Characteristics of a Safe and Resilient Community

Community Based Disaster Risk Reduction Study

ARUP International Development – September 2011

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Arup International Development's study team;

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Executive Summary

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[1]. 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[2] 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)[3] 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?'

[1] IFRC, http://www.ifrc.org/en/what-we-do/
[2] The acronym CBDRR is used to include CBDP, CBHFA, CCA, ICBRR, etc.
[3] Arup International Development (Arup ID) operates as a not for profit group within the Arup Group Ltd (Arup). www.arup.com/internationaldevelopment

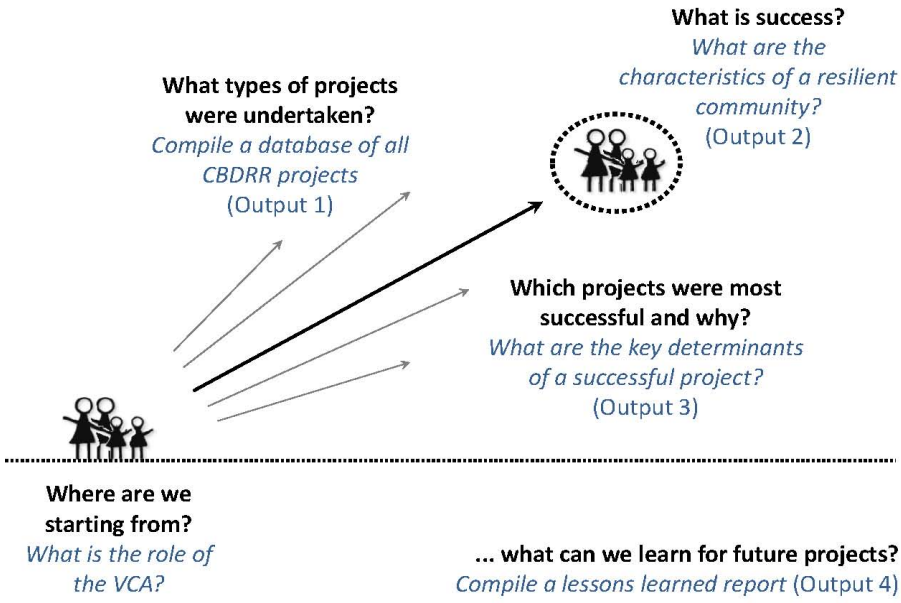


Figure 1 Diagrammatic representation of interrelationship between outputs

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).

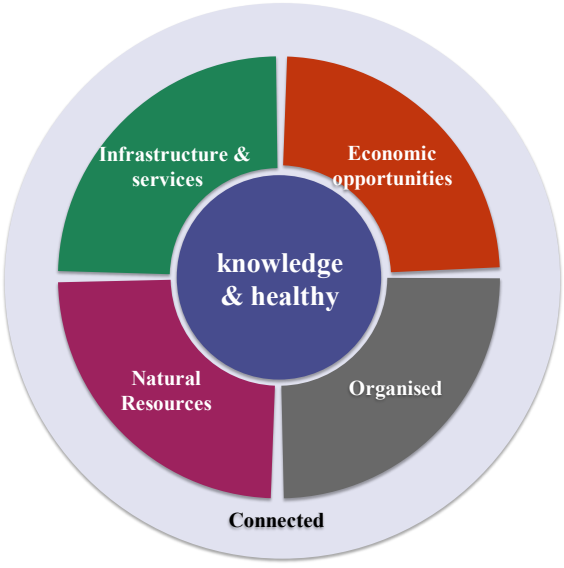


Figure 2 The six *characteristics* of a safe and resilient community.

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.[4] 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.

[4] As suggested by participants at the workshop in Geneva (20-21.07.2011).

Abbreviations

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

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[5]. 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[6] 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 **Key *Characteristics* of a Safe and Resilient Community** has been prepared by Arup's International Development team (Arup ID)[7] 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

[5] IFRC, http://www.ifrc.org/en/what-we-do/
[6] The acronym CBDRR is used in an all-encompassing manner to include CBDP, CBHFA, CCA, ICBRR, etc.
[7] Arup International Development (Arup ID) operates as a not for profit group within the Arup Group Ltd (Arup). 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.

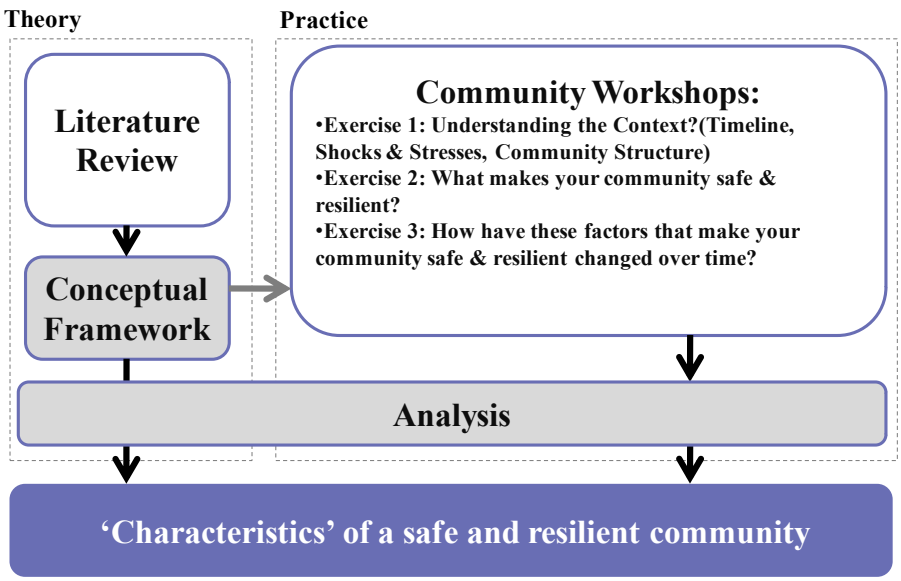


Figure 3: Simplified representation of research methodology

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[8] 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'Rouke (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, 2nd 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*

[8] 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	Hulhuddhufaaru	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

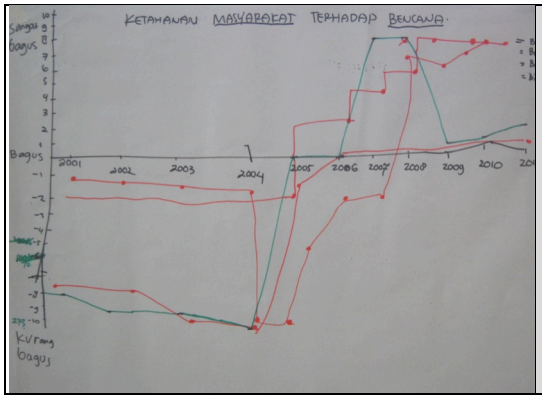
A participatory research methodology was designed which was informed by the findings from the literature review. The fieldwork included community workshops, focus group discussions, observational walks and semi-structured interviews. Key informant interviews were also conducted with representatives of 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.

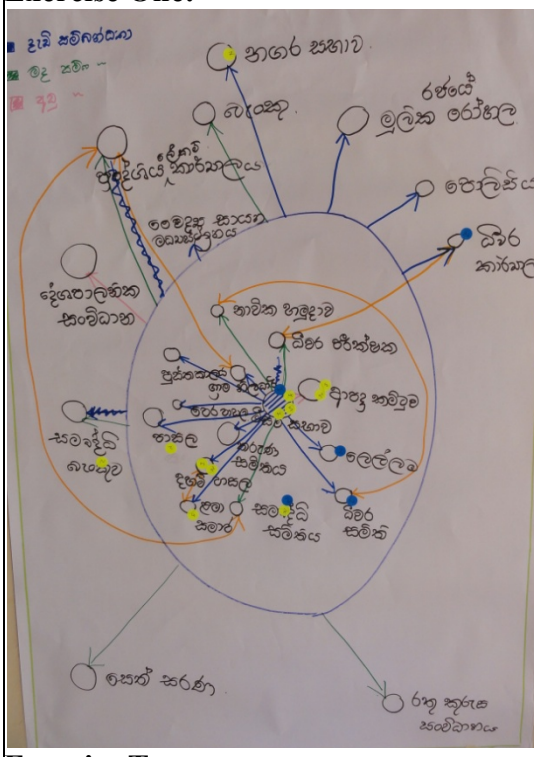
One further exercise that was run explored mapping resilience over time as a graph.

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.

Exercise One:



Exercise Two:

Exercise Three:

Box 4: Community Workshops

During the community workshop there were three principal exercises to identify the *characteristics* that communities felt made them safe and resilient and to understand how they changed over time? The participants typically worked in three groups throughout:

Exercise 1: Understanding the context?

This exercise focussed on:

- the history of the community
- identification and prioritisation of their shocks & stresses (top three)
- clarification of the community structure and its external networks.

Similar to VCA exercises: Historical profile/historical visualization (IFRC, 2007:98), Brainstorming (IFRC, 2007:133) and Institutional and social network analysis (IFRC, 2007:119)

Exercise 2: What makes your community resilient?

Taking the top three shocks and stresses identified in exercise one, this activity asked the community what helps them to prevent or prepare for a shock or stress; cope with it whilst it is happening and recover afterwards. It prioritised the top five factors and identified whether these were inside or outside the community.

Similar to VCA exercises: Household/ neighbourhood vulnerability assessment (IFRC, 2007:105)

Exercise 3: Changes in *characteristics* over time?

This exercise took the top five factors identified in exercise two that related to a specific shock or stress and asked how strong were these before the programme, after the programme and now (i.e. since the programme has finished).

Similar to VCA exercises: Ranking (IFRC, 2007:138)

Each group presented back and there was opportunity for all participants to comment and add to the other groups' work.

3 Findings: Literature Review

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).

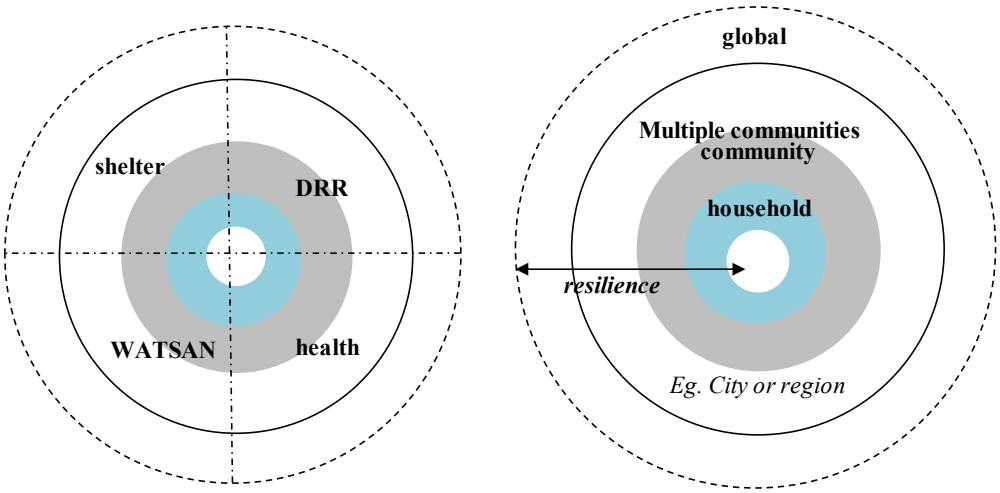


Figure 4 Concepts arising from literature review

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).

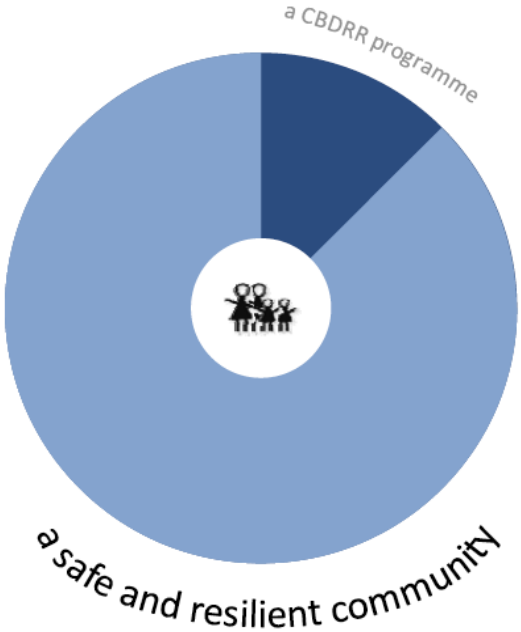


Figure 5 CBDRR programmes contribute to a safe and resilient community

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[9], 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'Rouke, 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.

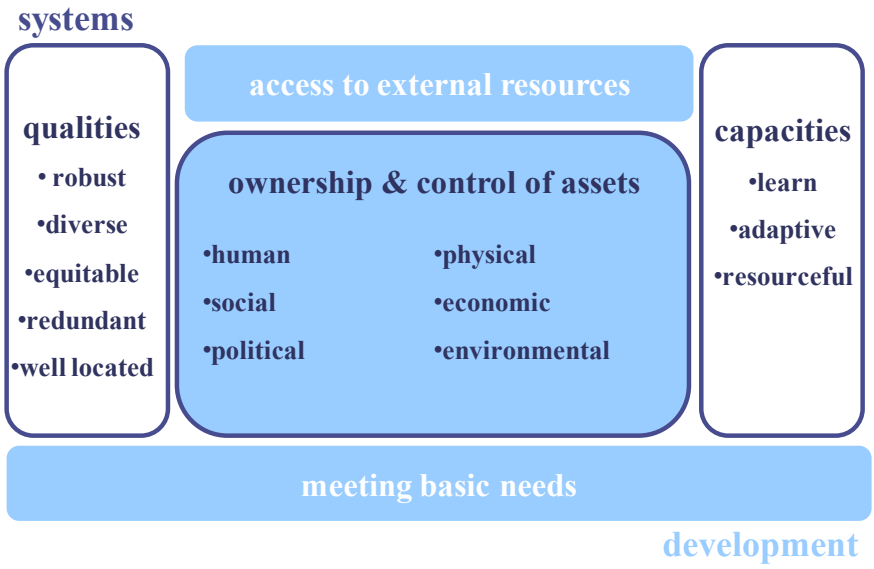


Figure 6 Conceptual framework for Community Resilience.

[9] 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'Rouke, 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'Rouke, 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'Rouke, 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.

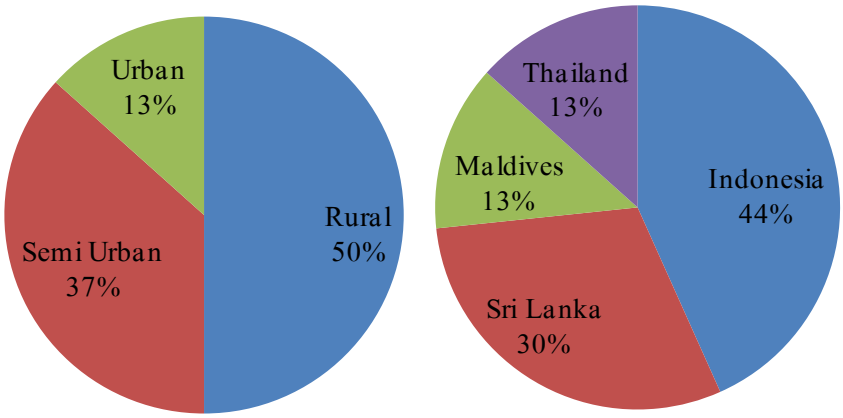


Figure 7: Diversity of Communities

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[10]

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;

[10] 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.

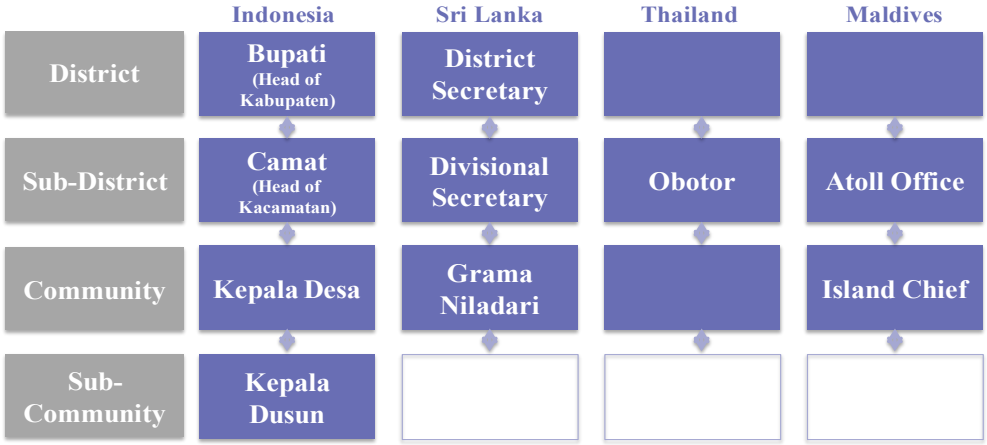


Figure 8 Government Structures from a national to sub-community level.

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.

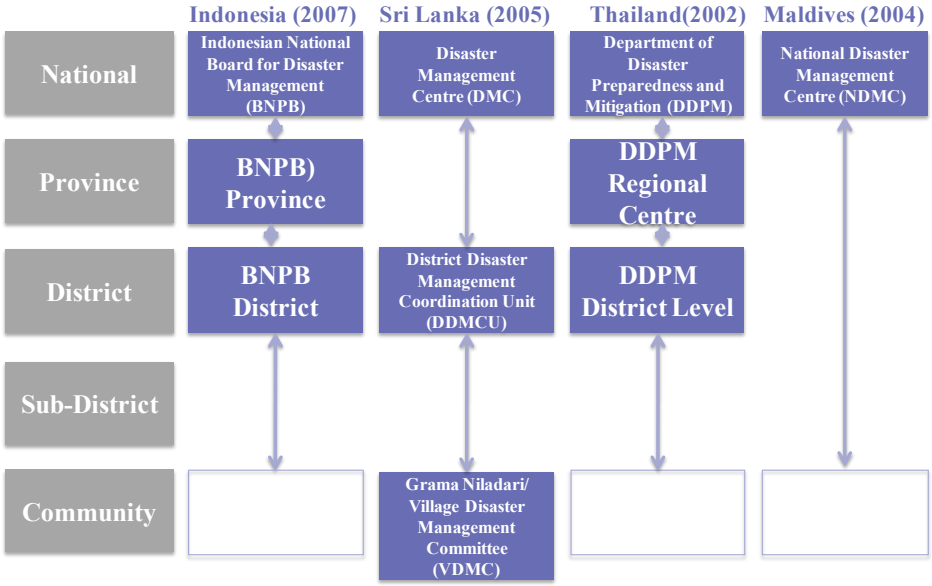


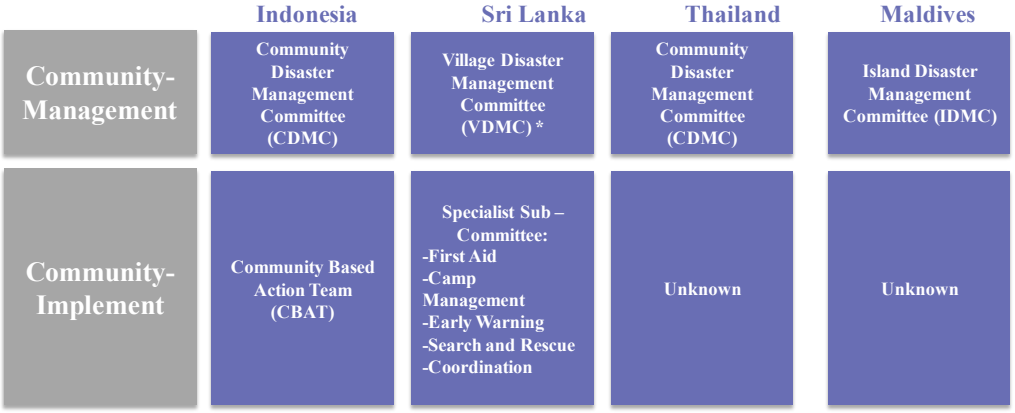
Figure 9 Government disaster management structure across countries[11]

[11] 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 to 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.



**With the exception of the Danish Red Cross programmes who 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[12]

The communities identified a wide range of different shocks and stresses that affected them including natural hazards, socio-economic and heath 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[13]. 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)

[12] Data collected through Exercise 1: Understanding the Context? See Appendix A2 for detailed information on the methodology.
[13] 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.

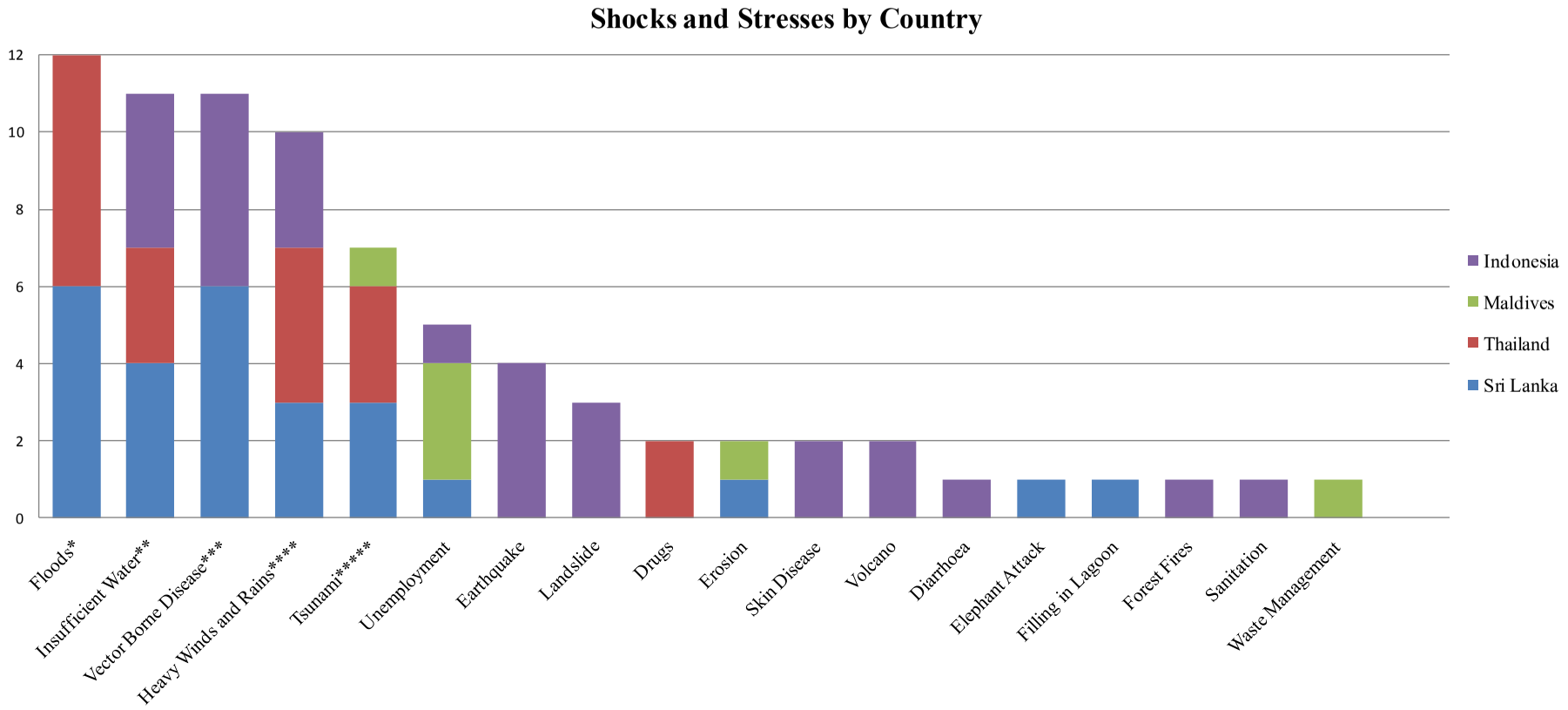


Figure 11 Top 3 shocks and stresses identified across the four countries (13 communities in Indonesia, 9 in Sri Lanka, 4 in both the Maldives & Thailand)

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

4.3 Factors contributing to safe and resilient communities[14]

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[15]:

- **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.

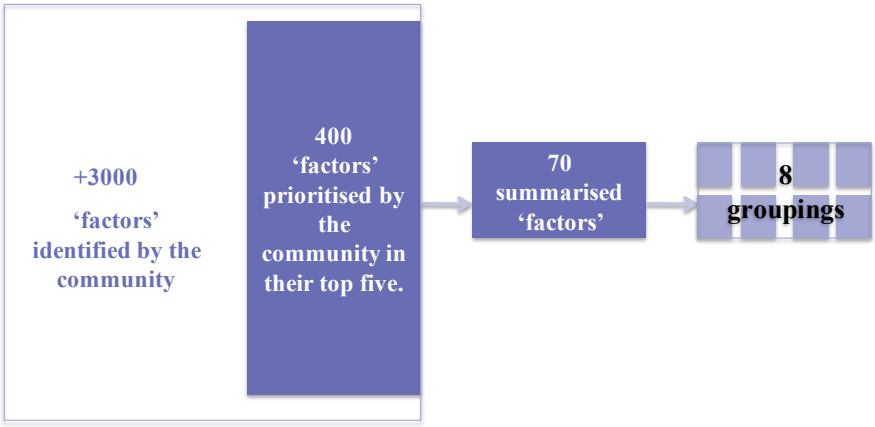


Figure 12 Distillation and grouping of factors

[14] Data collected through Exercise 2: What makes your community safe and resilient? See Box 6 and Appendix B3 for detailed information.
[15] 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	
Inside the community	
Outside the community	

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		
	Before (Prepare & Prevent)	***During (Cope)***	***After(Recover)***
Inside the Community	Construct houses and shops	**Evacuation (2)**	**Clean houses (3)**
	Training through different groups inside and outside community (1)	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	
Outside the Community	Inform the RC	Request support from RC	**Inform PHI to control mosquitoes (5)**
	Inform the GN (4)	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 tress 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).

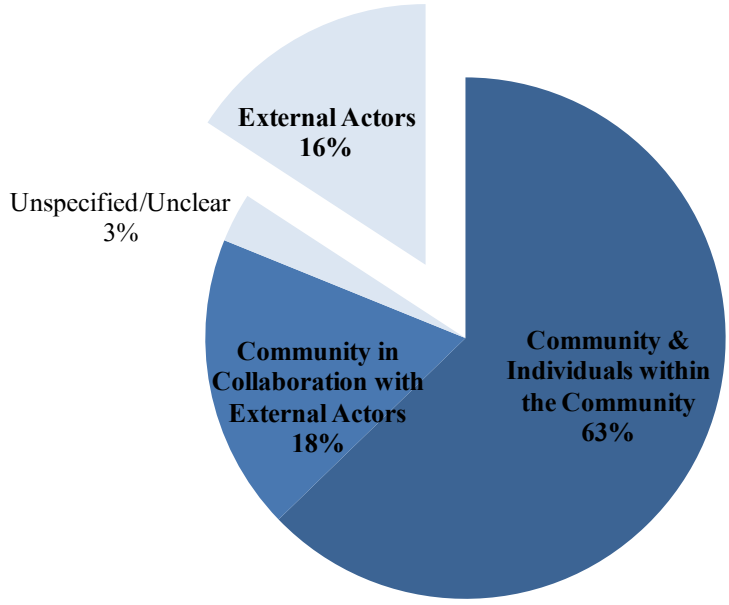


Figure 14 Responsibility for factors contributing to community safety and resilience.

4.5 Changes to factors contributing to safe and resilient communities[16]

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

[16] 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[17] (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.

[17] 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?

Services & Infrastructure

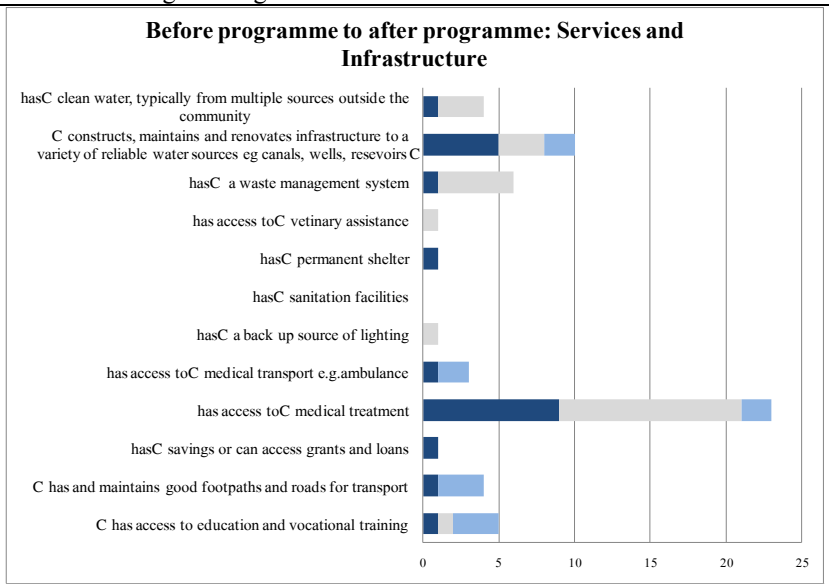
There do not appear to be strong trends in relation to services and infrastructure indicating that the CBDRR programme did not have a significant impact.

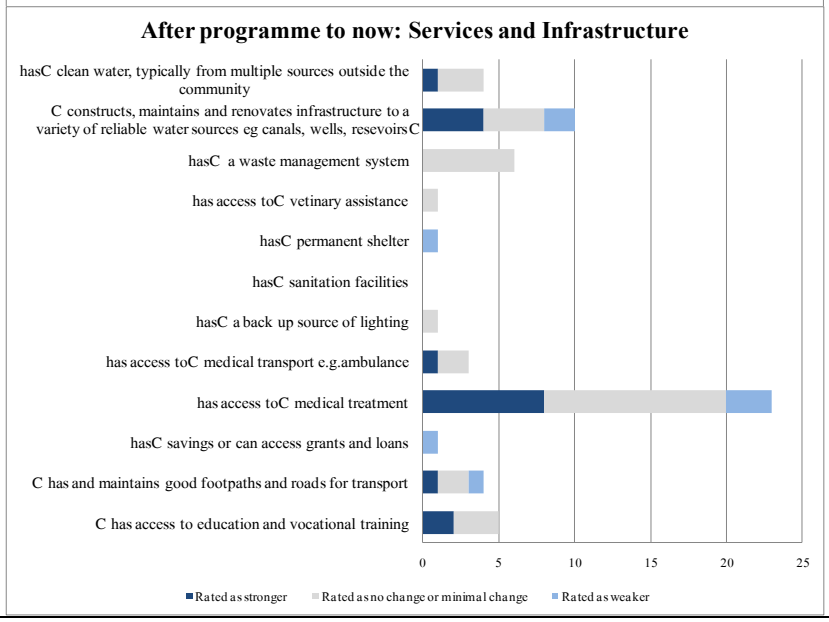
Before to after programme :

- The most commonly nominated improved factor was "access to medical treatment." Reasons given for increases in strength include improved provision of services by government and assistance from the Red Cross. Where strength remained constant reasons included the fact that a health facility was, and continues to remain, available.

After programme to present:

- A very small number of groups rated factors weaker than during the programme. The main area in which strength was rated as having increased was "has access to... medical treatment." Where strength of access to medical treatment remained the same, this often was explained as maintaining existing access to medical treatment.





Livelihoods

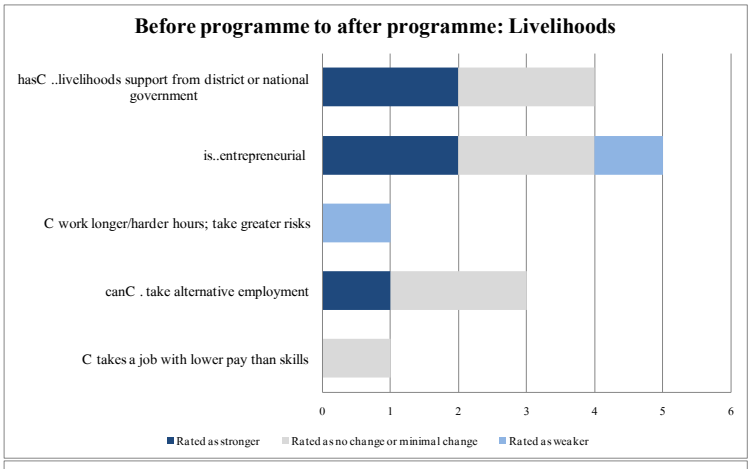
The comments from the communities suggest that when strength increases occurred, they were not the result of a CBDRR programme[18].

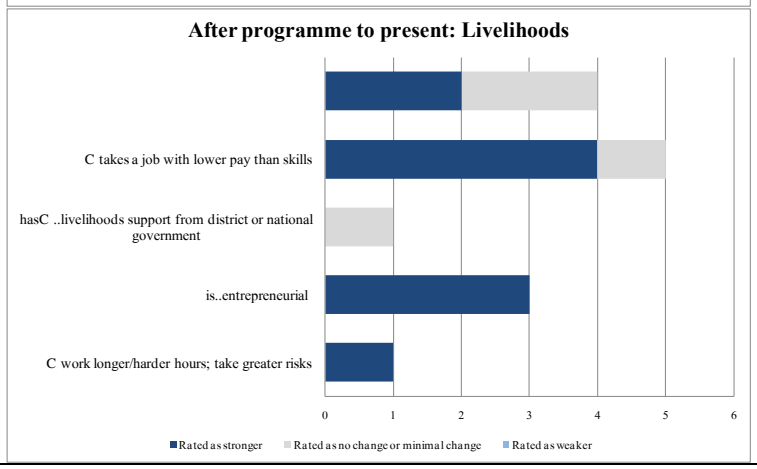
Before programme to after programme:

- "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.





[18] 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

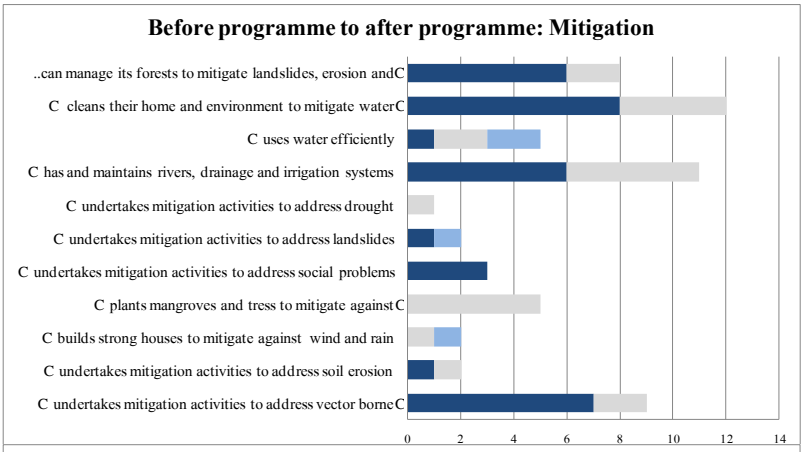
Far fewer increases in strength were noted in the second period compared to the first. In the second period, factors were far more often rated as being unchanged or minimally changed.

