

Summary

Evaluation conducted by: OPMAC Corporation

1. Outline of the Project	
Country: Republic of Argentina	Project title: The Project of Research and Development of Pejerrey Aquaculture and Propagation
Issue/Sector: Fisheries	Cooperation Scheme: Project Type Technical Cooperation
Division in charge: Fishery Development Team, Group III, Rural Development Department (Field Crop Based Farming Area Division 1 (Latin America and the Caribbean), Rural Development Department)	Total Cost: 176 million Yen
Period of Cooperation	September 10, 2002 to September 9, 2005
	<p>Partner Country's Implementing Organization: National Council for Scientific and Technical Research/Instituto Tecnológico de Chascomús (INTECH), Ministry of Agricultural Affairs, Buenos Aires Province/Estación Hidrobiológica de Chascomús (EHC)</p> <p>Supporting Organization in Japan: Tokyo University of Marine Science and Technology (formerly Tokyo University of Fisheries), Kanagawa Prefecture</p>
Related Cooperation	None in particular
<p>1-1. Background of the Project</p> <p>For the effective use of Pejerrey resources, the provincial government of Buenos Aires has been producing fertilized eggs and hatched larvae through artificial reproduction by catching wild broodstock and has been releasing them into water bodies in the province way back since the 1940s. Fertilized Pejerrey eggs have also been taken to other inland provinces as well as outside the country. However, it has come to be known that such activities as production of fertilized eggs and release of hatched larvae can make little or no contribution to formation and increase of Pejerrey resources in natural waters due to the low survival potential. At the same time, Pejerrey resources have been decreasing dramatically because of over-fishing and abnormal climatic conditions that are thought to have impacted on Pejerrey reproduction.</p> <p>Under these circumstances, the provincial government of Buenos Aires, National Institute of Fisheries Resource Development (INIDEP), National Council for Scientific and Technical Research (CONICET), University of Buenos Aires (UBA), provincial government of Neuquén and others have been engaged in research on Pejerrey propagation and culture based on their serious concerns for declining Pejerrey resources. However, due to inadequacy of basic research on the physiology, ecology, breeding and propagation of Pejerrey and insufficient development of technologies that are suited to the region, favorable results have not been attained. In order to make a breakthrough in this situation, the fisheries development bureau of the provincial government of Buenos Aires submitted a request to Japan for dispatch of an expert. Based upon the request, a JICA expert was dispatched to the region from November 2001 to May 2002. As a result, it was suggested that technical supports could be provided by making use of Pejerrey aquaculture techniques that had been established in Japan using Pejerrey that had been brought to Japan by Japanese immigrants as a symbol of Japan-Argentina friendship. Based on a request for cooperation from the abovementioned Argentine organizations researching Pejerrey aquaculture, a preliminary study team was dispatched to Argentina in May 2002 and a decision was made to implement a technical cooperation project.</p>	

1-2. Project Overview

The Project area is the Republic of Argentina and the final beneficiaries are small and medium farmers, fishermen, etc. Aiming at establishment of technologies for aquaculture and propagation of Pejerrey that is endemic to Argentina, a technical cooperation project was undertaken through the technology transfer to National Council for Scientific and Technical Research/Instituto Tecnológico de Chascomús (INTECH), Ministry of Agricultural Affairs, Buenos Aires Province/Estación Hidrobiológica de Chascomús (EHC).

(1) Overall Goal:

Execution of model Pejerrey aquaculture and other related forms of production in the Chascomús area and surroundings.

(2) Project Purpose:

Development of fundamental techniques for aquaculture and propagation of Pejerrey

(3) Outputs:

- 1) Development of Pejerrey seed production techniques
- 2) Research on mass seed production techniques for Pejerrey
- 3) Planning of aquaculture and other related forms of production
- 4) Consideration of monitoring/evaluation results for improvement of the Project

(4) Inputs

Japanese side:

Long-term Expert: 3 persons

Short-term Expert: 4 persons

Trainees of C/Ps in Japan:

8 staffs of C/P organizations

Equipment: 8 million Yen

Local cost: 20 million Yen

Total: 176 million Yen

Paraguay side:

