

Integrated Community Based Risk Reduction: An Approach to Building Disaster Resilient Communities

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ABSTRACT

Palang Merah Indonesia (PMI) and Canadian Red Cross (CRC) have adopted an integrated approach to risk reduction at the community level. An integrated approach to reduce disaster risks includes the incorporation of all aspects of the disaster management cycle namely preparedness, response, recovery and prevention, deals with all hazards and multi-stakeholders and aims to integrating disaster risk reduction activities into local level development planning.

After the devastating tsunami event of December 2004, CRC has been supporting PMI to install and strengthen its early warning system in all branches in Aceh Province and Nias Island. In order to make tsunami-affected people resilient to future disasters and create risk culture at the local level, CRC and PMI are implementing an ICBRR program in 43 villages of Aceh Besar, Aceh Jaya and Nias.

The key indicators for the disaster resilient community include the presence of well-trained volunteers, disaster risk reduction and contingency plan, community-based self-help organizations, volunteerism, risk assessment of the community, integration of needs and concerns of elderly into the community plan and provision of early warning system, and the involvement of local government in the disaster risk reduction initiatives. The outputs of the ICBRR Program were quite promising in this regard.

The ICBRR program was aimed at increasing community resilience through enhancing disaster preparedness and response capacities of PMI. A close link between CBATs, local government and PMI Branch with the support from Chapter is necessary for sustaining the outcomes of the program.

This article provides a glimpse of the ICBRR approach and key achievements, and delves more deeply into the analysis of program achievements with respect to the characteristics of disaster resilient communities.

Key words: ICBRR, Community Resilient, Indicators, Indonesian Red Cross Society, Canadian Red Cross,

I. BACKGROUND

Community-based risk reduction is a process in which at-risk communities actively engage in the assessment, implementation of risk reduction measures, and monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities. This means that people are at the heart of decision-making. The involvement of the most vulnerable

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social groups and stakeholders is considered paramount in this process, while the support of the least vulnerable groups to them is necessary for successful implementation. An ICBRR approach aims to address vulnerability and community risks to reduce the disaster impacts by involving other key stakeholders and incorporating all aspects of disaster management cycle.

Canadian Red Cross (CRC) and Palang Merah Indonesia (PMI) have adopted an integrated approach to risk reduction at community level. An integrated approach to reduce disaster risks includes the incorporation of all aspects of disaster management cycle viz. response, recovery and prevention, tackling multiple hazards, dealing with multiple stakeholders and integrating disaster risk reduction activities into development plans of the country.

At a community level, the integrated disaster risk reduction approach:

- Addresses all hazards, vulnerabilities and risks;
- Considers the disaster cycle (prevention/mitigation, response and recovery);
- Includes all stakeholders of many sectors and levels in the process;
- Takes into account the principles of sustainability (environmentally sound, socially acceptable and economically viable use of resources); and
- Is based on international solidarity (the exchange of expertise, experience and lessons learned on a regional and international level is necessary).

After the devastating tsunami event of December 2004, CRC has been supporting PMI to install and strengthen its early warning system in all branches in Aceh and Nias Island. In order to make tsunami-affected people resilient to future disasters and create risk culture at local level, CRC and PMI are implementing ICBRR program in 43 villages of tsunami and earthquake-affected areas.

II. APPROACH TO IMPLEMENTATION

A ten-step procedure of ICBRR has been adopted throughout PMI's disaster risk reduction programs in Indonesia (Figure 1). The key strengths of ICBRR process include (ADPC 2004):

- Puts a premium on the organizational capacity of the vulnerable social groups through the formation of community organizations for disaster risk management;
- Follows a participatory process for risk identification, risk analysis, planning, plan implementation and monitoring and evaluation of activities;
- Is highly adaptable. It is most effective when adapted to match the social, political and cultural environment in specific locations at a specific point in time;
- Considers the living in disaster safer communities a basic human right;
- Is implemented in a gender-sensitive manner;
- Recognizes the need for continued innovation. The risk management related needs of communities in different cultural contexts and over time may change. Therefore, new strategies will always need to be adopted to meet those needs;
- Provides an opportunity to share resources from different stakeholders and

complement the limited resources of the government; and

- Contributes to empowerment of community members, and can bring pride, dignity, self-confidence, a desire to learn more and a willingness to seek improvements in their life

