



# REVIEW OF CARE'S COMMUNITY BASED MANGROVE REFORESTATION AND MANAGEMENT PROJECT

THANH HOA PROVINCE, VIETNAM

## EVALUATION REPORT

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## 1 INTRODUCTION

### 1.1 OVERALL CONCLUSION OF THE EVALUATION

The evaluation team found that after three years of implementation, the Community Based Mangrove Reforestation and Management Project has been successful in reaching its aims. A flourishing mangrove has been planted over 200ha of mud-flat in front of a protective sea dyke. Local community participation and management of the mangrove has been achieved through:

- (i) the establishment of a community management mangrove board endorsed by district government, and
- (ii) a recent decision by the Hau Loc District PPC to give three “core villages” formal responsibility and management rights over the mangrove.

Those are major achievements of the project.

There are three potential benefits from the project – (i) the direct and indirect benefits from mangrove rehabilitation; (ii) direct benefits of allowances paid to those involved in mangrove reforestation and care; and (iii) enhanced socio-economic welfare through the livelihoods support program. All people in the six target villages have benefitted from each of these project components to varying degrees.

All families in the target villages are poor and most have benefitted from the mangrove rehabilitation and associated allowances. Yet, local people acknowledge that the livelihood support benefits are not evenly distributed. At this stage in the project implementation, those already with assets and skills appear to have benefited more from the livelihoods program than those most in need, partly as they have ability to pioneer new activities. However, as the original livelihood investments grow, those most in need could benefit if resources are shared equitably as planned. The evaluation team concluded that many of the project activities will be sustained by the target communities once the project closes.

In addition, the project has achieved a notable success that is beyond the scope of the original objectives – to engender in local people an understanding of the need to and willingness to act on protecting the environment. This enhanced awareness was demonstrated through general attitudes and in specific actions like not dropping litter.

Full community ownership of the mangrove protection forest would be a critical indicator of sustainability once the project’s inputs end. The project has set the communities well on the path to gaining ownership, via allocation of the forest. The local communities now have full access and management rights. This is an important advance. If allocation is achieved over the next five years, in retrospect it can be judged to be one of the most significant influences of the project.

## 1.2 OBJECTIVES OF THE EVALUATION

The purpose of the evaluation is to be able to say, with confidence, that the project did or did not achieve its stated aims and to provide the information needed to recommend project expansion, replication, revision or cessation.

The objectives of the evaluation are as follows:

1. Assess Project results in relation to the project objectives and outputs including quantitative and qualitative information on:
  - awareness and environmental education
  - mangrove management system in operation
  - mangroves areas planted and surviving
  - livelihoods support and capacity building
  - understanding, relations and support from local government
2. Assess project impact on the project beneficiaries in terms of changes in their incomes, other livelihood benefits, rights in mangrove management, use of mangroves and other coastal resources and benefits realised from coastal protection.
3. Assess project impact on the coastal environment and change in mangrove resources
4. Assess project relationships and influence on government mangroves systems at local, district, provincial and national level
5. Assess and make recommendations on the effectiveness and sustainability of the results obtained
6. Assess and make recommendation on the appropriateness and efficiency of implementation and approaches adopted by the Project
7. Based on the findings and analysis, identify lessons learned and make final conclusions and recommendations to optimise impact of future Mangroves projects of CARE in Vietnam.

## 1.3 APPROACH OF THE EVALUATION

ICEM has undertaken the evaluation within a framework of five guiding principles:

1. **Participatory** – The evaluation endeavoured to engage stakeholders connected to the mangrove project equally. The inclusion of multiple perspectives was essential in ensuring that the results of the evaluation led to well informed and objective recommendations. Participation, in private interviews, a questionnaire and open, vibrant PRA sessions encouraged stakeholders to talk openly about the project and allow for the identification of trends and development of conclusions about the project's performance and outputs
2. **Objective** – The study was undertaken with no bias or preconception as to the strengths or weaknesses of the project and its final outputs. The ICEM team have no vested interest in the project succeeding or failing to reach, or being seen to reach, its aims.
3. **Locally appropriate** – The study devised social survey methods that are locally appropriate in relation to language, literacy, security concerns, culture, gender, working practices, biodiversity and costs.
4. **Practical** – The design of the survey(s) and presentation of results is uncomplicated, following clear steps, facilitating immediate and direct use by the stakeholders and informing next steps and future management.

5. **Capacity building** – The evaluation process and results increase knowledge and support local skills development through open discussion, participation and feedback. The PRA sessions provide the evaluation team with useful insights and give local people a platform to discuss important topics such as livelihoods and the role of mangrove rehabilitation in a safe and equitable setting.

## 2 METHODS / DATA COLLECTION

This evaluation was conducted over 8 days from 11<sup>th</sup> to 17<sup>th</sup> November 2009. With multiple stakeholders, varying institutional positions and differing capacity, several approaches to data gathering were needed, each appropriate to the local context and stakeholder group. Further, with limited time for the research it was necessary to augment the qualitative interviews with quantitative questionnaires. This data gathering approach gave the team an overview of participants' perceptions, alongside a set of more detailed responses.

Four types of research were undertaken during the field mission (see Appendices 3 and 4 for example data collection forms):

1. **Self assessment form** – A six part form was distributed to project staff (CARE staff and members of the community management board – CMB) seeking their feedback on the strengths, weakness, opportunities and threats associated with the project, together with an assessment of its overall success
2. **Community Questionnaire** – A set of eight closed, multiple-choice questions was disseminated to 100 local community members in six villages to provide a cross section of local views on the mangrove and project outputs
3. **Community Interviews** – 24 interviews lasting between 30 and 60 minutes were carried out in the six project villages. It was originally planned that a minimum of 3 interviews be completed per village and this was achieved, with some additional interviews taking place where time permitted. The interviews allowed the evaluation team to get detailed information on the project and how it is viewed 'on-the-ground' by those whose lives are affected.
4. **Participatory Rural Appraisal (PRA)** – One PRA livelihood ranking exercise was carried in each of the six villages. 6 – 10 participants were chosen from each village, attempting to get gender balance and a range of ages and level of project participation. Participants were asked to undertake four tasks as a group with almost no input from the evaluation team following the initial explanation and instructions:
  - i) Describe all sources of livelihood after the 2005 typhoon but before the current CARE project began
  - ii) Rank these livelihood sources / incomes in terms of importance to the village as a whole
  - iii) Describe all sources of livelihood today (November, 2009)
  - iv) Rank these livelihood sources / incomes in terms of importance to the village as a whole

In order to maximise field / data collection time, the form/questionnaire were produced and distributed prior to the field mission and collected while qualitative research (interviews / PRA) was taking place.

