

## Summary Sheet for Terminal Evaluation

<b>1. Outline of Project</b>	
Country: Republic of Benin	Project Title: the Project for Extension of Inland Aquaculture in Benin (PROVAC)
Issue/Sector: Fishery sector	Cooperation scheme: Technical cooperation
Division in charge: Rural Development Department	Total Cost: 390 million Japanese Yen
Period of Cooperation	May 2010 to May 2013
	Implementing Agency in Partner Country: Department of Fisheries, Ministry of Agriculture, Livestock and Fisheries
	Supporting Organization in Japan: Ministry of Agriculture, Forestry and Fisheries
Related Cooperation: The Study on the promotion of inland aquaculture for rural development in the Republic of Benin	
<p><b>1-1 Background of the Project</b></p> <p>Fish has been an important source of animal proteins for the majority of Beninese people; particularly for the resource-poor to whom other sources of animal proteins are rare or even expensive. Annual fish production was reported to have reached 40,000 tons; however, an additional 45,000 tons of fish products were imported annually to meet the increasing domestic demand on fish. According to the national aquaculture sector census in 2008, while the population was growing at the rate of over 3% per annum, the number of aquaculture farmers remained less than 1,000 farmers producing only 160 tons of total annual production. Thus the Government of Benin gave priority to the development of an inland aquaculture. The Strategic Plan of Revival of the Agricultural Sector in Benin (PSRSA, 2011) has stated that in the present conditions of weak productivity of the water bodies, the fish farm offers the possibility to increase of 50% the production of fish and therefore constitutes an activity to promote in all areas having fish potentials. It also constitutes a source of income diversification for rural producers.</p> <p>Considering this situation, the Republic of Benin solicited the support of the Government of Japan for setting up of the Project for Extension of Inland Aquaculture (PROVAC) in Republic of Benin whose objective was to increase the number of fish farmers in seven departments of the South-Benin. It was about, among others, to contribute to the increase of the fish production level in the zone of intervention and to assure a bigger availability of fish on the markets. The Project commenced in May 2010 and is scheduled to end in May 2013.</p>	
<p><b>1-2 Project Overview</b></p> <p>(1) Overall Goal Inland aquaculture is extended in the seven southern target provinces.</p> <p>(2) Project Purpose Number of aquaculture farmers is increased in selected communes in the target provinces.</p> <p>(3) Expected Outputs</p> <ol style="list-style-type: none"> <li>1) Manuals concerning inland aquaculture technologies and FTF training are prepared;</li> <li>2) Core farmers and aquaculture extension officers of CeRPA/CeCPA become capable of conducting inland aquaculture training;</li> </ol>	

- 3) Ordinary farmers acquire basic aquaculture knowledge through farmer-to-farmer (FTF) training; and
- 4) The Project proposes to the Department of Fisheries necessary activities to encourage ordinary farmers as well as core farmers to engage in independent and sustainable aquaculture management.

(4) Inputs

Input From Japan:

- 1) Assignment of Japanese Experts

A total of 15 Japanese Experts and 1 third country Expert from Egypt in charge of 10 development areas have been dispatched to support the Project.

- 2) Overseas Trainings for Counterpart Officers and Core Farmers

Overseas trainings for the C/P officers as well as core farmers were undertaken; 2 trainings in Japan, 3 in Egypt and 1 in Cambodia and Thailand.

- 3) Provision of Equipment

Office and field equipment equivalent to JPY 1,940 thousand was procured and utilized for the Project activities.

- 4) Financial Support for Local Expense

Total amount of JPY 82,997 thousand has been spent for the local expense required to support the Project activities including trainings for extension officers and core farmers, FTF trainings and inputs support for ordinary farmers.

Input From Benin:

- 1) Assignment of Counterpart Officers

8 officers of Department of Fisheries have been assigned as the Project C/Ps. Among them, 3 officers including the Project Manager (Coordinator) are assigned on the fulltime basis.