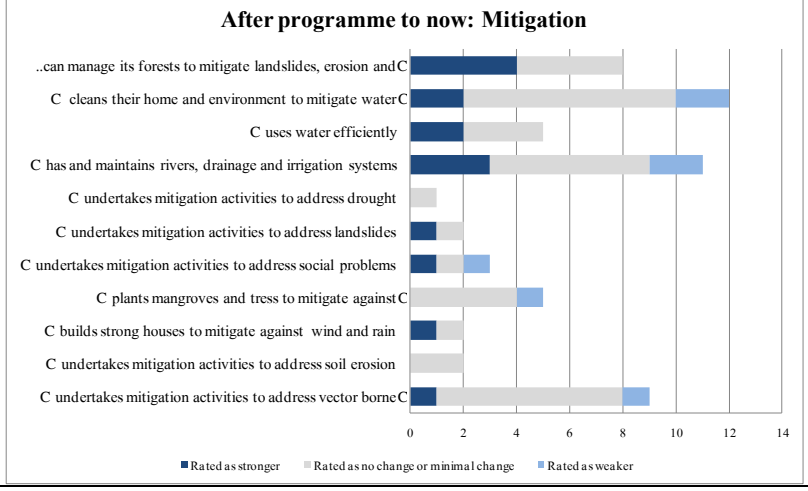
Before to after programme:

- 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

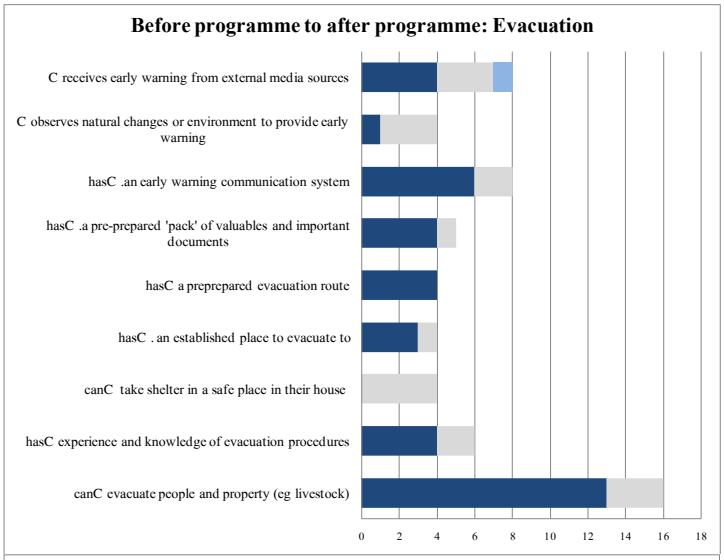
These factors improved during the first period but were much less often rated as having increased in strength for the second period.

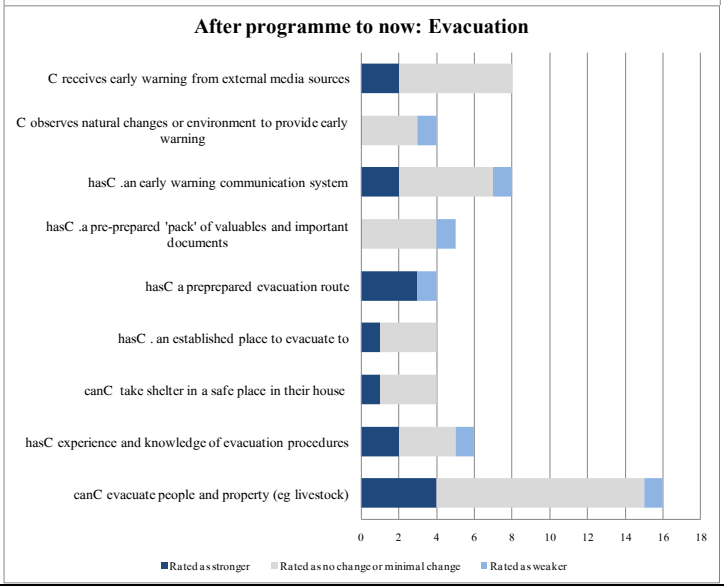
Before programme to after programme:

- 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

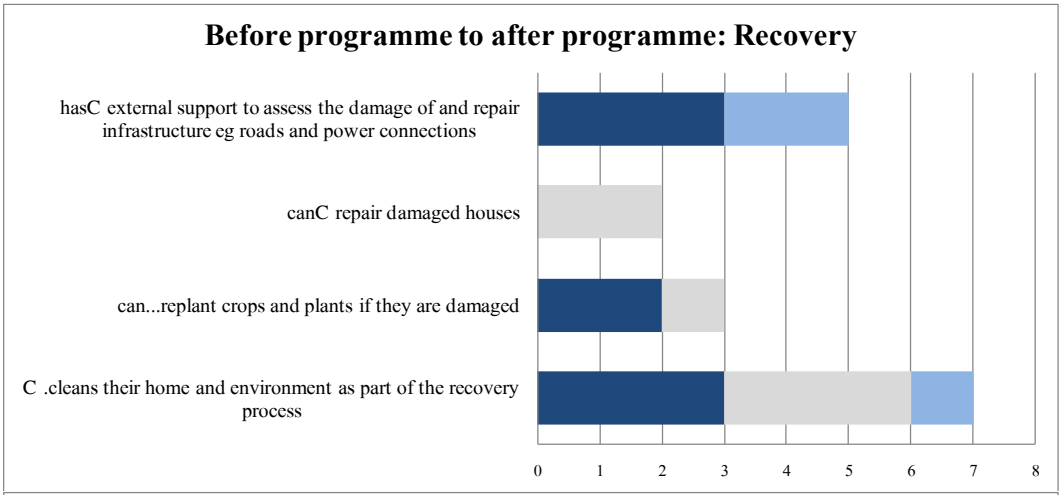
The number of factors that increased in strength was greater during the period before to after the programme than after the programme to present.

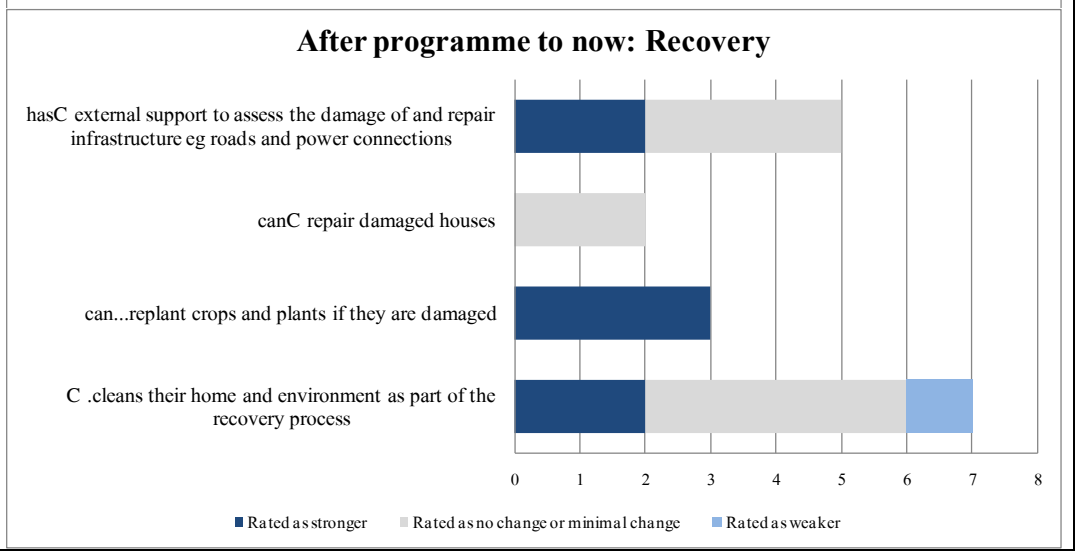
Before programme to after programme:

- 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

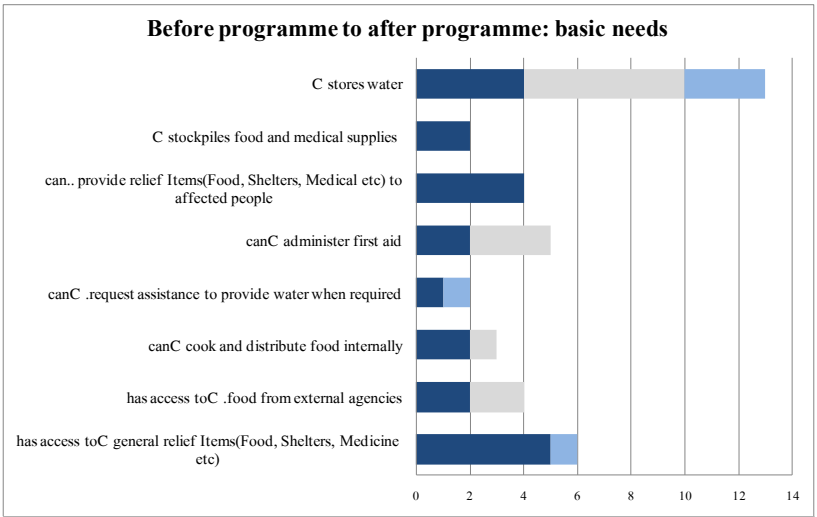
Communities rated a greater increase in the strength of the factors in the period from before to after the programme. The main factors which communities rated as being weaker in the post-programme period were related to general relief items. In most cases, stronger ratings in the second period followed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

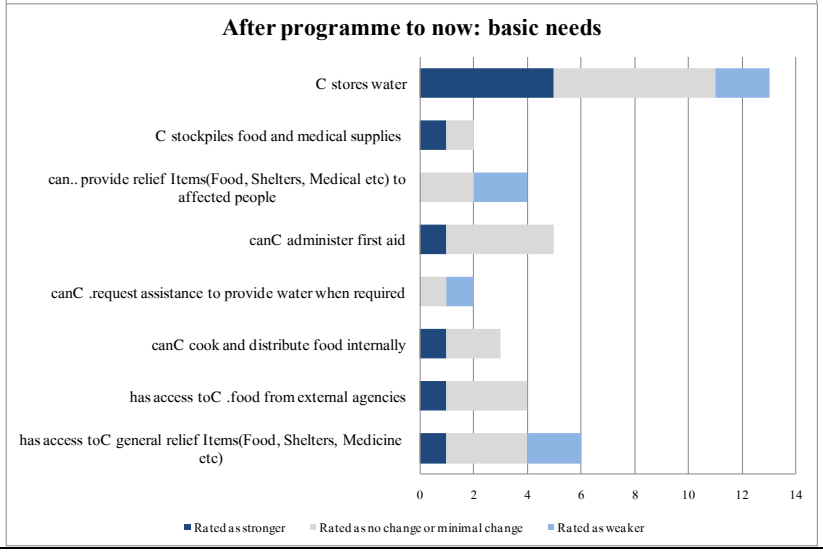
Before programme to after programme.

- 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

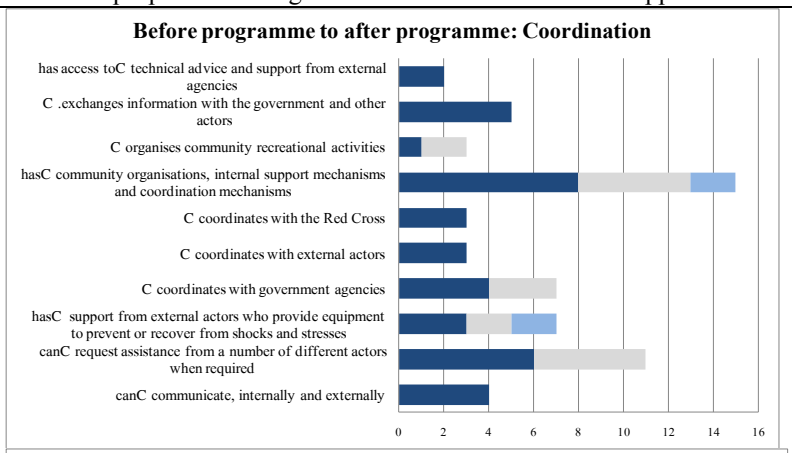
Some communities rated the strength of coordination on the extent to which coordination activities are conducted rather than on their capacity to coordinate effectively. In some instances cited here, the decreased rating is actually due to positive outcomes that have reduced the need for such activity.

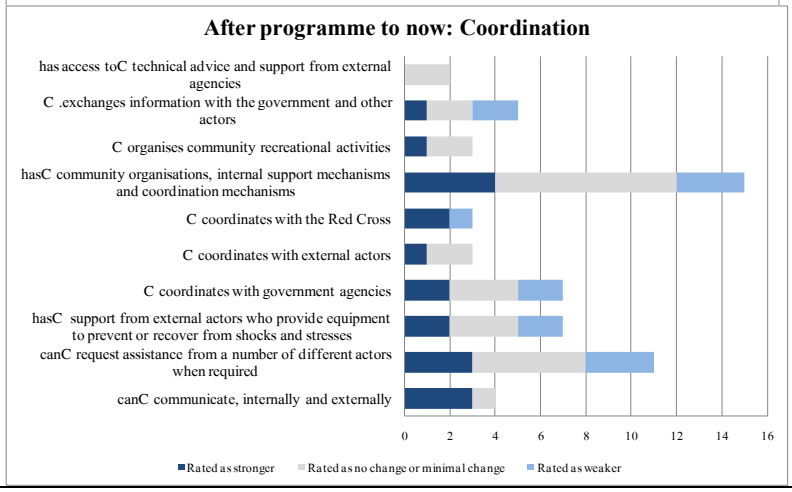
Before programme to after programme:

- "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.





Knowledge

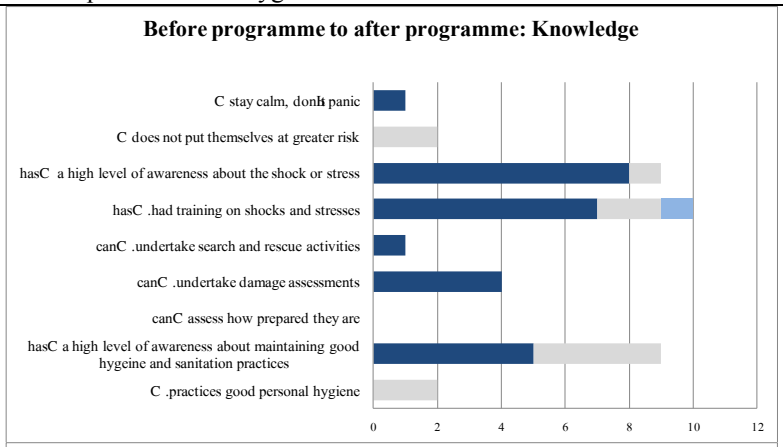
With the exception of "undertaking damage assessments and "maintaining good health practices" far fewer of these factors were rated as stronger in the second period compared to the first. For "has... a high level of awareness about shocks or stresses" all of the factors that were rated as weaker in the 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.

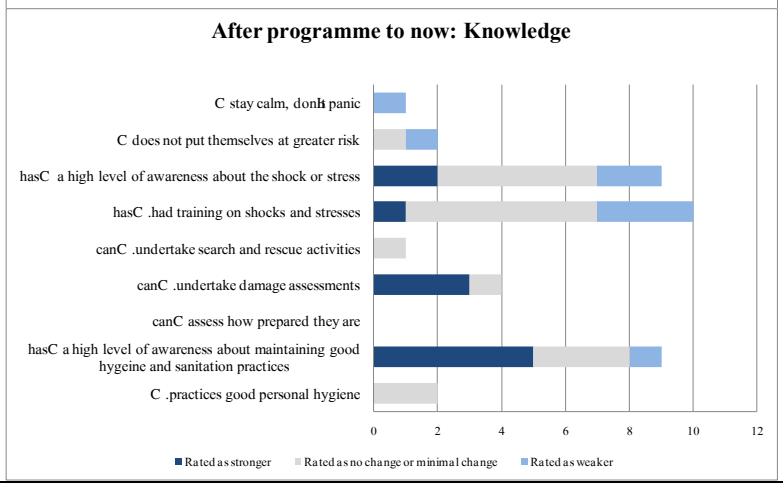
Before programme to after programme:

- 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

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 was 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
Key: Blue text indicates addition/augmentation to literature review *Black text (no shading) indicates identified in communities*

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'[19]). 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.

[19] This later example can be found in External Resources: A safe and resilient community is connected.

Examples of factors that are 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) *See* External Resources, *...representative governance and institutional structures (Twigg, 2009; Bahadur,2010; Pasteur,2011; Cutter, 2010)*
Key: Black text (no shading) indicates identified in communities

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 are 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.

External Resources
Connections & Information
…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
Services
…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
Natural Resources
…land (Mayunga, 2007)
…water (Mayunga, 2007)
has…clean water, typically from multiple sources outside the community
…ecosystem (Mayunga, 2007)
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)
has…..livelihoods support from district or national government
Key: Blue text indicates addition/augmentation to literature review *Black text (no shading) indicates identified in communities*

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 GoSl/ 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)
Key: Blue text indicates addition/augmentation to literature review *Black text (no shading) indicates identified in communities*

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 particularly 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 are were frequently mentioned and may form the basis of future indicators include:

- Having a permanent shelter (Hulhuddhufaaru, 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)
Key: Black text (no shading) indicates identified in communities

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 meet 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 are 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
Key: Blue text indicates addition/augmentation to literature review *Black text (no shading)indicates identified in communities*

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[20]. 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.

[20] 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*.

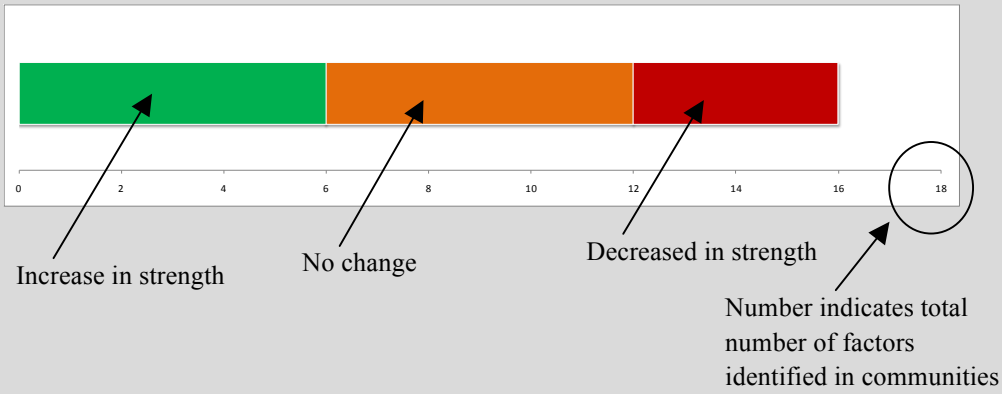
Box 7: Key for understanding

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

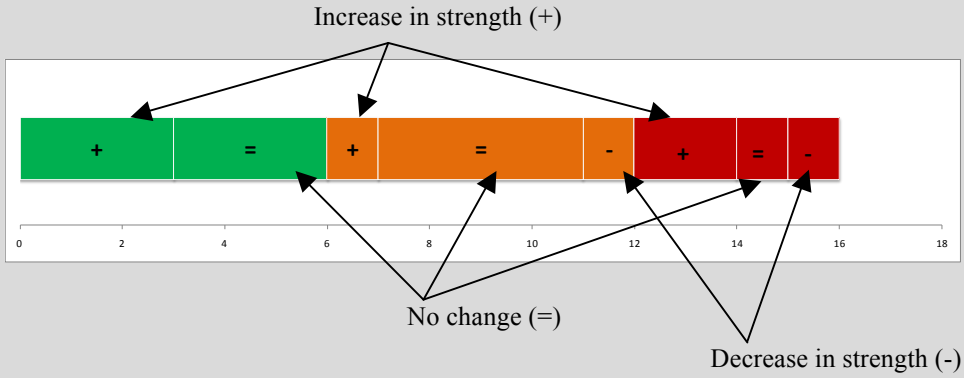
- During the programme (from before the programme to after the programme)
- After the programme finished (from after the programme to present)

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.

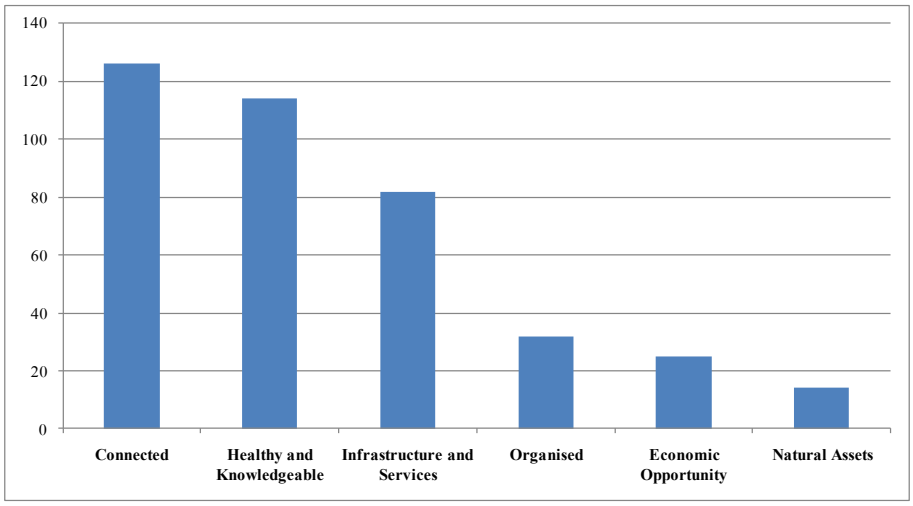


Figure 15 Number of factors identified in the communities for each *characteristic*

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.

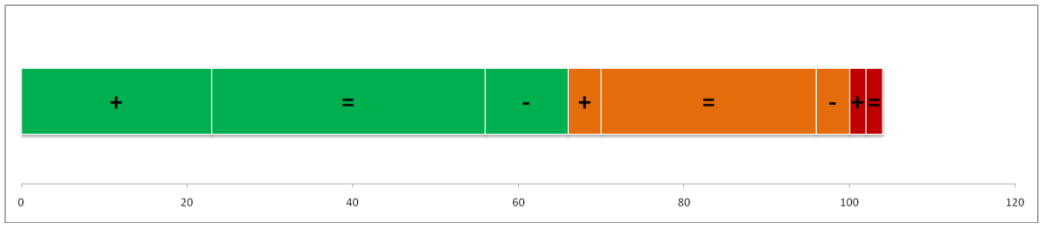


Figure 16: Graphic representation of change in strength: healthy and knowledgeable.

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.

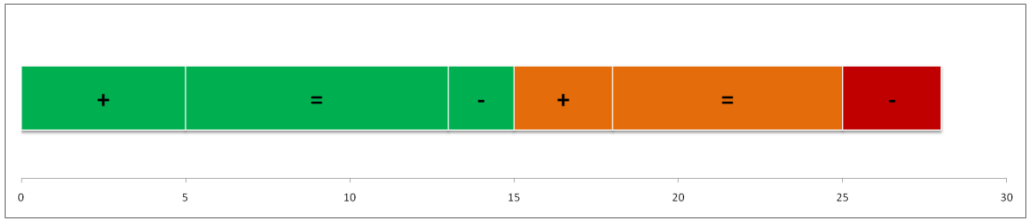


Figure 17: Graphic representation of change in strength: organised.

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.

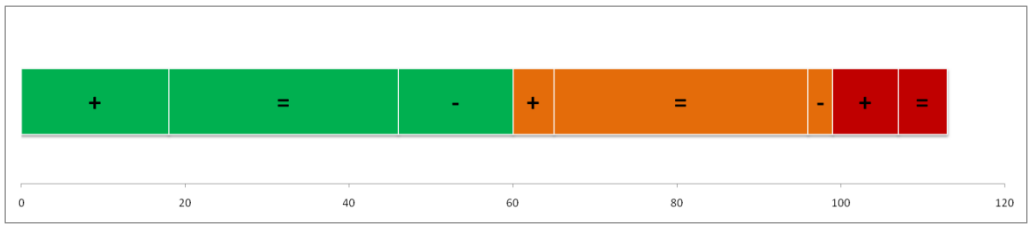


Figure 18: Graphic representation of change in strength: connected.

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.

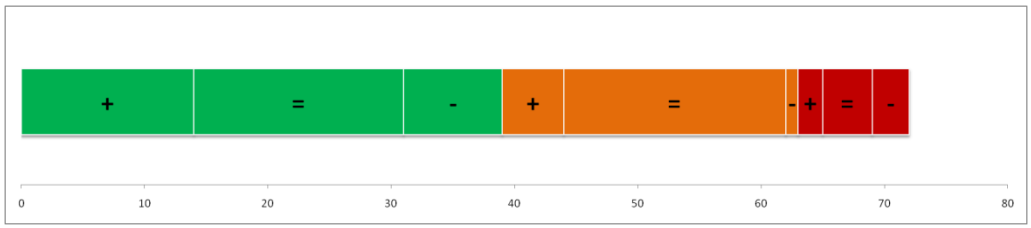


Figure 19: Graphic representation of change in strength: infrastructure and services.

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.

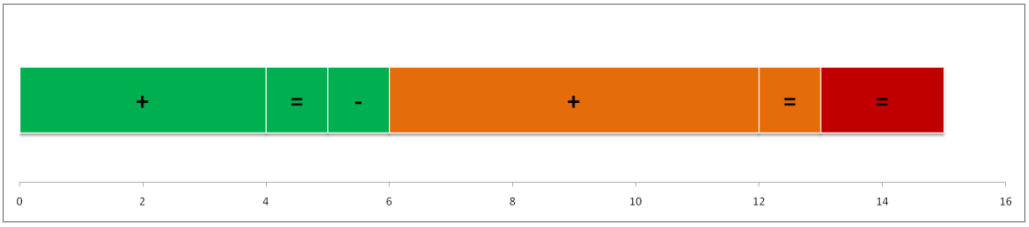


Figure 20: Graphic representation of change in strength: economic opportunities.

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.

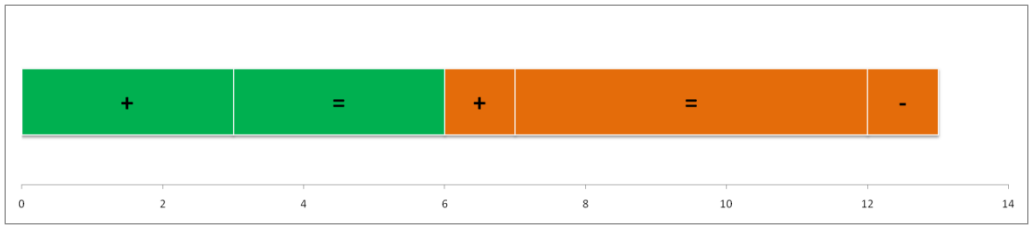


Figure 21: Graphic representation of change in strength: natural assets.

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.[21] 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

[21] 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.

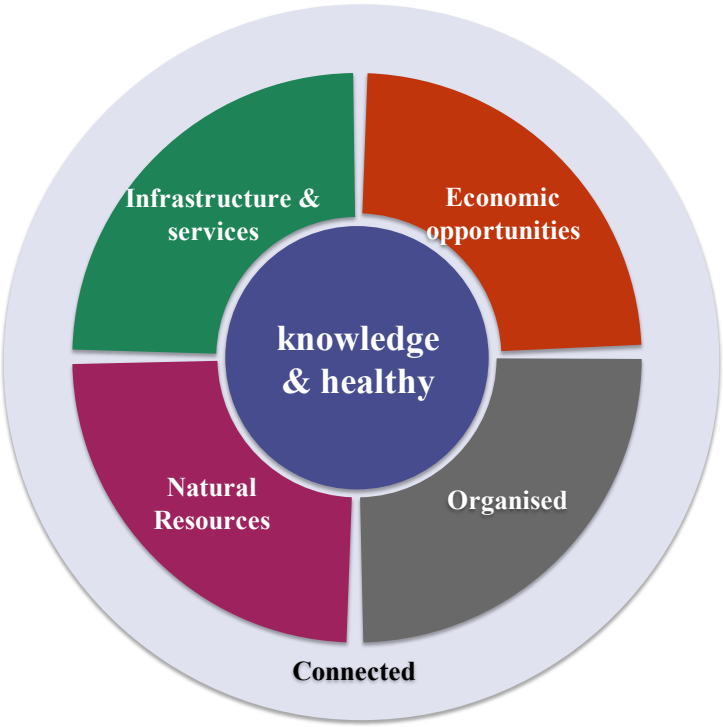


Figure 22 The six *characteristics* of a safe and resilient community.

7 References

Asian Disaster Preparedness Centre (ADPC) (2006) Critical Guidelines: Community Based Disaster Risk Management

American Red Cross (2010) CBDRR Household Guide and Assessment Tool

Arup (2010) Rapid Resilience Report

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 (2004)World Disasters Report 2004: Focus on Community Resilience

IFRC (2007) VCA toolbox with reference sheets

IFRC (2008) A Framework for Community Safety and Resilience

IFRC (2009) Tsunami 5 year Progress Report 2004-2009

IFRC (2010) Concept Note for a Disaster Risk Reduction Study for the International Federation's Tsunami Recovery Programme.

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

Normandin et al (2007) City Strength in Times of Turbulence: Strategic Resilience Indicators

O'Rouke (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, 2nd 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

Appendix A

Process Documentation

A1 Concept Note for a Disaster Risk Reduction Study for the International Federation's Tsunami Recovery Programme

International Federation
of Red Cross and Red Crescent Societies

Concept Note for a Disaster Risk Reduction Study for the International Federation's Tsunami Recovery Programme

1. Background

For the past five years the International Federation of Red Cross and Red Crescent Societies (IFRC) has been running one of its biggest recovery operation to help populations affected by the tsunami that swept across the Indian Ocean in December 2004. In its wake came extraordinary generosity. The recovery programmes have supported almost 5 million people across the four worst-affected countries - Indonesia, the Maldives, Sri Lanka and Thailand. More than 57,000 houses have been built or are being completed. Over 650,000 people now have clean water to drink. More than 94,000 households have boats, fishing nets, agricultural tools or have used cash grants to help them recover their livelihoods. At least 363 hospitals and clinics have been built or rehabilitated. 161 schools have been constructed with a further 11 under way. These results have been made possible from the funds (3.1 billion Swiss francs Federation-wide) and expertise of more than 100 Red Cross or Red Crescent societies from around the globe.

A running thread throughout this effort has been the aim to leave behind communities that are stronger and safer to withstand future disaster risk. While building community resilience has been at the heart of all the recovery projects in health, water and sanitation, construction or livelihoods, a number of projects have also directly focused on reducing people's vulnerability to natural hazards. For example, "community-based risk reduction projects are running in 500 villages across Aceh as well as in disaster-prone districts of Sri Lanka. Village-level disaster teams made up of volunteers are taking the lead in mapping the hazards they face in their communities, as well as learning skills in emergency first aid and spreading awareness amongst the old and young who take part in mock evacuation drills. Further, in Sri Lanka, 400,000 people are benefiting from a grassroots early warning system run by more than 1,000 volunteers who disseminate warnings and help to safely evacuate people during disasters. 3D digital hazard evacuation maps have been developed for all of the communities involved in the project in collaboration with the government's disaster management centre and UN OCHA."[1]

These community based disaster risk reduction (CBDRR) projects work with and build on the knowledge and skills of the people who live in 'at risk' communities, so that they better appreciate the dangers in their environments, understand how to respond to early warning messages, and have the skills and equipment to help themselves and each other. It is expected that by the end of Tsunami Recovery effort more than 1200 communities will have disaster preparedness or a risk contingency plans, implemented through nearly 600 risk reduction programmes managed by various National Societies (NS's) in the four worst-affected countries.

During the same period (2006-2009) IFRC has also progressed in mainstreaming disaster risk reduction within its wider area of work. This mainstreaming initiative has focused on three key axes: 1) improving the understanding of DRR concepts and commitments, 2) increasing the scale of DRR investments, and 3) measuring results of IFRC DRR investments.

The work on improving DRR understanding has resulted in a *Framework for community safety and resilience* (*Framework*). This *Framework* was developed through an extensive Federation-wide consultation that included at least 70 NS's from around the globe. The *Framework* provides a strong foundation on which all IFRC programmes, projects and interventions in DRR can be created, developed and sustained.

[1] http://www.ifrc.org/Docs/News/pr09/6909.asp

To increase investments in building safer and resilient communities IFRC also established a Global Alliance on DRR (GADRR). The GADRR is a mechanism through which work on DRR will be scaled up over a five year period (2009-2013). However the GADRR is not the only instrument for scaling up DRR investments; other existing programming channels will continue to be maintained but efforts will be made to align them to both the *Framework* and the GADRR.

Efforts to measure the results of our DRR work have lead to a) longitudinal impact evaluations of DRR projects in few countries, b) cost benefits studies of DRR interventions and c) development of standard indicators for more robust development of baselines and monitoring of DRR projects. The missing link in measurement of DRR investments has been at the outcome level leading to a need for a robust set of indicators on what constitutes a "safe and resilient community".

The current DRR study for the International Federation's Tsunami Recovery Programme sits within this wider background. The current study will focus on the recovery programme but will also contribute to wider DRR progress outlined above, contributing to developing and improving our global programming and activities. As such, guidance will be produced on DRR in general but also in terms of what, based on the tsunami experience, is realistic within a recovery context and timeframe.

2. Purpose and objectives

The purpose of the study is to identify and document lessons learned in implementing at scale CBDRR[2] projects to strengthen community safety and resilience during the Tsunami recovery programme. The study will also use its large evidence base to research new ideas and contribute to the wider efforts in improving CBDRR work within the IFRC.

The four specific objectives of the study are as follows:

a) Compile a "WWW (What, Where, Who)" database of all CBDRR projects that will capture standard information (beneficiary numbers, project costs, baseline etc) to be used to track long term outcomes. This shall include information on NS capacity building and organisational development.
b) Research and identify key determinants of what makes for a successful CBDRR intervention with a particular focus on the role vulnerability and capacity assessment (VCA) plays in these programmes ("*key determinants"*). This will also research and identify critical factors and conditions under which CBDRR interventions have a greater probability of success. Further, identify the most effective interventions and services within the context of *key determinants*, critical factors and conditions, with a specific focus on the sustainability of actions and impacts.
c) Research and agree a limited set of characteristics of safe and resilient communities ("*characteristics"*). 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? Since the tsunami, how do communities rank their changes in these characteristics (quantitatively, for example on a scale of 1-5), and how have RCRC interventions contributed to these changes (positive or negative)? How can/do the determined indicators and their changes over time reflect shifts in community attitudes and behaviours towards risk?
d) A meta-analysis of all existing project evaluations of the tsunami CBDRR projects that will distil a practical summary of lessons learned for future at scale CBDRR implementation.

These objectives, though distinct, are interlinked. A clear WWW database will allow for easier research. Agreement on a limited set of *characteristics* will allow for evidence-based research on what elements of CBDRR projects help achieved these within the tsunami recovery programme. Finally the meta-analysis of

[2] The study shall investigate only community-level actions with a specific disaster risk reduction aim. For ease of reference the acronym CBDRR is herein used in an all-encompassing manner, with the aim to avoid a potential "acronym soup" of different branding approaches (for example CBDP, CBHFA, CCA, ICBRR, etc.).

evaluations will be informed by the outputs of research on *key determinants* and *characteristics* so as to make lessons learned more evidence-based.

As outlined above, the *characteristics* will become part of the standard for measuring DRR outcomes (impacts) at the community level over time. Similarly, *key determinants* of successful CBDRR shall inform the design future CBDRR programming, especially with regards to the GADRR.

