



**FINAL EVALUATION
OF THE MANGROVE PLANTATION AND DISASTER RISK
REDUCTION IN THE PERIOD OF 2011-2015**



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Acronyms

AEC	Agriculture Extension Centre
AMDI	Asia Management and Development Institute
CBDRA	Community-based disaster risk assessment
CBDRM	Community based disaster risk management
CCA	Climate change adaptation
CDRT	Community-based/commune disaster response teams
CNDPC	Committee for Natural Disaster Preparedness and Control
DARD	Department of Agriculture and Rural Development
DMC	Disaster Management Centre
DP	Disaster preparedness
DRR	Disaster risk reduction
EWS	Early warning systems
FGD	Focus group discussion
GoV	Government of Vietnam
HR	Human resources
IDI	In-depth interview
IFRC	International Federation of Red Crosses
JRC	Japanese Red Cross
KAP	Knowledge-attitude-practice (survey)
MARD	Ministry of Agriculture and Rural Development
MCD	Marine Conservation and Development
MERD	Mangrove Ecosystem Research Division
MFV	Mangrove for the Future
MoET	Ministry of Education and Training
MoNRE	Ministry of Natural Resources and Environment
MoU	Memorandum of Understanding
MP-DRR	Mangrove Plantation and Disaster Risk Reduction
NGOs	Non-government Organizations
PCNDPC	Provincial Committee for Natural Disaster Preparedness and Control
PEER/CADRE	Programme for Enhancement of Emergency Response/ Community Action for Disaster Response
PFES	Payments for ecosystem services
PMU	Project Management Unit
PNS	Participating National Societies
PPC	Provincial People's Committee
SEDP	Social-economic Development Plan
SP-RCC	Strategic Partnership for Responding to Climate Change
VCA	Vulnerability and Capacity Assessment
VCCI	Vietnam Chamber of Commerce and Industry
VNFOREST	Forest Protection Department and Vietnam Administration of Forestry
VNRC	Vietnam Red Cross
VNRC HQ	Vietnam Red Cross Head Quarter

1 Executive Summary

- **Background**

The Mangrove Plantation and Disaster Risk Reduction (MP-DRR) has run from 1994 to 2015. The Vietnam Red Cross (VNRC) has implemented this multi-phase programme in eight coastal (Quang Ninh, Hai Phong, Thai Binh, Nam Dinh, Ninh Binh, Thanh Hoa, Nghe An, Ha Tinh) and two upland provinces (Vinh Phuc, Hoa Binh) in northern Vietnam.

The total number of direct communes under Phase IV was 193. Three hundred and fifty six communes benefited from the public awareness raising, not counting the beneficiaries of the national public awareness programme, through the national mass media. The last phase of this programme, 2011 to 2105, focused on the sustainable care and protection of existing mangroves rather than on area expansion. About 107.6ha of mangroves were planted in seven communes out of 74 coastal programme communes with mangroves.

Mangrove forests account for approximately 1.2% of Vietnam's forests (equivalent to 168,688ha) as of 2013, yet they provide important ecosystem services, including habitat provision, storm protection, erosion control, and carbon sequestration.

Mangroves once covered much larger areas. In 1943 it was 408,500ha. Largely due to war, natural causes, aquaculture and urban development, Vietnam has lost about 60% of its mangrove forest over the last 70 years (1943-2013). As mangroves are degraded and converted, vital ecosystem services are lost.

In the period 2013-1999, the mangrove area in Vietnam has increased by about 6.4% partly due to the contribution by the MP-DRR project

Source: MARD (2014, 2001); Maurand, 1943

This report addresses the following objectives of the final project evaluation:

- ✓ To assess the programme impact from 2011 to 2015 in the 10 provinces;
- ✓ To review the creation of sustainability of the project including the incorporation into other programmes
- ✓ To evaluate the project achievements, results, strengths and weaknesses against project objectives and outcomes defined in the project proposal and has been conducted in compliance to IFRC/VNRC standards;
- ✓ To assess beneficiary satisfaction;
- ✓ To assess KAP of target groups against the finding in the mid-term review; and
- ✓ To derive findings and lessons learnt.

- **Key Findings**

- *Consistency with Government legislation and donor priorities*

There is high-level political interest and resulting legislation for mangrove and protection forest by the government at national and provincial levels, for example, the Ministry and Departments of Agriculture and Rural Development (MARD and DARD), Ministry of Natural Resources and Environment (MoNRE). The MP-DRR is also in line with the Government's strategy for disaster risk management according with Decision 1002/QD-TTg 'To approve the Project: Community awareness raising and community-based disaster risk management (CBDRM)' (13th July 2009). The MP-DRR is also in keeping with the National Target Programme on New Rural Development to 2020.

Further, protecting mangrove forest is still considered a strategic priority of the VNRC. That said there is a shift from forest plantation, protection and care to CBDRM.

- **Cost-efficiency**

Overall the MP-DRR is efficient as it produces benefits well over its costs. These benefits are protective, direct economic, and ecological. Under the MP-DRR, the average cost for planting one hectare of mangrove is US\$500/ha. Relative to constructing concrete dykes, which are estimated on average to cost of VND20 billion per kilometre (US\$900,495). Mangrove afforestation along the coastal belt, is a much more efficient way to protect coastal communes. The carbon sequestration by the planted mangroves was estimated to be 1,204tCO₂/ha in 2013.

Management costs for the programme, including the cost for the VNRC Headquarters (HQ), the central and provincial Project Management Unit is CHF648, 604 (~US\$682,468) accounting for 31.8% of the total project cost. In the early years of Phase IV, reporting imposed by the MP-DRR Project Management Board on Red Cross chapters was changed in form and frequency. Further, these are cumbersome, effecting efficiency because of staff time needed.

Financial management and narrative reporting were not helpful for building capacity of provincial Red Cross staff. Adopting the Norwegian Red Cross approach will increase provincial chapter ownership of the project. Providing the total budget, agreeing on activities, and allowing provincial project staff to develop annual plans and budgets, based on costs norms and therefore be responsible for project management.

Capacity building for communes to protect against disaster and impacts of climate change, accounts for 44.6% (equivalent to CHF1, 060,434 or ~US\$1,115,800) of the total project cost. This is used to increase the capacity of people in the 193 communes for 190,455 direct beneficiaries, including of vulnerability, capacity assessment (VCA) facilitators, commune authorities, people, school children and their teachers. Thus, the average cost *per capita* benefited is CHF5.57 (US\$5.86 (excluding management cost). On human resources and capacity building, Participating National Societies believe investment in capacity building provincially based human resource was well overdue and needed if the VNRC was to keep its position in the eyes of the local government authorities and others.

- *Effectiveness*

The MP-DRR has been undertaken for almost two decades and is divided into four phases. Through the project by Red Cross at all levels, especially communication on mangrove protection, development and disaster risk reduction, the importance of mangroves and risk reduction activities in the ten provinces has entered deeply into the minds of local people, government officials, schoolteachers and their students. Besides, local people can see the benefits of mangrove in coastal protection, livelihood generation and in creating a clean environment. All these points have created favourable conditions for carrying out the project, have improved the effectiveness of mangrove protection, for example, all localities surveyed confirmed that mangrove felling for fuel has been stopped.

Challenges exist with managing the project by the VNRC as most of the staff of the MP-DRR Project Management Unit are new. In addition, many of the Red Cross chapter staff, who have been involved in the mangrove afforestation programme are due for retirement and new staff do not know or understand the programme well.

Despite the pressure on mangroves from natural and human causes, the MP-DRR Phase IV was effective in protecting the area of mangrove planted during previous phases (1994 to 2010). The KAP survey showed 57% of respondents felt mangrove area had become 'more than before', while 82% considered the local care about forest to be either 'very good' or 'good'.

During Phase IV, the protective effects of the mangrove forests were shown. The KAP survey examined how local people considered the role of forests in coping with natural hazards was examined. According to respondents, in the last case of a disaster in their community, forests helped protecting local communities from waves and wind (56%), protecting coastal lines and dykes (50%), and aquatic resources (28%).

A strong point of the Red Cross project is the community-based approach (rather than a community driven approach) involving mobilizing local people to take part, with low costs and large impacts (for example, participants in awareness raising activities).

- *Impact*

The MP-DRR brings benefit to an estimated 190,455 direct beneficiaries and many more indirect beneficiaries. For example, in each commune where mangroves exist, the forest provides daily livelihoods for about 150 to 250 people collecting aquaculture products and non-timber products.

The respondents from the KAP survey were well aware of benefits that forest plantation and protection would bring to the community. Specifically, 98% of respondents in the end-line survey said forests would contribute to protection of infrastructure designed for disaster reduction and prevention. Further, 99% of respondents said sustainable forest plantation and protection would bring benefits to the communities. Livelihood related to mangrove, coastal

and upland forestry areas are notable; in mangrove areas with increased yields from collecting marine species up to 57.2%.

Prestige and influence of the VNRC has been raised significantly. For example, in some provinces this helped assure the Red Cross position in the provincial Steering Committee for Disaster Prevention and Control.

Since sustainability is an important aspect of the project. Analysis from the KAP survey revealed 97% of respondents would participate in forest protection after the project ends. Specifically, 10% among these would participate in a voluntary mangrove protection team, 23% would participate in awareness raising on mangroves, and 22% would care and replant destroyed mangrove.

- **Recommendations**

- *Mangroves, coastal and upland forestry*

Mangrove plantation and protection

1. Stop expanding in the current areas
2. Preserve and strengthen existing stands only, diversifying using different mangrove species and using saplings instead of propagules
3. Conduct a comprehensive feasibility study by a team of external national and international experts examining the environment in other central and southern coastal provinces
4. Aim to become the 'go-to' organisation for mangrove afforestation
5. Endorse existing good practice for forest protection team members, and address the inadequacy of the current subsidy fee for planting a hectare of mangrove
6. Review the 2012 mapping of the mangrove forest with the Provincial People's Committee, the Sub-department of Forestry, the Red Cross and local people
7. Organise, in all provinces in the mangrove and coastal forestry areas, the regular cleaning up of rubbish by teams of Red Cross volunteers.

Advocacy and lobbying

1. Increase significantly Red Cross advocacy on issues impacting negatively on mangrove and coastal forestry sustainability:
 - a. Propose to the Directorate of Forestry, MARD for all areas of mangrove and *Casuarina spp.* planted by the Red Cross, to be registered as protection forest and receive allocated protection fee
 - b. Undertake, through the provincial Red Cross, advocacy with the Provincial People's Committee, DARD and DoNRE making certain the Red Cross position in the provincial forest development plans

- c. Support integration of disaster risk reduction (DRR) and climate change adaptation (CCA) into commune level socio-economic development plan (SEDP)
 - d. Propose greater engagement and role by the Red Cross in the New Rural Development Programme 2020 as this programme and with the national programme on community-based disaster risk management (CBDRM)
2. Engage with the community of practice involved with mangrove protection and development to enhance leverage and increase efficacy. Take a more active role with others in Vietnam and regionally

Co-management agreements

- 1. Ensure in each province the Red Cross chapter is formally made equal partner

Upland forestry areas in Vinh Phuc and Hoa Binh

- 1. End further upland forestry in Hoa Binh and Vinh Phuc. Complete necessary formalities to get official landownership for farmers of the protection forest areas planted under the MP-DRR
- 2. Hand-over responsibility for oversight to the provincial Sub-department of Forestry

Financial management and reporting

- 1. Change immediately the financial management reporting from a monthly to quarterly or biannual basis, and agree on financial and narrative reporting formats to use in the next phase
- 2. Be more proactive in budget management and project planning at VNRC HQ
- 3. Consider by 2017 introducing direct bi-lateral support from the JRC to the VNRC, with IFRC providing Technical Assistance

○ ***Human resources and capacity***

- 1. Undertake capacity building and training of a new and younger generation in mangrove afforestation
- 2. Continue to increase awareness among the public of the importance of protecting and preserving the mangrove planted areas
- 3. Increase emphasis on volunteer management to recruit and keep new volunteers

○ ***Disaster risk reduction***

CBDRM and community-based disaster risk assessment (CBDRA)

- 1. Use the CBDRA approach to align with the government CBDRM Decision 1002 programme

2. Prepare a new cadre of staff at provincial, district and commune level, developing capacity through a comprehensive needs based assessment, careful selection, and phased training in all provinces at different levels in the government CBDRM Decision, official government CBDRM and CBDRA Guidance materials and integrating DRR/CCA into SEDP planning
3. Be proactive at VNRC leadership level, in ensuring VNRC roles and responsibilities in undertaking CBDRM are clear and officially agreed. Sign at provincial level an MoU between the provincial Red Cross and DARD
4. Focus on key strengths, narrow down the scope and geographical coverage of the programme, rather than spreading too thinly

Commune response teams and emergency drills

1. Organise regular activities for the commune disaster response team (CDRT) to keep them busy, ensure good team working and understanding of emergency response preparedness, response actions and first aid
2. Utilise the PEER/CADRE materials and trained trainers
3. Strive to include a budget in the commune SEDP for training, equipping and maintenance of CDRT
4. Scale up drills to district level (according to the Law on Natural Disaster Prevention and Control)

Early warning systems (EWS)

1. Undertake a multi-stakeholder assessment of existing commune EWS to find out needs and tailor support to suit context

Schoolchildren disaster risk reduction and climate change adaptation

1. Use updated VNRC 'An Introduction to Disaster Risk Reduction and Climate Adaptation for Schoolchildren' (2015)
2. Use qualified trainers to train schoolteachers in the new material for two or three days
3. Collaborate with Ministry of Education and Training (MoET) in the future in rolling out new materials and training of trainers

Livelihoods

1. End further engagement in non-forestry related livelihood training
2. Support livelihood initiatives linked with the mangrove afforested or coastal forested areas

○ *Exit and sustainability strategy*

1. Integrate the MP-DRR into the forestry management of the Government
2. Increase significantly efforts by the VNRC HQ and provincial Red Cross to develop an exit strategy.

2 Background

Vietnam is undeniably one of the countries most affected by climate change. One evidence for that is the rapid loss of mangrove forests in the country, and more generally, in Southeast Asia (Box 1). In response to that, many programs and projects that aim to mitigate impact of climate change and natural hazards have been implemented by various organisations and individuals in Vietnam. Since the early of 1990s, Vietnam Red Cross (VNRC) has actively engaged in this movement, especially in disaster risk reduction (DRR) and climate change adaptation (CCA) in the country.

Box 1. Mangroves are at great risk

Mangroves are estimated to be disappearing at a rate faster or equal to that of coral reefs and tropical forests suggesting these valuable ecosystems may be lost completely within the next century.

Losses are highest throughout South and Southeast Asia, a region that harbours most of the world's remaining mangroves, and that is at particularly high risk with respect to coastal hazards.

Major causes of mangrove loss in the region include:

- (i) conversion to other land use such as oil palm plantations, mining, shrimp farms, infrastructure, and human settlements
- (ii) over-harvesting
- (iii) pollution
- (iv) decline in freshwater availability
- (v) reduction of silt deposition
- (vi) coastal erosion due to subsidence and sea level rise; and
- (vii) disturbances due to typhoons.

Nature's sea wall: Building Coastal Resilience in South & Southeast Asia Through Mangrove Restoration for Risk Reduction, Michael W. Beck, *et al* (2015)

Particularly, since 1994, VNRC has implemented a multi-phase programme on mangrove plantation and protection in eight coastal (Hai Phong, Ha Tinh, Nam Dinh, Nghe An, Ninh Binh, Quang Ninh, Thai Binh, Thanh Hoa) and two upland provinces (Vinh Phuc, Hoa Binh) in northern Vietnam. The programme, Mangrove Plantation and Disaster Risk Reduction (MP-DRR), has a goal of building up local resilience to natural hazards and climate change through provision of support to forest plantation and management, awareness raising and capacity building with regard to prevention and mitigation of impact of natural hazards for selected communities and the local authority, and capacity building for VNRC. A logical

framework that includes objectives and activities of the programme is included in the appendix of this report.

The last phase of this programme, designed to last from 2011 to 2015, was made possible by a contribution of JPY 215 million of Japanese Red Cross (JRC). International Federation of Red Crosses (IFRC) helped coordinate this fund. Asia Management and Development Institute (AMDI), a Vietnamese organisation well-known for its experience in the study of DRR and CCA, was selected to conduct a midterm evaluation of the program, which was completed in 2013, and an end-line evaluation in the second half of 2015. Specific objectives of this final evaluation are listed in Box 2.

Box 2. Objectives of the final evaluation

- To assess the program impact from 2011 to 2015 in the 10 provinces;
- To review the creation of sustainability of the project including the incorporation into other programmes
- To evaluate the project achievements, results, strengths and weaknesses against project objectives and outcomes defined in the project proposal and has been conducted in compliance to IFRC/VNRC standards;
- To assess beneficiary satisfaction;
- To assess knowledge-attitude-practice (KAP) of target groups against the finding in the mid-term review; and
- To derive findings and lessons learnt.

The 2011 ‘Breaking the Waves’ evaluation reported that to date, the VNRC programme had cost US\$8.88 million, with which 9,462ha of forest, including 8,961ha of mangroves, were created in 166 communes, protecting about 100km of sea dyke. The mangroves planted by VNRC represent 4.27% of all mangroves in Vietnam, and almost a quarter of those in the eight programme provinces. Since then an additional 107.6ha of mangrove, 5.0ha of coastal protective tree (casuarina and acacia) and 20.6ha of upland protective tree had been planted at cost of CHF81,260 (equivalent to US\$84,438 based on the exchange rate of October 11, 2015).

