economic assets that they require. Insurance and investment are the next stages on the ladder. This further builds on the importance of ensuring basic needs are met in order to provide a foundation.

Overall the emphasis with the fieldwork findings was on the capacity of the community to ‘be adaptive/flexible’, and specifically to ‘accept uncertainty and proactively respond to change’ (Bahadur, 2010; Pasteur, 2011). For example, the communities identified factors such as ‘take a job with lower pay than skills’ and ‘working longer/harder hours; take greater risks;’ both instances where the individual is compromising in order to achieve the required outcome of income generation.

There also seemed to be a clear coincidence between this adaptive approach and ensuring a diverse range of employment or income generating activities (Arup, 2010; Bahadur, 2010; Cutter, 2010), as if the former enables the latter. This is illustrated by statements such as ‘a safe and resilient community can take alternative employment’ and ‘is entrepreneurial’. These both serve as examples whereby communities, through their flexibility, are creating diversity and options for themselves.

Finally, this group had one of the widest ranges of qualities and capacities as the ability to ‘learn’ and ‘be resourceful’ were also raised. This is likely to reflect the complexity of livelihoods and income generation, as well as the inter-connectedness between this group and the other *characteristics*.

This *characteristic* has been summarised as:

**A safe and resilient community has economic opportunities. It has a diverse range of employment opportunities, income and financial services. It is flexible, resourceful and has the capacity to accept uncertainty and respond (proactively) to change.**

Examples of factors that were frequently mentioned and may form the basis of future indicators include:

- Increase small businesses (Isdhoo, Laamu Atoll, Maldives)

*e.g. % of community members of working age generating income/in employment*

- Continuous coordination and facilitation of job opportunities in urban areas by the district government (Deah Glumpang, Banda Aceh, Indonesia)

*e.g. Number of national or district level policies that support economic development in the community.*

- Casual labour jobs during monsoon as we can’t go fishing (Thung Sa Boe, Satun, Thailand)

*e.g. % of households with two or more income generating activities/ jobs*

- Provide funds for farming (Buddhama, Monaragala, Sri Lanka)

*e.g. % of community members who can access grants and loans*

## Environmental Assets

Table 10: Literature review and fieldwork factors relating to environmental assets

Environmental Assets
... ownership of natural resources (Bahadur, 2010; Twigg, 2009)
... plants mangroves and trees to mitigate against wind, rain and tsunamis ...can manage its forests to mitigate landslides, erosion and fires
<i>Key: Blue text indicates addition/augmentation to literature review Black text (no shading) indicates identified in communities</i>

The ownership of environmental assets was implicit in the fieldwork findings but explicit in the literature review, as identified by Twigg (2009): ‘adoption of sustainable environmental management practices’ and Pasteur (2011): ‘equal access to natural resources’. Yet, it had the smallest number of fieldwork factors directly associated with it, perhaps reflecting a lack of appreciation at a community level of the role ecosystems services play in mitigating or causing disaster. Ownership of environmental assets was only identified in the fieldwork in relation to mitigation and the need to manage forests (trees, mangroves etc) to prevent or lessen the impact of shocks and stresses.

There is a clear pattern between the capacity of the community to be resourceful and ‘identify problems, establish priorities and act’ (Arup, 2010) and their ability to ‘assess, manage and monitor risks’ (IFRC, 2008; Pasteur, 2011; Bahadur,

2010). For example the communities identified that it was critical to ‘plant mangroves and trees to mitigate against wind, rain and tsunamis’ this requires an understanding of the problem as well as the motivation and capacity to address it.

This *characteristic* has been summarised as:

**A safe and resilient community can manage their natural assets. It recognises their value and has the ability to protect, enhance and maintain them.**

Examples of factors that are were frequently mentioned and may form the basis of future indicators include:

- Set down rules regarding cutting trees near the beach. (Buruni , Thaa Atoll, Maldives)

*e.g. % of community who actively manage their natural resources*

## 5.2 What is the impact of CBDRR programmes?

This section revisits the fieldwork data in the context of the *characteristics* developed in section 5.1 to understand to what extent these *characteristics* had changed over time in the TRP communities, and whether the RCRC CBDRR programmes had contributed to these changes.