## 2.1 DATA COLLECTION CONSTRAINTS

Four main constraints existed for the evaluation team with regard to the collection of data but none seriously hampered or threatened the evaluation process:

1. **Limited time** – With only 14 days to plan, research, de-brief, analyse and report on the mangrove project, there were only 5 full days at the project location in Da Loc.
2. **Partisan respondents** – The evaluation team found that local people perceive the project in a positive light and were reluctant to raise difficulties which may have arisen or areas for improvement.
3. **Lack of monitoring framework** – This is the most serious constrain to the evaluation and to the project team’s capacity to provide evidence based inputs to the process drawing from a systematic monitoring of performance against a well constructed set of performance and sustainability indicators. (this is discussed in more detail in section 4.3 and the final section).
4. **Lack of privacy** – With many local people participating in the CMB and facilitating the project it was difficult to access local people for interviews without project staff present, making suggestions (to questions posed by the evaluation team) or inadvertently influencing the respondents simply by their presence. There is no suggestion here of coercion, but rather an acknowledgement that the data collection was constrained in this way. The local culture does not lend itself to private, closed-door interviews, with people (family members, project facilitators, friends etc) coming into and out of interview sessions at will.

## 3 ENVIRONMENTAL, INSTITUTIONAL AND POLICY CONTEXT

### 3.1 ENVIRONMENTAL CONTEXT

Throughout Vietnam and the wider region, mangrove forests have been removed to make way for a raft of ‘developments’ including infrastructure projects, tourism and aquaculture. However, in light of recent natural disasters and the growing threat (and realisation of this threat) from climate change (sea level rise), there is new interest and vigour in attempt to regenerate mangroves and the suite of safety, livelihood and biodiversity benefits they produce. In terms of biodiversity, the mangroves’ values extend well beyond forming a living barrier to storm force winds and waves. The forest constitutes a nursery for fish fry and arthropods, and a rich habitat for molluscs. These species play important roles within the ecosystem as detritivores, primary producers and in some cases predators, but all of which go on to support animals higher up the food chain including other fish and birds. Furthermore, these species are of great economic importance (when collected as seafood) and can have a significant impact on local livelihoods. The mangrove also supports a range of nesting and migratory bird species, potentially small to medium sized mammals such as otters, other small carnivores and even primates (macaques). The mangrove itself contains pioneer species which play a key role as habitat architects – allowing for other floral species to migrate in and survive ‘behind’ the mangrove, while the trees themselves have tremendous value both as (sustainably harvested) firewood and as a critical carbon dioxide sink. Honey,

made from the flowers of mangroves is yet another value of the mangroves that illustrates the broad and multiple benefits.

In Da Loc, the 2005 typhoon Damrey swept aside the sea dyke and inundated the coastal villages. The destruction to the agricultural environment was grave, with acid sulphate soils resulting from the salt (flood) meaning that the effects of the storm would last for years, suppressing yields and forcing many local people to leave the community in search of paid work elsewhere. After the storm, local people, government official and aid agencies received a stark lesson in the function and value of the mangrove – where the mangrove forest was intact (despite having been planted only 10 years previous) the sea dyke was undamaged and no sea water had reached people’s homes and fields. However, were replanting efforts had failed (following deforestation at some previous time) the sea dyke – entrusted to protect the community – proved too weak, without the energy absorption of a mangrove, and gave way.

### 3.2 INSTITUTIONAL CONTEXT

Institutions at the district and commune level often lack the budget, knowledge, capacity and policy (legal) environment in which to effectively protect and manage natural resources. The same reasons, in conjunction with a traditionally top-down political system, make the development of community based models, community management or community allocation of natural resources, very rare. At a community / village level, there exists a network of associations and unions that can be animated in pursuit of these aforementioned goals, but a total local of knowledge, technical capacity or appropriate leadership to achieve such goals means that an organic evolution of such an approach is extremely unlikely. CARE, therefore, provided the catalyst (the ignition) to start the process and it is the aim of the project that once operational, once local institutions are aware and empowered, the system (the mechanism) will be self sustaining.

### 3.3 POLICY CONTEXT

In light of increasing realisation among a range of actors, as to the need for improvements in the management of natural resources (and associated sectors), the government of Vietnam has initiated a number of reforestation and benefit sharing Decisions and Decrees. In line with the Governments Comprehensive Poverty Reduction and Growth Strategy 2000-2005 and subsequent Socio-economic Development Plan 2006-2010, the government of Vietnam is currently engaged in policy of socialising the forestry sector, meaning the local people are being allowed to and encouraged to share some of the responsibilities and resulting benefits of forest management, in pursuit of sustainable forest management and improved livelihoods. Similar strategies now exist for the Special Use Forests (SUF), although the mangrove is Protection Forest and so differently managed. However, there is conflict between laws and associated misunderstandings among local authorities as to how to interpret ‘benefit sharing’. For example, with forestry law in Vietnam there is a stark and as yet largely unworkable contradistinction between provisions for ‘benefit sharing’ and the illegality of (local) people using – benefiting from - forest resources. However, there also exists laws to facilitate agricultural co-operative and in principle these could be employed in the context of engaging local people in forest management, as has been piloted here in this project.

New policy frameworks have recently emerged, included the Vietnam Conservation Fund (VCF), which allow for the design and implementation of negotiated natural resource agreements and provide the foundation for, and are further support by, Projects such as this, which pioneer seemingly acceptable

and workable community management or collaborative management, with the ultimate aim of achieving full allocation (local ownership) of the natural (mangrove forest) resource.

## 4 EVALUATION AGAINST PROJECT OBJECTIVES

### 4.1 PROJECT AIMS

The project has two overarching aims – mangrove reforestation and community management and protection of mangroves.

#### 4.1.1 MANGROVES REFORESTATION

The Project aimed to replant 200ha of mangroves to protect the sea dyke in Da Loc commune, Hau Loc District, Thanh Hoa Province, with sub-benefits of ecological restoration being improved livelihoods associated with biodiversity recovery in the form of coastal fisheries and other marine products.

The replanting has been a resounding success. The 200ha have been planted and survival rates are high (between 70 - 90%, depending on the exact location). Whereas previous projects had only limited success in regenerating forest cover in this area (and a GoV scheme failed completely to re-grow the mangrove) the current CARE project has demonstrated that mangrove habitat restoration, on this scale is feasible and cost-effective. The mangrove planted in 2007 with *Kandelia candel* is growing well. Although such success (high survival rate) means that the current planting density could be reduced in favour increasing the extent of the mangrove area and allowing for greater mixed species regeneration. However, the project is already intercropping with *Sonneratia* (or 'mangrove apple' in English) which is faster growing and will provide a broader canopy, providing a range of strata and stability that will be vital in forming a robust, more 'natural' and regenerative mangrove in the future.

The young mangrove is growing well. Long term survival will depend on the actions of local people and environmental / climatic conditions. The mangrove is still vulnerable to extreme cold weather or coastal storms – especially the areas replanted in 2009. Despite what some local people believe, the forest is yet to provide a barrier (protection) to the sea dyke, and while the sapling forest cover has achieved the objective in terms of extent, the mangrove has only limited values in term of additional livelihood benefits. This is not a failing on behalf of the project. On the contrary, the re-growth is successful and the continued health of the plantings will need to be managed and monitored, as wider benefits increase.