This report presents findings the Final Evaluation of the VNRC MP-DRR programme for the period 2011-2015. Specifically, the following issues were considered as to whether the programme had achieved its expected results regarding:

1. Plantation of forest and sustainable forest protection
2. Improved the capacity of communes (under the project) to protect against disasters and impacts of climate change, and
3. Strengthened capacity of the VNRC to develop and implement community based disaster risk management (CBDRM) projects sustainably and effectively.

3 Methodology

The final evaluation was undertaken in five steps:

1. A desk review was conducted to have an understanding of project design and implementation. A final evaluation logical framework was developed with objectives, activities, outcomes and indicators (See Annex 3).
2. A set of survey tools, for example, in-depth interview (IDI) and focus group discussion (FGD) guides and questionnaires, was developed based on the project objectives and desk review results. In addition, field survey planning was considered at this step.
3. A field survey conducted, including field visit, in-depth interviews, focus group discussions, KAP survey.
4. Data was cleaned, analysed, synthesized findings and wrote the draft evaluation report.
5. The draft evaluation report was shared with the VNRC, IFRC and JRC, to obtain their feedback. A final report was finalized basing on these feedbacks and submitted to the IFRC.

Desk review and evaluation logical framework

A thorough desk review of available relevant data and information was undertaken. This included external statistics, archived materials, project proposal, annual work plans, progress reports, Red Cross chapter project updates and reports, previous project phases' evaluation reports and the Mid-Term Review Report from the IFRC, as well as available survey tools.

A logical framework (logframe) was built for the final evaluation, including objectives, indicators, means of verification, and assumptions. The logframe, included in the Annexes, covers the following aspects of the project: Impact, Effectiveness, Efficiency, Relevance and Sustainability.

Development of data collection tools and training of data collectors

Based on the project objectives and available information obtained from desk review stage, a set of survey tools including structured questionnaire, IDI questionnaire, and FGD guidelines were developed. After the first draft of the survey tools were developed, they were sent to VNRC and IFRC for comments. Evaluation team integrated comments from the project staff to develop a strong set of survey tools.

For the quantitative survey, tablet PCs were used for faster data entry. Once the quantitative survey tools were finalized, an electronic data entry form was designed to be used with tablet PCs. Completed forms were submitted directly to an “online form-hub” which allowed KAP validation and timely adjustment of errors and inconsistencies, if any.

After structured questionnaire, IDI and FGD guidelines were completed and approved by the project, training sections was held for all evaluation team members and data collectors on

September 3, in a participatory manner with the involvement of project staff. A training plan was shared with IFRC beforehand so project staff could join and comment for further adjustment if needed.

Simultaneously with tool development, a detailed field survey plan was prepared. Prior to survey plan development, a list of beneficiary communes was obtained to serve as the input for the random sample selection process. The survey plan specified survey timeline for each province and commune as well as the responsible survey groups. The evaluation worked closely with other project staff developing the most efficient and effective plan to attain the highest return rate. The plan was sent to contact persons in each province for logistical arrangements.

Sample size and sample selection for quantitative part

There were four groups of target respondents for the quantitative survey:

- i. beneficiary households who have and have not planted trees and receive plantation incentives;
- ii. beneficiary households who have and have not been benefited from risk reduction small scale measures;
- iii. beneficiary households who have and have not been participated in simulation drills, and
- iv. community members who benefited from strengthening or upgrading of the commune early warning system and public awareness campaign.

In this study, Cochran’s formula was used to estimate the sample size.

The sample size for unknown population will be determined based on the following formula:

$$n_0 = \frac{(t)^2 * (p)(q)}{(d)^2}$$

Where,

n_0 = Desired sample size

t = value for selected alpha level (the standard 95% confidence interval will have alpha level of .025 in each tail, $t = 1.96$. (The alpha level of .05 indicates the level of risk the researcher is willing to take that true margin of error may exceed the acceptable margin of error).

p = Proportion in the target population estimated to have a particular characteristic

$q = 1.0 - p$

d = Marginal of error (with budget constraint, 7% error is acceptable)

When sample size $n_0 > 5\%$ of the population, the following formula will be used to correct the final sample size (n_1):

$$\underline{n}_1 = \frac{\underline{n}_0}{(1 + \underline{n}_0 / \text{Population})}$$

The aim was to have a sample size with a 95% confidence interval and a 5% marginal of error. The survey of target households was conducted separately from the survey of non-target households. With the total number of beneficiary households of 125,000, the sample size for target households computed using the two formulas was 383 households.

As a cluster sampling method was used to select households for survey the sample size was adjusted accordingly. To correct the potential loss of sampling efficiency, the design effect (D) was added in the equation to correct the sample size (Magnani, 1997). A design effect of 1.5 is commonly accepted. Therefore, the designed sample size for survey of target households is 575 (= 1.5*383).

In this survey, multistage-cluster sampling method is used. Clusters in this survey are communes. Magnani (1997) mentions there is no general rule on the number of clusters to be selected, however, the more clusters the more significant it becomes. With the given budget and time, 20 clusters were opted for in ten provinces. Each cluster is one commune. The final list of study sites are listed below. From the list of households in each commune, households were selected randomly for interview.

Table 1. Number of survey respondents by provinces, districts and communes

No.	Province	District	Commune	Sample
1	Quang Ninh	Quang Yen	Ha An	25
2			Hoang Tan	25
3	Hai Phong	Kien Thuy	Viet Tien	25
4			Vinh Long	26
5	Thai Binh	Tien Hai	Dong Long	25
6			Nam Hung	25
7	Nam Dinh	Giao Thuy	Giao An	25
8			Giao Xuân	25
9	Ninh Binh	Kim Son	Kim Hai	25
10			Kim Trung	25
11	Thanh Hoa	Ha Trung	Ha Toai	25
12			Ha Lam	25
13	Nghe An	Nghì Loc	Nghì Quang	25
14			Nghì Tien	25
15	Ha Tinh	Cam Xuyen	Cam Nhuong	25
16			Cam Duong	25
17	Hoa Binh	Tan Lac	Man Duc	45
18			Thanh Hoi	46
19	Vinh Phuc	Lap Thach	Lien Hoa	48
20			Ngoc My	44
	Total	10	20	584

Sample size and sample selection for qualitative part

In addition, an important part of the survey was to gain in-depth understanding about the capacity of local authorities and stakeholders in protecting and managing forest plantation as well as in DRR and CCA. IDIs and FGDs were conducted with key informants from ten project provinces, who were community leaders involved in DRR activities, teachers and children trained in disaster preparedness and climate change, volunteers trained as members of forest protection and management teams and community-based disaster response teams (CDRT), trained VNRC staff, representatives from Ministry of Agriculture and Rural Development (MARD), provincial and commune People's Committee, and NGOs.

In each of ten project provinces, interviewees included:

1. Three IDIs at the provincial level with VNRC, Forestry sub-Department and DARD in charge of CBDRM
2. Two FGDs with teachers and children trained in disaster preparedness and climate change
3. Two IDIs at the commune level with community leaders who had been trained on CBDRM, participated in vulnerability and capacity assessment (VCA), commune Red Cross staff and mass organizations.

Table 2. Number of qualitative interviews and focus groups discussions

IDIs at provincial level	30
FGDs with teachers and children	20
IDIs at communal level	20

Data analysis

For qualitative data: all IDIs and FGDs were recorded and transcribed after the survey. These transcripts were read carefully and compared insights from qualitative data with results of quantitative data, and discussed to finalize a list of key themes in accordance with relevance and appropriateness, effectiveness, efficiency and the needs of beneficiaries.

For the quantitative data: Excel 2013 and SPSS 19 (Statistical Package for Social Sciences) was used for data processing. All data was analysed under the tabulation plan finished in consultation with the project staff. For the assessment, coding of the open-ended questions was done by interviewers during the data collection exercise under the supervision of team leaders. All data was coded, punched, cleaned and validated before being subjected to analysis. For quantitative data collection, the sub-team leader kept close track on the data collection to timely fix any error in validation rule or content. Team leader or supervisors sometimes joined enumerators to conduct spot checks to verify if interviewing protocol was followed. All skipped households were noted down with an explanation. In case the dropped out rate was high, return visits and interviews were made. Revisits and supplement survey were conducted with respondents whose questionnaires from the first round of interview were determined by the supervisor to be substandard. Entered data was managed by the

team leader and researcher who later compiled, checked and “cleaned” the data before delivery to IFRC.

The IFRC may conduct further quality control checks of the data and provide feedback on any errors or inconsistencies. Results from quality control checks after data entry may require verification of variables and additional call backs were made as necessary.

4 Comparative findings

4.1 *Relevance (and appropriateness)*

Major external reasons helping support project implementation and contribute towards success are:

4.1.1 **Consistency with Government legislation for mangrove and coastal forestry**

There is high-level political interest and resulting legislation for mangrove and protection forest by the government at national and provincial levels, for example, the Ministry and Departments of Agriculture and Rural Development (MARD and DARD), Ministry of Natural Resources and Environment (MoNRE). (See Annex 2 for legislation aimed at improving mangrove status).

The MP-DRR is consistent with the legal framework for mangrove reforestation. In a changing climate, coastal forest protection and development contributes to climate change mitigation and adaptation initiatives as well as lessens the impacts of natural hazards and sea level rise. Interest by national and local governments in the mangroves is high because of the role of the mangroves in protection of sea dykes and coastal communities, providing livelihoods, and increasingly because of the sequestration of carbon. However, despite the close alignment with existing legislation and positive reviews from the Government, up to now the VNRC has not received direct and official financial support as well as legal support (for the care and protection of mangroves) from the Government to expand the planting and protection of mangroves and DRR. Since 2010, many of the areas of mangrove planted by VNRC have not received support for forest protection.

4.1.2 **Consistency with Government legislation for disaster risk reduction**

Decision 1002 (2009) on community-based disaster risk management

The MP-DRR is also in line with the Government's strategy for disaster risk management according with Decision 1002/QD-TTg *'To approve the Project: Community awareness raising and community-based disaster risk management (CBDRM)'* (13th July 2009). The Disaster Management Centre (DMC), MARD has signed a Minute of Understanding (MoU) with the VNRC to support carrying out Decision 1002 in at least 1,000 communes, and provide technical support to carry out the Decision in 6,000 communes nationwide.

Many provinces have approved the Action Plan for carrying out Decision 1002 and some have received state budget support, have undertaken training and commune risk assessments, following standardizing documentation for CBDRM and community-based disaster risk assessment (CBDRA). This has provided opportunity for Red Cross staff at all levels to participate actively in DRR activities, contributing to improving the capacity of local government and people to reduce the risk of disasters and respond to climate change, using the experience and expertise in disaster risk management accumulated through years of implementation of disaster risk management projects in general and the MP-DRR specifically.

The Ministry of Education and Training (MoET) Decision No. 329/QĐ-BGDĐT (January 25th, 2014) '*In-school information and communication on climate change adaptation and disaster risk reduction, Period 2013-2020*', aims to raise awareness, information and communication skills on CCA and DRR of 80% of government officers and teachers by 2015, and 95% of those by 2020. From date to 2020, the form of information and communication on CCA and DRR in schools will be diversified. However, despite the fact the VNRC has been involved with education of teachers and their school children since 2000, this is not been well recognised by MoET, although the VNRC school children material (*An Introduction to Disaster Preparedness for Schoolchildren*, 2000) is officially recognised for use in extra curricula teaching.

National Target Programme on New Rural Development in the period of 2011-2020

The MP-DRR is also in keeping with the National Target Programme on New Rural Development to 2020, which enables local People's Committees to mobilize matching funds from the State budget and contribution from local people to implement small-scale mitigation measures, for example, for road improvement, irrigation, and water and sanitation. In this project, all communes having small-scale mitigation measures have contributed matching funds. The total amount provided of about CHF184, 000 (US\$192,200) was at the ratio of 1:1 (project funds to matching fund). The smallest percentage contributed was 20% and largest 359%. There has been limited engagement by the provincial Red Cross chapters in accessing such funding to augment seed money provided under the MP-DRR for small-scale mitigation works.

VNRC strategy

Further, protecting mangrove forest is considered a strategic priority of the VNRC. In the late nineties the VNRC, recognized the important role of mangroves in reducing the impact of natural hazards. For example, from typhoons, tropical storms, whirlwind, flash flood and landslides, in protecting environment, and in reducing the impacts of climate change and sea level rise.

In the National Strategy for VNRC Development to 2020, clear mention is made of mangrove and other protection forest as a priority. That said, the budget earmarked to mangroves, other coastal and upland forest during the period 2011-2015 was 8.3% of the total budget compared

with a share of 59.9% for CBDRM. In the previous phase, 2006-2010, direct and indirect expenditure for planting was 41.8%. This clearly shows a shift from forest plantation, protection and care, to CBDRM.

Other donors

Other international donors, international and local non-government organizations (I/LNGOs) have also interest and support for mangrove protection and development, for example, Marine Conservation and Development (MCD) in Hai Phong, Thai Binh, and Nam Dinh and the USAID-supported Vietnam Forests and Deltas programme in Nam Dinh, Mangrove for the Future (MFF), etc.

Further, there is strong support and high interest from provincial, district and local governments and from local people in coastal provinces in both mangrove and upland forest plantation areas and in DRR.

4.1.3 Relevance to objectives selection and project design

Based on recommendations of previous Phases' evaluations¹ the VNRC and IFRC developed the project objectives and project design. The objectives of Phase IV (2011-2015) were considered vital for high risk, coastal and mountainous communes affected by storms, floods, flash floods, landslides, reservoir incidents and forest fires.

For direct beneficiaries, the project met to a degree, local demand to address DRR and CCA and at the same time created sustainable livelihoods, benefiting from the mangrove and protective forest areas.

This phase was focused on the sustainable care and protection of existing mangroves rather than on area expansion. Only 107.6ha of mangroves were planted in seven communes out of 74 coastal communes with mangroves. This was because the areas planted are far out to sea, where inundation level is not much suitable for planting mangroves by propagules. In that condition, the planting method leads to low survival rate. Moreover, there are no commitments to assign forest land, which lasts over 20 years, by the local government authorities to the VNRC's forest plantation programme.

A small area 25.6ha of upland and coastal protective forest was planted in three pilot provinces of Ha Tinh, Hoa Binh and Vinh Phuc, with the contribution of land for economic and protective forests by some households.

In all areas, volunteer forest protection teams were trained in forest management and protection skills and equipped with basic tools for the work of forest care and protection.

¹ 'Planting Protection: Community-based Mangrove Reforestation and Disaster Preparedness Programme of the Viet Nam Red Cross. An evaluation of Phase II (2000 to 2005)' (2011); and 'Breaking the waves: Impact analysis of coastal afforestation for disaster risk reduction in Viet Nam (2011)

The DRR activities, such as VCA, village level emergency drills, small-scale mitigation measures, awareness raising, school DRR, and livelihood training were considered key and priorities of this phase. The early period of this phase focused on building capacity for Red Cross cadres at all levels to strengthen the organization and management, improve professionalism and increase the operational efficiency of the project.

4.2 Efficiency

4.2.1 Cost-efficiency

Overall the MP-DRR is efficient as it produces benefits² well over its costs. Cost efficiency for each expected result is calculated by taking the sum of the actual expenses to achieve the result and the percentage of management and administrative costs for all activities, divided by the total cost of the whole project.

For forest plantation, sustainable forest management and protection accounted for 8.3%, equivalent to CHF168,791 (~US\$175,462) of the total cost of the entire project, which as of October 2015, was CHF2,042,145 (~US\$2,122,000). This was to maintain 8,206ha of mangrove forest and protection plantations, plant 107.6ha of new mangrove forest and 25.6ha of protective forest (upland and coastal). Thus, in general the average cost for the care and protection of one hectare is CHF20.2/ha/5 years (~US\$21/ha/5 years), equivalent to CHF4.0/ha/year (~US\$4.2/ha/year). The average cost for protection of protective forest, including mangroves, according to the cost-norm of MARD is VND100,000/ha/year (US\$4.5/ha/year) up to the year 2015 and will be VND200,000/ha/year or US\$9.0/ha/year in the future. The MP-DRR fund allocated for protection and care, although small, supplements government support.

Under the MP-DRR, the average cost for planting 1ha of mangrove is US\$500/ha, for example, in Hai Phong, the cost for planting *Kandelia obovata* is US\$481/ha and planting *Sonneratia caseolaris* is US\$681/ha, compared to the cost of MARD, which is US\$710/ha. Planting, replanting and taking care over four years of 1ha of protective forest costs US\$6,000 to US\$11,000 (depending on the location). The funding granted for each province is limited and provincial chapters were concerned about the funding level provided of VND400 million/year (around CHF17,108/year, ~US\$17,798).

Relative to constructing concrete dykes, which are estimated on average to cost of VND20 billion per kilometre³ (US\$900,495), in addition it costs about 5% of the investment to maintain the dyke annually. Mangrove afforestation along the coastal belt, is a much more efficient way to protect coastal communes; it is not only cheaper but also offers direct protection as well as economic and environmental benefits.

