

Saint Vincent and the Grenadines

Ex-Post Evaluation of Japanese Grant Aid Project
“The Project for the Construction of Owia Fishery Center”

External Evaluator: Satoshi Nagashima, ICONS Inc.

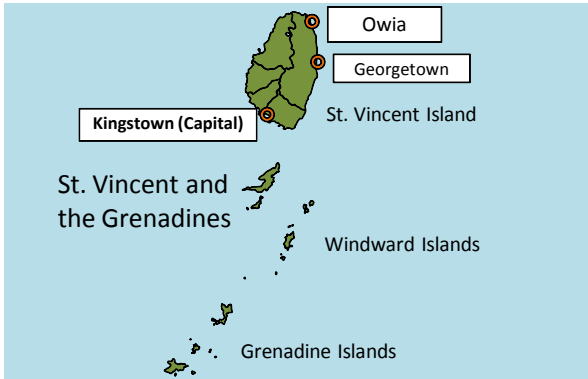
0. Summary

The project was implemented in Owia, in the northeast of Saint Vincent Island, for the purpose of improving safety in the fishery and increasing the opportunities of fishing operations to promote artisanal fisheries and to create new employment by increasing the fish catch in the area, after the construction of slipway, breakwater, rubble rock mound seawall, a fishery center building and fishermen’s locker buildings.

The implementation of this project is in accordance with the development plan of Saint Vincent and the Grenadines, and Japan’s ODA policy but the development needs are only partly consistent with the actual situation, and the relevance is evaluated as fair. The implementation of the project is working for the fishermen’s efficient and safe operation, but on the contrary, the fish catch didn’t achieve the objective. Therefore, the effectiveness and the impact of the project are judged as fair. In addition, though the project cost did not exceed the planned amount, the project period wasn’t on schedule, and the efficiency of the project was also fair. Furthermore, the sustainability of this project is low, since the operation of the Owia Fishery Complex Inc. (hereinafter referred to as OFC) hadn’t been smooth, Fisheries Division, Ministry of Agriculture, Forestry and Fisheries (hereinafter referred to as FD), which temporarily succeeded the operation, has encountered the hard situation of the lack of personnel, and it is difficult to foresee when handover of the operation to National Fisheries Marketing (hereinafter referred to as NFM) will be completed.

In light of the above, this project is evaluated to be unsatisfactory.

1. Project Description



Project Location



Overview of Owia Fish Landing Complex

1.1 Background

The economy of Saint Vincent and the Grenadines depends on the banana industry. However, the cultivated area is limited to 10% of the territory. It was one of the important national issues to raise

potential growth industries, such as the tourism and fishery industries for the replacement of the banana industry.

The Government of Saint Vincent and the Grenadines had a plan to construct 11 fish landing sites nationwide to promote the fishery industry. Eight of the 11 sites had already been constructed at the time of the basic design of the project (seven of them were assisted by Japanese grant aid), but the construction was not ongoing in the North Windward area including Owia located in the northeast of Saint Vincent Island out of remaining three sites.

Though the area of North Windward (Owia, Fancy and Sandy Bay) is near a good fishing ground, it faces onto the Atlantic Ocean and has a topographical restriction of severe wave conditions caused by the swell of the ocean. For that reason, basic facilities had not been constructed, such as landing facilities, primary processing facilities and refrigerating facilities, and this was a factor preventing the development of the fishery.

Because of such a background, the construction of fishery center and breakwaters, etc. in Owia was required for the purpose of developing the fishery in the area of North Windward.

1.2 Project Outline

The objective of this project is to improve safety in the fishery and to increase the opportunity of fishing operations to promote artisanal fisheries and to create new employment by increasing the fish catch in the area, after the construction of slipway, breakwater and rubble rock mound seawall, a fishery center building and fishermen's locker buildings.

Grant Limit / Actual Grant Amount	555 million yen / 527 million yen (I/II) 875 million yen / 874 million yen (II/II)
Exchange of Notes Date (/Grant Agreement Date)	November, 2006 (I/II) June, 2007 (II/II)
Implementing Agency	Fisheries Division, Ministry of Agriculture, Forestry and Fisheries
Project Completion Date	February, 2009
Main Contractor(s)	Toa Corporation
Main Consultant(s)	ECOH Corporation
Basic Design	February, 2006 – September 2006
Related Projects (if any)	<Technical Cooperation> “Adviser in Regional Fisheries Administration” (2006 – 2009, 2009 – 2011) <Grant Aid> “The Project for Fisheries Development” (1980) “The Project for Constructing New Kingstown

	Fish Market” (1987 – 1988) “The Coastal Fisheries Development Project” (1993) “The Fishery Complex Construction Project” (1995) “The Project For Construction Of Fishery Center” (1998) “The Project for re-modeling of New Kingstown Fish Market”(2003)
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2. Outline of the Evaluation Study

2.1 External Evaluator

Satoshi Nagashima, ICONS Inc.

2.2 Duration of Evaluation Study

Duration of the Study: December, 2011 – January, 2013

Duration of the Field Study: March 3rd – March 12th, 2012 and June 11th – June 16th, 2012

2.3 Constraints during the Evaluation Study

Since the Owia Fishery Center was not smoothly operated by OFC, to which the operation was entrusted just after the completion of the construction, the operation was passed on to FD from June 2011 to the time of ex-post evaluation. Since the information on the operation such as financial information from the beginning to the succession of June 2011 was not passed on from OFC to FD, and the interview to the former OFC manager could not be carried out, it was difficult to clarify adequately the cause of what happened and why the operation was not smooth from the viewpoint of finance.

3. Results of the Evaluation (Overall Rating: D¹)

3.1 Relevance (Rating: ②²)

3.1.1 Relevance with the Development Plan of Saint Vincent and the Grenadines

According to the “Fisheries Development Plan (2004 – 2005)” of Saint Vincent and the Grenadines, the following have been listed up as development policies in fishery:

- (1) The increase in the total production and the productivity by improving the post-catch process and the quality control;
- (2) The promotion of raising artisanal fishery by increasing the quality of marine products;
- (3) The increase in the production of imported alternatives and the promotion of exports by introducing standards for exporting marine products;

¹ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

² ③: High, ② Fair, ① Low

(4) The capacity development of the administration including FD.

In addition, the “Three-year Plan for National Development (2004 - 2006)” of Saint Vincent and the Grenadines has indicated that it is moving away from the agricultural industry mainly consisting of banana and evaluates the fishery industry as an important development sector where unused resources exist.