- 2) Local Expense from Beninese Government

Total amount of budget FCFA 95 million has been disbursed to support the Project activities and necessary equipment and materials were prepared (Project office, storehouse...etc )

**2. Evaluation Team**

Members of the Team	Assignment		Name	Affiliation/Position
	1	Leader		Mr. Shunji SUGIYAMA
2	Aquaculture Development		Dr. Shunsuke KOSHIO	Professor, Kagoshima University
3	Evaluation Analysis		Mr. Atsushi SUZUKI	Senior Consultant, A&M Consultant Co., Ltd.
4	Evaluation Planning 1		Mr. Takumi SUNOHARA	Staff, Arid and Semi-Arid Farming Area Division Field Crop Based Farming Group, Rural Development Department, JICA HQ
5	Evaluation Planning 2		Dr. Keiji JINDO	JICA Benin Office,
Period of Evaluation	29 October to 17 November 2012			Type of Evaluation: Terminal Evaluation

### **3. Results of Evaluation**

#### **3-1 Achievements of the Project**

##### (1) Achievements in Outputs

- Output 1: Manuals concerning inland aquaculture technologies and FTF training are prepared.

Overall Achievement and Prospects for Output 1: the 2 Indicators defined at the beginning of the Project have been attained at satisfactory level. And also the Project has successfully undertaken a number of activities that were not necessarily reflected on the indicators for Output 1 such as baseline and impact assessment surveys, various PR activities including open and public seminars and publication of newsletters, etc. all of which will contribute to the overall achievement of the Project Purpose. Based on these observations, it can be concluded that the Output 1 will be achieved by the end of the Project term. However, it has been pointed out that it will still require some time to confirm the adoption of each technology by farmers as there are some technologies which had been utilized by farmers at the beginning but ceased after some time for some reason. A typical example for this is mono-sex male seed production of Tilapia. The Evaluation Team heard in the field visits a number of core farmers and extension officers citing this particular technology as one of the most remarkable achievements of the Project. It was reported that, however, the number of ordinary farmers who had actually repeated the use of mono-sex male seeds in the second cycle of production was not very high at the moment, which means the technology has not been adopted yet at full scale. Although the achievement level of Output 1 could be regarded high, follow-up activities may be still required to consolidate the achievement.

- Output 2: Core farmers and aquaculture extension officers of CeRPA/CeCPA become capable of conducting inland aquaculture training.

According to the achievement level of Indicators, the targets of Output 2 are considered to have been attained at more than 100% level since the numbers of extension officers and core farmers trained on the improved aquaculture techniques have exceeded the original targets. In the interviews conducted in the field visits, most of interviewees both extension officers and core farmers answered that they had already conducted trainings for ordinary farmers (FTF) with a certain level of confidence which could be regarded as a good indicator to support the results. However, the levels of their capacity to conduct trainings appeared to much differ depending on various factors such as when they were trained and where they stayed or even personal past experience in aquaculture. In general, the more learning opportunities extension officers or farmers have had, the higher capability or confidence they are able to nurture. Since the selection of core farmers and initial trainings were conducted in different years, the officers and farmers in areas selected in 2010 should have developed more capacity than those in areas selected in 2011 or 2012. The information obtained through the interviews supported this fact and officers and farmers with longer support showed more confidence in conducting trainings. It is considered important for the Project to ensure the officers and farmers in areas recently to improve their capacity as much as possible towards the end of the Project. Similarly, it was reported by the Project Team that extension officers in non-target areas (communes) showed different level of capacity according to the results of understanding exams conducted after the training undertaken for them in September 2012. Since more number of farmers in non-target areas have started aquaculture with support from the Project, it is important for the Project Team to take necessary measures as much as possible to

follow up officers and farmers in non-target areas too.

Output 3: Ordinary farmers acquire basic aquaculture knowledge through farmer-to-farmer (FTF) trainings.

Quite a number of activities have been carried out for Output 3, which were not necessarily reflected on the Indicators explained above. The Project has been providing initial assistance of inputs (seeds, feed and hapa nets, etc.) required by ordinary farmers who have participated in the FTF training and managed to prepare production facilities (ponds or tanks) by themselves.