An integrated approach to community disaster risk reduction is required to:

1. Enable PMI to develop and grow in order to be able to fulfil its mandate;
2. Ensure cost effectiveness and sustainability in reducing disaster impacts;
3. Involve at-risk communities in planning, implementation and all stages of decision-making at community level;
4. Make risk reduction efforts more effective by involving all stakeholders and all sectors;
5. Address all hazards; and
6. Build disaster resilient communities.

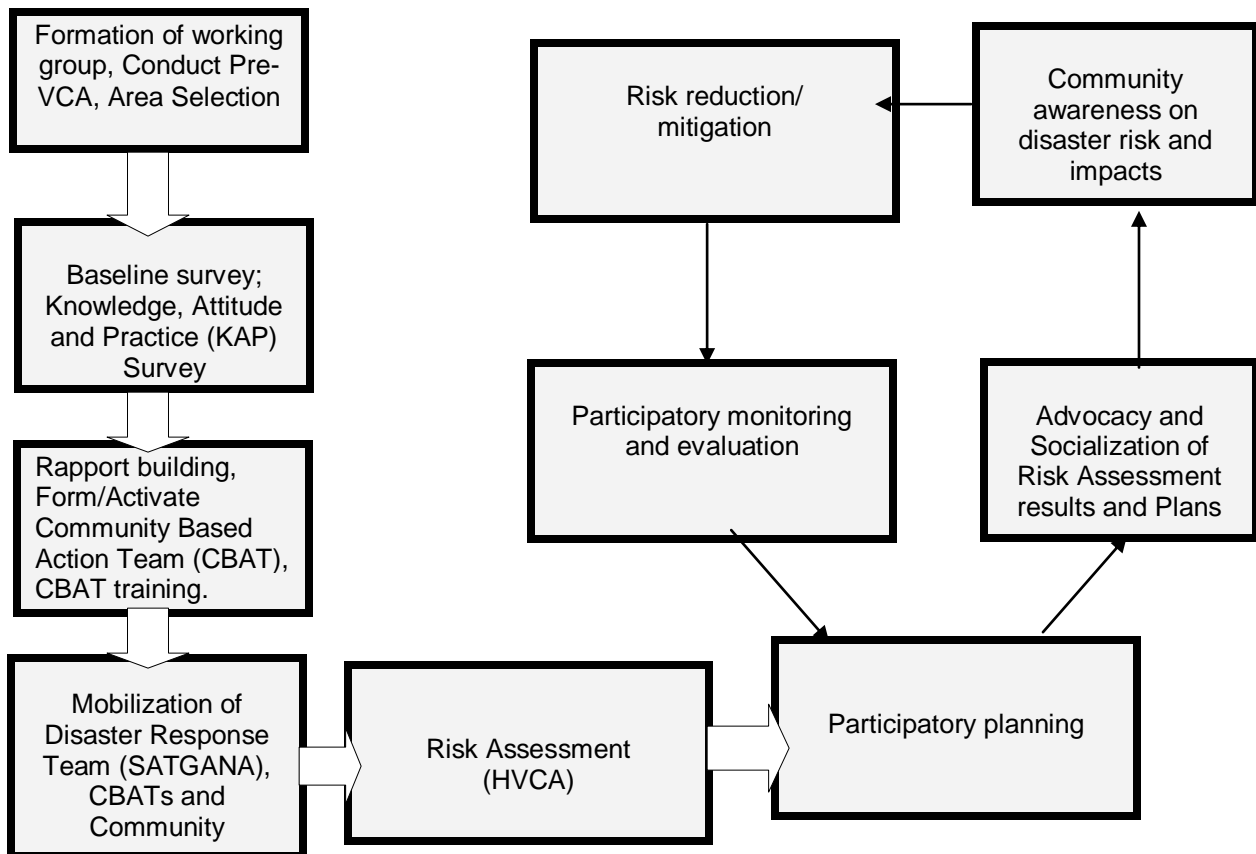


Figure 1. Key steps of ICBRR

III. PROGRAM ACHIEVEMENTS

A. Key accomplishments

One of the key achievements of this program is to form and strengthen community based action teams (CBATs) in all Program villages. As community members are the first respondents in times of disasters, CBAT members are the ones who regularly make them aware of community disaster risks, and are involved in the disaster response operations. Evidence of this successful collaboration was witnessed during flooding in Aceh Besar in January 2008. CBAT members were the first to inform PMI branch staff of increasing water levels. Because of this timely notification, PMI Aceh Chapter and Aceh Besar Branch were able to quickly mobilize volunteers and staff to assess the situation and provide support where necessary.

- PMI Aceh and North Sumatra chapters have a team of 422 well-trained local volunteers and facilitators on disaster response, ICBRR, Hazard, Vulnerability and Capacity Assessment (HVCA), risk mapping and age-friendly approaches. All program villages formed a Community Based Action Team (CBAT) of 20 members. Altogether, 860 CBAT members from 43 villages have received training on disaster response and risk mitigation measures, which are ready to be mobilized in times of disasters, and are responsible for disaster preparedness, response and mitigation activities at community level.
- Program socialization workshops for Local Government Authorities (Village heads, Housing Committee Coordinators, PMI, Line Agencies, and Schools) were organized in all program districts viz. Aceh Besar, Aceh Jaya and Nias. Altogether, 1860 people attended the program socialization meetings in all program areas.
- Village Disaster Management Committees (VDMCs or Village Committees) were formed in all 43 communities; basic orientation on the ICBRR program was provided.
- Hazard, vulnerability and capacity assessment (HVCA) in 43 villages was completed. Community risk reduction plans have been formulated in all 43 villages. So far, 77% communities have implemented at least one project for risk mitigation.

TABLE 1. KEY PERFORMANCE INDICATORS AND ACHIEVEMENTS

No.	Indicators	Planned (Number)	Achieved (%)