At the time of ex-post evaluation, the following policies have been settled on, though the fishery development plan has not yet been decided:

- (1) According to the “Policy Framework & Strategy Plan for Agricultural Development 2012-2018” by the Ministry of Agriculture, Forestry and Fisheries, to “enhance the viability of rural area” and “contribute to increasing food security” have been indicated as strategic goals in the agricultural development;
- (2) In the FD “Corporate Plan 2012-2014,” “the development and implementation of marketing and distribution systems” is listed as one of the priority issues.

And, the Prime Minister’s speech called “Toward a National Economic and Social Development Plan for St. Vincent and the Grenadines, 2008-2020” also lists “feasible modernization of the fishery industry” as one of the development goals.

As described above, development of the artisanal fishery in rural areas such as Owia and the value addition in marine products by improving the marketing system are listed in the policies at the time of ex-post evaluation, and there aren’t large differences between policies at that time and the current fishery development plan.

3.1.2 Relevance with the Development Needs of Saint Vincent and the Grenadines

According to the basic design study, the fishermen in Owia and the surrounding villages in Saint Vincent and the Grenadines were forced to do difficult fishery activities as listed below before the beginning of this project:

- (1) Since basic fishing port facilities such as wharfs, mooring facilities and slipway weren’t prepared, it was difficult for fishing boats to be docked and to moor;
- (2) The safety in fishing activities of fishermen was not enough because of the lack of safe calm areas of the sea since breakwaters and shore protection works were not constructed;
- (3) There was a great loss after landing because of the lack of refrigerating facilities around the site;
- (4) Fishing boats were apt to be damaged by hitting gravel rocks.

These situations are greatly improved in this project and it seems to correspond to the development needs of the area from the viewpoint of safe and peaceful fishing activities for fishermen.

On the other hand, the basic design study team for the project (dispatched around 2006) indicated that there was potential catch not recorded in the statistics prepared by FD and it was possible to

land approximately 85 tons / year at newly constructed Owia Fishery Center, though the actual fish catch at Owia was around 30 tons per year in the statistics of FD. In the basic design of the project, the demand for marine products in the area of North Windward was estimated at 42 tons, and the target catch in the Owia Fishery Center was set at 85 tons / year and increase of the distribution of the products to outside areas through the center was expected. In the basic survey it was estimated that about five tons / year would be distributed to overseas and about 37 tons / year will be distributed outside of North Windward area. On the distribution to the outside area of North Windward, approximately 27 tons / year was planned for distribution to closer towns outside of North Windward area (such as Georgetown) and about ten tons / year would be distributed to Kingston, the capital. In addition, it was proposed in the basic design study to purchase all landed fish by the Owia Fishery Center when the construction of the facilities was completed, and OFC was planned to purchase all landed fish in their business plan as the result.

In the ex-post evaluation survey, however, the demand of the catch of the beach seine fishery is low among their customers such as restaurants, etc. though the catch is a large portion of the fish landing at Owia, and the center hasn't purchased the large amount of the catch because of the lack of the capital and the manpower. Therefore the plan to purchase all catch by the Owia Fishery Center hasn't realized. It seems that is because the distribution of the catch by the beach seine fishery wasn't adequately examined before the commencement of the project, and the project was planned on the condition of distributing all kinds of the catch by the same distribution route³, and the concrete solution wasn't proposed. As the consequence of this, even the quantity of fish marketing to neighboring towns such as Georgetown, etc. through the Owia Fishery Center is lower than planned. In addition, the purchase through the Owia Fishery Center is still low at the timing of the ex-post evaluation and the specifications of the facilities such as ice making plant, refrigerators, etc. is too high because the specifications were planned based on the full landing⁴.

Furthermore, the plan for Owia Fishery Center to purchase all landing and distribute it to Kingstown and even overseas through a cold chain system does not work up now because of the following reasons:

- (1) Each fishery center is operated by entities other than a fishery cooperative, FD or NFM that operates National Kingstown Fish Market, and there is no cooperation system between them. Therefore no flow for the distribution has been seen.
- (2) There occurs no incentive for middlemen and fishermen to transport by land the caught fish landed at the Owia Fishery Center, since the purchasing price of fish is almost the same everywhere. And fishermen around the center near Kingstown directly transport the catches at

³ According to the business plan of OFC, all purchase prices and all selling prices of the catch were planned as the same price.

⁴ In the plan, the 85 ton as annual fish landing and 1 ton as the maximum fish landing per day were planned to land at the center and the capacity of the ice making machine was also set as 1 ton, the same as the maximum fish landing per day. For the refrigerator and the freezer, the capacities were set based on two continuous day landing of the maximum fish landing (2 tons). Fish landing based of the quantity of fish purchase at the Owia Fishery Center is clearly lower than the plan, and these facilities weren't utilized as the plan.

National Kingstown Fish Market because it is easier to transport them by sea than by land because of curves and steep slopes.

According to the interview with FD, FD is preparing a concept document that describes the connection of landing sites in the country to NFM with cold chains and is expecting that it will be approved by the Cabinet in the middle of the year 2013. Therefore, the plan to connect landing sites in the country with cold chains seems set to be continued. However, the chief of FD said that it will take a long time to put it into practice because many works remain such as preparing the budget for additional investments, the business plan and the legal framework even after this concept document is approved by Cabinet meeting. This plan of connecting landing sites nationwide with a cold chain has existed since the time of the basic design. Though the plan hasn't been carried out even at the time of ex-post evaluation, more than five years after the basic design, an approach is made to realize the plan.

In the consequence, the effect of the project was seen from the viewpoints of the work efficiency for fishermen and improvement of safety but the forecast of the fish landing at the Owia Fishery Center, the forecast of the demand of fish landing at Owia and the forecast of fish distribution were lower than expectation. For that reason, the examination of the forecast of development needs and project designing based on the pre-conditions wasn't sufficient, and the specification of the facilities was designed more than existing development needs on the fish distribution, and the operation and the utilization of the center are largely different compared with the plan. Therefore, it doesn't meet the development needs and the project design isn't appropriate.

3.1.3 Relevance with Japan's ODA Policy

Japan's aid policy for the Caribbean area including Saint Vincent and the Grenadines says that it designates "fishery", "environment and disaster prevention" and "poverty reduction (aid for the social weak, increase in cash income)" as important fields, in the Economic Cooperation Strategy Task Force in Wider-Caribbean Region consisting of the Embassy of Japan in Trinidad and Tobago and the related persons with Japan International Cooperation Agency (hereinafter referred to as "JICA"). Therefore, this project corresponds with Japan's aid policy.

From above, this project was partly irrelevant with the country's development needs at the time of ex-post evaluation, therefore its relevance is fair.

3.2 Effectiveness⁵ (Rating: ②)

3.2.1 Quantitative Effects (Operation and Effect Indicators)

Quantitative indicators measuring the effect of this project are listed in Table 1.