² These are protective, direct economic, and ecological benefits

³ This figure is estimated at current cost based on the consultation with a dyke expert of MARD

Management costs for the programme, including the cost for the VNRC HQ, the central and provincial Project Management Unit (PMU) is CHF648,604 (~US\$682,468) accounting for 31.8% of the total project cost. Compared to the cost of the previous period (2006-2010), the rate of administrative costs at this stage is 2.2%, slightly higher in comparison to the last phase. The 2011 '*Breaking the waves*' review reported administrative costs from 2006-2010 accounted for 29.6%. The higher management costs in this phase are due to the larger geographical spread of the DRR activities and the additional two upland provinces, which required more direct management and administrative costs⁴. However, compared to the total number of 190,455 direct beneficiaries under Phase IV, the administrative cost *per capita* is lower at CHF3.4 (~US\$3.6) (CHF4.3 or US\$4.5 less than the period from 2006-2010).

During the period 2011 to 2015, sharing of finance towards the mangroves and upland plantation was about 8.3% of the overall budget, while 8.0% was earmarked for small-scale mitigation measures and 51.9% for DRR capacity building activities. This was because of changes in investment in DRR activities to cover public awareness, forest fire prevention and response as well as the shift of finance towards preserving existing mangrove stands rather than planting new areas.

Although not assessed in detail by the reviewers, the ecological benefits of mangrove plantation are significant. Challenging and complicated to calculate, because of latitude and longitude, and the mixed stands of mangrove forest. The carbon sequestration by the planted mangroves was estimated to be 1,204tCO₂/ha in 2013.⁵ Using a price of US\$37/tCO₂, according to The World Bank (2014)⁶ it was estimated that from 8,313ha of mangrove under the VNRC MP-DRR programme, the value of CO₂ emissions absorbed was about US\$370million.

A major criticism of the programme over the period 2011-2015, voiced by many interviewees, was that it was too ambitious, there was too little money, for too many activities, covering too many communes and that it was too scattered a project area (i.e. the number and spread of project communes). Also funding has been reduced due to overhead charges, including direct management costs and indirect costs by the IFRC at the total of CHF459, 673 (~US\$483,673) equivalent to 22.5%, as well as inflation⁷.

Competition in the national programme for mangrove plantation has intensified positively with various players, government agencies, and other donor programmes, international and national organizations. This has meant some competition for land and good seedlings. This has a negative effect because of higher investment costs demanded for planting a hectare of mangrove⁸. Although it was acknowledged that this phase of the programme did not focus so

⁴ According to the proposal, VNRC needs to have more staff than a PMU of four, IFRC will have two project staff one manager and one officer (Sept 2012-2014)

⁵ Mangroves for the Future, 2015

⁶ State and Trends of Carbon Pricing, 2014. Washington DC, World Bank

⁷ Estimated at an average of 9.65% per year for the period 2011 to 2014

⁸ This figure can range significantly from \$1,000-\$15,000/ha

much on mangrove plantation but more on DRR, there was too little investment in area and budget.

Financial management and narrative reporting

In the early years of Phase IV, reporting imposed by the MP-DRR Project Management Board on Red Cross chapters was changed in form and frequency. Further, these are cumbersome, effecting efficiency because of staff time needed.

Financial management and narrative reporting were not helpful for building capacity of provincial Red Cross staff. These were kept for many years through the insistence of the MP-DRR Project Management Board for monthly reporting. This requirement for submitting all paperwork and invoices for each payment (on a monthly basis) causes increased workload and difficulties for provincial chapters.

Adopting the Norwegian Red Cross approach will increase provincial chapter ownership of the project. Providing the total budget, agreeing on activities, and allowing provincial project staff to develop annual plans and budgets, based on costs norms and therefore be responsible for project management.

A major problem, highlighted by Participating National Societies (PNS), was the ‘bottlenecks’ at the VNRC HQ. For example, transferring funds, signing authorization, and the competency of staff remain challenges despite the project two-decade history.

A common concern expressed by all Red Cross Chapters is the late approval of the annual budget by the JRC and IFRC, delaying start-up of project activities during the first quarter of each year. The VNRC usually received the first funds in April of each year and therefore faced challenges in planning for activities before then. The provincial Red Cross Chapters cannot carry out activities without an approved budget, delaying implementation and causing some “overload” with too many activities having to be undertaken in a short period of time, which undoubtedly affects quality.

Capacity building

Capacity building for communes to protect against disaster and impacts of climate change, accounts for 44.6% (equivalent to CHF1,060,434 or ~US\$1,115,800) of the total project cost. This is used to increase the capacity of people in the 193 communes for 190,455 direct beneficiaries, including of: VCA facilitators, commune authorities, people, school children and their teachers. Thus, the average cost *per capita* benefited is CHF5.57 (US\$5.86 (excluding management cost)).

On human resources (HR) and capacity building, PNS were believe that investment in provincial based HR capacity building was well overdue and needed if the VNRC was to keep its position in the eyes of the local government authorities and others; the shortfall of trained HR in all PNS project areas had presented the PNS with challenges in project

implementation and the requirement to bring in Red Cross staff from other parts of the country to support implementation of project activities.

Recently the German Red Cross made improvements to the VCA/CBDRA process, with a comprehensive training programme for provincial VNRC staff. Such capacity building initiatives should aim to develop staff to a level where they are able (competent and confident) to undertake training of other stakeholders, including the Provincial Committee for Natural Disaster Preparedness and Control (PCNDPC).

Regarding work in the upland areas, whilst neither PNS interviewed had been involved with afforestation, staff from both highlighted the obvious challenge of access, time and financial requirements for travel and that had to be built in to project design. In addition, it was the element of risk for staff in undertaking the work (due to natural hazards). Limitations in the availability of Government funding at local levels, although raw materials and labour were more abundant (for example, for small scale DRR measures). Positive issues were highlighted by PNS were of their experiences with enthusiastic staff at provincial and lower levels, who were willing to learn, had ideas, a positive attitude and commitment. Provincial selection was made by PNS on the basis of local Red Cross leadership and staff capacity.

4.2.2 Timeliness

Carrying out the project took place as planned, meeting the project deadlines. Nevertheless, yearly one quarter of the year is effectively 'lost' as the finance from the JRC/Federation has not come through. Although the project has run for almost two decades this problem has not been addressed and some internal budget set aside to cover the first three months of every year. This is meant yearly activities are condensed into the period from June to October, the 'disaster season' (rainy season), and busiest time for harvesting. Further, the best planting time for upland forest is the beginning of second quarter from March to May. For mangroves, if planted by propagule, planting should best be carried out during July. In Ninh Binh 30ha of mangroves were planted late (representing a loss of ~US\$ 20,000) which were all in October 2012 because of Typhoon Son Tinh; a loss which probably could have been reduced or even avoided had the mangroves been planted earlier in the year.

4.2.3 Alternatives

Upland

The Red Cross had limited knowledge, knowhow and experience in upland forest areas before embarking on the project in Vinh Phuc and Hoa Binh. A more prudent approach would have undertaken research before investments were made. In fact the upland forestry activities were contracted out to the Sub-department of Forestry. The low investment for upland forest reduces significantly its potential effectiveness. The survival and growth rates of the main protective tree species (*Chukrasia spp.* or *cây lát*) needs to be monitored and urgent action taken, as productive tree species, *Acacia*, have flourished. The long-term effectiveness of this venture is therefore questionable.

Mangrove

Instead of planting mangrove seedlings, or propagules, the VNRC could plant saplings of about 1-2 years old, of 1-1.3m in height (previously grown in well-protected nursery areas); such saplings are more robust and therefore able to better withstand storms, pests and diseases. Again, given the fact the project has run for so many years the use of saplings instead of propagules should be more widespread.

Protection with two-three bamboo support sticks per mangrove, or even ‘fencing’ (which is suitable for sandier soil conditions) could also be more widely used, in areas prone to currents and storm surge.

The VNRC has mainly planted areas with *Kandelia spp.* intermixed with *Sonneratia spp.* and *Rhizophoria spp.* However, often this is done in rows of different species rather than planting mixed stands in one area, which would be more akin to the natural situation. Further diversification of mangrove species in the planted areas could be achieved through a policy of replanting of any weak or dead trees with an alternative species. In addition, such replacements should be made with saplings of another suitable species rather than using a propagule.

Casuarina spp, Acacia spp vs. mangroves?

Careful consideration of investment in coastal areas between keeping the existing mangroves afforested areas and planting new areas for *Casuarina spp* is needed. Pre-feasibility research is required to find out whether *Casuarina spp* were planted simply because there was no new land suitable for mangroves, or since it is easier plant than mangrove? Also in some areas decisions were made to plant *Acacia spp* (for example, in Ha Tinh), which is a production forest not protection tree species, so there is some inconsistency which needs addressing.



Picture 1. *Acacia spp* planted in Cam Duong commune, Ha Tinh province

4.2.4 Disaster risk reduction

As a shift in emphasis of budget towards DRR took place in the period 2011-2015, a wide range of training events have taken place including for VCA, DRR knowledge for commune

leaders, conducting of village level emergency drills, teaching of teachers and their children in disaster preparedness, training Commune Disaster Response Teams (CDRT), and livelihood training activities. The budget breakdowns for these activities are shown in the following table:

Table 3. Budget breakdown for DRR activities in Phase IV

No.	Activity	Cost	Percentage of budget total
1	VCA training and conducting of VCA	CHF152,010 (~US\$157,954)	7,5%
2	Schoolchildren disaster preparedness	CHF94,460 (~US\$98,154)	4.6%
3	CDRT training and equipping	CHF66,084 (~US\$68,688)	3.3%
4	Village level emergency drills	CHF\$29,909 (~US\$31,087)	1.5%
5	Livelihood activities	CHF48,300 (~US\$50,188)	2.4%
6	CBDRR/CCA training for community representatives	CHF129,409 (~US\$134,469)	6.4%
7	Early warning system	CHF29,283 (~US\$30,428)	1.4%

Schoolchildren disaster preparedness

Due to the limited budget not all primary and lower secondary schools in each commune were able to participate and only from some selected districts in the province. Participating schools sent 5-6 school teachers to attend a training event, normally of two days (although three days is more suitable). These teachers were provided with the material.⁹ During in this phase, 1,000 copies of ‘*An introduction to disaster management for people living at the commune level*’ (2002), 1,000 easels for teachers and 12,000 handbooks for children (printed in 2012) were distributed to the ten Red Cross chapters taking part in the project. The materials proved to be popular and other teachers, not provided with training, later taught their pupils, through personal motivation. Materials dating back to 2000 were used, although the VNRC recently updated materials in 2014.

⁹ The VNRC booklet ‘*An introduction to disaster preparedness for schoolchildren*’, (2000) and accompanying easel used as a teaching aid. A full training agenda, whilst available seems not to have been utilised by the trainers for training teachers.



Picture 2: Students was drawing risk map



Picture 3. Flip chart on disaster risk reduction

Village level emergency drills

Drills were conducted at the village level. The project shared a guideline for organizing the drills and the commune People's Committee, commune Committee for Natural Disaster Preparedness and Control (CNDPC) and the commune Red Cross developed a drill scenario suitable for their local context. In each drill, different communes practiced an activity, for example, an evacuation to respond to a natural hazard event, storm response, dyke breakage, house collapse, whirlwinds, landslides, and reservoir dam breakage and forest fire prevention. This enabled each commune to undertake a drill on different scenario. An investment of VND20m (CHF855 or US\$900) necessarily meant that drills were over simplistic and not realistic. Additional funds, gained by doubling the amount provided, preferably through proactive lobbying by the Red Cross of the local government authorities, could enable the scaling-up of such drills to commune or district level. This would ensure scenarios would be more complex and practical, as in a real disaster event, activities of multiple units have to be coordinated. Potentially, at district level the local government authorities can contribute money. This would be more useful as more people can take part and thus provide opportunity for on the spot learning and increasing awareness of many people across ages and backgrounds.

Training for community representatives on CBDRR/CCA

A total budget of CHF129,409 (~US\$134,469) was dispersed for 126, two-day training on CBDRR/CCA for a total of 3,306 commune leaders, commune representatives of the Commune People's Committee, socio political-organisations, and other mass organizations. 25% of attendees were women. Many local government staff could not spend the whole two days, questioning whether this was an efficient use of resources. With so many training events modifications to the content and particularly the timing of the events should be considered to enable fuller participation.

Training on livelihoods

Investment in livelihood training events, CHF48, 300 (~US\$50,188) was considered to be poor and half-hearted, with the activities essentially outsourced to the Sub-department for Forestry (in the upland areas) and to the Agriculture Extension Centre (AEC) (in the coastal areas). This was an inefficient use of project funds. Occasionally, Red Cross chapter members were involved in the training (aside from welcoming speeches), however, these people were not well qualified to deliver such training. For example, livestock training covered merely the introduction to a few livestock, nourishing plants and plant transformation without including the specific implementation models; trainees were often local officials, with limit practical engagement in such activities. Red Cross trained trainers were expected to undertake various training events and questions were raised as to whether this was too heavy a responsibility and whether quality therefore was affected.

4.3 Effectiveness

The MP-DRR has been undertaken for almost two decades and is divided into four phases. Through the project by Red Cross at all levels, especially communication on mangrove protection, development and DRR, the importance of mangroves and risk reduction activities in the ten provinces has entered deeply into the minds of local people, government officials, school teachers and their students. Besides, local people can see the benefits of mangrove in coastal protection, livelihood generation and in creating a clean environment. All these points have created favourable conditions for carrying out the project, have improved the effectiveness of mangrove protection, for example, all localities surveyed confirmed that mangrove felling for fuel has been stopped¹⁰.

4.3.1 Human resources

Challenges exist with managing the project by the VNRC as most of the staff of the MP-DRR Project Management Unit are new¹¹. In addition, many of the Red Cross chapter staff, who have been involved in the mangrove afforestation programme are due for retirement and new staff do not know or understand the programme well. Many leaders of the Provincial Red Cross Chapters and in Red Cross district and commune levels and commune leaders changed (because of the new election for 2015-2020 for both Red Cross, Party and government administration).¹²

There is a consistent emphasis on participation of women in all activities and as direct beneficiaries (See Table of Leadership and Table of Beneficiary Counts by the MP-DRR).

On human resources (HR) and capacity building, the PNS were of the view that investment in provincial based HR capacity building was well overdue and necessitated if the VNRC was to uphold its position in the eyes of the local government authorities and others; the shortfall of trained HR in all PNS project areas had presented the PNS with challenges in project implementation and the requirement to bring in Red Cross staff from other parts of the country to support implementation of project activities. Recently the German Red Cross had made improvements to the VCA/CBDRA process, with a comprehensive training program for provincial VNRC staff. Such capacity building initiatives should aim to develop staff to a level where they are able (competent and confident) to undertake training of other

¹⁰ However, this may not be attributed directly to the MP-DRR activities. Ha Tinh Red Cross noted the protection of the mangrove forest was due rather to changes in circumstance of local people, who nowadays use affordable gas for cooking and therefore do not need to go into the mangrove areas to collect firewood.

¹¹ At the VNRC headquarters in the MP – DRR PMU Mr. Tuan has been manager since 2014 following Mr. Loc's retirement. Ms. Trang has just started as Project Assistant a few months ago, the Project Officer had changed three times, whilst Ms. Hai (Finance Officer) started in 2014. At the provincial, district and commune levels many RC staff had changed as their terms ended or they retired. At the commune level, most staff worked only part-time for the Red Cross.

¹² A number of interviewees met by the evaluation team could either not remember or were new in office and do not know the history of the programme which presented challenges in crosschecking and verification of some information

stakeholders, including the Provincial Committee for Natural Disaster Preparedness and Control (PCNDPC).

4.3.2 The plantation and protection of mangrove and upland protective forest

Performance in mangroves protection is substantial even though investment in this activity does not account for a high share (less than 8%) because of the smooth coordination among all levels of Red Cross, for example, in Hai Phong, Thai Binh and Ninh Binh. Twenty years ago, the Red Cross planted mangrove and provided a “very modest” support to the communities and farmers. However, under the changing situation brought by a market-oriented economy, the subsidy fee for planting a hectare of mangrove is inadequate, even compared with other mangrove plantation projects, for example, MARD/Department of Dyke or the Central Natural Disaster Fund, pay VND80 million/ha (~US\$3,560/ha) and the local authorities and people provide an extra matching fund of VND20 million/ha (~US\$890/ha).

Under the government system, protection fees are paid directly by MARD (through DARD) to the commune People’s Committee and then to protection teams. Good practice exists in Hai Phong, Thai Binh and Ninh Binh, where MARD transfers of protection fees go through Provincial People’s Committee to Red Cross Chapters and then to the forest protection team. Thus the Red Cross role is formalised and the chapters are engaged more actively in monitoring. Further, good practice exists whereby forest protection team members also share in the benefits from the mangrove areas and are able to develop stable livelihoods from mangroves by aquaculture or exploitation of the mangrove forest.

Local authorities also develop similar forest protection forces, including key members from the communal police, village heads and volunteers to ensure forest protection with sufficient functions and power. Potentially these teams can protect mangroves planted under the MP-DRR. Sustainable livelihood activities for the volunteers were allocated based on the benefits from the protected forest such as a specific mangrove area for net fishing. With the support of Hai Phong City’s government, the forest protection fee paid was twice the cost norm given by the state budget.