3. Scope and methodology

The scope of the study would be Federation-wide (i.e. covers PNS/ONS projects) and would take into account at minimum all CBDRR projects in the four (Indonesia, the Maldives, Sri Lanka and Thailand) tsunami worst-affected countries. All projects, irrespective of their end dates, will be studied.

The study would compile a database on all the CBDRR projects implemented within the tsunami recovery programme. The WWW database would include at minimum the following: project name, project costs, target communities, method(s) used for identifying and reaching the most vulnerable, beneficiaries per community, key activities, baselines, monitoring reports, project evaluations and information on capacity/organisational development support provided to the local NS, when available.

Desk-top research will compile all existing literature on *key determinants* and *characteristics*. The desktop research will also help design a participatory research methodology to identify *characteristics* that will be developed from community-provided data, from a large sample of the total 1200 targeted communities.

In addition both qualitative and quantitative analysis will support identification of *key determinants* of a successful CBDRR project, including critical factors and conditions under which CBDRR interventions have a greater probability of success. Key findings from the analysis will be summarised in way that enables practitioners to easily adopt the learning.

Research questions for the *key determinants* of a successful CBDRR project include:

I. What are key drivers of impact and sustainability of CBDRR interventions in the communities and conversely, what are less effective interventions and why?
II. What contributory role does VCA play in successful and sustainable CBDRR interventions?
III. Under what circumstances does VCA contribute to a successful and sustainable CBDRR and under what circumstances is it less effective?
IV. Linked to both VCA and CBDRR interventions, to what degree does community ownership play a role in impact and sustainability and how can ownership be fostered and measured/monitored?
V. What minimum capacities are needed by NS's at different levels (HQ and branch) to successfully manage and implement CBDRR?
VI. What are the necessary processes and components for effective RC-movement coordination to ensure demand-driven CBDRR approaches and sustainability?

Collected data on the defined resilience *characteristics* shall be used to help research the above questions.

4. Expected outputs

The study will result in the following outputs:

1. A set of *characteristics* (no more than ten) that define a safe and resilient community.
2. A research report that identifies *key determinants* of a successful CBDRR project, including identification of the most effective interventions and services (also in terms of sustainability) in the context of these *key determinants*, as well as minimum NS capacity requirements at HQ and branch levels.
3. A lessons-learned report (no more than 30 pages) on how to design and implement at scale CBDRR.
4. A database, available on a CD-ROM, which compiles key basic information on all CBDRR projects.
5. A timely workshop to discuss results and agree the final versions of outputs 1-4.

5. Duration and indicative schedule

9 months will be allocated for this study, which shall commence no later than 31st August 2010 and be completed by 30th April 2011. While the consultancy will be ultimately responsible for the study implementation timeline, the following indicative schedule is envisioned.

Key Activities	2010					2011			
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Create WWW database									
Desktop research & methodology									
Data collection & field visits									
Data analysis & first draft outputs									
Workshop to discuss initial drafts									
Finalisation of analysis & outputs									

6. Management

The study will be fully implemented by a consultancy hired for the duration of the study. The consultancy will officially report to the Head, Community Preparedness and Risk Reduction Department (CPRR Geneva); however on practical and technical day-to-day management the consultancy will liaise with the Senior Officer, Disaster Risk Reduction, CRPP Geneva.

In addition, the project will be guided by a Working Group comprised of key stakeholders (see separate Working Group terms of reference). The IFRC Tsunami Unit in Kuala Lumpur will provide budgetary support and issue the consultancy contracts as per Working Group guidance, with CPRR Geneva officially relaying Working Group decisions to the IFRC Tsunami Unit.

Prepared and approved
Working Group for the Tsunami Disaster Risk Reduction (DRR) Study
08 June 2010

A2 Fieldwork Methodology

Note 4: Fieldwork Approach

This note covers the fieldwork approach for Arup International Development's (Arup ID) study of the International Federation of Red Cross and Red Crescent Societies' (IFRC) Community-Based Disaster Risk Reduction (CBDRR) programmes implemented as part of the Tsunami Recovery Programme (TRP). **This document should be read in conjunction with 'Note 5: Fieldwork Methodology' which covers more detailed aspects of how the fieldwork will be undertaken.**

This note is based on:

- feedback received from the CBDRR Study Working Group regarding Arup ID's 'Inception Report' (26.11.10)
- an understanding of the types of programmes implemented, gathered from secondary documentation provided by the PNS
- consultation with representatives from the Indonesian, Sri Lankan and Maldivian National Societies in Bangkok (16-17.12.2010) and information provided by each of these National Societies (and the Thai RC) by email in January 2011.

4.1 Fieldwork objectives

The outputs of Arup ID's study are:

1. A "who, what, where" database of IFRC CBDRR projects
2. A set of characteristics of safe and resilient community
3. A research report identifying the key determinants of a successful CBDRR project
4. A lessons learned report detailing how to design and implement CBDRR programmes at scale

Consequently, Arup propose,[1] that the objectives of the fieldwork are to:

1. Gather additional information to input into the 'who, what, where' database of IFRC CBDRR projects
2. Consult with communities to identify:
    a. *What they think are the most important characteristics needed to be safe and resilient*
    b. *How they think these characteristics have changed since the tsunami (for example on a scale of 1-5)*
    c. *How RCRC interventions have contributed to these changes (positive or negative)?*[2]
3. Conduct key informant interviews to assist in the identification of the 'key determinants' of a successful CBDRR project.

[1] Arup (2010) *Disaster Risk Reduction Study: Implementation Proposal*
[2] IFRC (2010) Concept Note for a Disaster Risk Reduction Study for the IFRC's Tsunami Recovery Programme

4.2 Methodology

Fieldwork will be completed over a seven week period from 30th January to 18th March by three consultants from Arup International Development. Details are included in table below:

Country	Consultant	Dates in country
Sri Lanka	Elizabeth Parker	30th Jan – 12th Feb
Maldives	Rumana Kabir	6th – 14th Feb
Thailand	Rumana Kabir	Six working days between 16-26 Feb
Indonesia	Victoria Batchelor	23rd Feb – 18th March

Fieldwork will include participatory workshops with communities and focus group discussions/interviews with key stakeholders. ('Note 5: Fieldwork Methodology' for further details). Community-level fieldwork will be complimented by key informant interviews and a review of secondary documentation at programme level. This will provide both an in-depth and comprehensive understanding of the CBDRR programmes undertaken in each country.

4.3 Selection of communities

Fieldwork will be completed in 30 communities spread across the four countries included in this study: Indonesia, Sri Lanka, Thailand and the Maldives.[3] The distribution of communities by Partner National Society and location is illustrated in Table 1.

As the purpose of Arup's study is to 'identify and document lessons learned in implementing at scale CBDRR projects' the selection of varied and informative communities for fieldwork, to capture the greatest opportunities for learning, is essential to the success of the study. The inclusion of a wide range of CBDRR approaches (undertaken by a wide range of PNS working in diverse geographical areas) was the key criteria in the selection of communities. Within the communities selected Arup also recommended that there should be diversity in terms of:

- more and less successful programmes
- urban and rural situations
- in-situ and resettled communities
- integrated and stand alone CBDRR programmes.

Each community selected for the study had already undergone a VCA as part of the CBDRR programme and was willing to participate in community workshops. Preference was given to the selection of communities which had not been evaluated previously (or those which had not been evaluated several times).

Selection of communities was undertaken through a participatory workshop with representatives from the IFRC and Host National Societies in Bangkok (16-17.12.2010). Preliminary selections were verified with each of the Host National Societies and confirmed in consultation with Arup via email in January 2011.

[3] See Arup ID's 'Inception Report' (26.11.10) for further details on how the countries were selected

Table 1: Partner National Societies, countries and communities chosen for fieldwork (as at 24.01.2011)

	Sri Lanka (a)		**Indonesia** (b)		**Maldives** (c)		**Thailand** (d)	
Number of:	Communities assisted	Communities visited as part of this study	Communities assisted	Communities visited as part of this study	Communities assisted	Communities visited as part of this study	Communities assisted	Communities visited as part of this study
IFRC	20	3	23	3	11	2	7	2
American Red Cross (e,f,g)	193	5	100	3			55	2
Belgium Red Cross (h)			91	2				
British Red Cross (i, j)	11		17	1	7	2		
Canadian Red Cross (k)			43	2				
Danish Red Cross (l)	7	1	16	1				
French Red Cross			3	1				
Total	**231**	**9**	**293**	**13**	**18**	**4**	**62**	**4**

References

(a) Sri Lankan Red Cross Society (2010) SLRC presentation at Bangkok w orkshop (16-17.12.2010)

(b) PMI (2010) PMI presentation at Bangkok w orkshop (16-17.12.2010) and lists of communities provided

(c) Maldivian Red Cross Society (2010) Maldives Communities - Tsunami Disaster Management and DRR programmes (information provided by MRC)

(d) Thai Red Cross (2010) CBDRR Project under Thailand Tsunami Recovery Programe

(e) Sida, L and Jayaw ardhana, L.C (2010) Final evaluation of the Sri Lanka disaster preparedness program. August 2010

(f) Sida, L and Pranaw isanty, P (2010) Final Evaluation of the Indonesia Integrated Community based Risk reduction Program. June 2010

(g) Sida, L (2010) Evaluation of the American Red Cross Disaster Preparedness Programme in Thailand

(h) Belgian Red Cross (2010) LIST OF COMMUNITY BASED ON SUB DISTRICT ICBRR PROGRAM 2008-2010

(i) Wilderspin, I (2007) Mid-term review of the (BRC) community based disaster risk management project in Batticaloa, Sri Lanka

(j) Burton, C and Brett, J (2009) British Red Cross Society Tsunami Recovery Programme, Aceh, Indonesia: Impact Evaluation

(k) Bhatt, M (2009) Integrated Community-based Risk Reduction and Early Warning System in post-tsunami Indonesia: An External Mid-term Evaluation for CRC

(l) Danish Red Cross (2009) Integrated Community-based Risk Reduction Programme, Aceh Jaya District, Indonesia, Final Report, December 2009

4.4 Selection of key informants

The selection of a wide range of key informants, both at different levels of implementation (National, Branch, Community), and from inside and outside the RC, is an important step in gaining a balanced perspective on the programme from the interviews conducted. In the workshop in Bangkok the SLRCS and the MRC made a preliminary list of stakeholders who could be interviewed during the fieldwork. Key informants identified included: National RC Governance and management, IFRC, PNS Country Delegates, DM teams/delegates, external partners in government or humanitarian organisations, Branch RC representatives, community committees etc. These preliminary lists will be refined and confirmed with RC staff during the first day in country.

Table 2: Maldivian Fieldwork – Preliminary Key Informants List

	Within RC Movement	**Outside RC Movement**
National level	President (MRC) Secretary General (MRC) Programme Manager (MRC) Senior Management (MRC) Head of Delegation (IFRC) Former BRC and IFRC staff	National DMC UNDP
Community level	IFRC projects: • Disaster Management Committee • Trained people BRCS projects: • DMTF Members • PRCS Members • Local Community Mobilisers	Island Councillor Former Island Chief Island Development Committees

Table 3: Sri Lankan Fieldwork – Preliminary Key Informants List

	Within RC Movement	**Outside RC Movement**
National level	John Halder (IFRC) Nandana Mohottige (IFRC) Surien Peiris (SLRC) Gowthami Chandrarathne (SLRC) Udaya Kumara (SLRC) Eric Salve (PNS) Hoje Ravano (PNS)	DMC: Upul Chandradasa UNDP: Dr Malawathanthri Education Ministry Practical Action NBRO
Branch level	BEO of selected districts Branch Governors Project Coordinator	Government DMC UNDP District Officer Divisional Secretary
Community level	VDMC Chairman SLRCS Division Chairman School DM Committee Members	Grama Niladari School Principal/Teacher

4.5 Limitations

While Arup's study team have endeavoured to make the community and key informant selection criteria as clear as possible, the communication of these criteria to the four different National Societies involved, and the reliance on the HNS to recommend communities and key informants for inclusion in the study, means that biases may have been introduced. Arup have attempted to mitigate this through discussions with each of the HNS (both in Bangkok and via email in Jan 2011) to ensure that both the HNS and Arup's study team are confident in the communities selected.

Time and resource constraints mean that only a limited number of communities in each country can be visited as part of the fieldwork, and in some cases only one community from a particular PNS can be included. While this provides less of a rigorous analysis of these specific programmes, their value to the study is in illustrating the variety approaches undertaken. Overall, from fieldwork in 30 communities, 14 different combinations of PNS and HNS (e.g. ARC working with the SLRC, or the CRC working with PMI) have been included in the study and, when combined with key informant interviews and secondary documentation, this will provide a robust basis for the identification of key determinants and lessons learned.

4.6 Data collection and analysis

During the fieldwork data will be collected in several formats:

- drawings and discussions in the community workshops will be recorded through photographs and notes
- focus group discussions will be recorded through photographs, audio recordings and notes
- key informant interviews will be recorded through audio recordings and notes

Arup's study team will develop standard reporting formats. This will enable standardised data to be collected from each of the communities visited – making it easier to compare and analyse. Qualitative data may be allocated a quantitative indicator to enable comparison across countries and the identification of key trends.

Preliminary analysis of information gathered through the fieldwork will be completed in March 2011 and it is the intention that these will be reviewed with the Working Group at the end of March. This will enable key lessons to be identified and draft outputs completed (April 2011), prior to review of draft outputs by the Working Group and completion of final reporting in May 2011.

Note 5: Fieldwork Methodology

This note covers the fieldwork methodology for Arup International Development's (Arup ID) study of the International Federation of Red Cross and Red Crescent Societies' (IFRC) Community-Based Disaster Risk Reduction (CBDRR) programmes implemented as part of the Tsunami Recovery Programme (TRP). **This document should be read in conjunction with 'Note 4: Fieldwork Approach' which provides an overview of the fieldwork programme and how communities were selected.**

Country programme

Typically one community will be visited each day and there will be one day at the beginning and one day at the end of the fieldwork in each country to brief/de-brief staff in the National Office and undertake focus group discussions/key informant interviews. A suggested fieldwork programme is included in Table 1 – but this will be developed in detail with each country prior to arrival in country and on the first day in country.

Table 1: Typical week programme

Day One: **National Office**	**Day Two:** **Community 1**	**Day Three:** **Community 2**		**Final day:** **National Office**
AM Team briefing Security briefing Logistics/preparation	AM Community workshop	AM Community workshop	Further communities visited – the number varies in each country	AM Team debriefing
PM Focus group workshop • key HNS staff who were involved in the TRP CDRRR programme Key informant interviews • IFRC DRR delegates • Key HNS staff	PM Focus group discussion Tour of community Key informant interviews	PM Focus group discussion Tour of community Key informant interviews		PM Complete key informant interviews • External key informants • PNS delegates • IFRC DRR delegates • Key HNS staff

National level key informants within the RC will be consulted during the first day of fieldwork in each country and national level key informants outside the RC movement will be consulted on the last day. One additional key informant interview will be included each day – consulting either branch level stakeholders (within or outside the RC movement) or community level stakeholders (outside the RC movement) to provide a wider perspective on the CBDRR programmes.

Daily programme

A suggested programme for a day of fieldwork is included in table 2. While this will be adjusted in country to suit local travel conditions, working hours and cultural preferences, it is hoped that at least six hours can be spent in each community each day.

Table 2: Typical daily programme

7:00 – 9:00	Travel
9:00 – 12:00	Community workshop
13:00 – 16:00	Focus group discussions Tour of community Key informant interviews
16:00 – 18:00	Travel

Team structure

Arup propose the following team structure for the fieldwork, although it is understood that this will be adapted by each HNS to suit the personnel and context in each country:

- Fieldwork team leader (Arup)
  - Elizabeth Parker – Sri Lanka
  - Rumana Kabir – Thailand and Maldives
  - Victoria Batchelor – Indonesia
- Team leader's assistant (Arup) (tbc – Indonesia only)
- Translator (RC)
- Experienced community facilitator (RC)
- Assistant community facilitators (one or more) (RC)
- Driver (RC)

It is recommended that both the translator and the lead community facilitator come from outside the project area to ensure that the community are not biased in their responses. However, it is understood that as the RC have ongoing relationships with these communities local facilitators will also be available to make introductions and assist in the facilitation of community workshops.

The following sections provide further details on each of the fieldwork activities proposed.

5.1 National Office Team Briefing and Workshop

The first day in each country will be a briefing session with RC staff. It is proposed that this consists of:

- A **briefing session** setting out the purpose of the study and the current stage of the project. It is recommended that the National Society staff who attended the Bangkok workshop present this alongside Arup staff. This session is intended to open the study up to a wider audience to ensure that all the key staff within the National Society are well informed about the objectives of the study.
- A discussion of the **fieldwork programme and methodology**: this session should be with the team who will undertake the fieldwork. A detailed programme should be agreed for each day and roles and responsibilities should be assigned. Time should also be allowed to practice the community exercises and adapt them to the local context.
- A **workshop** session with national staff who were involved in the design and implementation of the **TRP CBDRR programmes** to supplement information collected in the key informant interviews. The purpose of this session is to provide an overview of CBDRR projects in the country, the approach typically taken, current policy and guidelines.

  Exercises for this workshop may include:

  - Organnogrammes of the National RC Society – before the tsunami, after the tsunami (during the implementation of the CBDRR programmes) and now.
  - A timeline of the National Society covering before the tsunami and the tsunami response programmes. This will focus specifically on which PNS did what/when? How were programmes scaled up? How was capacity built within the National Society?
  - Annotation of maps of the country – discussing the similarities or differences between programmes/areas, which PNS supported which project?

5.2 Community workshops

The focus of the fieldwork will be workshops in each community to identify:

- *What they think are the most important characteristics needed to be safe and resilient*
- *How they think these characteristics have changed since the tsunami (for example on a scale of 1-5)?*
- *How RCRC interventions have contributed to these changes (positive or negative)?*[1]

Arup request that the HNS arrange:

- **a suitable time for the workshops (e.g. evenings may be preferable)**
- **a suitable venue for the workshops (so that everyone will be comfortable attending)**
- **20-30 participants from the community to attend**
- **large pieces of paper, thick pens for drawing, small coloured sticky dots and post-it notes.**
- **snacks and/or lunch for community members who attend.**

Introductions (10mins)

Begin the community workshops by introducing the team and the purpose of the visit. For example:

'Hello. My name is…… I am part of a research team that has been sent by the International Federation of the Red Cross to gather information about their work.

We are hoping to understand how resilient your community is to shocks (hazards) and stresses (problems) and how the work of the Red Cross have helped to build this resilience. In total we are visiting 30 communities where they have worked in a similar way as they have in your community in 4 countries- Sri Lanka, Thailand, Indonesia and the Maldives. This information will help inform the planning and implementation of future activities.

This is not an evaluation but a research study to understand more about this type of programme. What we discuss today is extremely important to us and your frank and truthful responses are critical. I work for a company called Arup which has been asked by the RC to undertake this review as an independent assessment. Your input is very much appreciated as part of this process and all information collected will remain confidential.

We hope today will be enjoyable. Please ask questions or comment as we go along and let us know if anything is unclear. The workshop will last about 3 hours, we will have a short break in the middle and lunch will then be served at……(time)

We thank you very much for welcoming us into your community and look forward to working with you today.

Ensure that you get the names of the participants and keep a record of how many people have attended (including a breakdown of the men, women and children).

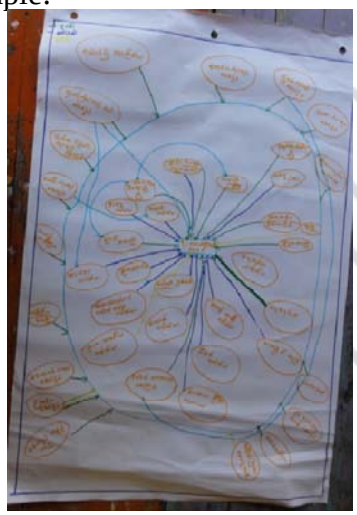
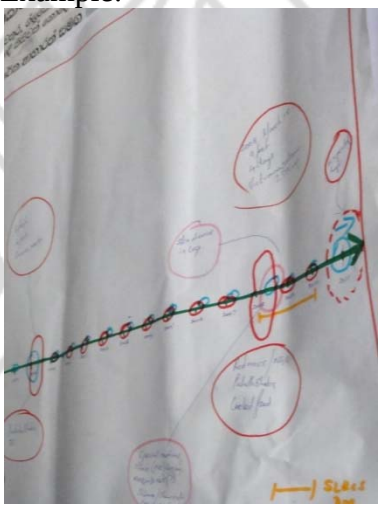
[1] IFRC (2010) Concept Note for a Disaster Risk Reduction Study for the IFRC's Tsunami Recovery Programme

Exercise One (50mins)

The aim of this exercise is to understand:

- **the members of the community, the community structure and external networks**
- **the history of the community**
- **what shocks and stresses they face (and how they prioritise them)**

1. Divide the members of the workshop into three groups with separate groups for women and men.

2. Ask one group to draw: • **Who is in your community?** • **Who is outside your community** • **How are they connected to each other?**	Ask one group to draw**:** • **What impact have different shocks and stresses had on your community?** • **What has happened before, after and during to support you?**	Ask one group to draw: • **What shocks and stresses do your community face?** • **What is the impact of these different shocks and stresses?**
Example: 	Example: 	Example: 

3. Facilitate a 'gallery walk'- where the groups rotate between the different drawings, each for approximately 5minutes (10minutes in total). Ask the people from the other groups to comment. Asking questions such as: **Is it right? Is there anything missing?**

   Get the group reviewing the drawing to indicate in a different colour pen to the ones used any additional information.

4. Bring the three groups together and ask everyone:

- **Which shock or stress do you worry about the most?**

Facilitate a discussion with all the meeting participants to identify the top 3. This is a qualitative assessment intended to understand from the community's perspective what their priorities are. It may work well if one of the community members facilitates this discussion. **Are the top priorities different for women and men?**

Exercise Two (60 mins)

The aim of this exercise is to understand:

- **What things the community think help them prepare for or prevent a disaster happening, cope with a disaster while it is happening or recover from a disaster after it has happened.**

1. Read out the top 3 (or 6 if you are working in 6 groups) shocks and stresses as identified in exercise 1.
2. Allocate each shock or stress to a group. (The participants can form new groups if they prefer, or remain in the ones from exercise 1).

3. Ask each group to write or draw at the top of the page which shock or stress they are talking about and ask them to copy the grid below:

Shock or stress 1	
	Inside the community
	Outside the community

4. Ask each of the groups:

- 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 things are **inside** the community and which are **outside**?

5. (Ask them to complete the grid – with drawings and/or words).

For some shocks or stresses such as tsunamis or floods these time distinctions are clear. In this case the group should consider all three and complete the grid as below:

Shock or stress 1			
Prepare or prevent a disaster	Cope with a disaster	Recover from a disaster	
			Inside
			Outside
E.g. Before	E.g. During	E.g. After	

For others stresses such as unemployment or epidemics it may not be possible to make such clear time distinctions (e.g. if the community have not experienced a 'recovery' as it is ongoing). In these cases the facilitator should support the group to identify the time periods that are appropriate.

6. Ask the group to make connections between the 'things' in the columns and link them with arrows (e.g. if they keep a boat for emergencies, then use the boat to cope, then after they use the boat to generate additional income to fix their damaged house this is effectively one 'thing', the boat).

   Through discussion within each of the three groups identify the top 5 most important 'things'

   Do not present back after this exercise. Move directly on to exercise 3 working in the same groups.

Case Studies:

At the beginning of the day identify one person (ideally one of the facilitators) to be responsible for recording case studies at appropriate points during the day – e.g. over coffee/lunch or between activities.

As people are discussing interesting experiences or future ambitions spend 5-10 minutes recording their story- asking: Who, What, When, Why, How? Write this down as a narrative, as they tell you.

Ask their permission before recording their story or taking their photo.

Exercise Three (50 mins)

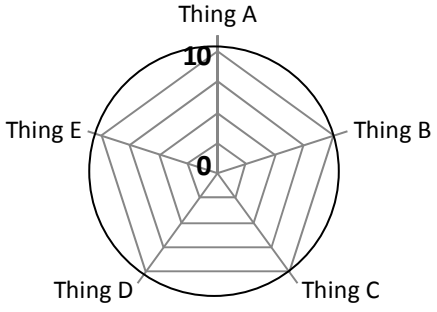
The aim of this exercise is to understand:

- **How strong were the things:**
  - **before the tsunami** (only if the community were affected by the tsunami)
  - **before the programme** (**or after the tsunami** only if the community were affected by the tsunami)
  - **after the programme**
  - **now** (i.e. since the programme has finished)

1. Give each group a new piece of paper and ask them to draw a big circle. Mark the centre point and then draw 5 spokes radiating from the centre. Each line now represents a scale - closest to the centre is 0 (minimum), while the outside of the circle in 10 (maximum).

   It is helpful for the facilitators to demonstrate an example diagram to indicate how the scale should be used at the beginning of this exercise, ideally to the whole group. This does not need to assess any actual things identified by the community, more it is intended to illustrate how to rate the 'things'.

2. Ask them to take the five things they identified in the previous exercise and mark them around the outside of the circle.



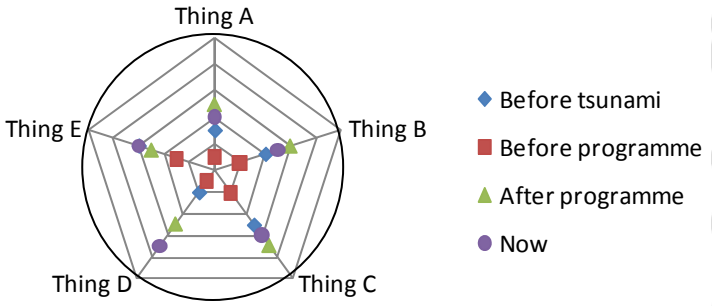
3. Consider the strength of each thing **before the tsunami**. Mark this on the scale of 1-10. (Only ask this if the community were affected by the tsunami – otherwise skip this step).

4. Consider the strength of each thing **after the tsunami** or **before the programme**. Mark this on the scale of 1-10 in a second colour. (Ask whichever question is appropriate to the community you are working in).

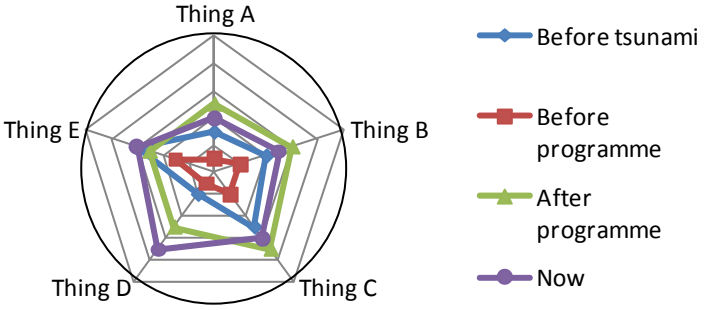
5. Consider the strength of each thing **after the programme**. Mark this on the scale of 1-10 in a third colour.

6. Consider the strength of each thing **now**. Mark this on the scale of 1-10 in a fourth colour.

Example:



7. Join up each of the marks with the corresponding colour pen.



8. Ask each group to present back. **Ask why each of the ratings has been given and if the other community members agree or disagree?** Particularly focus on large changes or points of heated debate. Take detailed notes of the discussion and the reasons behind the ratings.

Thank you and Goodbyes (10mins)

5.3 Focus Group Discussions

The aims of the focus group are to:

- **Investigate further the things the focus group participants think make the community safe and resilient, how they have changed since the tsunami and if the RC interventions have contributed to these changes**
- **Understand what was more or less successful about the project and why**

Requirements:

- Around 10 'key informants' from the community. These should be people who have either been involved in the project or are well informed about the project. They might include the Head of the Community and some village elders, members of the CBAT and Disaster Management Committee, leaders of women's and youth groups, nurses, teachers, policemen, civil servants.

  If the same people are attending the focus group as attended the workshop, randomly select people from the workshop (using names out of a hat, or random numbers) to ensure that there is as wide a cross selection of people available as possible.
- The drawings from the workshop in the morning.
- Large pieces of paper and thick pens.
- Post-it notes and sticky dots.

NOTE: If less than 5 people are available for the focus group discussion, then run a series of key informant interview instead.

Question One: Participants and community structure (30mins)

Thank everyone for coming and explain the purpose of the afternoon (as from the community workshop). Firstly, we'd like to find out a bit about who you all are...

1. Using the community structure diagrams from the workshop in the morning, ask each of the participants to introduce themselves and mark their position on the organnogramme with sticky dots. Men and women will receive different colour dots.

   If they are members of multiple groups ask each person to write their initials on multiple sticky dots or for increased anonymity the facilitator allocates everyone a number and they write their number on the dot. Then place the dots on the groups which they are members of.

2. Ask them if they think the organnogramme's from the community workshop are correct, and if

not, ask them to explain what changes they would make, groups they would add, additional connections etc. Focus specifically on the role of the Red Cross and any organisations they support or coordinate with.

3. If there is a map or model available for the community copy it roughly and ask them to mark where they live, also with the dots.

Question Two: The Project (30mins)

In the final exercise we'd like to talk more about the IFRC CBDRR programme. The emphasis of this exercise is about passing on learning to future CBDRR programmes, it's not an evaluation so participants should be encouraged to contribute suggestions for improvements to future programmes.

1. Give out 4 post-it notes to each person and ask them to write down what they think were:
   - The really good aspects of the CBDRR programme (the strengths)
   - Things which they would improve about the CBDRR programme (the weaknesses)
   - External factors which positively affected the project (the opportunities)
   - External factors which negatively affected the project (the threats)

(Everyone should identify at least one of each).

The participants should work individually and not confer with others.

2. Ask everyone to place them on the diagram as below.

Strengths	**Opportunities**
Weaknesses	**Threats**

3. Depending on the dynamic of the group either place the chart in a quiet place and treat them as confidential or facilitate a discussion (keep a note of all discussions).

- Are there any more? Are any missing?
- How can the strengths and opportunities be used to the advantage of the project?
- What improvements should be made if the project is repeated?
- Have other NGOs worked in this community? Is there anything which can be learned from their programmes?

5.4 Key informant interviews

Throughout the fieldwork interviews will be conducted with a wide range of key informants, both at different levels of implementation (National, Branch, Community), and from inside and outside the RC. Key informants might include: National RC Governance and management, IFRC, PNS Country Delegates, DM teams/delegates, external partners in government or humanitarian organisations, Branch RC representatives, community committees etc. Preliminary lists of key informants will be refined and confirmed with RC staff during the first day in country.

Semi-structured interviews will be conducted with each of the key informants. The following template will be used as a guide and modified to suit each individual being interviewed. At the beginning of each interview explain that this is not an evaluation but a research study. We are interested in candid answers to the questions to identify what the RC can learn from the project and how they can improve their future CBDRR programmes.

Introductions
1. What is your name?
2. What is your role?
3. How long have you worked for/with the RC?
4. Which programmes have you worked on?
5. What is your experience of CDBRR programmes?

Understanding CBDRR programmes
1. Can you explain a CBDRR programme to me? What are the key stages?
2. How do you select communities to work with?
3. How do you select participants within communities?
4. How do you design CBDRR programmes?
5. What is the role of the VCA?
6. How do you monitor and evaluate CBDRR programmes? Can I see an example?

7. How does a CBDRR programme end in a community? What happens when the RC programme finishes?

8. How do you scale-up CBDRR programmes?

Understanding scale and success

1. Of the CBDRR programmes you have experience of - which programme or community do you think was most successful?

   Programme-

   Community –

2. How do you know it was successful? What do you think is a successful project?

3. Why do you think the project was successful? What contributed to its success?

4. What factors within the RC do you think make CBDRR programmes more or less successful?

5. What external factors do you think make CBDRR programmes more or less successful?

6. What capacities are needed by NS's at branch/national level to successfully manage and implement a successful CBDRR programme?

   Branch-

   National-

7. Are CBDRR projects sustainable? What makes CBDRR projects sustainable?

A3 Example of Fieldwork Findings: Cot Langsat, Indonesia

Indonesia 7: Cot Langsat, Sampionet, Aceh Jaya

ASSESSMENT INFORMATION			
Date:	8 March 2011	**Time:**	10:30 – 17:00
Assessment Team Members:	Fauzi Hussaini Victoria Batchelor Geoff Chan Titin Jufri Khaidir	**Branch Staff:**	n/a
Location:	Community Hall (CRC)	**Key Informants Interviewed:**	Head of village Head of CBAT (walkthrough)
Number of Participants- Community workshop	10 male 12 female	**Number of Participants- Focus Group Discussion**	5 male 1 female

PROGRAMME INFORMATION			
Project Name:	ICBRR	**Project Costs:**	tbc
Implementing Society:	PMI	**Number of Communities in District:**	14
Donor Society:	Canadian Red Cross	**Project Duration:**	tbc
Back donor:	n/a	**Beneficiaries per community:**	tbc
Start Date of Project in Community:	2008	**End Date of Project in Community:**	2009
Key Shocks and Stresses:	Floods	Diarrhoea	Strong Winds

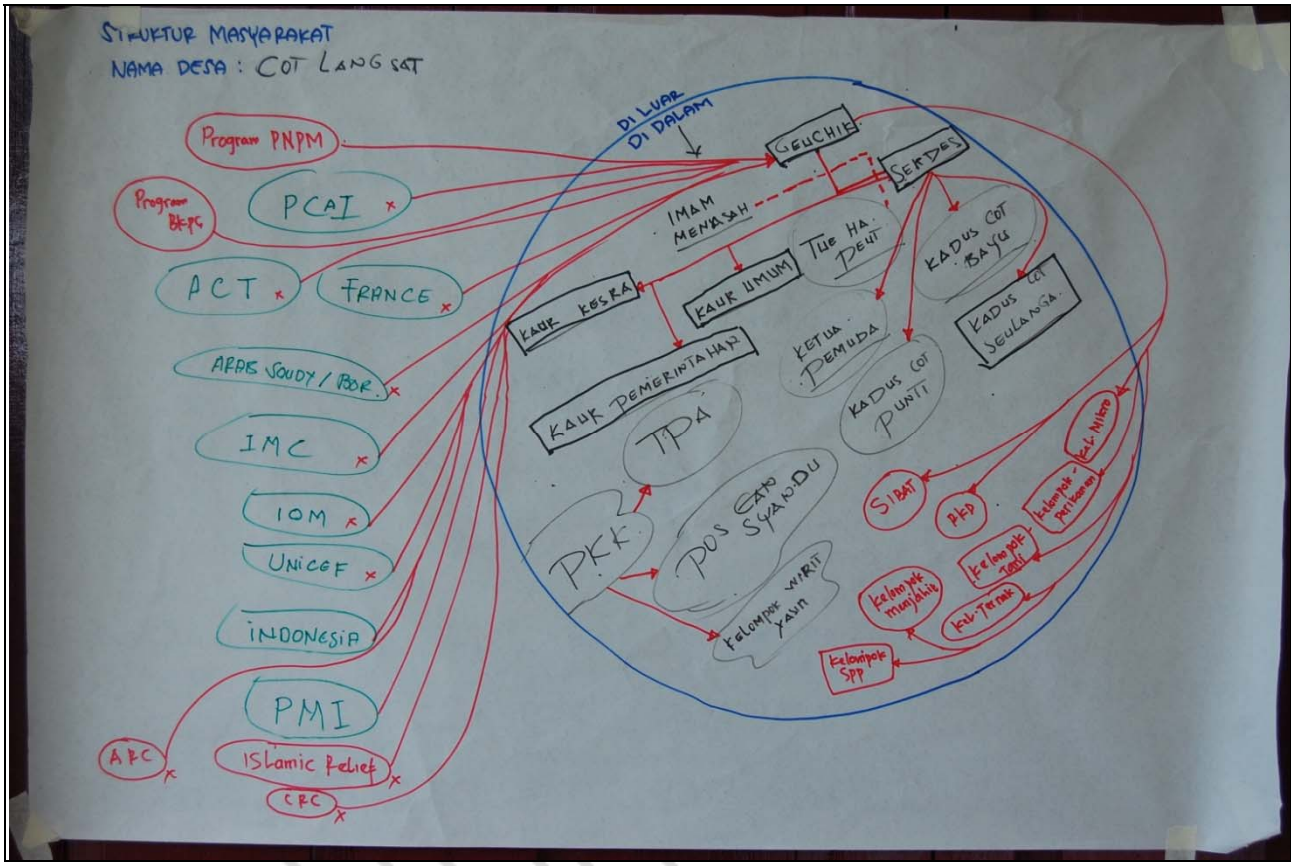
Brief history of the village/key characteristics: Cot Langsat is a coastal village of fishermen and farmers. Before the tsunami the village had a population of 230 in 70 households, after the tsunami the population reduced to 135 (in 42 households) but this has subsequently increased to 163 people and 50 households. After the tsunami the community were displaced and lived in barracks in Lamno and Banda Aceh for 1-2 years. From 2006-2009 the RC and other organisations ran several programmes in the village – including reconstruction of houses, WATSAN and infrastructure. In addition to 'soft' programmes such as ICBRR and CBHFA. Reconstruction is now finished but the livelihoods and economic situation of the village are still low. Every year they suffer from flooding in July and October over 1-1.5m.