Counterpart: 11 persons

Land and Facilities: research facilities, supplies and equipment

Local cost: 48,600 US\$, equivalent to approximately 6 million Yen

2. Evaluation Team

Members of Evaluation Team	Team leader/evaluation design/site survey: Ms. Mitsue MISHIMA, OPMAC Corp. Consultant Evaluation expert: Ms. Hisami Nakamura, OPMAC Corp. Consultant Evaluation expert of agriculture/rural development aspects: Dr. Kiyoko HITSUDA, Japan Development Service Co., Ltd., Consultant
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Period of Evaluation	November 24, 2008 to April 24, 2009 (Field Trip: February 3, 2009 to March 12, 2009)	Type of Evaluation: Ex-post Evaluation
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3. Project Performance

3-1. Performance of Project Purpose

It is evaluated that the Project purpose was achieved within the Project implementation period.

It was not clearly defined what the “fundamental techniques” of the Project purpose meant. In terms of the indicator “Number of seeds produced,” numerical targets were not set to show what types of seeds and how many seeds were to be produced.

It is viewed that production of 100,000 juveniles, each seed weighing one gram, would provide a rough yardstick for evaluation of a project for aquaculture and propagation. At the time of the terminal evaluation of the Project, it was confirmed that the Project had produced more than 100,000 juvenile Pejerrey of Kanagawa strain and approximately 20,000 seeds of Junin (in Buenos Aires province) Pejerrey in its seed production activities.

As its capacity to produce 100,000 seeds in this quality was proved, it is assumed that “development of fundamental techniques” set under the Project purpose has been achieved.

3-2. Achievement related to Overall Goal

Although indicators that examine achievements of the overall goal were not properly established, it is judged at the time of the post evaluation that it has not been achieved.

The overall goal is set as "Execution of model Pejerrey aquaculture and other related forms of production in the Chascomús area and surroundings." However, it has been confirmed that model Pejerrey aquaculture was not implemented. As for "other related forms of production," they were not clearly defined so that it is not known what they mean. Hence, it is not possible to verify the achievements.

3-3 Follow-up of the Recommendations by Terminal Evaluation Study

As for the recommendations given at the time of the terminal evaluation, related organizations have implemented within their abilities.

With regard to continuation of inputs and activities towards the achievements of the overall goal and superior goal as well as dissemination activities of the aquaculture and propagation techniques to researchers, Pejerrey aquaculture and seeds releasing station staff in particular, INTECH, EHC and the Buenos Aires provincial government have taken measures. Recommendations concerning the application of the Project's outcome, releasing activities of Pejerrey seeds, are carried out in Buenos Aires province. About formulation of strategies for the development of Pejerrey aquaculture and propagation by stocking, specific documents have not been prepared but the Buenos Aires provincial government stated that they continue their supports to Pejerrey aquaculture and propagation. In terms of the strategies for Pejerrey aquaculture and propagation at the national government level, activities have been conducted in consideration of technology transfer to third countries and establishment of a research network.

4. Results of Evaluation

4-1. Summary of Evaluation Results

(1) Relevance

The relevance of the Project is adequate.

There exist needs from fishermen, final beneficiaries, for Pejerrey aquaculture and propagation with a view to expanding fishery resources. Moreover, Pejerrey was very popular among the local population in the surrounding areas of the municipality of Chascomús where the project was implemented and needs for propagation of Pejerrey were found in sport fishing and restaurants. On the other hand, as it is considered that Pejerrey aquaculture was expected to be unprofitable, it should have been taken into account that commercialization of the operation would require time for small and medium-scale farmers and livestock breeders

In terms of the consistency with the government policy of Argentina, Pejerrey is inferior to other types of fish such as trout from the viewpoint of research on aquaculture by utilizing inland water bodies: however, it meets the direction in which research on aquaculture and propagation of native species is promoted.

As for the consistency with the aid policy of Japan and the country assistant plan of JICA, the Project is found consistent with a view to meeting a policy to promote the South-South cooperation and to conserving environment. Furthermore, Pejerrey seeds were transplanted to Japan by a group of volunteers of Japanese immigrants and then technologies that produce fertilized eggs and hatched larvae were established in Japan. Utilization of such technologies for aquaculture and propagation in Argentina had a very significant meaning.

(2) Effectiveness

Effectiveness is more or less sufficient. All the activities have been completed by the end of the Project and the expected outputs have been produced. As a result, the Project Purpose has been achieved.