Table 1 Plans and actuals of quantitative indicators for the effectiveness

Effects measured with indicators	Indicators (unit)	Plans (2008)	Actuals (2012)
Efficiency of fishery works	Landing time (average)	1 hour	47 out of 47 fishermen (100%) answered not more than 30 minutes *
	Preparation time for fishing (average)	1 hour	45 out of 48 fishermen (93.7%) answered not more than 30 minutes *
	Manpower for preparation and landing per boat	2 persons ⁶	5 out of 48 fishermen (10.8%) answered 2 persons work for landing and 15 of 48 (31.2%) answered 2 persons for preparation *
Safety in fishery works	Number of damages to fishing boats (number of repair works for wooden boats)	Decrease from damages at every landing	0 out of 48 (0%) answered that it occurs at every landing *
Increase in the catch	The catch	Not less than about 85 tons / year	The catch at Owia: 18.45 – 66.35 tons (2009 – 2011) The catch to Owia Fishery Center: 0.01 – 0.1 tons/month (2011) (Note)

Note: estimation from the purchase quantity at Owia Fishery Center in 2011

Source: the result of beneficiary survey (*) and statistics by FD

According to beneficiary survey, goals have been achieved in terms of the landing and the preparation time for fishing and the frequency of damage to fishing boats. This shows that this project greatly contributed to the efficiency of fishing works for fishermen and improvement in safety.

On the other hand, the indicator of the catch didn't achieve the plan in all three years of 2009 – 2011, according to the statistics of FD. The transition of the fish landing at Owia is shown in Table 2. According to the interviews of beach seine fishermen at the Owia Fishery Center, they formerly sold a part of their catch to Saint Lucia, Martinique and Trinidad and Tobago, etc., but currently the

⁵ Sub-rating for effectiveness is to be put with consideration of Impact

⁶ This plan seems to be the minimum number, however, this indicator is not appropriate for measuring the efficiency of landing, since not only crews land marine products from fishing boats returned from fishing but people remaining onshore also help landing works, according to observation at the site.

volume of overseas sales decreases because the EU regulation prohibits selling catches for which the destination isn't designated. It is considered that the increase in the catch by beach seine boats using the pier of the Owia Fishery Center is the reason for the increase in the catch at Owia in 2009 and 2011 because the landing became easier due to the construction of the facilities.⁷

Table 2 Transition of the fish landing in the area of North Windward 2006 – 2011⁸ Unit: ton

	2006	2007	2008	2009	2010	2011
Total in Saint Vincent and the Grenadines	763.97	973.95	630.78	961.3	810.36	776.82
Fancy	1.55	0.36	0.81	10.94	1.67	3.29
Owia	23.41	18.49	12.87	66.35	18.45	65.20
Sandy Bay	0.11	6.84	13.16	8.62	4.41	4.71
Total of 3 areas	25.07	25.69	26.84	85.91	24.53	73.20

Source: FD (estimation from sample survey)

However, the statistics in Table 2 show the change of the catches at Owia area, and not those at the Owia Fishery Center (= quantity of purchased catch⁹). Though there are no statistics on the fish landing at the Owia Fishery Center, but those estimated from the expenditure for fish purchasing are listed in Table 3.

Table 3 The catch at Owia Fishery Center estimated from the expenditure

Year	2011				
	Month	Aug.	Sep.	Oct.	Nov.
The expenditure on fish (EC\$ ¹⁰)	-	1,092	511	1,185	870
The expenditure on raw materials of fish burgers (EC\$)	53	71	202	60	-
Equivalent to the catch ¹¹ (ton)	0.01	0.09	0.06	0.10	0.07

Source: Calculation by the author from the financial information by Owia Fishery Center

⁷ There was no clear answer on the reason for the temporal decrease in the catch at Owia in 2010 from the interview survey.

⁸ In the plan, it was considered that the catch from the area except Owia (Sandy Bay and Fancy) is distributed through the Owia Fishery Center. However, some portion of the catch is actually landed in these areas. Therefore, it was called into account that the comparison with the catch only at Owia is suitable after the commencement of the operation in 2009.

⁹ At the timing of the ex-post evaluation, ice making plant, refrigerator and freezer were used only for the purchased fish at the Owia fishery center, and it was judged that the fish landing at the Owia Fishery Center and the quantity of the purchased fish were equal.

¹⁰ EC\$1 = about 29.2 yen (June 2012)

¹¹ The purchasing prices of fish and raw materials of fish burgers are EC\$6/lb and EC\$4/lb respectively, then the equivalent catch is calculated as {(the expenditure on fish ÷ 6) + (the expenditure on raw materials of fish burgers ÷ 4)} × 0.45 ÷ 1000kg.

The plan in the basic design and the current situation in the ex-post evaluation are shown in Figure 1.