1.	CBATs able to recruit, train, support and motivate community volunteers for DRR and work together to do so.	43	100
2.	CBATs as PMI volunteers trained	860	100
3.	Training courses organised for CBATs	43	100
4.	Persons in the community (both village and schools) with knowledge of hazards, vulnerability and risk.	6000	87
5.	HVCA completed in participatory process including representatives of all vulnerable groups	43	100
6.	CBATs members including vulnerable groups and women involved in the plan formulation process	1060	100
7.	Villages submitted proposals for the community risk reduction plan implementation	43	100
8.	Program support villages linked with PMI EWS	43	100
9.	Number of PMI staff, volunteers and potential facilitators received training	432	100
10.	EWS focal points at CBATs appointed and trained	43	100
11.	Implementation of RR plans by CBATs	43	95

B. Risk Assessment and risk reduction plans

Flood, earthquake, epidemics, tsunami and landslides are among the key natural hazards in Aceh and Nias. CBAT members mobilised communities to conduct baseline survey and hazard, vulnerability and capacity assessment (HVCA) in all the program villages. Local elected authorities, PMI volunteers and staff, and communities along with CBATs participated in preparing hazard maps and analysing specific disaster risks for their community.

Lack of trained volunteers on disaster response and risk assessment, appropriate community organisations to deal with disaster and vulnerability issues, lack of proper drainage systems, no stock of disaster preparedness kits including kitchen sets, and no diverse livelihood

options were identified as the major community vulnerabilities.

As flooding was the key and most frequent recurring hazard, a majority of the risk mitigation activities were reduction of flood impacts. Construction of drainage, tree planting along the river and coastal areas, constructing escape routes, providing disaster response kits including kitchen sets and evacuation centres and community awareness training were among the needs as identified by the communities.

C. Sectoral integration

ICBRR was the one of four CRC-supported programs in the communities where CRC built houses. Other sectoral programs included Livelihoods, Environmental Health, and Gender. The key inter-sectoral activities for the overall risk mitigation in the communities were development of the baseline survey questionnaire; implementation of public health activities, such as sanitation, health education and solid waste management; support for the relocation of the Internally Displaced People (IDPs); livelihood activities including construction of escape routes, provision of transitional shelter, arrangement of disaster preparedness kits and staff training.