Specifically it addresses each of the six *characteristics* in relation to three questions:

- Since the tsunami, how do communities rank their changes in these *characteristics*?
- How have RCRC interventions contributed to these changes (positive or negative)?
- How can/do the determined indicators [factors] and their changes over time reflect shifts in community attitudes and behaviours towards risk?

Essentially, this exercise is a re-analysis of the data presented in Table 5 section 4.5. The community ratings for the change in those factors relating to each *characteristic* were examined during the programme and after the programme<sup>20</sup>. This is captured diagrammatically (see Box 7).

The communities’ comments on the reason why the strength of a factor had changed were noted throughout the fieldwork, and some of these comments explicitly noted the role of RCRC interventions in this change. Information about community attitudes, knowledge, behaviours and practices in relation to risk was also identified as part of the fieldwork. This information has been used to comment on the role of RCRC programmes, and make observations as to how the communities’ attitudes and behaviours to risk may have changed.

<sup>20</sup> Further detail on the methodology can be found in section 4.5. The same approach was taken, although in this instance the factors were grouped around the six *characteristics*.

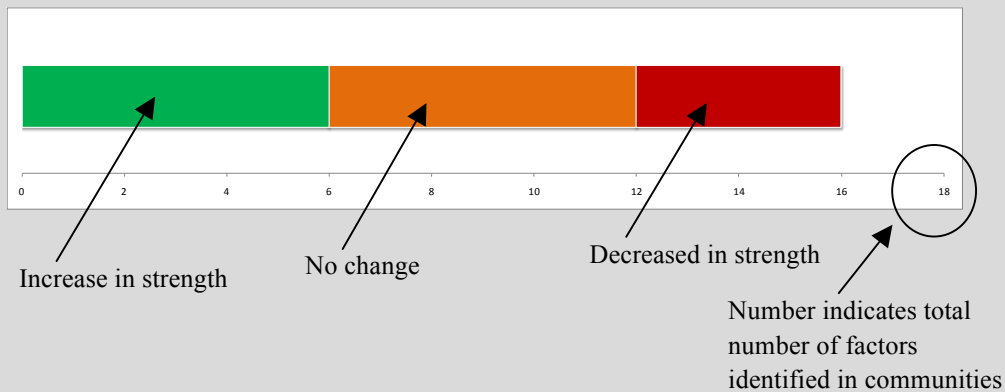
**Box 7: Key for understanding**

The graphics in this section show how the strength of the factors for each *characteristic* was rated by the community over two time periods:

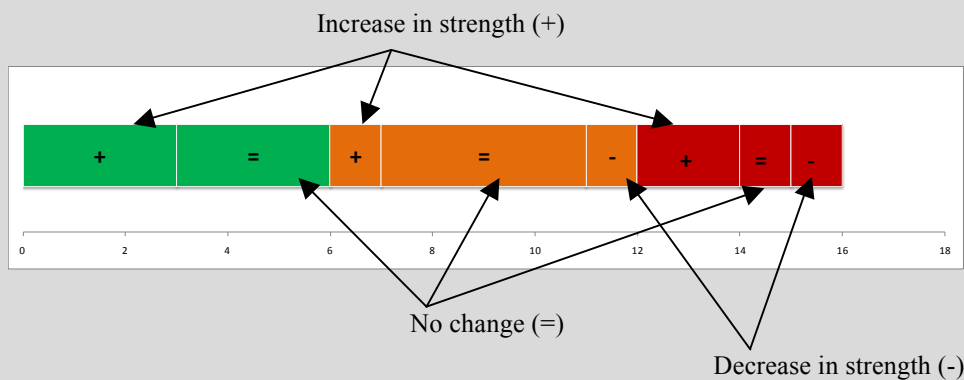
- During the programme (from before the programme to after the programme)
- After the programme finished (from after the programme to present)

The two data sets are imposed over each other as can be seen on the graphs below:

- **Changes during the programme** are indicated by the **coloured bars**: green means the factors increased in strength, red that it decreased in strength and orange that it was unchanged or minimally changed in strength.