However, as clear indicators with technical bases have not been established in order to examine the achievements of the Project Purpose and outputs, it remains an issue to ensure the objectivity. Nonetheless, since it is proved in the production of 100,000 fertilized eggs and hatched larvae, a yardstick which is required to examine an aquaculture project, was attained within the project period, technical requirements are considered to have been satisfied.

(3) Efficiency

The Project is found to be satisfactorily efficient. Through the project activities, the inputs contributed to the production of the outputs and the achievement of the Project Purpose.

The inputs from the Japanese side such as experts, equipment and counterpart trainings were found appropriate in both quality and quantity. In particular, concerning the equipment provided by the Japanese side, costs were reduced in such a way that local contractors set up water tanks for aquaculture using locally-available materials. These efforts lead on increase in efficiency. On the other hand, as for the inputs by the Argentina side, budgets were temporarily not allocated at the beginning of the Project due to the economic crisis: however, this did not pose a problem for the project operation, particularly like the delay of the activities.

(4) Impact

The Project is brought about positive impacts. At the time of the ex-post evaluation, the overall goal for the aquaculture has not been achieved but other related forms of Pejerrey production such as seed releasing activities have been progressed. With the dissemination of fundamental techniques that has been attained by the Project, the volume of distribution of the Pejerrey seeds was increased by more than three times after year 2006. The seeds were primarily distributed to 5 aquaculture releasing stations in the Buenos Aires province and also to research institutes or the government in other provinces. The seed releasing volume therefore has been increased and positive impact has been confirmed on environmental conservation and fishery resources.

Besides, the capacities of INTECH and EHC, the implementing agencies of the Project, have been enhanced and training courses on Pejerrey aquaculture for technical dissemination are being held for related personnel inside and outside the country. Moreover, various activities are being undertaken such as presentations of research outputs at international seminars and study on the application of the technologies to other types of fish under the JICA project in Mexico.

In addition, because commercialization of aquaculture is yet to be materialized, there is no negative impact observed such as degradation of water quality due to expansion of the aquaculture.

(5) Sustainability

The outcomes of the Project are more or less sustainable.

The staff at INTECH and EHC are actively engaged in publish of papers on the related researches and organization of training courses for relevant personnel inside and outside the country. Dissemination and research on the techniques of aquaculture and propagation are further expected in the domestic as well as international arenas. Furthermore, as for the propagation technology of Pejerrey that was established under the Project, the practices of the Pejerrey seed releasing are being expanded in the areas, centering in Buenos Aires Province, thus the sustainability of applying the outcome of the Project is also recognized. However, it requires continuous efforts development of low-cost technologies for aquaculture.

Currently, sufficient budgets are continuously allocated for activities related to the Pejerrey aquaculture and propagation, including research, dissemination, and so forth, at both INTECH and EHC. In the foreseeable future, their activities will be financially supported. Moreover, there has been no personnel transfer of major staff after completion of the Project and the transfer of the staff is less likely to be taken place hereafter. Therefore, it is considered that sustainability is organizationally and technically ensured.

4-2. Factors that have promoted project

(1) Impact

With regard to the dissemination of the technologies established by the Project and the capacity development of the related personnel, with high ability and motivations on the Argentine side, both EHC and INTECH have been quite actively involved in the dissemination of knowledge. Besides, as for the increase in volume of Pejerrey seeds release, EHC had already undertaken activities to distribute seeds to other aquaculture and releasing stations in Buenos Aires Province as part of their routine works before the implementation of the Project.

(2) Sustainability

It is pointed out that ex-staff of EHC and INTECH show their high commitments to research on aquaculture and propagation of Pejerrey. In addition, their work environment where personnel transfer rarely takes place has contributed to continuation of research and enhancement of cooperative relations among different organizations. Furthermore, government agencies of Argentina came to increase their awareness in terms of importance of Pejerrey aquaculture and propagation by the outcomes of the Project, which led to increase in the budgetary appropriation. This contributed to a factor to secure financial sustainability of the Project.

(3) Others

Not in particular

4-3. Factors that have inhibited the Project

(1) Impact

One of the factors that have the achievement of prevented the overall goal, although it is a difficult and time-consuming task to undertake technical development of Pejerrey aquaculture, these concerns were not well reflected in the project design. In addition, the approach adopted in the technical cooperation narrowed down the final beneficiaries only to small and medium farmers, etc. This limited flexibilities of selecting the overall goal, inhibiting the Project from setting the overall goal under the appropriate logical structure.

