REGIONAL FISHERIES LIVELIHOODS PROGRAMME FOR SOUTH AND SOUTHEAST ASIA (RFLP) – VIET NAM

BASELINE SURVEY

VOLUME 2:
BASELINE SURVEY RESULTS FOR QUANG TRI PROVINCE

Activity 4.1.1: Survey of income and gender situation in target communes
Activity 4.1.2: Identification of needs and priorities

For the Regional Fisheries Livelihoods Programme for South and Southeast Asia – Viet Nam

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Table of Contents

LIST OF FIGURES AND TABLES **4**
LIST OF ACRONYMS **6**
TERMINOLOGIES, INTERPRETATION, AND DEFINITIONS **7**
EXECUTIVE SUMMARY **8**
I. PROFILE OF SURVEYED COMMUNES AND HOUSEHOLDS **11**
1. FISHERY SECTOR OF THE PROVINCE 11
2. CHARACTERISTIC OF THE SURVEYED COMMUNES 11
3. CHARACTERISTICS OF THE HOUSEHOLD RESPONDENTS 14
II. BASELINE ANALYSIS FOR FIVE OUTPUTS **16**
1. FISHERIES CO-MANAGEMENT 16
1.1 Existing policies and institutions that have influence on co-management and areas for strengthening them 16
1.2 Key governmental fisheries management stakeholders 16
1.3 The community-based fisheries management 16
1.4 Perception of fishers on the fisheries management and conflict resolution systems 17
1.5 Understanding and expectation on the concept "co-management" among fishers and government staff 18
1.6 Participation in fisheries management 20
1.7 Fishers and resource managers' perception on state of the fisheries resources and benefits from fisheries 20
2. SAFETY AT SEA 22
2.1 Awareness of, perception, and access to safety at sea information 22
2.2 Compliance with safety at sea regulations 24
2.3 Fishing accidents and effectiveness of rescue systems 26
2.4 Fishers' knowledge and confidence in rescue practice at sea 30
3. POST HARVEST AND MARKETING 31
3.1 Post-harvest skills, knowledge and practices 31
3.2 Post-harvest facilities 32
3.3 Market of fisheries products 33
3.4 Quality control of fishery products 35
3.5 Policies and institutions related to fisheries post-harvest 36
3.6 Funding and staff deployed for post-harvest 37
4. LIVELIHOOD DIVERSIFICATION AND ENHANCEMENT 38
4.1 Livelihood activities 38
4.2 Fishers' satisfaction and attitude towards their livelihoods 39
4.3 Factors affecting livelihood change 40
4.4 Income and livelihood diversification 40
4.5 Supporting services for livelihood enhancement and diversification 41
5. MICROFINANCE 44
5.1 Formal and informal financial institutions operating in the communes 44
5.2 Perception of formal financial institutions on fisheries activities and the proportion of fisher among their clientele base 44
5.3 Fishers' awareness of and access to financial services in the communes 44
5.4 Fishers' awareness and access to subsidized credit lines 46
5.5 Potential for saving mobilization 47
III. PROPOSED RFLP OUTPUT INDICATORS **49**
REFERENCES **52**
ANNEX: SUMMARY OF SURVEY RESPONSES **53**

List of Figures and Tables

Figure 1: Map of surveyed sites 11
Figure 2: Fishers' awareness on basic safety items/equipment during fishing at sea 25
Figure 3: Mechanism for accident reporting and rescue 28
Figure 4: Fishers' perception on effectiveness of rescue activities 29

Table 1: Number of fishing villages and poverty rate in the surveyed communes in 2010 12
Table 2: Household categories by livelihood type of the surveyed communes in 2010 13
Table 3: Types of fisheries -based households in surveyed communes in 2010 13
Table 4: GDP structure of the surveyed communes in 2010 14
Table 5: Age and sex of the household respondents 14
Table 6: Classification of the surveyed households by poverty and fishery activity 15
Table 7: Classification of the surveyed household members by labor type 15
Table 8: Effectiveness of community-based fisheries management systems 17
Table 9: Effectiveness of governmental fisheries management systems 18
Table 10: Effectiveness of conflict resolution systems 18
Table 11: Respondents' awareness of fisheries "co-management" 19
Table 12: Perception on overall usefulness of fisheries co-management in fishery resources management and livelihood improvement 19
Table 13: Stakeholder participation in fisheries management 20
Table 14: Fishers and resource managers' perception on state of the fisheries resources in the last five years 21
Table 15: Fishers and resource managers' perception on state of the fisheries resources in the next five years 22
Table 16: Perception on the share of benefits from fisheries resources 22
Table 17: Stakeholder awareness on safety at sea information and regulations 23
Table 18: Stakeholder perception on access to safety at sea information 23
Table 19: Fishers' satisfaction with safety at sea channels 24
Table 20: Government staff satisfaction with safety at sea channels 24
Table 21: Fishers' assessment of usefulness of safety at sea information 24
Table 22: Fishers' compliance with safety at sea regulations 25
Table 23: Boat registration and inspection in Quang Tri Province 26
Table 24: Number of fishing accidents during the last five years in the surveyed communes 29
Table 25: Fishers' participation in training on avoiding rescuing practices at sea 30
Table 26: Fishers' confidence in avoiding accident at sea 30
Table 27: Fishers' confidence in rescuing practices at sea 31
Table 28: Fishers' skills and knowledge on post-harvest 31
Table 29: Fishers' participation in the training on post-harvest practices during the last three years 32
Table 30: Post-harvest facilities of the fishers in the surveyed communes in 2010 32
Table 31: Fishery products and productivity in surveyed commune in 2010 33
Table 32: Market chain of fishery products in the surveyed communes in 2010 34
Table 33: Respondent opinion on degree of dependence of fishers on middle traders 34
Table 34: Fisher perception on type of market of their fisheries products 35
Table 35: Percentage of exported fishery products in 2010 35
Table 36: Number of fish trading and fish processing units inspected and certified 36
Table 37: Fisher and processor satisfaction with the support from fisheries post-harvest institutions 37
Table 38: Degree of confidence of officers working on post-harvest fisheries in performing post-harvest techniques and practices 38
Table 39: Fishers' perception on the livelihood opportunities compared to five years ago 39
Table 40: Fishers' satisfaction with current livelihoods 39
Table 41: Fishers' attitude towards changing or diversifying livelihoods 40
Table 42: Average income from main income sources of surveyed households in 2010 41
Table 43: Number of major income sources of HH 41

Table 44: Fishers' awareness on the availability of supporting institutions/programmes for livelihood enhancement and diversification 42
Table 45: Fishers' access of the supporting services for livelihood enhancement and diversification 42
Table 46: Fishers' satisfaction with the supporting services for livelihood enhancement and diversification 43
Table 47: Fishers' perception on the usefulness of the supporting services for livelihood enhancement and diversification 43
Table 48: Fishers' awareness of the availability of financial services 45
Table 49: Fishers' awareness of the procedures/regulations of financial services 45
Table 50: Fishers' perception on possibility of access of credit when in need 46
Table 51: Fishers' choice of financial services when in need 46
Table 52: Fishers' satisfaction with formal and informal financial services 46
Table 53: Fishers' awareness of subsidized credit line 47
Table 54: Fishers' perception of the importance of savings 47
Table 55: Fishers' willingness to save 48
Table 56: Fishers saving capacity 48

List of Acronyms

AgriBank	Vietnam Bank for Agriculture and Rural Development
CCRD	Centre for Community Research and Development
CPC	Commune People's Committee
DARD	Department of Agriculture and Rural Development
DOIT	Department of Industry and Trade
DOLISA	Department of Labor, Invalids, and Social Affairs
FA	Fisheries Association
FM	Frequency Modulation
GDP	Gross Domestic Product
HH	Household
HP	Horsepower
MARD	Ministry of Agriculture and Rural Development
PPC	Provincial People's Committee
RFLP	Regional Fisheries Livelihoods Programme
SDAFFQA	Sub-Department of Agro-Forestry-Fishery Quality Assurance
SDECAFIREP	Sub-Department of Capture Fisheries and Resources Protection
VBARD	Vietnam Bank for Agriculture and Rural Development
VBSP	Vietnam Bank for Social Policies
VND	Vietnamese Dong
VINAFIS	Vietnam Fisheries Society

Terminologies, Interpretation, and Definitions

Target communes	Five RFLP target communes in Quang Tri.
Control commune	The communes that are not RFLP target communes, but selected to provide control data in this survey (Vinh Thach Commune).
Fisher(s) / Fishing HH	The consulted / interviewed persons who do fishing, not including aquaculture or fish processing households.
Female	Female respondents in the household survey.
Male	Male respondents in the household survey.
Resource managers	Staff of SDECAFIREP, District DARD, District Extension Station, and CPCs who were consulted in this survey.
Inshore fishing	Fishing in the sea within 24 nautical miles from the coast. The fishing is normally carried out within 24 hours.
Formal services/systems	Services / systems controlled by the State or that are legally recognized.
Informal services/systems	Community-based or private services / system without legal status.
Nhom hui	One of the Rotating Savings and Credit Associations, ROSCAs, where a group of individuals (normally 10 people) agree to meet for a defined period of time (normally 10 months) in order to save and borrow money together.
Fisheries co-management	A partnership arrangement, in which the community of local resource users (fishers), government, other stakeholders (boat owners, fish traders, boat builders, businesspeople, etc.), and external agents (non-governmental organizations, academic and research institutions, etc.) share the responsibility and authority for the management of the fisheries.

Executive Summary

The baseline survey on livelihoods of fishing communities in Quang Tri Province was conducted by the consultant group of the Center for Community Research and Development (CCRD) during November 2010 to February 2011. Six fishing communes out of 16 fishing communes of the province were selected for conducting the survey. Of which five communes were the project's target communes and one was selected as the control one. The five target communes were Hai An and Hai Khe in Hai Lang District, Trieu Lang and Trieu Van in Trieu Phong District, and Vinh Thai in Vinh Linh District. The control commune, Vinh Thach, was also in Vinh Linh District.

The survey report was built on the primary and secondary data collected from the surveyed communes and related departments of Quang Tri Province. The primary data was collected by interviewing 187 fishing based-households with the semi-structure questionnaire and 24 group discussions in the six communes. Besides, 31 key informants and government staff from the above related departments were selected for in-depth interview. The survey focused on five components of the RFLP including fisheries co-management, safety at sea, post-harvest and marketing, livelihood diversification, and micro-finance.

This report is divided into three parts. The first part presents the profile of the Quang Tri fishery sector as well as the profiles of surveyed communes and households. The second part presents findings of the five components of fishing communities' livelihoods. The last part presents a set of evaluation indicators for the five outputs. The first part revealed that sea fishing is an important economic activity in the province, concentrated in four districts such as Hai Lang, Trieu Phong, Gio Linh, and Vinh Linh. Sea fishing in the province was characterized mainly by inshore fishing. The fishing communes were considered as poor communities since the poverty rate of all survey communes was much higher (16-27%) than the average poverty rate of the province (<15%). The surveyed communes engaged in various income activities such as agricultural production including crop and livestock production, forestry, fishing, aquaculture services, and other off-farm and non-farm activities. Of which, fishing was the main livelihood activity of the majority of households, and the fishery sector contributed significantly to the commune GDP, which was 40-65% in the target communes and 10% in the control commune.

Key stakeholders involved in fisheries management in Quang Tri Province include Sub-Department of Capture Fisheries and Resources Protection (SDECAFIREP); district Departments of Agriculture and Rural Development (DARDs), and Commune People's Committees (CPCs). The other departments related to fisheries development of the province were the Department of Extension and Department of Industry and Trade (DOIT). The survey results indicated that more than 90% of the fisher respondents in both control and target communes and up to 67% of staff from the above related departments did not understand correctly the concept of **"co-management**". More than 80% of the respondents in all surveyed communes had no idea about the community-based organizations or community-based fisheries management mechanisms. The majority of them (approximately 60%) was aware of and highly appreciated the government management system. Concerning local people participation, 100% of the respondents had participated in fisheries management activities to some extent, but about 24% was only passively participated, especially the female fishers. As for the fisheries resources, almost 80% of the respondents in the target communes and 97% of the respondents in the control commune expressed that the resources

were equally distributed among users. They all, however, expressed the decrease in the fisheries resources in the past five years and continuing degrading in the future.

Regarding **safety at sea** awareness and information, more than 80% of the respondents in the target communes and 100% of the respondents in the control one were aware or very aware of the safety at sea information. It was revealed that there were various information channels at their communities such as radio, TV, commune loudspeaker/broadcasting system, and cell phones. More than 66% of the respondents in the target communes and 100% of the respondents in the control commune highly appreciated these information channels because of the usefulness and easy access. However, there were still about 34% of the respondents in the target communes who did not appreciate the current information channels in their commune.

Although a high percentage of the respondents was aware of safety at sea regulations, limited number of the respondents actually complied with such regulations. Among them, regulations on lifebuoy, boat registration, and inspection were commonly followed in all surveyed communes with more than 74% of the respondents. The other regulations were not commonly applied. The survey result also showed that, although not many fishers (35%) were trained on at-sea rescue skills, 100% of the respondents felt confident in avoiding accidents at sea and appreciated their the community rescuing activities.

In terms of **post-harvest and marketing aspects** of the fishing communities, fishers commonly applied manual post-harvest methods for preserving and processing the fishery products. The fishers in the surveyed communes usually used icing, salting, drying, and grilling. Among these measures, icing and salting were the most popular measures, and more than 90% of fishers were self-claimed to be very skillful with the techniques. Fish processing was mainly for fish sauce or fermented fish. Both post-harvest and processing measures used in the surveyed communes were almost from the local indigenous knowledge and experience. Although there have been a few training courses on processing techniques for processing households, they were not applicable for the communities.

More than 80% of fishing products in the target communes were sold as fresh products, and less than 20% were processed. In the control commune, processed products occupied about 40%. More than 50% of the fishery products were sold to the middle traders and local markets. Several products such as swimming crab (*ghe*, *Charybdis and Portunus spp.*) and squid were sold mainly to the middle traders; hence, the price depended on them very much.

Sub-Department of Agro-Forestry-Fisheries Quality Assurance (SDAFFQA) at the provincial DARD and district DOIT were the ones in charging for controlling the quality of fishery products. Although there have been several policies to support the development of fish processing activities in the province, only a limited number of fish processing and trading households have been actually inspected and certified (only 6 out of 150 households).

Concerning the **livelihood diversification and enhancement**, the surveyed fishing communes were engaged in various livelihood activities such as fishing, aquaculture production, crop production, animal husbandry, hire labor, small business, and fish processing. However, fishing was the main livelihood activity, but its contribution had been decreasing over time. Hence, more than 76% of the respondents in the target communes and around 86% of the respondents in the control commune were unsatisfied with their current livelihood activities. They would like to change or diversify their livelihood activities.

Recently, there have been many livelihood supporting programs in these communes such as supporting credit programs, technical assistance, marketing, and input supply programs. However, the percentage of households having more than two major income sources occupied only 25% of the respondents. Although 100% of the respondents were aware of these programs, less than 40% of the respondents were satisfied with their function.

On **microfinance services**, there were both formal and informal credit suppliers working in the surveyed communes. Majority of the respondents preferred formal credit suppliers to informal ones, especially VBSP. However, only 48% of the respondents in the target communes and 25% of the respondents in the control commune could access this credit line. For Vietnam Bank for Agriculture and Rural Development (AgriBank or VBARD), fishing households were hesitant to access to it because of high interest rate and collateral requirement. Interestingly, more than 70% of the respondents in both target and control communes were aware of the importance of saving, especially female fishers. All of them were willing to save with the average amount of 135,000 dongs/household/month.[1]

The last section of the report presents a set of indicators for the RFLP, which were proposed based on the baseline survey results.

[1] 1 USD = 21,000 VND as of April 2011.

I. Profile of Surveyed Communes and Households

1. Fishery sector of the province

Quang Tri Province is located in central Vietnam and is 69.3 km long and 75.4 km wide. It is bordered by Quang Binh Province to the north, Thua Thien Hue Province to the south, Lao PDR to the west, and the Eastern Sea to the east. The province has about 75 km of coastline, two river estuaries namely Cua Tung and Cua Viet, and a large fishing ground of 8,400 sq. km with a variety of valuable seafood such as tiger prawn (*Penaeus spp.*), cuttlefish, greater amberjack (*Seriola dumerili*), and sea-cucumber. In 2010, the catching productivity reached 17,500 tons.

Figure 1: Map of surveyed sites

The fishery sector in Quang Tri Province has two components including fishing and aquaculture production, of which the former has been divided into two parts: marine/sea and inland fisheries. Geographically, sea fishing is undertaken in four districts: Hai Lang, Trieu Phong, Vinh Linh, and Gio Linh. Sea fishing is considered as one of the key potential sectors for socio-economic development in coastal areas. Among coastal communes, 16 communes have fishing communities. Among these, six communes (Table 1) were selected for the baseline survey. Five communes were pre-selected as they are the RFLP's target communes. The control commune (Vinh Thach) was selected based in consultation with Quang Tri SDECAFIREP.[2] The locations of these communes are shown in Figure 1.