- **Changes after the programme finished** are indicated **by the symbols**. + means the factor was rated as increasing in strength, - means it was rated as weaker and = means it was rated as the same or minimally changed.



The length of each bar shows how many factors for the *characteristic* there were for each of the nine possible ratings

**Therefore examples include:**

Increased in strength during the programme, then decreased in strength after the programme finished

Unchanged or minimally changed during the programme, then increased in strength after the programme finished

This analysis is inherently subjective as it is based on community perception. In addition there is considerable variation in the amount of input data to this analysis since the number of factors from the fieldwork identified against each *characteristic* varies considerably (see Figure 15). The results cannot be considered as conclusive but are nevertheless helpful in understanding the impact of CBDRR programmes in these communities.

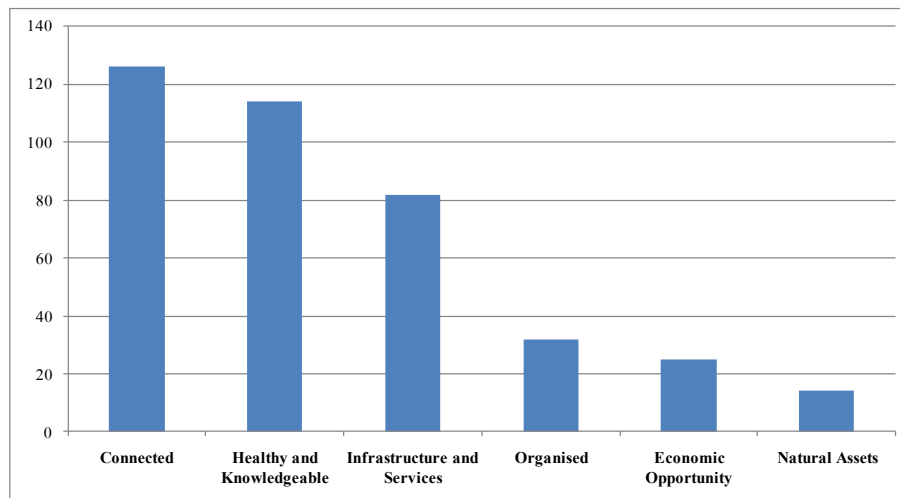


Figure 15 Number of factors identified in the communities for each *characteristic*

## 1. A safe and resilient community is healthy and knowledgeable. It has the ability to assess, manage and monitor its risks. It can learn new skills and build on past experiences.

**Since the tsunami, how do communities rank their changes in these characteristics?**

The majority of factors associated with knowledge were rated as stronger in the period from before the programme to after the programme. Since the completion of the programme this has largely been maintained. However, a small number of factors that were strengthened during the project were not sustained after it had finished.

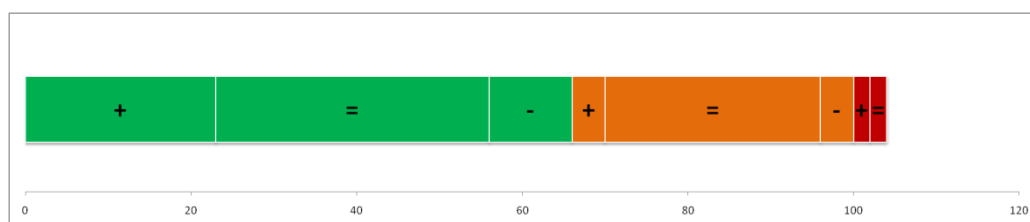


Figure 16: Graphic representation of change in strength: healthy and knowledgeable.

**How have RCRC interventions contributed to these changes (positive or negative)?**

- CBOs formed as part of CBDRR programmes played a positive role by using their knowledge to assist people or increasing community knowledge and awareness of shock and stresses. For example during a response when relief items are needed 'for food distribution the CBAT can coordinate with other parties' (Pepalang, Indonesia). This was not necessarily sustainable without

ongoing investment in CBATs as ‘after the programme finished CBAT training stopped so CBAT capacity has been reduced’ (Pulot, Indonesia). Other examples include Badulla, Sri Lanka, who identified that ‘before the project we did not know who to contact and we were not able to have knowledge of who to contact for support’ (Badulla, Sri Lanka). Now they have increased confidence and understanding of the mechanisms that exist to support them.