(2) Sustainability

Prioritizing development of the aquaculture but the scope of the technical improvement designed in the Project was not an appropriate approach in practice. It could have required a longer time and financial inputs in order to develop technologies for aquaculture: however, such arrangements were not made under the framework of the Project.

(3) Factors that have inhibited effectiveness and efficiency

None in particular

4-4. Conclusion

Seeds production technologies established by the Project took root in the counterparts on the Argentine side and have been maintained. The counterparts are involved in environmental conservation by increasing the volume to stock in lakes of Buenos Aires Province and in dissemination of technologies inside and outside the country. From this viewpoint, effectiveness and impact concerning environmental conservation and dissemination of technology are sufficiently identified and sustainability relating to propagation (technologies required to increase the volume of stocking) is recognized.

However, at the time of the ex-post evaluation that was conducted three years after the project completion, it was envisioned that it could have been rather difficult from the beginning to implement Pejerrey aquaculture model for commercialization from around the fifth year after the project completion. Hence, the appropriateness of setting the overall goal is not rational. The ex-C/P staffs are continuing research activities to develop technologies to be commercialized in the future. Further efforts for technological improvement will be required in order to advance aquaculture technologies toward commercialization.

4-5. Recommendations

(Recommendations to EHC and INTECH)

The following recommendations are made on EHC and INTECH, counterpart organizations;

- Development of low-cost feeds and continuation/enhancement, etc. of aquaculture and propagation technologies using cage culture:

It is expected to continue current research efforts based on the analysis of needs

- Strengthening of research on seed marking and follow-up study for releasing:

The seed marking techniques that were studied under the Project have not been put into practice for the follow-up study for releasing and consequently, no scientific validation has been done on impact of releasing seeds stocking that has increased utilizing Pejerrey

aquaculture and propagation technologies under the Project. At present, there is no particular negative impact being observed from the releasing the stocking seeds, but when the number of the released stocking seeds is increased more in the future, it is needed to strengthen research activities so as to properly monitor the conditions and study impact from monitoring results.

- Technical research on extensive aquaculture (by releasing to private ponds, etc.):
With regard to aquaculture, extensive aquaculture is partly observed. From the viewpoint of expanding the outcome of the Project, according to the necessity, it is also required to study on this issue.

4-6. Lessons Learned

(Lessons learned to JICA)

- Set-up of the overall goal after assessing of the practical feasibility:
There is a problem in terms of setting-up the overall goal and superior goal from a viewpoint of technology development. Based on the realistic needs assessment and framework of the project, including implementation period, budgets and important assumptions (financial supports from the Governments and market demands), project approaches and targeting of technical levels, should have been set up so as for the overall goal to be achieved within the given period. The fact that the final beneficiaries were limited mainly to small and medium farmers in the first place also restricted flexibility of setting the overall goal.

(Lessons learned to EHC and INTECH)

- Management of research through setting-up of clear objectives:
Although there was a problem in terms of establishing clear indicators under the Project, the objective of the research and development was set up, and technology development was advanced with limited budgets and time period. The research of technologies needs to be continued and outputs produced by the research should be applied to another one to follow. During this process, it is necessary to decide whether the research that produces certain outputs should be continued or new research topics should be taken up by setting priorities within limited resources, including personnel, facilities and budgets. The monitoring method on the research by this Project is necessarily applied to other research activities.
- Strengthening of activities in consideration of contributions to local societies with research outcomes:
Awareness on Pejerrey aquaculture and propagation has been enhanced through recognition of the Project's outcome by the Government and the general public. This led to enhancement of activities by EHC and INTECH such as publication of papers, training courses and public relations. On the other hand, improvement of technologies resulted in visible effects in the forms of an increased volume in Pejerrey, which in turn stimulated needs of the local societies towards Pejerrey. This fact again revealed the social mission vested in EHC and INTECH as a research institute. In the light of the impact of Pejerrey releasing activities, it is important to recognize that when undertaking other research activities, instead of doing the research for research, technology development and improvement in consideration of feedbacks to the society will have various spillover effects.