In 2010, there were about 2,459 fishing vessels in the province, which were distributed mainly in four coastal districts including Vinh Linh, Gio Linh, Trieu Phong, and Hai Lang. Of which, 2,039 boats were less than 20 HP. The number of boats having capacity from 20 HP to 90 HP was 345 while that of over 90 HP was 75 (Quang Tri SDECAFIREP, 2010). Most of these vessels have been registered except for 257 boats, which have capacity less than 20 HP and do not have sufficient legal documents for registering.

2. Characteristic of the surveyed communes

Characteristics of the surveyed communes including proportion of fishing villages, fishing households, poverty rate, and household categories by industries and GDP structure of the

[2] Refer section 2.2. of the Volume 1: Baseline Survey and Methodologies for criteria of selection of the control commune.

commune are described in this section. In Hai Lang and Trieu Phong Districts, majority of villages of the surveyed communes were practicing fishing activities. While in Vinh Linh District, the proportion of villages of the surveyed communes involved in fishing activities was very low (Table 1). In Vinh Thai, only 4 out of 7 villages engaged fishing activities and it was only 1 out of 10 villages in Vinh Thach, the control commune. Poverty rate was still high in most of the surveyed communes. The lowest poverty was in Vinh Thach Commune with 16% and highest in Trieu Van Commune with 27% in 2010. It was much higher than the provincial poverty average of 15%.

Table 1: Number of fishing villages and poverty rate in the surveyed communes in 2010

Commune	No of villages	No of fishing villages	No of HHs	No of poor HHs[3]	% of poor HHs
Hai An	4	4	1,143	190	17.0
Hai Khe	2	2	525	118	22.5
Trieu Van	4	3	696	188	27.0
Trieu Lang	6	6	890	231	26.0
Vinh Thai	7	4	755	132	17.4
Vinh Thach (control)	10	1	852	137	16.0

(Source: Hai An CPC, 2010; Hai Khe CPC, 2010; Trieu Lang CPC, 2010; Trieu Van CPC, 2010; Vinh Thach CPC, 2010; and Vinh Thai CPC, 2010)

Household classification by livelihood in the surveyed communes shows that, among the categories, the fishery category occupied the highest proportion ranging from 35% in Trieu Van Commune to 75% in Hai An Commune (Table 2). In other communes such as Hai Khe, Trieu Lang, and Vinh Thai, fisheries occupied 60, 40, and 60% respectively. Farming households also shared the second large proportion in such communes. The highest proportion of farming household was in Trieu Van Commune with 52% and the lowest was in Hai An Commune with 14%. The higher percentage of farming households is, the lower proportion of fishery households is, and vice verse. The households engaging in services and other earning activities occupied a small proportion in all communes -- not more than 20% households in most of the surveyed communes engaged in service activities for earning.

[3] Poor households were classified based on Vietnamese poverty lines 2006-2010, i.e. the average income per person in the household was lower than 200,000 VND/month/person in rural area.

Table 2: Household categories by livelihood type of the surveyed communes in 2010

Commune	Farming HHs (%)	Fishery HH (%)	Service HHs (%)	Others (%)
Hai An	14	75	9	2
Hai Khe	20	60	11	9
Trieu Van	52	35	7	6
Trieu Lang	40	40	10	10
Vinh Thai	17	60	20	3
Vinh Thach (control)	38	36	6	20

(Source: Hai An CPC, 2010; Hai Khe CPC, 2010; Trieu Lang CPC, 2010; Trieu Van CPC, 2010; Vinh Thach CPC, 2010; and Vinh Thai CPC, 2010)

The Quang Tri coastal area is characterized mainly by the shallow seashore (*bai ngang*). Therefore, only inshore fishing was practiced in all surveyed communes. Fresh water aquaculture production was also found in most of the surveyed communes. However, number of households engaged in aquaculture occupied a minor proportion as compared to brackish water aquaculture production (Table 3). Brackish aquaculture, especially shrimp farming was booming both in number of households and areas of production in Trieu Van, Trieu Lang, and Vinh Thach Communes during the last three years. In these three communes, the number of fishing households had been decreasing, and the number of aquaculture households had been increasing, while processing households remained unchanged with a limited number of 10- 12 households.

Table 3: Types of fisheries -based households in surveyed communes in 2010

Commune	Inshore fishing HHs	Aquaculture HHs	Fish processing HHs	Fisheries service HHs
Hai An	438	15	23	3
Hai Khe	416	26	14	5
Trieu Van	106	75	12	0
Trieu Lang	350	620	10	0
Vinh Thai	358	14	28	0
Vinh Thach	320	4	2	0

(Source: Hai An CPC, 2010; Hai Khe CPC, 2010; Trieu Lang CPC, 2010; Trieu Van CPC, 2010; Vinh Thach CPC, 2010; and Vinh Thai CPC, 2010)

The surveyed communes were engaged in various income generating activities such as agricultural production including crop and livestock production, forestry, fishery, services, and other off-farm and non-farm activities. In surveyed communes of Trieu Phong and Hai Lang Districts, fishery contributed a largest proportion in the commune GDP, the highest in Hai Khe Commune with 65% (Table 4). The two communes of Vinh Linh District had the lowest share of the fishery sector in the commune's GDP, especially Vinh Thach Commune with only 10%.

Table 4: GDP structure of the surveyed communes in 2010[4]

Commune	Services (%)	Small-scale industry (%)	Agriculture (%)	Forestry (%)	Fishery (%)	Others
Hai An	5.5	17.6	16.9		60	0
Hai Khe	7.0	6.0	18	4.0	65	0
Trieu Van	10.0	0.0	30	8.0	50	2
Trieu Lang	10.0	0.0	40	0.0	40	10
Vinh Thai	19.0		40.0		41	0
Vinh Thach	20.0	0.0	70.0		10	0

(Source: Hai An CPC, 2010; Hai Khe CPC, 2010; Trieu Lang CPC, 2010; Trieu Van CPC, 2010; Vinh Thach CPC, 2010; and Vinh Thai CPC, 2010)

Agriculture production was ranked the second share in all surveyed communes' GDP, except for Hai An Commune. In Hai An, in 2010 small industry contributed slightly larger proportion to the commune GDP with 17.6% than the agriculture sector, which contributed 16.9%. Service sector contributed less than 20% in the communes' GDP. The largest contribution from this sector was in Vinh Thach Commune with 20%, and the lowest was in Hai An Commune with about 5.5%. Other sources contribution to the communes' GDP were seasonal migration, remittances, and other off-farm and non-farm earning activities. These sources contributed about 10% in Trieu Lang Commune and 2% in Trieu Van Commune.

3. Characteristics of the household respondents

This section presents characteristics of household respondents in terms of age, sex of the household head, poverty status, main income source, and household labor force. In this section, all household characteristics are described and compared with the control commune (Vinh Thach Commune). Table 5 shows that age of the household respondents was not much different between the control and the target communes. Majority of the household respondents in both control and target communes were in the range age of 45-60 years old which occupied more than 50% of the people interviewed. Most of the remainder was aged from 30-45 years old, accounting for 40% in the target communes and 36% in the control commune. Less than 7% of the household respondents were younger than 30. It implied that older men are more likely to be household heads.

Table 5: Age and sex of the household respondents

	N	Age range				Sex	
		< 30 (%)	30-45 (%)	45-60 (%)	> 60 (%)	Male (%)	Female (%)
The five target communes	159	6.9	39.6	52.8	0.6	59.1	40.9
Vinh Thach (control)	28	3.6	35.7	53.6	7.1	67.9	32.1

Regarding sex of the household respondents, percentage of male was higher than female in all communes including the control one. Percentage of male respondents in the target communes was 59% and up to 68% in the control commune. This figure did not represent the ratio of male to female of the surveyed communes, since, during the period of conducting this survey, quite a big number of women did migrate to other areas (mainly to the southern

[4] Data was not separated for different sector in Hai An, Vinh Thai, Vinh Thach Communes.

provinces) for earning. In addition, normally more men attended meetings than women, especially meetings on fishing activities because fishing is an activity for men.

Poverty rate of the surveyed communes is compatible with the surveyed communes' characteristic which was mentioned earlier that percentage of the non-poor respondents in the control commune was much higher than the target communes. The percentage of the non-poor respondents in the target communes was 61.3%, and it was up to 89.3% in the control commune. Among households in the target communes 91% were classified as fishing households and 0.9% were aquaculture ones. Among fishing households, 6.7% were involved in processing activities. While in Vinh Thach Commune, almost 100% of the households depend mainly on fishing activities for their income, and there was no fish processing activities. In fact, all processing households in the surveyed communes were of small-scale, and most of processed products were used for household consumption only.

Table 6: Classification of the surveyed households by poverty and fishery activity

	by poverty (100%)			by fishery activity (100%)		
	Non-poor	Observed poor[5]	Certified poor[6]	Fishing HHs	Processing HHs	Aquaculture HHs
The five target communes	61.6	15.1	23.3	91.0	6.7	0.9
Vinh Thach (control)	89.3	7.1	3.6	100.0	0.0	0.0

(Source: Hai An CPC, 2010; Hai Khe CPC, 2010; Trieu Lang CPC, 2010; Trieu Van CPC, 2010; Vinh Thach CPC, 2010; and Vinh Thai CPC, 2010)

Manual labour is an important income source for fishing households. In general, the family size of all surveyed communes was quite large with more than five people in the control commune and almost six people in the target communes. However, the analysis shows high variation and no significant difference between the target and the control communes. Labor force per household as well as number of fisheries laborer per household were not difference between the target and control communes with 1 out of 3 laborer per household was fishery laborer (Table 7).

Table 7: Classification of the surveyed household members by labor type

	N	No of people per HH	No of laborer per HH	No of fisheries laborer per HH
The five target communes	159	6	3	1
Vinh Thach (control)	28	5	3	1

[5] Those who not officially certified as the poor by the Government but they self-reported as poor and the enumerators assessed their poverty based on their housing and property in their home.
[6] Those who are certified as the poor by the Government (according to Vietnamese 2006-2010 poverty line)

II. Baseline Analysis for Five Outputs

1. Fisheries Co-management

1.1 Existing policies and institutions that have influence on co-management and areas for strengthening them

At the central government, a series of policies regarding to fisheries management have been promulgated. These documents provide concrete guidelines as well as encourage the local areas to establish and implement fisheries co-management based on specific characteristics of each locality. The Fishery Law on 26 November 2001 states that the government has policy to protect and develop aquatic resources and create the conditions for organizations and individuals to exploit fishery products sufficiently as well as protect the living environment of fishery species. Recently, the amendment to the Fishery Law has mentioned the empowerment of fisheries management to the local associations such as inland or coastal water surface allocation to fishers for management purposes. Besides, the Ministry of Agriculture and Rural Development (MARD) has proposed to the government the adjustment related to the allocation of territorial water to provinces and delegation of management responsibilities to local governments. At the provincial level, until today, there are no policies related to fisheries co-management. However, in some target communes (e.g., Hai An and Hai Khe), the villagers have been assisted to establish self-managed groups, which are responsible for monitoring and protecting fishing gears and boats of villagers.

1.2 Key governmental fisheries management stakeholders

The stakeholders involved in fisheries management including provincial Sub-Department of Capture Fisheries and Resources Protection (SDECAFIREP), District Departments of Agriculture and Rural Development (DARDs), and Commune People's Committees (CPCs). The first and third stakeholders directly manage fishery activities while district DARDs play an intermediary role. The baseline survey indicated the following:

- Provincial SDECAFIREP is in charge of managing fisheries resources for the whole province.
- District DARDs are acting as intermediary advisors for CPCs in implementing resource management.
- CPCs are in charge of management of fisheries activities in communes. In communes, the vice chairpersons are responsible for economic affairs including dealing with issues related to fisheries. In addition, the police at the commune level are assigned to cooperate with self-management groups to conduct patrolling and to deal with people caught using banned fishing gears.

1.3 The community-based fisheries management

Beside the government management systems, which belong to the DARD at all levels, there were no formal community-based management systems in the fisheries sector in all surveyed communes. In all communes except for Hai An and Hai Khe, fishery activities were self-managed by the fisher communities with their own regulations (i.e., informal management). Based on interests and relationships, fishers were grouped into cooperatives for fishing, processing and selling the products. The group leader was responsible for management of group members to obey the community regulations.

However, in 2010, the provincial DARD together with the VINAFIS planned to establish fishing and processing associations in these communes including aquaculture production. Following such discussion, each surveyed commune formed a group with 8-11 members depending on the commune population and number of villages to improve people's awareness in fisheries management and mobilize people to join the FA later on. These groups will be the leaders or core member of the commune cooperative and fisheries associations (FAs) in the future. Within the cooperative, commune FAs will be established and considered as community-based fisheries management unit. In Hai An and Hai Khe Communes, under the decision of provincial Border Guard, each commune located on the fringe of coastal area has been mobilized to established a self-management group. This group is in charge of cooperating with Border Guard in conducting patrolling around coastal areas.

1.4 Perception of fishers on the fisheries management and conflict resolution systems

Since people were not aware of the existence of any community-based fisheries management system, up to 71.5% of the respondents in the target communes and 95.9% of the respondents in the control commune had no ideas about the effectiveness of this management mechanism. Male fishers were more aware of the existing self-help fisher groups and the government policies on establishing cooperatives and FAs than female fishers.[7] Therefore, more male fishers appreciated the effectiveness of such community-based management systems than female fishers.

Table 8: Effectiveness of community-based fisheries management systems

	N	Very effective (%)	Effective (%)	Not effective (%)	No idea (%)
Target communes	**159**	**9.8**	**18.7**	**0**	**71.5**
- Male	95	12.3	23.4	0	64.3
- Female	64	2.5	12.6	0	84.9
Control commune	**28**	**0.9**	**3.2**	**0**	**95.9**
- Male	19	1.4	3.5	0	95.1
- Female	9	2.3	3.6	0	94.1

Concerning management activities of DARD and other stakeholders in fishery sectors, almost 90% of the respondents in both target and control communes expressed the effectiveness of this management system (Table 9). Male fishers appreciated the government management system more than female fishers. In the target communes, 12.9% of the female respondents perceived that the government management system is ineffective, and up to 49.2% of the female respondents in the control commune had the same opinion. In fact, in both target and control communes, fishery activities are controlled and managed by CPC and the Border Guard. For this reason, many of the respondents were aware of this system.

[7] Female fishers here mean female respondents or women respondents who belong to fishing households.

Table 9: Effectiveness of governmental fisheries management systems

	N	Very effective (%)	Effective (%)	Not effective (%)	No idea (%)
Target communes	**159**	**45.9**	**50.2**	**9.8**	**0**
- Male	95	54.4	45.6	0.0	0
- Female	64	19.3	67.8	12.9	0
Control commune	**28**	**42.3**	**33.2**	**11.3**	**0**
- Male	19	51.2	34.5	14.3	0
- Female	9	18.7	32.1	49.2	0

There have not been many conflicts among the local fishers in the surveyed communes. Conflicts have commonly happened between the local fishers and outsiders. In these cases, the self-help groups or any cooperation among fishers within the communities could not solve problems because of poorer skills and equipment (e.g., boat engines) they have as compared to the outsiders. Commonly, the board of Border Guard cooperates with the commune police to arrest and fine the violators from outside. Hence, the government mechanism of solving conflicts on fishing ground was more appreciated by the respondents than the community-based ones. There were about 13.9% of the respondents in the target communes and 6.1% of the respondents in the control communes indicating the ineffectiveness of the government conflict resolution systems (Table 10). The reason behind may be the failure of the commune police and Border Guards in arresting the outsiders. In many cases, they could not arrest outsiders because they were equipped with smaller and lower power boats than the outsiders.

Table 10: Effectiveness of conflict resolution systems

	N	CB mechanism			Government		
		Effective (%)	Not effective (%)	No idea (%)	Effective (%)	Not effective (%)	No idea (%)
Target communes	**159**	**14.5**	**4.7**	**80.8**	**60.7**	**13.9**	**25.4**
- Male	95	12.0	5.0	83.0	64.7	12.4	22.9
- Female	64	15.0	3.7	81.3	54.4	15.6	30.0
Control commune	**28**	**7.8**	**2.5**	**89.7**	**62.3**	**6.1**	**31.6**
- Male	19	11.2	3.7	85.1	72.3	0.0	27.7
- Female	9	3.8	0	96.2	55.9	11.5	32.6

1.5 Understanding and expectation on the concept “co-management” among fishers and government staff

Co-management seemed to be a new concept in Quang Tri Province (Table 11). Surprisingly, up to 66.7% of the government officials in relevant departments at the commune to provincial levels were unaware of the concept. However, there were differences among the communes and sex. The male fishers were more aware of co-management than the female ones because of two reasons. Firstly, they usually participate in meeting and therefore can catch this concept better. Secondly, the male fishers who had knowledge about the co-management mainly live in Vinh Thai Commune where the co-management concept has been propagandized several times at commune meetings. Among different groups, the survey

revealed that inshore fishing households were more awareness of co-management than other groups.