- In a few cases, the community noted they were already doing activities or had good awareness prior to the CBDRR programmes (e.g. ‘they were [already] doing *gotong royong* every Friday’ (Pasi Pawang, Indonesia). This meant the change was less acute and the programme made less of an impact.
- In the area of health awareness, a few communities noted increased awareness as a result of Red Cross programmes including both CBDRR and CBHFA: ‘CBAT have done socialisation about hygiene’ (Pedekok, Indonesia).

### **How can/do the determined indicators [factors] and their changes over time reflect shifts in community attitudes and behaviours towards risk?**

Many communities felt they improved their knowledge and awareness of disasters and their ability to manage risk. Most factors were maintained or strengthened since the completion of the programme. Knowledge in the community might therefore be an area where improvements are less likely to decline rapidly after a programme. Almost all of the decreases in strength were in relation to activity, not knowledge. This suggests that some communities may need additional support to ensure improved knowledge and awareness translate into sustained practices.

## **2. A safe and resilient community is organised. It has the capacity to identify problems, establish priorities and act**

### **Since the tsunami, how do communities rank their changes in these characteristics?**

During the course of the programme over 50% of the factors identified in the community increased in strength. This improvement was largely sustained or increased further after the programme, and may have contributed to improvements in those factors which were neutral during the programme period. The factors that were weak in the first period continued to degrade after the programme finished.

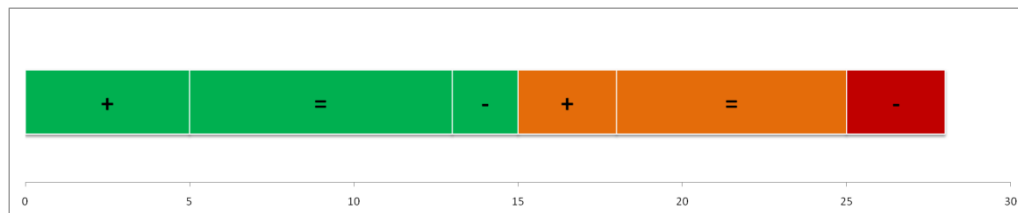


Figure 17: Graphic representation of change in strength: organised.

### **How have RCRC interventions contributed to these changes (positive or negative)?**

- The formation of CBOs and their ability to organise the community were seen as a positive influence; they ‘increased because they have a CBAT and they do socialisation (Pepalang, Indonesia)’. After the programme, one community where CBDRR has been extended noted that their CBO was even stronger

now ‘the programme is still ongoing and the CBAT still get better’ (Deah Geulumpang, Indonesia).

- Decreases in strength during and after the programme were not attributed to the CBDRR programme, although in one case the influence of other NGOs was noted ‘the gotong royong decreased because some NGOs came and gave them money to clean the area’ (Cot Langsat).
- Laem Makham, Thailand, raised the importance of the relationship between increased capacity to self-organise and being able to coordinate better with external agencies. They identified that since completion of the programme ‘the community is very conscious and are taking actions on their own at family and religious level. But seeking more organised help for awareness training’. Thus illustrates the inter-linkages between *characteristics*.

### **How can/do the determined indicators [factors] and their changes over time reflect shifts in community attitudes and behaviours towards risk?**

The factors in this group suggests that communities value good, functioning CBOs as a means of addressing risk and that internal cooperation and communication are important. CBOs with specific DRR responsibilities appear to be novel for some communities but their value is appreciated ‘before the project there was no group in the community responsible for disaster management or response and this adds greatly as it means there is a coordinating body’ (Korawella South, Sri Lanka).

The factors that became weaker after the programme were related to reporting on problems, assisting the vulnerable, and *gotong royong*, in the case of Indonesia. These instances seem to reflect lessened community commitment to such activities more than a reduced need.