The current mangrove is successful for a 3-year-old forest. Protection against storms and spin-off biodiversity / income values will only come with greater maturity. Further evaluation will be required at a later date. While the project remains active, with direct encouragement for local people, allowances paid for mangrove maintenance and strong leadership from CARE staff, the nursery work and mangrove care remain energised (such as removing plastic and other litter and barnacles. The challenge is to see whether or not these activities will continue after the project fully or partially withdraws – These, aforementioned, past project successes provide reasons for optimism.

#### 4.1.2 COMMUNITY MANAGEMENT AND PROTECTION OF MANGROVES

The community (defined here as the six target villages) is certainly deeply involved with the management and protection of the mangrove. The Community Management Board (CMB) takes day to day responsibility for organising local people into the various groups for the nursery, planting, maintaining and protecting. Recently, the Board has been given District level approval to manage and benefit from the mangrove. The decision was made with the knowledge and support of Thanh Hoa Provincial People’s Committee. The mangroves are classified as Protection Forest and therefore are a state owned resource. The local people, including the vast majority not only the CMB, have a genuine interest and enthusiasm for the project and take pride in acknowledging that they manage and protect their mangrove.

The community have not been given ownership of the forest. The project strategy is to work towards that goal – and the Decision to formally allow and recognise local management is an important step towards this allocation. The project remains a positive, central and constant force within the community and its mangrove reforestation efforts. The challenge will be to completely hand over the programme so that the community takes full responsibility for continuing the good work and initiatives. As described above, the institutional mechanisms and a shared goal, among stakeholders, does appear to be in place to achieve this.

## 4.2 PROJECT OBJECTIVES

The project also sets out four objects, pursuant to the broad aims, which are evaluated here.

### 4.2.1 IMPROVED AWARENESS OF COMMUNITY AND CAPACITY TO COLLECTIVELY MANAGE THE MANGROVE FOREST

Local people have a well developed understanding of the mangroves function and importance. Local people demonstrated good understanding of the multiple benefits of the mangrove, beyond sea dyke protection (its primary value) and some even had the basic science of how mangrove absorbs wave energy. More generally, environmental education appears to have been extremely successful. It has not only generated understanding of the mangrove itself, but also a wider appreciation of the environment and how protecting it, is at some stage or some way, actually protecting the community. It was explained (to the evaluation team) by one local resident that dropping litter in the village eventually reaches rivers, which reach the sea and finally deposit plastics on the young mangrove – which can kill trees. As such she and other local people made clear reference to improved environmental standards in the community. This has been partly due to the creation of Green Teams in each village whereby one person decides to, and acts on, improving the environment around his/her house and then shows other people what they have done, thus spreading the message and creating a sense of pride as the situation (cleanliness) improves.

The establishment of farmer groups within the community (planting, maintaining, nursery, livelihood improvement and protection groups), with clear institutional structures, has also been achieved and appear to functioning extremely well. All but one of the respondents said that they themselves or someone in their family participated in mangrove management or maintenance. As described above, the mangrove is not only planted, maintained and protected by the local community, but they also do so under the direction of a freely and democratically elected management board, made up of local people, along side local authorities. This is a rare and potent example of ‘collaborative management’ in the Vietnam (natural resource sector) context, and by all accounts is realising what it set out to do – placing the responsibility to protect and expand the mangrove into local hands, and in doing so also hand them

the associated (livelihood) benefits, even if these are small (in terms of the proportion of income – see section 5.4) at present.

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#### 4.2.2 QUALITY AND EXTENT OF MANGROVE FORESTS IS IMPROVED

As detailed in section 4.1 the mangrove, both in quality and extent, has greatly improved – from no surviving mangrove in 2006 to 200ha of mangrove currently re-growing, at varying ages and stages. However, it is still too early in the life of the planted mangrove forest to be able to conclude how long-term this improvement will be, as described above in 4.1.1, for two main reasons. Firstly, forest cover and high survival rate point to clear success in reaching this objective, but extremely cold air / sea temperature or a typhoon could destroy the immature mangrove. Secondly, a possible, future reduction in planting and mangrove care (maintaining, cleaning and protecting) effort by local residents, if the project's financial and facilitory support fades, could leave the mangrove vulnerable to damage, or even destruction, due to barnacle / plastic waste volume, or human exploitation pressure, reaching unsustainable levels. There is no evidence to suggest, at this stage, that this will happen, but it is prudent to be aware of this risk and mitigate against it.

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#### 4.2.3 COMMUNITIES HAVE IMPROVED PROTECTION AND POTENTIAL FOR LIVELIHOOD BENEFITS FROM SUSTAINABLE USE OF THE MANGROVE

Local people highlight a range of livelihood benefits associated with sustainable use of the mangrove, although most are either speculative or actually more relevant to the existing mangrove planted 10 years ago by a project unrelated to CARE. In terms of the mangroves (all local mangroves) in general, local people say benefits included limited firewood collection, honey production, collecting snails and shellfish, fishing (higher catches) and potentially, ecotourism associated with exploring the mangrove and bird-watching.

In terms of the 'new' CARE mangrove, sustainable use of the forest is limited to people who live near (nearest) the mangrove and can benefit from slightly higher yields both in aquaculture (e.g. shrimp ponds and oyster beds/cultures) and wild caught / collected marine life (fish and seafood). Only 29% of people felt they had any direct livelihood benefit from the new mangrove and, significantly, they all came from the villages nearest the mangrove (the sea), Dong Hai and Hung Thanh, where residents have a greater opportunity to collect molluscs or arthropods. This greater access is not only inferred from geographic location, but also something the interviewees in these (primarily fishing) villages acknowledge. In addition, a notably large 51% of interviewees, all from villages not adjacent to the replanting area, said they had no (or none yet) livelihood benefits from the new mangrove at all, while 16.7% mistakenly believe they were already better or completely protected from repeat of the 2005 typhoon – also stating this as the only current, livelihood benefit. Of course, the mangrove is growing and surviving well at present, and should provide a protective barrier relatively soon, but this is still a future benefit and not one that is guaranteed.

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#### 4.2.4 LOCAL AUTHORITIES UNDERSTANDING AND ACCEPTANCE OF COMMUNITY MANGROVE FOREST MANAGEMENT

Respondents for the District people’s Committee (DPC), Provincial Department of Agriculture and Rural Development (DARD) and the District Association of the Red Cross, all agreed that the mangrove was clearly necessary (as evident after the 2005 typhoon) and that the project’s success hinged on the critical and welcomed participation of local people. Further, while the evaluation was underway, Hau Lac District (with support from Thanh Hoa Province) gave approval to a Decision which stipulates that the local people in 3 core villages within the 6 project villages have the right to and are allowed to manage the mangrove. This is a rare example of community participation in Vietnam that has, due to local enthusiasm and local authority understanding and acceptance, developed into community based and, significantly, collaborative management.

Furthermore, Thanh Hoa and Hau Loc People’s Committees have recently given their verbal support to an expansion of the current project, using these same community participation and management approaches, further indicating the depth of local government support for this project and its methods.