Both government staffs and local people who were aware of co-management indicated that co-management was a management system that all related parties or stakeholders play similar roles in management. Several others expressed that co-management referred to the participation and role of local people in management of the resources.

Table 11: Respondents' awareness of fisheries "co-management"

Target group	N	Very aware (%)	Aware (%)	Not aware (%)
Target communes	**159**	**1.3**	**6.9**	**91.8**
- Male	94	2.1	11.7	86.2
- Female	65	0	0	100
Fishing HHs	156	2.5	20	77.5
Aquaculture HHs	3	0	33.3	66.6
Government staff	**12**	**16.7**	**16.7**	**66.7**
Control commune	**28**	**0**	**7.1**	**92.9**
- Male	19	0	5.3	94.7
- Female	9	0	11.1	88.9

Regarding the perception of the respondents about the usefulness of the co-management mechanism, the result seemed to be consistent with the respondents' awareness on this management mechanism. It means that the people, who are aware of co-management, appreciate the usefulness of this management mechanism more than the others. More than 90% of the respondents who were not aware of co-management did not known whether this management mechanism useful or not. About 8.2% of the respondents in the target communes and 5.1% in the control commune recognized the usefulness of co-management, especially female fishers (Table 12).

Table 12: Perception on overall usefulness of fisheries co-management in fishery resources management and livelihood improvement

Target group	N	Very useful (%)	Useful (%)	Not useful (%)	No idea (%)
Target communes	**159**	**1.3**	**6.9**	**0**	**91.8**
- Male	94	2.1	11.7	0	86.2
- Female	65	0.0	0.0	0	100.0
Government staff	**12**	**16.7**	**16.7**	**0**	**66.7**
Control commune	**28**	**0.0**	**5.1**	**0**	**94.9**
- Male	19	0.0	5.5	0	94.5
- Female	9	0.0	0.0	0	100.0

1.6 Participation in fisheries management

In comparison to the control commune, the respondents in the target communes were more actively participated in fisheries management. More than 76% of fishers in the target communes expressed that they had participated actively in fisheries management activities, while in the control commune, this figure was only 21%. The reasons may be, firstly, the target communes located on the fringe of sea and depended completely on aquatic resource for socio-economic activities, and they have therefore higher concern on their resource status. In order to ensure the livelihoods of local people, many programs had been conducted at the localities including the program of aquatic protection, the propaganda program on fishing gears, and program on building "*3-luon*"[8] net model or drag-net model. According to the government staff, most of these programs attracted the involvement of inhabitants very well because it was launched based on their needs. The second reason why the local people at target commune participated more actively in fisheries management would be that it was their main source of income. More than 60% of household income of target communes comes from aquatic exploitation. For that reason, they have participated in fisheries management as the mean of ensuring their livelihoods.

Table 13*:* Stakeholder participation in fisheries management

Target group	N	Actively participate[9] (%)	Passively participate[10] (%)
Target communes	**159**	**76.1**	**23.9**
- Male	94	86.2	13.8
- Female	65	61.5	38.5
Government staff	**12**	**64.7**	**35.3**
Control commune	**28**	**21.4**	**78.6**
- Male	19	21.0	79.0
- Female	9	22.2	77.8

1.7 Fishers and resource managers' perception on state of the fisheries resources and benefits from fisheries

Generally, 94.3% and 92.8% of the respondents at target and control communes respectively indicated the degradation of fisheries resources in the last five years, especially the sharp reduction of shrimp and squid, caused by different reasons including over-exploitation of boats from other provinces. According to the interviewees, annually, more than 10 boats with strong engines come into these localities and undertake illegal fishing. They also steal local people's fishing gears while the local government is unable to do anything about it. The rest of the respondents (3.1%) mentioned the increase of fisheries resources due to the new kind of fishing gears that they have adopted and uncertainty of locating fish stocks.

Degradation of fisheries resources was also evidenced by the loss of certain fishery species such as the disappearance of cuttlefish (*muc nang, Sepia spp.*), sea crab (*Charybdis and Portunus spp.*), and Bombay duck fish (*ca khoai*, *Harpadon nehereus*). This problem was mentioned by the majority of the respondents at Hai An and Hai Khe Communes. A male

[8] 3-luon is the height of fishing net, about 90 cm

[9] Actively participate means the participants share their views, opinions in the meetings / fisheries management activities and / or voluntarily make some kind of contribution to the meetings, fisheries management activities

[10] Passively participate means the participants are not willing to make any contribution; they are invited / forced to participate,

fisher at Hai Khe Commune stated that: "five years ago, many squid species were available in this area and many households conducted and developed fishery product processing. Our dried squid product was well known at that time. However, in recent years, due to the vanishing of these fishery species, fish processing has gone down. Some of households had to change their income generation activities to secure their livelihoods. Instruments for fish processing such as drying-room and drying-fan were rusted because they have not been used for a long time."

Table 14: Fishers and resource managers' perception on state of the fisheries resources in the last five years

Target group	N	Increase (%)	Decrease (%)	No change (%)	No idea (%)
Target communes	**159**	**3.1**	**94.3**	**2.5**	**0.0**
- Male	94	1.1	95.7	3.2	0.0
- Female	65	6.2	84.6	9.2	0.0
Resources managers	**12**	**25.8**	**74.2**	**0.0**	**0.0**
Control commune	**28**	**0.0**	**92.8**	**2.6**	**3.6**
- Male	19	0.0	84.2	15.8	0
- Female	9	0.0	88.9	0.0	11.1

Regarding to the prediction on fishery resource status in the next five years, 78.6% of the interviewees said that the resource would certainly be decreased while there were 5% of the respondents expressed that the fishery resources would be increased because of the adoption of new fishing gears such as pomfret drag-net and squid traps. Many training courses and models related to fishing activities have been provided to the fishing communities aiming at increasing fish catch for the coastal inhabitants. Initially, these models themselves have supported the fishers some advantages in exploiting fishery resource. However, because of the limitation of budget, such models have not been expanded yet. That may be the reason why about 5% of the respondents believed in fishery resource would be increasing.

Almost 95% of the resource managers including staffs of SDECAFIREP and DARDs as well as vice-chairpersons of CPCs predicted the reduction in fishery resources in the next five years. Reasons include the development of industrial sector in Quang Tri leading to water pollution and intensification of fishing. These concerns contribute to their perception on the availability of fishery resources.

Table 15: Fishers and resource managers' perception on state of the fisheries resources in the next five years

Target group	N	Increase (%)	Decrease (%)	No change (%)	No idea (%)
Target communes	**159**	**5.0**	**78.6**	**3.1**	**13.2**
- Male	94	5.3	86.2	2.1	6.4
- Female	65	4.6	67.7	4.6	23.1
Resources managers	**12**	**5**	**95**	**0**	**0**
Control commune	**28**				
Fishers	28	0	96.5	0	3.5
- Male	19	0	100	0	0
- Female	9	0	88.9	0	11.1

Surprisingly, there was a big difference in the perception on the benefit distribution from fishery resources among the respondents. Out of 159 respondents in the target communes, approximately 66% stated that fisheries resources distribution was unequal. They thought that, due to the capacity for modern equipment, fishing gears, and big boats, the rich people seemed to be more effective in exploiting fisheries resources. On the other hand, a majority of the respondents in control commune and resource managers thought the access to fisheries resources was equal because of the mechanism of open access. Following the explanations of key informant, recently, the government just promulgated the regulations related to pattern of fishing gear and area for fishing without the concentration on resource users (without zoning, and no limitation of fishers and fishing gear). For this reason, everyone can access the fisheries resources for income generation.

Table 16: Perception on the share of benefits from fisheries resources

	N	Equitable (%)	Inequitable (%)	No idea (%)
Target commune respondents	159	27.7	66.0	6.3
Control commune respondents	28	53.4	35.7	10.7
Resource managers	12	91.6	8.4	0

2. Safety at sea

2.1 Awareness of, perception, and access to safety at sea information

Awareness of and access to safety information were among indicators to assess the capacity for safety at sea. Interestingly, more than 80.5% and 100% of the respondents at target and control communes respectively were claimed to be at least aware of the information and regulations of safety at sea. However, the percentage of people applying information and regulations (shown as "very aware" in the Table 17) are not high standing at 11.3% and 25% in both target and control communes. There were differences in levels of awareness between male and female fishers -- the proportion of male who were highly aware of safety information and regulations was higher than female fishers. It could be explained that husband is the main labor in fishing activity, and they therefore have to comprehend such safety information and regulations for their safety.

Table 17: Stakeholder awareness on safety at sea information and regulations

Target group	N	Very aware (%)	Aware (%)	Not aware (%)
Target communes	**159**	**11.3**	**69.2**	**19.5**
- Male	94	16.0	67.0	17.0
- Female	65	4.6	72.3	23.1
Government staff	**12**	**75.0**	**25.0**	**0.0**
Control commune	**28**	**25.0**	**75.0**	**0.0**
- Male	19	15.8	84.2	0.0
- Female	9	44.4	55.6	0.0

On the capacity to access to sea information and regulations, most of the respondents expressed that they received safe at sea information in their communes. In Quang Tri Province, the government offices from provincial to commune levels have the annual plans for disaster and accident prevention at sea as well as propagandize them widely to the whole community through village and commune loudspeakers or village meetings. For this reason, more than 60% of the interviewees mentioned that the access to such information was easily. However, about 26% of the respondents, especially male fishers in the target communes perceived that it is difficult for them to access the safety at sea information.

Table 18: Stakeholder perception on access to safety at sea information

Target group	N	Easy (%)	Difficult (%)	No idea (%)
Target communes	**159**	**66.0**	**25.8**	**8.2**
- Male	94	68.1	28.7	3.2
- Female	65	63.1	21.5	15.4
Government staff	**12**	**100.0**	**0.0**	**0.0**
Control commune	**28**	**100.0**	**0.0**	**0.0**
- Male	19	100.0	0.0	0.0
- Female	9	100.0	0.0	0.0

In the surveyed communes, there were six main communication channels including radio, coastal radio station, coastal border post communication systems, television, commune broadcasting systems, and personal communication device (mobile phone) (Table 19). Among these, radio, television, and mobile phone were three major communication means that the respondents highly appreciated for their safety. People were not familiar with the coastal border post communication systems and commune broadcasting systems, therefore, most of the respondents could not express their satisfaction with such channels.

Table 19: Fishers' satisfaction with safety at sea channels (N = 187)

Channels	Satisfied (%)	Not satisfied (%)	No idea (%)
Radio	93.1	3.7	3.2
Coastal radio station	26.2	7.0	66.8
Coastal border post communication systems	21.9	16.6	61.5
TV	91.4	3.8	4.8
Commune broadcasting systems	47.6	32.6	19.8
Personal communication (mobile phone)	83.4	9.1	7.5

According to the government staff, all of means of media were still in good condition. Each village had been equipped with FM system and loud speakers in order to broadcast the information related to safety at sea for the communities on time. For this reason, almost 100% of interviewed staff felt satisfied with existing information channels.

Table 20: Government staff satisfaction with safety at sea channels

Channels	N	Satisfied (%)	Not satisfied (%)	No idea (%)
Radio	6	100	0	0
Coastal radio station	8	100	0	0
TV	8	87.5	12.5	0
Commune broadcasting systems	8	100	0	0
Personal communication (mobile)	12	100	0	0

Due to the livelihood dependence of coastal people, all of information related to safety at sea has been considered important to local people. For this reason, nearly 100% of the respondents in both target and control communes recognized the usefulness of this kind of information.

Table 21: Fishers' assessment of usefulness of safety at sea information

	N	Useful (%)	Not useful (%)	No idea (%)
Target communes	159	98.1	0	1.9
Control commune	28	100	0	0

2.2 Compliance with safety at sea regulations

The regulations on the safety at sea comprises of the articles related to safety equipment for human and boats. The regulations require three main items including life-vest, lifebuoy, and communication devices. The survey revealed that 100% of the respondents at target and control communes understood the requirement of using life-vest and communication devices when go fishing (Figure 2). As for the life-buoy, most of local people at target and control communes are inshore fishers who normally use small-power boats. These boats go and back in a day, and they therefore have not paid much attention on the lifebuoy for their safe at sea.

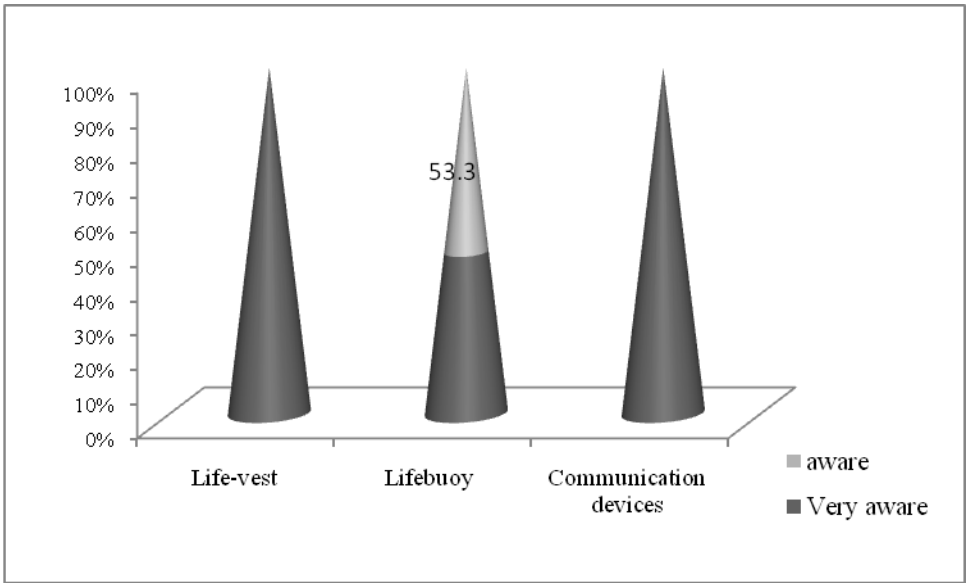

Figure 2: Fishers' awareness on basic safety items/equipment during fishing at sea

Regulations on safety at sea comprise of many articles that ensure the safety of fishers. However, the level of compliance with safety at sea measures varied among the items as well as between the target and control communes. Life vests have been applied by 73.5% of the respondents at the target communes whereas this percentage just stood at 39.3% at the control commune. Due to the low power of fishing boats, most of the interviewees at both target and control communes indicated non-application of regulations on preventing and fighting fire. In short, in spite of the existing awareness of regulation on safety at sea, the percentage of fishers applying fire prevention and fighting regulations was not high.

Table 22: Fishers' compliance with safety at sea regulations

Surveyed communes	Applied (%)	Not applied (%)	Not required (%)
Target communes (N=159)			
Regulation on life vest	73.5	25.2	1.3
Regulation on lifebuoy	39.0	52.8	8.2
Regulation on communication instrument	15.7	75.5	8.8
Regulation on preventing and fighting fire	1.9	88.0	10.1
Boat registration	88.0	6.3	5.7
Operational certificate	79.2	16.4	4.4
Control commune (N=28)			
Regulation on life vest	39.3	57.1	3.6
Regulation on lifebuoy	21.5	71.4	7.1
Regulation on communication instrument	32.1	64.3	3.6
Regulation on preventing and fighting fire	3.5	92.9	3.6
Boat registration	89.3	3.6	7.1
Operational certificate	67.9	25.0	7.1

According to the statistical data from the SDECAFIREP, there were totally 2,459 fishing boats in coastal areas of Quang Tri Province. Among these, 90% of fishing boats are registered; the rest boats were mainly small power with less than 20 HP. Regarding the inspection, 100% of boats with more than 20 HP (420 boats) have been inspected. It means that 100% of fishers have been following the provincial regulations on fishing boat management.

Table 23*:* Boat registration and inspection in Quang Tri Province

No	Boat by capacity	No of boat registered	No of boat inspected in 2010
1	< 20 HP	1,782	0
2	20-<50 HP	297	297
3	50-<90 HP	48	48
4	> 90 HP	75	75
	Total	**2,202**	**420**

In the surveyed communes, 1,034 fishing boats out of the total 1,149 boats (90%) were registered in 2010. The remaining 115 unregistered fishing boats had a capacity less than 20 HP and did not have sufficient legal documents for registering.

2.3 Fishing accidents and effectiveness of rescue systems

Fishing accidents and rescue systems are structured from the central government to the commune level. Basically, the central government controls rescue systems through decisions and directives related to regulations on preventing fishing accidents such as Directive No 22/2006/CT-TTg on enhancing the activities for securing the fishing boat, Decree No 22/2010/ND-CP on managing fishing activities at sea, and Decision No 1041/QD-TTg on approving the project on ensuring informational system at sea. According to Decision No 137/2007/QĐ-TTg on 21 August 2001, rescue system involves the State to the commune level, involving many stakeholders at different levels.