Key ICBRR project activities in this village:
Community selection, Baseline survey, VCA, Form SIBAT/CDMC, SIBAT Training, Mobilise CBAT, Risk Reduction and Community Contingency Plan, Structural mitigation

Methods used for identifying & reaching the most vulnerable: It is understood that this community was selected for the ICBRR project by the CRC as it had previously had a CRC housing programme. Vulnerable groups within the community are identified during the VCA and they are prioritised during flood evacuation etc.

Community Workshop

Community Structure



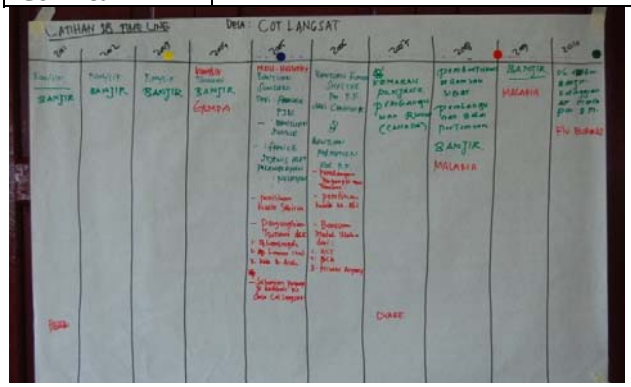
Inside the community	Outside the community
Head of Village Imam Village secretary Heads of sub-village x 3 Head of Public Affairs Head of Administrative Affairs Head of Governance Affairs Village council Quranic school Women's group CBAT CBHFA Head of youth group Farmer's group Sewing group Livestock group Fishery group Community health centre Microfinance group Quran study group SPP group	PNPM Program BKPG Program PCAI France Saudi Arabia IMC IOM Unicef Indonesia - active PMI - active Islamic Relief Canadian Red Cross Amcross

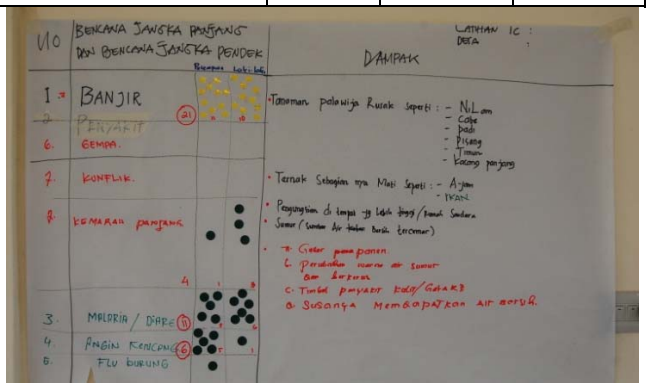
Timeline

Year	Key Events
2001	Conflict
2002	Conflict
2003	Conflict
2004	Conflict, tsunami, earthquake
2005	Evacuate to another village because of tsunami, Lamno for 3 months, then to Banda Aceh to stay in Barracks, food support from French NGO, Bore well programme from Saudi Arabia, wells and toilets from PCAI, fishermen's tools, MOU, some community come back to village, election of head of village (temporary)
2006	Transitional shelters provided by CRC, PCAI, ACT and primer agency give money for livelihoods, most people come back to the village, election of the head of village
2007	Start constructing permanent houses, diarrhoea, everyone back to the village
2008	Malaria, form CBAT, CRC build community centre, CBHFA programme
2009	Handover houses from CRC to communities, CBHFA programme
2010	Floods

Shocks and stresses

Shock or stress	Impact	Votes – Men	Votes - Women	Ranking
Floods (from the mountain)	Paddy fields and other crops are damaged – chilli, rice, beans, bananas, milam Some livestock die – chickens, fish Evacuate to family house Water in the wells is bad Floods happen every year in July and October for 1 or 2 days (1-1.5m deep). The community evacuated to the mosque in 2006 and 2007. People get coughs during the flood.	10 (1st vote)	11 (1st vote)	1
Drought	Failed harvest, water from the wells changes colour, skin disease, difficult to find clean water (the worst time it happened was in 2007).	3 (2nd vote)	1 (2nd vote)	
Malaria/ diarrhoea	Malaria happens only during the flood but not all the community are affected. [Women don't think there is Malaria – men do. They get diarrhoea during drought but also all the time.]	6 (2nd vote)	5 (2nd vote)	2
Strong winds	-	1 (2nd vote)	5 (2nd vote)	3
Avian Flu	-		1 (2nd vote)	
Earthquake	-			
Conflict	-			





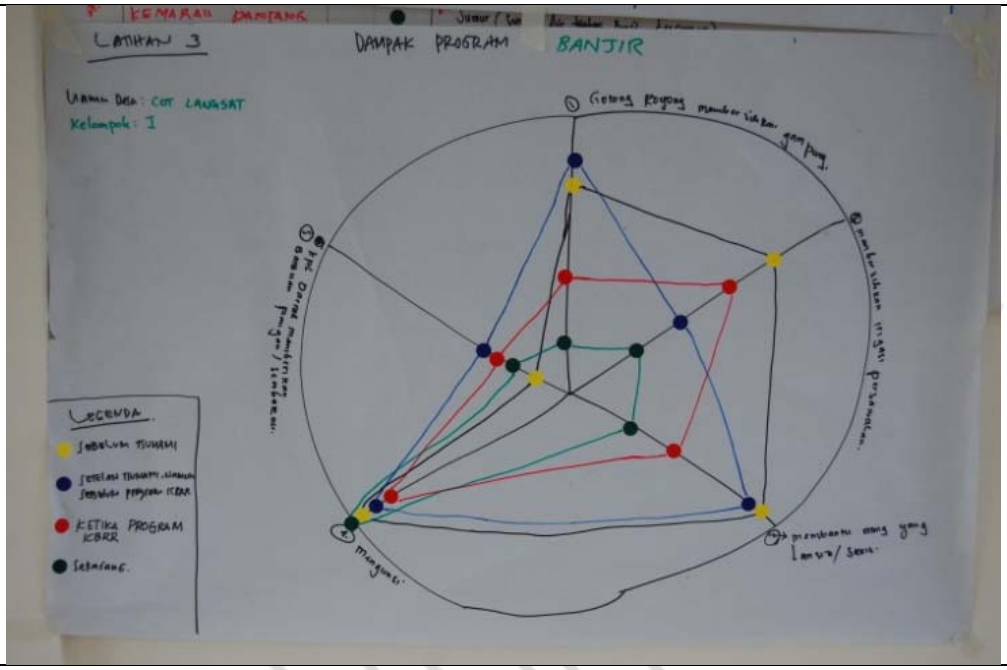
'Characteristics' of a Safe and Resilient Community 1: Flood

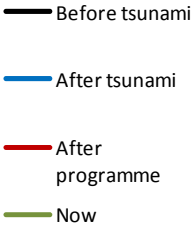
	Before (Prepare & Prevent)	***During (Cope)***	***After(Recover)***
Inside the Community	Prepare the boats	Evacuate (4)	Clean up the house from the mud
	Prepare the furniture inside the house	Put the livestock on higher land	Work together to clean up the village (1)
	Prepare food	Clean up the trees that have fallen down during the flood	Take the livestock from higher land back to the village
	Clean the drainage	Help other people who need help – older people and sick people (3)	
	Clean the irrigation (2)		
Outside the Community		The head of district visits the village	Head of district provides support with food (5)
		Volunteers in the social department distribute food to people	

Impact of Programme 1: Flood

When (before/during/ after)	**What** (a=before tsunami, b=after tsunami/before the CBDRR programme, c=after the CBDRR programme, d=now)	**Number in Diagram**
After	Work together to clean up the village (*Gotong royong*): a. Community do *gotong royong* in the village b. No access road to the village so the community had to increase to clean the area c. 50% - the *gotong royong* decreased because some NGOs came and gave them money to clean the area 'cash for work programmes' d. 30% - decreased because they only have *gotong royong* when they have special events – Mauid, Ramadhan, Independence Day etc.	**1**
Before	Clean the irrigation: a. No cleaning because the irrigation is still good (80%) b. The irrigation was damaged during the tsunami, community cannot clean the irrigation because there are so many debris from the tsunami (trees, stones, damaged houses). To clean that they need heavy equipment. c. 60% - because government agriculture department give money to the community to clean the irrigation d. 25% - community don't clean the irrigation	**2**
During	Help other people who need help – older people and sick people: a. Good, because they live in the village so make them help each other and work together (80%) b. Decrease because during the tsunami some older people died and they lived in barracks c. Decreased because the family of older people can help themselves d. Just wait for the information from older people's families for help	**3**
During	Evacuate: a. 80% because of conflict and flood each year in that village. For conflict they evacuate to the mosque and for flood they evacuate to high land (mountain). Some people go to stay with their family in Banda Aceh. b. Evacuate to other village not affected by the tsunami, and some evacuate to Banda Aceh c. Community evacuate to mosque because of flood. They evacuate to the mosque because it's easier to make older people who want help easy to	**4**

	access them. d. Same as previous	
After	Head of district provides support with food: a. 30% because before tsunami there was no budget in the district level for disasters (no budget allocation). b. Community get a lot of support because so many NGOs came to the village to help. c. Because so many place in Aceh Jaya affected by the flood so the district level have allocated money (for other villages also) d. Same as previous	**5**





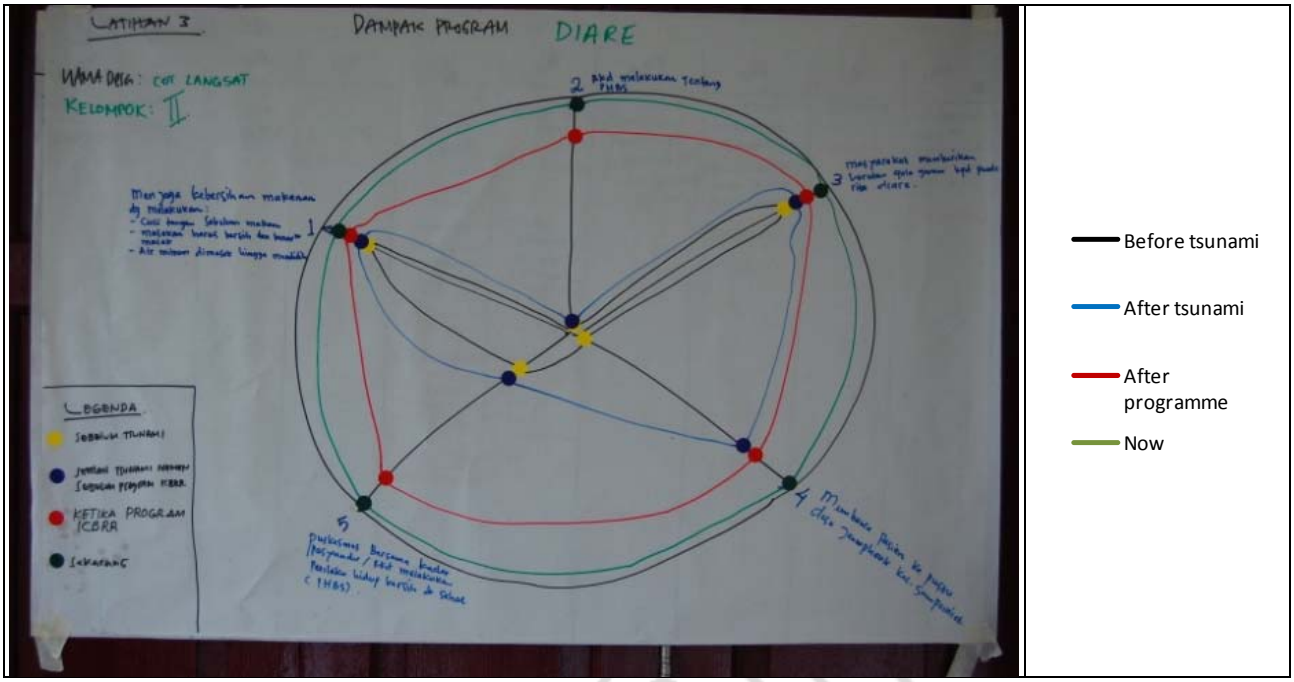
'Characteristics' of a Safe and Resilient Community 2: Diarrhoea

	Before (Prepare & Prevent)	***During (Cope)***	***After(Recover)***
Inside the Community	Always boil drinking water	The community mixes water with sugar and salt to give to people with diarrhoea (3)	Care about the clean food by: Washing hands before eating; food must be clean and well cooked, boil water to 180 ^{o}C (1)
	The CBHFA promotes hygiene and sanitation behaviour (2)	Take patients to community health centre at Jeumpheuk village, Sampoiniet (4)	Keep water storage closed
	The CBHFA promote health by advising on good food and drinking water		Protect food on the table from flies
	The community understands how to make medicine by mixing sugar and salt in the water		
Outside	The village health centre and the CBHFA promote hygiene and sanitation (5).		

Impact of Programme 2: Diarrhoea

When (before/during/ after)	**What** (a=before tsunami, b=after tsunami/before the CBDRR programme, c=after the CBDRR programme, d=now)	**Number in Diagram**
After	Care about the clean food by: Washing hands before eating; food must be clean and well cooked, boil water to 180 degrees Celsius: a. Community know about how to care about their food and make it clean b. Increased c. Increased d. Increased	**1**
Before	The CBHFA promotes hygiene and sanitation behaviour: a. Community didn't know about PHBS (hygiene and sanitation behaviour) b. Increased c. Increased because some community have training about PHBS d. Increased more because they know about PHBS and they do it in their daily lives	**2**
During	The community mixes water with sugar and salt to give to people with diarrhoea: a. Community know about traditional system for mixing sugar and salt with water b. Know more about what will give to people who get Diarrhoea – give Oralit c. Increased more because they have formed the CBHFA in the village. The CBHFA have done socialisation about Oralit. d. Increased more because CBHFA are still giving socialisation about PHBS	**3**
During	Take patients to the community health centre at Jeumpheuk village, Sampoiniet: a. No community health centre in Jeumpek b. Construction of community health centre in Cot Langsat and Jeumpek c. Increased because have a community health centre d. Increased because have a community health centre	**4**
Before	The village health centre and the CBHFA promote hygiene and sanitation (5): a. Community already have b. Increased	**5**

	c. Community have d. Perfect	



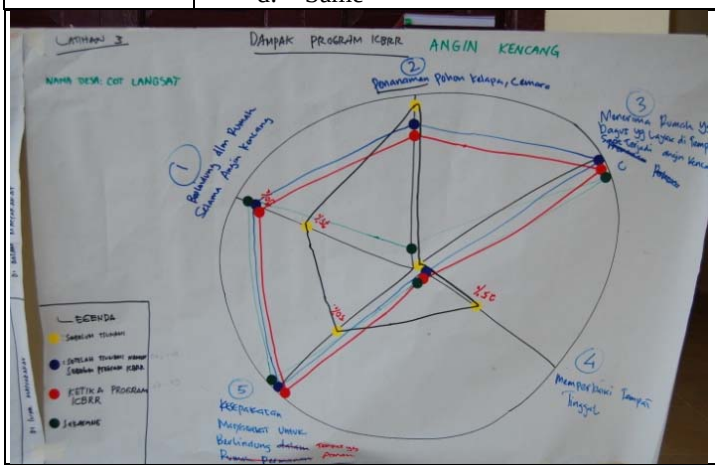
Comments & Observations:
Despite the apparent similarity between items 2 and 5, the group marked them as having different impacts.

'Characteristics' of a Safe and Resilient Community 3: Strong wind

	Before (Prepare & Prevent)	*During (Cope)*	*After(Recover)*
Inside the Community	Agreement in the community to stay in permanent housing during strong wind(5)	Stay inside the house during the strong winds (1)	Clean up trees that have fallen down (Gotong Royong)
	Plant coconut trees and casuarinas (2)	Fisherman should not go out to sea	Look for their livestock
	The community has knowledge about east and west winds	Use the food that has been stored	Repair houses (4)
	Prepare food		Look for fishermen's equipment that has been lost
	Do extra work to get more income		Stock food in case the strong wind happens again
Outside the Community	Get a house with good construction (3)	There is no support because the community can handle it by themselves	No support because the community can handle it themselves
	Receive information from media like the television	Coordination with the Head of Oceans [*Panglima Laut* in Indonesian]	Coordination with the Head of Oceans
	Training of CBAT by PMI		
	Receive seeds for trees from CRC and sub-district		

Impact of Programme 3: Strong wind

When (before/during/ after)	**What** (a=before tsunami, b=after tsunami/before the CBDRR programme, c=after the CBDRR programme, d=now)	**Number in Diagram**
During	Stay inside the house during the strong winds: a. 75% - before they already knew to stay at home during strong winds b. After the tsunami all the trees fell down so they are more vulnerable to wind – they have to stay at home more because the winds are stronger c. During the strong winds most people stay at home but some still go around d. Increased because now they have more knowledge about disasters and they get good houses so they feel safe to stay at home.	**1**
Before	Plant coconut trees and casuarinas: a. Before the tsunami they had lots of trees b. Some trees were provided by the government c. (2008-2009) Some trees died because of the pigs d. Right now they try to plant trees but they died because of the pigs	**2**
Before	Get a house with good construction: a. They didn't have safe houses before tsunami (just made out of wood) b. 100% because they get houses from CRC c. Same – because already have safe houses d. Same – because already have safe houses	**3**
After	Repair houses a. 25% - repair their house before the tsunami (the houses were made out of wood) b. No repairs needed after the tsunami because they get new houses from CRC c. Houses are well constructed – don't need repairs d. Same as previous	**4**
Before	Agreement in the community to stay in permanent housing during strong wind: a. Before the tsunami they have an agreement during strong winds to stay at the football field. 50% only because some people stay in their houses and others go to the football field (it was a safe place because at that time they had lots of trees). b. Everyone stays at home because they have new safe houses provided by CRC. c. Same d. Same	**5**



Focus Group

Initial questions

Do you think the community of Cot Langsat are more or less resilient after the tsunami? After the ICBRR programme? Why?

Before the tsunami the community were not resilient because they had not had a big disaster here so they had no experience. They are more resilient after the ICBRR programme because they have experience and knowledge about disasters. They had training as part of the ICBRR programme.

How about outside the village? Does anyone help them? Does this make them more resilient?

They have a CBAT team in this village and they can coordinate with CBAT in other villages.

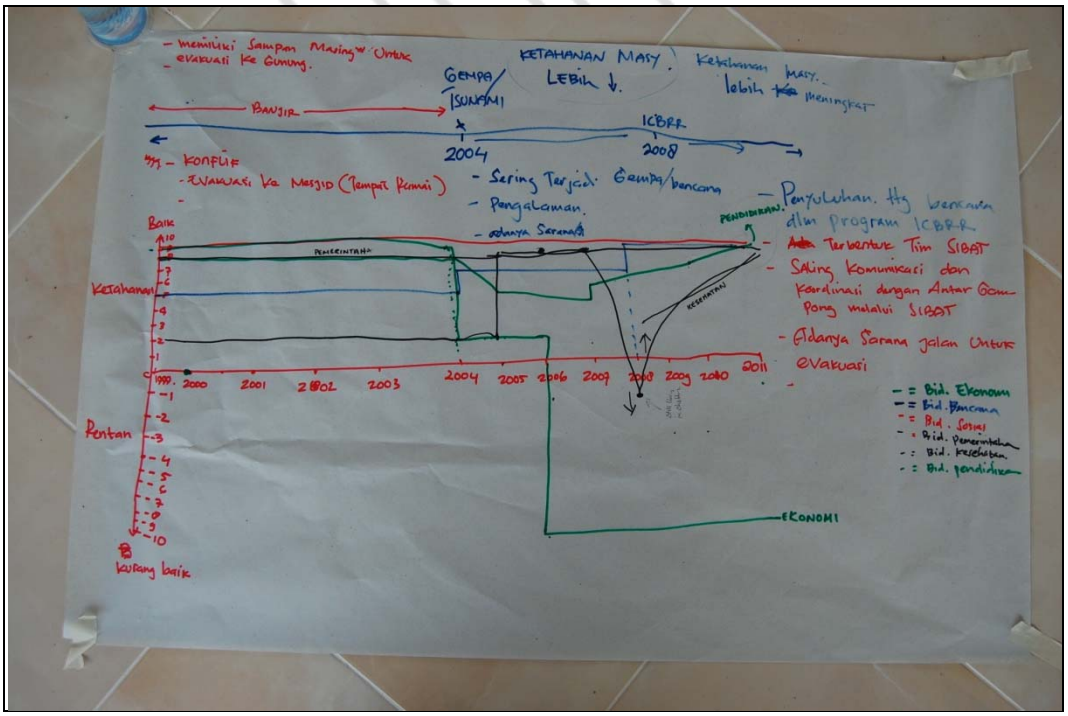
They also have new infrastructure and housing since the tsunami – has this made them more resilient?

Now they have roads so it's easy to go to a safe place if a disaster happens.

You say you weren't resilient before the tsunami but yet you had floods and conflict every year?

Floods are routine in this village. At that time the head of every family had a boat so they could evacuate to higher ground. They have their own culture here and they use their own boats to go to the mountain – 'it's like we have a friendship with the flood.' If the conflict comes to this village everyone went to the mosque. Everyone had to go together – no-one alone – otherwise the army would say they are GAM.

Resilience Graph



Economic resilience (lower green)

Before the tsunami the economic resilience of the community was high – for example this man here had 30 cows/buffalo – we also had oil palm. Sometimes it decreased but basically it was stable. At the moment they are mainly fishermen so they have low incomes – around 50,000 Rupiah per day. At first after the tsunami they got a lot of support but they had to use it for their daily lives. Two years after the tsunami they still had support from NGOs. Now they have no income but they have permanent houses. When they lived in barracks they got good food because they had a lot of support from NGOs and government. When they returned to the village they got no more support. Now most of them are just fishermen – both from the river and the sea. They have land for paddy and other crops but they don't have access to the land because the bridge was broken in the tsunami. To go to their land they must use the bridge – but it's broken.

Resilience to natural disasters (blue)

Before the tsunami their resilience to natural disasters was ok – they had traditional systems like boats – but also only traditional systems of getting information. After the tsunami they got mobile phones, they got good access roads and they got knowledge – for example they know that if it's a big earthquake they should go to the high ground in case there is a tsunami. They also make bags for preparedness.

Health (lower black – with large dip)

For resilience to disease – this has increased because now they have toilets and clean water (aqua) that they can use. Before tsunami they didn't have toilets – they just used the ground. When they lived in barracks in Banda Aceh they got support and had good facilities. In 2006-2008 they use traditional medicine to make them more resilient and they have a midwife in this village. Now they also have *Kader* – village health volunteers.

Governance (upper black – straight line)

Same before, during and after tsunami – the government give good service – when the community request something (like ID cards) they provide them. Even after the tsunami – they collected data from the community etc. Even when they lived in barracks they had an administrative post [*Posko* in Indonesian] and this made it easy to administer the community. They lived in several different places but they still had one person to lead the community in each place.

Social (red)

Still like before the tsunami – they still work together well and help each other (*gotong royong*).

Education (upper green)

Before the tsunami they didn't have a kindergarten but since 2007 they do. Before the tsunami they had 'Paket C' – a class for older people to learn to read and write. During the time they lived in the barracks they had temporary schools – but these were not so good because they did not have a lot of facilities. In 2007 when they came back to the village they could use temporary elementary schools in other villages but then this village got a permanent one in 2010. Before the tsunami they only had elementary schools but now they have kindergarten, elementary, junior high school and for senior high school they can go to another sub-district. So education is better now because they have a permanent school here.

SWOT Analysis

Strengths
• They had training about disaster preparedness • They are safe • They are more healthy • The risk of loss of life and property in disasters has decreased. • They have an early warning system • They are focussed to help vulnerable people first. • It's easier to get information about hazards and disasters.
Weaknesses
• When the programme finished the training stopped. • There was not good support from PMI to the CBAT here – there were no more meetings after the programme finished. • Not good coordination between the community – limited people know about the programme. • ICBRR staff promised things like boats or an office for the CBAT but these things didn't happen.
Opportunities
• NGOs came and provided houses (CRC), boats (French), seeds for chocolate trees (Islamic Relief). • Good houses constructed by CRC make the community safe from earthquakes. • They get medicine and support from the Puskesmas. • They get medicine and tools for First Aid from the CBFA programme and the RKD (P3K).
Threats
• The seeds for the chocolate trees died. • Not good coordination with the NGOs who provided support – not maximum impact – e.g. the boats that were provided were only used for one year before they became damaged. • ICBRR staff just give promises but these were lies – not realised in the community. • Lack of coordination. • No more support from PMI.

Recommendations

If PMI run this programme again in another village what suggestions would you make for improvement?

- Better socialisation about the programme to the community.
- PMI should give support to the community based on the needs identified by the community.
- Better monitoring from PMI – also continuing with the training.

Community workshop and focus group photos

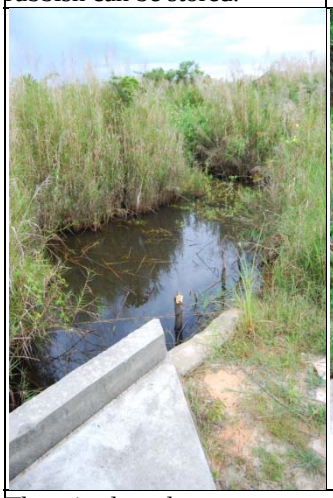
Walkthrough

Participants: Head of CBAT (female)

Housing in the village was built by the Canadian Red Cross. Water and sanitation were also provided by the CRC. Some of the houses have tanks which store rainwater that runs off from the gutters on the edge of the roofs. The sanitation consists of septic tanks with reed banks. It would appear that there are two chambers in the septic tanks. Houses also received funding for wells. This funding was given to the head of each household by the "World organisation" [The "World Organisation" might be World Vision].

A poster at the coffee shop showing septic tank design, though it was not clear whether this diagram actually reflects the septic tank design usied in this village.

Rainwater catchment from roof guttering.

In this village there are concrete containers where rubbish can be stored.	Premanent drainage in the village was built by the government. This drainage is located adjacent to the road.
 	
There is also a large temporary drain which runs perpendicular to the main road through town, passing under it through a culvert. The temporary drain is unlined and is full of water. It was the mitigation project for the ICBRR project in the village. The head of CBAT says that it initially helped reduce the extent of flooding in the village, but has subsequently become ineffective. Temporary drainage was built because funding was insufficient to cover the cost of permanent drainage.	The pre-school was built by the Canadian Red Cross.
	
Cot Langsat is located adjacent to a river and this is the main source of flooding in the village	The lined side roads were built by BKPG

There are three public wells and toilets provided by Americare. The one we saw was open and at risk of contamination. The well is located in a corrugated metal enclosure but the door was left open at the time we saw it. In addition, the mouth of the well is uncovered and half of it is exposed to the outside of the enclosure. It was reported that the other two wells from Americare are damaged, but we did not see them.

Water pools in rubbish that is scattered in the village. This tin was open and upturned in the drainage and full of brackish water. We emptied it and inverted it before this photo was taken.

A sign for a community manged integrated economic development project from Islamic relief. This project is for the cultivation of organic cocoa.

A first aid kit was provided to the village through the Community Based Health and First Aid (CBHFA) program [estabished by Amcross]. The kit contains basic supplies including bandages, gauze and oralite. The oralite is still in date.

The CBHFA program also included training. This training was attended by CBAT members and prepared them to conducted health promotion and education in the community. The CBAT who were trained in the CBHFA program are still active in conducting health promotion activities. During the training they received the materials pictured above. These materials are for use by the CBHFA to conduct health promotion with the community.

There are several bridges which connect the village's agricultural land to the village. Some of these bridges were destroyed or damaged in the tsunami. The above example was destroyed and replaced with a wooden bridge, but the wooden bridge is not strong enough to support a car
The head of village indicated that the damage to the bridges has made it difficult to access farming areas of the village. This has resulted in economic hardship for the village.

CBAT

CBAT in Cot Langsat received training in disaster management. The first aid training that the CBAT received came through the Community-Based Health and First Aid Program (CBHFA) and not through ICBRR. This occurred because the CBAT members are also CBHFA members.

Through ICBRR, the CBAT were provided with uniforms, hats and backpacks. No other equipment was provided through ICBRR.

The village did a flood drill (simulation) through the CBHFA program, but not as part of ICBRR.

CBAT in this village are still active because they have floods each year and the CBAT evacuate vulnerable people to safe places.

Vulnerability and Capability assessment

The ICBBR program included a VCA after the CBAT training. However, they didn't get a copy of the document from PMI. The VCA was done with the community, and flood was chosen as a priority by the community and not just one person. Floods were seen as having the most impact on the community. Due to limited budget, this was not followed up with activities to reduce the extent of flooding.

Program handover

From PMI there was a handover of the program. However, the community felt that during the handover, PMI made a promise to give them an office and conduct further activities. However, the community still thinks that PMI made promised them things. [It was reported by the facilitators that it is possible that PMI just said that they would discuss the village's needs further and that this was misinterpreted by the village].

Program success and improvement

The CBAT leader didn't provide an answer about what the successes of the ICBRR program are.

The CBAT leader suggested that because the CBAT are still active, PMI should continue to give them support by continuing to meet with them, for example by facilitating a meeting once a month. This would encourage the CBAT and help to make them active because they would feel that PMI supports them and recognises what they are doing.

Right now they feel they still don't have enough knowledge about disasters, and about how to increase their capacities. Because the floods have a long impact and because they are still vulnerable to floods, they will need to fight floods in the future. Therefore, they want PMI to help them refresh and increase their knowledge.

Case Study

CBAT and CBHFA

Cot Langsat had both an ICBRR program and a community-based health and first aid program (CBHFA). CBAT members were chosen for the CBHFA program, which trained them to conduct health promotion and first aid in their community. Consequently, CBAT members continue to be active in response to flooding and in health promotion at household level.

The situation in Cot Langsat suggests that when CBAT have responsibilities that meet ongoing community needs, this may help sustain their activity after the ICBRR program has ended.

Appendix B

Supporting Documentation

B1 Literature Synopsis

SYNOPSIS:

Community Based DRR Literature Review

'identify and document lessons learned in implementing at scale CBDRR projects to strengthen community safety and resilience during the Tsunami recovery programme. The study will also use its large evidence base to research new ideas and contribute to the wider efforts in improving CBDRR work within the IFRC'.

IFRC (2010) Concept Note for a Disaster Risk Reduction Study for the International Federation's Tsunami Recovery Programme

ARUP

Approach

The literature review will draw on
- 'grey literature'
- peer reviewed publications
- research and projects by Arup and UCL

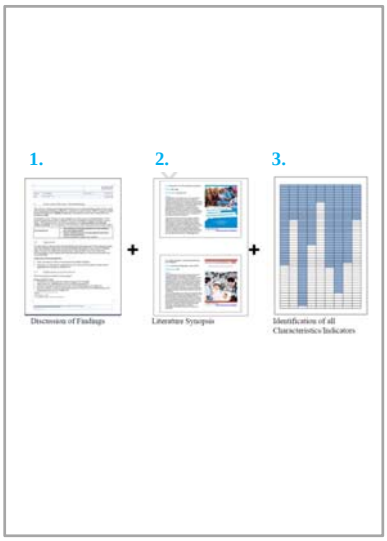
The literature review will inform a preliminary list of **characteristics of a safe and resilient community** (20-40 indicators) to form the basis of the community based research method.

Two approaches to determine the relevant literature have been employed.
- a general scoping study has identified a range of key documents that tackle the subject from a number of different angles
- key stakeholders and personnel within the IFRC have been contacted for recommendations of any literature they find particularly helpful or with specific relevance to the work of the IFRC.

Outputs

The final outcome of this literature review will be in three parts:

1. **summary report** and discussion of the findings: 'short list' of the characteristics of safe and resilient communities
2. **Literature synopsis** as a powerpoint presentation
3. **Excel table** that sets out all of the indicators/characteristics that have been extracted from the literature reviewed.



Literature Reviewed

- 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
- Mitchell, van Aalst, Villanueva (2010) Assessing Progress on Integrating Disaster Risk Reduction and Climate Change Adaptation in Development Processes
- 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' Rouke (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 (2009,2nd 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*
- World Bank (2009) *Building Resilient Communities: Risk Management and Response to Natural Disasters through Social Funds and Community-Driven Development Operations*
- Elasha et al (2005) *Sustainable livelihood approach for assessing community resilience to climate change*

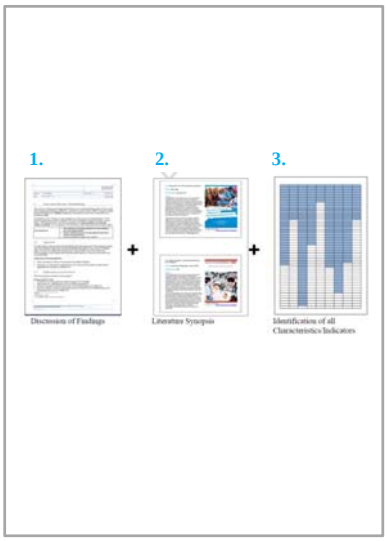
+ 25 documents reviewed

+15 resilience frameworks analysed

+ 10 years of theory

Literature Synopsis of Key Documents:

Process Focused



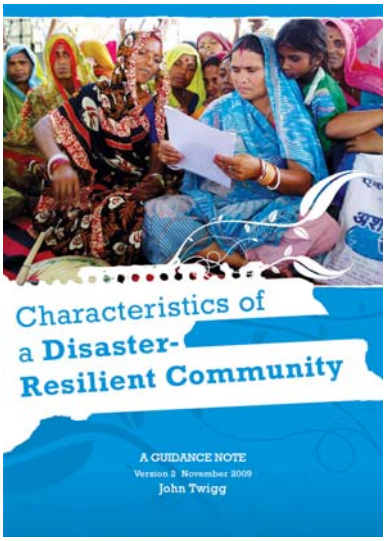
Title: **Characteristics of a Disaster Resilient Community**

Author: **John Twigg**

Date Published: **November 2009**

Abstract:
This research was commissioned by a group of INGO's– ActionAid, Christian Aid, Plan UK, Practical Action and Tearfund, together with the British Red Cross/International Federation of Red Cross and Red Crescent Societies. It was supported by DFID funding and set out to identify the characteristics of a resilient community in order to inform DRR project development at different stages of its cycle (planning, design, monitoring and evaluation).
This is a comprehensive document and is intended to be used as a reference tool or guide, rather than a manual, to be adapted to suit each context. The book is roughly divided in three, the first third defines the scope and contains instructions on how to use the rest of the document; the middle section is critical as it sets out the *table of characteristics;* and the final third provides case studies and other supporting documents.
The breadth and detail of the 'table' render it impractical to use without significant adaptation. Guidance on how to tailor it and select the relevant characteristics is presented and the case studies act as a valuable resource to illustrate the pragmatics and outcomes of this.