Determining a guideline based on the results of technical analysis as well as consultation with the Project stakeholders, a total of 855 ordinary farmers (Tilapia 442, Catfish 413), accounting for 61% of the total training participants, have been directly supported by the Project with inputs by the end of September 2012. And also, the Project has been providing technical assistance to core farmers and extension officers who in turn support the ordinary farmers after they have started production. Not only FTF trainings but also this assistance after the trainings has without a doubt contributed to the enhancement of basic knowledge of ordinary farmers concerning aquaculture. Therefore, it can be concluded that the Output 3 is also highly likely to be attained by the end of the Project. On the other hand, there has been a concern regarding the situation where a good number of farmers actually have not started production after the FTF trainings. The Evaluation Team has learnt that there are some reasons behind this issue as follows;

- i) Problem of selection process of farmers for FTF trainings: some farmers expected too much physical assistance from the Project.
- ii) Low capacity of ordinary farmers: some farmers failed in preparing production facilities due to lack of initial capital or other reasons after attending the training.
- iii) Insufficient capacity of core farmers to supply initial inputs (seeds and feeds): there were some cases in which core farmers could not produce sufficient seeds and feeds even if ordinary farmers were ready to start production.
- iv) Effects of natural calamities: some areas were prone to natural calamities e.g. unusual floods due to climate change.
- v) Insufficient capacity of extension officers: some extension officers could not give proper technical guidance to farmers due to insufficient knowledge regarding aquaculture.

While the Project has been making efforts to attend these issues, there should be still a need to strengthen the support system for ordinary farmers.

Output 4: The Project proposes to the Department of Fisheries necessary activities to encourage ordinary farmers as well as core farmers to engage in independent and sustainable aquaculture management.

Among other activities, expectation on the introduction of microcredit scheme for women groups appeared to be high among stakeholders. One of the largest concerns for resource poor farmers to start the aquaculture production has been initial capital to prepare the necessary facilities and obtain essential inputs such as seeds and feeds. Introduction of microcredit could be a way to mitigate this problem. The Evaluation Team has learnt that those women groups in Kouchi who had access to the credit on pilot basis have performed well so far which is considered important to guarantee the sustainability of the programme. And also, through the activities of the Project, status and roles of

women farmers have been remarkably promoted. With advice of the JICA Expert on gender, women groups have been encouraged to participate in the FTF training which has been contributing to the increased number of ordinary farmers and the sustainable aquaculture management as a whole.

## (2) Achievements in the Project Purpose

Project Purpose: Number of aquaculture farmers is increased in selected communes in the target provinces.

As a result of the interventions of the Project, it is obvious that the number of aquaculture farmers have remarkably increased in the target areas. The results of analysis on the achievement level of 3 Indicators defined in the PDM have shown the degree of increase in the number of aquaculture farmers. Therefore, it can be concluded that the Project Purpose will be achieved at a satisfactory level by the end of the Project in April 2013. However, it is still too early to assess as to how many of these farmers who have started aquaculture production with support from the Project will continue their activities on a longer term basis. As far as the available data is concerned, the majority of farmers appear to continue the production at least next few years. It can be pointed out that though the rate of farmers who have started the 2nd cycle production was shown more than the target of 60%, the number of farmers who have purchased mono-sex male seeds for Tilapia production from core farmers was not very high, which was less than 20%. While the Evaluation Team observed that a good number of core farmers and extension officers appreciated this particular technology, the majority of ordinary farmers have not yet adopted the use of it in their production activities at full scale. It will be important to conduct thorough analysis on the factors concerned with the low adoption rate and take necessary measures to ensure the adoption of the technology. Also the continuation showed that more than 30% of Tilapia farmers and 20% of Catfish pond farmers have discontinued their activities just after the one cycle of production. Although it is difficult to know whether they have completely abandoned the activities or temporarily stopped for some reason, it will be also important and useful to analyze the factors behind their behavior and take necessary measure to ensure the continuation for the future.

## 3-2 Results of Five Criteria Evaluation

### (1) **Relevance:** very high

- Fish and fish products have been one of the most important sources of proteins for the majority of Beninese people accounting for more than two-thirds of consumption of animal proteins. While Benin has substantial sources of water that are well distributed across the country that constitute a potential for the development of fisheries and aquaculture with a view to self-sufficiency, this subsector suffers from a number of constraints that hamper its development including (i) overuse of surface waters, (ii) the high cost of investment and (iii) the difficulty for fisheries products in obtaining access to the markets of the European Union countries (GPRS 2011-2015).

- Development assistance policy of Japanese Government for Benin has focused on 3 sectors of health, primary industry (agriculture and fisheries) and human resource development aiming at improvement of livelihood and reduction of poverty. Assistance to the fisheries sector started in the early 2000 with provision of fisheries equipment and construction of fishing port. Technical cooperation in the

aquaculture sector started with dispatch of a policy advisor from 2000. A development study on the promotion of inland aquaculture (PACODER) was conducted from 2007 to 2009, on which results the current Project was formulated. Therefore, the Project has been implemented in line with the ODA policies of the Japanese Government.