At province level, the system of rescue at sea has been regulated by two main policies related to fishing activity management and natural disaster mitigation. Quang Tri Provincial People's Committee (PPC) promulgated Directive No 07/2009/CT-UBND on 29 June 2009 to enhance boat and fishing management involving many stakeholders. Following this directive, district and commune authorities cooperate with the SDECAFIREP to conduct training and propagandize the regulations on safety at sea including registration, inspection, and fishing grounds locations to fishers.

Besides, local governments supply concrete guidance on establishing fishery groups or squads to assist mutually in fishing and responding to the accidents and problems at sea. DARD has been responsible for supplying concrete guidance through SDECAFIREP in cooperation with local authorities and other stakeholders to understand the quantity, quality, and type of boats and fishing activities in order to orient the fishery sector development sustainably and effectively. Moreover, DARD has delegated responsibility to SDECAFIREP to patrol, prevent, and tackle illegal fishing activities as well as to improve informational system on natural disasters to fishers. Directive No 07 also regulates the mission of guaranteed border command to cooperate with DARD and other appropriate authorities to control and monitor fishing boats at sea. Particularly, the coastal border police has to work

with SDECAFIREP, waterway traffic police, and local governments to control closely the inspection and registration of fishing boats. The border guaranteed command is willing to arrange their force to rescue fishing boats when disaster or accidents happens. The rest of stakeholders in relation to fishing activities management are police and Department of Information and Communication, being responsible for cooperating with DARD to ensure the safety for fishers and conducting the propagandizes to fishers about weather forecast as well as information related to floods and storms.

On the assignment related to natural disaster damage prevention and rescuing, Quang Tri PPC proposed Directive No 08/CT-UBND on 24 June 2010 to detail out the central government Directive No 808/CT-TTg on reduction of damage due to floods and storms. Directive No 08 regulated that the commander of the flood prevention and rescuing at the provincial level consolidates the board of flood prevention and rescuing at localities. The commander also prepares a plan to cope with natural disaster annually and to improve the information system from the provincial to local levels to report the happening of floods or storms in time. The coastal district and commune authorities project and plan the boat registration and provide forecast weather information to fishers. Particularly, local governments have to set up a detail plan to cope with most unfavorable situation in order to minimize the disaster damage. Directive No 08 also prescribes the responsibilities of provincial border command to manage the fishing boats such as registration, itinerary of boat, and mooring in storm shelter areas.

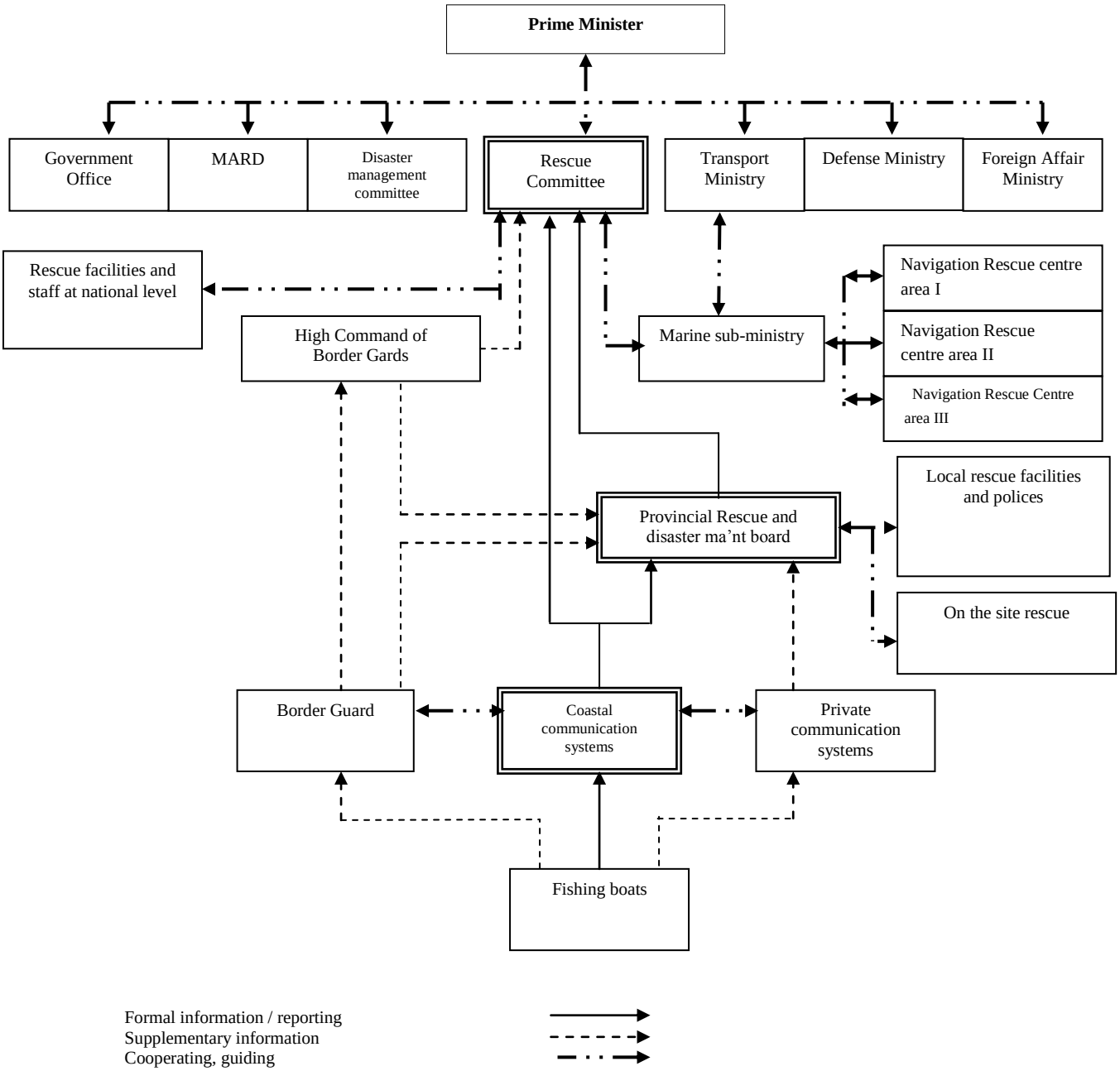

Figure 3: Mechanism for accident reporting and rescue
(Source: Decision No 137/2007/QD-TTg on 21 August 2007 of Prime Minister)

In fact, the fishing accidents have been recorded by the board of disaster prevention and rescue at the provincial level base on reports of three stakeholders including SDECAFIREP, provincial border command, and provincial maritime workers. This mechanism has been based on the instructions on recording accidents at sea promulgated by the central government. In an emergency case, the provincial rescue force comprising provincial military commander, provincial border command, and provincial maritime workers, SDECAFIREP, police, and the Red Cross will cooperate for rescuing and facilitate the boats and people. According to the statistical data from SDECAFIREP, in the periods of 2008-2009, there were

16 accidents happened on the Quang Tri territorial water of which one accident was caused by shipwreck while the rest were caused by disaster.

In the target communes, in recent years, there were about 27 accidents happened. These accidents were almost due to the unpredictable weather conditions, especially typhoon. As a result, about 15 boats were totally damaged with one person died. There were six cases that fishers lost all their fishing equipments and boats. There were no accidents at sea was recorded in the control commune (Table 24).

Table 24: Number of fishing accidents during the last five years in the surveyed communes

Type of accident	No of accidents	No of deaths	No. Damaged boats	Lost value
Target communes	27	1	15	6
Control commune	0	0	0	0

Note: "lost value" means number of accidents that caused total loss of fishing equipments including boat, net, fishing gear, and other equipments.

Regarding to the perception on rescue activities, most of the respondents in both target and control communes recognized the effectiveness of rescue system in their own communes (Figure 4). However, there was still a small proportion of the respondents who stated that the rescue system was very effective in both target and control communes. A small proportion did not give out their opinion about this issue. The reason behind this may be that they do not pay much attention or they do not care about the function of the system unless their boats face problems. Every commune prepares an annual plan for preventing natural disaster as well as accident at sea. Following this plan, many stakeholders including police at commune and force of Border Guard are always willing to rescue in case of accidents.

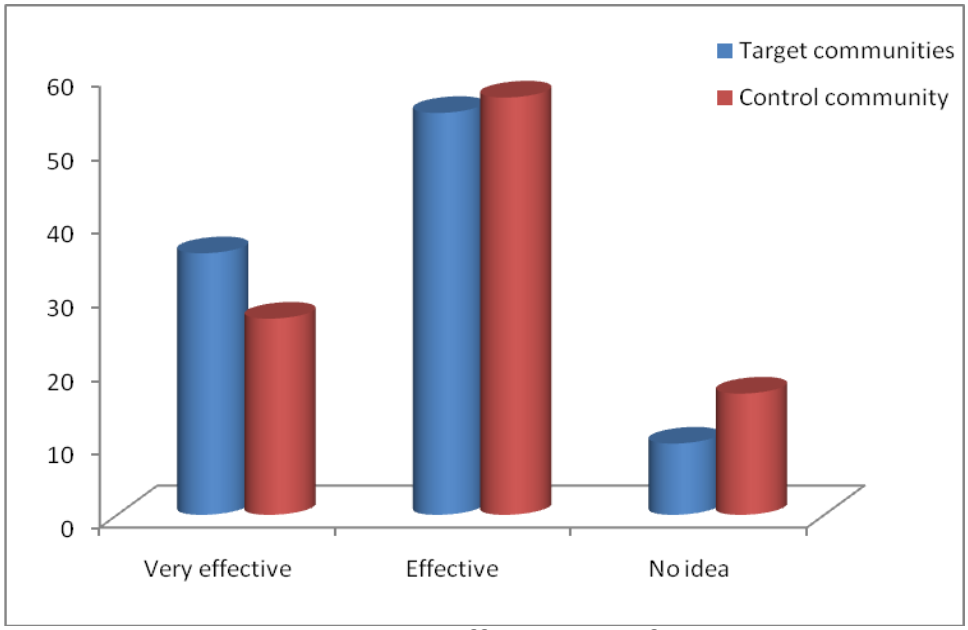

Figure 4: Fishers' perception on effectiveness of rescue activities

2.4 Fishers' knowledge and confidence in rescue practice at sea

In order to increase coastal people' capacity in coping with unexpected events at sea, various activities have been propagandized to the local people such as the program of "*4 tai cho*[11]" and other training courses on rescue at accidents for fishers. However, the survey resulted in only 34.6% of the respondents who have participated in trainings on rescuing, and those who attended were mainly male fishers. Many women said that men are the main fishing laborer; hence, they are ones who need to go for training.

Table 25: Fishers' participation in training on avoiding rescuing practices at sea

Type of HH	N	Yes (%)	No (%)
Target communes	**159**	**34.6**	**65.4**
- Female	94	45.2	54.8
- Male	65	23.5	76.5
Control commune	**28**	**12.7**	**87.3**

Although the percentage of fishers who took part in training course was not high, but thanks to their experiences, most of them felt confident in avoiding accident at sea. According to the interviewees, because most of them have practiced fishing activities for many years, they could prevent accidents from happening at sea. 65.7% of the male respondents at the target commune responded very confident in avoiding accidents. Not only the male but the female fishers also expressed their confident in avoid accident at sea. However, the level of confidence was not as high as that by the male (Table 26).

Table 26: Fishers' confidence in avoiding accident at sea

Type of HH	N	Very confident (%)	Confident (%)	Not confident (%)
Target communes	**159**	**46.7**	**53.3**	**0**
- Male	94	65.7	34.3	0
- Female	65	34.6	65.4	0
Control commune	**28**	**35.9**	**64.1**	**0**

Similarly, on the capacity for avoiding accident at sea, 39.5% and 60.5% of the interviewees mentioned that they were very confident or confident in rescuing in case of emergency (Table 27). It was explained at the group discussion that fishers commonly fish in a small group of three to five boats. Therefore, if some problem happens, they could support each other in rescuing. In addition, fishers are getting aware of accidents at sea and paying more attention to the safety information. For this reason, they invested more on facilities for their fishing such as mobile phone, lifebuoy, radio, and even medical items.

[11] "*4 tai cho*" is one of the guideline of the national target program on responding and adapting to natural disaster meaning four steps: self- commanding, self-forcing, self-equipping, and self-logistic.

Table 27: Fishers' confidence in rescuing practices at sea

Type of HH	N	Very confident (%)	Confident (%)	Not confident (%)
Target communes	**159**	**39.5**	**60.5**	**0**
- Female	94	66.2	33.8	0
- Male	65	31.5	68.5	0
Control commune	**28**	**34.3**	**65.7**	**0**

3. Post harvest and marketing

3.1 Post-harvest skills, knowledge and practices

Traditionally, fishers have used ice and salt for preserving fishing products or dry or grill products to keep for longer time. In the control commune, more than 71-85% of the respondents expressed that they are skillful in using ice, salt, drying and grilling their products (Table 28). In addition, about 14-25% of the respondents revealed that they are very skillful in applying such post-harvest methods. In the target communes, 57.2% of the respondents were claimed to be very skillful in using ice. However, they were not confident in their skills in salting, drying, and grilling their products because fishing products were normally sold to the market with fresh fish (without processing) in these target communes. That was the reason why fishers were more confident in using ice than other methods. While in the control commune, fishers commonly dried or grilled products before selling because of the local market's demand. In both control and target communes, people were not familiar with using chemical for fishing products' processing or preserving.

Table 28: Fishers' skills and knowledge on post-harvest

Post harvest measures	Very skillful (%)	Skillful (%)	Not skillful (%)
Target commune (N = 159)			
Using ice	57.2	38.4	4.4
Using chemicals	0	3.1	96.9
Using salt	17.6	64.8	17.6
Dry	15.7	67.3	16.9
Grill	0.6	1.3	98.1
Control commune (N = 28)			
Using Ice	25.0	71.4	3.6
Using chemicals	0.0	3.6	96.4
Using salt	21.4	78. 6	0.0
Dry	17.8	82.1	0.0
Grill	14.3	85.7	0.0

Although, a considerable percentage of the respondents were very skillful or skillful in applying post-harvest technologies such as icing, salting, drying, and grilling products, limited number of the respondents (34.6%) were trained on such technologies. It implies that people developed and transferred technologies among themselves base on traditional knowledge and experiences. However, the percentage of the respondents in the control commune who were trained on post-harvest technologies in the last three years was much higher than the target communes (Table 29). This may be the reason why higher number of

the respondents in the control commune felt confident with their processing practices than those in the target communes.

From Table 29, we can also see that more male fishers were trained than female fishers, and priority to attend the training was given to households engaged in fish processing. A hundred percent of processing households have attended training courses in the last three years. In many cases, processing households have attended more than one training course related to this topic in the last three years.

Table 29: Fishers' participation in the training on post-harvest practices during the last three years

Type of HH	N	Yes (%)	No (%)
Target communes	**159**	**34.6**	**65.4**
- HH having fish processing	41	100	0
- Female	65	14.5	7.5
- Male	94	32.9	67.0
Control commune	**28**	**64.3**	**35.7**

3.2 Post-harvest facilities

Post-harvest facilities for preserving fisheries products in all most surveyed cases were very simple, e.g., just using transport containers/boxes with ice. Up to 90% of fishers in the target communes were using transport containers/boxes, and only 0.6% were using freezer (Table 30). The rest of the fishers did not apply any post-harvest method for their products. In these cases, fishers went fishing only few hours and sold their products to the local market right after arriving home. In the control commune, post-harvest facilities were more diversified. Beside, 96.4% of the households using transport containers/boxes, some have freezer, fridge or even oven for processing the products. Ice storage was not in use in all the surveyed communes.

Table 30: Post-harvest facilities of the fishers in the surveyed communes in 2010

Post harvest facilities	Used (%)	Not used (%)
Target commune (N = 159)		
Ice storage	0.0	100.0
Transport containers/boxes	88.7	11.3
Freezer	0.6	99.4
Fridge	0.0	100.0
Oven	0.0	100.0
Control commune (N = 28)		
Ice storage	0.0	100.0
Transport containers/boxes	96.4	3.6
Freezer	3.6	96.4
Fridge	10.7	89.3
Oven	3.6	96.4

3.3 Market of fisheries products

3.3.1 Type of fisheries products (fresh and processed products) and production in surveyed communes in 2010

Fishery products in the surveyed communes were shrimp, crab, sea crab (*ghe, Charybdis and Portunus spp.*) and various kinds of fishes. In 2010, the average fishery production of the five target communes was 1,055 tons, of which, 83% was fresh and 17% was sold as processed products. In both control and target communes, fresh products were the majority of products sold. This may lead to risk and reduced profits for fishers.