Despite the pressure on mangroves from natural and human causes, MP-DRR Phase IV was effective in protecting the area of mangrove planted during previous phases (1994 to 2010). The KAP survey showed 57% of respondents felt mangrove area had become ‘more than before’, while 82% considered the local care about forest to be either ‘very good’ or ‘good’. Mangroves in most provinces (except some mangrove areas affected by intercity planning) are well protected because of policy advocacy to protect and grow mangroves from the central level, long-term planning and ensured commitment of this planning.

During Phase IV, the protective effects of the mangrove forests were shown. The KAP survey examined how local people considered the role of forests in coping with natural hazards was examined. According to respondents, in the last case of a disaster in their community, forests helped protecting local communities from waves and wind (56%), protecting coastal lines and dykes (50%), and aquatic resources (28%). In 2012, although

storm Son Tinh hit many coastal provinces, the mangrove forest contributed to protecting the sea dykes and livelihoods of local people. In 2013, storm Bebinca hit Hai Phong and affected many coastal provinces covered by the project. The mangrove forest effectively protected the sea dyke system in the project sites. Only 70m of dykes were broken and this in communes without mangroves, outside the areas covered by the project. In the areas where mangrove forest was destroyed by storms, there was re-plantation (30ha planted in Ninh Binh).

In Thanh Hoa, 18.82ha of mangrove in Nga Tan and Nga Thuy communes, planted since 1997, was destined to be cut down to upgrade sea dykes in. However, due to advocacy and technical assistance provided by the VNRC, the local authorities pledged financial support to the provincial Red Cross for replanting of mangroves in the coming year.

In Nghe An, the VNRC and IFRC supported the Nghe An Red Cross to persuade the local government authorities to make a firm commitment to prevent change of land use, to protect 40ha of mangroves planted in Nghi Thiet commune, Nghi Loc district.

In Ninh Binh, where building Binh Minh 3 Dyke involved the cutting down of 28ha of mangrove, the local People's Committee gave land and compensated VND 430million (~US\$20,000) for Ninh Binh Red Cross chapter to replant. Most recently, in contrast in Quang Ninh, where about 105ha of mangrove planted will be cut down to build a new highway, the Quang Ninh Red Cross chapter has not been active in seeking compensation with investors and local authorities for this threatened forest.

In the coastal areas where bamboo was planted, the economic efficiency gained from exploiting bamboo shoots had fallen to one-third or a quarter of the original production at the early planting stage. However, bamboo still provides livelihoods alongside river dyke protection. The economic effectiveness from bamboo shoot exploitation is comparable to that of rice production but it does not need the same capital investment, seed and care and has lower risk of crop failure. To sustainably manage planted bamboo, the Red Cross should recommend to the local authorities to train local people on techniques of taking care the bamboo plantation and replacement of the parents tree to increase productivity, and thus improve livelihoods

In the upland forest in areas, forest land was 'allocated' to farmers - who have yet hold landownership certificates. The Sub-department of Forestry has provided technical help to the farmers. However, more attention is necessary to ensure the survival and growth of *cây lát* - the main protective forest tree species, by adjusting the density of *Acacia spp.* - a production tree species - which is overshadowing and therefore restricting the growth of *cây lát* saplings.

Livelihoods

Livelihoods to be gained from mangrove areas are significant, and recognised not only by local residents but also local authorities in the socio-economic reports of some communes (for example, Bang La ward, Kien Thuy District, Hai Phong Province).

The household survey results showed the average income of VND179,000 (US\$6.5)/person/day or VND3, 580,000/person/month (US\$159/person/month). These outputs can be compared with results of study conducted at Hai Phong in 2014 in Tan Thanh, Bang La and Dai Hop communes¹³ at US\$319-498/ha/year from natural aquatic fishing. The local communities enjoyed remarkable economic benefits from mangroves. The value of mangroves could only be evaluated and recognized by Bang La Ward's People's Committee in a 2013 report on completing tasks and directions and solutions to task implementation for 2014. Dai Hop commune and Tan Thanh ward have reflected on the importance of mangroves which, however, needs recognizing to confirm the role of mangroves in the local socio-economy; this aimed not only to attract attention from local officials, leaders and different branches and sectors in forest protection and development work but also to get more consideration and contribution from the communities to the common tasks.

4.3.3 Disaster risk reduction activities

The MP-DRR supports communities to be resilient to disasters. Most communities are listed among 524 'safe communities' by the VNRC. However, whether these are also on the list of 6,000 communes under the national CBDRM programme is unclear as the GoV programme has yet to list all communes. Provinces have been requested to provide a list of commune according to set criteria. However, these have not been collected and collated by the Disaster Management Centre, MARD.

A strong point of the Red Cross project is the community-based approach (rather than a community driven approach) involving mobilizing local people to take part, with low costs and large impacts (for example, participants in awareness raising activities).

Disaster risk reduction and climate change adaptation

Since the beginning of 2011, the project organized 146 training courses in 126 communes involving a total of 3,306 people, of whom 25% were female participants. These aimed at raising awareness within the communities about DRR and CCA. From the KAP survey, 97% of respondents said they used DRR and CCA information for some preventive actions. Specifically, for those who said they used this information, 73% used it for coping with disasters and climate change, 24% for arranging seasonal crops, 13% for finding jobs, 12% for making a production plan.

The training activities contributed to raising awareness of the people and improving disaster preparedness planning by local authorities. For example, the high intensity storm Bebinca (2013), made landfall in Hai Phong and affected many coastal project provinces, but because of the preparedness and response of the local government and people in the communes covered by the project, there was no loss of life. In 2012, Typhoon Son Tinh affected the

¹³ Evaluating Present Status and Socio-economic effects of Mangrove forests of Tan Thanh, Bang La and Dai Hop – Hai Phong City, Viet Nam National University, Ha Noi, Centre for Natural Resources and Environmental Studies Mangrove Ecosystem Research Division, 2015

provinces of Thanh Hoa, Ninh Binh, Nam Dinh, Thai Binh, Hai Phong and Quang Ninh. Due to solid preparedness and response of the Red Cross, government and local people, there was no human loss and only a few people were injured, despite the high levels of physical damage caused by the storm. In 2013, in Hoa Binh and Vinh Phuc provinces, there were instances of whirlwinds and landslides, but no loss of life, which may be attributed to the project.

Vulnerability, capacity assessments and consequent activities

Most VCAs were conducted in 2011/2012 and interviewees could not recall these in detail. The project carried out 106 commune level VCAs (including VCA updates), involving a total of 40,296 participants (of whom 46% were female). Thus, VCA was conducted in 55% of the total project communes. However, only a few local authority staff who were involved directly in VCA activities could understand the evaluations. Further, VCA results were not integrated in the commune socio-economic development plan nor Natural Disaster Prevention and Control plan. The Red Cross approach using VCA is not in line with the national programme of CBDRM of the government. In some localities the Red Cross has switched to the use of CBDRA, which has official government guidance for this (and based largely on the Red Cross VCA methodology). A few VCA trained trainers, were also trained using the government materials and for example, in Ha Tinh, eight of the twelve official provincial level government trained trainers were from Red Cross, although this varied from province to province.

Small scale mitigation measures

The project conducted 75 small-scale mitigation measures involving 30,228 direct beneficiaries and an estimated hundred thousand indirect beneficiaries. The small-scale mitigation measures were appreciated by the local people who benefited directly and local government agencies who were involved in the implementation as they met the demands of the commune. Also noted was the involvement of commune and district authorities and the local people in mobilizing and providing counterpart funds for completing these. Local counterpart funds provided were over 100%, compared to the capital support of the project (CHF184, 316 local counterpart funds against CHF164, 316 granted). A concern with design of small scale measures is consideration of future maintenance costs, which local authorities and local beneficiaries should bear. However, this is contingent on their 'ownership' and prioritisation of the measures.



Picture 4. Newly built dam in Cam Nhung commune, Cam Xuyen district, Ha Tinh Province, connecting two villages

Village level emergency drills

Despite the small-scale, feedback was positive on village level emergency drills. Over the past five years, 73 village level emergency drills were conducted dealing with a broad range of topics, and attracting the direct participation of 15,388 people and possibly the indirect participation of tens of thousands more people. Such scenarios met the practical need of localities and were in line with the government's national CBDRM programme. Drills were considered too small-scale and simple by provincial and commune authorities, who preferred more realistic, complex, larger scenarios, engaging commune, district and provincial level. Too little money was allocated to undertake drills effectively even at village level. Providing VND14 million (CHF600 or US\$632) a drill, restricted these to village level.

Commune disaster response team training

The project set up a Community Disaster Response Team (CDRT) in 71 communes, engaging 1,390 people, of whom 19% were women. The CDRT were provided 67 sets of early warning devices (that is handheld megaphones) and basic safety equipment for search and rescue. In 2012, during the storm Son Tinh, the CDRT were mobilized and used this equipment effectively for search and rescue. However, the CDRT training events did not utilise the PEER/CADRE materials, used in Vietnam for many years, nor the pool of trained trainers for training (there are some 160 trained, certified trainers around the country). Also, over the past five years no refresher training was undertaken of the established teams, and here were no examples in the ten provinces visited, where CDRT training, equipping and emergency drills were included in the five-year or annual commune SEDP.

Early warning systems (EWS)

All commune EWSs were inadequately financed and often only tokenistic when compared with the needs for proper, comprehensive coverage needed by the commune authorities. From the KAP survey, the majority of informants who knew about local DRR plan said they heard from commune loudspeaker - 54% in the upland region and 79% in the coastal region. Though, EWS should be included in SEDP and the Red Cross only supplements this. The Red Cross elsewhere has provided technical support for EWS 'assessments' and advised on suitable equipment. Further, the Red Cross focus should be more on raising public awareness through the EWS, rather than procuring equipment.

Public awareness raising

Public awareness raising took place using various media, and have been estimated to communicate messages on DRR to large numbers of people. However, these lack any form of behavioural change analysis nor statistics to back up the claims of coverage; thus, it is difficult to assess the effectiveness of the public awareness raising activities.

In coastal forestry areas, opinion by local people of the mangroves was positive. Many could elaborate on the benefits of mangroves, including for DRR, wave breaking, the local environment, biodiversity, and livelihoods, although fewer understood carbon sequestration.

Livelihood training

The project conducted 56 livelihood training courses for 1,428 people, of whom 48% were women. However, the engagement by the Red Cross in livelihoods varied. This is not the expertise of the local Red Cross who outsourced to other organisations, notably the Sub-department of Forestry or the provincial Agricultural Extension Centres. There was little focus, time, nor money for training of local people and many initiatives received no follow-through. Further, for the models used, a market study, value chain analysis, and monitoring and evaluation was lacking.

School disaster preparedness activities

The project conducted disaster preparedness in 76 primary and lower secondary schools for 897 teachers and 9,842 students. Overall positive feedback was provided by school principals, teachers and schoolchildren on the school disaster preparedness activities. Teachers and principals met as well as interactive sessions with schoolchildren – who will be key actors in communicating with friends, family and people in the community, showed good knowledge of the material, interest and enthusiasm for learning more. Interviewees valued the disaster preparedness (DP) material¹⁴ noting the use of the easel as a teaching aid, and appreciating the booklets the children were able to take home and keep. The materials were used for extra curriculum activities and many teachers took their own initiative and integrated aspects of the lessons from the DP manual into the school curriculum into different classes

¹⁴ The VNRC 'An introduction to disaster preparedness for schoolchildren' (2000)

and subjects, as well as hold extra curricula classes for the children. Teachers also reported using various materials from YouTube.

Discussions with representatives of schools and teachers showed the content of disaster preparedness needed more teacher training and repeated training. Providing the brochures and easels for all schools was inadequate given the number of classes and class size. Further, training the schoolteachers in the use of the materials was either lacking or inconsistent, varying from province to province in numbers involved, trainers and duration. Sometimes, teachers met had not been provided with any formal training. In one province, refresher training had been provided although no initial training event had taken place. Teachers were not provided with the training agenda, and often used their initiative and when to teach the children.

In 2015, the VNRC supported by the American Red Cross updated the schoolchildren materials¹⁵. These now include DRR and climate change suitable for primary and lower secondary schools.

4.3.4 Programme management

Capacity building

The MP-DRR organized capacity building for 365 Red Cross staff (of whom 28% were women) from central to district levels on various topics ranging from planning, project and financial management, fund-raising, volunteer management and DRR. The component for capacity building has proved its effectiveness, consistent with the schedule and objectives of the project. The MP-DRR had a positive impact on strengthening skills, the ability of staff, in improving relationships with government agencies and promoting the image of the VNRC. Because of the project many communes, increased the number of members and volunteers, especially in Hoa Binh. All communes have one full-time staff working for the Red Cross. Concerns include the length and timing of training for different participants, the use of trained trainers, the load on these trainers, and use and supply of suitable materials.

Fund raising

The Red Cross chapters have been active in seeking funding outside the project to expand the area of mangroves. For example, the Quang Ninh Red Cross mobilized local private companies and a Japanese NGO, ACTMang, to plant 80ha of mangroves; in Ninh Binh the Red Cross mobilised US\$20,300 (~ CHF19,556) from the local government to plant 28ha, and in Nghe An the Red Cross planted 1ha in An Hoa commune, which was broadcast on VTV1 (in October 2011). In Thanh Hoa, the provincial Chapter was successful in project planning and development, for example, in 2014-2015 the Red Cross presented four proposals to Nghi Son Oil-Refinery Industry and was granted contracts by Japanese donors totalling VND5.5 billion (~US\$200,000 or CHF190,000). The chapter was also contracted by

¹⁵ An introduction to disaster risk reduction, climate change and resilience for primary school children

the Vietnam Chamber of Commerce and Industry (VCCI) to conduct training for enterprises in the province. Provincial Red Cross chapters could be more proactive in fund-raising but are complacent because of the regular support of the programme by the JRC over the past decades, meaning there is no real incentive to seek extra funding.

Volunteer management

Many chapters have a person in-charge of volunteer management. Under the MP-DRR some effort was made in recruiting and training volunteers. A five-day training course, for VNRC HQ and provincial staff was conducted on managing volunteers. The effectiveness of this has still to be realised on quality and stability. Considering this is Fundamental Principle of the Red Cross, and is in line with the VNRC National Strategy to 2020, needs further expansion and focus.

5 Impact

The MP-DRR is the longest running project of the VNRC. The programme dates from 1994 in Thai Binh with the funding support by the Danish Red Cross. From 1997 to 2005, Nam Dinh was included in the project provinces using DRC funding. In the same year (1997), the JRC and the IFRC provided funds for the other six coastal provinces to engage in the project. From 2006 to date, all eight coastal provinces were funded by JRC and IFRC. The programme created a high profile for the VNRC at all levels.

The respondents from the KAP survey were well aware of benefits that forest plantation and protection would bring to the community. Specifically, 98% of respondents in the end-line survey said forests would contribute to protection of infrastructure designed for disaster reduction and prevention. Further, 99% of respondents said sustainable forest plantation and protection would bring benefits to the communities,

On lives and livelihoods

Since its origins in Thai Binh in 1994, the programme has proven mangroves protect dykes and coastal communes and continues to do so to this day, providing safety for tens of thousands of households and their livelihoods, particularly those found between the mangroves and sea dykes. Further, bamboo and *Casuarina spp.*, planted by the project, have been shown to reduce soil erosion in coastal and riverine areas, and damage to agricultural land and river dykes.

Mr. Hoang Viet Thuong, aged 49, married with 3 children, living in Tan Lap 1 Village, Nghi Quang Commune, Nghi Xuan District, Nghe An Province; his house located on the river mouth, where VNRC planted mangrove forest in 1998, now the forest is healthy; he now runs a local sea food restaurant at the side of the rive overlooking the VNRC Forest.

In 1998 when the MP-DRR started in his community, Mr. Thuong, his wife and neighbours participated in the VNRC mangrove plantation. He participated from 1998-1999. He confirmed that before VNRC mangrove program, there was no mangrove, since 1998 to now the mangrove planted by VNRC has well developing and become a protection forest for the fishers and people living in his communities; people are making profit from the mangrove (collecting aquaculture products, anchoring their boats during storms. He is now a member of the community forest protection team under a contract signed with the District authorities and commune Peoples' Committee. He received about 670,000 VND (~US\$29) per year for his work in protecting the forest; but more important thing that his restaurant is benefitted directly from the forest with great views, protecting for high wave and buying fresh and good price of aquaculture products collected from the mangrove by his neighbours. He was trained on plantation and caring for mangrove, provided with some supplies (t-shirt, flag); annually the district forest agency conduct meeting/training on mangrove protection for him and his neighbours. He highly appreciates the mangrove and proud to be part of VNRC project.

Livelihood related to mangrove, coastal and upland forestry areas are notable, in the mangrove areas with increased yields from collecting marine species up to 57.2%. As reported in previous evaluations, poorer households within the commune have benefitted most from the mangroves. 74.8% of survey respondents in the communes with mangrove plantations noticed the positive impact of the forest plantations (including mangroves and upland forest) on their income. In KAP survey 75% of respondents agreed their participation in the project helped improve their households' income. In addition, 57% of respondents said they were benefiting from forest resources. Bamboo (more so than *Casuarina spp.*) has helped increase income of local people, although is significantly smaller than derived from mangroves.

The MP-DRR brings benefit to an estimated 190,455 direct beneficiaries and many more who are indirect beneficiaries. For example, in each commune where mangroves exist, the forest provides daily livelihoods for about 150 to 250 people collecting aquaculture products and non-timber products.