'it must also be emphasised that the 'disaster resilient community' presented here is an ideal, for in reality no community can be free of risk'
(Twigg, J, 2009,pp 7)



Available to download from:
www.proventionconsortium.org/?pageid=90

Title: Characteristics of a Disaster Resilient Community

Author: John Twigg

Continued.....

•In total 167 community characteristics are identified and described. The document is structured around the 5 thematic areas as set out in the Hyogo Framework for Action. Each theme is discussed and broken down into a number of sub-sections (components of resilience-see step 1) which in turn are used as headings to detail the characteristics of a resilient community and the characteristics of an enabling environment (see step 2).

•By giving equal weight to the external factors (enabling environment)that impact on the resilience of the community the author highlights the importance of considering the context of the project and the need for wider stakeholder collaboration.

•The characteristics are descriptions or statements of an 'ideal' situation, they provide a point at which to aim for. There is guidance on how they can be measured but they vary between outcome, output and process indicators, meaning there can be no one standardised approach.

'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-on other words partnerships'
(Twigg, J, 2009,pp 8)

Step 1: Themes and Components

Thematic Areas	Components of Resilience
1 Governance	• Policy, planning, priorities and political commitment • Legal and regulatory systems • Integration with development policies and planning • Integration with emergency response and recovery • Institutional mechanisms, capacities and structures; allocation of responsibilities • Partnerships • Accountability and community participation
2 Risk Assessment	• Hazards/risk data and assessment • Vulnerability/capacity and impact data and assessment • Scientific and technical capacities and innovation
3 Knowledge and Education	• Public awareness, knowledge and skills • Information management and sharing • Education and training • Cultures, attitudes, motivation • Learning and research
4 Risk Management and Vulnerability Reduction	• Environmental and natural resource management • Health and well being • Sustainable livelihoods • Social protection • Financial instruments • Physical protection; structural and technical measures • Planning regimes
5 Disaster Preparedness and Response	• Organizational capacities and coordination • Early warning systems • Preparedness and contingency planning • Emergency resources and infrastructure • Emergency response and recovery • Participation, volunteerism, accountability

Step 2: Characteristics

COMPONENTS OF RESILIENCE	CHARACTERISTICS OF A DISASTER-RESILIENT COMMUNITY	CHARACTERISTICS OF AN ENABLING ENVIRONMENT
1. DRR policy, planning, priorities, and political commitment	1.1. Shared vision of a prepared and resilient community. 1.2. Consensus view of risks faced, risk management approach, specific actions to be taken and targets to be met. 1.3. Vision and DRR plans informed by understanding of underlying causes of vulnerability and other factors outside community's control. 1.4. Community takes long-term perspective, focusing on outcomes and impact of DRR. 1.5. Committed, effective and accountable community leadership of DRR planning and implementation.	• Political consensus on importance of DRR. • DRR a policy priority at all levels of government. • National DRR policy, strategy and implementation plan, with clear vision, priorities, targets and benchmarks. • Local government DRR policies, strategies and implementation plans in place. • Official (national and local) policy and strategy of support to community-based disaster risk management (CBDRM). • Local-level official understanding of, and support for, community vision.

Available to download from:
www.proventionconsortium.org/?pageid=90

Title: How Resilient Is Your Coastal Community: A Guide for Evaluating Coastal Community Resilience to Tsunamis and other Hazards

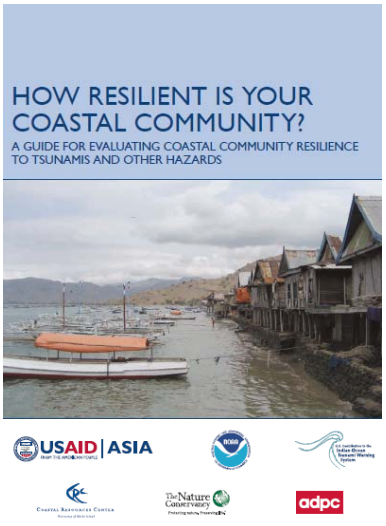
Author: US Indian Ocean Tsunami Warning System Program (US- IOTWS) & USAID et al.

Date Published: October 2007

Abstract:
Over 80 agencies and organisations working in the Indian Ocean region contributed to the development of this document, including 17 offices of PNS and HNS.
It draws on the fields of community development, coastal management and disaster management to develop a resilience framework that is specific for coastal communities. From community development it draws on the enabling governance, socioeconomic and cultural conditions for resilience. Coastal management provides information on managing human use of coastal resources to maintain environmental resilience and disaster management focuses on preparedness, response and mitigation to reduce loss from disaster events.

This is a comprehensive and well written document. It advocates for a participatory approach to resilience assessments and sets out a clear methodology. It recognises that many of the gaps and weaknesses in resilience can be addressed by the community themselves but that some factors need to be tackled by external stakeholders- governmental agencies, NGO's and the private sector.

'single-sector development planning cannot solve the complexity of problems posed by natural hazard, nor build resilience to them'
(US- IOTWS, 2007,pp 1-2)



Available to download from:
http://indonesia.usaid.gov/documents/document/Document/411/Coastal_Community_Resilience_Guide

Title: How Resilient Is Your Coastal Community: A Guide for Evaluating Coastal Community Resilience to Tsunamis and other Hazards

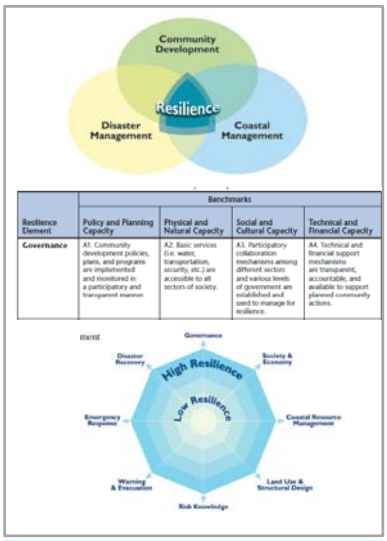
Author: US Indian Ocean Tsunami Warning System Program (US-IOTWS) & USAID et al.

Continued....

•A framework is presented that identifies 8 key elements of resilience for coastal communities. These incorporate:
- long term planning (society and economy; coastal resource management; land use and structural design);
- hazard-event orientated resilience (disaster recovery; emergency response; warning and evacuation)
- Enabling framework (governance)
- Cross-cutting issues (risk knowledge)

•Each element is then evaluated under four core capacities- policy and planning; physical and natural resources; social and cultural; technical and financial. In order to quantitatively evaluate each of these areas a benchmark condition is given that describes the ideal situation. This allows the user to allocate a score which can be averaged and applied to generate a graphic representation of the resilience level. In total **32** indicators are identified.

'a coastal community resilience assessment provides an opportunity to initiate dialogue among key stakeholders in the area'
(US- IOTWS, 2007,pp 3-10)



Resilience Element	Benchmarks: Policy and Planning Capacity	Physical and Natural Capacity	Social and Cultural Capacity	Technical and Financial Capacity
Governance	A1. Community development policies, plans, and programs are implemented and monitored in a participatory and transparent manner.	A2. Basic services (i.e. water, transportation, security, etc.) are accessible to all sectors of society.	A3. Participatory collaboration mechanisms among different sectors and various levels of government are established and used to manage for resilience.	A4. Technical and financial support mechanisms are transparent, accountable, and available to support planned community actions.

Available to download from:
http://indonesia.usaid.gov/documents/document/Document/411/Coastal_Community_Resilience_Guide

Title: Measuring Community Resilience: A tool for baseline survey, program monitoring and progress reporting of a CBDRR Program

Author: Canadian Red Cross (CRC)

Date Published: April 2010

Abstract:
This tool is being developed by the CRC Indonesia Delegation based on their experience of implementing an Integrated Community Based Risk Reduction program in Banda Aceh and Nias. It can be used to measure community resilience as an outcome of a CBDRR intervention. It is designed to undertake monitoring and evaluation as well as baseline surveys.

The document is focused on two tables that indicate the Process Standards and the Outcome Indicators.
•The first sets out the recommended project steps
•The latter describes the ideal results of a CBDRR program.

Each step/ result is given a score from 1-5 to indicate the success of the program. Critically each step/result is also weighted in order to contextualise the tool and prioritise the factors as relevant .The document recommends weighting the steps/results on a consensus basis with key stakeholders and program staff from the HNS and PNS.

'the tool has been developed with the assumption that both the process and the outcome standards are equally important'
(CRC, 2010,pp 1)

Not available to download.

Title: Measuring Community Resilience: A tool for baseline survey, program monitoring and progress reporting of a CBDRR Program

Author: Canadian Red Cross (CRC)

Continued....

•The Outcome Indicators are structured around the 5 thematic areas of the Hyogo Framework. These 5themes are then broken down into sub-themes (Standards/Indicators) which are each defined by 5 criteria for scoring. The criteria identified are clear and measurable objectives of the components of a resilient community as supported by a CRC program. In total 124 Criteria are identified.

•The criteria for scoring is tailored specifically for the CRC program and uses primarily IFRC terms to define the activities (CBAT's, VCA, PMI, SOP etc) . Whereas the Standards/Indicators provide a more general outline.

•There are areas of overlap between the outcome indicators and the process standards as essentially the former are structured chronologically and the latter around subject areas. This may mean that it is not necessary to undertake both assessments.

' the final outcome of this tool is an indicative figure to reflect the program achievements ....This is specific to the particular program and community, which can be compared with other programmes and communities.'

(CRC, 2010,pp 1)

Not available to download.

Title: **CBDRR Household Guide and Assessment Tool**

Author: **American Red Cross**

Date Published: **2010**

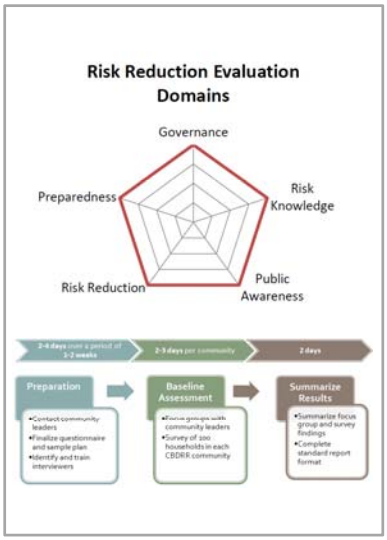
Abstract:
This household assessment guide is being developed by the American Red Cross to conduct baseline and final assessments for CBDRR programmes. It has been specifically developed to allow comparison between countries and projects to allow monitoring and evaluation at a regional level.

The CBDRR framework aims to measure community level change in five thematic areas identified by the Hyogo framework as components of resilience. The assessment process itself is designed to collect the minimum amount of information needed for programme monitoring and evaluation, in total it should take approximately 2 weeks for a team of 5(each community has 100household questionnaires and focus groups). The household questionnaire covers all of the 5 areas identified by the Hyogo framework with the exception of risk reduction.

The guide provides a clear methodology for undertaking the assessment with detailed information on randomly selecting the households and how to train staff. It concludes with a chapter on how to compile and summarise the data collected, however it does not go on to describe how the findings would be analysed or how they would inform programme development.

'it is important to have accurate information about communities so that project activities can be designed to best meet community needs'

(American Red Cross, 2010,pp 3)



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Title: **Community Based Disaster Risk Management**

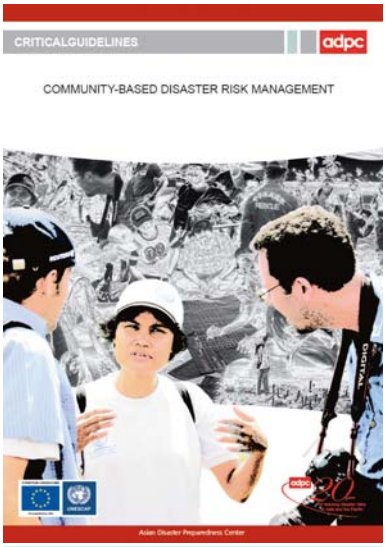
Author: **Asian Disaster Preparedness Center (ADPC)**

Date Published: **2006**

Abstract:
These guidelines are designed to be used as a 'reference guide' rather than a 'manual' because of the significant differences between communities that require context specific indicators to understand the success of a project.
The document sets out 'process indicators' and 'outcome indicators' to steer the development of 'good practice' programmes by providing measurable targets. It also identifies how the characteristics of a resilient community vary in relation to a disaster:
•*Before*: The ability to absorb the shocks of hazard impact, so that they do not become disasters (thus to reduce the probability of failure);
•*During*: The capacity to bounce back during and after disaster (thus to reduce the consequences of failure);
•*After:* The opportunity for change and adaptation following a disaster (thus to reduce the time needed for recovery as well as patterns of vulnerability).

It discusses the complexity of resilience by emphasising that resilience is not only critical at a community level but also need to reach down to an individual level and up to national level.

'resilience is a moving target and realistically it may not be possible for communities to achieve absolute resilience against hazards or other risk factors'
(ADPC, 2006,pp 25)



Available to download from:
www.proventionconsortium.org/?pageid=90

Title: **Indicators of Progress: Guidance on Measuring the Reduction of Disaster Risks and the Implementation of the Hyogo Framework for Action**

Author: **UNISDR**

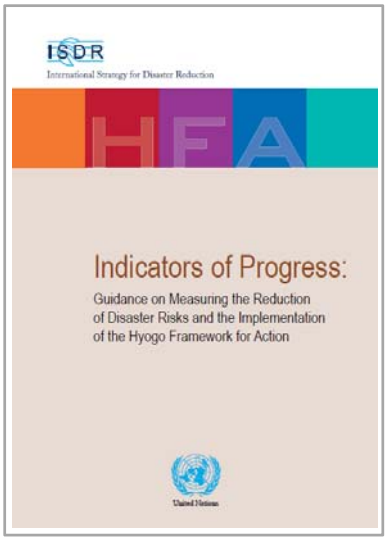
Date Published: **2008**

Abstract:
The 'Indicators of Progress' guidance has been prepared as a first step by the ISDR secretariat and ISDR system partners toward addressing and coordinating the development of "generic, realistic and measurable indicators" for disaster risk reduction. It sets out indicators for the 3 strategic goals and the 5 priorities for action, as defined by the Hyogo Framework for Action.

The indicators generated conform with internationally agreed development goals, including those contained in the Millennium Declaration, i.e. the Millennium Development Goals (MDGs) in order to recognise the important link between disaster reduction and sustainable development. The indicators are written as national level measurements, but in principle, it should be possible to develop similarly worded indicators for community level assessment.

The document provides technical guidance on indicators and benchmarks as well as information on how to develop and implement them.

'it is ... necessary to develop internationally common indicators that enable globally-consistent long-term tracking of progress on disaster risk reduction'
(UNISDR, 2008,pp 11)



Available to download from:
http://www.preventionweb.net/english/professional/publications/v.php?id=2259

Title: **Making Cities Resilient: My City is Getting Ready**

Author: **UNISDR**

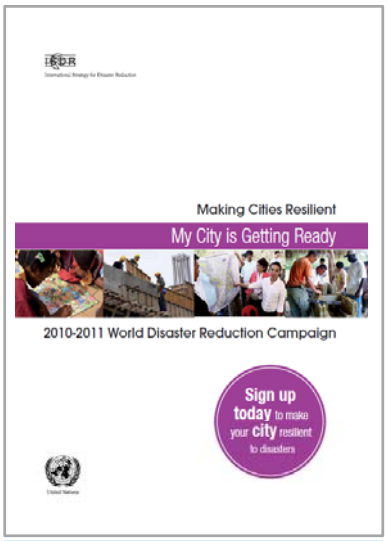
Date Published: **2010**

Abstract:
Making Cities Resilient is an international campaign that was launched in 2010 by UNISDR to motivate city leaders and local governments to commit to a checklist of ten essentials for making cities more resilient. UNISDR have developed this checklist to empower those who are working towards the Hyogo Framework for Action to establish good practice within their organisations.

The paper outlines the characteristics of a disaster resilient city, identifies what constitutes urban risk and the critical factors that make cities vulnerable.

The Checklist advises on practical actions that cities can take such as assign a budget for DRR or assess the safety of all schools and healthcare centres and upgrade as necessary. The ten points are ambitious and far reaching and it is not clear how they link into a larger framework of resilience.

'The vision of the campaign is to achieve resilient, sustainable urban communities. The campaign will urge local governments to take action now to reduce cities risks to disasters'
(UNISDR, 2010,pp 10)



Available to download from:
http://www.unisdr.org/english/campaigns/campaign2010-2011/

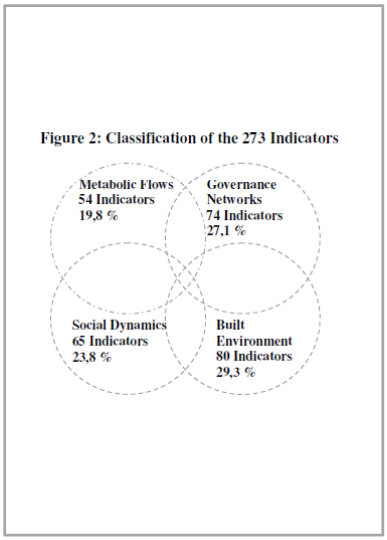
Title: **City Strength in times of Turbulence: Strategic Resilience Indicators**

Author: **Normandin, J; Therrien, M; Tanguay, G**

Date Published: **2007**

Abstract:
This paper draws on 9 studies that have assessed urban vulnerabilities and disasters in a variety of different cities. It reviews and analyses the indicators used in these case studies. It goes on to compare and assess them to see how often they reoccur, what patterns exist in their classification and where there are gaps. In total out of the 9 studies 273 indicators were identified. Of these only 31 were present in two or more studies indicating a wide discrepancy in the understanding and approach to quantifying resilience (only one indicator –concerning income levels- was identified in 5 or more studies and access to water and having an emergency plan were detailed in 4 of the studies). The authors also grouped the 273 indicators around four fields –Metabolic Flows, Governance, Social Dynamics and Built Environment –and found equal representation.
The paper also draws on the field of sustainable development to discuss the links between reduced vulnerability and increased resilience. However it concludes that although many authors discuss this relationship the indicators typically used to measure sustainable development (Tanguey et al (2009) Measuring the Sustainability of Cities) show limited overlap with those used to assess resilience.

'anticipation strategies work against known problems, while resilient strategies are better against unknown problems'
(Normandin et al, 2007,pp 2)



Available to download from:
http://www.cityfutures2009.com/PDF/43_Therrien_Marie_Christine.pdf

Title: ***Indicators of Community Resilience: A Study of Communities Facing Impending Natural Disasters***

Author: **Pooley, J; Cohen, L; O'Connor, M**

Date Published: **2010**

Abstract:
Pooley et al discuss resilience in an Australian context with a strong focus on the psychology of post-disaster experiences and the networks that exist within communities. The authors highlight the importance of understanding the individual level of resilience with respect to stress, coping, self efficacy and posttraumatic growth and then scaling up to establish the consequences for communities.

It draws on considerable theory from von Bertalanffy(1968) general systems theory to Werner and Smith (1982) discussion of protective environments but does not itself establish clear indicators to measure community resilience itself.

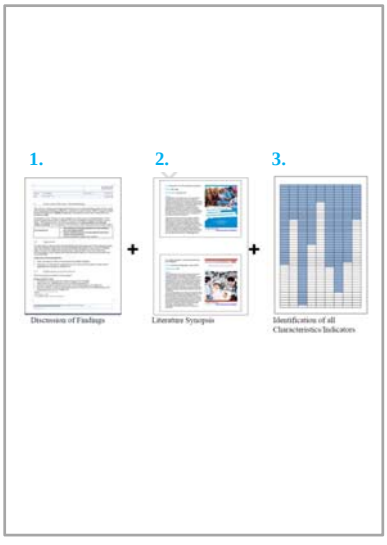
It presents field work from 4 communities in Western Australia that have been researched using interviews, community surveys and focus groups. The methodology is well detailed and referenced but the findings are difficult to extract.

'there are three different types of systems, organised, disorganised and neutral. The organised system refers to the whole being greater than the sum of its parts. The disorganised system is when to sum is smaller than the sum of its parts and the neutral system is when the first two system's activities cancel each other. '
(Pooley et al, 2010,pp 47)

Not available to download.

Literature Synopsis of Key Documents:

Outcome Focused



Title: **A Framework for Community Safety and Resilience**

Author: **IFRC**

Date Published: **2008**

Abstract:
To ensure a common understanding of DRR within the Red Cross Red Crescent family and for the communities they work with, the *Framework for Community Safety and Resilience* was developed through extensive consultation to act as the foundation for all action to build safer and more resilient communities. It links closely to the Hyogo Framework for Action in terms of priorities but is focused on resilience at a community level rather than national level .
The paper sets out:
- the strategic DRR programme objectives of the IFRC
- key characteristics of a resilient community;
- three key elements of the framework
  - risk informed humanitarian response
  - country specific mitigation, prevention and adaptation activities
  - sector based programming to build across the disaster management spectrum.
- cross cutting issues that underpin all of the work of the IFRC and strongly link it with DRR

'to truly identify the Red Cross Red Crescent approach to promoting community safety and resilience we should look for National Societies that are implementing across their major programme or thematic areas'
(IFRC, 2008,pp7)

Available to download from:
http://www.ifrc.org/what/disasters/resources/publications.asp

Title: **Critical Infrastructure, Interdependencies, and Resilience**

Author: **O'Rourke**

Date Published: **2007**

Abstract:
O'Rourke discusses the concept of resilience in the field of critical infrastructure. He argues that the flexibility and adaptability of the term have led to some ambiguity about which assets are critical and what criteria should be used to define them.
O' Rourke goes on to identify six ' lifeline systems' that are fundamental to the economic well being, security and social fabric of the communities they serve. These are named as: electric power, gas and liquid fuels, telecommunications, transportation, waste disposal, and water supply. These systems are interdependent – either through 'physical proximity' or 'operational interaction' – and any reduction in efficiency/capacity impacts on the others.

The document goes on to indicate four ways of promoting resilience:
- Awareness-*Raise levels of public education and risk awareness, using existing networks such as schools, media, civil society orgs.*
- Leadership-*critical but unpredictable, require support form scientific community*
- Planning- *The planning process is the key element to allow participants adapt depending on the scenario*
- Resource Allocation- *for construction and maintenance of infrastructure*

'Resilient physical and social systems must be robust, redundant, resourceful and capable of rapid response'
(O' Rourke, 2007pp 22)

Available to download from:
http://www.nae.edu/Publications/Bridge/EngineeringfortheThreatofNaturalDisasters/CriticalInfrastructureInterdependenciesandResilience.aspx

Title: **The Resilience Renaissance? Unpacking of resilience for tackling climate change and disasters**

Author: **Bahadur, A; Ibrahim, M; Tanner, T (Strengthening Climate Resilience, DfID funded)**

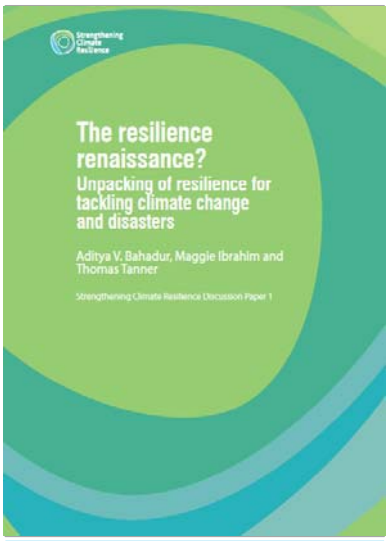
Date Published: **September 2010**

Abstract:
The term 'resilience' is increasingly used in the context of discussion, policies and programming around climate change adaptation and DRR. This working paper attempts to scrutinise the current literature in these fields to examine how it might underpin an operational approach to resilience.

It reviews 16 overlapping conceptualisations of resilience from the literature in the fields of ' in sociology, ecology and socio-ecology, outlining **10** key characteristics of resilience and indicators on how to measure them. A *meta-table* captures the key findings of the paper, including detail on indicators.

The documents reviewed dated back almost 40 years and included authors from diverse fields including: Holling (1973), Mayunga (2006, 2007), Twigg (2007) and The Rockefeller Foundation (2009) . It is a dense and useful document that provides a succinct summary for the 16 sources reviewed.

'Resilience, like sustainability, is not an end point that cities or their systems are expected to achieve completely. '
(Arup, 2009,pp ii)



Available to download from:
http://www.preventionweb.net/english/professional/publications/v.php?id=16334

Title: **Rapid Resilience**

Author: **Arup**

Date Published: **N/A (Internal Arup documents)**

Abstract:
This document sets out a methodology for addressing the impacts of climate change on urban areas and presents the services that Arup's offer. It describes a resilient city as being able to withstand a variety of challenges because key characteristics are incorporated into its urban systems. These are identified as:
•*Redundancy:* Some urban systems serve similar functions and can provide substitutable services when another system is disrupted;
•*Ductile*: The ability to absorb shocks and slow-onset challenges in ways that avoid catastrophic "brittle" failure if thresholds are exceeded;
•*Capacity to Re-organize:* The ability to change and evolve in response to changing conditions;
•*Capacity to learn*: The ability to internalize past experience, respond to it, avoid past mistakes and have caution in future decisions;
•*Responsive:* The ability to respond rapidly to sudden shocks in order to prevent loss of life and reduce suffering.

It is primary focused on urban environments but the discussion on the connectivity of systems can be readily applied to a range of scenarios.

'Resilience, like sustainability, is not an end point that cities or their systems are expected to achieve completely. '
(Arup, 2009,pp ii)

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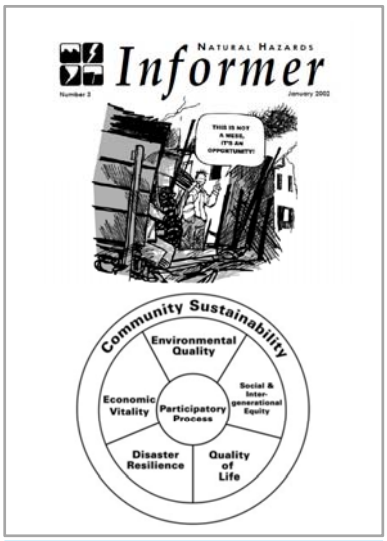
Title: **Building Back Better: Creating a Sustainable Community After Disaster**

Author: **Jacquelyn Monday, Natural Hazards Research Center**

Date Published: **2002**

Abstract:
This peer reviewed paper was published as part of the *Natural Hazards Informer* series. It explores the links between DRR and sustainability and seeks to incorporate the principles of sustainable development into the disaster recovery process.
Monday identifies six principles of sustainability:
•Maintain and if possible, enhance its residents quality of life
•Enhance local economic vitality
•Promote social and intergenerational equity
•Maintain and if possible enhance the quality of the environment
•Incorporate disaster resilience and mitigation into its actions
•Use a consensus building participatory approach when making decisions
The last principle is identified as underpinning all of the others as the involvement of all stakeholders is a critical factor for generating ownership, prioritising and addressing needs and wider dissemination of ideas.
Monday advocates the integration of sustainable development early into the recovery process and presents a Matrix of Opportunity to link the principles with typical decisions made.

'the concept of 'sustainability' can provide an enlarged framework for examining potential mitigation measures- and any other community concerns- in a wider context'
(Monday, 2002,pp3)



Available to download from:
http://www.colorado.edu/hazards/publications/informer/infrmr3/informer3.pdf

Title: **The Community Resilience Manual: A Resource for Rural Recovery and Renewal**

Author: **The Community Resilience Project Team**

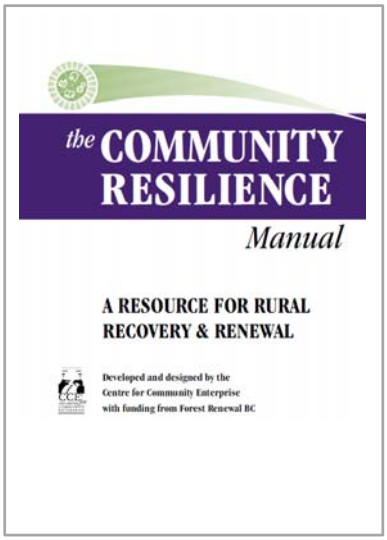
Date Published: **2000**

Abstract:
Since 1998 the Canadian Centre for Community Renewal has been exploring the concept of community *resilience*. This initiative set out to understand the dramatic differences in rural communities in Canada where in recent years many had deteriorated due to drastic changes in mining, the forest industry, agriculture, and fisheries, yet others have prospered.

The manual has been designed to be used by communities that want to make informed decisions about mobilising and investing community resources. In order to assess their own levels of resilience and identify priorities.

It identifies four dimensions of resilience:
•People
•Resources
•Community Process
•Organisations
Each dimension is then broken down into detailed characteristics that act as the indicators than can be examined and used to develop or evaluate action(s). In total 23 are identified.

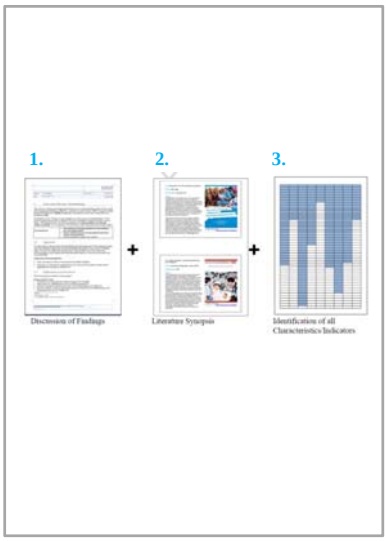
'Each community is unique. Communities will experience a different level of resilience in each characteristic and these levels may change over time '
(Community Resilience Project Team, 2000,pp 1-13)



Available to download from:
http://www.cedworks.com/communityresilience01.html

Literature Synopsis of Key Documents:

Dynamic System



Title: **Disaster Resilience Indicators for Benchmarking Baseline Conditions**

Author: **Cutter, S; Burton C; Emrich, C: University of South Carolina**

Date Published: **2010**

Abstract:
This paper provides a methodology and a set of indicators for measuring baseline characteristics of communities that foster resilience. It discusses different theories of resilience focusing on capacity, engineering and homeland security and concluding that any framework employed for assessing communities needs to take into account their dynamic social nature.
Resilience is discussed as a multi-faceted concept which includes social, economic, institutional, ecological and community elements. These categories provide the headings for an evaluation of community resilience that is applied as a case study to counties within the south-eastern US to illustrate and evaluate the methodology.
The approach taken relies heavily on composite indicators and a complex evaluation and extrapolation process. The ecological resilience of the communities is not assessed because of different environments (ie you can't assess all locations by their management of wet lands if there are no wet lands) which is a major limitation. All of the findings were mapped and colour coordinated to enable a quick comparative overview.

'all raw data values were transformed into comparable scales utilising percentages, per capita, and density functions'
(Cutter et al, 2010, pp6)

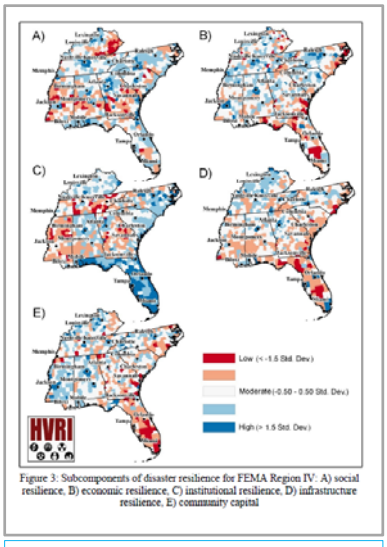


Figure 3: Subcomponents of disaster resilience for FEMA Region IV: A) social resilience, B) economic resilience, C) institutional resilience, D) infrastructure resilience, E) community capital

Available to download from:
http://www.bepress.com/jhsem/vol7/iss1/51/

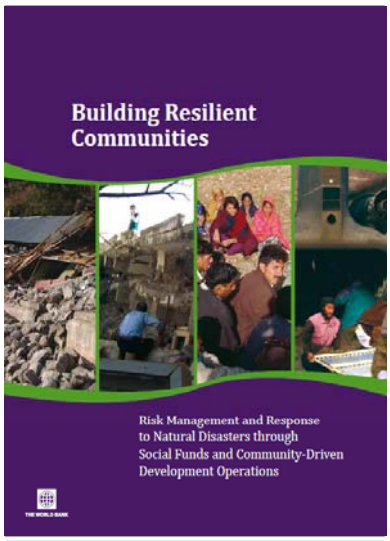
Title: **Building Resilient Communities:** ***Risk Management and Response to Natural Disasters through Social Funds and Community-Driven Development Operations***

Author: **The World Bank**

Date Published: **2008**

Abstract:
This book is designed to help World Bank teams working on social funds and community-driven development (CDD) operations to identify disaster risk management issues in their programs and to design and implement appropriate responses. It details the concepts and components of Community Based Disaster Risk Management (CBDRM) and its relationship to the achievement of the development and poverty reduction objectives of the World Bank. The contents is set out in 9 modules exploring
•Integrating CBDRM into The Project Cycle
•Disaster Risk Reduction (Prevention, Preparedness, and Mitigation)
•Disaster Response (Rescue and Relief)and Early Recovery
•Longer-Term Disaster Recovery (Rehabilitation and Reconstruction)
•Monitoring and Evaluation
•Targeting vulnerable groups
It has a strong focus on financial assistance and approaches to managing risks and presents a number of useful case studies.