Table 31: Fishery products and productivity in surveyed commune in 2010

	Production (tons)	Fresh products (%)	Processed products (%)
Target communes	**1,055**	**83**	**17**
Trieu Lang	158	80	20
Trieu Van	135	82	18
Hai An	267	85	15
Hai Khe	312	75	25
Vinh Thai	183	93	7
Control commune	**160**	**60**	**40**

(Source: Hai An CPC, 2010; Hai Khe CPC, 2010; Trieu Van CPC, 2010; Trieu Lang CPC, 2010; Vinh Thai CPC, 2010; Vinh Thach CPC, 2010)

Drying, grilling, fish sauce making, and salted/fermented fish production were the major processing methods practiced by people in the surveyed communes. For fresh products, fishers usually used ice for preserving.

3.3.2 Fish processing factories in the province

There was no fish processing factories in Quang Tri Province. Almost all fishery products were processed manually based on traditional experiences and were mainly for home consumption and sale in local markets. However, a small proportion of high value fishery products have been sold to fishery factories in other provinces such as Thua Thien Hue, Da Nang, or Hai Phong for processing.

3.3.3 Fisheries products' market chain

Beside household consumption, fishery products in the surveyed communes were distributed to four major stakeholders along the market chain, namely fish processing factories, middle traders, local fish processors and local markets. Table 32 was calculated on the percentage of each fishery product sold to different market actors. The distribution of fishery products was different from product to product. Fish was mainly sold at the local market, while green crab and squid were mainly sold to the middle traders. In general, more than half of the all fishery products were sold to middle traders or local market. Less than 3% went to processing factories or local fish processor. The percentage of the respondents who do not know where their sold products went was approximately over 30% because these interviewees were mostly male whereas their wives were responsible for selling fishery products. For that reason, they were not aware of the market chain.

Table 32: Market chain of fishery products in the surveyed communes in 2010 (% product)

Product	Fish processing factory	Middle trader	Local fish processor	Local market	Other	No idea
Shrimp	1.3	28.2	0.3	24.9	0.0	45.3
Crab	1.7	27.9	1.9	7.4	0.0	60.4
Green crab	2.1	58.1	2.3	16.7	0.0	22.0
Fish	1.6	36.7	0.9	52.9	0.0	7.9
Squid	1.9	44.8	0.6	16.2	0.0	35.8
Dried squid	0.0	14.8	1.3	5.3	0.0	77.4
Dried fish	0.0	10.6	0.6	18.2	2.6	67.9
Grilled fish	0.0	9.4	0.0	31.3	1.4	57.9
Fish sauce	0.0	60.0	0.0	35.0	5.0	0.0
Fermented fish	0.0	75.0	0.0	20.0	5.0	0.0

Since a large proportion of fishery products were sold to the middle traders, the majority of the respondents pointed out the high and very high degree of dependence on them, especially for green crab and squid sales.

Table 33: Respondent opinion on degree of dependence of fishers on middle traders

Product	N	Very high (%)	High (%)	Not at all (%)	No idea (%)
Prawn	187	42.1	12	11.3	34.6
Crab	157	37.1	4.4	5.7	52.8
Green crab	109	54.1	16.4	9.4	20.1
Fish	187	34.6	32.1	30.2	3.1
Squid	143	44.7	15.1	14.5	25.8
Dried squid	78	25.8	4.4	5.7	64.1
Dried fish	129	25.2	9.4	10.1	55.4
Grilled fish	89	24.5	13.2	20.1	42.1
Fish sauce	65	30.5	42.7	26.8	0.0
Fermented fish	54	25.6	65.7	8.7	0.0

The majority of the respondents in all surveyed communes did not know well where their fishing products were going to be consumed. This was true especially dried squid, crab, and dried and grilled fish (Table 34). The percentage was based on the number of the respondents being aware of places where their fishery products were consumed. About 43 to 76% of the respondents replied that their fishery products including finfish, green crab, shrimp, and squid were consumed within the province. About 11% of green crab, 10% of squid, and less than 10% of other products were consumed in national markets. Only few were exported to other countries. Fish sauce and salted fish were mainly produced for the provincial market.

Table 34: Fisher perception on type of market of their fisheries products (%)

Product	Provincial market	National market	International market	No idea
Shrimp	43.1	6.6	1.9	48.4
Crab	30	2.7	0.0	67.3
Green crab	50.8	11.3	0.6	37.1
Fish	76.2	7.6	0.5	15.7
Squid	43.9	10.2	0.3	48.4
Dried squid	18.3	1.2	0.0	80.5
Dried fish	27.7	0.6	0.0	71.7
Grilled fish	38.1	0.3	0.0	61.6
Fish sauce	100	0.0	0.0	0.0
Salted fish	100	0.0	0.0	0.0

3.4 Quality control of fishery products

The Sub-Department of Agro-Forestry-Fishery Quality Assurance (SDAFFQA) at DARD and district Department of Industry and Trade (DOIT) were the ones in charge of controlling the quality of fishery products. However, it is a relatively young and new department with responsibilities. Therefore, the information on fishery quality control was limited. In the surveyed communes, most of key informants indicated that about 90% of the aquaculture products were exported, which also implies that a large proportion of fishery products in the commune meet export standards. The leader of Trieu Phong Industry Department stated that if quality control standards were strictly enforced, no fishery products other than wild caught products would meet export standards.

The main exported fishery products from Quang Tri Province were aquaculture products and natural sea crabs (*ghe, Charybdis and Portunus spp.*), squid, etc. Among surveyed communes, Trieu Lang and Trieu Van had the largest volume of export due to booming aquaculture production in the coastal areas and the development of new technologies for catching green crabs (Table 35). The proportion of exported fishery products was similar for the target communes and the control one, with the exception of Trieu Lang and Trieu Van, which had significant exports of aquatic product.

Table 35: Percentage of exported fishery products in 2010

	% of exported fishery products
The whole province	**30.0**
Hai Lang	**25.0**
Hai An	30.0
Hai Khe	24.0
Trieu Phong	**30.0**
Trieu Lang	80.0
Trieu Van	94.5
Vinh Linh	**30.0**
Vinh Thai	36.0
Vinh Thach	30.0

(Source: Hai An CPC, 2010; Hai Khe CPC, 2010; Trieu Van CPC, 2010; Trieu Lang CPC, 2010; Vinh Thai CPC, 2010; Vinh Thach CPC, 2010 and DARD 2011)

Although fish processing within the province was mainly done manually, a few processing households had been inspected and had been certified by related departments, especially by the district Department of Trade and Industry and the provincial DARD. Out of about 150 trading households/units within Quang Tri Province, six had been inspected, and five had been certified for operation (Table 36). For fish processing, most of the 345 fishery-processing units in the province were processing fish sauce and dried salted fish. Among those, 13 units had been inspected, and 11 had been certified. To date, two fish traders and two fish processors have been issued with trademarks.

Table 36: Number of fish trading and fish processing units inspected and certified

	No of units	Inspected	Certified	Trade mark
Fish trade	150	6	5	2
Dried products	15	1	0	1
Fish sauce and fermented fish	330	12	11	1

3.5 Policies and institutions related to fisheries post-harvest

According to Mr. Dinh of SDAFFQA, there are four ongoing activities to improve post-harvest activities in the province, namely: (i) the establishment of this new division that is meant to improve local capacity in processing the fishery products, (ii) annually organization of trainings for improving processing skills for local fishery communities, (iii) the establishment of fishing and processing cooperatives in the fishery communities, and (iv) establishment of credit programs for promoting fish processing units at the fishery communities. Activities (ii) and (iv) have been implemented in the surveyed communes and are popular with the local people. Activity (iii) has been just commenced with the first formation of cooperatives and FA management boards in each fishing commune in the province.

According to Mr. Dinh, because SDAFFQA is still young, many other related departments have to be involved in this task. At present, besides the provincial and district DARDs, the extension center and extension station and district DOITs are also involved in fisheries post-harvest activities. At the local level, CPCs, village leaders, and mass organizations play important roles in carried out any activities related to fishery post-harvest. In many cases, SDAFFQA or the provincial DARD worked directly with the commune and village leaders on related issues.

Local people's assessment on function of these institutions is presented in Table 37. Almost 95-99% people could not give their ideas about the effectiveness of such institutions in terms of fisheries post-harvest. The reasons for this may be that (i) not many activities on post-harvest technologies had been transferred to the communities by these institutions, (ii) any activities related to post-harvest had been mainly dealt with by processing households, and (iii) decline in fishery productivity for processing was also a reason for not applying new post-harvest technologies. In addition, some processing households (normally with small-scale processing units) in Trieu Van, Trieu Lang and Vinh Thai Communes expressed that processing techniques transferring by the above institutions were more complicated than their own methods. Applying such new techniques may result in healthier products, but the taste is not as good as traditionally made product.

Table 37: Fisher and processor satisfaction with the support from fisheries post-harvest institutions (N = 159)

Supporting Institution	Satisfied (%)	Not satisfied (%)	No idea (%)
SDAFFQA	0.0	1.3	98.7
District DOITs	0.0	0.0	100.0
District DARDs	3.8	0.6	95.6
Extension centers	0.0	4.4	95.6
CPCs, village leaders	1.3	1.3	97.5
Mass organizations	1.3	0.6	98.1

For the bigger units of fish processing, which had trade marks in Trieu Lang Commune or Hai An Commune, processors were satisfied with the support provided by government institutions to their business. They attended several training courses on processing techniques, visited demonstration models, supporting with funds and processing equipment.

3.6 Funding and staff deployed for post-harvest

3.6.1 Funding for post-harvest sector

Generally, there has not been a specific policy on funding support for the post-harvest sector. Supporting for post-harvest was integrated into programs related to industrial extension and vocational training. Recently, Quang Tri PPC promulgated Decision No 11/2010/QD-UBND on 19 May 2010 to list and set standards for vocations for enterprises and production facilities. According to this decision, people who conduct fish processing in a large scale would be granted with 1,100,000 VND for three months of training. However, the survey indicated that few people were paying much attention to this grant due to the minor amount of money and the strict selection process. The vice chairman of Hai An Commune stated that "though all of us are aware of this policy, we have not obtained anything from it. Firstly, the amount of money is small, which is considered insufficient for developing post-harvest activities. Secondly, the grant is also based on the selection of Department of Labor, Invalids, and Social Affairs (DOLISA) as well as DOIT. Therefore, not all of people received this fund." Similarly, the result of in-depth interview from process households revealed that, for ten years, they had received no money for supporting post-harvest activities from the government at the commune level. It was revealed from all surveyed communes that there was no fund from the commune budget allocated for this sector.

3.6.2 Number of fish processing staff at different levels

According to the representative of the provincial DARD, there are no staff specialized in post-harvest fisheries in the province. Most staff currently dealing with this job have a background on agriculture production or aquaculture production. These staff have been working for the provincial or district DARDs. The four provincial staff annually attended short training courses on post-harvest technologies and skills to train local people. Results of interview show that all officials at district and provincial levels were confident of their skills and knowledge for training local people. Surprisingly, 40% of the staff at the commune level felt very confident, and 60% were confident of their skills.

Table 38: Degree of confidence of officers working on post-harvest fisheries in performing post-harvest techniques and practices

	N	Very confident (%)	Confident (%)	Not confident (%)
Provincial staff	4	0	100	0
District staff	3	0	100	0
Commune staff	5	40	60	0

4. Livelihood diversification and enhancement

4.1 Livelihood activities

Livelihood activities at both target and control communes have been diversified and include fishing, aquaculture production, crop production, animal husbandry, hired labor, small businesses, and fish processing. The majority of local people are engaged in fishing activities. However, in recent years, due to the reduction in fish catch, some inhabitants have changed their income generation activities, which include migration to other cities for laboring and farm production. The vice chairman of Hai An Commune stated that "if local people depend on fishing completely, they will have no chance to increase their income because this activity is getting worse and worse as shown by the sharp reduction in fish catch. They have to develop other ways to earn money through other types of work such as cultivating crops on sandy land, investing more on pig breeding, migrating to Ho Chi Minh City, Ha Noi, or Laos." Fishing as a livelihood activity is threatened by the unsustainable illegal fishing of large boats from other provinces. Moreover, fishing is not possible from October to December due to the bad weather conditions. This problem also affects negatively to processing households. A fish processor stated that "Many years ago, I did not have enough time for sleeping because I was so busy to manage fish processing activities such as drying squids and fish. I used to hire more than seven labourers for this activity. However, now I have to work as a mechanic as well to ensure my income. Many processing facilities are no longer used." Clearly, due to the heavy dependence on fishing, resource shortage has resulted in many livelihood problems for local people. In an attempt to increase the livelihood activities of local people, DARD and its extension center have been conducted some extension programs on new fishing gears, sandy aquaculture systems, and pig breeding.

As for the participations in livelihood activities, the survey indicated that male fishers were responsible for the fishing while the women were in charge of selling and processing fishery products. However, in the summer season, children also helped their parents with fishing activities such as transporting fishery products from boat to home or to markets or repair fishing nets. Additionally, the result of group discussions showed that both male and female fishers played an important role in making decisions related to their livelihood and social activities. However, male fishers usually decided the working plan and the female fishers often kept money and estimated production costs and investment.

Regarding the perception on well-being and poorness, all of them indicated the well-being of households could be assessed with the criteria such as two-floored houses, diverse income sources, education of children, and number of well-paid labor. Male fishers in particular wanted sufficient money to afford beer instead of rice wine, to drink coffee in the morning, and to gamble whereas women were more concerned with the kind of foods they can buy from the market as an indicator of well-being. On the perception of poorness, most of the male and female fishers agreed that the poor were people who lived in temporary houses, had

no boats, and mainly worked as hired labor; furthermore, their children did not go to school, and they lacked labor to earn money.

4.2 Fishers' satisfaction and attitude towards their livelihoods

The survey revealed that 75.4% and 92.8% of the respondents at the target and control communes respectively confirmed that their livelihoods were worse than five years ago because of reduced fish catch (Table 39). Major constraints for their livelihoods' were reduced fish catch together with the fluctuation of market prices and unusual weather conditions. Other respondents stated that their livelihoods had been improved because household members had migrated and were sending home remittances.

According to the surveyed commune leaders, along with the development progress of the whole country, living standard of coastal communities had been improved over time. Both living standards and livelihood opportunities were much better than before. However, the improvement progress varied among communes and household groups. The fishing groups who were more dependent on capture fisheries had less chance to improve their livelihoods than the others.

Table 39: Fishers' perception on the livelihood opportunities compared to five years ago

	N	Better (%)	Same (%)	Worse (%)	No idea (%)
Target communes	**159**	**11.0**	**13.6**	**75.4**	**0.6**
- Female	65	0.0	10.9	89.0	0.0
- Male	94	18.0	14.8	67.0	1.0
Control commune	**28**	**7.1**	**0.0**	**92.8**	**0.0**

Most people who responded that their livelihoods were worse than five years ago were dissatisfied with their current livelihood activities. 76.4% of the respondents in the target communes and 85.7% in the control commune were dissatisfied with their current situation and wanted to change their livelihood activities. Male and female fishers replied similarly in the surveyed communes (Table 40).

Table 40: Fishers' satisfaction with current livelihoods

	N	Satisfied (%)	Not satisfied (%)	No idea (%)
Target communes	**159**	**19.8**	**76.4**	**3.7**
- Female	65	23.1	72.3	4.6
- Male	94	17.0	79.8	3.2
Control commune	**28**	**7.1**	**85.7**	**7.1**

Quiet high percentage (94.3% and 96.5%) of the respondents at target and control communes intended to change or diversify their current livelihood activities to ensure their household income. Small percentage of interviewees was quite satisfied with their current situation and thus did not want to change their livelihood activities. Some did not care and had no idea about how to improve their livelihoods.

Table 41: Fishers' attitude towards changing or diversifying livelihoods

	N	Intend to change (%)	Not intend to change (%)	No idea (%)
Target communes	**159**	**94.3**	**3.8**	**1.9**
- Female	65	95.4	3.1	1.5
- Male	94	93.6	4.2	2.1
Control commune	**29**	**96.6**	**0.0**	**3.4**

4.3 Factors affecting livelihood change

All information related to factors affecting to livelihood change was collected through key informant interview and group discussion. The results revealed that factors affecting livelihood changes could be categorized into two groups: enabling factors and hindering factors, of which the former facilitates the enhancement of livelihood activities of local people while the later prevents such.