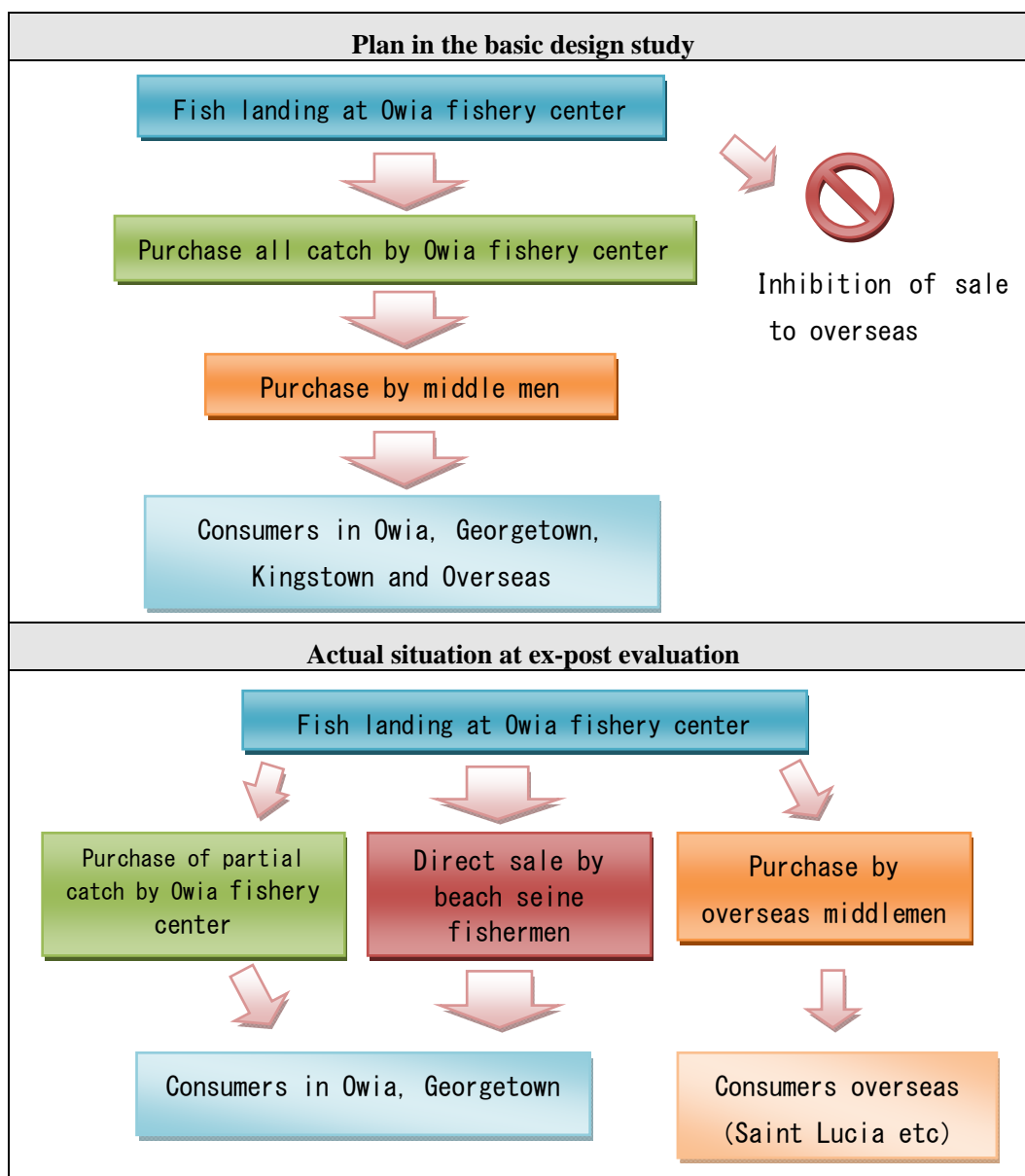


Figure 1 Fish distribution at Owia at the timing of planning and ex-post evaluation

From the statistics in Table 2, it seems that the monthly catch at Owia in 2011 was about 5.5 tons. However, the average volume of purchased catch was estimated to be about 0.07 tons per month (about 1.27% of 5.5 tons per month)¹² during five months after the operation by FD started. It was confirmed from the interview survey with fishermen and the center that most of the fish landing wasn't through the Owia Fishery Center and is sold though it is landed through the piers of Owia Fishery Center. Therefore the actual catch at the Owia Fishery Center is far below the plan of the

¹² The expenditure on fish in 2012 is not known because of the incomplete record of the expenditure information, but according to the personnel dispatched, the products are sold every Saturday and the daily sales volume is about 300lb (135kg).

landing.

In the basic design study, these facilities were designed on the assumption that the annual and monthly catches at the Owia Fishery Center were 85 tons and about 7 tons respectively. The catch at Owia seems to be close to the plan compared with the statistics of FD, but the landing at Owia Fishery Center was not enough.

One of the reasons the catch was assumed not to be less than 85 tons is that the potential catch around Owia in the future was estimated as shown in Table 4 after the interview in the basic design study. This is the value calculated based on the result of the questionnaire survey carried out by the consultant on the number of fishing boats, the frequency of fishing trips and the quantity of the catch per trip by fishing methods based on the assumption that the statistics of FD were sample survey and did not indicate the actual fish landing. This indicator was defined based on the estimates and so were the specifications of the project.

Table 4 Estimated catch in the area of North Windward

Unit: ton	
Fishing gear and methods	Annual catch
Beach seine	39.1
Seasonally operated beach seine from Barrouallie and Chateaubelair	6.5
Trolling	27.5
Bottom long line	12.5
Total	85.6

Source: Prepared from Table 2-2-2(2) of the basic design study report

It was planned that about half of the estimated landing would have been from beach seine boats. In the basic design, it was proposed that landing would have been prohibited except at the Owia Fishery Center for beach seine boats that had not directly landed at Owia¹³. It is clear that this calculation itself is nearly accurate since it was coincide with the actual catch in 2009; however, it depends on whether the center purchased the catch from beach seine boats that these estimates are far different from the actual results.

At the timing of ex-post evaluation, a FD officer who dispatched to the Owia Fishery Center mentioned that the center purchased almost all catch from the trolling boats and bottom long line boats. The purchased catch was sold taking orders from restaurants in neighboring areas of Owia and Georgetown, etc.. Furthermore, direct sales to the population were started every Saturday. However, the Owia Fishery Center does not purchase the catch from beach seine boats. In addition, the estimated landing calculated from the result in 2011 is approximately 1 ton / year and it is significantly low compared with the plan in the basic design study that estimated landing by trolling

¹³ The measure which restrict to land the catch except the Owia Fishery Center actually haven't taken. However beach seine fishermen utilize the pier of Owia Fishery Center because of easiness of the landing.

and bottom long line was approximately 40 tons / year though the officer who is dispatched to the center mentioned that the center purchases all catch from the trolling and bottom long line. The cause of the difference seems to be that;

- 1) the center has purchased only high commodity value fish such as dolphin fish, wahoo, etc.
- 2) some fishing boats landed the catch during the closed hours of the center such as the early morning or late evening
- 3) the basis of the calculation of the catch (the catch per one fishing operation, frequency of the operation, etc.) might be lower than the prediction, and actual landing is lower than the estimation

In addition, it seems that the purchasing capacity of the center was also low since FD took over the operation of Owia Fishery Center without capital.

If the center starts to purchase the catch from beach seine fishery which has high landing volume in Owia, the center also has to bear the operation cost of refrigerators and freezers, which are currently not operational, and the profit from the catch of beach seine will be relatively small. Therefore it seems that the possibility to purchase the catch of beach seine fishery by the center is low if the other utilization of the catch as seafood processing hasn't been found out. Therefore, the Owia Fishery Center is in excess of the needs at the time of ex-post evaluation, considering the refrigerators and freezers with which the center is furnished are not used to cut electricity expenses and the catch is kept in small freezing stockers and refrigerators for household use.

As described above, there are some fishing boats which utilize the pier of the Owia Fishery Center but there is no contribution to the Owia Fishery Center because the landing fee isn't charged. If the center doesn't purchase the catch, beach seine fishermen don't land the catch through the Owia Fishery Center. Therefore the pre-condition of the project that all catch is landed at Owia Fishery Center, preserves the catch in the refrigerator and the freezer and distributes it, cannot be fulfilled. Therefore it is difficult to say that the catch of the beach seine is landed at Owia Fishery Center and it is judged that the indicator on the fish landing hasn't been achieved.

3.2.2 Qualitative Effects

Qualitative effects for measuring the effectiveness of this project are given as the role of ports of refuge against hurricanes, the retention of marine products and the increase in work safety etc.