- Japan, being an island country, has substantially developed fisheries industry and technologies including seed and feed production, fish disease control, water management, etc. Besides this, the Japanese Government has long-term experiences on implementing technical cooperation projects in a number of developing countries across the world, notably in Asia. Without doubt, Japan has comparative advantage of technical cooperation in aquaculture development.

- Use of the FTF approach was one of the features of the Project. The introduction of the approach was considered a contributing factor to the successful implementation of the Project. Therefore, it can be concluded that the approach taken by the Project was highly appropriate.

## **(2) Effectiveness: Moderately high**

- All the 4 Outputs will be realized by attaining all the indicators set in the PDM. Consequently the Project Purpose which was to increase aquaculture farmers in target areas is highly likely to be achieved by the end of the Project term. Despite good achievements of the Project, however, it is still too early to make a conclusion on sustainability of the achievements since it will need some more time and efforts of all the players to consolidate the project results and realize longer-term effects on the sustainable development of aquaculture in the target areas.

- All of these outputs were important and have contributed sufficiently to realization of the Project Purpose. Therefore, it can be concluded that the Project had been well designed logically.

- There were no particular important assumptions identified at the beginning of the Project for realizing the Project Purpose from Outputs. In the project implementation process, negative factors recognized was existence of increased number of farmers who did not or could not start aquaculture production after attending the FTF training or those who stopped production on the way for some reasons. It was pointed out that traditional land tenure system in rural areas had negatively affected the farmers' behavior since it prevented ordinary farmers to access to the suitable land required for setting of ponds. It was difficult before starting for the Project to know existence of such problem.

## **(3) Efficiency: High**

- Inputs from the Japan side for the Project included dispatch of Japanese and third country experts, provision of equipment, overseas trainings in Japan and Egypt for C/P, extension officers and core farmers, and financial assistance for local expense. The inputs from Japan side were regarded moderately appropriate against the outputs as the majority of the respondents indicated level of appropriateness "some extent." Assignment of C/P officers, provision of facilities and equipment including offices for Japanese Experts, disbursement of various local expenses were the major inputs from the Benin side for the Project. the inputs from the Benin side were not necessarily considered at satisfactory level as the majority of the respondents indicated appropriateness level "some extent" or "not much"

- Adoption of FTF training approach must have substantially contributed to the enhancement of efficiency.

- There were 3 assumptions at the Output level that were identified at the beginning of the Project. They

included: i) Pesticide is not utilized around aquaculture tanks or ponds; ii) Natural disaster that damages aquaculture does not occur; and iii) Outbreak of serious fish disease does not take place. Some assumptions materialized but they have not developed to the level where the Project implementation was badly affected since the Project Team took necessary measures to control each incident successfully.

**(4) Impact:** Positive Impact can be expected

- The Project has carried out a number of activities to extend the beneficiary areas and farmers through active PRs, involvement of ordinary farmers in non-target areas in FTF trainings, organizing trainings for all the extension officers in non-target communes. According to the Baseline Study conducted at the beginning of the Project, the number of aquaculture farmers in the target provinces increased from 403 in 2004 to 1,188 in 2010. Assuming all the farmers have continued the production, the total number has become 1,675 since another 487 farmers started or restarted aquaculture with assistance from the current Project. If the number of farmers continues to increase at the similar rate even after the Project term, the Overall Goal will be achieved by 2020. Although no important assumptions were identified in the PDM, there could be a number of assumptions in realizing this Overall Goal. Among others, the biggest assumption would be that the Government of Benin should continue to have political will and make efforts for development of aquaculture in the country. The current government has recognized the necessity to reduce the importation of fish and stated in its policy documents to promote aquaculture development as one of priority agenda. According to the experience in other countries in Africa (e.g. Uganda), once the number of aquaculture farmers has reached a critical level, there is a possibility for the industry to expand on its own.

- The Impact Assessment Study conducted in March 2012 reported that there was a sign of increase in the income of the beneficiary farmers in the target areas. The majority of farmers who had participated in the Project activities reported that the economic situation of their household was a little better now. It was also reported that the Project interventions had a positive impact on the vulnerability, the food security, the acquisition of durable goods, and the poverty of the recipients. Although such signs were still at infant level, the Project has certainly brought about a positive impact on the livelihood of beneficiaries. The pilot programme of microcredit scheme has shown a good potential to realize a positive impact on livelihood in rural communities, particularly for women who usually have limited income opportunities.