Overall, DRR actions were effective as many communes undertook VCA, developed small-scale mitigation measures, and trained CDRT. These combined to increase safety and resilience for many thousands of people. For example, of 584 respondents in the KAP survey, 54% had a plan to cope with climate change. However, given the increased emphasis on this component under Phase IV and the significant finance, impact is challenging to measure quantitatively.

Impact on legislation

Prestige and influence of the VNRC has been raised significantly. For example, in some provinces this helped assure the Red Cross position in the provincial Steering Committee for Disaster Prevention and Control. In Hai Phong, Thai Binh and Ninh Binh, the provincial Red Cross were able to sign agreement with Sub-department of Forestry and provincial government on the planted mangrove area. Thus, the protection fee is paid directly through the Red Cross. In Hai Phong, provincial leaders were encouraging enabling funding from more sources for mangrove protection to the Red Cross chapter alongside a grant from the Sub-department of Forestry.

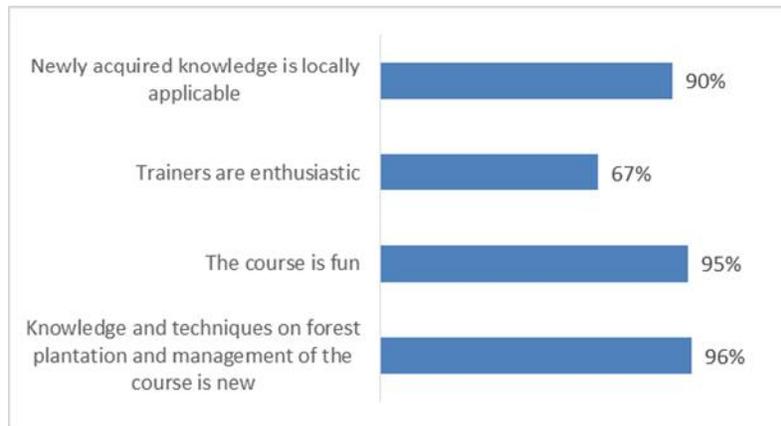
The VNRC HQ Resolution has mentioned the VNRC is responsible for the care of 24,000ha of mangrove forest, however, in reality the area is only one third of this - perhaps more than 8,000ha.

A successful effort by the VNRC, although not attributable directly to the MP-DRR, was approval from the Prime Minister (under a Memorandum of a Working Session with VNRC leaders) allowing the VNRC to engage in National Target Programs. This will bring enormous opportunities for VNRC to access government funding enabling it to expand according to its mandate. The VNRC signed a MoU with the DMC for carrying out the National CBDRM Program under Decision 1002. Further, the VNRC has met MoNRE to sign a MoU on climate change.

Beneficiary satisfaction

How beneficiaries are satisfied with a project is an important indicator of its success and impact. In the end-line survey, respondents were asked if they were satisfied with different project activities, whether their participation in the project has brought them any benefit or harm. On satisfaction with training courses, 62% of respondents mentioned taking part in a training course on forest plantation and management, and 98% among them were satisfied with the course. As shown in Figure 1, the commonly mentioned reasons for positive assessment are: knowledge and techniques of forest plantation and management provided in the course are new (96%), the course is fun (95%), trainers are enthusiastic (67%), and newly acquired knowledge was locally applicable (90%).

Figure 1. Reasons for satisfaction with the project



The end-line survey in October 2015 examined degrees of satisfaction among local people involved in the project. Most surveyed respondents (70%) took part in the mangrove and upland forest planting programme. Most of these participants (91%) said they were either satisfied or greatly satisfied with the programme.

On felt benefits or harm attributable to the forest plantation and protection activities, the proportion of respondents confirmed their participation in the project helped improve their income is 56%, which shows a significant increase compared to 31% in the midterm survey. Importantly, 97% of respondents said the project activities had no negative impact (though unexpected) to either their households or their communities.

Another aspect of beneficiary satisfaction is how satisfied they were with VNRC awareness raising activities, communication and training courses on DRR/CCA. Overall, 89% of respondents expressed satisfaction with the activities and training courses.

5.1 Sustainability

5.1.1 Challenges posed to coastal forests

Since sustainability is an important aspect of the project. Analysis from the KAP survey revealed 97% of respondents would participate in forest protection after the project ends. Specifically, 10% among these would participate in a voluntary mangrove protection team, 23% would participate in awareness raising on mangroves, and 22% would care and replant destroyed mangrove.

A serious challenge for the sustainability of mangrove afforested areas is climate change. Landsat satellite images, from July 2013, show many mangrove areas degraded. Besides human made challenges, for example, building new dykes, residential areas and cutting down of mangrove for shrimp farming, mangrove areas suffer from extreme weather events, so the resistance and development of mangroves over this period has been constrained.

A recommendation of the final evaluation report for Phase 3 (2010) was to focus on protection, scientific research and development of mangrove biodiversity in the project area.

Many of the areas, however planted one or two kinds of mangrove species: *Kandellia obovata*; *K. obovata* and *Sonneratia caseolaris*; or *K. obovata* and *Rhizophora stylosa*. Although some areas have developed a high-density of mangroves, many with trees of over 15 years old, better diversification of mangrove species and forest layers are necessitated. Therefore, when the project ends, the sustainable protection and development of the mangrove areas, will remain a challenge for the Red Cross, the government and local people.

5.1.2 Organizational capacity built

The MP-DRR has supported capacity building of staff and partners, including GoV officials at all levels in DRR, VCA, CBDRM, and climate change, for planning, volunteer management, M&E, and for financial and narrative reporting. This capacity will be sustained and support undertaking of future actions.

5.1.3 Advocacy

In some provinces the Red Cross seemed reluctant to play a more active role in advocating against potential negative factors that would damage or destroy mangrove areas, for example, the development of industrial zones, highway, residential and sea dykes construction that might destroy areas of mangroves. Further, the Red Cross has shown limited active role or engagement in activities outside those that are supported by the funds, for example, in the collection and disposal of rubbish in the mangrove afforested area and increasing public awareness raising on this issue, low cost high visibility actions which would further strengthen the image and reputation of the Red Cross.

5.1.4 Will benefits generated be continued?

Preserving mangroves will ensure local people continue to benefit from the forests and from livelihoods based on marine and non-timber products. Further, and of increasing importance in addressing global climate change, is the significant sequestration of CO₂ by the 8,313ha of mangroves. In addition, the small-scale mitigation measures will continue to provide long-lasting benefits.

Alternative sources of income for the Red Cross

The VNRC needs greater financial independence to continue the MP-DRR. Upholding and developing the capacities of VNRC HQ and provincial staff and volunteers in the changing roles they will have in the future maintenance of the mangrove and coastal forestry areas needs improved planning. Opportunities exist for the VNRC to benefit from alternative sources of funding for the mangrove areas, including the protection forest fee, payments for ecosystem services (PFES), engagement with the private sector and other potential donors, as well as income generation. For example, the Red Cross planted areas of mangroves provide an important source of seedlings for other forest plantation projects, for example, Red Cross chapters in Thanh Hoa and Ninh Binh confirmed this. This, if managed properly has the potential as an important source of revenue for local people.

The investment from the State budget and programmes from different stakeholders such as the programme for forest recovery, protection and development in most of provinces, the SP-RCC will contribute to mangrove protection and development in all over Vietnam in general and in the projected provinces in particular. The mangrove areas which were planted by the project will be sustainable management.

Engagement, participation, ownership and recognition under government programmes

Potentially, the MP-DRR is sustainable without the support of the JRC as it fits well with current priorities of the government on coastal forest protection, climate change (both adaptation and mitigation), CBDRM, and DRR. However, the VNRC HQ has so far held no official discussion with MARD/Directorate of Forestry on the mangrove programme, which is considered as a major failing and weakness of the MP-DRR PMU and of the VNRC leadership and will need to be made a top priority for the exit strategy of the VNRC in the coming year.

While the VNRC leadership has a high-level of interest in the sustainability of mangrove forests and committing the government to mangrove protection is strong, as pointed out in previous evaluations, long-term planning is necessary between the VNRC, MARD and MoNRE which will need to be managed better. It is incumbent on the VNRC leadership to take the lead in addressing this crucial issue.

Before the end of 2015, the VNRC will organize a sustainability workshop in each project province with key stakeholders. This provides a good opportunity for these issues to be addressed.

Exploration of payments for ecosystem services (PES) to create incentives through conservation-based revenue streams for local people. Application of the PES concept to mangroves presents a particularly interesting opportunity to send a “price signal” around the value of standing mangroves. Given the pressures, however, PES is unlikely to be a cure-all, but rather an additional tool for counter-balancing degradation and deforestation pressures on mangroves.

PES is *not* feasible in Vietnam due to State ownership over the vast majority of mangrove forests. Yet, mangrove PES can move forward in specific circumstances. For example, local people are eligible to receive PES revenues via forestland allocation, forest contracting, or co-management arrangements. Furthermore, the new government policy reiterates Vietnam’s commitment to channelling PES revenues to local people.

Slayde Hawkins, et al. 2010. *Roots in the Water: Legal Frameworks for Mangrove PES in Vietnam*. Katoomba Group’s Legal Initiative Country Study Series. Forest Trends: Washington, DC.

5.2 Coverage

The total number of direct communes under Phase IV was 193. In addition, 356 communes benefited from the public awareness raising activities, not counting the beneficiaries of the national public awareness programme through the national mass media.

There were, however, only nine communes of the total 193 communes, implementing all nine project activities (5.2%), 54 communes accomplished only one activity (28%), 116 communes completed one to three activities (60%).

At the end of 2015, the total number of direct beneficiaries of the project was 190,455 people, who benefited from forest plantation, DRR/CCA and capacity building activities. In addition, there are many more people who have benefited indirectly from the project activities, such as public awareness, emergency drills, through the livelihoods developed from forest resources and the small-scale mitigation measures.

Selecting new communes to take part in protective forest plantation activity was implemented under the procedure set forth in the project documents. This made certain the ownership of forests and forest land, the commitment of local authorities, people and forestry agencies and the area of newly planted protective forest will be sustainably protected and developed, even after the project ends.

The evaluation shows selection of communes, the project activities in these communes, especially DRR related activities such as emergency drills and small-scale mitigation measures, have met the important needs of local people and government authorities. However, the expansion of the number of communes, which were only involved in public awareness raising activities, spread thinly the use of the limited resources, and therefore the effectiveness of the project as a whole suffered.

6 Conclusions

6.1 *Mangroves, coastal and upland forestry*

Mangrove plantation, development and maintenance

Since the late 90s 8,313ha of mangroves were planted and preserved by the Red Cross. This is a national asset and needs to be preserved. Therefore there should be no further expansion within the existing provinces to new areas previously un-planted with mangroves but rather a focus on preserving the existing stands in the coming years. The comprehensive mapping of the mangrove forest planted by the Red Cross undertaken in 2012, provides a solid foundation for further study in the next phase, to certify and agree on coastal forestry planted and preserved by the Red Cross. This will need a joint effort by the VNRC HQ and Red Cross chapters, with the Provincial People's Committee, the Sub-department of Forestry, and local people, to find out, for example, who the real owners are, the VNRC position, and the health of the mangrove.

Mangrove protection rules and regulations need to be issued by the national level Directorate of Forestry for use throughout the country, not by the commune level authorities with mangroves and plantations which have limited efficacy. Such national legislation supports protecting mangroves against human made interventions as well as reducing the impact of climate related hazards.

Mangrove protection and development will be most effective when undertaken in collaboration with local people, the People's Committee and local government departments involved directly with the support of the State. Responsibility for protecting mangroves should be tied to the interests of the local people. Through the ownership of the forests and forest land, local communities and government authorities will have more opportunities to access funds for sustainable forest protection. A forest protection fee is essential for ensuring the operation of forest protection teams. In fact, protection and development of mangroves have contributed positively to protecting many kilometres of sea dykes in the project area. As such, the benefits of dyke protection, because of the mangroves, have been shared; the access to the department in charge of sharing responsibility for forest protection provides an incentive to access funds for mangrove protection and development.

So far there has been a dearth of effort by the VNRC HQ in advocating for funding on mangrove and DRR from government agencies, to other international or the private sector. Provincial Chapters are either not aware of other available funding sources or programmes, or are not pro-active in approaching potential funding from others - government, donors and the private sector - as they have become reliant on the Japanese Red Cross, funding through the Federation to the VNRC. Therefore there has been limited incentive for chapters and the VNRC HQ to look for alternative funding sources.

Further, and of some concern, is most provincial Red Cross chapters, except for of the Red Cross in Hai Phong, Thai Binh, and Ninh Binh have been active in accessing the protection forest fee from the Government to finance the mangrove protection teams through Red Cross Chapters. Those chapters that have are already able to access this fund each year.

Technically, as is well known, challenges exist for mangrove afforestation and it will be of importance in the coming years to keep or strengthen mangroves planted by the Red Cross in the existing areas, through diversification of species and layering (using different height trees) rather than replacements of similar species. Further study to examine techniques for thinning mangrove trees in the protected coastal forestry areas will be necessitated. This is a technical issue on how to prune trees effectively and would require external expertise and joint research with the provincial Sub-departments of Forestry in the provinces, knowledgeable Red Cross personnel, local people, the Viet Nam National University, Ha Noi, and the Centre for Natural Resources and Environmental Studies, Mangrove Ecosystem Research Division (MERD).

The Red Cross with its knowledge (particularly of certain individuals) of mangrove forests places it in a strong position to act as a resource for the nation in mangrove afforestation and coastal forestry techniques. There is potential for the Red Cross to organise training events

for officials from the Forest Protection Department and Vietnam Administration of Forestry (VNFOREST) in Hanoi, the Sub-departments for Forestry and other stakeholders in practical aspects of mangrove forest area management expertise within the forestry Departments at national at provincial and level is limited.

The GIS maps developed during this phase from 2011 to 2015 by the IFRC/VNRC should be shared widely and approved by the provincial Sub-departments for Forestry in all provinces by a committee comprising representatives from the IFRC and VNRC headquarters and chapter levels. Potentially the next phase of the programme could finance such a validation of these maps to decide and officially agree (through some signed off agreement attached to maps) on each hectare of coastal forestry that has been planted and preserved by the Red Cross. This would help to ensure there is no confusion with other projects, which are also planting and therefore make identification clear.

Focus on developing expertise specifically to support households who wish to gain livelihoods from the mangrove and coastal forestry areas, emphasising the importance of sustainable use of resources. The local Red Cross should be proactive to ensure mangrove forested areas are not overexploited.

Co-management agreements

Co-management agreements should be explored and established in each province. Importantly the linkages between the Red Cross mangrove planted areas and the government programmes are loose and all need to be looked at and strengthened through such co-management agreements. These would necessarily have varying nuances depending on the relationship with the Red Cross and the provincial authorities to date. However, in each the Red Cross engagement in future monitoring, planting, protection and care, dealing with forest fires, violations, and other less technical issues should all be clarified as well as those of other partners i.e. the Sub-department for Forestry, the People's Committee at different levels, government representatives of communes and village leaders. This agreement will necessarily differ from one location to another but during the next cycle of funding (and presumably the last) it is important that these agreements are established in all areas where the Red Cross has engaged with mangrove afforestation. In addition, areas planted to *Casuarina spp.*, bamboo and *Acacia spp.* should be mapped and similar agreements signed.

Such co-management agreements would need necessary legal aid for the VNRC to develop.

Upland forestry areas in Vinh Phuc and Hoa Binh

In the upland forest areas, there should be some immediate actions to prune the *Acacia spp.*, the short-term production forest tree species to allow the *Chukrasia spp.* (Indian mahogany, or *cây Lát*), the protection forest tree species, to grow up more healthily (that is gain access to more sunlight) as currently *Chukrasia spp.* are over-shaded by *Acacia spp.* and sometimes they are under attack by virus and caterpillar.

There should be no further expansion of upland forestry activities in either current provinces nor in other provinces. In both provinces the Red Cross, with the support of the VNRC HQ should sort out various unfinished work particularly with respect to the areas planted by farmers, notably the issue of landownership and the need for official landownership documents ‘red books’ (“*sổ đỏ*” in Vietnamese) for each farmer.

There is potential for Red Cross engagement in protection of existing, or future forestry areas through a package of activities including: emergency response teams who are specialised in forest fire fighting (including public awareness raising, response) and early warning for forest fires.

6.2 Human resources and capacity

As highlighted, one of the major challenges facing the programme over the past few years has been and will continue to be the departure of leaders from the provincial Red Cross chapters, for example, there are new leaders in Quang Ninh, Hai Phong, Thai Binh, Nam Dinh, Ninh Binh, Nghe An, Ha Tinh, and Vinh Phuc. Most of the leaders involved in the MP-DRR during the last phases have retired already or are going to retire; so far new leaders have not been trained on mangrove plantation or even DRR (more on general management administration). This challenge needs to be comprehensively addressed in the next phase of the programme.

6.3 Disaster risk reduction

CBDRM and CBDRA

The VNRC needs to adapt to the CBDRA approach to better align with the CBDRM programme of the government under Decision 1002. There is a pressing need to develop a new cadre of staff at provincial, district and commune level, as currently a few trainers are required to do everything. Training is necessary in the Decision, with the official CBDRM and CBDRA Guidance materials and integrating DRR and CCA into SEDP planning. The VNRC leadership will need to ensure the Red Cross realise its responsibilities agreed in MoU with the DMC for carrying out the Decision. The Red Cross, has under the MP-DRR spread itself too thinly and needs to focus on key strengths, narrow down the scope and geographical coverage.