(1) Creation of a place of refuge for fishing boats

According to the beneficiary survey, three of the 48 fishermen (6.3%) used the port as a place of refuge. The reason was confirmed at the Owia Fishery Center, and the answer was that there has been no hurricane that caused the necessity of evacuation since the completion of this facility. Therefore the effect of creation of the place refuge for fishing boats cannot be confirmed at the time of ex-post evaluation.

(2) Keeping the freshness of the fish catch

According to the beneficiary survey, only three of the 47 fishermen (6.4%) had used ice before the construction, and this situation has not changed after the construction to the extent that nobody answered “always using ice” and eight of the 48 fishermen (16.7%) answered “using ice sometimes”. The reasons might be that the Owia Fishery Center does not have policies such as not to purchase the catch unless it is kept fresh with ice, and that there is no need for fishermen to use ice since the Owia Fishery Center immediately purchases the catches caught by hand lining or trolling in one-day fishing operations.

On the other hand, retention of the freshness of the catch is improved, though it doesn't follow the plan, compared to the former situation of no facility for retention, since catches purchased by the center are kept frozen in small freezing stockers.

(3) Safety of works

Safety of works seems to have been improved since 41 of the 48 fishermen (85.4%) answered that there was no damage to fishing boats during their landing after the construction of the facilities in the beneficiary survey, while it was reported in the basic design study that fishing boats were damaged at every landing. The improvement in safety of works is mainly because the construction of piers and breakwaters deflected the influence of waves, and the depth of water is ensured so as not to cause any contact of boats with the seabed.

(4) Increase in the efficiency of works with selling fuel

At the time of the basic design, the fishermen had to buy fuel at a fuel station in Georgetown, 20 miles from Owia because there was no fuel station there. Therefore it was expected in the basic design stage that it becomes easier to buy fuel and fishing works become more efficient thanks to the installation of a fuel station at the Owia Fishery Center. However, the business of selling fuel had stopped at the time of the ex-post evaluation because of the lack of funds for buying fuel by the poor operation of Owia Fishery Center, and no effect is seen on the efficiency of fishery works by the installation of a fuel stand.

3.3 Impact

3.3.1 Intended Impacts

(1) Increase in distributed fish catch

In this project, it was expected that fresh fish landed at the Owia Fishery Center are distributed through not only the targeted three fishery villages (Fancy, Owia and Sandy Bay) but also neighboring towns such as Georgetown and the fish market in Kingstown the capital, and the supply of fresh fish in all Saint Vincent Island increases, and good quality fish are supplied to consumers and the cash income of those who are related in fishery industries increases.

Though FD does not compile statistics on the distribution of the fish, as shown in Table 3, the Owia Fishery Center hasn't purchased the fish catch of beach seine and the fish landing at the center is low. Therefore, the impact on distribution of fish catch through the center is small. However, as shown in Table 2, fish landing at Owia area increases in the statistics of FD and it seems that the distribution of the fish also seems to increase, though it doesn't contribute to the operation of the center.

(2) Increase in income due to increase in working days

It was expected with the construction of this facility that the working environment of fishermen would be improved, working days and income from fishery would increase, and fishermen would be more motivated and employment opportunity would be created.

According to the beneficiary survey, working days per week are as listed below.

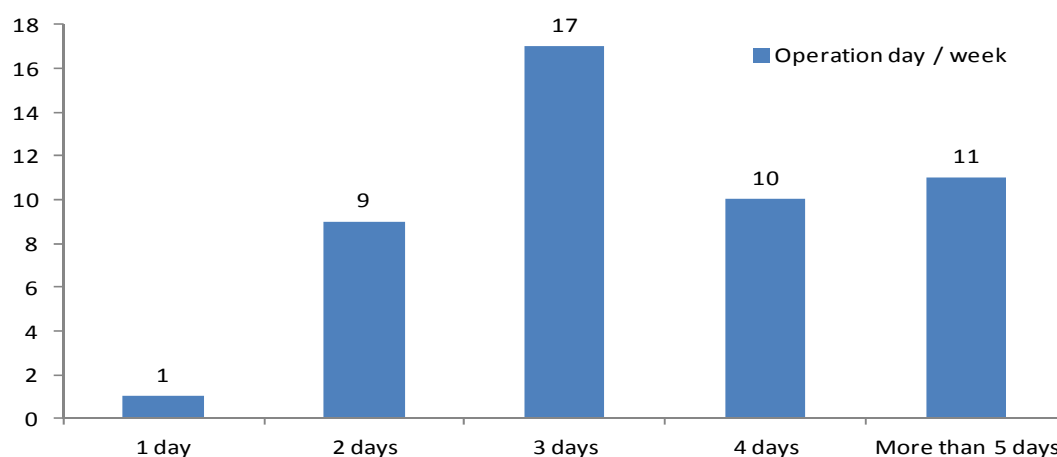


Figure 2 Working days per week of fishermen landing at Owia Fishery Center

Source: beneficiary survey

11 of the 48 fishermen (22.9%) answered “working days increased after the construction of this facility”, while 22 (45.8%) and 15 (31.3%) answered “hardly changed” and “decreased” respectively, which are more than the former. According to the interview survey with the officer who is working at the Owia Fishery Center, 33 fishing boats are stored at the Owia Fishery Center and 15 boats out of them are actually operated. Number of the crew in a boat is approximately 2-3 persons, thus 48 samples¹⁴ are almost the total of the active fishermen. Therefore, the numbers of people who feel that their operation days increase are the minority even among the active

¹⁴ In Saint Vincent, fishing registration is carried out and the number of crew is also mentioned in the registration. Therefore it is possible to calculate the number of fishermen in Owia (172 fishermen). However, according to the officer in charge of the center, a lot of fishing boats which aren't currently used are remaining in the registration and it seems that the information isn't accurate. Therefore, this information won't be used in the evaluation report.

fishermen.

In addition, it is estimated from the comments of the fishery officer that there are many inactive fishermen in Owia since half of fishing boats laid at the slipway for a long time¹⁵, and their working days seem to have changed little except for some active fishermen.

In the same beneficiary survey, the average monthly income before the construction was EC\$501.38 – EC\$2,170.25, while that after the construction was EC\$691.59 – EC\$2,357.96, indicating improvement.¹⁶



Photo: Many fishing boats are laid at the slipway for several months.

However, the number of main income sources of samples in the beneficiary survey is as follows. Owia is semi -

agricultural –fishery village and the samples showing that the fishery is a sub-income source for more than half of fishermen. Therefore, it is difficult to judge whether this is the impact of the project or not because there are two possibilities that increase of the income is due to construction of the project or due to another source.