#### 4.2.5 SUMMARY OF OUTCOMES AGAINST PROJECT OBJECTIVES

PROJECT OBJECTIVE	POSITIVE OUTCOME	WEAKNESS OR FUTURE RISK
1) Improved awareness of community and capacity to collectively manage the mangrove forest	<b>Objective achieved</b> – 1) Clear evidence of improved awareness of, and behaviour towards, mangrove values / conservation and general environmental protection; 2) several community (farmer) groups in place, with high participation levels, to manage the mangrove, including an elected and semi-autonomous community management board	1) While the project definitely improved local awareness, local people did already know the value of the mangrove, especially since the 2005 typhoon, so it is difficult to know how much of this knowledge is explicitly a project success; 2) While local capacity is in place to manage the mangrove, leadership (to some degree) still comes from CARE staff
2) Quality and extent of mangrove forests is improved	<b>Objective achieved</b> – The target of planting 200ha has been reached and the survival rate is high (70-90%). Two species have been successfully interplanted to improve quality and stability	The oldest areas of the ‘new’ mangrove are only 3 years old, making it still vulnerable to extreme weather / storms and human pressure. Any reduction in community effort (mangrove care) could lead to a steep decline in survival rate
3) Communities have improved protection and potential for livelihood benefits from sustainable use of the mangrove	<b>Objective partially achieved</b> –Crucially, the mangrove will protect the dyke within the next 2-5 years (depending on planting date), if survival rate remains high. There are also a small, but important set potential livelihoods benefits (spin-offs from the mangrove and its associated ecology (some are already available, but most are prospective)	1) It is too early to state that communities are better protected – the mangrove is too small (immature) to afford the dyke any protection; 2) Livelihood benefits are currently small and unequally distributed, with only those villages living nearest the dyke gaining any extra income from collecting marine organisms (seafood)
4) Local authorities understanding and acceptance of community mangrove forest management	<b>Objective achieved</b> – Local authorities demonstrate a clear understanding of the project’s approach and fully support it, sitting as they do, alongside local people on the Community Management Board and having (in November 2009) signed a Decision to allow community management of the mangrove	The only possible risk is that enthusiasm declines in the future as the CARE project’s inputs recede and / or personal within local government change. CARE should monitor this and ensure capacity and awareness remain

### 4.3 MEASURING PROJECT OUTPUTS AGAINST INDICATORS

The project staff acknowledge that a monitoring and evaluation system was designed for the project, but not followed, due to its complexity. It may well be true that the project changed (evolved) so much as to make the original system awkward and/or inappropriate, or that there simply was not enough time for this activity. Yet the fact remains that without an M&E system – no indicators – it is impossible to obtain a detailed and accurate *measure* of the project against outputs. An M&E system would be an extremely useful tool in the evaluation of the project and, crucially, its sustainability. As present only broad indicators (such as the establishment of community groups – discussed above) exists, making for generalised, although still valuable, evaluations. The planting of 200ha of forest, which has been realised, is a solid indicator of project success (as mentioned) and this goes part-way to ‘proving’ the value of the project, but in the absence of further (and social, economic, institutional and environmental) indicators, this report can only go part-way into a deep evaluation of the project.

## 5 STAKEHOLDER VIEWPOINTS OF PROJECT RESULTS

Details of stakeholder perception are presented in the annexes of this evaluation report and used, in part, to produce the evaluations in section 4. What follows is a brief summary of the key responses, trends and generalisations from the data.

### 5.1 STAFF SELF-ASSESSMENT FORMS

- 95% of people employed by CARE or as pat of the CMB felt the project was ‘good’ at reaching its aims, with the remaining 5% saying very good. Importantly, the responses were 100% positive, with no-one saying average, bad or very bad
- The CMB are meant to be elected and largely are, however some members are on the board due to their due to past experience / previous (relevant) involvement
- 37% of respondents felt that some members of the community lack the skills or are ‘lazy’/ unwilling to learn, resulting in problems when they (community facilitators / management board) try to convey messages from the project to the community
- Overall, project staff are seen as very dedicated and hard working, successful in bringing people together and installing a wide / general sense of environmental value and responsibility to protect, (e.g. people now have 2 holes to bury rubbish. People are generally happy to follow Mr. Nghi’s advice, without question.
- Timing has been very important to project success, said 29% of people asked – The project came directly after the 2005 storm.
- However a signifinactly large number (67%) said the Project’s apparoach – community based – was key to its success
- Survival rate for mangrove is now around 70%, but stakeholders feel that when CARE leaves and forest allocated to local people then will reduce to 50% (but still relatively high)
- People agreed to pay 10,000vnd per HH/year to support maintenance of their mangrove and willing to care (e.g. clear plastic bags) for free
  - Now it is 400 ha (total – old and new), but plan to expand this to 700ha
  - And in future people ‘know’ that the mature mangrove will reap benefits that can be used to expand mangrove and pay for maintenace, plus agree to pay more than 10,000vnd if necessary (e.g. 20,000 / year)

## 5.2 LOCAL COMMUNITY QUESTIONNAIRE

The evaluation team received 95 completed questionnaires (from 100 distributed) with the following key findings:

- 100% of respondents felt that their knowledge of mangroves had improved since the project started
- 99% knew, correctly, that 2 species of mangrove tree were involved in the regeneration
- 86% knew, correctly what were the genuine values of a mangrove – spotting the false answer ('supplying fresh water')
- 99% were aware that this a CMB, 97% also knew that this was elected
- 57% of people said their incomes had increased since the project started
- 97% of people said storm damaged was less since the project started – but this is also due to the fact that no large storms have hit the area since typhoon Damrey.

## 5.3 LOCAL COMMUNITY INTERVIEWS

During 24 interview in the 6 project (coastal) villages, local people gave the following key responses:

- 87% felt that project had met their expectations of what it would achieve
- 37% felt the project had lead to great increase in knowledge about mangroves, while remainder said then project had improved on existing knowledge
- 53% felt that had no direct benefit from the mangrove, of these 33 felt that they would in the future. A further 29% already felt that their catch of marine resources (clams etc) had increased due to the young mangrove
- 83% felt they had benefited directly from the project (allowance for planting / caring etc)
- Only 12.5% felt that the project alone was responsible for improved incomes, while 70% felt it was mainly better yields with a contribution from the project
- 54% felt their livelihoods (income) had changed significantly for the better since the project began (although the reasons for this are complex and really only in part due to the mangrove / project allowance)
- Only one respondent felt the project only really benefited 'some' people, with an overwhelming majority (67%) feeling all or almost all people had benefited – although only 17% felt that the benefits were truly equal
- 37.5% of people were very unsure about the management of the mangrove (in contrast to the results of the questionnaire) and a further 46% only mentioned the CMB when directly asked bout it (prompted).