### **3. A safe and resilient community is connected. It has a relationship with external actors who provide a wider supportive environment, and supply goods and services when needed.**

#### **Since the tsunami, how do communities rank their changes in these *characteristics*?**

During the programme, just over half of the factors increased in strength, but about one quarter of these became weaker once the programme completed. Of the remainder, the majority were unchanged or minimally changed.



Figure 18: Graphic representation of change in strength: connected.

### How have RCRC interventions contributed to these changes (positive or negative)?

- RCRC interventions were noted as contributing to relief efforts: ‘get relief support from PMI, relief and volunteer help for response (Sidodadi, Indonesia)’ during times of need. Benefits of the programme were also seen in strengthening the ability of the community to network with relevant external organisations: ‘after the ICBRR it increased because the community know what to do [to report needs to the sub-district]’ (Deah Geulumpang, Indonesia).
- Early warning systems implemented as part of the programme were seen as strengthened in some communities, particularly when CBOs take a role in informing and mobilising the community. However in some cases, such as Thung Sa Boe, Thailand, the programme did not address their most relevant risk: ‘Storms are quite frequent, but the CBDRR programme didn’t really help much to get prepared for this type of hazard’, rather it focussed on tsunami warnings.
- In one community in Indonesia it was noted that government support was weaker because of all the assistance provided by NGOs, but it was not clear if RCRC interventions were specifically included in this remark.

### How can/do the determined indicators and their changes over time reflect shifts in community attitudes and behaviours towards risk?

Communities in all four countries perceive the importance of assistance from outside the community in reducing their risk and vulnerability. Since the tsunami, some communities specifically appreciate the support of the Red Cross and other NGOs. However, government support is still seen as crucial in the provision of health services and in relief. Since the programme began, some communities noted that they have better knowledge and ability to liaise with government and advocate for support, for example by making reports.

## 4. A safe and resilient community has infrastructure and services. It has strong housing, transport, power, water and sanitation systems. It has the ability to maintain, repair and renovate them.

### Since the tsunami, how do communities rank their changes in these characteristics?

During the course of the programme more than half of the factors identified by the community improved, about one third of which have subsequently increased in strength. Many of the remainder were unchanged, or minimally changed, with only a few considered weaker.



Figure 19: Graphic representation of change in strength: infrastructure and services.

### How have RCRC interventions contributed to these changes (positive or negative)?

- RCRC interventions were noted as contributing to positive changes by providing water storage, by providing safer housing (especially in regards to strong wind and rain), and by providing evacuation infrastructure. With respect to the latter, CBOs were noted as contributing to the effective establishment and use of evacuation facilities.
- CBOs formed as part of the programme were also noted as contributing to the maintenance and cleaning of drainage and water channels which helped to mitigate flooding.
- One community in Sri Lanka noted that the programme had not had a positive impact on the infrastructure and services factors they identified e.g. water tanks. This was because although they had the tanks it was not possible to refill them themselves.

### How can/do the determined indicators [factors] and their changes over time reflect shifts in community attitudes and behaviours towards risk?

In relation to evacuation, there are clear examples that since the tsunami, some communities have a better understanding of evacuation, have evacuation facilities and have systems in place to organise evacuation when needed.

A couple of communities noted that their practices in regards to vector borne diseases have improved due to the provision of better services and assets: ‘did spraying before the tsunami, but not much. After, this increased because of health promotion by the health department’ (Jaboi, Indonesia).

### 5. A safe and resilient community has economic opportunities. It has a diverse range of employment opportunities, income and financial services. It is flexible, resourceful and has the capacity to accept uncertainty and respond (proactively) to change.

#### Since the tsunami, how do communities rank their changes in these characteristics?

Less than half the factors for this *characteristic* were rated stronger as a result of the programme, and the majority were unchanged. Since the completion of the programme most factors appear to have increased in strength with a few being maintained at the same or a similar level and only one decreasing. However, the data set in relation to this *characteristic* is limited as few related factors were identified within the communities.