Table 5 Main income source of the beneficiaries in the survey

	Number of sample	Percentage (%)
Fishery	19	35.8
Agriculture	22	41.5
Others (merchandize etc)	12	22.7
Total	53	100.0
Number of the sample whose main income source is agriculture or the others and fishery is a sub-income source	28	52.8

Source: Beneficiary survey

(3) Function of an accumulating point in the northeast area

According to the interview to FD members and fishermen, most fishing boats in Owia, Fancy and Sandy Bay have come to use the piers of Owia Fishery Center since its construction. However, as shown in Table 2, many fishermen still land at Fancy and Fancy Bay, and the catch at the center is still little. In addition, the beach seine fishermen who have a lot of catch distribute the catches individually. Therefore, it cannot be said that the center plays the role of an accumulating point in the northeast of Saint Vincent Island.

¹⁵ After observation at the site in March and June 2012

¹⁶ This is not be thought as the increase in income caused by inflation, since the inflation rates of Saint Vincent and the Grenadines (yearly average) before the construction of Owia Fishery Center are 3.0%, about 7.0% and about 10.1% in 2006, 2007 and 2008 respectively, while those after the construction are about 3.1% and about 2.7% in 2011 and 2012 respectively, according to the World Economic Outlook Database by IMF (April 2012).

(4) Creation of employment

This project was expected to create employment opportunities by promoting artisanal fisheries. However, there was little impact on the creation of employment opportunities, since the center only employs one security guard and personnel tentatively employed as cleaning women and assistants for primary fish processing, while there is no indirect employment such as porters and fish processing persons and no construction of stores around the center.

(5) Promotion of marine product processing

It was planned at the time of the planning that fish are primarily processed at the Owia Fishery Center. Currently it tries not only to process fish primarily but also process fish products. At the time of ex-post evaluation, it was confirmed that the patty for fish burgers was produced about twice a month. This patty is for domestic consumption and is now under sales promotion at events such as the Fish Night organized by FD, etc., but its benefit currently contributes little to the center.



Photo Produced patty for fish burgers

Table 6 Income by selling fish burger patty in September – December 2011

	Sep.	Oct.	Nov.	Dec.
Sales volume (EC\$)	184	156	25	0
Share in the total income (%)	2.9	1.1	1.1	0.0

Source: Owia Fishery Center

FD is expecting in future to be able to purchase the catch by beach seine as well by using meat of horse mackerel, etc. as raw materials to processed products.

3.3.2 Other Impacts

(1) Impacts on the natural environment

According to FD and the consultant who had supervised the works, there was no negative effect such as back-down of shoreline because winding-off method from land side was employed for the outer bailey facilities (breakwater, etc.) during the coastal land filling. In addition, water pollution at the construction wasn't seen because of the method. Furthermore, for the environmental impact from increased traffic of vehicles and vessels, there was no complaint from the population by notification of the plan to pass heavy cars to population and observing the traffic rules when the cars pass through the town. The process of wastewater from the facilities in processing plants was also a concern but no problem was found in the facility. Therefore no impact on the environment

has been seen.

(2) Land acquisition and resettlement

According to the interview to FD, the Government of Saint Vincent and the Grenadines supplied new residences in the vicinity of Owia to the four families that used to live in the planned construction site, and their acquisition was performed without any problem.

(3) Other indirect impacts

The expected impact that fishing boats become larger was not confirmed due to poor information. It was also expected that the exact amount of catch was grasped, but statistical data such as the fish catch haven't been collected at the Owia Fishery Center, and the personnel of FD who are in charge of statistics continues sample survey to grasp the catch.

The facility is used for purposes other than the fishery port, for example, the FD held the Fish Night and the Fish Festival in 2011 at the Owia Fishery Center, which are the events for promoting fish-eating. FD plans to keep holding these events. Therefore the center plays a certain role in enforcing the connection in the local community.

From the analysis above, the indicator of safety of fishing works which is one of the purposes of the project has been achieved and the result is fruitful. However, increase of the fish landing at the Owia Fishery Center which is another purpose of the project is less than the indicator and there isn't adequate result. In addition, on increasing in the efficiency of works with selling fuel and keeping the freshness of the fish catch, the facilities haven't utilized adequately and the output hasn't seen as planned.

From above, this project has somewhat achieved its objectives, therefore its effectiveness is fair.

3.4 Efficiency (Rating: ②)

3.4.1 Project Outputs

The following Table 7 shows the plans and results of the project output, and if they are different, the reasons or related issues.

Table 7 Plans and results of inputs by the Japanese side

Items	Plans	Results
Civil works	Land Reclamation	As planned
	Revetment	Anti-subsidence work in revetment omitted
	Slipway	As planned
	Breakwaters	Roadbed pressure at yards for making wave dissipation blocks

		changed Area of yards for making wave dissipation blocks changed Arrangement of wave dissipation blocks in breakwaters changed
	Rubble Rock Mound Seawall	As planned
	Roads - Pavement	Retaining walls at access roads and concrete cover on slopes installed
Architectural works	Fishery Center Building	As planned
	Fishermen's Locker Building (lockers, toilets and showers)	As planned
	External facilities - others (pavement, fishnet drying space, septic tanks and water tank)	Locations of outdoor lamps changed
	Special facilities (ice making facilities, ice storage facilities, refrigerator, freezers, fuel supply facilities, emergency generator)	Design changed due to increase in capacity of fuel tanks and arrangement of parking changed
Machinery	Stainless washing basins, stainless working tables, fish trays, fish box for freezer, pressure water & hose, diving compressors, plastic fish boxes, platform scales, handcarts, FRP tanks and plastic perforated baskets	As planned

(2) The Saint Vincent and the Grenadines side

- 1) Required manpower
- 2) Environmental and social considerations: land acquisition and resettlement
- 3) Installation of electricity, water supply and telephone, office machinery and furniture, etc.
- 4) Operation of the facilities / machinery

3.4.2 Project Inputs

3.4.2.1 Project Cost

The planned project cost estimated by the Japanese side was 555 and 875 million yen for phase I and II respectively. The results were 527 and 874 million yen respectively, which were lower than planned (98% of the planned).

3.4.2.2 Project Period

It was planned that the total project period was 21 months¹⁷. Actually, the project started in December 2006 and was completed in February 2009. The total period was 26.5 months¹⁸ and it was longer than planned (126% of the planned period).

According to the consultant in charge of the planning, the reason was that the project period was estimated without any inevitable delay, while the actual period became longer because the installation of breakwater was delayed due to the high waves caused by a hurricane.

From above, although the project cost was within the plan, the project period exceeded the plan, therefore efficiency of the project is fair.