## 5.4 LOCAL COMMUNITY PRA – LIVELIHOOD RANKING

Details of the 6 PRA sessions are in an annex, but in general it can be concluded that a) livelihood composition has changed significantly since 2005 due to the typhoon and the slow recovery from it, partly linked to CARE's support for irrigation (to combat acid soils and improve yield); and b) the project had made a small, but significant impact on livelihoods, appearing near the bottom of the ranking for most villages (5), but nevertheless still appearing as 'new' income sources and for half the villages the project was not the bottom ranked income in 2009. One session were able to put a monetary value on the project, in terms of its contribution to local incomes, at 10%.

## 6 SUMMARY OF FINDINGS

### 6.1 IMPACT ON INCOME / LIVELIHOODS

The project's impacts on local livelihoods are a threefold combination of income sources – impacts from the mangrove itself, impacts from project allowances / salaries to work for the project and additional livelihood interventions.

Firstly, the impact of the mangrove itself, in terms of local incomes, has been very limited, due to its immaturity and the fact that local people are not normally allowed to enter the mangrove to collect marine organisms (this has only been allowed once, with a total of 20,000,000vnd worth of seafood collected). This restriction is required to protect the mangrove from disturbance or over-exploitation and appears to be successful both in protecting the forest and in terms of local attitudes. Local people seemed to feel this 'cost' was outweighed by other benefits (the allowance paid by CARE and the protective security afforded to the dyke) and had confidence in the notion that they would benefit in the future. At present, only people living nearest to the mangrove or people who are already able to benefit from the coastal ecosystem, i.e. those that already had shrimp ponds or skills with oyster raising, have seen any direct increase to income (from higher yields).

While inequality based on geography (and therefore access) is difficult to mitigate against, especially while the mangrove is young and resources small, it is important for the project (and its local managers) to recognise this and endeavour to further spread (or share) the gains more equitably, in the future. Although there is an argument to suggest that those nearest the mangrove bore the worst of the 2005 storm and so are thus the most in need. Further, the issue of project 'livelihood' support going to people already engaged in that action (for example, oyster cultures) is a possible further cause for concern – and one that is explored below.

Secondly, the vast majority of people have benefited from allowances for the various mangrove support teams. While these benefits remain small both in amount and in percentage of total income, they are welcomed by local people as a very useful addition to local, mostly agricultural, earnings. It appears as though this benefit has been universal in the 6 project villages, regardless of gender or income level, and received by almost all of the local residents, or at least someone in their family. As people can choose to attend these groups, it is open to those (more) in need of extra income to attend, while possibly leaving those who need it less (or get more income from another activity, like fishing for example) to not get involved.

Women seemed to be particularly engaged in these groups, bringing in the small allowance (extra income) but also clearly stating that they wanted to participate, despite the low 'wage' (20,000vnd/day) due to recognition of the need for a mangrove as protection against a repeat of the 2005 typhoon. All but one of the women interviewed received this income with the lowest being 30 days of involvement (allowance) and the highest being 250 days. The women who did not receive the allowance was 'too old' to participate. Of the 8 men interviewed, 4 said that they did not receive this benefit personally, but that their wife or other family member did. One man also had a salary from the protection team (community mangrove 'rangers') and mentioned that this was a significant income source (and one only open to men).

Thirdly, some members of the community have been elected (by vote) to receive extra benefits in the form livelihood support or interventions. According to the project and seconded by interviewees, the selection criteria for recipients was based on need – level of poverty. These members of the community thus have a disproportional benefit from the project (in theory because they need it most), as they have received either a pig or support to cultivate oysters. However, the majority of people are unconcerned about this staggered and unequal benefiting as they fully believe (trust) that they will be next to benefit. For example, the Pig Scheme involves CARE giving pigs to individual households, following the a village level vote for who should receive them (who are good at caring for and breeding them) and then the ‘next villager’ gets a piglet when born, and so on until all benefit. It is also the objective of the scheme, and something acknowledged by recipients, that the mechanism is designed to benefit those that need it most, first.

The villagers appear to have, understandably, voted for people who already have pigs. One villager interviewed already had 4 pens of pigs and piglets at varying ages (the highest number of pigs seen in any house during the evaluation), but also had one pen, containing one pig from CARE. As such, the scheme may well, in the future, benefit more people and those that need it most, but at present it seems as though the more affluent (relatively) members of the community have received the livelihood benefits. The same is true for the oyster cultures, with one recipient (of aquaculture support) saying they were chosen because they lived near the sea and already had equipment and experience with oyster and shrimp aquaculture – and, although this is an empirical observation only, they also had one of the largest, most modern house seen during the evaluation.

As such, despite these clear benefits, there are some equity issues that need to be raised. Firstly, it was apparent from the interviews, two in particular (with an elderly widow and a disabled family [where the interview was actually aborted due to problems with speech and communication], that the more marginalised community members are probably the least involved, as benefits stem from active, physical participation. As such, the community as a whole appears to have voted for stronger, more skilled, more successful people to benefit from the project’s livelihood support – as managers and livelihood support recipients. This means that the elderly and disabled, who may be the poorest member of the community, cannot and have not benefited, and that potentially, the benefits have gone (largely) to those already in a slightly better socio-economic position. As with the recipients of pigs (livelihood support) that tended to be the better off, having a more modern / larger house and pigs already, presumably because the community felt they would do a better job and raise more piglets for the future and not because they are actually the poorest.

It is also very important to note here that concepts of ‘more or less’ poor must be understood within the local context. All members of the community were impacted heavily by the 2005 storm and are all considered poor (by the local authorities and themselves). Also, it is the aim of the project and local people that these benefits, be they direct, like receiving a pig, indirect like collecting molluscs or potential, like protection from storms / inundation, will expand and circulate. As such the project has already partially, and appears able to succeed in full, in its aim to improve the lives of the poor, natural resource dependent local people, ensuring that they all, eventually, receive ‘their share’. There also appeared to be no inequality in terms of gender, not least as the basic social unit is the family (with people living either with their parents or partner) with either the husband or wife benefiting in some way – e.g. as nursery group members, mangrove protection team members or as recipients of pigs and so on.

## 6.2 IMPACT ON COASTAL ENVIRONMENT

Although immature and so naturally quite small at present, the mangrove has made a massive impact on the coastal environment – changing it (200ha) from a mud-flat to a regenerating multi-use forest, with stabilised soils, a growing amount of (collectable) marine organisms and associated socio-economic and biodiversity values. Further, the behaviour change among local people with regard to cleanliness / litter / pollution is already having and could have a significant positive impact on the mangrove itself, and the wider marine environment.

## 6.3 IMPACT ON INSTITUTIONAL PROCESS / LINKAGE

The project has had a notable impact on the institutional processes and linkages at the site. The development of the CMB – a successful attempt at collaborative management – demonstrates that full and open participation and empowerment can be successful in driving forward radical institutional developments. In terms of linkage, the CMB is made up of local people, in conjunction with local authorities, making it a genuine collaborative management pilot for consideration at other sites (replication) in Vietnam and beyond.