Commune response teams and emergency drills

The established CDRTs need to be maintained through regular activities helping ensure good team spirit and a professional emergency response at time of disaster. The existing PEER/CADRE materials and trained trainers are available and need to be used effectively. Training in first aid for all CDRT, tailored for the locality is desirable. To maintain the CDRT, the Red Cross should promote inclusion of finance for their training and equipping in the SEDP. In addition, funding for regular drills, using more complex scenarios at district level (according to the Law on Natural Disaster Prevention and Control) should also be included.

Early warning systems

Assessments to find out needs for EWS in communes and tailor support to suit context, need to focus more on Technical Assistance rather than procurement of equipment, which also should be included in the SEDP, any financial support should be ‘seed money’ helping leverage further funding from government.

Schoolchildren disaster risk reduction and climate change adaptation

Updated VNRC materials for schoolchildren exist (*‘An Introduction to Disaster Risk Reduction and Climate Adaptation for Schoolchildren’* 2015) which should be used in future teaching in primary and lower secondary schools. Further, qualified trainers are available who should train DoET, Red Cross and schoolteachers (for two or three days). Importantly, collaboration with MoET is essential, in the future when rolling out new materials and with training trainers.

Livelihoods

The livelihood training has not shown to be effective and further engagement in non-forestry related training should be cut. However, those livelihood initiatives linked with the mangrove or other coastal forestry areas should be suitably financed, training and capacity building continued. This should use a comprehensive approach, from market survey, value chain analysis, regular overseeing and support. Close cooperation with other organisations with relevant expertise will be needed and should be seen as a learning opportunity for Red Cross.

6.4 Exit and sustainability strategy

Integration of the MP-DRR into the forestry management of the Government

A clear concern for the national VNRC HQ and among provincial level Red Cross chapters, is the absence of a clear exit and sustainability strategy after the MP-DRR project ends. The role Red Cross will play in mangrove management at local and provincial levels, or even at national level varies from one province to another in expectations. Considerable effort at all levels is required in the coming years to ensure the development and sustainability of the current mangrove and coastal forests.

Most provincial Red Cross chapters and the local community are still expecting the continuation of the project in the future.

7 Recommendations

7.1 Mangroves, coastal and upland forestry

Mangrove plantation and protection

1. Stop expanding in the current areas, expecting in the case where dyke construction requires new mangrove plantation for protection or there are opportunities for the VNRC to rehabilitate abandoned areas previously used for aquaculture. Prioritize future funding to focus on the existing planted areas.
2. Preserve and strengthen existing stands only, diversifying using different mangrove species and using saplings instead of propagules as these are more robust, to restore dead or unhealthy trees. To undertake this, further detailed study is required of the mangrove areas to decide the best approaches.
3. Conduct a comprehensive feasibility study by a team of external national and international experts examining the environment in other central and southern coastal provinces for mangrove plantation.
4. Aim to become the 'go-to' organisation for mangrove afforestation. For example, following building of a new dyke, the Department of Dyke Management should request intuitively the Red Cross to plant the necessary minimum 200m of mangrove forest in front of the dyke. Study the potential for the Red Cross to work in areas where shrimp farming has failed and rehabilitate such areas back to mangroves.
5. Endorse existing good practice for forest protection team members, who are paid the forest protection fee and also share in the benefits from the mangrove; replicate at scale where possible. Address the inadequacy of the current subsidy fee for planting a hectare of mangrove and at minimum bring in line with fees paid by the government (by the Department of Dyke or Central Natural Disaster Fund).
6. Review the 2012 mapping of the mangrove forest with the Provincial People's Committee, the Sub-department of Forestry, the Red Cross and local people, to validate and agree on every hectare of coastal forestry planted and maintained by the Red Cross.
7. Organise, in all provinces in the mangrove and coastal forestry areas, the regular cleaning up of rubbish by teams of Red Cross volunteers. Further, provincial Red Cross chapters should advocate for proper landfill sites, rubbish bins and carts to be provided near the dyke areas, which are often used for dumping of rubbish.

Advocacy and lobbying

1. Increase significantly Red Cross advocacy on issues impacting negatively on mangrove and coastal forestry sustainability:
 - a. Propose to the Directorate of Forestry, MARD for all areas of mangrove and *Casuarina spp.* planted by the Red Cross, to be registered as protective forest and receive allocated protection fee.
 - b. Undertake, through the provincial Red Cross, advocacy with the Provincial People's Committee, DARD and DoNRE making certain the Red Cross position in the provincial forest development plans, writing in the role of the Red Cross in protecting mangrove planted under the MP-DRR against any major threat planned in land use in the coastal area (for example, from infrastructure, tourism, industrial zones, and aquaculture.)
 - c. Propose integration of DRR and CCA into commune level SEDP.

- d. Propose greater engagement and role by the Red Cross in the New Rural Development Programme 2020 as this programme and with the national programme on CBDRM
2. Engage with the community of practice involved with mangrove protection and development to enhance leverage and increase efficacy. Take a more active role with others in Vietnam and regionally. This will increase leverage and be more effective in protecting existing mangroves.

Co-management agreements

1. Ensure in each province the Red Cross chapter is formally made equal partner, rather than a contractor in all future mangrove and coastal forestry development initiatives.

Upland forestry areas in Vinh Phuc and Hoa Binh

1. End further upland forestry in Hoa Binh and Vinh Phuc. Complete necessary formalities to get official landownership for farmers of the protection forest areas planted under the MP-DRR.
2. Hand-over responsibility for oversight to the provincial Sub-department of Forestry and agree with the provincial Sub-department of Forestry and district authorities how best to keep these forests in the future.

Financial management and reporting

1. Change immediately the financial management reporting from a monthly to quarterly or biannual basis, particularly where staff in the Red Cross chapter offices have familiarity with the systems. Agree on financial and narrative reporting formats to use in the next phase. These will develop a greater level of trust and confidence.
2. Be more proactive in budget management and project planning at VNRC HQ to make the project efficient. Review consolidated financial reports once or twice per year.
3. Consider by 2017 introducing direct bi-lateral support by the JRC to the VNRC, with IFRC providing Technical Assistance.

7.2 Human resources and capacity

1. Undertake capacity building and training of a new and younger generation in mangrove afforestation in the eight coastal provinces.
2. Continue to increase awareness among the public of the importance of protecting and preserving the mangrove planted areas using mass media and behavioural change approaches.
3. Increase emphasis on volunteer management to recruit and keep new volunteers.

7.3 Disaster risk reduction

CBDRM and CBDRA

1. Use the CBDRA approach to align with the government CBDRM Decision 1002 programme.
2. Prepare a new cadre of staff at provincial, district and commune level, developing capacity through a comprehensive needs based assessment, careful selection, and phased training in all provinces at different levels in the government CBDRM Decision, official government CBDRM and CBDRA Guidance materials and integrating DRR/CCA into SEDP planning.
3. Be proactive at VNRC leadership level, in ensuring VNRC roles and responsibilities in undertaking CBDRM are clear and officially agreed. Ensure provincial and lower level Red Cross staff are aware of this. Sign at provincial level and MoU between the provincial Red Cross and DARD.
4. Focus on key strengths, narrowing down the scope and geographical coverage of the programme, rather than spreading too thinly. For example, focus on CBDRM training, CBDRA, district or provincial level emergency drills, school based DRR and CCA, CDRT, and first aid.

Commune response teams and emergency drills

1. Organise regular activities for the CDRT to keep them busy, ensure good team working and understanding of emergency response preparedness, response actions and first aid so if there is a disaster event they can work effectively together.
2. Utilise the PEER/CADRE materials. Undertake all training using trained PEER/CADRE trainers. Back up training with extra two to three day first aid training for all trainees, tailored to suit the particular locality and common causes of injury.
3. Strive to include in the commune SEDP a budget for training, equipping and maintenance of CDRT; enough funding for regular drills tailored to suit the local context; EWS equipment provision and maintenance.
4. Scale up drills to district level (according to the Law on Natural Disaster Prevention and Control). Use tried and trusted models for more complex scenarios in different locations for multiple hazards.

Early warning systems

1. Undertake a multi-stakeholder assessment of existing commune EWS to find out needs and tailor support to suit context, focusing on Technical Assistance rather than provision of equipment. View finance to support the project as seed money to leverage further funding from government.

Schoolchildren disaster risk reduction and climate change adaptation

1. Use updated VNRC '*An Introduction to Disaster Risk Reduction and Climate Adaptation for Schoolchildren*' (2015). In addition, refresher materials (2015) in the future in primary and lower secondary schools.
2. Use qualified trainers to train schoolteachers in the new material for two or three days. Provide sample teaching agenda. Monitor and support schools as needed.

3. Collaborate with MoET in the future in rolling out new materials (currently being finalised) and training of trainers.

Livelihoods

1. End further engagement in non-forestry related livelihood training.
2. Support livelihood initiatives linked with the mangrove afforested or coastal forested areas. Commit to these and adopt a properly financed training and capacity building initiative. Adopt a comprehensive approach, from market survey, value chain analysis, regular overseeing and support. Undertake in close cooperation with other organisations having expertise and view as a learning opportunity for Red Cross.

7.4 Exit and sustainability strategy

Integration of the MP-DRR into the forestry management of the Government

1. Increase significantly efforts by the VNRC HQ and provincial Red Cross to develop an exit strategy.
2. Ensure, through suitable legislation tailored to suit each province, a handover and mechanism to legitimise the role and responsibilities of the VNRC for the mangrove and coastal forest areas planted by VNRC. Sign suitable legal documentation with the Provincial People's Committees detailing this, providing government forest protection fee and overseeing role to the Red Cross.

8 Annexes

Annex 1. Comparative knowledge, attitude and practice (KAP) survey

The end-line survey on knowledge, attitudes and practices (KAP) of respondents regarding DRR and CCA, includes: social and economic background of respondents (see Methodology section), respondents' knowledge on forest and mangrove reforestation and protection, perceived capacity of the community on DRR and CCA, knowledge on natural hazards, attitudes toward natural hazards, DRR practices, knowledge on climate change, CCA practices, and understanding of local DRR and CCA plans.

1. Knowledge about forest and mangrove reforestation and protection

Knowledge of forest and mangrove reforestation and protection relates to whether people were directly involved with planting forest. Analyses of the end-line data shows 70% of respondents are planting forest or mangrove. For respondents living in upland provinces, 72% were planting forest voluntarily, 16% were planting forest with support from the VNRC, and 16% doing something similar with support from other projects. For those living in coastal provinces, 9% were planting forest voluntarily, 50% with support from the VNRC, and 10% with support from other projects (Table 4). Compared with mountainous region, the role of the VNRC regarding support to local people to plant forest is more significant in the coastal region.

Table 4. Percentage of households growing forest by regions in the midterm and end-line surveys

Type of forest planted	End-line	
	Upland (n=183)	Coastal (n=401)
Planting forests voluntarily	72%	9%
Planting forests with VNRC support	16%	50%
Planting forests with support from other projects	16%	10%

Since sustainability is an important aspect of the project, respondents were asked if they were willing to play a part in local forest protection when there is no more support from the project. Our analysis revealed that 97% of respondents said they would participate in forest protection after the project ends, compared with 92% in the midterm survey. Specifically, 10% among these would participate in a voluntary mangrove protection team, 23% would participate in awareness raising on mangroves, 22% would care and replant destroyed mangrove, 13% would participate in awareness raising on upland forest, 28% would care and protect upland forest, and 6% would participate in an upland forest protection team.

Table 5 shows the proportion of respondents currently taking part in forest protection activities in the coastal regions is 47%, compared to 86% in the upland region.

Table 5. Percentage of households protecting forest and mangrove forest by regions in the midterm and end-line surveys

Forest protection	Mid-term		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n= 183)	Coastal (n= 401)
Yes	60%	26%	86%	47%
No	40%	74%	14%	53%

Surveyed respondents were well aware of benefits that forest plantation and protection would bring to the community. Specifically, 98% of respondents in the end-line survey said forests would contribute to protection of infrastructure designed for disaster reduction and prevention, in comparison with 97% in the midterm survey. Further, 99% of respondents said sustainable forest planation and protection would bring benefits to the communities, in comparison with 98% in the midterm survey. Details of benefits are presented in Table 6.

Table 6. Perceived benefit of planting and protecting forest

Perceived benefits	End-line	
	Upland (n=183)	Coastal (n=401)
Generating income	67%	52%
Creating beautiful scenery	44%	54%
Mitigating impact of natural hazards and climate change	74%	92%
Increasing underground water	69%	9%
Creating environment for aquatic creatures	2%	52%

The aforementioned perceptions may relate to actual benefits respondents received from local forests and their participation in the project. In the end-line survey, 75% of respondents agreed their participation in the project helped improve their households' income, in comparison to 31% of the midterm survey. In addition, 57% of respondents said they were benefiting from forest resources, in comparison to 30% of the midterm survey.

Regarding types of forest resources benefiting them, respondents mentioned wood (29%), fish (10%), and others (4%). In coastal provinces, on average people can earn VND150, 000 per day (CHF6.42 or US\$ 6.75) from collecting aqua-cultural products from the mangroves areas. Given that on average each respondent works 20 days per month, their average monthly income is approximately VND3 million (CHF128.32 or US\$135). Importantly, only a small proportion of respondents were using harmful exploitation methods (*dong day*: 2%; *xeo*: 0.51%; *te dien (electric rake)*: 0.86%; 6.16% of respondents collected wood for fuel. In the end-line survey, 79% of respondents said the current exploitation of the forest was sustainable, in comparison with 88% at the midterm survey.

Table 7. Perceived change of benefit from forest and forest area in mid-term and end-line survey

	Mid-term		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n=183)	Coastal (n=401)
Perceived change of benefit from forest				
More than before	21%	47%	56%	58%
Unchanged	51%	33%	32%	17%
Less than before	13%	18%	6%	10%
Do not know	16%	2%	5%	14%
Perceived change of forest area				
More than before	29%	56%	39%	57%
Unchanged	50%	34%	52%	26%
Less than before	6%	8%	5%	6%
Do not know	15%	2%	4%	11%

Table 5 shows how respondents perceived changes of forest's benefits and forest areas. In the end-line survey, 57% perceived forest benefits had become 'more than before'. In mountainous provinces, this proportion is 56% in the end-line survey, which means an increase of 35% compared the midterm survey (21%).

Regarding the area of forest, 51% of respondents thought forest areas had become 'more than before', compared with 46.9% in the midterm survey. The proportion of respondents said that it had been increasing was only 5%. In the upland region, 39% of the respondents surveyed in 2015 thought that the forest area was 'more than before', compared to only 29% in the 2013 survey. However, in the coastal region, this proportion is almost the same compared to the midterm survey.

2. Local management and protection of forest

Sustainable local management and protection of the forest is an important result of the programme. Therefore, how state and non-state agents locally are involved in management and protection of local forests was examined. In the 2015 survey, respondents were assessed regarding the level of concern of local authorities about forest management and protection, 82% considered the local care about forest to be either 'very good' or 'good' (compared to 79% in 2013). Overall, very few respondents (6%) in the end-line survey considered the efforts of local authorities 'not good', in comparison with 10% in the midterm survey. As Table 6 shows, 17% of respondents living in the upland provinces did not appreciate efforts of local authorities in the midterm survey. However, this proportion has decreased to 8% in the end-line survey.

Further analysis according to provinces (Table 7) showed the proportion of respondents considering efforts of local authorities on DRR and CCA 'good' or 'very good' significantly increased in Hoa Binh (54% in 2013 and 80% in 2015) and Vinh Phuc (68% in 2013 and

82% in 2015). These proportions signify project activities in the region may have brought some positive change in local perception, especially in the upland area, regarding the local authority's role fulfilment with regard to DDR and CCA.

Further evidence for this assessment relates to local people's awareness of regulations on forest protection. On being asked of the existence of local regulations on forest protection, 87% said they knew about the regulation. Among the ones who knew of the regulation, 76% said 'good' and 20% said 'very good'.

Table 8. Assessment of communal leaders' attention to forest management and protection by regions

	Mid-term		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n=183)	Coastal (n=401)
Very good	8%	22%	23%	33%
Good	53%	67%	58%	50%
Not good	17%	6%	8%	6%
No attention	12%	2%	8%	2%
Do not know	11%	3%	3%	9%

Table 9. Assessment of communal leaders' attention to forest management and protection by provinces

Provinces	Midterm		End-line	
	Good or very good	Not good or lack of attention	Good or very good	Not good or lack of attention
Hoa Binh*	54%	29%	80%	15%
Ninh Binh+	na	na	76%	4%
Vinh Phuc*	68%	28%	82%	17%
Hai Phong+	90%	10%	80%	16%
Ha Tinh+	na	na	94%	6%
Nam Dinh+	na	na	88%	12%
Nghe An+	na	na	86%	12%
Quang Ninh+	85%	13%	88%	8%
Thai Binh+	92%	6%	92%	6%
Thanh Hoa+	86%	6%	60%	0%

Note: *Ninh Binh, Ha Tinh, Nam Dinh, Nghe An were not included in the midterm survey; *: upland provinces; +: coastal provinces*

Furthermore, when asked who were chiefly responsible for forest protection and management, 42% of respondents in the end-line survey said 'Commune's People's Committee', 4% mentioned 'voluntary forest protection team', and 23% cited households who were assigned the ownership of the forest and 40% mentioned other agents (the forestry committee, environmental protection committee, and commune police). Clearly, together with households, Communal People's Committees are recognised by the respondents as having an important role in forest protection and management at the communal level.