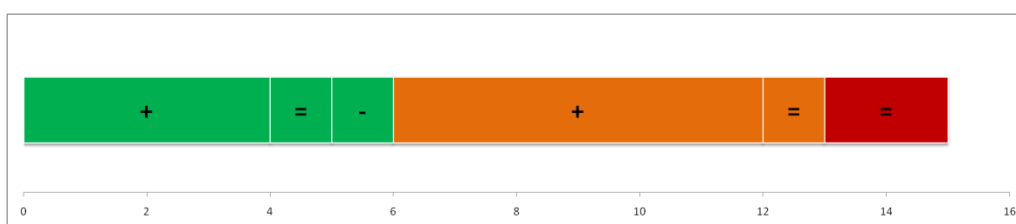


Figure 20: Graphic representation of change in strength: economic opportunities.

### How have RCRC interventions contributed to these changes (positive or negative)?

- There was no data that conclusively indicated a relationship between RCRC CBDRR interventions and the changes in the factors for this *characteristic*. The comments made in regard to these factors suggest that communities had been self-reliant in attempting to improve their economic opportunities.

### How can/do the determined indicators [factors] and their changes over time reflect shifts in community attitudes and behaviours towards risk?

The factors chosen reflect an appreciation of individual and community initiative and flexibility in generating economic opportunities. For example they listed possibilities for producing and selling food and crafts, or for finding employment.

The increases in strength shown since the completion of the programme are largely drawn from two communities in Thailand. In these communities, women have undertaken projects to generate income. Communities in Thailand and the Maldives commented that more support is needed to achieve strong improvements in economic opportunities.

## 6. A safe and resilient community can manage their natural assets. It recognises their value and has the ability to protect, enhance and maintain them.

### Since the tsunami, how do communities rank their changes in these *characteristics*?

During the implementation of the programme the factors identified in the communities were split almost evenly between increased strength and unchanged or minimally changed. Since the completion of the programme these strengths were largely maintained. However, it is important to note that this is based on very limited data as this *characteristic* was not often identified within the communities.

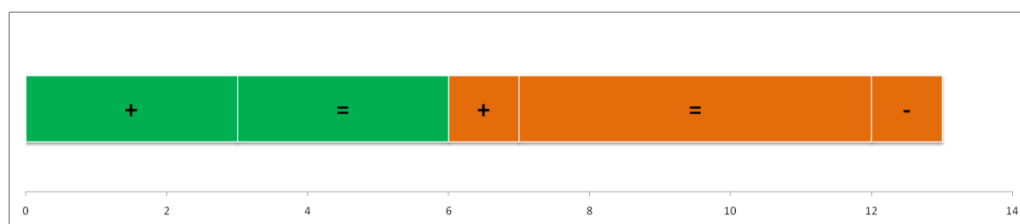


Figure 21: Graphic representation of change in strength: natural assets.

### How have RCRC interventions contributed to these changes (positive or negative)?

- Most of the factors for this *characteristic* concerned planting of trees, the provision of support, such as seeds for planting, and policies to protect existing assets. However, the communities did not provide specific comment on the role of RCRC interventions in effecting changes to these factors. Some communities did specify that other NGOs supported planting (Pedekok and Pulot, Indonesia) and some noted Government

support has been important in protecting forests (Pedekok and Pepalang, Indonesia).

**How can/do the determined indicators [factors] and their changes over time reflect shifts in community attitudes and behaviours towards risk?**

These factors include some clear examples in which the community has become more aware of the importance of environmental assets in regards to risk reduction. One community in Indonesia stated ‘planting trees is more important than evacuation’ (Pulot, Indonesia). Another stated that ‘the community was affected by and faced the impact of landslides so they reduced illegal logging’ (Pedekok, Indonesia).

## 6 Conclusion and Recommendations

### 6.1 Characteristics of a safe and resilient community

The six *characteristics* of a safe and resilient community that emerged from this research study are summarised in Box 9.