D. Involvement of local government

Local Government including *Pak Camat* (sub-district head) and *Pak Gechik* (village head) were involved from the beginning of Program implementation. Basic orientation on the Program was provided to all the Village Heads and Housing Committee Coordinators along with representatives of the key line agencies. Village heads were present and gave guidance during the formation of Community Disaster Management Committee (CDMC) and CBATs in all the villages. However, no intervention on the agenda and procedure was done. The HVCA results and risk reduction plans were shared with them among with the district level stakeholders.

E. Involvement of women and elderly

More than 43% in the training and 48% CBATs are women. As CBAT members are to be mobilized in times of disaster for response activities, most of the CBAT members are young and energetic youth. Instead, CDMC members are elderly and experienced persons who can guide the youth and provide supervisory and advisory roles in the community. A manual, in partnerships with HelpAge International, was prepared for integrating the needs and concerns of elderly into the community risk reduction planning, and was used in vulnerability and capacity assessment and program planning.



Fig. 2. Program socialization at a school in Aceh Besar



Fig. 3. A drainage system constructed at Mieuruk village in Aceh Besar to avoid impact of inundation.

IV. CONTRIBUTIONS TO BUILDING DISASTER RESILIENT COMMUNITIES

Disaster resilient community is a relative term; and it entails the extent to which and refers to an ideal condition that is not hundred per cent attainable. A disaster resilient community can be defined as a community which has the capacity (Twigg 2005):

- To absorb stress and destructive forces through resistance or adaptation;
- To manage or maintain certain basic functions and structures during disastrous events; and
- To recover or 'bounce back' with specific behaviour, strategies and measures for risk

reduction.

In order to describe the disaster resilient communities, efforts have been made (Twigg 2005; Kafle 2006; ADPC 2006; Geis 2008). In this paper, an effort is made to measure the exact level and extent of community resilience using the standards and indicators as described. The process and outputs of the ICBRR program was compared with the standards of disaster resilient communities. However, only a selective and most relevant list of standards was taken into account.

For the assessment of process standards, the ten steps were given weight “W” (i=1 to 10) based on their importance in the overall risk reduction. For the value of each step a rank “R” (j=0 to 5) was assigned to each step based on their status of achievement. The overall score was calculated as follows:

The values and weights were given by the authors based on their relative importance and their experience while designing and implementing the program. The weight and scores for the values were verified and adjusted in consultation with the field staff of the program. The five point scores given for value minimizes the personal error of the evaluators.

Weight (rank) is given to the process standard as per their importance in the overall disaster risk reduction; where as their corresponding values are given based on the completion of the task, quality in terms of participation of stakeholders, clarity of the process to the stakeholders and the level of outputs (Table 2).

Similarly, output/outcome indicators (Table 3) were identified based on the program proposals, Kafle (2005), ADPC (2006) and Twigg (2007). Ranking and values were given in a similar way to that of process indicators.

$$\text{Overall score} = \sum_{i=1, j=0}^{i=10, j=5} (W_i * R_j) + \sum_{i=1, j=0}^{i=28, j=5} (W_i * R_j)$$

A brief guideline for the use of this tool is given in Annex 1.