Enabling factors	**Hindering factors**
• High percentage of labor • Good infrastructure (except Hai Khe Commune) • Support from mass organization at the commune level • The cooperation and agreement of CPCs • The enthusiasm of commune leaders • Programs funded by the Government such as supporting oil for boat program, subsidized credit line program, and the program of training for rural labor • Model of fishing gears, crop production in sandy land, and pig breeding granted by the extension center and district DARDs	• Low technique in fishing and fish processing • Low capacity for accessing information related to market • Lack of capital for investment and reproduction • Low capacity for consumption fishery product **Threats** • The fluctuation output price • Unsustainable over-fishing by large external vessels • Lack of market

4.4 Income and livelihood diversification

Table 42 presented income sources and levels of income of the household respondents in the surveyed communes. The table shows that the total income per household at the study site was about 19,000,000 VND/year, of which fishing activity contributed more than 11,000,000 VND, or approximately 66.7% of the total. This figure confirmed that the level of livelihood dependence on fishing activities of respondent households was high. Other sources of income such as small business, hire labor, and fish processing only provided minor percentages of the total household income.

Table 42: Average income from main income sources of surveyed households in 2010 (million VND)

	Income per HH	Income per capita	Income from fishing	Income from fish processing	Income from small business	Income from other activities
N	159.0	159.0	140.0	13.0	8.0	141.0
Mean	19.4	2.3	11.8	2.1	3.1	3.0
SD	4.1	0.4	6.2	1.3	1.7	1.4
Median	12.0	17.5	5.0	2.0	5.0	4.5
Min	2.0	10.0	0.1	0.5	2.0	2.0
Max	25.0	20.0	30.0	5.0	15.0	5.0

Diversification of income sources is a way to sustain and ensure the livelihoods of marginalized people, especially those from fishing communities. That was also one of the governmental targets in recent years. However, the results of interviewing 187 households in the surveyed communes showed an opposite picture (Table 43). Fishing was still the single major source of income for more than 17% and 11% of households at target and control communes respectively. The number of households with more than two sources of income was only 25.2% of the interviewed households in target communes. The reasons behind this may be that the respondents did not consider the seasonal or temporary income activities that provide minor family income. They may have only considered those activities that they conducted nearly all year around and on which most household members were involved with.

Table 43: Number of major income sources of HH

	Number of HH	%
Target commune	**159**	**100**
- HHs having only one major income source (fishing)	28	17.6
- HHs having two major income sources	91	57.2
- HHs having more than two major income sources	40	25.2
Control commune	**28**	**100**
- HHs having only one major income source (fishing)	3	11
- HHs having two major income sources	16	57
- HHs having more than two major income sources	9	32

In both target and control communes, households who reported having only one major income source explained that their family was heavily dependent on fishing. Although, they have other sources of income, these sources were unstable and contribute significantly less to family income than fishing.

4.5 Supporting services for livelihood enhancement and diversification

Interestingly, 100% of the respondents including male and female fishers were aware of the existence of programs and institutions including credit program, technical assistance program, support to consume fishery products, marketing program, and input support for fisheries activity. These programs aimed at supporting livelihoods of local people (Table 44). The reason for this high rate of knowledge was awareness raising activities of the local mass organizations. According to the result of key informant interview, most of these programs

had been integrated in the village meetings or mass organization meetings in order to inform to villagers widely.

Table 44: Fishers' awareness on the availability of supporting institutions/programmes for livelihood enhancement and diversification

	N	Very aware (%)	Aware (%)	Not aware (%)
Target communes	**159**	**0.0**	**100.0**	**0**
- Female	65	0.0	100.0	0
- Male	94	0.0	100.0	0
Control commune	**28**	**3.6**	**46.4**	**50**

Although most of the respondents could access information about supported programmes, not all people were actually supported by these programmes. In evaluation of such services, the credit supply service was received the highest appreciation by the respondents with 53.5% because of the easy access to the service. Support for production inputs and marketing were also appreciated by local people. However, many respondents still complained about the services for the small size of support and the long waiting time. 25.8% of the respondents stated that accessing credit services was difficult. About 11.9–29.6% of the respondents could not evaluate these services because they had never accessed or had not yet received sufficient information about these services.

Table 45: Fishers' access of the supporting services for livelihood enhancement and diversification

Supporting services	Easy (%)	Difficult (%)	Not at all (%)	No idea (%)
Target commune (N = 159)				
Loan	53.5	25.8	8.8	12.0
Technical assistance	37.7	5.7	27.0	29.6
Marketing	41.5	15.7	15.1	27.7
Input supply	47.2	12.6	22	18.2
Control commune (N = 28)				
Loan	46.4	46.4	7.1	0.0
Technical assistance	42.9	10.7	46.4	0.0
Marketing	64.3	14.3	17.9	3.6
Input supply	46.4	32.1	17.9	3.6

Satisfaction is another criterion for the evaluation of support services for people's livelihoods. Although, a large proportion of people appreciated the credit service, input supply and marketing services as they found it easy to access these services, 33.9% of the respondents were dissatisfied with the quality of these services (Table 46), while 30.2% did not express any opinion. The reasons behind this could be (i) they have not participated in mass organization meetings and therefore are not eligible for VBSP loans and (ii) due to outstanding credit, VBSP rules bar them from being allowed to take another loan.

The supply of inputs was only given to boat owners. Villagers who do not own boats were not be supported by this program. That may be part of the reason why 45.3% of the respondents replied they had no idea about their satisfaction with this program.

Table 46: Fishers' satisfaction with the supporting services for livelihood enhancement and diversification

Supporting services	Satisfied (%)	Not satisfied (%)	No idea (%)
Target commune (N = 159)			
Loan	35.8	33.9	30.2
Technical assistance	31.4	18.9	49.7
Marketing	20.1	38.4	41.5
Input supply	37.1	17.6	45.3
Control commune (N =28)			
Loan	42.9	46.4	10.7
Technical assistance	46.4	32.1	21.4
Marketing	32.1	50.0	17.9
Input supply	21.4	71.4	7.1

Regarding usefulness of the above supporting services, credit service was received the highest appreciation by nearly 45% of the respondents. Other services were less appreciated than credit. Interviewees explained that most people in fisher communities needed loans for production investment, especially fishing households. Therefore, the production strategies had been changed according to the types of available credit/loan. Other services such as technical assistance and marketing services were not widely applied or did not create very significant changes on the people's livelihoods. As for the input supply services, 61.6% of the respondents replied that it was not useful. However, since the input supply service was basically the fuel subsidization for boat owners, there were probably many non-boat-owners who did not directly benefit from this service.

Table 47: Fishers' perception on the usefulness of the supporting services for livelihood enhancement and diversification

Supporting services	Useful (%)	Not useful (%)	No idea (%)
Target communes (N = 159)			
Loan	44.7	35.2	44.7
Technical assistance	28.3	54.1	28.3
Marketing	15.7	56.0	15.7
Input supply	25.2	61.6	25.2
Control commune (N = 28)			
Loan	82.1	3.6	14.3
Technical assistance	64.3	32.1	3.6
Marketing	85.7	10.7	3.6
Input supply	71.4	25.0	3.6

5. Microfinance

5.1 Formal and informal financial institutions operating in the communes

In target and control communes, financial institutions are comprised of both formal organizations and informal groups. The formal organizations are mainly composed of two bank systems including Vietnam Bank for Social Policy (VBSP) and Vietnam Bank for Agriculture and Rural Development (AgriBank or VBARD). The mechanisms of financial services provided by these banks are quite different. VBSP provides their services through guarantee in group lending and joint liability whereas AgriBank gives loans based on collateral. As for the informal credit source, both target and control communes have private moneylenders and rotation credit-saving groups called "*nhom hui.*" One of the highlighted characteristics of these two informal financial institutions is the mechanism of loaning based on the relationship and the trust between the credit owners and the borrowers.

5.2 Perception of formal financial institutions on fisheries activities and the proportion of fisher among their clientele base

The reported perception of formal institutions on fishery activities was dissimilar for the different banks in Quang Tri Province. VBSP provides smaller loan sizes than the AgriBank. Therefore, the borrowers normally take VBSP loan for house repairs and to buy fishing gears. In communes, the Farmer's Union and the Women's Union are responsible for monitoring the repayment of interests. As the loans are small, the VBSP does not worry too much about loan non-repayment. Because other banks are providing larger loans, they have to be very careful about the risk of loan non-repayment. According to the AgriBank staff, some borrowers use loans to fund shrimp production, which the banks sees as a high risk operation. For this reason, AgriBank staff always conduct a careful assessment of loan applicants before deciding whether to give loans. AgriBank staff in Trieu Phong District stated that the bank were no longer providing loans for shrimp farming as its risk was too high.

AgriBank covers agriculture, fishing, and business clients similarly. Staff of the Trieu Phong AgriBank branch in Bo Ban Town stated that 50% of their clients in 2010 were from coastal communities. However, more than 80% of the loans taken by coastal communities were used for agriculture production (crop and livestock) or for small businesses. Less than 20% were invested in capture fishing or fish processing.

It was revealed by in-depth interviews that although demand for loans was very high in all surveyed communes, a very low percentage of fishing households had actually accessed the AgriBank because of the high interest rates and complicated procedures. Fishing households preferred VBSP to other bank systems because of the low interest rates (e.g., 0.65%/month compared to 1.2%/month of AgriBank).

5.3 Fishers' awareness of and access to financial services in the communes

Credit was one of the most common supporting services in the local communities. More than 83.7% of the respondents were aware of different local credit sources (Table 48), of which 20.8% were well aware of each financial service including the location, loan size, interest, and time scale. All information about financial services came through the Women's Union and the Farmer's Union in each village. Villagers, both men and women, had good access to these services.

Table 48: Fishers' awareness of the availability of financial services

	N	Very aware (%)	Aware (%)	Not aware (%)
Target communes	**159**	**20.8**	**62.9**	**16.3**
- Male	94	22.3	57.5	20.2
- Female	65	18.5	70.8	10.7
Control commune	**28**	**14.3**	**71.4**	**14.3**

Besides being aware of credit source availability, most of interviewees were aware of loan application procedures, required application forms, time, and place for submitting their forms. Among the three main credit sources at target and control communes, AgriBank had the highest proportion of people (51.9%) who were aware of its procedures (Table 49). However, the percentage of people who were very aware of AgriBank' procedures was lower than for the VBSP. According to leaders of the commune Farmer's Union, VBSP staff usually come to Farmer's Union and Women's Union meetings to collect loan interest and to explain about the process of loan application in order to facilitate local access to credit. Accordingly, many villagers were very aware of the procedures to apply for loans.

Table 49: Fishers' awareness of the procedures/regulations of financial services

	Type of respondents	N	Very aware (%)	Aware (%)	Not aware (%)
VBSP	**Total**	**187**	**26.2**	**49.2**	**24.6**
	- Male	113	21.2	49.6	29.2
	- Female	74	33.8	48.6	17.6
VBARD/AgriBank	**Total**	**187**	**14.4**	**51.9**	**33.7**
	- Male	113	14.1	54.0	31.9
	- Female	74	14.9	48.6	36.5
Private financial services	**Total**	**187**	**16.6**	**35.8**	**47.6**
	- Male	113	16.8	34.5	48.7
	- Female	74	16.2	37.9	45.9

Although the percentage of the interviewees' understanding of the availability as well as the procedures of loan application was quite high, not all of the respondents could actually access the credit when in need. The survey results indicated that only 47.8% of the interviewees answered that they could access the credit easily (Table 50). There was no significant difference between male and female perception on the possibility of access to credits when in need in the surveyed communes. However, the proportion of the respondents who had easy access to credit resources was significantly lower at control commune (17.8%) than the target communes (47.8%). The rest of them felt difficult or even impossible to access credit resources.

Table 50: Fishers' perception on possibility of access of credit when in need

	N	Easy (%)	Difficulty (%)	Can't access (%)	No idea (%)
Target communes	**159**	**47.8**	**42.7**	**8.2**	**1.3**
- Male	94	44.7	43.6	9.6	2.1
- Female	65	52.3	41.5	6.2	0.0
Control commune	**28**	**17.8**	**78.6**	**3.6**	**0.0**

The survey result showed that formal credit service was most preferred by 77.4% of respondent in target communes and 85.71% of respondent in control commune. Although informal service did not require a lot of paperwork with simple procedures, this system was not preferred by many people because of its high interest rate, high risks, and trust or relationship with credit providers that borrowers must have. In practice, the informal creditors have been supplying the financial services only to their acquaintances that they knew well. Hence, most of the respondents would like to access the formal credit system when in need.

Table 51: Fishers' choice of financial services when in need

	N	Formal service (%)	Informal services (%)	Project Services (%)
Target communes	**159**	**77.4**	**21.4**	**1.2**
- Female	65	72.3	26.2	1.5
- Male	94	80.8	18.1	1.1
Control commune	**28**	**85.7**	**3.6**	**10.7**

For the formal credit suppliers, majority of the respondents preferred VBSP to AgriBank. It was evidenced by 64.2% of the respondents expressed satisfaction with VBSP (Table 52). According to the villagers' opinions, although the loan size from VBSP was not as big as other banks, the procedure was not complicated, and it did not require collateral. Besides, the schedule of settlement was comfortable for the borrowers. Those were the main reasons why a larger proportion of the respondents were satisfied with VBSP than the other financial service providers.

Table 52: Fishers' satisfaction with formal and informal financial services (N = 187)

	Satisfied (%)	Not satisfied (%)	No idea (%)
VBSP	64.2	19.2	16.6
AgriBank	34.2	26.7	39.1
Private financial services	28.3	17.1	54.6

5.4 Fishers' awareness and access to subsidized credit lines

5.4.1 Describing subsidized credit lines at the study site

Most of the subsidized credit programs at both target and control communes have been implemented by VBSP through various schemes including credit for the poor, credit for students, credit for sanitation works, credit for fishing activities investment, and credit for petroleum and gas. Although these programs have the same interest rates, the loan sizes are different, with the credit for poor being the biggest with a maximum of VND 20,000,000 per household, while the credit for education is the smallest in its loan size. These programs have

been conducted through mass organizations at the locality including the Farmer's Union and the Women's Union who are responsible for advising clients and collecting application forms to submit to branch of VBSP in the district. Moreover, the mass organizations were in charge of timely collecting interest from the borrowers within their commune for the bank.

5.4.2 Fishers' awareness of and access to subsidized credit lines

The survey indicated that more than 70% of the respondents were aware or very aware of subsidized credit lines, of which the credit for the poor program had been received significant attention from villagers. Less respondents were aware of the credit programs for investment in new boats or for oil and gas because these programs were normally integrated into other development programs such as training on safety at sea regulations or new techniques of fishing for fishers. These programs were not as regularly offered as other subsidized credit programs.

Table 53: Fishers' awareness of subsidized credit line (N=187)

	Very aware (%)	Aware (%)	Not aware (%)
Credit for the poor	**17.6**	**59.9**	**22.5**
Credit for student	15.5	63.6	20.9
Credit for sanitation works	4.3	27.8	67.9
Credit for fishing investment	2.1	11.8	86.1
Credit for petroleum	2.2	6.9	90.9

5.5 Potential for saving mobilization

In both target and control communes, almost 70% of the respondents recognized the importance of savings. It was agreed by the respondents that saving was not only important to their current production but also for the future. The female respondents were more aware of the importance of saving than male (Table 54). In recent years, there had been many constraints in their lives such as the damage caused by natural disasters, the reduction of fish catch, and the fluctuation of input and output prices. For this reason, savings could help them to have enough money for investment for production activities.

Table 54: Fishers' perception of the importance of savings

	N	Very important (%)	Important (%)	Not important (%)
Target communes	**159**	**71.7**	**27.7**	**0.6**
- Male	94	69.1	29.8	1.1
- Female	65	75.4	24.6	0.0
Control commune	**28**	**67.9**	**32.1**	**0.0**

Accordingly, more than 73.6% and 75% of the respondents in target and control communes respectively expressed their willingness to save. More female fishers (87.69%) were willing to save than male fishers, reflecting their capacity for managing household finances. However, there were still about 25% of the respondents in the target and the control communes who were not willing to save.

Table 55: Fishers' willingness to save

	N	Willing (%)	Not willing (%)	Can't decide (%)
Target communes	**159**	**73.6**	**8.8**	**17.6**
- Male	94	63.8	9.6	26.6
- Female	65	87.7	7.7	4.6
Control commune	**28**	**75.0**	**21.4**	**3.6**

Households in target communes reported the average savings of VND 135,000 per month against VND 129,000 per month for those in control commune (Table 56). Some fishing households in the target communes were saving more than VND 2,000,000 per month while the maximum saving capacity in the control commune was only VND 1,000,000 per month. Fishing households reported that they were able to save more money than aquaculture households. The reason for the above was that aquaculture production, particularly shrimp culture, requires significant investment. Thus, aquaculturists tend to pay more attention to borrowing rather than saving money.

Table 56: Fishers saving capacity

	N	N of HH making saving	% of HH making saving	Average amount per month (VND)	Max amount per month (VND)	Min amount per month (VND)
Target communes	**159**	**107**	**67.3**	**134,872**	**2,000,000**	**10,000**
- e fishing HH	156	105	67.3	65,769	300,000	20,000
- Aquaculture HH	3	2	66.6	75,000	100,000	50,000
Control commune	**28**	**21**	**75.0**	**128,611**	**1,000,000**	**10,000**

III. Proposed RFLP Output Indicators

Based on the baseline survey results, a set of indicators were drafted and discussed at a validation workshop. Those indicators were drafted for each of the five RFLP outputs together with proposed interventions.