Respondents also recognised contributions of non-state agents such as voluntary teams. Indeed, 48% of respondents in the end-line survey knew of existence of voluntary forest protection teams in their localities. This proportion in the midterm survey was 52%. This recognition is not the same across provinces. For instance, Thai Binh and Ha Tinh had the highest proportions of respondents who knew about this team (82% and 74% respectively), while only 24% of respondents in Ninh Binh mentioned this team. Nevertheless, most respondents in both coastal and mountainous regions considered that the voluntary forest protection team's work as 'good' or 'very good' (Table 10).

Table 10. Assessment of effectiveness of voluntary forest protection teams

	Midterm		End-line	
	Upland (n=38)	Coastal (n=122)	Upland (n=66)	Coastal (n=215)
Very good	8%	30%	42%	46%
Good	66%	65%	47%	46%
Not good	16%	4%	6%	7%
No attention	3%	0%	2%	0%
Do not know	8%	1%	3%	0%

3. Knowledge about natural hazards in the local area

Natural hazards mentioned commonly by the respondents include storms (79%), droughts (21%), and floods (56%). This section shows respondents' knowledge of people who need help in case of natural hazards, their perceptions of impact of climate change, and their preparations to cope with natural hazards.

A good understanding about the most vulnerable groups in the community is an important aspect of any DRR plan. Among respondents surveyed, 68% and 67% considered the elderly and children as the most vulnerable groups in the community. Other groups considered vulnerable to natural hazards are women (18%), poor households (13%) and fishermen (15%). Clearly, the elderly and children are weaker, easier to get sick and often need extra help during evacuation. Fishermen were also regarded as a vulnerable group in the community due to their occupation.

4. Participation in DRR CCA activities

Before Phase IV of the MP-DRR project, 37% of the respondents were VNRC volunteers. In this phase, 41% were VNRC volunteers. These volunteers were involved in disaster response (13%), search and rescue (10%), drills (13%), forest plantation and protection (22%), and communication on DRR and CCA (15%). Specifically, 34% participated in CDRT. Within these teams, their roles were in first-aid (8%), search and rescue (17%), and aid delivery (9%). Of the respondents, 43% were trained on DRR and CCA. Among these trainees, 31% said they were trained on the concept as well as impact of disaster, 23% on the concept and impact of climate change, and 15% on assessment of capacity in responding to disasters.

With regard to VCA, 18% of respondents in the end-line survey had participated in this activity. The content of this assessment include assessment of types of disasters (11%), assessment of vulnerable groups (8%), assessment of family and community resources (8%), hazard and capacity mapping (8%), mitigation measures (5%).

Regarding local community's activities on DRR and CCA in the previous year, 80% said they knew of awareness raising activities, installation of early warning sideboards (33%), drills (66%), changing crops (51%), and small mitigation works (44%).

In relation to benefits from local activities on DRR and CCA, 42% said they participated in training courses, 46% said they were involved in awareness raising activities, 18% said they were involved in constructing small-scale mitigation work, 34% said they were allowed to use disaster mitigation infrastructure, 25% said they were given seeds for planting new crops.

5. Disaster preparedness and prevention

Respondents' perceptions of disaster impact on local production, environment, and human well-being included: lost crops and reduced productivity (87%), employment were affected and income reduced (49%), polluted environment (43%), more diseases (30%), loss of aquatic resources (30%) and polluted water sources (29%). Especially, 77% of respondents stated their households were least moderately affected by natural hazards.

Knowledge of groups vulnerable to natural hazards is measured by asking respondents to list types of people they considered most likely to be affected by natural hazards. The elderly and children were the most commonly mentioned groups (69% and 67% respectively). Poor households, fishermen and people with disabilities are also considered as people vulnerable to natural hazards (16%, 14% and 13% respectively).

Regarding local warning systems, communal loudspeakers are the system that 92% of respondents mentioned. Other warning mechanisms are only mentioned by small proportions of respondents (4% for warning siren and 1% for flood warning columns).

Since 2011, 85% of respondents said at least one disaster had occurred in their locality. Table 9 shows respondents' reported methods of coping with natural hazards before their onsets by surveys and regions. In the midterm evaluation, almost one in every four respondents (23%) living in the upland region did not prepare anything before a disaster. This proportion dramatically reduced to 9% in the end-line evaluation. Table 11 also demonstrates interventions activities seem to be effective in both upland and coastal regions. This is because proportions of all measures of coping with coming disasters reported by respondents in the end-line survey are higher than the same proportion of the midterm survey.

During the onset of a natural hazard, respondents reported that they regularly listened to news on the on-going situation (57%), participated in search and rescues activities if requested (46%), supported the elderly, the disabled and children (30%), and strengthened their houses (35%). Only 1% of respondents said they tried to catch fishes or collect floating wood during disaster.

Table 11. Reported methods of coping with natural hazards before their onsets

	Midterm		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n=183)	Coastal (n=401)
No preparation	23%	4%	9%	1%
Regularly listening to news on on-going disasters	21%	38%	45%	49%
Storing food	14%	31%	42%	79%
Storing water	4%	21%	27%	68%
Storing medicine	1%	8%	17%	28%
Preparing emergency tools	2%	10%	7%	29%
Preparing flood evacuation plans	2%	17%	10%	23%
Storing fuel	4%	4%	9%	21%
Checking home electricity safety	2%	1%	8%	7%
Putting items at higher places	7%	11%	12%	32%
Replacing domestic animals	7%	3%	9%	21%
Having children stayed at home	1%	2%	2%	5%
Strengthening local dykes	4%	14%	6%	19%
Strengthening houses	62%	72%	61%	86%
Pruning trees around houses	15%	11%	35%	42%
Clearing irrigation channels	10%	2%	6%	11%

After the occurrence of a disaster, respondents prioritised caring for their own families (94% of respondents cleaned the surroundings of their houses, 72% focused on repairing their houses, 21% cleaned their water sources, and 22% reported damage to the local government. However, one in four respondents would do something for the community (25% would try to help others).

6. Effectiveness of forest in disaster reduction

How local people considered the role of forests in coping with natural hazards was examined. According to the respondents, in the last occurrence of a disaster in their community, forests helped protecting local communities from waves and wind (56%), protecting coastal lines and dykes (50%), and aquatic resources (28%). As shown in Table 9, in both upland and coastal regions, the pattern of responses of the end-line evaluation is similar to that of the midterm evaluation. Specifically, respondents living in the coastal provinces appreciated role of the forest in protection - of coastal lines and dykes - more than those living in the upland provinces.

Table 12. Effectiveness of forest and mangrove forest in disaster reduction

	Midterm		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n=183)	Coastal (n=401)
Do not known	10%	4%	3%	3%
Protecting fishery resources	0%	21%	0%	41%
Resisting wave and wind	29%	83%	19%	73%

Protecting dykes, coastal line	0%	83%	10%	68%
Preventing erosion and landslides	34%	0%		
Slowing floods	20%	0%		

7. Local warning system and response to natural hazards

a. *Local warning before a disaster*

The survey investigated how local people are warned of coming natural hazards by asking them to list all information channels through which they receive a warning message. Demonstrations in Table 13 show that TV and communal loudspeakers are the most commonly mentioned channels in both regions and surveys. Village heads and local cadres also play a role in warning local people about coming danger (48% in upland and 72% in coastal region in the end-line survey). Compared with the midterm survey, the VNRC and other social organisations at the local level seem to have a stronger effort in warning local people of coming natural hazards.

Table 13. Sources of information on natural hazards

Sources of information on natural hazards	Midterm		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n=183)	Coastal (n=401)
Do not remember	1%	0%	0%	0%
No warning information	3%	0%	1%	0%
TV	92%	86%	69%	80%
Radio	4%	8%	9%	21%
Telephone	0%	2%	7%	8%
Friends, relatives	0%	1%	7%	12%
Communal loudspeaker	23%	73%	73%	94%
Hand-speaker	0%	4%	3%	11%
Head of village, local cadre	8%	25%	48%	72%
VNRC, Women's Union, other social organisations	0%	2%	20%	27%

Table 14. Quality of information on hazards

	Midterm		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n=183)	Coastal (n=401)
Not timely	10%	4%	1%	0%
Timely but inaccurate	3%	7%	6%	5%
Timely and accurate	76%	86%	90%	93%
Neither timely nor accurate	3%	2%	0%	0%

Respondents provided an assessment of quality of disaster warning information in terms of timeliness and accuracy. Of these 92% expressed the information was both timely and accurate. That means a slight increase, compared with 82% in the midterm survey. Table 14 shows the breakdown of information regarding assessment on quality of warning information by regions and surveys. In the midterm survey, 16% and 11% respondents living in upland region and coastal regions, respectively, complained about the time and/or accuracy of warning information. In the end-line survey, this proportion reduced to 7% and 5%, respectively.

b. Participation of community in disaster preparedness and response

A significant change in the proportion of respondents participating in disaster preparedness and response was noted. In the end-line survey, 71% of respondents said they took part in this type of activity, while this proportion in the midterm survey was only 25%. The breakdown of this proportion is shown in Table 15. Notably, many respondents said they ‘advocated to support the poor’ (46% in the coastal and 24% in the upland region in the end-line survey). Many respondents also mentioned ‘supporting disaster response’ (17% in upland and 30% in coastal provinces of end-line survey), ‘advocating DRR and CCA’ (16% in the upland and 29% in the coastal provinces of end-line survey), which shows a significant increase from the same proportions of the midterm survey). This positive change is possibly attributable to the project’s interventions in both regions.

Table 15. Community participation in disaster preparedness and response

Community participation	Midterm		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n=183)	Coastal (n=401)
Supporting disaster response	5%	15%	17%	30%
Searching and rescuing	0%	7%	10%	20%
Participating in disaster response drills	0%	4%	5%	13%
Donating blood	0%	1%	0%	0%
Planting and protecting forest	7%	1%	18%	19%
Advocating to support the poor	3%	7%	24%	46%
Advocating DRR and CCA	1%	7%	16%	29%
Protecting dykes	1%	9%	7%	19%

8. Knowledge of climate change

In the end-line survey, 93% of respondents had heard of ‘climate change’, which mean a 20% increase compared with the midterm survey. As shown in Table 16, across regions and surveys, television is the most commonly mentioned source of information on climate change. In coastal region, public loudspeakers have become more widely used for disseminating information on climate change, resulting in 50% of respondents living in this region citing this source in the end-line survey (compared with 33% in the upland region). Paper-based sources, local cadres and training courses are also cited by many respondents. It appears that, compared to upland region, there were more respondents living in the coastal region gained climate change information from training courses (29% in the coastal region and 18% in the upland region).

Table 16. Sources of information on climate change

Source of information	Midterm		End-line	
	Upland (n=233)	Coastal (n=351)	Upland (n=183)	Coastal (n=401)
Do not remember	0%	0%	0%	0%
TV and radio	73%	73%	91%	93%
Public loudspeaker	2%	14%	33%	50%
Books, newspaper, magazines	0%	2%	20%	26%
Internet	1%	0%	2%	6%
Social associations	1%	1%	4%	4%
Training courses	3%	8%	18%	29%
Village's head and cadre	2%	4%	21%	16%
Schools	0%	0%	1%	1%
Family and friends	0%	1%	0%	1%

Turning to perceptions of impact of climate change, 4.6% of respondents in the end-line survey could not mention any impact of this phenomenon. Breakdown in Table 17 show that most of respondents unaware of any impact of climate change belong to the upland provinces. Impacts of climate change which are mostly mentioned include ‘temperature increases’ (48% in upland 71% in coastal region), ‘more extreme weather incidents’ (55% and 65% respectively), ‘floods become more frequent’ (49% and 50%), ‘droughts become more frequent’ (44% and 43%), and ‘rising of sea level’ (17% and 36%). Assuming respondents are more concerned with changes in their localities, it is not surprising only few respondents mentioned changes at global level such as degradation of ozone layer, coastal erosion or ice melting.

Table 17. Perceived impact of climate change

Perceived impact	Midterm		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n=183)	Coastal (n=401)
Do not know	6%	7%	9%	3%
Degradation of ozone layer	1%	3%	2%	10%
Faster coastal erosion	0%	0%	1%	7%
Ice melting faster in North Pole	3%	6%	5%	13%
Temperature increases	47%	34%	48%	71%
More landslide	2%	0%	5%	6%
More diseases	4%	8%	14%	19%
The earth will be warmer	17%	17%	30%	46%
Fishes dying at large number	0%	0%	1%	2%
More extreme weather incidents	45%	44%	55%	65%
Drought becoming more frequent	7%	5%	44%	43%
Floods becoming more frequent	13%	13%	49%	50%
Rising of sea level	11%	22%	17%	36%

Table 18. Reasons that climate change is an important matter

Reasons climate change is important	Midterm		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n=183)	Coastal (n=401)
Damaging biodiversity	3%	2%	4%	9%
Affecting natural resources	1%	2%	24%	17%
Damaging water sources	2%	2%	10%	16%
Negatively affecting agricultural production	53%	52%	78%	84%
Damaging infrastructure	1%	3%	8%	21%
Affecting human health	65%	64%	84%	90%

Regarding the perceived importance of climate change, all but two respondents (99.6%) recognised that climate change was an important matter. As shown in Table 18, in both regions and surveys, respondents linked climate change with negative impact on agricultural production, human health, and the loss of natural resources (especially in the end-line survey). Respondents of the end-line survey were more aware of the negative impact of climate change on infrastructure and water resources. In the end-line survey, people living in the coastal region were better aware of negative impact of climate change on infrastructure.

Table 19. Reported ways of adapting to climate change

Reported climate change adaptation measure	End-line	
	Upland (n=183)	Coastal (n=401)
Do not know	13%	9%
No need to do anything	3%	6%
Change crop varieties	20%	29%
Change crops	16%	22%
Change business	3%	3%
Building houses in higher places	1%	10%
Saving energy	8%	19%
Using green energy	8%	13%

Approximately 10% of respondents in the end-line survey did not know of any way of adapt to climate change. This proportion is slightly lower than the midterm survey (12%). Meanwhile, 5% of respondents thought they needed not to do anything.

Table 19 shows reported ways of adapting with climate change in both regions in the end-line survey. Notably, changing crops and crop varieties are commonly mentioned by respondents living in both regions (36% altogether in the upland and 51% altogether in the coastal region). In the coastal region, 19% mentioned saving energy and 13% mentioned using green energy as their adaption strategies. These proportions are much lower in the upland region (8% for each).

Table 20. Reported plans of adapting to climate change

Reported plans for climate change adaptation	Midterm		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n=183)	Coastal (n=401)
Having a climate change adaptation plan	28%	20%	49%	44%
Having no plan because of knowing nothing	29%	27%	15%	10%
Having no plan because one cannot do anything with climate change	23%	29%	17%	17%
Having no plan because local authority will find a solution	1%	3%	6%	11%
Having no plan because climate change will not happen	0%	0%	1%	1%

Of 584 respondents in the end-line survey, 54% had a plan to cope with climate change. Demonstrations in Table 17 show 49% respondents living in upland region said they had a CCA plan, compared to 44% in the coastal region. In each region, 17% held a rather pessimistic view when expressing they had no plan because they could not do anything about climate change. For those who said they had a plan, 22% said they would learn more about climate change, 24% said they would search for types of trees and domestic animals that could adapt to climate change, 5% said they would use new sources of energy, and less than 1% (5 respondents) said they would change their occupation.

9. Understanding of local DRR plan

Table 21. Understanding of local DRR plan

Understanding of DRR plan	Midterm		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n=183)	Coastal (n=401)
Plan of disaster preparedness	34%	64%	51%	85%
Plan of disaster response	12%	22%	47%	77%
Plan of disaster recovery	3%	13%	33%	56%
Plan of disaster communication	3%	11%	27%	32%

Our analysis revealed that 82% of respondents in the end-line survey were aware of their communes' DRR plans. Table 18 shows percentages of respondents who were aware of different disaster coping plans in their communities, divided by regions in both midterm and end-line surveys. Specifically, 52% of respondents of the end-line survey living in the upland region were aware of a local plan of disaster preparedness, compared with 85% of those surveyed in the same year living in the coastal region. These proportions in the midterm survey are much lower, suggesting that the programme activities could be the factor that bring about the change. It is interesting, compared with respondents living in the upland region, those living in the coastal region had better understanding of DRR plans in their locality.

The majority of informants who knew about local DRR plan said they heard from commune loudspeaker (54% in the upland region and 79% in the coastal region in the end-line survey). This channel of information has proved its effectiveness in conveying not only knowledge about disaster and raising awareness in disaster preparedness and response but quickly popularizing local plans to the whole community. Local authorities such as head of village or communal staff and village meeting were the two second most common sources of information for local DRR plan. Two out of three respondents living in the coastal region mentioned village officials as their main information source (66%), in comparison with 42% in the upland region. Similarly, 61% of respondents living in the coastal region mentioned village meetings as a source of information on local DRR plan, in comparison with 40% in the upland region.