Despite this obvious, powerful impact however, there should be some quantification of what success means, at present. While the project remains on-site and board / group members still receive a small allowance, it is too early to say that this is a *full* success. Only when CARE leave the area, taking with it its funding and leadership support, will we be able to evaluate how deep this impact has been – and thus how sustainable the success. If the CMB, which already has the knowledge, enthusiasm and power to perform its duties well and independently, persists without any input from CARE, then it will have been a full (and somewhat radical) success. Only future monitoring and evaluation will make this evident, but it is likely that further support is needed before full independence is possible.

# 7 RELEVANCE, EFFECTIVENESS, EFFICIENCY AND SUSTAINABILITY OF OUTPUTS

This section will look at the key aims of the project and assess the relevance, effectiveness, efficiency and sustainability of actions and successes in pursuit of those aims – based on the findings outlined about and feeding into the lessons and recommendations which conclude this report, below.

## 7.1.1 MANGROVES REFORESTATION

Since the typhoon and subsequent inundation of agricultural land in 2005, there has been an overt, well understood and substantial need for this poor community to have a mangrove, as a protective instrument and as an additional source of income / poverty alleviation. The mangrove also previously provided additional benefits in the form of firewood, honey bees and played a vital part of the marine fishery – all of which have on-going cultural and income relevance. Moreover, with the growing realising of climate change threatening to worsen and proliferate extreme weather events and cause a rise in sea levels, the need for mangroves, to absorb storm energy and protect sea defences, is at the forefront of experts recommendations and central to the relatively new modalities of climate change adaptation discourses and mechanisms that are now emerging. In addition, mangrove loss both nationally and internationally is itself a cause of additional atmospheric CO<sup>2</sup>, and as such, reforestation is a critical

mitigation (CO<sup>2</sup> reduction) tool – in addition to being vitally important to marine habitats and biodiversity, and associated, economically important, fisheries.

The project has been successful, as described above, in achieving this aim, with 200ha of *Kandelia candel* densely planted, interplanted with *Sonneratia*, to improve strata and future regeneration, and surviving well (up to 90% of seedlings have survived so far). Also, and importantly, with great success in terms of restoring mangrove extent and quality, it can be concluded that the project was efficient in its use of funds. Further evidence for this comes from the fact that the previous attempts by other NGOs and one by the provincial Department of Agriculture and Rural Development where, respectively, only partially successful or completed failures (with a 0% survival rate). This resulted in a massive waste (inefficient use) of limited ecological restoration or poverty alleviation funds – be they of state or donor origin.

At present the mangrove is growing well. As discussed above, under current and persisting management regimes there is no reason to believe that the results of restoration will not be sustainable. However, this on-going success is contingent on continued community care in terms of care, cleaning and protecting from over and 'outside' use. Section 9, below, has a list of additional, specific recommendations towards this aim.

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#### 7.1.2 COMMUNITY MANAGEMENT AND PROTECTION OF MANGROVES

The limited, partial successes and failures of previous mangrove restoration projects in the area show that an innovative approach was required to mangrove planting, care and overall management. With its foundations in international good practice and Vietnam's own changing policy environment, with regard to benefit sharing and community management of natural resources, the project was designed to be, and has been successful in becoming, not only participatory, but further, to become part of the community itself and as such, managed, effectively, by the community members themselves.

In terms of efficiency the project has succeeded in providing only a small allowance and yet generating enormous enthusiasm and participation of community groups and board members. Local people openly acknowledge that the allowance is small and not a salary, but the vast majority are still happy to partake in project activities and widely understand the values of what they are involved in doing. There are also additional benefits beyond the project's original aims, with regard to fostering environmental awareness and behaviour change (protection activities and proper waste disposal) – as exemplified by the Green Team.

From the enthusiasm, displayed in meetings, PRA sessions and interviews, together with what the majority of people said during research (to the evaluation team), it appears as if there is real ownership of the mangrove and the process by which it was planted and managed. There is an overt willingness and pride associated with a desire to continue this approach – community based mangrove management. The mechanisms are in place – capacity, enthusiasm, a visible result, a shared, tangible goal (to not have a repeat of the destruction wrought by typhoon Damrey). Further, there is now an additional, concrete support from Hau Loc District People Committee's decision to allow community management (for a probationary period of the next 5 years, 2010-2014).

However, the true test will come in the forthcoming years, when (if) the project can no longer supply allowances or support management boards at village level. It remains to be seen whether or not the

village boards will be able to implement their management plans and get the district technical support as needed, and sustain the management system for protection, monitoring and benefit sharing, when there is no external project technical assistance or funds. Although at present there does seem to be a broad and genuine willingness to work towards the project's aims for little (or even no) income, as is the case with the Green Team). This situation might be further complicated, however, by a lack of future land (mangrove) allocation and / or no typhoon with which to test and thus (re)prove the mangrove value.

## 8 LESSONS LEARNED AND RECOMMENDATIONS

### Mangrove reforestation

- Planting of *Kandelia candel.* is now at a higher density than necessary as survival has been so successful (survival rate is high at up to 90% (and will probably stay high) due to good maintenance. As such, thinning and further interplanting are recommended
- Thinning, which requires long term maintenance, of the older and CARE mangrove is suggested to improve strata / varied heights, biodiversity and wave power reduction, by creating and maintaining mixed ages of the trees
- Adding (interplanting) a third species (probably a *Rhizophora sp.*) is suggested as a priority over increasing mangrove area further (possibly during an additional phase to the project?). This would give further stability, strata differentiation and regenerative strength (and biodiversity values) to the mangrove, building on the interplanting already taking place with *Sonneratia*
- There are reported to be gaps in the mangrove to allow fishing boats to escape storms but these could be developed further and provided connectivity with dyke road. The gaps, narrow enough, will still allow for absorption / dissipation of wave and wind energy
- There is a strong need to expand the scope of the project, with particular attention to awareness raising, to other, nearby villages, to ensure that there is no 'outside' damage to the mangrove from unsustainable collection of firewood, timber or marine resources. At present the protection teams appear successful in deterring or stopping this impact (which was raised during interviews), but the pressure may increase as do the resources themselves (timber and marine organisms)
- Bird watching / ecotourism is a possible added value for the future and one that should be assessed by local managers (possibly with outside technical support), when the mangrove is more mature. The CARE project staff mentioned that some Vietnamese nationals, mostly school children and youth groups, are already showing interest in beach camping, seeing mangrove and taking boat trips around mangrove.