TABLE 2. PROCESS STANDARDS

Process standards (steps)	Status	Weight (Rank) of standards (Wi) ²	Criteria/indicators of scores for “value” (one criterion gets one score)	Value (1-5; 1 being the least preferred and 5 ideal condition) (Rj)	Total score (Wi*Rj)
1. Area selection, Pre-HVCA, comprehensive assessment, formation of working group	Detailed pre-HVCA was done but was used for proposal writing and not for area selection. Program areas were selected based on the villages where CRC was implementing housing, livelihoods and environmental health; However all program areas were heavily affected by 2004 tsunami.	2	1. Area was selected based on standard criteria including vulnerability (see annex 2 for a sample); 2. Pre-HVCA was done to measure vulnerability, 3. Working Group formed at Chapter and Branch levels; 4. Working Group members are officials and staff of relevant Department of PMI. 5. Working Group members received basic orientation about the Program- concept, procedures and expected outputs	3	6 (10)
2. Baseline survey/KAP	PMI volunteers were involved	1	1. Training was provided to survey personnel 2. Volunteers and PMI staff were actively involved in the survey; 3. An analytical report was produced; 4. Report was shared with PMI, CRC and Local Government Authorities and their inputs were incorporated; 5. Survey questionnaire was designed in an inclusive and integrated approach;	3	3 (5)
3. Rapport building, social capital building, Form village committees and CBATs	Socialization was done for local leaders, PMI staff, board members and volunteers and housing committee coordinators from each village;	7	1. Program socialization was done for local government, line agencies and local NGOs; 2. Program socialization was done for community members both men and women; 3. Village committees and CBATs were formed based on consensus among community groups;	4	28 (35)

² Ranking of the steps was done on a consensus basis in a group discussion of Program staff from both CRC and PMI. Ranking (weight) of steps is situation-specific and should be done along with the stakeholders.

	Formation of village committees (VDMC) and CBATs were done as per the standard process		4. At least 33% CBAT members were women, 5. CBATs have done some social activities voluntarily;		
4. Community mobilisation (SATGANA, VDMC, CBATs, communities)	SATGANA, VDMC and CBATs training organised and community mobilisation done.	5	1. Basic orientation about the roles and responsibilities given to all community entities; 2. Training curricula reviewed/updated for specific locations incorporating local hazards and contexts; 3. All VDMC and CBAT members received training; 4. PMI recognised facilitators were used for the facilitation; 5. Training evaluation and pre and post tests were done;	3	15 (25)
5. Risk assessment (HVCA)	Detailed risk assessment of all villages done mobilising CBATs	10	1. Local facilitators were developed and used for VCA at the community level. 2. The standard IFRC VCA tools and methods were used for conducting HVCA. 3. A thorough discussion was held among facilitators, PMI staff/CRC technical persons and volunteers/CBAT key persons about the VCA tools to be applied in the community; 4. Risk assessment results were verified using triangulation and other appropriate methods; 5. Hazards and resources maps and risk maps were produced and displayed at the public places including Local Government Offices;	4	40 (50)

6. Risk reduction planning	Community risk reduction plans prepared by CBATs mobilizing communities;	9	<ol style="list-style-type: none"> 1. Risk assessment results were reviewed and stakeholders assessment was done before the start of planning process; 2. Planning processes and formats were socialised among CBAT members; 3. CBAT members took the lead role with PMI support and community participation in the planning; 4. Planning was based on the issues as identified in the risk assessment and aimed at reducing the underlying causes of those issues 5. A comprehensive plan including roles of responsibilities of key stakeholders, resources required, timeframe and critical factors (risk factors) was prepared. 	3	27 (45)
7. Advocacy/ Socialisation	Risk reduction plans and HVCA results socialized among local government authorities;	4	<ol style="list-style-type: none"> 1. Advocacy plan prepared; 2. Stakeholder analysis done; 3. Plans were simplified and hazard and risk maps were prepared in an attractive way for advocacy purposes; 4. Advocacy and socialization events organised. 5. Community risk reduction plans were recognised by Local Government Authorities as the annex to their development plans OR some additional resources received from external agencies; 	3	12 (20)
8. Awareness raising/training	Community awareness raising materials prepared and distributed to communities; training on gender, early warning system, community based first aid (CBFA) organised;	8	<ol style="list-style-type: none"> 1. IEC materials designed in a participatory manner incorporating local contexts; 2. IEC materials produced and distributed on timely; 3. CBATs and community members received training on CBDRR (3), EWS (4)and Gender (5). 	3	24 (40)