3.5 Sustainability (Rating: ①)

3.5.1 Structural Aspects of Operation and Maintenance

At the time of the basic design of the project, it was expected that the center is initially operated by FD for a certain period and will be passed on to a fishermen's cooperative. In the preliminary study of the project, it was reported that the operation of the fishery center managed by fishermen's cooperative wasn't run very well, but it wasn't well discussed whether the fishermen's cooperative is suitable management body even though nationwide fish distribution was planned. Therefore, it is open to question whether the fishermen's cooperative was adequate as the management body.

When the operation of the center started, the fishermen in the area of North Windward weren't interested in establishing and operating a fishermen's cooperative and it was operated by eight members of OFC¹⁹, which was established just after the construction. The operation by OFC was costly because the organization wasn't restructured in terms of the number of employees even though the center didn't have enough income. The operation then became difficult because OFC couldn't utilize well the capital granted by the Government of Saint Vincent and the Grenadines (EC\$200,000 in 2009 and EC\$150,000 in 2010, according to the interview to FD). Consequently FD temporarily succeeded the operation in July 2011, and as of June 2012, it operates with three members, an FD officer (in charge of maintenance), a driver and a security guard. Though an administrative staff had been employed until December 2011, she quit for personal reasons and the officer dispatched from FD currently has to look after the trade of fish and the accounting in addition to the maintenance work. Since the Owia Fishery Center was constructed at the site of a severe natural environment, and the maintenance work was complicated and needed a long time, the time for the accounting was insufficient. At the time of the evaluator's visit in June 2012, the

¹⁷ Project pre-planning table

¹⁸ 18th December 2006 (Contract with the consultant) – 27th February 2009 (Completion)

¹⁹ OFC is a public company established by the Government of Saint Vincent and the Grenadines to operate and maintain the Owia Fishery Center. It is described in the business plan that it would be entrusted to a private company after the operation by itself for two years.

income and expenditure information for half a year had not been input. According to the FD member dispatched to the Owia Fishery Center, he is requesting to the chief of FD to employ a new member, but this hadn't been realized as of June 2012.

According to the interview survey with FD, this operation by FD is a temporal step and FD examines how to pass it on to NFM in the future. However, this will need a certain time, since there remain many things to do such as the Cabinet meeting decision on the concept document of the cold chains, additional budget measures and the establishment of the business plan. In addition, NFM commented that additional capital investment is necessary for succeeding the operation in the interview survey.

3.5.2 Technical Aspects of Operation and Maintenance

OFC, which had initially operated the center, was forced to succeed the operation to FD because OFC couldn't utilize well the capital granted by the Government of Saint Vincent and the Grenadines because of its inappropriate operation and maintenance of the facilities. Therefore, its capacity for the operation and maintenance does not seem to have been high. According to the interview survey with fishermen and FD, some inappropriate facts in the operation were confirmed, such as purchasing too much fish and disposal of a part of catches after incomplete selling, and paying expensive electricity charge for continuous use of the freezer and the refrigerator even there was not sufficient catch, etc.

In the timing of the ex-post evaluation, the officer dispatched from FD was in charge of not only the maintenance but also the operation of the center. From the reflection of the operation by OFC as described above, some technical improvement in the operation was seen, such as suspending the use of the freezer and the refrigerator to save the electricity cost. However, an administrative staff quitted in December 2011, and the officer from FD was kept in the situation where he couldn't do any accounting work but the daily accounts since he had too many other jobs to do.

There is no problem for the maintenance of the equipment of the facilities, since it is looked after by refrigerating technicians of FD who were trained in Japan. They keep making their efforts to maintain the facilities by cleaning the places prone to rust with freshwater and repainting anti-rust paint once every three months. According to the interview with an officer of FD who are responsible for the maintenance of the fishery facilities, technicians of FD are to be in charge of the maintenance of the facilities and the equipment, whatever the main operation body is. Therefore, there seems to be no problem for the capacity of the maintenance of the facilities in the future as well.

3.5.3 Financial Aspects of Operation and Maintenance

There remain few financial data by OFC, which had been in charge of the operation in 2009 – 2011, either in the Owia Fishery Center or FD. The plan and results of income and expenditure of

OFC in the period January – March 2010, which are the only available financial information, are as follows. The result of income is one twentieth of the plan.

Table 8 Financial Balance of Owia Fishery Center in January – March 2010

Unit: EC\$

	Plan	Result
Income	430,109	22,504
Expenditure	89,088	57,095
Balance	341,021	-34,591

Source: OFC

The results of the operation by FD, which succeeded it from July 2011, are as follows.

Table 9 Financial Balance of Owia Fishery Center in the period August – December 2011

Unit: EC\$

	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Income	1,451	6,347	14,379	2,228	3,771	28,176
Expenditure	858	3,039	14,981	3,157	2,197	24,232
Balance	593	3,308	-602	-929	1,574	3,944

Source: Owia Fishery Center

Table 10 Financial Balance of Owia Fishery Center in the period January – March 2012

Unit: EC\$

	Jan.	Feb.	Mar.	Total	Monthly average
Income	2,145	8,241	4,525	14,911	4,970
Expenditure ²⁰	2,041	10,242	10,120	22,403	7,468
Balance	104	-2,001	-5,595	-7,492	

Source: Owia Fishery Center

²⁰ The expenditure excludes expenses such as electricity charge, since the financial information of 2012 hasn't been completely input.

Table 11 Plan of Balance in the Basic Design Study

Unit: EC\$

		Amount	Annual balance	Monthly balance
Income	Facility rent (landing fee, refrigerator rent, gear locker rent)	216,000	305,283	25,440
	Ice sales	56,700		
	Fuel oil sales	22,983		
	Filling air	9,600		
Expenditure	Personal expense	92,400	304,284	25,357
	Maintenance cost such as electric charge	193,536		
	Water expense	5,148		
	Communication and other office expenses	1,200		
	Facilities rent (to FD)	12,000		

Source: Basic design study report

Since the operation by OFC till 2011 spent all capital granted by the Government of Saint Vincent and the Grenadines, FD restarted the operation with practically no capital. Currently the balance of the facilities in the period August – December 2011 was partly in the black, because FD pays the personnel expenses.²¹ However, it was greatly in the red in the period February – March 2012 and there is no predicting how the balance will become. In addition, compared with the plan in the basic design study as shown in Table 11, EC\$25,000 of monthly income was expected but actual average income is approximately EC\$5,000 in 2012. It is about one fifth of the plan and it shows a large difference.

The management is unstable because most income depends on selling fish. A problem of losses occurred in February 2012 where the center lost the price competition with their competitor (direct sale of fishermen) and unsold fish were sold at lower price than those of purchasing from fishermen. According to the plan in the basic design study, it was planned that the main income source was the facilities rent as landing fee, refrigerator rent, etc., but the main income source is the sale of fish in the actual operation, and it is completely different from the original plan. To improve the management of the center, the diversification of income sources is required, such as collecting a charge on using piers for landing by beach seine fishery.