Output 1: Fisheries Co-management

Indicators	Baseline (2010)	Target (2013)	Proposed activities
Fisheries association (FA) established in each target commune	0 FA	1 FA (in each target commune)	• Support to establish FAs
FAs allocated with fishing rights	0 FA	3 FAs	• Supporting in fishing rights allocation
Percentage of fishers who are "very aware" and "aware" of co-management increased	8.2 %	60 %	• Training and awareness raising for fisher community members
Percentage of women who are "very aware" and "aware" of co-management increased	0 %	50 %	• Training and involvement of women in co-management activities and FAs
Government officials understood co-management	33.4 %	100 %	• Training and awareness raising for government staff
Percentage of fishers who judge that co-management contributes to fisheries management and livelihood improvement increased	8.2 %	50 %	• Support to the establishment of fisheries co-management pilots • Support to diversifying livelihoods
Percentage of community members who feel they are actively contributing to fisheries co-management increased	76 %	100 %	• Support to the establishment of fisheries co-management pilots • Conduct information sharing and awareness raising campaigns

Output 2: Safety at Sea and Vulnerability Reduction

Indicators	Baseline (2010)	Target (2013)	Proposed activities
Percentage of fishers who feel they understand information and regulations on safety at sea increased	80 %	100 %	• Training and awareness raising for fishers • Support improved information dissemination systems
Fisheries management officials understand clearly about information and regulations on safety at sea	75 %	100 %	
Fishers' confidence in rescuing practices at sea	60.5%	100 %	• Training and awareness raising for fisher community members • Provision of some basic safety equipment
Percentage of fishers complying with safety at sea regulations increased	78 %	100 %	• Increasing awareness • Redrafting some regulations
Fishers satisfied with the effectiveness of rescue service operation	60 %	100 %	• Support the establishment and training of local rescue groups • Provide training for fisher community members on sea rescue and avoiding accidents at sea
Fishers received basic safety at sea training	34.6 %	100 %	
Fishers feel confident in avoiding accidents at sea	53.3 %	100 %	

Output 3: Post Harvest and Marketing

Indicators	Baseline (2010)	Target (2013)	Proposed activities
Fish processing units/households trained on food hygiene and safety	34.6 %	70 %	• Training and awareness raising on food hygiene and safety for fish processing households
Fish processing units/households issued with quality trademark	0.6 %	20 %	• Inspecting, monitoring and proposing indicators for licensing activities
Fishers trained on post-harvest fisheries (this should focus on large towns and cities and/or boat owners)	34.6 %	50 %	• Training on on-board post-harvest handling of aquatic products for fishers • Organizing field visits to exemplary food safety and hygiene sites
Fishers become skilled at least two post-harvest methods	14 %	80 %	
The percentage of fishers depended on middle traders reduced	65 %	50 %	

Outputs 4 & 5: Livelihood Diversification and Micro-Finance

Indicators	Baseline (2010)	Target (2013)	Proposed activities
Percentage of households having more than two livelihood activities increased	25.2 %	50 %	• Support pilot diversified livelihood activities • Provide training on diversified livelihoods activities to all stakeholders • Provide support to solve the constraints of current livelihood activities
Percentage of households satisfied with their livelihoods increased	20 %	45 %	
The percentage of households obtained informal loans reduced	21.3 %	10 %	• Facilitate the development of credit channels for women • Facilitate the establishment of credit channels for fisher communities • Awareness raising and sharing information on credit channels activities which are appropriate to fisher communities
Percentage of women obtained informal loans reduced	26.2 %	10 %	
Percentage of fishers that are aware of credit channels and credit regulations increased	62.9 %	100 %	
Percentage of fishers who judge that accessing credit is easy increased	48 %	80 %	

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Annex: Summary of Survey Responses

SECTION 1: CO-MANAGEMENT

1.1 To what extent are you aware of the term Fisheries co-management (FCM)?

Target group	N	Very aware (%)	Aware (%)	Not aware (%)
Target communes	**159**			
Fishers	159	1.3	6.9	91.8
- Male	94	2.1	11.7	86.2
- Female	65	0	0	100
- Inshore fishing HH	156	2.5	20	77.5
- Aquaculture HH	3	0	33.3	66.6
Government staff	12	16.7	16.7	66.7
Control commune	**28**			
Fishers	28	0	7.1	92.9
- Male	19	0	5.3	94.7
- Female	9	0	11.1	88.9

1.2 What do you think about the overall usefulness of FCM in fisheries resources management?

Target group	N	Very useful (%)	Useful (%)	Not useful (%)	No idea (%)
Target communes	**159**				
Fishers	159	1.3	6.9	0	91.8
- Male	94	2.1	11.7	0	86.2
- Female	65	0	0	0	100
Government staff	12	16.7	16.7	0	66.7
Control commune	**28**				
Fishers	28	0	5.1	0	94.9
- Male	19	0	5.5	0	94.5
- Female	9	0	0	0	100

1.3 What do you think about the overall usefulness of FCM in fisheries livelihoods improvement?

Target group	N	Very useful (%)	Useful (%)	Not useful (%)	No idea (%)
Target communes	**159**				
Fishers	159	1.3	6.9	0	91.8
- Male	94	2.1	11.7	0	86.2
- Female	65	0	0	0	100
Government staff	12	16.7	16.7	0	66.7
Control commune	**28**				
Fishers	28	0	5.1	0	94.9
- Male	19	0	5.5	0	94.5
- Female	9	0	0	0	100

1.4 What do you think about the effectiveness of formal fisheries management systems?

	N	Very effective (%)	Effective (%)	Not effective (%)	No idea (%)
Target communes	159	45.9	50.2	0	9.8
- Male	95	54.4	45.6	0	0
- Female	64	19.3	67.8	0	12.9
Control commune	28	42.3	33.2	0	11.3
- Male	19	51.2	34.5	0	14.3
- Female	9	18.7	32.1	0	49.2

1.5 What do you think about the effectiveness of informal fisheries management systems?

	N	Very effective (%)	Effective (%)	Not effective (%)	No idea (%)
Target communes	159	9.8	18.7	0	71.5
- Male	95	12.3	23.4	0	64.3
- Female	64	2.5	12.6	0	84.9
Control commune	28	0.9	3.2	0	95.9
- Male	19	1.4	3.5	0	95.1
- Female	9	2.3	3.6	0	94.1

1.6 Which members in your family often participate in fisheries management activities?

	N	Male (%)	Female (%)	Both (%)	None (%)
Target communes	159	68	30.1	1.9	0
- Male	95	70.2	29.6	0.2	0
- Female	64	66.5	30.1	3.4	0
Control commune	28	64.8	31.8	3.4	0
- Male	19	67.9	29.4	2.7	0
- Female	9	61.2	32.1	6.7	0

1.7 To what extent did you participate in fisheries management activities?

Target group	N	Actively participate (%)	Passively participate (%)
Target communes	**159**		
Fishers	159	76.1	23.9
- Male	94	86.2	13.8
- Female	65	61.5	38.5
Government staff	12	64.7	35.3
Control commune	**28**		
Fishers	28	21.4	78.6
- Male	19	21	79
- Female	9	22.2	77.8

1.8 During the last six months. did any member in your family attend any fisheries management meetings / activities?

Target group	N	Participate in meeting on FM during last 6 months (%)	Not participate (%)
Target communes			
Fishers	**159**	50.9	49.7
- Male	94	58.5	41.5
- Female	65	40.0	61.5
Government staff	12	75.6	24.4
Control commune			
Fishers	28	60.7	39.3
- Male	19	73.7	26.3
- Female	9	33.4	66.6

1.9 To what extent are you satisfied with current fisheries management activities?

	N	Satisfied (%)	Not satisfied (%)	No idea (%)
Target communes	159	46,6	30,1	23,3
- Male	95	48,8	29,6	21,6
- Female	64	42,3	30,1	27,6
Control commune	28	53,4	31,8	14,8
- Male	19	57,8	29,4	12,8
- Female	9	50,2	32,1	17,7

1.10 What do you think about the effectiveness of the conflict management systems?

	N	CB mechanism			Government		
		Effective (%)	Not effective (%)	No idea (%)	Effective (%)	Not effective (%)	No idea (%)
Target communes	**159**	**14.5**	**4.7**	80.8	**60.7**	**13.9**	25.4
- Male	95	12.0	5.0	83.0	64.7	12.4	22.9
- Female	64	15.0	3.7	81.3	54.4	15.6	30
Control commune	**28**	**7.8**	**2.5**	89.7	**62.3**	**6.1**	31.6
- Male	19	11.2	3.7	85.1	72.3	0	27.7
- Female	9	3.8	0	96.2	55.9	11.5	32.6

1.11 What are your opinions about fisheries resources **during the last five years**?

Target group	N	Increase (%)	Decrease (%)	No change (%)	No idea (%)
Target communes					
Fishers	**159**	3.1	94.3	2.5	0
- Male	94	1.1	95.7	3.2	0
- Female	65	6.2	84.6	9.2	0
Resources managers	12	25.8	74.2	0	0
Control commune	**28**				
Fishers	28	0	92.8	2.6	3.6
- Male	19	0	84.2	15.8	0
- Female	9		88.9	0	11.1

1.12 What are your opinions about fisheries resources during **the next five years**?

Target group	N	Increase (%)	Decrease (%)	No change (%)	No idea (%)
Target communes	**159**				
Fishers	159	5.0	78.6	3.1	13.2
- Male	94	5.3	86.2	2.1	6.4
- Female	65	4.6	67.7	4.6	23.1
Resources managers	12	5	95	0	0
Control commune	**28**				
Fishers	28	0	96.5	0	3.5
- Male	19	0	100	0	0
- Female	9	0	88.9	0	11.1

1.12 What do you think about level of the equity in getting benefits from fisheries among different resource user groups?

	N	Equitable (%)	Inequitable (%)	No idea (%)
Target commune respondents	159	27.7	66.0	6.3
Control commune respondents	28	53.4	35.7	10.7

1.13a Who have more benefits from fishery resources?

	N	Poor (%)	Non-poor (%)	The same (%)	No idea (%)
Target communes	159	0	35.6	61.2	3.2
- Male	95	0	32.6	67.4	2.1
- Female	64	0	43.2	56.8	4.7
Control commune	28	0	42.1	40.2	17.7
- Male	19	0	43.7	40.7	15.6
- Female	9	0	35.6	42.2	22.2

1.13b Who have more benefits from fishery resource?

	N	Men (%)	Women (%)	The same (%)	No idea (%)
Target communes	159	39,3	0	59,3	3,8
- Male	95	36,7	0	67,2	2,1
- Female	64	43,2	0	45,6	6,3
Control commune	28	49,3	0	32,9	17,8
- Male	19	47,8	0	36,5	15,7
- Female	9	52,6	0	25,2	22,2

SECTION 2: SAFETY AT SEA

The information on safety at sea that fishers use and the ways to access it

2.1 To what extent are you aware of the availability of Safety at sea (SAS) information?

Target group	N	Number of HHS	Very aware (%)	Number of HHS	Aware (%)	Number of HHS	Not aware (%)
Target communes							
Fishers	159	18	11.3	110	69.2	31	19.5
- Male	94	15	16.0	63	67.0	16	17.0
- Female	65	3	4.6	47	72.3	15	23.1
Government staff	12	9	75.0	3	25.0	0	0.0
Control commune							
Fishers	28	7	25.0	21	75.0	0	0.0
- Male	19	3	15.8	16	84.2	0	0.0
- Female	9	4	44.4	5	55.6	0	0.0

2.2 To what extent can you access to information on SAS?

Target group	N	Number of HHS	Easy (%)	Number of HHS	Difficult (%)	Number of HHS	No idea (%)
Target communes							
Fishers	159	105	66.0	41	25.8	13	8.2
- Male	94	64	68.1	27	28.7	3	3.2
- Female	65	41	63.1	14	21.5	10	15.4
Control commune							
Fishers	28	28	100		0.0	0	0.0
- Male	19	19	100		0.0	0	0.0
- Female	9	9	100		0.0	0	0.0

2.3 To what extent are you satisfied with the following channels for accessing information on safety at sea?

Channel	N	Number of HHS	Satisfied (%)	Number of HHS	Not satisfied	Number of HHS	No idea
Radio	187	174	93.1	7	3.7	6	3.2
Coastal radio station	187	49	26.2	13	7.0	125	66.8
Coastal border post communication systems	187	41	21.9	31	16.6	115	61.5
TV	187	171	91.4	7	3.8	9	4.8
Commune broadcasting systems	187	89	47.6	61	32.6	37	19.8
Personal communication (mobile)	187	156	83.4	17	9.1	14	7.5

2.4 How useful is the SAS information to your family?

	N	Useful (%)	Not useful (%)	No idea (%)
Target commune respondents	159	98.1	0.0	1.9
Control commune respondents	28	100	0.0	0.0

2.5 To what extent are you aware of the following basis safety at sea equipment on boat?

Item	Very aware		Aware		Not aware	
	Inshore fishers	Others	Inshore fishers	Others	Inshore fishers	Others
Life-vest	20	47	31	63	1	28
Lifebuoy	14	20	25	54	13	61
Communication devices	6	14	24	39	22	82

2.6 Do you and your family members comply with the following regulations on safety at sea?

Surveyed communes	Applied (%)	Not applied (%)	Not required (%)
Target communes (N=159)			
Regulation on life vest	73.5	25.2	1.3
Regulation on lifebuoy	39.0	52.8	8.2
Regulation on communication instrument	15.7	75.5	8.8
Regulation on preventing and fighting fire	1.9	88.0	10.1
Boat registration	88.0	6.3	5.7
Operational certificate	79.2	16.4	4.4
Control commune (N=28)			

Regulation on life vest	39.3	57.1	3.6
Regulation on lifebuoy	21.5	71.4	7.1
Regulation on communication instrument	32.1	64.3	3.6
Regulation on preventing and fighting fire	3.5	92.9	3.6
Boat registration	89.3	3.6	7.1
Operational certificate	67.9	25.0	7.1

2.7 During the last 12 months, how many inspections were made with your boat(s)?

No	Boat by capacity	No of boat	Boat registration		Boat inspection	
			Number	%	Number	%
1	< 20 HP	149	130	87.2	0	0.0
2	20-<50 HP	37	34	92.0	0	0.0

2.8 What do you think about the effectiveness of the systems for responding safety issues and disasters?

Type of HH	N	Very effective	Effective	Ineffective	No idea
Target communes	159	27.0	30.2	30.8	11.9
- Inshore fishing HHs	156	26.3	30.1	31.4	12.2
- Agricultural HHs	3	66.7	33.3	0.0	0.0
- Female	65	30.7	18.5	29.3	21.5
- Male	94	24.5	38.3	31.9	4.3
Control commune	28	57.1	28.6	14.3	0.0

2.9 Have you or your family members ever been trained in avoiding and dealing with accidents at sea?

Type of HH	N	Yes (%)	No (%)
Target communes	**159**	32.1	67.9
- Inshore fishing HHs	156	32.1	67.9
- Agricultural HHs	3	33.3	66.7
- Female	65	44.6	55.4
- Male	94	23.4	76.6
Control commune	**28**	32.1	67.9

2.10 How confident are you to avoid accidents at sea?

Type of HH	N	Very confident (%)	Confident (%)	Not confident (%)
Target communes	**159**	7.5	48.4	44.0
- Inshore fishing HHs	156	7.7	47.4	44.9
- Agricultural HHs	3	0.0	100	0.0
- Female	65	0.0	47.7	52.3
- Male	94	12.8	48.9	38.3
Control commune	**28**	21.4	60.7	17.9

2.11. How confident are you to deal with accidents at sea?

Type of HH	N	Very confident (%)	Confident (%)	Not confident (%)
Target communes	**159**	3.8	51.6	44.6
- Inshore fishing HHs	156	3.8	51.3	44.9
- Agricultural HHs	3	66.7	33.3	0.0
- Female	65	0.0	43.1	56.9
- Male	94	6.4	57.4	36.2
Control commune	**28**	17.9	67.9	14.2

SECTION 3: POST HARVEST AND MARKETING

Post-harvest skills, knowledge, and practices.