9. Mitigation activities	CBATs are actively involved in the implementation of risk reduction plans.	6	<ol style="list-style-type: none"> 1. Detailed proposal was prepared including cost estimates, design (if applicable), sustainability aspects, number of beneficiaries and rationale, and submitted by CBATs to the PMI Branch for approval. 2. Project management responsibilities allocated among CBAT members; 3. Basic training on project management received by CBATs; 4. Mitigation activities completed. 5. Repairing and maintenance done by CBATs; 	2	12 (30)
10. Participatory monitoring and evaluation	Monitoring of program activities being done by PMI Branch and Chapters.	3	<ol style="list-style-type: none"> 1. Roles and responsibilities of monitoring of program activities were assigned at the start of the program implementation; 2. Regular monitoring done and report prepared. 3. Monitoring reports reviewed and corrective actions done every quarter, 4. Monitoring formats developed and socialised; 5. External evaluation done by Branch or Chapter; 	2	6 (15)
Overall score		55	-	30	173 (275) (63% of the maximum attainable score)

The figures in parentheses indicate the maximum attainable score.

TABLE 3. OUTCOME INDICATORS

Thematic areas as per HFA	Standards/Indicators	Weight (Wi)	Criteria of scoring for 'value' (Each criterion gets on score)	Value (Rj)	Score (Wi*Rj)
Governance (1)	1. A community organisation	1*6=6	1.A community organization (CBATs) formed; 2. CBATs meet on a regular basis and discussed on certain agenda items; 3. All decisions are consensus based and not on majority and minority; 4. CBATs carry our some voluntarily activities without any external support; 5. There is a written statement of roles and responsibilities and all members are aware of this.	5	30 (30)
	2. Access or influence of vulnerable groups to policy making and programming	1*3=3	1.CBATs have prepared advocacy plan; 2. Organizational mapping of the community has been done; 3. Vulnerable groups have been identified based on VCA and other studies; 4. Vulnerable groups have representatives in the CBAT; 5.Vulnerable group members are present in the VCA and community risk reduction planning;	2	6 (15)
	3. Linkage with the local government agencies, Private sectors and other NGOs/stakeholders	1*2=2	1. A DRR forum has been initiated in the district/sub-district or village level to discuss DRR issues; 2. PMI and Local Government Authorities have met and discussed DRR issues; 3. PMI and NGOs and Private sectors have met and discussed on joint activities; 4. PMI and/or CBATs have received external support for training or implementation of plans; 5. CBATs and/or PMI staff have received training from	3	6 (10)

			NGOs Or PMI has mobilized its technical human resources to provide technical support to private sector/NGOs for income generating purposes;		
	4. Ownership of risk community reduction plans by local government planning	1*4=4	1. Local Government representatives attended the planning process as an observer; 2. Local Government Agencies (LGAs) accepted community disaster risk reduction plans as village plans; 3. CBATs received some funding from LGAs; 4. LGAs mobilized NGO and private sector resources for implementing CRR plans; 5. LGA asked CBATs to present their annual plans in their Annual General Planning meeting.	4	16 (20)
	5. Capacity of CBATs and CDMC in disaster response and risk mitigation	1*5=5	CBAT/CDMC received training on: CBDRR (1), Project planning and management (2), M&E (3), Search and Rescue 4); First Aid (5)	4	20 (25)
	6. Popular participation (linkage with PMI, private sector, NGOs, civil society and other agencies.	1*1=1	1. PMI recognised CBATs at the lowest tier of the red cross system; 2. PMI agreed to endorse CRR plan as a supporting document for formulating their plans; 3. PMI advocated for resource mobilisation for CBATs; 4. PMI did M&E of CBAT activities; 5. CBATs recognised by private sectors, local NGOs and civil society by inviting them in the experience sharing meetings;	3	3 (5)
Risk Assessment	1. Conduct of baseline survey, risk assessment	5*3=15	1. Comprehensive and integrated BLS questionnaire developed;	4	60 (75)