#### Box 9: The *characteristics* of a safe and resilient community

##### A safe and resilient community...

1. ...is knowledgeable and healthy. It has the ability to assess, manage and monitor its risks. It can learn new skills and build on past experiences
2. ...is organised. It has the capacity to identify problems, establish priorities and act.
3. ...is connected. It has relationships with external actors who provide a wider supportive environment, and supply goods and services when needed.
4. ...has infrastructure and services. It has strong housing, transport, power, water and sanitation systems. It has the ability to maintain, repair and renovate them.
5. ...has economic opportunities. It has a diverse range of employment opportunities, income and financial services. It is flexible, resourceful and has the capacity to accept uncertainty and respond (proactively) to change.
6. ...can manage its natural assets. It recognises their value and has the ability to protect, enhance and maintain them.

These *characteristics* are based on detailed analysis of a wide range of data much of which is specific to the TRP communities where CBDRR programmes had been carried out. This provides a basis for further research in other regions, and also in communities where there has not been previous DRR interventions, in order to understand the extent to which these are globally representative. Such research is required also to inform the development of appropriate indicators which can be used to inform baseline surveys, programme design, monitoring and evaluation of impact.

### 6.2 Impact of CBDRR programmes

The data gathered suggests that CBDRR programmes have had a positive or neutral impact across all six *characteristics*. The role of RCRC interventions was more obvious for the first four *characteristics* where they were seen to:

- positively influence community **knowledge** and awareness of disasters
- strengthen the systems for **organising** the community to respond to and prepare for disasters
- assist with the formation of effective **connections** between the community and external agencies who can assist the community.
- provide **infrastructure** to help mitigate against strong winds, floods and earthquakes

Since the completion of the programme, whilst a number of communities noted that the strength of the *characteristics* has remained unchanged indicating a

sustained impact in key areas, others noted a significant decrease. The sustainability of programme impact is an area where more focus is required.

Overall, the evidence suggests that a significant proportion of communities have changed in their attitudes and behaviours towards risk. Greater awareness and knowledge is witnessed in many instances, resulting in better ability to manage and respond to the impact of shocks and stresses. It could be argued that the provision of infrastructure and other assets supports the translation of knowledge and awareness into practice.

It is not clear to what extent community knowledge, awareness and practice will be transformed and applied to shocks and stresses other than those identified in CBDRR programmes. In other words, do communities now possess the capacity to assess their situation, identify shocks and stresses and devise appropriate responses in an ongoing manner? Are they able to leverage the resources they need to implement plans that will reduce their risk?

Certainly no one programme can have a sufficiently broad scope, time span and budget/ resources to address all of the *characteristics*. Based on existing practice and design of CBDRR programmes they are likely to impact most on the *characteristics* relating to knowledge, organisation and connections. Finding ways to coordinate and integrate CBDRR with other programmes or sectors may also be a productive strategy for enhancing a wider range of *characteristics*.

## 6.3 Recommendations

The following are high level recommendations or comments for alteration or adoption of the *characteristics* to best suit the work of the RCRC movement:

- **A safe and resilient community is healthy and knowledgeable**

This research strongly suggests that individual ‘knowledge’ and ‘health’ are interrelated foundations of resilience; hence they located in the centre of the diagram (Figure 2). Since these are both significant and distinct programmatic areas of focus for the RCRC there may be merit in dividing *characteristic 1* into two distinct *characteristics* to ensure adequate and appropriate attention and prioritisation.<sup>21</sup> This should be straightforward based on reviewing the factors from the literature and fieldwork that contributed to this *characteristic*.

- **Multiple Uses: Wide range of applications for *characteristics***

The *characteristics* can be used for a large number of purposes including monitoring and evaluation. Examples include using them as part of the community selection process (e.g. to identify communities that are particularly weak in certain areas) or to define the programme objectives (e.g. to map out what is realistic for the project to achieve). It is recommended that consideration is given to mainstreaming the *characteristics* in current initiatives to better understand how they can be used to improve practice.