### Community management and protection of mangroves

- It is recommended that a simple M&E system be put in place to allow evaluation of indicators in support of iterative / adaptive management and support, as the active role of the project

diminishes. Developing simple M&E system and the vigorously following it, is critical to iterative learning, project adaptation, evaluation and improvement and/or replication

- CARE could also reduce their input, rather than stopping it altogether, by lowering staff inputs and having 'technical advisor' who visits the site to discuss issues with and support the CMB with decision making and the cross over from an ODA / NGO project to a fully national, community run project (and associated forest allocation).
- Community based mangrove management can clearly be a successful tool in empowering local people to effectively engage in and take responsibility for natural resource management. However, a phased reduction of project inputs is recommended (ass point above) and ongoing monitoring suggested
- It is an important lesson from the project that the GoV, embodied by local authorities, can be encouraged (and actively involved / support) to agree to community management if the advantages are clear for all stakeholders, including themselves
- The overwhelming need for a mangrove (in the face of typhoon devastation) makes the project somewhat unique in terms of community forestry, benefit sharing and collaborative management, making this pilot of great value for possible replication elsewhere along the coast (with regard to mangrove reforestation), but of limited value for terrestrial forest, where the costs / benefits of forest exploitation and conservation are very different. However, the overall lessons of inclusion, motivation, empowerment and capacity building are extremely useful for any sub-sector of natural resource management where community based management approaches are being contemplated, tested or fully implemented.
- Strong, on the ground leadership from the project was critical to project success and should be replicated in other, similar projects. Having the project office and project manager in the project area, as opposed to being based in Hanoi (which is often the case), proved to be one the key drivers in project success – although quantifying its contribution has proved difficult. As described above however, this powerful input needs to be gradually withdrawn to avoid a possible leadership vacuum (in a culture that is traditionally governed in top-down manor and where the project has, possibly, taken over some of the paternalistic roles that are usually played by the local government and which people are well accustomed to)
- Even with a multi-benefit, democratically organised and overwhelming popular, sustainable development and livelihood project, there can still be possible problems with marginalised members of the community being left out. It would appear that some (possibly only very few) people have 'slipped through the cracks' due to their disabilities and/or seeming inability to participate / be part of the project, especially were benefits (other than storm protection) are accrued from active, physical involvement. It is recommended that the project support the local managers to assess the needs of the disabled, widowed and elderly members of the community and decide if there is anyway that they can share in project benefits, more directly, without actually raising pigs or planting mangroves (for example)

## APPENDICES

### APPENDIX 1 – Photos from the evaluation field mission



i) PRA livelihood ranking exercise



ii) Section of regenerating mangrove (planted 2007)



iii) Interview with local resident



iv) The Project's mangrove nursery



v) Evaluation de-briefing with community managers

## **APPENDIX 2 – PRA Results: Livelihood ranking**

### **Village 1 – Yen Dong PRA**

- 2004/5 (livelihoods before project)  
1) Rice, 2) pig; 3) cow; 4) peanut / sweet potato 5) Corn / sesame; 6) Chicken / duck;  
7) Fish; 8) clams (small); 9) Gov salary / pension / veterans – high person, but only 15 people in village
- 2009 (livelihoods today)  
1) Rice, 2) pig; 3) cow; 4) peanut / sweet potato 5) Corn / sesame; 6) Chicken / duck; 7) Fish; 8) clams (small); 9) Planting / care / protecting mangrove; 10) Aquaculture (only a small number of people involved / benefit); 11) Gov salary (as above) – but now 30 people; 12) Nursery for mangrove (very few people and seasonal work)

### **Village 2 – Yen Loc PRA**

- 2005 (Before project)  
1) Working outside the village; 2) Donations and GoV support post storm; 3) pig; 4) chicken/duck; 5) Salary / pension / veterans; 6) fish; 7) agriculture (rice, corn, sweet potato)
- 2009 (After project)  
1) Rice; 2) peanut; 3) pig; 4) working outside village; 5) cow; 6) Project (CARE); 7) aquaculture; 8) salary / pension / veteran; 9) Corn and sweet potato; 10) Veg / other
- Project = around 10% of income

### **Village 3 – Hung Thanh PRA**

- 2005 (before)  
1) Fishery; 2) Aquaculture; 3) Selling petrol; 4) Selling other products / shop; 5) Pension / veteran; 6) pig (all livestock)
- 2009 (after)  
1) Fishery; 2) Aquaculture; 3) pig & cow; 4) chicken & duck; 5) Selling other products / shop; 6) selling petrol; 7) trading seafood products; 8) Salary / pension / veteran; 9) Project (CARE)

### **Village 4 – Ninh Phu PRA**

- 2005 (before)  
1) Rice (2 crops here, only); 2) pig; 3) cow; 4) chicken and duck; 5) Peanut / corn / potato / vegetable; 6) Aquaculture – shrimp / fish; 7) Fishery (wild); 8) Salary / pension / veterans; 9) construction; 10) small business; 11) Work away from village; 12) Renting machinery; 13) Carpenter; 14) Seagrass
- 2009 (after)

1) Rice; 2) pig; 3) Salary / pension / veterans; 4) Work away from village; 5) cow; 6) Peanut etc; 7) Aquaculture – clam (in front of mangrove); 8) small business; 9) chicken and duck; 10) construction; 11) Renting machinery; 12) Fishery (wild - mainly clam, less fish / shrimp); 13) carpenter; 14) project

#### **Village 5 – Dong Hai PRA**

- 2005 (before)

1) Rice; 2) cow and pig; 3) duck; 4) Corn / peanut / potato; 5) work away; 6) Salary / pension / veteran; 7) Fishery; 8) Chicken

- 2009 (after)

1) rice; 2) cow and pig; 3) work away; 4) Fishery (some people) and bee keeping; 5) Salary / pension / veteran; 6) Corn / peanut / potato; 7) Clams (almost all people); 8) project; 9) duck and chicken

#### **Village 6 – Dong Tan PRA**

- 2005 (before)

1) Work away; 2) fishery; 3) pig; 4) Salary and pensions

- 2009 (after)

1) Rice; 2) Corn/potato/peanut; 3) pig; 4) cow; 5) chicken/duck; 6) fishery; 7) work outside; 8) Renting out agricultural machines; 9) CARE project; 10) Salary and pension; 11) Selling goods / petrol; 12) Aquaculture

**APPENDIX 3 – Self assessment form**

**CARE: Thanh Hoa Community Managed Mangrove Project Evaluation – ICEM**

**SELF ASSESSMENT FORM FOR PROJECT STAFF**

**DATE:** \_\_\_\_\_

**INSTRUCTIONS:** Please fill out the form honestly and to best of your knowledge. It is not a test and no-one will be rewarded or punished for their answers. The form is anonymous and private, so please do not put your name.

**QUESTION 1:** How would rate the overall success of the project in achieving its stated aims?

Very bad                       bad                       Average                       Good                       Very good

**QUESTION 2:** Please briefly explain why you gave your answer above:

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**QUESTION 3:** Please list the internal (within the CARE project / team / resources) strengths of the project:

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**QUESTION 4:** Please list the internal weakness of the project:

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**QUESTION 5:** Please list the external factors which helped, supported or provided opportunities for the project:

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**QUESTION 6:** Please list the external factors which restricted, reduced the effectiveness or threatened the project

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## APPENDIX 4 – Community Questionnaire

### CARE Mangrove project Evaluation Questionnaire for Local Communities

#### Information for recipients

Your village is located inside the CARE mangrove rehabilitation project site. This questionnaire is designed to ask your ideas about the project, so that it can be improved in a way that is locally beneficial to all and potentially extended to other areas in Vietnam.