3.1 To what extent are you aware of the following post-harvest methods?

Post harvest measures	N	Very skillful (%)	Number of HHS	Skillful (%)	Number of HHS	Not skillful (%)	Number of HHS
Target commune	**159**						
Using ice	159	57.2	91	38.4	61	4.4	7
Using chemicals	159	0	0	3.1	5	96.9	154
Using salt	159	17.6	28	64.8	103	17.6	28
Dry	159	15.7	25	67.3	107	16.9	27
Grill	159	0.6	1	1.3	2	98.1	156
Control commune	28						
Using Ice	28	25	7	71.4	20	3.6	1
Using chemicals	28	0	0	3.6	1	96.4	27
Using salt	28	21.4	6	78. 6	22	0	0
Dry	28	17.8	5	82.1	23	0	0
Grill	28	14.3	4	85.7	24	0	0

3.2 Have you or your family members attended a training course on post-harvest during the last three years?

Type of HH	N	Yes (%)	Number of HHS	No (%)	Number of HHS
Target communes					
- Inshore fishing HH	159	34.6	55	65.4	104
- HH having fish processing	41	100	41	0	0
- Female	65	35.4	23	64.6	42
- Male	94	32.9	31	67.1	63
Control commune	**28**	64. 3	18	35.7	10

3.3 Availability, status and utilization of post-harvest facilities

Post harvest facilities	N	Used (%)	Number of HHS	Not used (%)	Number of HHS
Ice storage	159	0	18	100	159
Transport cages	159	88.7	158	11.3	18
Freezer	159	0.6	159	99.4	158
Fridge	159	0	159	100	159
Oven	159	0		100	159
Control commune	**28**		28		
Ice storage	28	0	1	100	28
Transport cages	28	96.4	27	3.6	1
Freezer	28	3.6	25	96.4	27
Fridge	28	10.7	27	89.3	25
Oven	28	3.6	1	96.4	27

3.4 To whom did you sell your fish / fisheries products last year?

Product	Fish processing factories	N of HHS	Middle traders	N of HHS	Local fish processor	N of HHS	Local market	N of HHS	Other	N of HHS	No idea	N of HHS
Shrimp	1.3	2	28.2	45	0.3	1	24.9	40	3.1	5	42.1	66
Crab	1.7	3	28.0	45	1.9	3	7.4	12	0.0	0	61.0	96
Green crab	1.5	2	58.1	92	2.3	4	16.1	26	0.0	0	22.0	35
Fish	1.6	3	36.7	58	0.9	2	52.9	83	0.0	0	7.9	13
Squid	1.9	3	44.8	71	0.6	1	16.2	26	0.0	0	36.5	58
Dried squid	0.0	0	14.8	24	1.3	2	5.3	9	0.0	0	78.6	124
Dried fish	0.0	0	10.6	17	0.6	1	18.2	29	2.6	4	67.9	108
Grilled	0.0	0	9.4	15	0.0	0	31.	50	1.4	2	57.9	92

fish							3					
Fish sauce												
Fermented fish												

3.5 Respondent's opinion on Degree of dependence of fishers on middle traders

Product	N	Very high	N of HHS	High	N of HHS	Not at all	N of HHS	No idea	N of HHS
Prawn	159	42.14	59	11.95	7	11.32	9	34.59	84
Crab	159	37.11	86	4.40	26	5.66	15	52.83	32
Green crab	159	54.09	55	16.35	51	9.43	48	20.13	5
Fish	159	34.59	71	32.08	24	30.19	23	3.14	41
Squid	159	44.65	41	15.09	7	14.47	9	25.79	102
Dried squid	159	25.79	40	4.40	15	5.66	16	64.15	88
Dried fish	159	25.16	59	9.43	7	10.06	9	55.35	84
Grilled fish	159	24.53	86	13.21	26	20.13	15	42.14	32
Fish sauce									
Mắm									

3.6 Where did you sell your fish / fisheries products last year?

Product	Provincial market	N of HHS	National market	N of HHS	International market	N of HHS	No idea	N of HHS
Shrimp	43.08	68	6.60	10	1.89	3	48.43	77
Crab	30.00	48	2.70	4	0.00	0	67.30	107
Green crab	50.75	81	11.32	18	0.63	1	37.11	59
Fish	76.16	121	7.61	12	0.50	1	15.72	25
Squid	42.14	67	10.06	16	0.63	1	47.17	75
Dried squid	18.30	29	1.19	2	0.00	0	80.50	128
Dried fish	27.67	44	0.63	1	0.00	0	71.70	114
Grilled fish	38.05	60	0.31	0	0.00	0	61.64	98
Fish sauce	100	100						
Salted fish	100	100						

3.7 To what level do you depend on middle traders (on price) in trading fish / fisheries products?

Product	N	Very high	N of HHS	High	N of HHS	Not at all	N of HHS	No idea	N of HHS
Prawn	159	42.14	59	11.95	7	11.32	9	34.59	84
Crab	159	37.11	86	4.40	26	5.66	15	52.83	32
Green crab	159	54.09	55	16.35	51	9.43	48	20.13	5
Fish	159	34.59	71	32.08	24	30.19	23	3.14	41
Squid	159	44.65	41	15.09	7	14.47	9	25.79	102
Dried squid	159	25.79	40	4.40	15	5.66	16	64.15	88
Dried fish	159	25.16	59	9.43	7	10.06	9	55.35	84
Grilled fish	159	24.53	86	13.21	26	20.13	15	42.14	32
Fish sauce									
Mắm									

3.8 To what extent are you satisfied with the support of the following institutions on post-harvest fisheries?

Supporting Institution	N (HH respondent)	Satisfied (%)	Number of HHS	Not satisfied	Number of HHS	No idea	Number of HHS
Sub-department of rural development and quality control	159	0.00	0	1.26	2	98.74	157
District industry department	159	0.00	0	0.00	0	100.00	159
District DARD	159	3.77	6	0.63	1	95.60	152
Extension station	159	0.00	0	4.40	7	95.60	152
FA	159	0.00	0	0	0	100	159
CPC, village leaders	159	1.26	2	1.26	2	97.48	155
Mass organization	159	1.26	2	0.63	1	98.11	156

SECTION 4: LIVELIHOOD ENHANCEMENT AND DIVERSIFICATION

Perception livelihood options

4.1 What do you think about the livelihood opportunities for fishing communities compared to five years ago?

	N	Better (%)	Same (%)	Worse (%)	No idea (%)
Target communes	**159**	**10.7**	**13.2**	**75.8**	**0.6**
- Female	65	0	10.8	87.7	1.5
- Male	94	18.1	14.9	67.0	1.1
Inshore fishing HH	156	10.3	13.5	76.3	0.6
Other	3	33.3	0	66.7	0
Control commune	**28**	**7.1**	**0**	**92.9**	**0**

4.2 Can you give an approximate income amount for the following livelihood activities in 2009?

	Indicator	Average income per HH	Average income per capita	Average income from fishing	Average income from fish processing	Average income from other activities
Target communes	N	159	872	144	13	143
	Mean	18,789,940	3,426,147	11,864,580	4,469,231	8,944,755
Inshore fishing HH	N	156	856	137	13	136
	Mean	18,619,230	3,393,224	12,083,940	4,469,231	8,757,353
Other HH	N	3	16	3	1	1
	Mean	17,000,000	3,187,500	10,333,330	5,000,000	5,000,000
Control commune	N	28	137	28	2	26
	Mean	13,510,710	2,761,314	8,964,286	5,500,000	4,896,154

4.3 To what extent are you satisfied with your family current livelihoods?

	N	Satisfied (%)	Not satisfied (%)	No idea (%)
Target communes	**159**	19.5	76.7	3.8
- Female	65	23.1	72.3	4.6
- Male	94	17.0	79.8	3.2
Inshore fishing HH	156	20.5	75.6	3.9
Other	3	0	100	0
Control commune	**28**	**7.1**	**85.7**	**7.1**

4.4 Do you want to diversify your family livelihoods?

	N	Intended to change %)	Not-intended to change (%)	No idea (%)
Target communes	**159**	**94.3**	**3.8**	**1.9**
- Female	65	95.4	3.1	1.5
- Male	94	93.6	4.3	2.1
Inshore fishing HH	156	94.2	3.9	1.9
Other	3	100	0	0
HH having processing	0	0	0	0
Control commune	**28**	**96.6**	**0**	**3.5**

4.5 To what extent are you aware of the supporting services for livelihood enhancement and diversification?

	N	Very aware (%)	Aware (%)	Not aware (%)
Target communes	**159**	0	100	0
- Female	65	0	100	0
- Male	94	0	100	0
Inshore fishing HH	156	0	100	0
HH having processing	0	0	0	0
Other	3	0	100	0
Control commune	**28**	3.57	46.43	50

4.6 To what extent can you access to the following supporting services for livelihood enhancement and diversification?

Supporting services	N (HH respondent)	Easy (%)	Difficult (%)	Not at all (%)	No idea (%)
Target communes					
Loan	159	53.5	25.8	8.8	12.0
Technical assistance	159	37.7	5.7	27.0	29.6
Marketing	159	41.5	15.7	15.1	27.7
Input supply	159	47.2	12.6	22	18.2
Control commune	28				
Loan	28	46.4	46.4	7.1	0
Technical assistance	28	42.9	10.7	46.4	0
Marketing	28	64.3	14.3	17.9	3.6
Input supply	28	46.4	32.1	17.9	3.6

4.7 To what extent are you satisfied with the quality and cost of the following supporting services for livelihood enhancement and diversification?

Supporting services	N (HH respondent)	Satisfied (%)	Not satisfied (%)	No idea (%)
Target communes				
Loan	159	35.9	34	30.1
Technical assistance	159	31.5	18.9	49.7
Marketing	159	20.1	38.4	41.5
Input supply	159	37.1	17.6	45.3
Control commune				
Loan	28	42.9	46.4	10.7
Technical assistance	28	46.4	32.1	21.4
Marketing	28	32.1	50.0	17.9
Input supply	28	21.4	71.4	7.1

4.8 Are the following supporting services useful for livelihood enhancement and diversification?

Supporting services	N (HH respondent)	Useful (%)	Not useful (%)	No idea (%)
Target communes				
Loan	159	44.7	35.2	44.7
Technical assistance	159	28.3	54.1	28.3
Marketing	159	15.7	56.0	15.7
Input supply	159	25.2	61.6	25.2
Control commune				
Loan	28	82.1	3.6	14.3
Technical assistance	28	64.3	32.1	3.6
Marketing	28	85.7	10.7	3.6
Input supply	28	71.4	25.0	3.6

4.9 Who have more benefits from fishery resources- classified by poor and non-poor households?

	N	Poor (%)	Non-poor (%)	The same (%)	No idea (%)
Target communes	159	0	35.6	61.2	3.2
- Male	95	0	32.6	67.4	2.1
- Female	64	0	43.2	56.8	4.7
Control commune	28	0	42.1	40.2	17.7
- Male	19	0	43.7	40.7	15.6
- Female	9	0	35.6	42.2	22.2

4.10 Who have more benefits from fishery resources- classified by men and women (gender perspective)?

	N	Men (%)	Women (%)	The same (%)	No idea (%)
Target communes	159	39.3	0	59.3	3.8
- Male	95	36.7	0	67.2	2.1
- Female	64	43.2	0	45.6	6.3
Control commune	28	49.3	0	32.9	17.8
- Male	19	47.8	0	36.5	15.7
- Female	9	52.6	0	25.2	22.2

4.11 To what extent are you confident to change or diversify your family livelihood with the use of existing services?

	N	Confident	Not confident	No idea
Target communes	**159**	**74.2**	**13.8**	**11.9**
- Female	65	46.2	27.7	26.2
- Male	94	93.6	4.3	2.1
Inshore fishing HH	156	73.7	14.1	12.2
HH having processing	0	0	0	0
Other	3	100	0	0
Control commune	**28**	**96.4**	**3.6**	**0**

SECTION 5: MICROFINANCE

5.1 To what extent are you aware of the availability credit systems?

	N	Number of HHS	Very aware (%)	Number of HHS	Aware (%)	Number of HHS	Not aware (%)
Target communes	159	33	20.8	100	62.9	26	16.3
- Male	94	21	22.3	54	57.5	19	20.2
- Female	65	12	18.5	46	70.8	7	10.7
Control commune	28	4	14.3	20	71.4	4	14.3

5.2 To what extent are you aware of regulations for accessing the following credit programmes?

	Type of respondents	N	Number of HHS	Very aware (%)	Number of HHS	Aware (%)	Number of HHS	Not aware (%)
Bank for social policies	Total	187	49	26.2	92	49.2	46	24.6
	Male	113	24	21.2	56	49.6	33	29.2
	Female	74	25	33.8	36	48.6	13	17.6
Bank for agriculture and rural development	Total	187	27	14.4	97	51.9	63	33.7
	Male	113	16	14.1	61	54.0	36	31.9
	Female	74	11	14.9	36	48.6	27	36.5
Private financial services	Total	187	31	16.6	67	35.8	89	47.6
	Male	113	19	16.8	39	34.5	55	48.7
	Female	74	12	16.2	28	37.9	34	45.9

5.3 To what extent can you access to credit services when in need?

	N	Number of HHS	Easy (%)	Number of HHS	Difficulty (%)	Number of HHS	Can't access (%)	Number of HHS	No idea (%)
Target communes	159	76	47.8	68	42.7	13	8.2	2	1.3
- Male	94	42	44.7	41	43.6	9	9.6	2	2.1
- Female	65	33	52.3	27	41.5	4	6.2	0	0.0
Control commune	28	5	17.8	22	78.6	1	3.6	0	0.0

5.4 To what extent are you satisfied with the following financial institutions?

	N (HH respondent)	Number of HHS	Satisfied (%)	Number of HHS	Not satisfied (%)	Number of HHS	No idea (%)
Bank for social polices	187	120	64.2	36	19.2	31	16.6
Bank for agriculture and rural development	187	64	34.2	50	26.7	73	39.1
Private financial services	187	53	28.3	32	17.1	102	54.6

5.5 Which credit mechanism do you most like to borrow money?

	N	Number of HHS	Formal service (%)	Number of HHS	Informal services (%)	Number of HHS	Project Services (%)
Target communes	**159**	**123**	**77.4**	**34**	**21.4**	**2**	**1.2**
- Female	65	47	72.3	17	26.2	1	1.5
- Male	94	76	80.8	17	18.1	1	1.1
Control commune	**28**	**24**	**85.7**	**1**	**3.6**	**3**	**10.7**

5.6 To what extent are you aware of the availability of the following subsidized credit lines?

	N (HH respondent)	Number of HHS	Very aware (%)	Number of HHS	Aware (%)	Number of HHS	Not aware (%)
Credit for the poor	187	33	17.6	112	59.9	42	22.5
Credit for student	187	27	15.5	119	63.6	39	20.9
Credit for sanitation works	187	8	4.3	52	27.8	127	67.9
Credit for new boat	187	4	2.1	22	11.8	161	86.1
Credit for oil and gas	187	4	2.2	13	6.9	170	90.9

5.7 During the last five years, which of the following financial services did you borrow money?

	No of HH accessed to financial services		Average amount	Max amount	Min amount
	No of HH	%			
Bank for social polices	104	55.61	9,520,000	50,000,000	1,000,000
Bank for agriculture and rural development	38	20.32	3,270,000	50,000,000	3,000,000
Private financial services	62	33.16	6,480,000	100,000,000	2,000,000

5.8 Are you eligible to get loan from any above subsidized credit lines?

	N	Number of HHS	Eligible (%)	Number of HHS	Not eligible (%)	Number of HHS	Not know (%)
Target communes respondents	159	75	47.2	79	49.7	5	3.2
Control commune respondents	28	7	25	21	75.0	0	0

5.9 Have you ever borrowed money from any of following subsidized credit lines during the last three years?

	N	Number of HHS	% accessed
Target communes respondents	159	72	45.3
Control commune respondents	28	6	21.4

5.10 In your opinion, how important is it for saving?

	N	Number of HHS	Very important (%)	Number of HHS	Important (%)	Number of HHS	Not important (%)
Target communes	**159**	**114**	**71.7**	**44**	**27.7**	**1**	**0.6**
- Male	94	65	69.1	28	29.8	1	1.1
- Female	65	49	75.4	16	24.6	0	0
Control commune	**28**	**19**	**67.9**	**9**	**32.1**	**0**	**0**

5.11 If there is a reliable and convenient financial organization for you to deposit your savings, are you willing to make saving?

	N	Number of HHS	Willing (%)	Number of HHS	Not willing (%)	Number of HHS	Can't decide (%)
Target communes	159	117	73.6	14	8.8	28	17.6
- Male	94	60	63.8	9	9.6	25	26.6
- Female	65	57	87.7	5	7.7	3	4.6
Control commune	**28**	**21**	**75.0**	**6**	**21.4**	**1**	**3.6**

5.12 How much can your family mobilize for saving per month?

	N		No of HH making saving (%)	Average amount per month (VND)	Max amount per month (VND)	Min amount per month (VND)
Target communes	**159**	**107**	**67.3**	**134,872**	**2,000,000**	**10,000**
- Inshore fishing HH	156	105	67.3	65,769	300,000	20,000
- Aquaculture HH	3	2	66.6	75,000	100,000	50,000
control commune	**28**	**21**	**75.0**	**128,611**	**1,000,000**	**10,000**