- The Evaluation Team has learnt that interests on the Project approach and achievement have been growing beyond the country level. 2 study missions from Togo and Burkina Faso visited Benin to see the Project activities. This could be a positive impact realized by the Project on aquaculture development at the regional level.

**(5) Sustainability:** Moderate

- The Government of Benin has recognized importance of aquaculture development and stated in its policy documents the increase of domestic fish production should be prioritized. Therefore, as far as the current policy is maintained in the future, the sustainability of the Project achievement will be high. The Project has been implemented with the Department of Fisheries under MAEP being the main implementing organization in close collaboration with CeRPA/CeCPA in the target areas. The Evaluation Team has observed that the relationship between these two departments has been good and further strengthened through the Project. Assuming no major changes in the MAEP structure are made in

the near future, institutional sustainability will be high.

At farmers' level, if the cooperatives or associations that have been organized with support from the Project are maintained well, institutional sustainability will be secured. Whether these organizations are maintained or not in the future shall be depending on whether benefits can be felt by the participating farmers or not.

- At government level, the Benin side has made efforts to secure the funds required for the Project activities. Looking at the current budget situation of the Benin Government, financial sustainability at the government level including activities of CeRPA/CeCPA officers is not likely to be high. According to the information obtained by the Project, World Bank is preparing to initiate inland aquaculture development supports under PADA and PPAAO. Effective use of international loans could be one way to increase the financial sustainability at the government level.

On the other hand, at farmers' level, financial sustainability will be very much depending on the profitability of aquaculture. If farmers can generate sufficient income from aquaculture activities, they will sustain the production even without much support from the Project or the Government. Therefore, it will still be necessary for the Project Team to conduct a thorough analysis on the profitability of aquaculture in order to make a conclusion regarding the financial sustainability at farmers' level.

Pilot programme on the introduction of microcredit scheme should have a potential to boost the financial sustainability at the farmers' level.

- With various activities supported by the Project, it seems that the C/P officers at DP headquarters who closely worked with the Japanese Experts have obtained sufficient knowledge and skills in aquaculture. They will be able to conduct trainings and carry out activities that have been done under the Project as far as financial resources are allocated to them. However, at field level, the Evaluation Team has got a mixed impression as the capacity level of extension officers and core farmers varied from person to person or from commune to commune. While there were some areas where extension officers and core farmers had gained sufficient knowledge and skills to conduct FTF trainings with minimum assistance from the Project Team, in other areas, extension officers and core farmers still appeared to require a lot of support. Therefore, it was considered that the technical sustainability was moderate at the moment.

### **3-3 Conclusion**

It is certain that the Project shall achieve the purpose before May 2013; however, the sustainability of the Project achievements is not yet secured. Considering the nature of the activities the Project deals with, 3 years of the project term doesn't appear to be sufficient to ensure the sustainability of the achievements. Based on all of these observations and considerations, the Evaluation Team makes a conclusion that while the Project has been successfully implemented according to the plan agreed between Benin and Japan, it still requires some follow-ups to consolidate the achievements.

### **3-4 Recommendations**

The Evaluation Team makes 13 recommendations divided in 3 categories. 1.Actions required for the remaining period of the Project, 2. Actions required for the extended period of the Project and 3.Actions required after termination of the Project.

1. Actions required for the remaining period of the Project
  - a) Renewal of the core farmer's certificate
  - b) Analysis of non-continuation cases
  - c) Economic viability of aquaculture operation
  - d) Guidelines for the use of hormones for seed production



2. Actions required for the extended period of the Project
  - e) Acquiring basic aquacultural technics
  - f) Utilizing microfinances
  - g) Improved monitoring of farmers' operation
  - h) Improving the capacity of farmers group
  - i) Effective use of PIP fund
  - j) Dissemination of the Project results
  - k) Coordination with other donors' activities
  
3. Actions required after termination of the Project
  - l) Allocation of national resources for continued promotion of aquaculture with FTF training approach. Continued engagement of the project counterparts in aquaculture development
  - m) Technical exchange and information sharing meetings among TSPH/CPH
  - n) Supporting measures by the government