'community based risk management is primarily about putting local people in the at the centre of the process to define their risks from natural hazards, to identify and implement appropriate solutions to reduce it and –when disaster strikes- support their self-directed recovery'
(World Bank, 2008,pp7)



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http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALPROTECTION/EXTSF/0,,contentMDK:21063535~menuPK:2968359~pagePK:210058~piPK:210062~theSitePK:396378,00.html

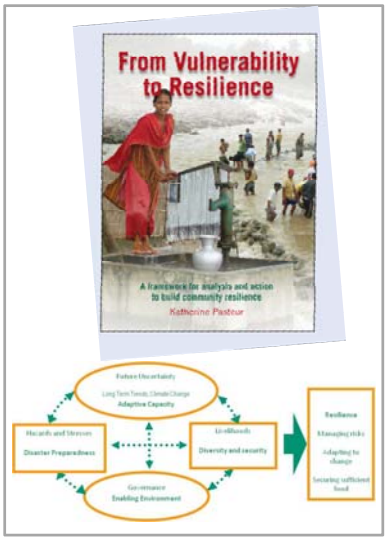
Title: **From Vulnerability to Resilience (V2R): A Framework for Analysis and Action to Build Community Resilience**

Author: **Pasteur, K**

Date Published: **2011**

Abstract:
This book is written with the needs and interest of Practical Action (where Pasteur is based) in mind and has a strong rural focus. However the key issues and principles are relevant to a wider audience of governments, NGO's and academics.
From *Vulnerability to Resilience (V2R)* is an approach and a framework that brings together several core areas of development programming to move people out of poverty- livelihoods, disaster preparedness, building adaptive capacity and addressing different areas of the governance environment. This in turn is intended to reduce exposure to hazards and stresses, fragile livelihoods, future uncertainty and weak governance.
The framework draws on a number of existing strategies such as the sustainable livelihoods (SL) model, disaster management and climate change adaptation. The SL model lends a people centred approach, however the V2R gives stronger emphasis to the relevance of shocks, trends and seasonality to bring a more detailed analysis of hazard exposure. A community based approach is taken whilst recognising the importance of linking with national policy.

'All too often there are huge gaps between policy and institutional rhetoric at the national level and community needs at the local level. '
(Pasteur, 2011,pp 67)



Not available to download.

Title: Integrated Development and Disaster Management Concepts to Reduce Vulnerability in Low Income Urban Settlements

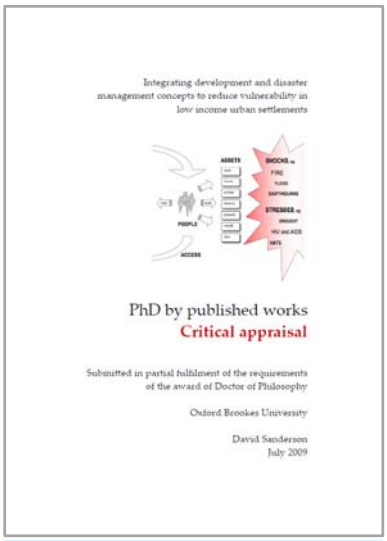
Author: Sanderson, D

Date Published: 2009

Abstract:
Disaster management and developmental interventions from aid agencies, while often focusing on the same populations, employ fundamentally different tools and approaches. While good development is continuous, long term, slow and 'bottom up', disaster management is usually one off, short term, fast and 'top=down'.

Conceptual models from the differing perspectives of disaster manager and development practitioner, often converge on similar issues- vulnerability and capacity or resilience. This document explores the methodological approaches used in disaster management and development the assumption that a more unified understanding will add value to the work of aid agencies. It examines the use of several developmental participatory approaches using disaster management models, leading to a reconceptualised version of the livelihoods model. This is a very helpful document clearly setting out the theory and the trends over the last 30 years.

'livelihoods based approaches seek to combine disaster and development methodologies'
(Sanderson, 2010,pp 22)


Integrating development and disaster management concepts to reduce vulnerability in low income urban settlements

PhD by published works
Critical appraisal

Submitted in partial fulfilment of the requirements of the award of Doctor of Philosophy

Oxford Brookes University

David Sanderson
July 2009

Not available to download.

Title: Understanding and Applying the Concept of a Community Disaster Resilience : A capital –based approach

Author: Mayunga, J

Date Published: July 2007

Abstract:
Mayunga is based in the Hazard Reduction and Recovery Centre in Texas A&M University. His paper attempts to develop a conceptual and methodological framework for the analysis, measurement and mapping of community resilience.
He goes on to propose the use of a capital-based approach to assess community resilience.

Five forms of capital are identified and the *indicators of resilience* associated with them:
•Social: *trust, norms, networks*
•Economic: *income, savings, investment*
•Human: *education, health, skills, knowledge/information*
•Physical: *housing, public facilities, business/industry*
•Natural: *resource stocks, land and water, ecosystem*
These are illustrated as a dynamic and interdependent factors or a larger whole. This thinking draws on a number of developmental frameworks such as DfID's sustainable livelihoods model.

Mayunga develops an equation that enables many indicators to be considered in conjunction by reducing them to a general 'score'.

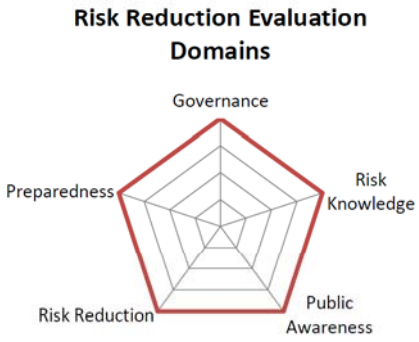
'assessing community resilience is a complex process because of the dynamic interactions of people, societies and the environment'
(Mayunga, 2007,pp 5)

Available to download from:
www.ehs.unu.edu/file/get/3761

Framework Analysis

American Red Cross(2010): Hyogo Framework

(Twigg (2009), Canadian Red Cross (2010))



RESILIENCE IS....

Red Cross CBDRR programs in the Latin America and Caribbean regions aim to reduce the number of deaths, injuries, and socio-economic impact from disasters by building safer, more resilient communities
(American Red Cross, 2010)

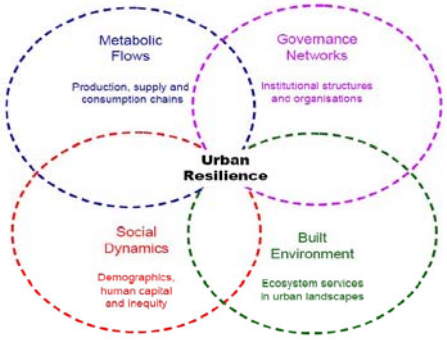
Adopted from the Hyogo Framework for Action

Questions...

Why was the HFA used as the framework?

PEOPLE-COMMUNITY LEVEL – DRR FOCUSSED– MULTI SECTORAL (Risk Reduction)—RURAL & URBAN

Resilience Alliance (2009): Socio-Ecological System Approach



RESILIENCE IS....

"Resilience" as applied to ecosystems, or to integrated systems of people and the natural environment, has three defining characteristics:
*•The amount of **change** the system can undergo and still retain the same controls on function and structure*
*•The degree to which the system is capable of **self-organization***
*•The ability to build and increase the capacity for **learning** and adaptation"*
(Resilience Alliance, 2010)

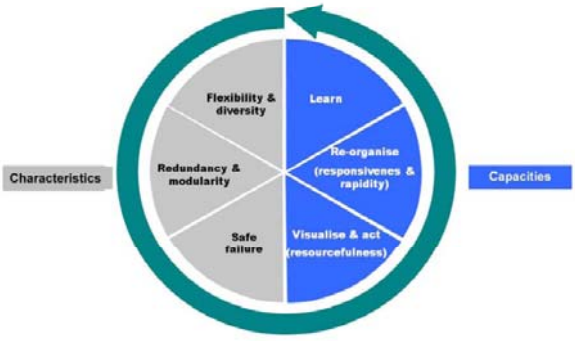
Questions...

How is resilience different for urban systems?

How are the 3 characteristics relating to the 4 fields of research?

ECOSYSTEMS & PEOPLE --CITY LEVEL – DEVELOPMENT FOCUSSED– MULTI SECTORAL - URBAN

Arup (2010): Urban Resilience

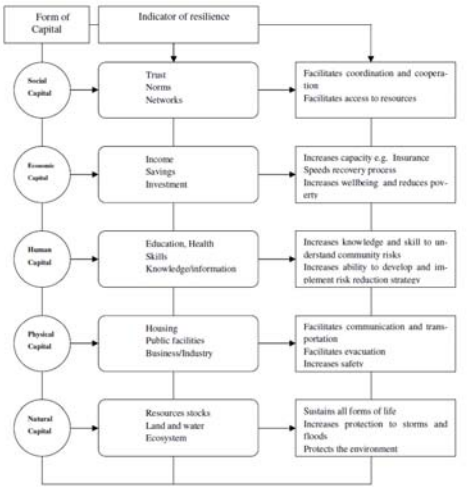


RESILIENCE IS....

A resilient city is able to withstand a variety of challenges because the following characteristics are incorporated into urban systems and the ways in which people construct and maintain those systems:
Redundancy: Some urban systems serve similar functions and can provide substitutable services when another system is disrupted;
Ductile: The ability to absorb shocks and slow-onset challenges in ways that avoid catastrophic "brittle" failure if thresholds are exceeded;
Capacity to Re-organize: The ability to change and evolve in response to changing conditions;
Capacity to learn: The ability to internalize past experience, respond to it, avoid past mistakes and have caution in future decisions;
Responsive: The ability to respond rapidly to sudden shocks in order to prevent loss of life and reduce suffering
(Arup,2009, ppii)

SYSTEMS--CITY LEVEL – CLIMATE CHANGE ADAPTATION FOCUSSED– MULTI SECTORAL- URBAN

Mayunga (2007): Capital Based Approach



RESILIENCE IS....

'community disaster resilience is referred to as the capacity or ability of a community to anticipate, prepare for, respond to, and recover quickly from impacts of disaster. This means that it is not only the measure of how quickly the community can recover from the disaster impacts, but also the ability to learn, cope with or adapt to hazards.'

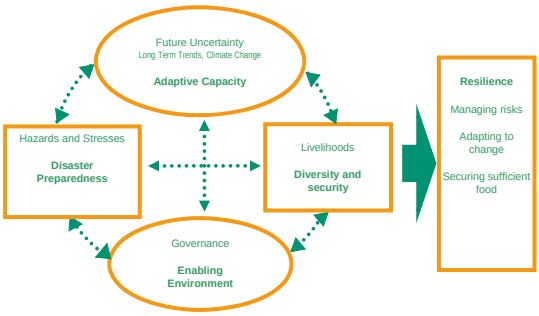
(Mayunga ,2007, pp4)

Questions...

Within the field of DRR/ resilience are some capitals more important than others? ie social?

ECOSYSTEMS & PEOPLE –COMMUNITY LEVEL– DEVELOPMENT &DRR FOCUSSED– MULTI SECTORAL

Pasteur (2011): Vulnerability to Resilience



RESILIENCE IS....

Resilience refers to the ability of a system, community or society to resist, absorb, cope with and recover from the effects of hazards and to adapt to longer term changes in a timely and efficient manner without enduring detriment to food security or wellbeing. It can be thought of as the capacity to endure shocks and stresses and bounce back, i.e. that individuals or communities have the ability to ride out the ups and downs that life might bring without their overall situation deteriorating.

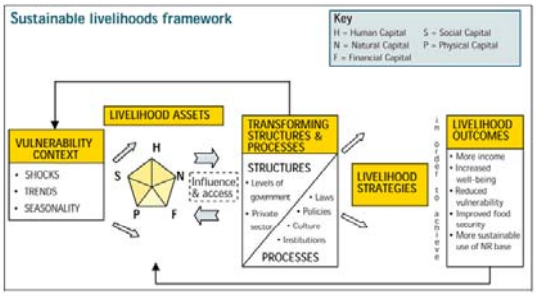
(Pasteur ,2011, pp13)

Questions...

Are these the only four factors? Don't they link with Twigg's (2009) characteristics of an enabling environment ?

PEOPLE –COMMUNITY LEVEL – DEVELOPMENT FOCUSSED– MULTI SECTORAL- RURAL

DfID (2007): Livelihoods Model

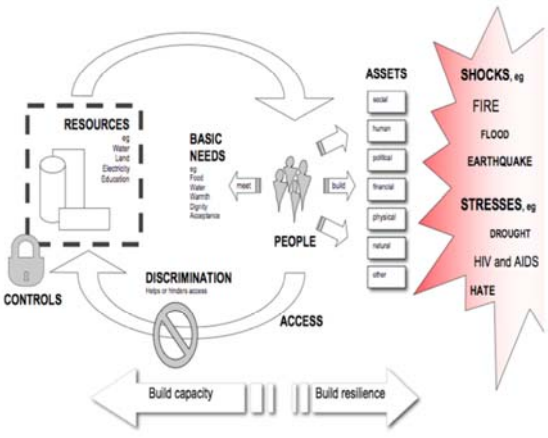


RESILIENCE IS....

Resilience not discussed but the model sought to describe vulnerability using the concepts of assets (capitals), hazards and controls (institutions, economics etc).

PEOPLE --HOUSEHOLD LEVEL – DEVELOPMENT & DRR FOCUSSED– MULTI SECTORAL- URBAN & RURAL

Sanderson (2010): Livelihoods (and Resilience)



RESILIENCE IS....

•The unit of resilience is communities- a relatively loose term used in development
•The use of 'systems' compared to the livelihood phrasing of 'assets'
•'cope with and recover from shocks and stresses' (livelihoods) – 'bounce back rapidly and adapt to cope with future threats (resilience)
•Resilience implies a timeline, livelihoods is cyclical

(adapted from Sanderson ,2010, pp67)

PEOPLE –MULTI- LEVEL – DEVELOPMENT & DRR FOCUSSED– MULTI SECTORAL – URBAN & RURAL

US IOTWS (2007): Multi-Sectoral Approach

Resilience Element	Benchmarks			
	Policy and Planning Capacity	Physical and Natural Capacity	Social and Cultural Capacity	Technical and Financial Capacity
Governance	A1. Community development policies, plans, and programs are implemented and monitored in a participatory and transparent manner.	A2. Basic services (i.e. water, transportation, security, etc.) are accessible to all sectors of society.	A3. Participatory collaboration mechanisms among different sectors and various levels of government are established and used to manage for resilience.	A4. Technical and financial support mechanisms are transparent, accountable, and available to support planned community actions.
Society and Economy	B1. Development policies and plans build social capital and skills for economic diversity and self reliance.	B2. Local economies are characterized by diverse and environmentally sustainable livelihoods.	B3. Social and cultural networks promote self-reliant communities and have the capacity to provide support to disaster-stricken areas.	B4. Technical and financial resources are available to promote stable and robust economies, reduce vulnerability to hazards, and aid in disaster recovery.

RESILIENCE IS....

Community resilience is the capacity of a community to adapt to and influence the course of environmental, social, and economic change

(US IOTWS, 2007, 3-1)

Questions...

Does the cross-referencing provide a duality to this framework?

ECOSYSTEMS & PEOPLE --COMMUNITY LEVEL – DEVELOPMENT FOCUSSED– MULTI SECTORAL- RURAL

Monday (2002): Sustainability Approach

RESILIENCE IS....

A healthy, balanced society (or nation, or community, depending on the strength of one's magnifying glass) is one that can endure into the future, providing a decent way of life for all its members it is a sustainable society.

(Monday, 2002,3)

Questions...

Is a resilient community a sustainable community?

Is a sustainable community a resilient community?

PEOPLE --COMMUNITY LEVEL – DEVELOPMENT & DRR FOCUSSED– MULTI SECTORAL- URBAN & RURAL

Community Resilience Project Team (2000): Increasing Capacity

RESILIENCE IS....

A resilient community is one that takes intentional action to enhance the personal and collective capacity of its citizens and institutions to respond to and influence the course of social and economic change
(Community Resilience Project team, 2009, 1)

Questions...

Can direct links be drawn here between sustainability and resilience?

PEOPLE --COMMUNITY LEVEL – DEVELOPMENT FOCUSSED– MULTI SECTORAL- URBAN & RURAL

B2 'Long List' of *Characteristics* Identified in the Literature Review

Literature Review 'Long List' of Characteristics

CAPACITIES

O' Rouke (2008) Critical Infrastructure, Interdependencies, and Resilience	
RESOURCEFULNESS	Resourcefulness: the **capacity** to **mobilize needed resources** and services in emergencies.
Arup (2010) Rapid Resilience Report	
RESOURCEFULNESS	**Capacity to visualise and act** (resourcefulness): **capacity to identify problems**, **establish priorities** and **mobilise resources**. Resourcefulness is also related to the capacity to recognize and devise strategies that relate to the agency (incentives and operational models) of different actor groups.
ORGANISE & RE-ORGANISE	**Capacity to organize and re-organise** (responsiveness and rapidity): ability to **establish function** and sense of order in a **timely manner** both in advance of and following from a failure.
CAPACITY TO LEARN	**Capacity to learn:** ability to **internalise past experiences** and failures.
FLEXIBILITY & DIVERSITY	The **ability** to **convert assets** and **evolve** towards new forms or functions. A resilient system has **key assets** and functions **distributed** so that they are not all affected by a given event at any one time (**locational diversity**) and multiple ways of meeting a given need (**functional diversity**).
REDUNDANCY & MODULARITY	**Spare capacity** to accommodate increasing or extreme/surge pressures/demand; **multiple pathways** and a **variety of options**, or a system that is composed of similar parts that can replace each other if one or many fail.
SAFE FAILURE	**Ability to absorb shocks** and the cumulative effects of slow-onset challenges in ways that **avoid catastrophic failure**. Safe failure also refers to the **'soft interdependence' of a system,** where, whilst network structures interlink in ways that support each other, failures are unlikely to result in cascades across other systems. It is also defined in relation to the ability to avoid catastrophic failure if thresholds are crossed.
IFRC (2008) A Framework for Community Safety and Resilience	
UNDERSTAND & MONITOR RISKS	They **understand the disaster risks** that they face, they **can assess and monitor these risks** and can protect and make themselves safe to minimize losses and damage when a disaster strikes.
SELF-SUFFICIENCY	They are **able to do much for themselves** and can **sustain their basic community functions** and structures despite the impact of disasters.
'BOUNCE BACK' & CONTINUE TO DEVELOP	They can **build back after a disaster** and work towards ensuring that **vulnerabilities continue to be reduced** for the future. More safety and resilience means less vulnerability.
LONG-TERM COMMITMENT & CAPACITY TO LEARN	They understand that **building safety and resilience is a long-term, continuous process** that requires ongoing **commitment.** In the face of such unknown factors as the effects of climate change, or the degree of urban growth or environmental degradation, they understand that there is much that can be done to adapt to future problems and challenges by **building on their current knowledge.**
CONTINUE TO DEVELOP	They appreciate the fact that being safe and disaster resilient means that there is a greater chance of **meeting development goals** which, in themselves, will greatly add to safety and resilience.

ADPC (2006)Critical Guidelines: Community Based Disaster Risk Management	
DISASTER MANAGEMENT& SUBSEQUENT ADAPTIVE BEHAVIOUR (i.e. CAPACITY TO LEARN)	Having **family or community disaster plans** as well as **adaptive behaviour**,(strengthening houses, providing emergency protection of doors and windows from high winds, etc.).
CAPACITY TO LEARN	Regarding the entire experience as a learning process.
RECOVERY & LIVELIHOODS CAPACITY TO LEARN	Regard **physical recovery work** as **bereavement therapy** and a possible **income source** and the entire reconstruction experience as a **learning process**
Bahadur et al (2010) The resilience renaissance? Unpacking of resilience for tackling climate change and disasters	
LEARNING	**Continual and effective learning** is important. This may take the form of iterative policy/institutional processes, **organisational learning**, **reflective practice**, adaptive management and may merge with the concept of **adaptive capacity.**
ACCEPT UNCERTAINTY AND CHANGE	The inevitable existence of **uncertainty** and **change is accepted**. The non-linearity or randomness of events in a system is acknowledged, which shifts policy from an attempt to control change and create stability to **managing the capacity of systems to cope with, adapt to, and shape change.**
Pasteur, K (2011) From Vulnerability to Resilience: A Framework for Analysis and Action to Build Community Resilience	
'BOUNCE BACK'; RAPIDITY; CONTINUE TO DEVELOP	Households can quickly be pushed back into poverty by hazard events, or by unexpected changes in the climate. Resilient households are able to **recover promptly** from hazards, and **adapt effectively** to long term trends, and are therefore able to use their resources effectively to **step out of poverty**
UNDERSTAND & MITIGATE RISKS; 'BOUNCE BACK'; SKILLS & RESOURCES	An **ability to manage risks** includes the **ability to understand and reduce the occurrence of hazards and stresses** where possible, and when they cannot be prevented, to **ride through the difficult period** and to promptly rebuild or recover what they have lost. **Positive coping strategies** are an important aspect of resilience. These are the strategies that households and communities use, based on available **skills and resources**, to face, manage and recover from adverse conditions, emergencies or disasters in the short term.
ADAPT TO CHANGE; ASSETS & INSTITUTIONAL SUPPORT	The ability to **adapt over the long term** to changes which contribute to uncertainty, including environmental, political, economic, and importantly, climatic changes. Resilient households and communities are able to **respond to change proactively,** making active choices about alternative livelihood strategies that will **maintain wellbeing under the changed context.** This requires **access to a diversity of livelihood assets, skills, information and institutional support** which can be combined to expand the range of options and opportunities for responding to change.
Cutter, S et al (2010) Disaster Resilience Indicators for Benchmarking Baseline Conditions	
INNOVATION	**Innovation**
SPECIAL NEEDS	**special needs**
Community resilience Project Team (2000) The Community Resilience Manual	
SELF SUFFICIENCY	The **community is self reliant** and looks to itself and its **own resources** to address major issues
ACCESS TO RESOURCES	The community looks **outside itself to seek and secure resources** (skills, expertise and finance) that will **address identified areas of weakness**

UN ISDR (2008) *Indicators of Progress: Guidance on Measuring the Reduction of Disaster Risks and the Implementation of the Hyogo Framework for Action*	
DECENTRALISED RESPONSIBILITIES; INSTITUTIONAL & LEGAL FRAMEWORKS; CAPACITIES AT ALL LEVELS	National **institutional and legal frameworks for disaster risk reduction** exist with **decentralized responsibilities** and **capacities at all levels.**
STRONG TECHNICAL & INSTITUTIONAL CAPACITIES	**Strong policy, technical and institutional capacities** and **mechanisms** for **disaster management,** with a disaster risk reduction perspective are in place.
Twigg ,J (2009,2nd Ed) Characteristics of a Disaster Resilient Community	
COMMUNITY PARTICIPATION; ACCESS TO INFORMATION; TRUST; CAPACITY TO LOBBY; MONITORING & EVALUATION	7.1. **Devolved DRR structures** facilitate **community participation.** 7.2. **Access to information** on local government plans, structures, etc 7.3. **Trust** within community and between community and external agencies. 7.4. **Capacity to challenge** and lobby external agencies on DRR plans, priorities, actions that may have an impact on risk. 7.5. Participatory **M&E systems** to assess resilience and progress in DRR. 7.6. **Inclusion/representation of vulnerable groups** in community decision making and management of DRR. 7.7. **High level of volunteerism** in DRR activities.
STOCKPILES & RELIEF ITEMS TO MEET BASIC NEEDS; CAPABLE OF MANAGING CRISIS; CONTINGENCY FUNDS; SELF-SUFFICIENCY	4.1. **Community organisations capable of managing crises and disasters,** alone and/ or in partnership with other organisations. 4.2. **Safe evacuation routes** identified and maintained, known to community members. 4.3. **Emergency shelters** (purpose built or modified): accessible to community (distance, secure evacuation routes, no restrictions on entry) and with adequate facilities for all affected population. 4.4. **Emergency shelters** for livestock. 4.5. Secure c**ommunications infrastructure** and access routes for emergency services and relief workers. 4.6. Two-way communications systems designed to function during crises. 4.7. **Emergency supplies** (buffer stocks) in place, managed by community alone or in partnership with other local organisations (incl. grain/seed banks). 4.8. **Community-managed emergency/ contingency funds.**

SELF SUFFICIENCY; TRUST; EQUITY; CLEAR ROLES & RESPONSIBILITIES; COMMUNITY KNOWLEDGE TO PROVIDE & REQUEST RELIEF	5.1. **Community capacity to provide effective and timely emergency response services**: e.g. search and rescue, first aid/ medical assistance, needs and damage assessment, relief distribution, emergency shelter, psychosocial support, road clearance. 5.2. **Community and other local agencies take lead role in co-ordinating response and recovery.** 5.3. Response and recovery actions **reach all affected members of community** and prioritised according to needs. 5.4. Community psychosocial support and counselling mechanisms. 5.5. **Community knowledge** of how to obtain aid and other support for relief and recovery. 5.6. **Community trust** in effectiveness, equity and impartiality of relief and recovery agencies and actions. 5.7. Community/locally led recovery planning and implementation of plans linking social, physical, economic and environmental aspects and based on maximum utilisation of local capacities and resources. 5.8. **Agreed roles, responsibilities and coordination** of recovery activities (involving local and external stakeholders). 5.9. Incorporation of DRR into community and local recovery plans.
IOTWS (2007) Manual on evaluating coastal community resilience to hazards	
SOCIAL NETWORKS & SELF SUFFICIENCY	**Social and cultural networks** promote **self-reliant communities** and have the **capacity to provide support** to disaster-stricken areas.
COMMUNITY PREPAREDNESS	**Community is prepared** to respond to hazard warnings with appropriate actions.
PREPAREDNESS ACTIVITIES & TRAINING	**Preparedness activities** (drills and simulations) are ongoing to **train and educate** responders.

QUALITIES OF ASSETS & RESOURCES

O' Rouke (2008) Critical Infrastructure, Interdependencies, and Resilience	
ROBUSTNESS	Robustness: the **inherent strength** or resistance in a system to **withstand external demands** without degradation or loss of functionality.
REDUNDANCY	Redundancy: system properties that allow for **alternate options, choices**, and **substitutions** under stress.
RAPIDITY	Rapidity: the **speed** with which disruption can be overcome and safety, services, and financial **stability restored.**
Arup (2010) Rapid Resilience Report	
FLEXIBILITY & DIVERSITY	The **ability** to **convert assets** and **evolve** towards new forms or functions. A resilient system has **key assets** and functions **distributed** so that they are not all affected by a given event at any one time (**locational diversity**) and multiple ways of meeting a given need (**functional diversity**).
REDUNDANCY & MODULARITY	**Spare capacity** to accommodate increasing or extreme/surge pressures/demand; **multiple pathways** and a **variety of options**, or a system that is composed of similar parts that can replace each other if one or many fail.
SAFE FAILURE	**Ability to absorb shocks** and the cumulative effects of slow-onset challenges in ways that **avoid catastrophic failure**. Safe failure also refers to the **'soft interdependence' of a system,** where, whilst network structures interlink in ways that support each other, failures are unlikely to result in cascades across other systems. It is also defined in relation to the ability to avoid catastrophic failure if thresholds are crossed.
Bahadur et al (2010) The resilience renaissance? Unpacking of resilience for tackling climate change and disasters	
DIVERSITY	A high level of **diversity** in groups performing different functions in an **ecosystem**; in the availability of **economic opportunities**; in the voices included in a resilience-building policy process; in **partnerships** within a community; in the **natural resources** on which communities may rely; and in planning, response and recovery activities.
EFFECTIVE GOVERNANCE; CAPACITY TO LEARN; FLEXIBLE	**Effective governance** and institutions which may enhance **community cohesion.** These should be **decentralised, flexible** and in touch with local realities; should facilitate **system-wide learning**; and perform other **specialised functions** such as translating scientific data on climate change into actionable guidance for policymakers.
PREPAREDNESS: REDUNDANCY & DISASTER MANAGEMENT	Preparedness activities **aim not at resisting change but preparing to live with it;** this could be by building in **redundancy** within systems (when partial failure does not lead to the system collapsing) or by incorporating failure scenarios in **Disaster Management** (DM) plans.
NON-EQUILIBRIUM SYSTEM DYNAMICS (CONTINUE TO DEVELOP)	The **non-equilibrium dynamics** of a system are acknowledged. Any approach to building resilience should not work with an idea of restoring equilibrium because **systems do not have a stable state** to which they should return after a disturbance.
Cutter, S et al (2010) Disaster Resilience Indicators for Benchmarking Baseline Conditions	
EDUCATIONAL EQUITY	**Educational equity**
INCOME & EQUALITY	**Income and Equality**
DIVERSITY: SINGLE SECTOR EMPLOYMENT DEPENDENCE:	**Single sector employment dependence**
BUSINESS SIZE	**Business size**

HEALTH ACCESS	**Health access**
SHELTER CAPACITY	**Shelter capacity**
HOUSING AGE	**Housing age**
Community resilience Project Team (2000) The Community Resilience Manual	
ECONOMIC SELF SUFFICIENCY & CONTINUED DEVELOPMENT	There is a variety of **community economic development (CED) organisations** in the community such that the key CED functions are well served
ECONOMIC SELF SUFFICIENCY & PARTNERSHIPS	Organisations in the community have developed **partnerships** and **collaborative working relationships**
DIVERSITY: EMPLOYMENT	**Employment** in the community is **diversified** beyond a single large employer
ECONOMIC SELF SUFFICIENCY	**Major employers** in the community are **locally owned.**
ECONOMIC SELF SUFFICIENCY	The community has a **strategy for increasing independent local ownership**
UN ISDR (2008) Indicators of Progress: Guidance on Measuring the Reduction of Disaster Risks and the Implementation of the Hyogo Framework for Action	
STRONG TECHNICAL & INSTITUTIONAL CAPACITIES	**Strong policy, technical and institutional capacities** and **mechanisms** for **disaster management,** with a disaster risk reduction perspective are in place.
Twigg ,J (2009,2nd Ed) Characteristics of a Disaster Resilient Community	
ECONOMIC EQUITY; ECONOMIC DIVERSITY; LIVELIHOODS	3.1. High level of local **economic activity** and **employment** (including among vulnerable groups); stability in economic activity and employment levels. 3.2. **Equitable distribution** of wealth and livelihood assets in community. 3.3. **Livelihood diversification** (household and community level), including on farm and off-farm activities in rural areas. 3.4. Fewer people engaged in unsafe livelihood activities (e.g. small-scale mining) or hazard-vulnerable activities (e.g. rain fed agriculture in drought prone locations). 3.5. Adoption of **hazard-resistant agricultural practices** (e.g. soil and water conservation methods, cropping patterns geared to low or variable rainfall, hazard-tolerant crops) for food security. 3.6. **Small enterprises have business protection** and continuity/ recovery plans. 3.7. Local trade and transport links with markets for products, labour and services protected against hazards and other external shocks.
SOCIAL ASSETS THAT SUPPORT DRR ACTIVITIES; TRADITIONAL KNOWLEDGE;	4.1. **Mutual assistance systems**, social networks and support mechanisms that **support risk reduction directly** through targeted DRR activities, indirectly through other socioeconomic development activities that reduce vulnerability, or by being capable of extending their activities to manage emergencies when these occur. 4.2. **Mutual assistance systems** that cooperate with community and other formal structures dedicated to disaster management. 4.3. Community access to **basic social services** (including registration for social protection and safety net services). 4.4. Established **social information and communication channels**; vulnerable people not isolated. 4.5. **Collective knowledge** and experience of management of previous events (hazards, crises).

ECONOMIC ASSETS: LARGE & DIVERSE	5.1. **Household and community asset bases** (income, savings, convertible property) sufficiently **large** and **diverse** to support crisis coping strategies. 5.2. **Costs and risks of disasters shared** through collective ownership of group/ community assets. 5.3. Existence of community/group savings and credit schemes, and/or access to micro-finance services. 5.4. Community access to **affordable insurance** (covering lives, homes and other property) through insurance market or micro-finance institutions. 5.5. **Community disaster fund** to implement DRR, response and recovery activities. 5.6. Access to **money transfers** and **remittances** from household and community members working in other regions or countries.
PHYSICAL ASSETS: MITIGATION MEASURES; RESILIENT CRITICAL INFRASTRUCTURE-BACK UP; PLANNING CRITERIA	6.1. **Community decisions and planning regarding built environment take potential natural hazard risks into account** (including potential for increasing risks through interference with ecological, hydrological, geological systems) and vulnerabilities of different groups. 6.2. **Security of land ownership/tenancy rights.** Low/minimal level of homelessness and landlessness. 6.3. **Safe locations**: community members and facilities (homes, workplaces, public and social facilities) not exposed to hazards in high-risk areas within locality and/or relocated away from unsafe sites. 6.4. **Structural mitigation measures** (embankments, flood diversion channels, water harvesting tanks, etc.) in place to protect against major hazard threats, built using local labour, skills, materials and appropriate technologies as far as possible. 6.5. **Knowledge and take-up of building codes/regulations** throughout community. 6.6. Adoption of **hazard-resilient construction and maintenance practices** for homes and community facilities using local labour, skills, materials and appropriate technologies as far as possible. 6.7. Community **capacities and skills to build,** retrofit and maintain structures (technical and organisational). 6.8. Adoption of **physical measures to protect items of domestic property** (e.g. raised internal platforms and storage as flood mitigation measure, portable stoves) and productive assets (e.g. livestock shelters). 6.9. Adoption of short-term protective measures against impending events (e.g. emergency protection of doors and windows from cyclone winds). 6.10. Infrastructure and public facilities to support emergency management needs (e.g. shelters, secure evacuation and emergency supply routes). 6.11. R**esilient and accessible critical facilities** (e.g. health centres, hospitals, police and fire stations – **in terms of structural resilience, back-up systems, etc.).**
IOTWS (2007) Manual on evaluating coastal community resilience to hazards	
BUILD ASSETS FOR ECONOMIC DIVERSITY AND SELF SUFFICIENCY	Development policies and plans **build social capital** and **skills** for **economic diversity** and **self reliance.**
DIVERSE & SUSTAINABLE LIVELIHOODS	**Local economies** are characterized by **diverse** and **environmentally sustainable livelihoods.**
RISK REDUCTION INCORPORATED IN LOCATION & CONSTRUCTION OF INFRASTRUCTURE	**Critical infrastructure** are **located outside high-risk areas** and **constructed** to address risks from priority hazards.
RISK REDUCTION INCORPORATED IN LOCATION & DESIGN OF STRUCTURES	Developers and communities incorporate **risk reduction** into the **location and design of structures.**

EXTERNAL RESOURCES

Bahadur et al (2010) The resilience renaissance? Unpacking of resilience for tackling climate change and disasters	
DIVERSITY	A high level of **diversity** in groups performing different functions in an **ecosystem**; in the availability of **economic opportunities**; in the voices included in a resilience-building policy process; in **partnerships** within a community; in the **natural resources** on which communities may rely; and in planning, response and recovery activities.
COMMUNITY PARTICIPATION; TRADITIONAL KNOWLEDGE; NATURAL RESOURCES	There is **community involvement** and the appropriation of **local knowledge** in any resilience-building projects; communities enjoy **ownership** of **natural resources;** communities have a **voice** in relevant policy processes.
SOCIAL ASSETS & EQUAL ACCESS TO NATURAL RESOURCES	The **importance of social values and structures** is acknowledged because association between individuals can have a positive impact on cooperation in a community which may lead to more **equal access to natural resources** and greater resilience; it may also bring down transaction costs as agreements between community members would be honoured.
Cutter, S et al (2010) Disaster Resilience Indicators for Benchmarking Baseline Conditions	
TRANSPORTATION ACCESS	**Transportation access**
COMMUNICATION CAPACITY	**Communication capacity**
MUNICIPAL SERVICES	**Municipal services**
POLITICAL FRAGMENTATION	**Political Fragmentation**
MEDICAL CAPACITY	**Medical capacity**
ACCESS/EVACUATION POTENTIAL	**Access/ evacuation potential**
Community resilience Project Team (2000) The Community Resilience Manual	
ACCESS TO RESOURCES	The community looks **outside itself to seek and secure resources** (skills, expertise and finance) that will **address identified areas of weakness**
Mayunga, J (2007) Understanding and Applying the Concept of a Community Disaster Resilience : A capital –based approach	
RESOURCES & STOCKPILES	Resources stocks
LAND & WATER	Land and water
ECOSYSTEM	Ecosystem
Twigg ,J (2009,2nd Ed) Characteristics of a Disaster Resilient Community	
CLEAR RESPONSIBILITIES ESTABLISHED; ASSETS/RESOURCES FOR DRR & RECOVERY	5.1**. Representative community organisations** dedicated to DRR/DRM. 5.2. Local NGOs, CBOs and communities of interest engaged with other issues capable of supporting DRR and response. 5.3. **Responsibilities,** resources, etc., **defined** in community disaster plans. 5.4. Shared understanding among all local stakeholders regarding **DRR responsibilities,** authority and decision making. 5.5. **Community-managed funds** and other **material resources** for DRR and disaster recovery. 5.6. **Access to government** and other **funding and resources** for DRR and recovery.