#### Instructions

- For each question, please tick the box next to each answer that best fits with your opinion. Please only tick one box per question.
- Please be as honest as possible.
- This is a confidential form. There is no need to write your name, but please say what village you are from and your gender.

Village: \_\_\_\_\_

Gender: \_\_\_\_\_

#### Questions:

1) To what extent has your knowledge of mangroves changed since 2005?

Improved	<input type="checkbox"/>	No change	<input type="checkbox"/>	Worsened	<input type="checkbox"/>
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2) How many species of mangrove have been planted since 2005?

None	<input type="checkbox"/>	two	<input type="checkbox"/>	Four	<input type="checkbox"/>
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3) In Thanh Hoa how well do mangroves flourish inside shrimp farms/pond?

Well	<input type="checkbox"/>	Not Sure	<input type="checkbox"/>	Badly	<input type="checkbox"/>
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4) Which of the following is not a benefit of mangrove?

Sea dyke /storm protection	<input type="checkbox"/>	Fish nursery	<input type="checkbox"/>	Bee keeping	<input type="checkbox"/>	Supply fresh water	<input type="checkbox"/>	Provide timber or firewood	<input type="checkbox"/>
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5) Is there a community management board?

Yes		Not sure		No	
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6) If yes, is the CMB elected by local people or chosen by People's committee

Locally elected		Not sure		People's committee	
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7) Has your income increased, decreased, or stayed the same since 2005?

Increased		The same		Decreased	
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8) Have you experienced more, less, unchanged inundation / storm damage since 2005?

More		The same		Less	
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**If you have any other comments, please write them on the back of this form.**

**Thank You.**

APPENDIX 5 - Interview results

CARE MANGROVE INTERVIEW RESULTS

Question	TOTAL	%
<b>1a) Know Pro</b>		
YES	24	100
NO	0	0
<b>1 b) Met expectations</b>		
YES more detail/knowledge	10	41.7
YES less detail/knowledge	11	45.8
MOSTLY	2	8.3
DON'T know	1	4.2
<b>2) Awareness increased</b>		
ONLY / Much more since Pro	9	37.5
KNEW already, but Improved	15	62.5
<b>3a) New Mangrove benefits</b>		
NO	5	20.8
NOT YET	8	33.3
PROTECT dyke/SAFER	4	16.7
INCR aquatic catch/yield	7	29.2
<b>3b) Pro benefits/direct</b>		
YES - allowance / various	20	83.3
NO/NOT really	4	16.7
<b>4) Income increased since Pro</b>		
YES - Pro and agri/yield/work	17	70.8
YES - Pro only	3	12.5
NOT personally (village yes)	4	16.7
<b>5) How much / type</b>		
A Lot / big change	13	54.2
A Little / small change	9	37.5
NONE / not sure	2	8.3
<b>6) Who benefited</b>		
ALL - equally	4	16.7
ALL - not equally	7	29.2
NOT all /equal (mainly the able)	1	4.2
ESP the poor	2	8.3
MOST / almost equally	9	37.5
DON'T know	1	4.2
<b>7) Management</b>		
UNSURE	9	37.5
SURE / know CBM when prompted	11	45.8
V SURE / know CMB	4	16.7

## APPENDIX 6 – Self assessment results

### Self assessment form analysis

Question No.		Total	%
QUESTION 1: How would rate the overall success of the project in achieving its stated aims	very bad	0	
	bad	0	
	average	0	
	good	19	95.00
	very good	1	5.00
QUESTION 2: Please briefly explain why you gave your answer above	i) Participatory / awareness approach	10	38.46
	ii) CARE effort / good organisation	7	26.92
	iii) mangrove survival	9	34.62
QUESTION 3: Please list the <u>internal</u> (within the CARE project / team / resources) strengths of the project:	i) Participatory / awareness approach;	14	66.67
	ii) Livelihood focused;	1	4.76
	iii) Well timed (after storm and 10 year old planted mangrove adjacent)	6	28.57
QUESTION 4: Please list the <u>internal</u> weakness of the project:	i) Some training / meetings too short or limited access / scope / villages;	5	26.32
	ii) Need an M&E team;	4	21.05
	iii) Some people still do not understand value / role of mangrove;	7	36.84
	iv) Late delivery of some actions	3	15.79
QUESTION 5: Please list the <u>external</u> factors which helped, supported or provided opportunities for the project:	i) Gov support / agreement;	9	29.03
	ii) Local willingness despite low income;	16	51.61
	iii) Local knowledge / experience of mangrove;	5	16.13
	iv) Well timed	1	3.23
QUESTION 6: Please list the <u>external</u> factors which restricted, reduced the effectiveness or threatened the project	i) Weather;	13	56.52
	ii) barnacle;	2	8.70
	iii) People unwilling (who benefited from mud flats)	8	34.78

**APPENDIX 7 – Community questionnaire results**

<b>Question</b>	<b>Answer</b>	<b>Total</b>	<b>%</b>
<b>Knowledge has:</b>	<b>Improved</b>	<b>95</b>	<b>100.00</b>
	<b>No change</b>	<b>0</b>	<b>-</b>
	<b>Worsened</b>	<b>0</b>	<b>-</b>
<b>Species planted:</b>	<b>None</b>	<b>1</b>	<b>1.05</b>
	<b>Two</b>	<b>94</b>	<b>98.95</b>
	<b>Four</b>	<b>0</b>	<b>-</b>
<b>Shrimps farms inside mangroves do:</b>	<b>Well</b>	<b>40</b>	<b>42.11</b>
	<b>Not sure</b>	<b>3</b>	<b>3.16</b>
	<b>Badly</b>	<b>51</b>	<b>53.68</b>
<b>Which one is not a benefit:</b>	<b>Sea dyke /storm protection</b>	<b>0</b>	<b>-</b>
	<b>Fish nursery</b>	<b>23</b>	<b>24.21</b>
	<b>Bee keeping</b>	<b>3</b>	<b>3.16</b>
	<b>Supply fresh water</b>	<b>82</b>	<b>86.32</b>
	<b>Provide timber or firewood</b>	<b>23</b>	<b>24.21</b>
<b>Is there a CMB:</b>	<b>Yes</b>	<b>94</b>	<b>98.95</b>
	<b>Not sure</b>	<b>0</b>	<b>-</b>
	<b>No</b>	<b>0</b>	<b>-</b>
<b>Who chooses its members:</b>	<b>Locally elected</b>	<b>92</b>	<b>96.84</b>
	<b>Not sure</b>	<b>1</b>	<b>1.05</b>
	<b>People's committee</b>	<b>0</b>	<b>-</b>
<b>Income has:</b>	<b>Increased</b>	<b>54</b>	<b>56.84</b>
	<b>The same</b>	<b>22</b>	<b>23.16</b>
	<b>Decreased</b>	<b>16</b>	<b>16.84</b>
<b>Inundation is:</b>	<b>More</b>	<b>1</b>	<b>1.05</b>
	<b>The same</b>	<b>1</b>	<b>1.05</b>
	<b>Less</b>	<b>92</b>	<b>96.84</b>