²¹ This is because it is expected to cause additional expenditure of EC\$5,000 – 6,000 per month for three members, as calculated from the expected annual income for the level of staff of this facility (EC\$20,000 – 30,000) in case of paying personnel expenses.

As for the expenditure, the personnel expenses are paid by FD because it currently operates the facilities, however, the personnel expenses should be considered if the operation is entrusted to NFM, etc. in the future, then the balance may stay in the red under the current operation system. Though FD has measures for technical assistance, FD currently cannot secure the budget for restarting the sale of fuel and procuring expensive spare parts of pump, and it is difficult to expect additional financial assistance even if the facilities keep the balance in the red, since it doesn't secure the budget for financial assistance.

There occurs a hindrance to grasping the current situation and the establishment of the future operation plan, since the current situation is that only one member of FD must do the maintenance, the sales of fish and the accountings, and it was revealed during the site survey of the ex-post evaluation studies for the first time that it was greatly in the red in the period February – March 2012. It is necessary to supply a member for an accountant or a secretary at the expense of FD, to grasp the situation and to take measures.

3.5.4 Current Status of Operation and Maintenance

FD succeeded the operation from OFC in July 2011 without capital, since OFC spent all capital granted by the Government of Saint Vincent and the Grenadines. Therefore, it causes a vicious cycle in that it does not have money for purchasing fuel, the refuel service stops and many fishermen cannot go on fishing operations and their use of the Owia Fishery Center decreases. According to the FD member dispatched at the Owia Fishery Center, the restart of the sale of fuel is expected to require about EC\$20,000 (about 600,000yen). Currently it is in talks with TEXACO, a major fuel seller, to build a cooperative relation.

As for the maintenance of the facilities, erosion is advancing on metal drainage pipes, shutters and condensers in the ice making plant. Though they are cleaned with freshwater and repainted with anti-rust paint, they rust out within two weeks. This requires continuous maintenance, the cost for which is about EC\$500 – EC\$1,000 per month²², which is a heavy burden for the facilities at about 25% of the total expenditure.



Photo: A window sash on which salt is deposited because wind brings salt

On the operation and the maintenance structure in the sustainability, FD is running the center at the timing of the ex-post evaluation but this is temporal measure. It is planned that NFM will take over the operation in the future but the time of the year hasn't been made clear. In addition, lack of manpower is a problem and it hasn't been solved at the time of the ex-post evaluation. On the technical aspects of

²² After the results of the interview survey

operation and maintenance, no critical problem was found. On the financial aspects of operation and maintenance, the operation has been improved compared with the time of the operation by OFC because of the assistance of FD. However, the income is approximately one fifth compared with the plan of the basic design due to the low fish purchase, and high maintenance cost is a big defrayment because of the severe natural environment, so continuous improvement is necessary.

From above, major problems have been observed in terms of the structural and the financial situation for the operation and the maintenance, therefore sustainability of the project effect is low.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The project was implemented in Owia, in the northeast of Saint Vincent Island, for the purpose of improving safety in the fishery and increasing the opportunities of fishing operations to promote artisanal fisheries and to create new employment by increasing the fish catch in the area, after the construction of slipway, breakwater, rubble rock mound seawall, a fishery center building and fishermen's locker buildings.

The implementation of this project is in accordance with the development plan of Saint Vincent and the Grenadines and Japan's ODA policy but the development needs are only partly consistent with the actual situation, and the relevance is evaluated as fair. The implementation of the project is working for the fishermen's efficient and safe operation, but on the contrary, the fish catch didn't achieve the objective. Therefore, the effectiveness and the impact of the project are judged as fair. In addition, though the project cost did not exceed the planned amount, the project period wasn't on schedule, and the efficiency of the project was also fair. Furthermore, the sustainability of this project is low, since the operation of OFC hadn't been smooth, FD, which temporarily succeeded the operation, has encountered the hard situation of the lack of personnel, and it is difficult to foresee when handover of the operation to NFM will be complete.

In light of the above, this project is evaluated to be unsatisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

(1) Establishment of an operation improvement plan of Owia Fishery Center

At the time of ex-post evaluation, the operation level of Owia Fishery Center is low, but any concrete plan of FD on how to rebuild the operation hasn't been seen. Currently the operation of Owia Fishery Center is planned to be entrusted to NFM and it is necessary to complete the procedure. On that basis, it is desirable to establish an operation improvement plan and improve the operation based on the plan.

(2) Restart of refuel service

Restart refueling service to fishermen, which is one of the main services, is high priority for using the facilities effectively. Immediate measures are required.

(3) Bringing in necessary members

The Owia Fishery Center is currently operated with three members and its important works are performed by one officer of FD, causing problems such as the delay in accounting works, etc. It is required to bring in personnel immediately and to secure the necessary budget.

(4) Diversification of income sources

The current income of the center greatly depends on the sale of fish. This causes the tendency not to stabilize the income. Therefore, income sources should be diversified. Especially it is necessary to collect charges on using piers from beach seine fishermen who use them but do not sell the catch to the center.

4.2.2 Recommendations to JICA

Since an expert who covers the regional fishery matters is dispatched in the area, it is recommended to monitor how the facilities are operated and to continue the assistance on the establishment of the structure and the management of the operation and maintenance.

4.3 Lessons Learned

- The project was planned to change the social conventions such as to make beach seine fishing boats land their catch to the center whereas they didn't land the catch at Owia before, or to purchase all the catch by the center whereas fishermen did it individually before. However, the concrete implementation plan slacked off toward the end and it seems that the project doesn't function well. When similar projects are planned to be implemented, it is necessary to understand the social conventions and to utilize the existing system rather changing in a large way.
- It seems that the operation system by fishery cooperative was planned without sufficient examination at the time of basic design study, although the preliminary study of this project reported that the operation of other fishery centers by fishermen's cooperatives hadn't worked well. It is necessary to plan each project with sufficient examination of the situation of other similar projects implemented in the past and the future plan of the project, etc.
- Since the Owia Fishery Center was constructed at a site of a severe natural environment facing onto the Atlantic Ocean, it was possible to expect that the expenditure also should be high due to the maintenance cost for coping with the erosion of facilities and equipment due to salty wind in the Owia Fishery Center. On the other hand, the number of beneficiaries (fishermen) is limited and the

income of the center is small because the facilities aren't utilized as planned. For the reasons given above, the project should have prepared the income and expenditure plan very carefully and have been examined over a sustainable range within the bearable expense by the recipient country at the selection stage of the project.