COMMUNITY PARTICIPATION; ACCESS TO INFORMATION; TRUST; CAPACITY TO LOBBY; MONITORING & EVALUATION	7.1. **Devolved DRR structures** facilitate **community participation.** 7.2. **Access to information** on local government plans, structures, etc 7.3. **Trust** within community and between community and external agencies. 7.4. **Capacity to challenge** and lobby external agencies on DRR plans, priorities, actions that may have an impact on risk. 7.5. Participatory **M&E systems** to assess resilience and progress in DRR. 7.6. **Inclusion/representation of vulnerable groups** in community decision making and management of DRR. 7.7. **High level of volunteerism** in DRR activities.
MEETING BASIC NEEDS; ACCESS TO HEALTHCARE	2.1. **Physical ability** to labour and **good health maintained** in normal times through adequate food and nutrition, hygiene and health care. 2.2. High levels of **personal security and freedom** from physical and psychological threats. 2.3. Food supplies and **nutritional status secure** (e.g. through reserve stocks of grain and other staple foods managed by communities, with equitable distribution system during food crises).
PREPAREDNESS: CLEAR RESPONSIBILITIES ESTABLISHED; ONGOING COMMITMENT; CROSS-SCALAR; ACCESS TO RESOURCES	3.1. A **community DP or contingency plan** exists for all major risks. 3.2. DP/contingency plans developed through participatory methods, and understood and supported by all members of community. 3.3. Plans co-ordinated with official emergency plans and compatible with those of other agencies. 3.4. **Roles and responsibilities of different local and external actors defined**, understood and agreed – and appropriate. 3.5. Planning process builds consensus and strengthens relationships and coordination mechanisms between various stakeholders. 3.6. **Linkages** (formal/informal) to technical experts, local authorities, NGOs, etc., to assist with community planning and training. 3.7. **Plans tested regularly** through e.g. community drills or simulation exercises. 3.8. **Plans reviewed and updated regularly** by all relevant stakeholders. 3.9. **Households and families develop their own DP plans** within context of community plan. 3.10. **Local businesses develop their own continuity and recovery plans** within context of community plan. 3.11. Contingency planning informed by understanding of broader local planning provisions and facilities.
IOTWS (2007) Manual on evaluating coastal community resilience to hazards	
TECHNICAL & FINANCIAL RESOURCES	**Technical and financial resources are available** to promote stable and robust economies, reduce vulnerability to hazards, and aid in disaster recovery.
RISK REDUCTION INCORPORATED IN LOCATION & CONSTRUCTION OF INFRASTRUCTURE	**Critical infrastructure** are **located outside high-risk areas** and **constructed** to address risks from priority hazards.
RISK REDUCTION INCORPORATED IN LOCATION & DESIGN OF STRUCTURES	Developers and communities incorporate **risk reduction** into the **location and design of structures.**
PREPAREDNESS &RESOURCES	Organizations and volunteers are in place with **technical and financial resources** to support **emergency response activities.**
TECHNICAL & FINANCIAL RESOURCES (EVACUATION)	**Technical and financial resources** are available to support the **recovery process.**

ASSETS

IFRC (2008) A Framework for Community Safety and Resilience	
UNDERSTAND & MONITOR RISKS	They **understand the disaster risks** that they face, they **can assess and monitor these risks** and can protect and make themselves safe to minimize losses and damage when a disaster strikes.
LONG-TERM COMMITMENT & CAPACITY TO LEARN	They understand that **building safety and resilience is a long-term, continuous process** that requires ongoing **commitment.** In the face of such unknown factors as the effects of climate change, or the degree of urban growth or environmental degradation, they understand that there is much that can be done to adapt to future problems and challenges by **building on their current knowledge.**
ADPC (2006)Critical Guidelines: Community Based Disaster Risk Management	
TRADITIONAL EXPERIENCE & KNOWLEDGE	Using **traditional experience** and **knowledge** (coping mechanisms)
EMERGENCY EQUIPMENT	**Preparing** for any possible hazard by having **emergency kits** or supplies, **(buffer stocks)** ready for the event.
DISASTER MANAGEMENT& SUBSEQUENT ADAPTIVE BEHAVIOUR (i.e. ABILITY TO LEARN)	Having **family or community disaster plans** as well as **adaptive behaviour**,(strengthening houses, providing emergency protection of doors and windows from high winds, etc.).
TRAINING	Organizing **training courses** in if rest aid, etc.
DAMAGE ASSESSMENT	**Taking stock** to determine **what they have** and what or **who is missing**.
COMMUNICATION & AID DISTRIBUTION	**Restoring communications** to facilitate **aid distribution.**
Bahadur et al (2010) The resilience renaissance? Unpacking of resilience for tackling climate change and disasters	
EFFECTIVE GOVERNANCE; CAPACITY TO LEARN; FLEXIBLE	**Effective governance** and institutions which may enhance **community cohesion.** These should be **decentralised, flexible** and in touch with local realities; should facilitate **system-wide learning**; and perform other **specialised functions** such as translating scientific data on climate change into actionable guidance for policymakers.
COMMUNITY PARTICIPATION; TRADITIONAL KNOWLEDGE; NATURAL RESOURCES	There is **community involvement** and the appropriation of **local knowledge** in any resilience-building projects; communities enjoy **ownership** of **natural resources;** communities have a **voice** in relevant policy processes.
PREPAREDNESS: REDUNDANCY & DISASTER MANAGEMENT	Preparedness activities **aim not at resisting change but preparing to live with it;** this could be by building in **redundancy** within systems (when partial failure does not lead to the system collapsing) or by incorporating failure scenarios in **Disaster Management** (DM) plans.
SOCIAL ASSETS & EQUAL ACCESS TO NATURAL RESOURCES	The **importance of social values and structures** is acknowledged because association between individuals can have a positive impact on cooperation in a community which may lead to more **equal access to natural resources** and greater resilience; it may also bring down transaction costs as agreements between community members would be honoured.
Pasteur, K (2011) From Vulnerability to Resilience: A Framework for Analysis and Action to Build Community Resilience	

UNDERSTAND & MITIGATE RISKS; 'BOUNCE BACK'; SKILLS & RESOURCES	An **ability to manage risks** includes the **ability to understand and reduce the occurrence of hazards and stresses** where possible, and when they cannot be prevented, to **ride through the difficult period** and to promptly rebuild or recover what they have lost. **Positive coping strategies** are an important aspect of resilience. These are the strategies that households and communities use, based on available **skills and resources**, to face, manage and recover from adverse conditions, emergencies or disasters in the short term.
ADAPT TO CHANGE; ASSETS & INSTITUTIONAL SUPPORT	The ability to **adapt over the long term** to changes which contribute to uncertainty, including environmental, political, economic, and importantly, climatic changes. Resilient households and communities are able to **respond to change proactively,** making active choices about alternative livelihood strategies that will **maintain wellbeing under the changed context.** This requires **access to a diversity of livelihood assets, skills, information and institutional support** which can be combined to expand the range of options and opportunities for responding to change.
Cutter, S et al (2010) Disaster Resilience Indicators for Benchmarking Baseline Conditions	
TRANSPORTATION ACCESS	**Transportation access**
COMMUNICATION CAPACITY	**Communication capacity**
LANGUAGE COMPETENCY	**language competency**
HEALTH COVERAGE	**Health coverage**
HOUSING CAPITAL	**Housing capital**
EMPLOYMENT	**Employment**
INCOME & EQUALITY	**Income and Equality**
POLITICAL FRAGMENTATION	**Political Fragmentation**
MITIGATION & SOCIAL	**Mitigation and social connectivity**
HOUSING TYPE	**Housing type**
MEDICAL CAPACITY	**Medical capacity**
ACCESS/EVACUATION POTENTIAL	**Access/ evacuation potential**
POLITICAL ENGAGEMENT	**Political engagement**
RELIGION	**Social capital religion**
CIVIC INVOLVEMENT	**Social capital – civic involvement**
ADVOCACY	**Social capital – advocacy**
Community resilience Project Team (2000) The Community Resilience Manual	
SELF SUFFICIENCY	The **community is self reliant** and looks to itself and its **own resources** to address major issues
EDUCATION	There is a strong belief in and **support for education** at all levels
ECONOMIC SELF SUFFICIENCY & CONTINUED DEVELOPMENT	There is a variety of **community economic development (CED) organisations** in the community such that the key CED functions are well served
ECONOMIC SELF SUFFICIENCY & PARTNERSHIPS	Organisations in the community have developed **partnerships** and **collaborative working relationships**
DIVERSITY: EMPLOYMENT	**Employment** in the community is **diversified** beyond a single large employer
ECONOMIC SELF SUFFICIENCY	**Major employers** in the community are **locally owned.**
ECONOMIC SELF SUFFICIENCY	The community has a **strategy for increasing independent local ownership**
Mayunga, J (2007) Understanding and Applying the Concept of a Community Disaster Resilience : A capital –based approach	
TRUST	Trust

NORMS	Norms
NETWORKS	Networks
INCOME	Income
SAVINGS	Savings
INVESTMENT	Investment
EDUCATION	Education
HEALTH	Health
SKILLS	Skills
KNOWLEDGE/ INFORMATION	Knowledge/Information
HOUSING	Housing
PUBLIC FACULTIES	Public faculties
BUSINESS / INDUSTRY	Business /Industry
LAND & WATER	Land and water
ECOSYSTEM	Ecosystem
UN ISDR (2008) Indicators of Progress: Guidance on Measuring the Reduction of Disaster Risks and the Implementation of the Hyogo Framework for Action	
EDUCATION & TRAINING	**School curricula, education materia**l and **relevant trainings** include **risk reduction and recovery concepts and practices.**
ECONOMIC ASSETS/ STOCKPILE	**Financial reserves** and **contingency mechanisms** are in place to enable effective response and recovery when required.
Twigg ,J (2009,2nd Ed) Characteristics of a Disaster Resilient Community	
UNDERSTANDING OF RELEVANT LEGISLATION & RIGHTS	2.1. **Community understands relevant legislation**, regulations and procedures, and their importance. 2.2. **Community aware of its rights** and **the legal obligations of government** and other stakeholders to **provide protection**.
CLEAR RESPONSIBILITIES ESTABLISHED; ASSETS/RESOURCES FOR DRR & RECOVERY	5.1**. Representative community organisations** dedicated to DRR/DRM. 5.2. Local NGOs, CBOs and communities of interest engaged with other issues capable of supporting DRR and response. 5.3. **Responsibilities,** resources, etc., **defined** in community disaster plans. 5.4. Shared understanding among all local stakeholders regarding **DRR responsibilities,** authority and decision making. 5.5. **Community-managed funds** and other **material resources** for DRR and disaster recovery. 5.6. **Access to government** and other **funding and resources** for DRR and recovery.
TRADITIONAL KNOWLEDGE & INNOVATIVE METHODS	3.1. Community members and organisations **trained in hazards, risk and VCA** techniques and **supported** to carry out assessments. 3.2. Use of **indigenous knowledge** and local perceptions of risk as well as other s**cientific knowledge**, data and assessment methods.
COMMUNITY KNOWLEDGE & SKILLS; AWARENESS OF RISKS	1.1. **Shared vision** of a prepared and resilient community. 1.2. **Whole community** has been exposed to/**taken part in ongoing awareness campaigns**, which are geared to community needs and capacities (e.g. literacy levels). 1.3. **Community knowledge** of hazards, vulnerability, risks and risk reduction actions sufficient for effective action by community (alone and in collaboration with other stakeholders). 1.4. Possession (by individuals and across community) of **appropriate technical and organisational knowledge** and skills for DRR and response actions at local level (including indigenous technical knowledge, coping strategies, livelihood strategies). 1.5. **Open debate** within community resulting in agreements about problems, solutions, priorities, etc.

COMMUNITY KNOWLEDGE & SKILLS; AWARENESS OF RISKS	2.1. Information on risk, vulnerability, disaster management practices, etc., **shared among those at risk.** 2.2. Community disaster plans **publicly available** and **widely understood.** 2.3. All sections of **community know about facilities/services/skills available pre-,during and post-emergency,** and how to access these. 2.4. Content and methods of communicating information developed with communities (i.e. 'communication' not 'information dissemination'). 2.5. Maximum deployment of **indigenous, traditional, informal communications channels.** 2.6. Impact of information materials and communication strategies evaluated
EDUCATION; COMMUNITY KNOWLEDGE, EXPERIENCE & SKILLS TO REDUCE RISK	3.1. Local schools provide **education in DRR for children** through curriculum and where appropriate extra-curricular activities. 3.2. DRR/DRM and other **training** addresses priorities identified by community and based on community assessment of risks, vulnerabilities and associated problems. 3.3. Community members and organisations trained in relevant skills for **DRR and DP** (e.g. hazard-risk vulnerability assessment, community DRM planning, search and rescue, first aid, management of emergency shelters, needs assessment, relief distribution, fire-fighting). 3.4. Householders and builders trained in **safe construction** and **retrofitting techniques**, and other practical steps to protect houses and property. 3.5. (rural) Community members skilled or trained in appropriate agricultural, land use, water management and environmental management practices. 3.6. Community **experience of coping in previous events/crises**, or knowledge of how this was done.
SHARED COMMUNITY VALUES; BEHAVIOURAL CHANGE; COMMUNITY KNOWLEDGE & SKILLS;	4.1. **Shared community values**, aspirations and **goals** (and positive sense of the future, commitment to community as a whole, agreement of community goals). 4.2. Cultural attitudes and values (e.g. expectations of help/self-sufficiency, religious/ideological views) enable communities to adapt to and recover from shocks and stresses. 4.3. **Informed, realistic attitudes towards risk** and risk management. 4.4. Justifiable confidence about safety and capacities of self-reliance. 4.5. **Possession of (or access to) the information, resources and support** desired/needed to ensure safety. 4.6. Feelings of **personal responsibility** for preparing for disasters and reducing disaster risk. 4.7. **Safer behaviour** as result of awareness raising.
TRADITIONAL KNOWLEDGE &MONITORING & EVALUATION	5.1. Documentation, use and adaptation of **indigenous technical knowledge** and coping strategies. 5.2. **Participatory M&E systems** to assess resilience and progress in DRR.

ENVIRONMENTAL RESOURCE MANAGEMENT; TRADITIONAL KNOWLEDGE;	1.1. **Community understanding** of characteristics and functioning of local **natural environment and ecosystems** (e.g. drainage, watersheds, slope and soil characteristics) and the potential risks associated with these natural features and human interventions that affect them. 1.2. Adoption of sustainable **environmental management** practices that reduce hazard risk. 1.3. **Preservation of biodiversity** (e.g. through community-managed seed banks, with equitable distribution system). 1.4. Preservation and application of **indigenous knowledge** and **appropriate technologies** relevant to environmental management. 1.5. Access to community-managed **common property resources** that can support coping and livelihood strategies in normal times and during crises.
ECONOMIC EQUITY; ECONOMIC DIVERSITY; LIVELIHOODS	3.1. High level of local **economic activity** and **employment** (including among vulnerable groups); stability in economic activity and employment levels. 3.2. **Equitable distribution** of wealth and livelihood assets in community. 3.3. **Livelihood diversification** (household and community level), including on farm and off-farm activities in rural areas. 3.4. Fewer people engaged in unsafe livelihood activities (e.g. small-scale mining) or hazard-vulnerable activities (e.g. rain fed agriculture in drought prone locations). 3.5. Adoption of **hazard-resistant agricultural practices** (e.g. soil and water conservation methods, cropping patterns geared to low or variable rainfall, hazard-tolerant crops) for food security. 3.6. **Small enterprises have business protection** and continuity/ recovery plans. 3.7. Local trade and transport links with markets for products, labour and services protected against hazards and other external shocks.
SOCIAL ASSETS THAT SUPPORT DRR ACTIVITIES; TRADITIONAL KNOWLEDGE;	4.1. **Mutual assistance systems**, social networks and support mechanisms that **support risk reduction directly** through targeted DRR activities, indirectly through other socioeconomic development activities that reduce vulnerability, or by being capable of extending their activities to manage emergencies when these occur. 4.2. **Mutual assistance systems** that cooperate with community and other formal structures dedicated to disaster management. 4.3. Community access to **basic social services** (including registration for social protection and safety net services). 4.4. Established **social information and communication channels**; vulnerable people not isolated. 4.5. **Collective knowledge** and experience of management of previous events (hazards, crises).
ECONOMIC ASSETS: LARGE & DIVERSE	5.1. **Household and community asset bases** (income, savings, convertible property) sufficiently **large** and **diverse** to support crisis coping strategies. 5.2. **Costs and risks of disasters shared** through collective ownership of group/ community assets. 5.3. Existence of community/group savings and credit schemes, and/or access to micro-finance services. 5.4. Community access to **affordable insurance** (covering lives, homes and other property) through insurance market or micro-finance institutions. 5.5. **Community disaster fund** to implement DRR, response and recovery activities. 5.6. Access to **money transfers** and **remittances** from household and community members working in other regions or countries.

PHYSICAL ASSETS: MITIGATION MEASURES; RESILIANT CRITICAL INFRASTRUCTURE-BACK UP; PLANNING CRITERIA	6.1. **Community decisions and planning regarding built environment take potential natural hazard risks into account** (including potential for increasing risks through interference with ecological, hydrological, geological systems) and vulnerabilities of different groups. 6.2. **Security of land ownership/tenancy rights.** Low/minimal level of homelessness and landlessness. 6.3. **Safe locations**: community members and facilities (homes, workplaces, public and social facilities) not exposed to hazards in high-risk areas within locality and/or relocated away from unsafe sites. 6.4. **Structural mitigation measures** (embankments, flood diversion channels, water harvesting tanks, etc.) in place to protect against major hazard threats, built using local labour, skills, materials and appropriate technologies as far as possible. 6.5. **Knowledge and take-up of building codes/regulations** throughout community. 6.6. Adoption of **hazard-resilient construction and maintenance practices** for homes and community facilities using local labour, skills, materials and appropriate technologies as far as possible. 6.7. Community **capacities and skills to build,** retrofit and maintain structures (technical and organisational). 6.8. Adoption of **physical measures to protect items of domestic property** (e.g. raised internal platforms and storage as flood mitigation measure, portable stoves) and productive assets (e.g. livestock shelters). 6.9. Adoption of short-term protective measures against impending events (e.g. emergency protection of doors and windows from cyclone winds). 6.10. Infrastructure and public facilities to support emergency management needs (e.g. shelters, secure evacuation and emergency supply routes). 6.11. R**esilient and accessible critical facilities** (e.g. health centres, hospitals, police and fire stations – **in terms of structural resilience, back-up systems, etc.).** 6.12. **Resilient transport/service infrastructure and connections** (roads, paths, bridges, water supplies, sanitation, power lines, communications, etc.). 6.13. **Locally owned or available transport sufficient for emergency needs** (e.g. evacuation, supplies), at least in the event of seasonal hazards; transport repair capacity within community.
RESPONSE: CLEAR RESPONSIBILITIES ESTABLISHED; ONGOING COMMITMENT & TRAINING; SKILLS AVAILABLE IN COMMUNITY	1.1. Local and **community DP/response capacities assessed by communities** (themselves or in partnership with external agencies). 1.2. Local organisational structures for DP/ emergency response (e.g. disaster preparedness evacuation committees). 1.3. Local DP/response organisations are community managed and representative. 1.4. **Roles and responsibilities** of local DP/ response organisations and their members **clearly defined,** agreed and understood. 1.5. Emergency facilities (communications equipment, shelters, control centres, etc.) **available and managed by community or its** organisations on behalf of all community members. 1.6. **Sufficient number of trained organisational personnel and community members** to carry out relevant tasks (e.g. communication, search and rescue, first aid, relief distribution). 1.7. **Regular training** (refresher courses and new skills) provided by/for local organisations; regular practice drills, scenario exercises, etc. 1.8. Defined and agreed co-ordination and decision-making mechanisms between community organisations and external technical experts, local authorities, NGOs, etc. 1.9. Defined and agreed co-ordination and decision-making mechanisms with neighbouring communities/localities and their organisations.

SELF SUFFICIENCY; TRUST; EQUITY; CLEAR ROLES & RESPONSIBILITIES; COMMUNITY KNOWLEDGE TO PROVIDE & REQUEST RELIEF	5.1. **Community capacity to provide effective and timely emergency response services**: e.g. search and rescue, first aid/ medical assistance, needs and damage assessment, relief distribution, emergency shelter, psychosocial support, road clearance. 5.2. **Community and other local agencies take lead role in co-ordinating response and recovery.** 5.3. Response and recovery actions **reach all affected members of community** and prioritised according to needs. 5.4. Community psychosocial support and counselling mechanisms. 5.5. **Community knowledge** of how to obtain aid and other support for relief and recovery. 5.6. **Community trust** in effectiveness, equity and impartiality of relief and recovery agencies and actions. 5.7. Community/locally led recovery planning and implementation of plans linking social, physical, economic and environmental aspects and based on maximum utilisation of local capacities and resources. 5.8. **Agreed roles, responsibilities and coordination** of recovery activities (involving local and external stakeholders). 5.9. Incorporation of DRR into community and local recovery plans

IOTWS (2007) Manual on evaluating coastal community resilience to hazards

BUILD ASSETS FOR ECONOMIC DIVERSITY AND SELF SUFFICIENCY	Development policies and plans **build social capital** and **skills** for **economic diversity** and **self reliance.**
DIVERSE & SUSTAINABLE LIVELIHOODS	**Local economies** are characterized by **diverse** and **environmentally sustainable livelihoods.**
SOCIAL NETWORKS & SELF SUFFICIENCY	**Social and cultural networks** promote **self-reliant communities** and have the **capacity to provide support** to disaster-stricken areas.
EDUCATION	Education, outreach, and training programs are established to improve compliance with land use policies and building
STOCKPILES	Basic **emergency** and **relief services** are available.
PREPAREDNESS ACTIVITIES & TRAINING	**Preparedness activities** (drills and simulations) are ongoing to **train and educate** responders.

To Be Categorised

ADPC (2006)Critical Guidelines: Community Based Disaster Risk Management	
MULTIPLE PREPARATION APPROACHES	Societies **anticipate** and **reduce disaster impact by adopting many approaches**
EVACUATION	**Temporary evacuation** before an impending flood or cyclone of volcanic eruption.
PERMANENT RELOCATION	**Permanent relocation** of the community away from unsafe sites
SELF SUFFICIENCY	Drawing on the **support of their community.**
MITIGATING RISKS	**Mitigating future risks** (both psychological as well as material threats).
RECOVERY & LIVELIHOODS	Recognizing that **physical recovery work** can combine **bereavement therapy** with a possible **income source**.
RECOVERY PLAN	Devise a **community recovery plan** that links social, physical, economic and environmental recovery;
SELF SUFFICIENCY: ADAPTABLE & PATIENT	Draw on **support of their community** by being **adaptable, flexible** and **patient.**
SUPPORT LOCAL ECONOMY	Where possible ensure that there is **local purchase** or reconstruction goods using **local labour** to **re-vitalize** the damaged local economy.
PREPARATION	Recognize the value of a **prepared community** who know what to do to recover.
REDUCE VULNERABILITY	Take actions to **reduce future vulnerability** as the recovery proceeds.
Bahadur et al (2010) The resilience renaissance? Unpacking of resilience for tackling climate change and disasters	
EQUITY & DISTRIBUTED RISKS	A high degree of **social and economic equity** exists in systems; resilience programmes consider issues of **justice** and equity when **distributing risks** within communities.
CROSS-SCALAR	Resilient systems take a **cross-scalar perspective** of events and occurrences. Resilience is built through social, political, economic and cultural **networks** that reach from the local to the global scale.
Cutter, S et al (2010) Disaster Resilience Indicators for Benchmarking Baseline Conditions	
AGE	**Age**
MITIGATION	**Mitigation**
FLOOD COVERAGE	**Flood coverage**
PREVIOUS DISASTER EXPERIENCE	**Previous disaster experience**
SHELTERING NEEDS	**Sheltering needs**
RECOVERY	**Recovery**
Community resilience Project Team (2000) The Community Resilience Manual	
REPRESENTATIVE LEADERSHIP	**Leadership** is **representative** of the community
VISIONARY LEADERSHIP & POWER SHARE (COMMUNITY PARTICIPATION)	Elected **community leadership is visionary**, **shares power** and **builds consensus**
COMMUNITY PARTICIPATION	**Community members are involved** in significant community decisions
SENSE OF PRIDE	The people feel a **sense of pride**
OPTIMISTIC	**People feel optimistic** about the future of the community
COMMUNITY COHESION	There is a **sense of mutual assistance** and cooperation in the community
SENSE OF ATTACHMENT	People feel a **sense of attachment** to their community

OPEN TO ALTERNATIVE LIVELIHOODS	There is an openness to **alternative ways of earning a living** and economic activity
COMPETITIVE POSITION IN BROADER ECONOMY	The community is aware of its **competitive position** in the **broader economy**
PLAN & CONTINUE TO DEVELOP (ECONOMIC)	The community has a **community economic development plan** that guides its development
COMMUNITY PARTICIPATION	**Citizens are involved** in the creation and implementation of the **community vision and goals**
LONG-TERM COMMITMENT	There is **on-going action** towards achieving the goals in the CED plan
REGULAR MONITORING & EVALUATION	There is **regular evaluation** of progress towards the community's strategic goals
USE DEVELOPMENT PLANS	Organisations **use the CED plan** to guide their actions
EQUALITY	The community adopts a **development approach** that encompasses **all segments of the population**

B3 Summary of fieldwork findings: What makes your community safe and resilient?

Groupings of Factors Identified in Communities:

A safe and resilient community....

HUMAN ASSETS				
can…assess how prepared they are				
Thung Sa Boe	Satun	Thailand	Tsunami Stress	Survey if every house is properly prepared for any time
can…cook and distribute food internally				
Radella	Ratnapura	Sri Lanka	Floods	Cook food and distribute
Pepalang	Aceh Tengah	Indonesia	Floods	Food distribution
Bener Mulie	Aceh Tengga	Indonesia	Volcano	Set up public kitchens
…stay calm, don't panic				
Thung Ma Hnang	Satun	Thailand	Tsunami	Stay calm, don't panic
can…communicate, internally and externally				
Pepalang	Aceh Tengah	Indonesia	Forest Fires	Make and put warning signs around vulnerable areas
Pulot	Aceh Besar	Indonesia	Landslide	Make a schedule for blasting and put signs on the road
Pulot	Aceh Besar	Indonesia	Landslide	Take a photo of damaged houses as evidence
Pulot	Aceh Besar	Indonesia	Earthquake	Prepare radio communication
can….undertake damage assessments				
Badulla North	Badulla	Sri Lanka	Erosion	Assess the affected houses that have been damaged
Deah Glumpang	Banda Aceh	Indonesia	Heavy winds	Give information to the social department at provincial level about the damage done [Advocacy for awareness about the problem and funding to make repairs
Laem Makham	Trang	Thailand	Tsunami	Report damage to sub-district chief and village leader for help
Thung Sa Boe	Satun	Thailand	Cyclone	Survey damages for the whole area stating from houses to fishing gear, to inform village chief.
has…experience and knowledge of evacuation procedures				
Korawella South	Greater Colombo	Sri Lanka	Tsunami	Training on evacuation and early preparedness
Laem Makham	Trang	Thailand	Tsunami	Meeting to prepare for the evacuation drill
Thung Sa Boe	Satun	Thailand	Tsunami Stress	Fill fuel tank of your vehicle
Bener Mulie	Aceh Tengga	Indonesia	Earthquake	Simulation by PMI
Bener Mulie	Aceh Tengga	Indonesia	Volcano	Do a simulation drill for the community
Thung Sa Boe	Satun	Thailand	Tsunami Stress	Practice evacuation once a year in December
has….a pre-prepared 'pack' of valuables and important documents				
Korawella South	Greater Colombo	Sri Lanka	Tsunami	Set up a safety pack (with valuables and important documents)
Moragalla	Kalutura	Sri Lanka	Tsunami	Keep important documents ready and prepared (identity card, bank book and jewels)
Thung Ma Hnang	Satun	Thailand	Tsunami	Pack necessary things for evacuation
Koh Mook Island	Trang	Thailand	Tsunami	Keep important documents packed
Thung Sa Boe	Satun	Thailand	Tsunami Stress	Pack up your clothes, important documents and money
can…evacuate people and property				
Badulla North	Badulla	Sri Lanka	Erosion	Send the affected people quickly to the evacuation centre
Mabina North	Gampaha	Sri Lanka	Floods	Protect life and property eg. take animals/livestock to a different area
Mireuk Lamreudeup	Aceh Besar	Indonesia	Earthquake	Evacuation of victims
Pulot	Aceh Besar	Indonesia	Landslide	Vulnerable people evacuate the blasting zone and move to a safe place
Buddhama	Monaragala	Sri Lanka	Heavy Rains	Evacuate people to safer locations
Duwa Pitipanaa	Gampaha	Sri Lanka	(Heavy winds and) Sea erosion	Evacuate community to safer location

Koh Mook Island	Trang	Thailand	Tsunami	Evacuate to a higher ground
Korawella South	Greater Colombo	Sri Lanka	Cyclone	VDMC- Evacuate and manage
Korawella South	Greater Colombo	Sri Lanka	Heavy Rains and Floods	Evacuation
Korawella South	Greater Colombo	Sri Lanka	Tsunami	Evacuate people
Pedekok	Aceh Tengah	Indonesia	Landslide	Go far away from landslide areas
Pepalang	Aceh Tengah	Indonesia	Floods	Save property
Thung Ma Hnang	Satun	Thailand	Tsunami	Help the children and elderly for evacuation first
Bener Mulie	Aceh Tengga	Indonesia	Volcano	Evacuate victims to a safe place
Bener Mulie	Aceh Tengga	Indonesia	Earthquake	Go outside/save yourself
Cot Langsat	Aceh Jaya	Indonesia	Floods	Evacuate
Egodawewa	Matale	Sri Lanka	Floods	*We go to the common place at the community centre and meet.
Kadiranawaththa	Colombo City	Sri Lanka	Tsunami	Evacuate as soon as possible
has… a high level of awareness about the shock or stress				
Moragalla	Kalutura	Sri Lanka	Tsunami	Raise awareness of community through VDMC
Thung Ma Hnang	Satun	Thailand	Drugs	Organise anti-drug campaign
Buddhama	Monaragala	Sri Lanka	Health Issues	Awareness raising
Hulhuddhufaaru	Raa Atoll	Maldives	Waste Management	Conducting awareness programs
Jaboi	Pulau Weh	Indonesia	Malaria	Health promotion about malaria from the health department at Kota Sabang , from PMI and from University students
Jaboi	Pulau Weh	Indonesia	Volcano	Community and visitor awareness
Laem Makham	Trang	Thailand	Drugs	Put anti drug signs in the neighbourhood so that everyone knows all the time
Pepalang	Aceh Tengah	Indonesia	Landslide	Make and put signs in landslide areas
Badulla North	Badulla	Sri Lanka	Epidemics	Increased awareness on epidemics
Buruni	Thaa Atoll	Maldives	Unemployment	Increase awareness
Isdhoo	Laamu Atoll	Maldives	Unemployment	Increase awareness
Kadiranawaththa	Colombo City	Sri Lanka	Health Issues (and Sanitation)	Dengue/Malaria- spreading threats
Kadiranawaththa	Colombo City	Sri Lanka	Health Issues (and Sanitation)	Increase awareness
has…a high level of awareness about maintaining good health practices				
Cot Langsat	Aceh Jaya	Indonesia	Diarrhoea	The CBHFA promotes hygiene and sanitation behaviour
Cot Langsat	Aceh Jaya	Indonesia	Diarrhoea	The village health centre and the CBHFA promote hygiene and sanitation
Radella	Ratnapura	Sri Lanka	Epidemics	The VDMC make plans and raise awareness in the community
Radella	Ratnapura	Sri Lanka	Epidemics	Improved hygiene practices
Buddhama	Monaragala	Sri Lanka	Droughts	Drink boiled and/or filtered water.
Sidodadi	Langsa	Indonesia	Dengue	Socialisation to the community by the health department and the community health centre
Cot Langsat	Aceh Jaya	Indonesia	Diarrhoea	Care about the clean food by: Washing hands before eating; food must be clean and well cooked, boil water to 180 degrees Celsius
Mabina North	Gampaha	Sri Lanka	Mosqu & Flies	Get advice from doctors
Pedekok	Aceh Tengah	Indonesia	Skin Diseases	CBAT helps the community to have good hygiene
can…administer first aid				
Pedekok	Aceh Tengah	Indonesia	Floods	First aid response for people who get sick
Pulot	Aceh Besar	Indonesia	Earthquake	Give first aid to the victims
Radella	Ratnapura	Sri Lanka	Epidemics	First aid

Bener Mulie	Aceh Tengga	Indonesia	Earthquake	Do recovery activities like: clean up inside houses, put all things which are easily broken on the floor, give first aid to people who need it and take them to the health centre or hospital
Laem Makham	Trang	Thailand	Cyclone	Help the injured by using first aid training experience
Kadiranawaththa	Colombo City	Sri Lanka	Tsunami	Administer first aid to the needy/injured people
…builds strong houses to mitigate against wind and rain				
Cot Langsat	Aceh Jaya	Indonesia	Heavy winds	Get a house with good construction
Pulot	Aceh Besar	Indonesia	Heavy winds	Make the roofs of houses stronger
… cleans their home and environment to mitigate water and vector bourne disease				
Sidodadi	Langsa	Indonesia	Malaria	Gotong royong for the 3 Ms
Badulla North	Badulla	Sri Lanka	Epidemics	Organise Shramadana campaign to clean environment
Jaboi	Pulau Weh	Indonesia	Malaria	Clean up the environment
Mireuk Lamreudeup	Aceh Besar	Indonesia	Epidemics	Do the 3 “m”s (clean, cover and bury)
Moragalla	Kalutura	Sri Lanka	Epidemics	Removing and cleaning garbage
Mireuk Lamreudeup	Aceh Besar	Indonesia	Epidemics	Gotong royong at least twice a week [clean up environment]
Pasi Pawang	Aceh Jaya	Indonesia	Malaria	Do the 3 Ms (and store the water)
Mabina North	Gampaha	Sri Lanka	Mosqu & Flies	Clean houses and gardens
Pasi Pawang	Aceh Jaya	Indonesia	Skin Diseases	Clean up the area
Pedekok	Aceh Tengah	Indonesia	Skin Diseases	Clean up rubbish from the area
Pepalang	Aceh Tengah	Indonesia	Forest Fires	Clean up the area
…observes natural changes or environment to provide early warning				
Mabina North	Gampaha	Sri Lanka	Floods	Watch out for and monitor water levels in river
Jaboi	Pulau Weh	Indonesia	Volcano	Building of an observation post
Thung Sa Boe	Satun	Thailand	Cyclone	Observe natural changes for example, if black cloud is in the west sky, be careful of the storm. Or if branched float in the water in a vertical position then there is a danger of a storm.
Koh Mook Island	Trang	Thailand	Cyclone	Observe natural change
Egodawewa	Matale	Sri Lanka	Elephant Attack	*We build ‘look outs’ in the fields- everybody looks out for their own land. We stay there all the time whilst we are waiting for the harvest.
….practices good personal hygiene				
Pedekok	Aceh Tengah	Indonesia	Skin Diseases	Clean themselves (Shower)
Pedekok	Aceh Tengah	Indonesia	Skin Diseases	Extra hygiene (shower)
…does not put themselves at greater risk				
Pulot	Aceh Besar	Indonesia	Heavy winds	Put their boats on the beach
Koh Mook Island	Trang	Thailand	Cyclone	Don’t go fishing
can…repair damaged houses				
Cot Langsat	Aceh Jaya	Indonesia	Heavy winds	Repair houses
Thung Sa Boe	Satun	Thailand	Cyclone	Repair the houses that are damaged
can...replant crops and plants if they are damaged				
Pepalang	Aceh Tengah	Indonesia	Landslide	Seeds [for reforestation] provided by forestry and agriculture departments
Pepalang	Aceh Tengah	Indonesia	Forest Fires	Government provide seeds to support
Mireuk Lamreudeup	Aceh Besar	Indonesia	Droughts	Plough the rice paddies to plant the rice
…uses water efficiently				
Radella	Ratnapura	Sri Lanka	Droughts	Saving water
Thung Ma Hnang	Satun	Thailand	Droughts	Use water wisely
Thung Sa Boe	Satun	Thailand	Insufficient	Use water wisely