(5)	(HVCA), establishment of disaster database.		<ol style="list-style-type: none"> 2. BLS conducted and data analysed; 3. BLS report prepared and shared with key stakeholders; 4. Risk assessment done and shared with key stakeholders; 5. Disaster information system established at Branch level; 		
	2. Knowledge of risk and risk reduction system among CBATs, community and local governments	5*1=5	<ol style="list-style-type: none"> 1. CBATs and vulnerable community members are aware of the key hazards, vulnerability and their future disaster risks in their locality; 2. CBATs and vulnerable community are aware of the key activities for risk mitigation in their community; 3. Community members received training on CBDRR, SAR or First Aid; 4. Local Government officials received training on community Based DRR; 5. Community risk assessment and community plans have been socialized at the community and LGA levels; 	3	15 (25)
	3. Level of participation of vulnerable groups in the risk assessment	5*2=10	<ol style="list-style-type: none"> 1. Vulnerable groups in the community identified; 2. 100 HH participated in the risk assessment; 3. 75% HH involved in the risk assessment; 4. 50% HH involved in risk assessment; 5. 25% HH involved in the risk assessment; 	3	30 (50)
Knowledge and Education (2)	1. Trained volunteers and community members	2*5=10	<ol style="list-style-type: none"> 1. All volunteers and vulnerable group members have received training any one aspect of DRR; 2. 75% volunteers/vulnerable groups; 3. 50%; 4. 25%; 5. less than 25% volunteers and vulnerable HH have received training on any one aspect of DRR; 	4	40 (50)

2. Awareness raising materials and activities	2*3=6	<ol style="list-style-type: none"> 1. IEC designed and published in a participatory manner; 2. IEC materials distributed to all vulnerable HH; 3. Training organised for vulnerable groups; 4. Other awareness raising campaigns organised by Branch and CBATs; 5. CBATs and vulnerable community members involved in the awareness raising campaigns; 	2	12 (30)
3. Formulation of SOP for early warning system and emergency communications	2*2=4	<ol style="list-style-type: none"> 1. SOP for EWS formulated; 2. Emergency communications framework developed and shared with key stakeholders; 3. ToT for SOP/Emergency Communications organised; 4. Socialization of SOP/ECF organised at all Chapters and Branches; 5. SOP/ECF used in practice; 	4	16 (20)
4. DRR activities in schools	2*4=8	<ol style="list-style-type: none"> 1. Selection of schools done based on vulnerability criteria; 2. Junior RC or Disaster Working Groups formed in the schools; 3. Training for teachers and students organised; 4. VCA done at the schools; 5. School risk reduction plans formulated and implemented. 	2	16 (40)
5. Documentation of traditional, existing DRR practices and early warning systems in the community	2*1=2	<ol style="list-style-type: none"> 1. ToR for the study prepared; 2. Study conducted; 3. Report of the community based EWS shared with the key stakeholders in the local languages; 4. Report finalised with the inputs from the stakeholders; 5. Designed at least one hazard-specific community- 	4	8 (10)

Risk management and vulnerability reduction (4)			based EWS;		
	1. A DRR and disaster preparedness plan	4*4=16	<ul style="list-style-type: none"> 1.A DRRDP plan prepared; 2. VCA done as part of formulating DRR plan; 3.Community members and village level stakeholders involved in the planning process; 4. DRR plan formulation was done following a standard planning process; 5.A DRR/DP plan prepared and shared with key stakeholders; 	5	80 (80)
	2. Implementation of RR plans	4*5=20	<ul style="list-style-type: none"> 1.A detailed proposal with cost estimates and responsibilities prepared and submitted to PMI and other agencies for funding; 2. Project implementation plan prepared and oriented to the members; 3. CBATs implemented the CRR plans with the technical support from PMI Branch; 4. RR plans were implemented in a participatory and transparent manner (no complaints received from community members) 5. Project completion report prepared. 	4	80 (100)
	3. Monitoring and evaluation system in place	4*7=28	<ul style="list-style-type: none"> 1. M&E guidelines prepared 2. Orientation given to CBATs and PMI Branch staff; 3. Regular monitoring of activities done by PMI Branch and Chapters; 4. M&E report prepared and shared with key stakeholders; 5.Corrective actions made to improve program implementation; 	3	84 (140)
4. Quality of houses, physical location	4*3=12	<ul style="list-style-type: none"> 1.100% houses are safe from all hazards; 2. 75% houses safe from all hazards; 	2	24 (60)	