- **Existing Monitoring and Evaluation Frameworks: Links with other tools**

To assist with wide scale adoption of the *characteristics* it may be useful to map the *characteristics* against existing monitoring and evaluation frameworks and

<sup>21</sup> As suggested by participants at the workshop in Geneva (20-21.07.2011).

tools (e.g. the Hyogo Framework for Action). This would enable PNS/HNS to compare their current approach with what is being proposed by this research report. As many of these existing frameworks fed into the development of the *characteristics* this should be a relatively straightforward activity.

- **Further Research: Verification leading to global application?**

In order to understand the extent to which these *characteristics* are globally representative further application/development is recommended in other geographies (outside of South and South East Asia), and in communities that have not experienced a CBDRR programme to understand if they have different perceptions of resilience. Exploration of the association between *characteristics* and demonstrations of resilience (e.g. the behaviour of a community when responding to or recovering from a shock or stress) could also help to provide insight into whether some *characteristics* matter more than others.

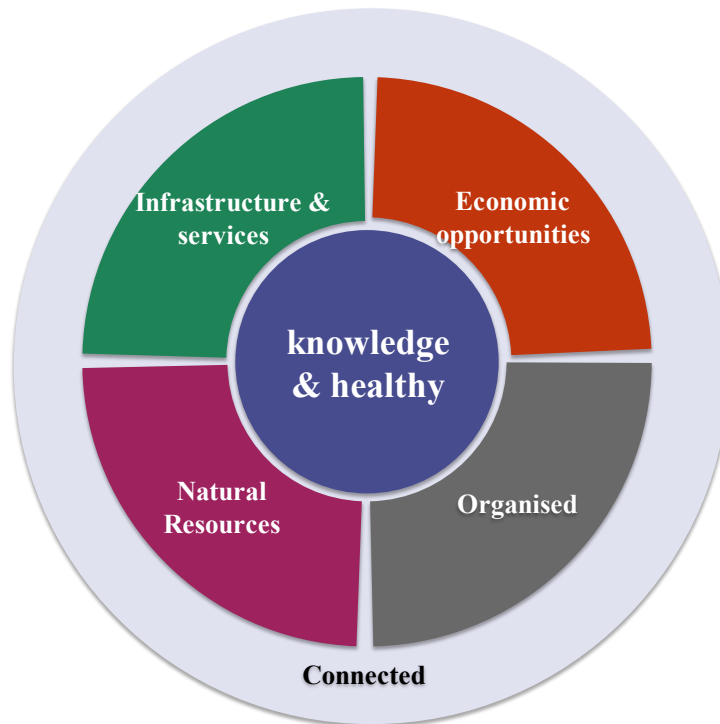


Figure 22 The six *characteristics* of a safe and resilient community.

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## **Appendix A**

### **Process Documentation**

## **Appendix B**

### **Supporting Documentation**

# The Fundamental Principles of the International Red Cross and Red Crescent Movement

**Humanity** The International Red Cross and Red Crescent Movement, born of a desire to bring assistance without discrimination to the wounded on the battlefield, endeavours, in its international and national capacity, to prevent and alleviate human suffering wherever it may be found. Its purpose is to protect life and health and to ensure respect for the human being. It promotes mutual understanding, friendship, cooperation and lasting peace amongst all peoples.

**Impartiality** It makes no discrimination as to nationality, race, religious beliefs, class or political opinions. It endeavours to relieve the suffering of individuals, being guided solely by their needs, and to give priority to the most urgent cases of distress.

**Neutrality** In order to enjoy the confidence of all, the Movement may not take sides in hostilities or engage at any time in controversies of a political, racial, religious or ideological nature.

**Independence** The Movement is independent. The National Societies, while auxiliaries in the humanitarian services of their governments and subject to the laws of their respective countries, must always maintain their autonomy so that they may be able at all times to act in accordance with the principles of the Movement.

**Voluntary service** It is a voluntary relief movement not prompted in any manner by desire for gain.

**Unity** There can be only one Red Cross or Red Crescent Society in any one country. It must be open to all. It must carry on its humanitarian work throughout its territory.

**Universality** The International Red Cross and Red Crescent Movement, in which all societies have equal status and share equal responsibilities and duties in helping each other, is worldwide.

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