Koh Mook Island	Trang	Thailand	Droughts	Use water wisely
Thung Sa Boe	Satun	Thailand	Insufficient Drinking water	Use underground reservoir or any stored water including rain water for bathing and washing and only buy drinking water
can….undertake search and rescue activities				
Badulla North	Badulla	Sri Lanka	Floods	Search and Rescue
Radella	Ratnapura	Sri Lanka	Floods	Sanitation facilities to affected and search and rescue by VAT
has….had training on shocks and stresses				
Bener Mulie	Aceh Tengga	Indonesia	Earthquake	Organise socialisation to community about still quiet and don't panic
Deah Glumpang	Banda Aceh	Indonesia	Heavy winds	Training CBAT [PMI]
Korawella South	Greater Colombo	Sri Lanka	Heavy Rains and Floods	Training through different groups inside and outside community
Laem Makham	Trang	Thailand	Drugs	Sub-district involved in the training and campaign.
Patek Fajar	Aceh Jaya	Indonesia	Sanitation	Socialisation about sanitation to community by Kader (health volunteers)
Patek Fajar	Aceh Jaya	Indonesia	Sanitation	Invite the community to participate in training
Pulot	Aceh Besar	Indonesia	Earthquake	Continue to give support and training to CBAT to make the CBAT sustainable
Mireuk Lamreudeup	Aceh Besar	Indonesia	Droughts	Training to village officers for increased capacity on how to deal with drought or dryness
Pasi Pawang	Aceh Jaya	Indonesia	Skin Diseases	Information/training [no information who training should be given to]
Thung Ma Hnang	Satun	Thailand	Cyclone	Need for more training about storms
SOCIAL ASSETS				
has…community organisations, internal support mechanisms and coordination mechanisms				
Badulla North	Badulla	Sri Lanka	Erosion	Gather the community
Radella	Ratnapura	Sri Lanka	Droughts	Empower and strengthen the community (VDMC)
Deah Glumpang	Banda Aceh	Indonesia	Earthquake	Form CBAT
Koh Mook Island	Trang	Thailand	Tsunami	Set up committee to look after each zone within the village
Korawella South	Greater Colombo	Sri Lanka	Cyclone	Form & Mobilise VDMC
Laem Makham	Trang	Thailand	Drugs	Each family members look after each other
Pepalang	Aceh Tengah	Indonesia	Floods	Socialisation to community by CBAT team
Laem Makham	Trang	Thailand	Cyclone	Help each other
Pulot	Aceh Besar	Indonesia	Landslide	Head of village convenes a meeting with the community at village
Thung Ma Hnang	Satun	Thailand	Droughts	Help each other
Koh Mook Island	Trang	Thailand	Cyclone	Community help each other
Moragalla	Kalutura	Sri Lanka	Epidemics	Solve any outstanding issues through cooperation
Pulot	Aceh Besar	Indonesia	Heavy winds	Take care of themselves
Egodawewa	Matale	Sri Lanka	Floods	*Those whose houses have been affected have gone to their relatives,
Kadiranawaththa	Colombo City	Sri Lanka	Tsunami	Gather the VDMC/Meeting
Thung Ma Hnang	Satun	Thailand	Droughts	Set up community meetings
Cot Langsat	Aceh Jaya	Indonesia	Floods	Help other people who need help – older people and sick people
Patek Fajar	Aceh Jaya	Indonesia	Sanitation	Receive suggestions from community about sanitation problems
…undertakes mitigation activities to social problems				

Thung Ma Hnang	Satun	Thailand	Drugs	Give warning in the monthly community meeting *'if anyone is caught he will be sent jail or rehab'*
Thung Ma Hnang	Satun	Thailand	Drugs	Send the addicts for therapy, village chief to organise as there is not rehab now
Laem Makham	Trang	Thailand	Drugs	Set a rule for villagers to not posess any drugs
…cleans their home and environment as part of the recovery process				
Korawella South	Greater Colombo	Sri Lanka	Cyclone	Clean environment and house
Korawella South	Greater Colombo	Sri Lanka	Heavy Rains and Floods	Clean houses
Badulla North	Badulla	Sri Lanka	Floods	Environmental cleaning
Bener Mulie	Aceh Tengga	Indonesia	Earthquake	Do recovery activities like: clean up inside houses, put all things which are easily broken on the floor, give first aid to people who need it and take them to the health centre or hospital
Deah Glumpang	Banda Aceh	Indonesia	Earthquake	Clean every house
Patek Fajar	Aceh Jaya	Indonesia	Floods	Do Gotong Royon at the end of each month
Radella	Ratnapura	Sri Lanka	Floods	Well cleaning, house cleaning, environmental cleaning
Cot Langsat	Aceh Jaya	Indonesia	Floods	Work together to clean up the village
…organises community recreational activities				
Deah Glumpang	Banda Aceh	Indonesia	Unemployment	Make the sports group activity (Volleyball)
Thung Ma Hnang	Satun	Thailand	Drugs	Organise anti drug sports activities
Laem Makham	Trang	Thailand	Drugs	Organise anti drug sports, talk about drugs on Friday prayers
ACCESS TO EXTERNAL RESOURCES				
has access to….food from external agencies				
Mabina North	Gampaha	Sri Lanka	Floods	DS and Municipal Council gives dry rations
Korawella South	Greater Colombo	Sri Lanka	Tsunami	Food distribution (dry rations) by organisations
Cot Langsat	Aceh Jaya	Indonesia	Floods	Head of district provides support with food
Mireuk Lamreudeup	Aceh Besar	Indonesia	Droughts	Government rice [stored by government in district warehouses and distributed by district authorities]
has access to….food from external agencies				
Buddhama	Monaragala	Sri Lanka	Heavy Rains	Inform GoSl/ NGO's to provide water, first aid and other relief items
Deah Glumpang	Banda Aceh	Indonesia	Heavy winds	Other communities will help, for example with food
Sidodadi	Langsa	Indonesia	Floods	Relief distribution by: district, political parties
Mireuk Lamreudeup	Aceh Besar	Indonesia	Earthquake	Distribution of relief items (food, clothes, medicine)
Pepalang	Aceh Tengah	Indonesia	Floods	Support from social services for flood victims
Kadiranawaththa	Colombo City	Sri Lanka	Floods	Get Relief from DS
Kadiranawaththa	Colombo City	Sri Lanka	Health Issues (and Sanitation)	Get relief and raise awareness with support from volunteer agencies
Badulla North	Badulla	Sri Lanka	Floods	Providing NFRI with support of volunteer organisations
has… a waste management system				
Hulhuddhufaaru	Raa Atoll	Maldives	Waste Management	Development/Having a the waste management system
Hulhuddhufaaru	Raa Atoll	Maldives	Waste Management	Recycling
Hulhuddhufaaru	Raa Atoll	Maldives	Waste Management	Having a good waste management system
Hulhuddhufaaru	Raa Atoll	Maldives	Waste Management	Disposing of waste from the island
Moragalla	Kalutura	Sri Lanka	Epidemics	Garbage cleaning by Municipal Council

Pepalang	Aceh Tengah	Indonesia	Floods	Don't throw rubbish
Duwa Pitipanaa	Gampaha	Sri Lanka	Filling in Lagoon	Develop a solution to take the garbage (out of the community)
has…clean water, typically from multiple sources				
Gampong Cot	Aceh Besar	Indonesia	Insufficient Drinking water	Look for another source of clean water in other villages nearby
Jaboi	Pulau Weh	Indonesia	Droughts	Difficult to get clean water because the well is dry and to get clean water the community has to go to other places that are far away
Moragalla	Kalutura	Sri Lanka	Insufficient Drinking water	Through getting water from several institutions on motors (trucks)
Patek Fajar	Aceh Jaya	Indonesia	Insufficient water	Community tried to make the filter. PMI and Amcross tried to make a place for the community to get clean water after the community made
can….request assistance to provide water when required				
Buddhama	Monaragala	Sri Lanka	Health Issues	Place water tanks (to get water -RC)
Koh Mook Island	Trang	Thailand	Droughts	Sub-district/*Obotor* request water from province
….exchanges information with the government and other actors				
Badulla North	Badulla	Sri Lanka	Erosion	Inform relevant institutions
Badulla North	Badulla	Sri Lanka	Floods	The Government –DDMCU- informs the community before the disaster (police, DS)
Pepalang	Aceh Tengah	Indonesia	Forest Fires	Information from forestry department/forest police about how to be aware and prevent fires in the forest
Patek Fajar	Aceh Jaya	Indonesia	Sanitation	Receive reports about sanitation problems from community
Thung Sa Boe	Satun	Thailand	Cyclone	Village chief to coordinate to *Obotor* / sub-district district province according to the level of disaster.
Duwa Pitipanaa	Gampaha	Sri Lanka	Filling in Lagoon	Functioning of VDMC
Duwa Pitipanaa	Gampaha	Sri Lanka	Filling in Lagoon	Talk to the relevant people
…coordinates with external actors				
Pulot	Aceh Besar	Indonesia	Landslide	Coordination with all parties in the village
Bener Mulie	Aceh Tengga	Indonesia	Earthquake	Coordination with medical services, PMI and volunteers
Gampong Cot	Aceh Besar	Indonesia	Insufficient Drinking water	Coordinate with nearby villages around clean water resources (Glee Bruek).
…coordinates with government agencies				
Korawella South	Greater Colombo	Sri Lanka	Heavy Rains and Floods	Inform the GN
Thung Ma Hnang	Satun	Thailand	Drugs	Attend district level organisation meetings for developing budget and strategies to support anti-drug measures
Laem Makham	Trang	Thailand	Cyclone	Sub-district involved in the training and campaign.
Thung Ma Hnang	Satun	Thailand	Tsunami	Contact sub-district, district and health station
Bener Mulie	Aceh Tengga	Indonesia	Volcano	Information from the bureau of meteorology for the community to be aware about volcanoes
Deah Glumpang	Banda Aceh	Indonesia	Earthquake	Coordination with the sub-district
Gampong Cot	Aceh Besar	Indonesia	Insufficient Drinking water	Make a suggestion at the village meeting about clean water resources. Propose to sub-district level.
Egodawewa	Matale	Sri Lanka	Elephant Attack	*Wildlife Department (Government Agency) caught the most dangerous elephant, with the help and support of the community
Kadiranawaththa	Colombo City	Sri Lanka	Floods	Inform GN
Radella	Ratnapura	Sri Lanka	Floods	PHI, GN, PHM- Communication Before Disaster
…coordinates with the Red Cross				
Radella	Ratnapura	Sri Lanka	Epidemics	Inform the Red Cross
Sidodadi	Langsa	Indonesia	Dengue	PMI Support
Pasi Pawang	Aceh Jaya	Indonesia	Floods	PMI
can…request assistance from a number of different actors when required				
Moragalla	Kalutura	Sri Lanka	Tsunami	Inform the government/ private sector to request assistance as required

Pasi Pawang	Aceh Jaya	Indonesia	Floods	Make proposals to the village musrembang such as embankments, plantations. If the village musrembang agrees with these they are put forward to the sub-district and then district musrembang for approval and funding. (1)
Buddhama	Monaragala	Sri Lanka	Droughts	Request for water through the RC and Divisional Secretary
Buddhama	Monaragala	Sri Lanka	Droughts	Request Divisional Secretary to provide water
Hulhuddhufaaru	Raa Atoll	Maldives	Tsunami	Community help from other island or outside
Thung Ma Hnang	Satun	Thailand	Cyclone	Request for help from *Obotor* and fisheries department.
Jaboi	Pulau Weh	Indonesia	Droughts	Make a suggestion to the musrenbang about the supply of clean water. The sub-district should inform the district (but no response has been given yet)
Deah Glumpang	Banda Aceh	Indonesia	Earthquake	Report the condition and the needs of the community to the sub-district
Koh Mook Island	Trang	Thailand	Cyclone	Inform organisation responsible for rescue and fishing gear assistance
Moragalla	Kalutura	Sri Lanka	Insufficient Drinking water	Requesting water from government and individuals (eg teachers)
Moragalla	Kalutura	Sri Lanka	Insufficient Drinking water	Request support form relevant government authorities
Egodawewa	Matale	Sri Lanka	Floods	*We must try to save the fund too and we will ask in the community so that those that can, give something.
…has access to education and vocational training				
Deah Glumpang	Banda Aceh	Indonesia	Unemployment	Training (skills)
Deah Glumpang	Banda Aceh	Indonesia	Unemployment	Give training (skills) for long term activity
Buruni	Thaa Atoll	Maldives	Unemployment	Get better education
Isdhoo	Laamu Atoll	Maldives	Unemployment	Increase standard of education on the island
Isdhoo	Laamu Atoll	Maldives	Unemployment	Ran a course on agriculture
Hulhuddhufaaru	Raa Atoll	Maldives	Unemployment	Conducting training programs
Hulhuddhufaaru	Raa Atoll	Maldives	Unemployment	Having places which gives higher education and trainings
Koh Mook Island	Trang	Thailand	Unemployment	Skill development department training on sweets and snacks making, jewellery making (currently not enough supplier though).
has… support from external actors who provide equipment to prevent or recover from disasters				
Duwa Pitipanaa	Gampaha	Sri Lanka	(Heavy winds and) Sea erosion	Get support and help from the government (fisheries department) for equipment
Patek Fajar	Aceh Jaya	Indonesia	Sanitation	Filters and training in how to maintain
Patek Fajar	Aceh Jaya	Indonesia	Insufficient water	ADB gave support and equipment to build a pipeline from the mountain but the pipeline is not useful because they don't get water from it
Sidodadi	Langsa	Indonesia	Malaria	CBAT, PMI and community health centre visit the areas that are more vulnerable to mosquitoes
Sidodadi	Langsa	Indonesia	Malaria	Distribution of mosquito nets from the health department
Thung Ma Hnang	Satun	Thailand	Cyclone	*Obotor* gives roof, fisheries department gives fishing gear.
Sidodadi	Langsa	Indonesia	Dengue	Distribution of mosquito nets
has….a warning system				
Moragalla	Kalutura	Sri Lanka	Tsunami	Make the community aware using the alarm system
Thung Sa Boe	Satun	Thailand	Tsunami Stress	Announce information through information tower
Korawella South	Greater Colombo	Sri Lanka	Cyclone	Early warning to community
Pasi Pawang	Aceh Jaya	Indonesia	Floods	Inform the community, government, PMI volunteers and PMI sub-branch that a flood will happen in the village

Sidodadi	Langsa	Indonesia	Floods	SIBAT give information that a flood will happen in this village
Hulhuddhufaaru	Raa Atoll	Maldives	Tsunami	Warning or Communication
Deah Glumpang	Banda Aceh	Indonesia	Earthquake	CBAT and the head of village guide the community and provides early warning
Pedekok	Aceh Tengah	Indonesia	Floods	Give instruction and inform the community to evacuate to a safe place
Kadiranawaththa	Colombo City	Sri Lanka	Tsunami	Early warning systems
has access to…vetinary assistance				
Jaboi	Pulau Weh	Indonesia	Droughts	Inform the animal husbandry service to give some medicine to their livestock
has access to…medical treatment				
Mabina North	Gampaha	Sri Lanka	Mosqu & Flies	PHI and health visitors provide assistance on a regular basis for checks
Pasi Pawang	Aceh Jaya	Indonesia	Malaria	Go to the doctor
Radella	Ratnapura	Sri Lanka	Epidemics	The government conducts a clinic
Sidodadi	Langsa	Indonesia	Malaria	Blood tests by the health department
Sidodadi	Langsa	Indonesia	Malaria	Service for free medical services to the community provided by the health department
Buddhama	Monaragala	Sri Lanka	Heavy Rains	Provide health facilities
Mabina North	Gampaha	Sri Lanka	Floods	Health provisions (PHI)
Moragalla	Kalutura	Sri Lanka	Epidemics	Obtain the primary medicines/cleaning materials to prevent the illness
Hulhuddhufaaru	Raa Atoll	Maldives	Tsunami	Treatment and medicine
Cot Langsat	Aceh Jaya	Indonesia	Diarrhoea	Take patients to the community health centre at Jeumpheuk village, Sampoiniet
Pasi Pawang	Aceh Jaya	Indonesia	Skin Diseases	Have a village health centre (puskesdes) in the village but the midwife doesn't stay in the village so not get good support for community health
Cot Langsat	Aceh Jaya	Indonesia	Diarrhoea	The community mixes water with sugar and salt to give to people with diarrhoea
Jaboi	Pulau Weh	Indonesia	Droughts	Health service through community health centre distributes powder for skin disease, medicine, and checks of the community's health by medical staff
Jaboi	Pulau Weh	Indonesia	Malaria	Health promotion about malaria from the health department at Kota Sabang , from PMI and from University students
Mabina North	Gampaha	Sri Lanka	Mosqu & Flies	Send to nearest hospital to get treatment
Moragalla	Kalutura	Sri Lanka	Epidemics	Direct to medical attention and doctors
Pedekok	Aceh Tengah	Indonesia	Skin Diseases	Immunization by the community health centre
Sidodadi	Langsa	Indonesia	Dengue	Blood transfusion
Sidodadi	Langsa	Indonesia	Floods	Free medical assistance from the Puskesmas
Badulla North	Badulla	Sri Lanka	Epidemics	Inform PHI to get support –both technical and chemical
Pasi Pawang	Aceh Jaya	Indonesia	Skin Diseases	Go to the community health centre
Buddhama	Monaragala	Sri Lanka	Health Issues	Provision of health services –RC and PHI
Pasi Pawang	Aceh Jaya	Indonesia	Malaria	Traditional medicine (bitter leaf, papaya, henna) [will be mixed with water and consumed] and TONGKAT ALI
has access to…medical transport e.g.ambulance				
Pulot	Aceh Besar	Indonesia	Earthquake	Prepare the ambulance
Pasi Pawang	Aceh Jaya	Indonesia	Malaria	Support the ambulance from the community health centre
Pasi Pawang	Aceh Jaya	Indonesia	Skin Diseases	Use ambulance to evacuate patient.

…monitors shocks and stresses via the media				
Laem Makham	Trang	Thailand	Tsunami	Follow news
Koh Mook Island	Trang	Thailand	Cyclone	Follow news
Koh Mook Island	Trang	Thailand	Tsunami	Follow news
Thung Ma Hnang	Satun	Thailand	Tsunami	Follow news
Laem Makham	Trang	Thailand	Cyclone	Follow weather forecast
Thung Ma Hnang	Satun	Thailand	Cyclone	Listen to the weather forecast of TV and radio
Thung Sa Boe	Satun	Thailand	Tsunami Stress	Listen to the radio and TV news
Thung Sa Boe	Satun	Thailand	Cyclone	Follow TV news
has…external support to repair damaged infrastructure				
Bener Mulie	Aceh Tengga	Indonesia	Landslide	Pilling of the the road by the public works department
Mabina North	Gampaha	Sri Lanka	Floods	Reconstruction of roads and electrical connections
Pasi Pawang	Aceh Jaya	Indonesia	Floods	Fix embankment (government).
Pasi Pawang	Aceh Jaya	Indonesia	Floods	Government social service department to assess the damage to infrastructure and the community's needs for emergency response.
Bener Mulie	Aceh Tengga	Indonesia	Landslide	Make proposal to fix the road (make it asphalt)
has access to…technical advice and support from external agencies				
Badulla North	Badulla	Sri Lanka	Epidemics	Receive technical advice and support / equipment from the Red Cross
Korawella South	Greater Colombo	Sri Lanka	Cyclone	Get advice from relevant government officers
PHYSICAL ASSETS				
…. constructs, maintains and renovates a variety of reliable water sources e.g. canals, wells, tanks, reservoirs, rainwater collection				
Radella	Ratnapura	Sri Lanka	Droughts	Building water tanks and wells
Thung Ma Hnang	Satun	Thailand	Droughts	Piped water supply
Buddhama	Monaragala	Sri Lanka	Droughts	Having done the renovation of the wells in this area provide the water through the pipe line
Buddhama	Monaragala	Sri Lanka	Health Issues	Renovate drinking water wells
Buddhama	Monaragala	Sri Lanka	Health Issues	Cleaning wells
Mireuk Lamreudeup	Aceh Besar	Indonesia	Droughts	Deepen the well
Moragalla	Kalutura	Sri Lanka	Insufficient	Getting clean drinking water in safe wells
Gampong Cot	Aceh Besar	Indonesia	Insufficient	Clean and deepen the well
Egodawewa	Matale	Sri Lanka	Droughts	*There is a common well that was provided by the Samurdi Bank, before the Red Cross worked in the community they had a water
Egodawewa	Matale	Sri Lanka	Droughts	*Renovation of water canal to ensure that sufficient water can access the paddy fields. The Red Cross helped us put in Bund Gates to make
Patek Fajar	Aceh Jaya	Indonesia	Insufficient water	Use yellow water from the well, use rain water
Thung Sa Boe	Satun	Thailand	Insufficient	Make rain water gutter to collect water from the roof
…has and maintains good footpaths and roads for transport				
Pepalang	Aceh Tengah	Indonesia	Landslide	Make alternative road/second road
Bener Mulie	Aceh Tengga	Indonesia	Landslide	Make alternative road
Bener Mulie	Aceh Tengga	Indonesia	Landslide	Community involved to help cars pass the road next to the landslide
Pedekok	Aceh Tengah	Indonesia	Landslide	Clean-up the area from landslides so that the cars can pass and there is good transportation
has …general relief Items(Food, Shelters, Medical etc)				
Buddhama	Monaragala	Sri Lanka	Heavy Rains	Relief for those affected
Hulhuddhufaaru	Raa Atoll	Maldives	Tsunami	Providing food and water

Laem Makham	Trang	Thailand	Cyclone	Provide food and shelter if someone's houses totally damaged
Mireuk Lamreudeup	Aceh Besar	Indonesia	Earthquake	Provision of emergency tents and community kitchen
has…a back up source of lighting				
Koh Mook Island	Trang	Thailand	Cyclone	Prepare emergency lights (candles, flashlights, etc.)
has…. sanitation facilities				
Radella	Ratnapura	Sri Lanka	Floods	Sanitation facilities to affected and search and rescue by VAT
has….permanent shelter				
Hulhuddhufaaru	Raa Atoll	Maldives	Tsunami	Having a permanent shelter
…stores water				
Thung Ma Hnang	Satun	Thailand	Droughts	Arrange water container for every family
Gampong Cot	Aceh Besar	Indonesia	Insufficient Drinking water	In their planning, suggest construction of a place to store water using the budget of 50 million [from provincial level BPKG]
Patek Fajar	Aceh Jaya	Indonesia	Insufficient water	Store rainwater
Patek Fajar	Aceh Jaya	Indonesia	Insufficient water	Amcross helped with watertanks
Jaboi	Pulau Weh	Indonesia	Volcano	Storing water to fight fires
Koh Mook Island	Trang	Thailand	Droughts	Prepare water containers
Koh Mook Island	Trang	Thailand	Droughts	Store rainwater
Mireuk Lamreudeup	Aceh Besar	Indonesia	Droughts	Store clean water
Moragalla	Kalutura	Sri Lanka	Insufficient Drinking water	Raise awareness in the community to build common water tanks to store sufficient water
Thung Sa Boe	Satun	Thailand	Insufficient Drinking water	Fill the water container
Thung Ma Hnang	Satun	Thailand	Droughts	Prepare additional and spare water containers.
Koh Mook Island	Trang	Thailand	Droughts	Develop water storage system for the whole village
Thung Sa Boe	Satun	Thailand	Insufficient Drinking water	Repair the existing containers that leaks
has…. an established place to evacuate to				
Mireuk Lamreudeup	Aceh Besar	Indonesia	Earthquake	Run away to save their families by going to the evacuation centre. Facilitated by CBAT and village officers
Laem Makham	Trang	Thailand	Tsunami	Set up evacuation centre facilities
Sidodadi	Langsa	Indonesia	Floods	SIBAT and PMI help evacuate the community to a safe place using the evacuation road
Bener Mulie	Aceh Tengga	Indonesia	Volcano	Prepare an evacuation site (posko)
has…a preprepared evacuation route				
Laem Makham	Trang	Thailand	Tsunami	Prepare for evacuation
Mireuk Lamreudeup	Aceh Besar	Indonesia	Earthquake	Prepare evacuation route
Moragalla	Kalutura	Sri Lanka	Tsunami	Identify safe areas and evacuation routes
Pulot	Aceh Besar	Indonesia	Earthquake	Prepare the evacuation route
has… a safe house or place in their house				
Deah Glumpang	Banda Aceh	Indonesia	Heavy winds	Take shelter under furniture or move to safer part of the house
Cot Langsat	Aceh Jaya	Indonesia	Heavy winds	Stay inside the house during the strong winds
Cot Langsat	Aceh Jaya	Indonesia	Heavy winds	Agreement in the community to stay in permanent housing during strong wind

Pedekok	Aceh Tengah	Indonesia	Floods	Put all things in a safe place
…undertakes mitigation activities to address drought				
Radella	Ratnapura	Sri Lanka	Droughts	Mitigation and preparedness activities
…undertakes mitigation activities to address vector borne disease				
Pasi Pawang	Aceh Jaya	Indonesia	Malaria	Support for mosquito nets, medicines from the community health
Badulla North	Badulla	Sri Lanka	Epidemics	Inform the Ministry of Health for fogging and other support
Jaboi	Pulau Weh	Indonesia	Malaria	Sleep under a mosquito net
Korawella South	Greater Colombo	Sri Lanka	Heavy Rains and Floods	Inform PHI to control mosquitoes
Korawella South	Greater Colombo	Sri Lanka	Tsunami	Epidemic prevention, using mosquito nets
Mireuk Lamreudeup	Aceh Besar	Indonesia	Epidemics	Spot Fogging [insecticide spraying of houses within 100m radius of household with infected people, includes indoors as well as water
Mireuk Lamreudeup	Aceh Besar	Indonesia	Epidemics	Community protects themselves (use mosquito repellent
Jaboi	Pulau Weh	Indonesia	Malaria	Spraying to kill mosquito larvae
Mabina North	Gampaha	Sri Lanka	Mosqu & Flies	Take action to prevent disaster happening again
Kadiranawaththa	Colombo City	Sri Lanka	Floods	Health measures (medicine). Dengue/Malaria , advice from MoH
Kadiranawaththa	Colombo City	Sri Lanka	Health Issues (and Sanitation)	Destroy the agents for the epidemics
…undertakes mitigation activities to address landslides				
Pepalang	Aceh Tengah	Indonesia	Landslide	Construction of embankment or water channel in the landslide area by the government
Pedekok	Aceh Tengah	Indonesia	Landslide	Making of a wall (embankment) by the community with gotong royong
…has and maintains drainage systems				
Bener Mulie	Aceh Tengga	Indonesia	Landslide	Work together (gotong-royong) to clean the drainage it was stepped up
Mireuk Lamreudeup	Aceh Besar	Indonesia	Epidemics	Community cleans up water channels
Patek Fajar	Aceh Jaya	Indonesia	Floods	Clean the drainage
Badulla North	Badulla	Sri Lanka	Floods	Clean the drainage system
Cot Langsat	Aceh Jaya	Indonesia	Floods	Clean the irrigation
Sidodadi	Langsa	Indonesia	Floods	Suggest to make a water channel through the ‘musrembang’
Patek Fajar	Aceh Jaya	Indonesia	Floods	Flow through the drains is not maximal
Patek Fajar	Aceh Jaya	Indonesia	Floods	Suggest to district level to make permanent drainage
Patek Fajar	Aceh Jaya	Indonesia	Floods	District level through community leaders and sub-district level together with the infrastructure department clean the Loek Bate river from Patek Fajar to Kuala Bakong because it can flood
Pedekok	Aceh Tengah	Indonesia	Floods	Gotong royong to clean up drainage
Pedekok	Aceh Tengah	Indonesia	Floods	Propose the construction of drainage to the Musrembang (community meeting)
Kadiranawaththa	Colombo City	Sri Lanka	Floods	Clean canal
Kadiranawaththa	Colombo City	Sri Lanka	Floods	Clean canal
Kadiranawaththa	Colombo City	Sri Lanka	Health Issues (and Sanitation)	Toilet/canal cleaning
…undertakes mitigation activities to address soil erosion				
Duwa Pitipanaa	Gampaha	Sri Lanka	(Heavy winds and) Sea erosion	Build the stone wall with the support of the government
Duwa Pitipanaa	Gampaha	Sri Lanka	(Heavy winds and) Sea erosion	Communities support to build stone sea wall

Buruni	Thaa Atoll	Maldives	Erosion	Apply to the Govt for a proper artificial reef around the island
Buruni	Thaa Atoll	Maldives	Erosion	Protect the area being eroded with stone stacks
…stockpiles food and medical supplies				
Radella	Ratnapura	Sri Lanka	Floods	Stock dry rations
Buddhama	Monaragala	Sri Lanka	Heavy Rains	Collect dry rations (as a family/household)
ECONOMIC ASSETS				
can…. take alternative employment				
Thung Sa Boe	Satun	Thailand	Unemployment	Casual labour jobs during monsoon as we cant go fishing. For which we need skills development
Koh Mook Island	Trang	Thailand	Unemployment	Going out for labour jobs such as, planting, factory and construction work, with the help of agents.
Koh Mook Island	Trang	Thailand	Unemployment	Work as a tour guide in the fishing boat
Mabina North	Gampaha	Sri Lanka	Unemployment	Attempting to go overseas for work
is..entrepreneurial				
Thung Sa Boe	Satun	Thailand	Unemployment	Making sweets, pickles and sea food processing
Thung Sa Boe	Satun	Thailand	Unemployment	The youth groups feed the ducks, sell them and their eggs outside and within the village. Cat fish is also reared and sold.
Hulhuddhufaaru	Raa Atoll	Maldives	Unemployment	Starting small and cottage industry or craft type job opportunities in the island
Thung Sa Boe	Satun	Thailand	Unemployment	Natural fertilizers are used in the organic farms. There is enough vegtable for each family, every house has their own garden and it is increasing.
Buruni	Thaa Atoll	Maldives	Unemployment	Start industries
Isdhoo	Laamu Atoll	Maldives	Unemployment	Develop a resort
Isdhoo	Laamu Atoll	Maldives	Unemployment	Increase small businesses
Koh Mook Island	Trang	Thailand	Unemployment	Make more fishing traps to catch more expensive fish
has…savings or can access grants and loans				
Buddhama	Monaragala	Sri Lanka	Droughts	Provide funds for farming
Buruni	Thaa Atoll	Maldives	Unemployment	Get funds for education
Buruni	Thaa Atoll	Maldives	Unemployment	Get funds to start industries
Egodawewa	Matale	Sri Lanka	Droughts	*We work with the GN and secure finance from the Samurdhi bank
Egodawewa	Matale	Sri Lanka	Floods	*If it lasts a long time we have a contingency fund and equipment
Mabina North	Gampaha	Sri Lanka	Unemployment	Losing money (ie spending money that don't have and getting into
...take a job with lower pay than skills				
Hulhuddhufaaru	Raa Atoll	Maldives	Unemployment	Giving a salary that is in line with the job
Mabina North	Gampaha	Sri Lanka	Unemployment	End up working in areas where the pay is insufficient and does not
has…..livelihoods support from district or national government				
Thung Sa Boe	Satun	Thailand	Unemployment	We need more tourists and a promotion to get more tourists to come in. Most tourists come as groups
Deah Glumpang	Banda Aceh	Indonesia	Unemployment	Open up job opportunities (district level) in the sector: areas for planting crops, stock for breeding fish [for their fish ponds], cages for fish, livestock
Hulhuddhufaaru	Raa Atoll	Maldives	Unemployment	Strengthening employment policies
Deah Glumpang	Banda Aceh	Indonesia	Unemployment	Continuous coordination and facilitation of job opportunities in urban areas by the district government
…work longer/harder hours; take greater risks				
Koh Mook Island	Trang	Thailand	Unemployment	Go far away and stay overnight for fishing
ENVIRONMENTAL ASSETS				

…plants mangroves and trees to mitigate against wind, rain and tsunamis				
Deah Glumpang	Banda Aceh	Indonesia	Heavy winds	Planting mangroves
Koh Mook Island	Trang	Thailand	Tsunami	Plant mangrove
Pulot	Aceh Besar	Indonesia	Heavy winds	Planting trees in coastal areas and inside the village
Pulot	Aceh Besar	Indonesia	Heavy winds	Wetlands supported them by providing seeds for planting trees in the village
Cot Langsat	Aceh Jaya	Indonesia	Heavy winds	Plant coconut trees and casuarinas
...can manage its forests to mitigate landslides, erosion and fires				
Badulla North	Badulla	Sri Lanka	Erosion	Inform relevant officers to receive plants
Pepalang	Aceh Tengah	Indonesia	Landslide	Protect for forest eternities [Protect the forest]
Radella	Ratnapura	Sri Lanka	Droughts	Activities to prevent soil erosion- build barriers ie stone walls, plant trees etc.
Duwa Pitipanaa	Gampaha	Sri Lanka	(Heavy winds and) Sea erosion	With the VDMC coordinate activities with the Father eg tree planting
Pedekok	Aceh Tengah	Indonesia	Landslide	Replant empty and infertile areas [of forest]
Pepalang	Aceh Tengah	Indonesia	Forest Fires	Pressure on the community to plant trees or protect the forest
Pedekok	Aceh Tengah	Indonesia	Landslide	Make boundaries for cutting down the forest
Jaboi	Pulau Weh	Indonesia	Volcano	Village leader suggested to the district that a law be made about volcanos in relation to the dangers
Buruni	Thaa Atoll	Maldives	Erosion	Set down rules regarding cutting trees near the beach

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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