			3. 50% safe from all hazards; 4. 25% safe from all hazards; 5. 25% safe from all hazards;		
	5. Diversified local economy (livelihoods)	4*2=8	1. Dependant on agriculture; 2. Dependant on agriculture and fishery; 3. Dependant on agriculture, fishery and livestock; 4. Agriculture and industries; 5. Agriculture, business, industries; jobs	3	24 (40)
	6. Environment and natural resources management	4*1=4	1. Presence of natural forest in the community/vicinity; 2. Presence of plantation in the community; 3. Presence of both planted and natural forest in the community; 4. Government managed natural forest; communities deriving benefits from natural resources; 5. Presence of community managed natural resources	3	12 (20)
	7. Social protection (health, livelihoods etc) provisions	4*6=24	1. Provisions of support by local government in times of disaster; 2. Life insurance schemes present in the community; 3. Agriculture crops are safe from all hazards; 4. Livestock insurance scheme is present in the community; 5. Risk assessment results show more than 75% people under low risk;	2	48 (120)
Disaster preparedness and response (3)	1. An effective community early warning system	3*4=12	1. There is a provision of community based EWS; 2. CBAT has EWS focal point for receiving and disseminating EWS received from Branch and/or local government; 3. EWS focal points have received training on emergency communications and EWS; 4. CBEWS has been linked to LG EWS; 5. Community members are aware of what to do after disasters happen;	4	48 (60)
	2. Contingency plans	3*1=3	1. Contingency plan formulated;	3	9 (15)

		2. Contingency plan socialised at the community and local government levels; 3. CBATs/Branches have enough resources for the implementation of contingency plans; 4. Roles and responsibilities of key stakeholders clearly specified in the plan; 5. Contingency plan effectively used in practice;		
3. Volunteerism/Participation	3*3=9	1. CBATs conducted at least one social activity voluntarily; 2. Participation in information giving or Participation for material incentives 3. Functional participation 4. Interactive participation 5. Self-mobilization	4	36 (40)
4. PMI (SATGANA) and CBAT capacity	3*2=6	1. Disaster Response Team (SATGANA) formed and training provided; 2. SATGANA equipped with basic disaster response equipment; 3. CBATs formed 4. Training provided; 5. CBATs members actively involved in community mobilization, VCA and community risk reduction planning;	4	24 (30)
Total score	233		84	717 (1165) (62% of the maximum attainable score)

The overall score 62% should not be loosely used and generalised. The score is contextual, and values mentioned in Table 1 and 2 are program and site specific. However, this can be used for comparing the status of any programs and measuring the outcomes in line with building disaster resilient communities.

Both the process and outcome standards are equally important for the contribution to building disaster resilient communities. Process standards are important for the community understanding, ownership and sustainability of the Program; where as outcome standards are important for the real achievements in terms of community empowerment and capacity building.

V. CONCLUSIONS AND RECOMMENDATIONS

The ICBRR program was aimed at increasing community resilience through enhancing disaster preparedness and response capacities of PMI. A close link between CBATs, local government and PMI Branch with the support from Chapter is necessary for sustaining the outcomes of the program.

The Process of CBDRR program (Figure 1 in the text) can vary by country and location based on the status of community awareness and country approach. It can be modified accordingly, however core elements such as formation of community groups, mobilising those groups in risk assessment and community risk reduction planning should be present in all the countries or locations. Weight and values can be changed through the discussion among the key implementing partners.

The final outcome of this tool is an indicative figure to reflect the program achievements and a benchmark for further program accomplishment. This is specific to the particular program and community, which can be compared with other Programs and communities. However, this should not be loosely used in isolation to indicate the level of knowledge of the particular community.

A two-year time frame is not enough for the establishment and strengthening of CBATs following all the steps of ICBRR. An ICBRR approach has huge potential in empowering communities to understand their location specific hazards, vulnerability and future disaster risk. CBATs are increasingly becoming the backbone of the PMI system at a community level. Institutionalising CBATs could be the next step in making communities more resilient to future disaster risk.

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