Table 22. Understanding of local DRR plan

Sources of information on the local DRR plan	Midterm		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n=183)	Coastal (n=401)
Communal loudspeaker	22%	54%	54%	79%
Commune & village officials	15%	27%	43%	66%
Local television	0%	4%	11%	11%
Local newspaper	0%	0%	3%	1%
Village meeting	21%	24%	40%	61%

Friends	1%	0%	2%	4%
Radio	0%	0%	6%	6%

97% of respondents said they used DRR and CCA information for some preventive actions. Specifically, for those who said they did use this information, 73% used it for coping with disasters and climate change, 24% for arranging seasonal crops, 13% for finding jobs, 12% for making a production plan.

Regarding participation to the making of the commune's DRR plan, 30% of respondents participated in the planning of communal activities for DRR and mitigation. Among these participants, 18% discussed activities with others, 11% provided information, 10% suggested activities, 5% only listened and 4% suggested activities in the last version of the plan

Table 23. Information sources of DRR plans designed for local schools and commune health station

	Midterm		End-line	
	Upland (n=102)	Coastal (n=203)	Upland (n=183)	Coastal (n=401)
Communal loudspeaker	19%	38%	28%	57%
Commune and village officials	13%	18%	25%	44%
Local television	2%	0%	9%	4%
Local newspaper	0%	0%	1%	0%
Village meeting	9%	11%	23%	39%
Teacher	7%	9%	4%	9%
Health staff	1%	2%	2%	5%
Pupils (children)	5%	9%	5%	10%
Radio	0%	0%	2%	1%

64% of respondents in the end-line survey were aware of DRR plans designed for schools and communal health stations. Demonstration in Table 20 shows the information channels through which the respondent knew of this type of plan. Obviously, communal loudspeakers (28% in the upland and 57% in the coastal region), communal and village officials (25% and 44% respectively) and village meetings (23% and 39% respectively) are the most commonly mentioned methods. Nonetheless, respondents living in the coastal region cited these methods more frequently than those in upland regions. Together with the findings above, this suggests that the programme's activities may be more successful in the coastal than the upland region. This difference may well relate to the fact that the upland provinces (Hoa Binh and Vinh Phuc) were not involved in the programme from its beginning.

Annex 2. Government legislation for mangroves, coastal forestry and climate change

Decision 17/2015/QĐ-TTg (9th June 2015) *Promulgation of Protection Forest Management Regulation;*

Decision 120/QĐ-TTg (22nd January 2015), ‘Coastal forest protection and development in response to climate change, Period 2015 – 2020’, *‘in which MARD is assigned to research and build policies on management, protection and development of coastal forests to be submitted to the Prime Minister for approval and promulgation to support implementing the Program’¹⁶;*

Decision 1250/QĐ-TTg (31st July 2013) on the approval of the National Strategy for Bio-diversification to 2020 vision 2050 *by which the Prime Minister stipulates: areas of mangroves, sea grass beds and coral reefs must be maintained at current levels;*

Resolution 24-NQ/TW (6th March 2013) of the Central Party *about active response to climate change, strengthening the management of natural resources and environmental protection mentions: the task of protecting, restoring and regenerating natural forest, promoting afforestation, especially mangroves, coastal Protective forest and upstream forest;*

Decision 1474/QĐ-TTg (10th May 2012) National Action Plan on Climate Change period 2012 – 2020;

Decision 57/QĐ-TTg (9th January 2012) Plan for Forest Protection and Development, Period 2011 – 2020;

Decision 667/QĐ-TTg (27th May 2009) states: *‘Planting coastal trees and protecting dykes: focus resources, especially mobilizing community participation in the protection and conservation of the area with forest in front of dykes, ensure forest has at least 500m width’;*

Support Program to Respond to Climate Change (SP-RCC), Ministry and Departments of Natural Resources and Environment (MoNRE/DoNRE);

Provincial climate change Action Plans;

The National Mangrove Restoration and Development Plan for 2008-2015, *aims to increase mangroves by almost 50%. The plan sets priorities for planting, forest contracting, and forest land allocation to local households and communities;*

The National Forestry Strategy, *aims to increase overall forest cover to 47% by 2020;*

¹⁶ The plan sets the targets of expanding the coastal forest coverage to 19.5% by 2020 from the current 16.9% and grow an additional 46.058 hectares of forests to have a total coastal forest area of 356.753 hectares.

The 5 Million Hectare Program, *aims to protect existing forest and to plant 2 million ha of protection and special use forest, and 3 million ha of production forest;*

Reversing Environmental Degradation Trends in the South China Sea and the Gulf of Thailand (UNEP/GEF project) *aims to increase mangroves in 7 participant countries to 90% of 1998 levels.*

Annex 3. Logical framework for final evaluation

	Mục tiêu	Chỉ số	Phương pháp xác minh	Giả định
<p>Tác động</p> <ul style="list-style-type: none"> Đánh giá những thay đổi mà dự án mang lại về khả năng phục hồi, sự chuẩn bị sẵn sàng và năng lực ứng phó của cộng đồng cũng như năng lực của VNRC đến thời điểm hiện tại Xác định những thay đổi ngoài dự kiến cho đến thời điểm hiện tại 	<ul style="list-style-type: none"> Các cộng đồng dễ bị tổn thương trở nên an toàn hơn và có khả năng phục hồi cao hơn trước các rủi ro thiên tai và tác động của BĐKH tại Việt Nam 	<ul style="list-style-type: none"> Tăng cường khả năng phục hồi trước thiên tai và thay đổi nhận thức về tác động của BĐKH cho các xã tham gia dự án Chuyển biến trong khả năng chuẩn bị và ứng phó với thiên tai của cộng đồng; Chuyển biến trong nhận thức của cộng đồng về các biện pháp giải quyết rủi ro thiên tai và tác động của BĐKH Chuyển biến về năng lực của VNRC trong hợp tác và tham vấn quản lý rủi ro thiên tai dựa vào cộng đồng; Chuyển biến về năng lực của VNRC trong việc truyền tải và duy trì quản lý rủi ro thiên tai dựa vào cộng đồng và thích ứng với BĐKH; 	<ul style="list-style-type: none"> Các báo cáo cấp tỉnh và quốc gia về tác động của thiên tai Số liệu thống kê cấp tỉnh và cấp quốc gia Đánh giá đầu kỳ, giữa kỳ và báo cáo giám sát Phỏng vấn, khảo sát thực địa và so sánh Quan sát thực tế 	<ul style="list-style-type: none"> Tính sẵn có của các tài liệu dự án Tính sẵn có và sự tham gia của các bên liên quan Không có thiên tai nghiêm trọng nào xảy ra trong quá trình khảo sát

<p>Tính hiệu quả</p> <ul style="list-style-type: none"> ○ Dự án đã đạt được những kết quả như thế nào và có hướng tới đạt được các kết quả dự kiến không? 	<ul style="list-style-type: none"> • Tăng cường năng lực của các xã tham gia dự án để bảo vệ và quản lý rừng trồng/nguồn lợi từ rừng một cách hiệu quả <ul style="list-style-type: none"> - Các xã đã cải thiện được kiến thức và kỹ năng về bảo vệ và quản lý rừng trồng/nguồn lợi từ rừng 	<ul style="list-style-type: none"> • Phần trăm dân cư trong các xã thuộc dự án có thể nắm được các hoạt động cá nhân và cộng đồng để quản lý nguồn lợi từ rừng của họ • Phần trăm dân cư trong các xã thuộc dự án sử dụng thông minh các nguồn lợi từ rừng vào sinh kế của họ (VD rừng và nguồn thủy sản) 	<ul style="list-style-type: none"> • Số liệu thống kê cấp tỉnh • Dữ liệu đầu kỳ và giữa kỳ • Báo cáo giám sát • Điều tra KAP 	<ul style="list-style-type: none"> • Tính sẵn có của các tài liệu dự án • Tính sẵn có và sự tham gia của các bên liên quan • Không có thiên tai nghiêm trọng nào xảy ra trong quá trình khảo sát
	<ul style="list-style-type: none"> - Các xã chủ động quản lý và bảo vệ tài nguyên rừng/rừng trồng 	<ul style="list-style-type: none"> • Phần trăm các xã trong dự án trồng rừng có đội tình nguyện quản lý rừng và kế hoạch quản lý/trồng rừng tại chỗ • Phần trăm các xã này chủ động thực hiện kế hoạch quản lý/bảo vệ rừng, trong đó có thể bao gồm các hoạt động như phục hồi rừng, phủ xanh đất trống, cắt tỉa, đa dạng hóa rừng trồng, và/hoặc quản lý thay đổi trong việc sử dụng đất, v.v. • Thay đổi về số lượng và chất lượng rừng trồng: <ul style="list-style-type: none"> - Khu vực trồng mới - Khu vực được bảo vệ tốt - Khu vực phục hồi tự nhiên • Phần trăm các xã trong dự án trồng rừng đã vận động được nguồn lực con người/tài chính ngoài nguồn lực từ dự án để hỗ trợ bảo vệ rừng ○ 	<ul style="list-style-type: none"> • Số liệu thống kê cấp quốc gia và cấp tỉnh • Dữ liệu đầu kỳ và cuối kỳ • Báo cáo giám sát • Khảo sát KAP 	<ul style="list-style-type: none"> • Rừng trồng không bị tác động ngược bởi thiên tai và/hoặc dịch bệnh • Không có thay đổi về các kế hoạch lớn của tỉnh ○

	<ul style="list-style-type: none"> - Việc trồng rừng đã góp phần cải thiện mức độ an toàn vật chất và sinh kế cho các xã trong dự án 	<ul style="list-style-type: none"> • Phần trăm bị tác động ngược bởi thiên tai trong các cộng đồng trong dự án và các cộng đồng tự quản lý • Số lượng các hộ gia đình duy trì hoặc tăng sản lượng khai thác từ rừng 	<ul style="list-style-type: none"> • Bản đồ cơ sở, dữ liệu giám sát; • Dữ liệu về quản lý tỷ lệ sống sót; • Quan sát thực tế; • Khảo sát KAP; 	<ul style="list-style-type: none"> • Phát hiện các điều kiện tương tự giữa các xã tham gia dự án và các xã tự quản lý để so sánh
	<ul style="list-style-type: none"> • Tăng cường năng lực của các xã về khả năng tự bảo vệ trước rủi ro thiên tai và tác động của BĐKH; - Các xã tăng cường được kỹ năng và kiến thức về rủi ro thiên tai và BĐKH/biện pháp thích ứng với BĐKH; 	<ul style="list-style-type: none"> • Phần trăm dân cư trong các xã có thể nắm được chính xác các loại hình thiên tai chính và các rủi ro/nguy cơ tiềm ẩn của BĐKH cũng như biện pháp bảo vệ và giảm nhẹ/thích ứng (bao gồm các sinh kế liên quan); • Phần trăm các giáo viên và học sinh đã được tập huấn có thể nắm được chính xác các loại hình thiên tai chính và các rủi ro /tác động tiềm tàng BĐKH và mô tả ít nhất một biện pháp giảm nhẹ rủi ro tại chỗ 	<ul style="list-style-type: none"> • Dữ liệu đầu kỳ và giữa kỳ; • Khảo sát KAP; • Phỏng vấn sâu và thảo luận nhóm 	
	<ul style="list-style-type: none"> - Các xã có thể thực hiện cảnh báo người dân để ứng phó và bảo vệ bản thân họ khỏi thiên tai/tác động của BĐKH; 	<ul style="list-style-type: none"> • Phần trăm hệ thống cảnh báo sớm trong các xã của dự án đang hoạt động hiệu quả và có thể kết nối với hệ thống cảnh báo sớm quốc gia; • Phần trăm các xã trong dự án có kế hoạch quản lý thiên tai tại chỗ và có kết hợp cân nhắc BĐKH, bao gồm trường học và trạm y tế; • Số lượng cơ sở vật chất giảm nhẹ thiên tai/BĐKH được xây dựng và duy trì bởi các xã • Phần trăm cán bộ VNRC/tình nguyện viên được tuyển và tập huấn ở cấp cơ sở đã tăng cường kiến thức và kỹ năng về phản ứng nhanh/phục hồi trước thiên tai và BĐKH, đóng vai trò chủ 	<ul style="list-style-type: none"> • Dữ liệu đầu kỳ và giữa kỳ; • Các báo cáo giám sát; • Khảo sát KAP; • Phỏng vấn sâu và thảo luận nhóm <ul style="list-style-type: none"> ○ 	

		<p>chốt trong các hoạt động này và được cộng đồng công nhận</p>		
	<ul style="list-style-type: none"> - Các xã có nguồn lực tại chỗ bền vững hơn để sẵn sàng ứng phó với thiên tai 	<ul style="list-style-type: none"> • Phân trăm các xã trong dự án có nguồn dự trữ lương thực/hàng hóa đầy đủ và/hoặc có thỏa thuận trước với các nhà cung cấp 	<ul style="list-style-type: none"> • Dữ liệu đầu kỳ và cuối kỳ; • Khảo sát thực địa; • Các văn bản thỏa thuận 	
	<ul style="list-style-type: none"> • Tăng cường năng lực của VNRC để thiết kế và truyền tải hiệu quả biện pháp giảm nhẹ rủi ro thiên tai bền vững dựa vào cộng đồng <ul style="list-style-type: none"> - Hệ thống và các quy trình của VNRC về thiết kế, chuyển tải và hỗ trợ tài chính và giám sát việc lập kế hoạch quản lý giảm nhẹ rủi ro thiên tai dựa vào cộng đồng hiệu quả và bền vững hơn, bao gồm hợp tác và chia sẻ kiến thức với bên ngoài; 	<ul style="list-style-type: none"> • Phân trăm cán bộ tài chính của VNRC ở TW Hội và cấp cơ sở nộp báo cáo chất lượng đúng thời hạn; • Phân trăm các cán bộ dự án ở TW và cấp cơ sở chứng minh được kiến thức và kỹ năng đã được tăng cường trong việc dự thảo đề xuất dự án, lập kế hoạch và điều phối các dự án quản lý rủi ro thiên tai dựa vào cộng đồng; • Thay đổi phân trăm trong đánh giá cán bộ VNRC ở cấp TW và địa phương về mặt hỗ trợ tiền mặt hoặc vật chất; • Thay đổi trong sự hợp tác và tham vấn của VNRC về quản lý thiên tai dựa vào cộng đồng/thích ứng với biến đổi khí hậu với chính quyền các cấp 	<ul style="list-style-type: none"> • Thống kê thời gian nhận các báo cáo tài chính; • Phản hồi của lãnh đạo VNRC về tính rõ ràng và chính xác của nội dung các báo cáo; • Báo cáo giám sát và các hoạt động đi kèm; • Thống kê các cuộc làm việc của VRNC với các cán bộ chính quyền về vấn đề quản lý rủi ro thiên tai dựa vào cộng đồng/thích ứng với BĐKH và thỏa thuận hợp tác • Phản hồi từ các bên liên quan 	

	<ul style="list-style-type: none"> - Sự công nhận VNRC với vai trò tổ chức đi đầu trong quản lý thiên tai ở Việt Nam đã được củng cố 	<ul style="list-style-type: none"> • Phân trảm các hoạt động đề xuất bởi các tình nguyện viên tham gia dự án quản lý rủi ro thiên tai dựa vào cộng đồng của VNRC 	<ul style="list-style-type: none"> • Thống kê tuyên tình nguyện viên/các hoạt động khác 	
Hiệu suất <ul style="list-style-type: none"> • Các hoạt động được thực hiện có đúng tiến độ và sử dụng hiệu quả nguồn vốn hay không? • Kết quả đạt được có kinh tế không? 	<ul style="list-style-type: none"> • Hoạt động và kết quả đầu ra của dự án cho tới thời điểm hiện tại 	<ul style="list-style-type: none"> • Tỷ lệ phân tích chi phí và lợi ích • Đánh giá mức độ hợp lý của kết quả đạt được dựa trên cơ sở chi phí và khả năng áp dụng các phương pháp đa dạng để đạt được kết quả như nhau có thể đã được công nhận 	<ul style="list-style-type: none"> • Số liệu thống kê cấp tỉnh và quốc gia • Dữ liệu đầu kỳ và cuối kỳ; • Các báo cáo giám sát; • Điều tra KAP; • Phân tích chi phí lợi ích 	
Mức độ phù hợp và tính bền vững <ul style="list-style-type: none"> • Các mục tiêu dự kiến và các kết quả liên quan đến chính sách và chiến lược của VNRC cũng như các rủi ro thiên tai bao gồm rủi ro khí hậu mà các xã trong dự án đang phải đối mặt? • Các xã được chọn có thể duy trì các hoạt động này và các thành quả đạt được trong một khoảng thời gian nhất định hoặc vận động các nguồn lực khác để duy trì hay không? 	<ul style="list-style-type: none"> ○ 	<ul style="list-style-type: none"> • Phù hợp với chiến lược quốc gia; • Mối liên quan giữa các mục tiêu; • Mức độ phù hợp của thiết kế chương trình; • Xác định và lựa chọn các nhóm mục tiêu và yêu cầu của nhà tài trợ; 	<ul style="list-style-type: none"> • Chiến lược và kế hoạch vĩ mô cấp tỉnh và cấp quốc gia; • Dữ liệu đầu và giữa kỳ; • Các báo cáo giám sát ○ 	

