

Summary of Terminal Evaluation

I. Outline of the Project	
Country: Republic of Costa Rica	Project title: Project on Sustainable Fisheries Management for the Gulf of Nicoya
Issue/Sector: Fisheries-Fisheries Resource Management	Cooperation scheme: Technical Cooperation Project
Division in charge: Field Crop-based Farming Area Team I, Rural Development Group 2	Total cost (estimated at completion of the Project): 480 million JPY
Period of Cooperation (R/D): October 1, 2002 – September 30, 2007	Partner Country's Implementing Organization: Universidad Nacional (UNA), Instituto Costarricense de Pasca y Acuicultura (INCOPECA)
	Supporting Organization in Japan: Ministry of Agriculture, Forestry and Fisheries (Fisheries Agency), Ministry of Education, Culture, Sports, Science and Technology (national universities)
	Related Cooperation Project:
<p>1-1 Background of the Project</p> <p>The main force of the fishing industry in the Republic of Costa Rica (hereinafter referred to as "Costa Rica") is composed of coastal and offshore fishing by small-scale fishermen. Most of the annual catch is the harvest from the Pacific Coast, which holds the Gulf of Nicoya, one of the largest fishing grounds in Costa Rica, at its center. However, the catches have declined due to the increase of new fishermen coming in from other industries, and depletion of fisheries resources became an issue of concern. Based on this background, Costa Rica requested Japan, a country with abundant experience in fisheries resource management, for a technical cooperation project for promoting fisheries production techniques that harmonizes with the environment, and promoting efficient utilization of water zones, while maintaining the marine environment.</p> <p>Receiving this request, JICA launched the Project on Sustainable Fisheries Management Plan for the Gulf of Nicoya, which focused on resource and quality management, with the intention to continue the project for 5 years from October 1, 2002. In the resource management sphere, JICA provided technical cooperation on evaluation of fisheries resources, such as assessment of spawning season and age of main fish species, which also included the establishment of a database. In the quality control sphere, JICA provided technical instruction on monitoring shellfish poisons, while improving techniques to evaluate and maintain fish freshness at each phase of distribution.</p> <p>1-2 Project Overview</p>	

(1) Super Goal

Household incomes of artisanal fisherman are improved in and around the Gulf of Nicoya

(2) Overall Goal

Sustainable management and utilization of fisheries resources are performed in and around the Gulf of Nicoya

(3) Project Purpose

National University (UNA) and Costa Rican Fishing and Aquaculture Institute (INCOPESCA) are able to recommend scientific basis for sustainable fisheries management.

(4) Outputs

1. The operational and managerial system of the Project Unit is enhanced.
2. Data required for resource management is collected.
3. Databases are introduced to accumulate data and to increase convenience of access to necessary data.
4. Utilizing databases, technologies of data processing for stock assessment are introduced.
5. Institutional framework for recommending fishery-management policies is established.
6. The condition and problems of quality control of marine products distribution from fishing boats to fish stores are clarified.
7. C/Ps acquire the techniques of freshness tests and freshness maintenance.
8. The improvement of monitoring system of toxic shellfish is advanced.
9. C/Ps acquire the knowledge and technique for dissemination of quality control to stake-holders.

(5) Inputs (at the time of evaluation)

Japanese side: Total input of 480 million yen

Long-term expert: 5 Equipment: 377,000 dollars

Short-term expert: 13 Local cost: 250,000 dollars

Trainees: 17

Costa Rica's side:

Counterparts: 32

An exclusive office for experts, laboratory, meeting room, classroom, electricity bill, water bill, cleaning fee, etc.

Local cost: UNA 636,000 dollars, INCOPESCA 747,000 dollars

2. Evaluation Team

Members of Evaluation Team	(Assigned area: name, job title) Leader: Yukio Yokoi, Group Director for Rural Development Group 2, JICA Quality control/aquaculture: Toshio Akiyama, Director-General for the National Research Institute of Fisheries and Environment of Inland Sea, Fisheries Research Agency Cooperation planner: Makoto Hirata, Field Crop-Based Farming Area Team I, Rural Development Group 2, JICA Evaluation Analysis: Kazuo Udagawa, Senior Consultant, IC Net Limited	
Period of Evaluation	From May 13, 2007 to June 2, 2007	Type of Evaluation: Terminal Evaluation
3. Results of Evaluation		
<p>3-1 Achievement</p> <p>(1) Achievement Status of the Project Purpose</p> <p>Indicators for the project purpose, “Enabling the UNA and INCOPECSA to present a scientific evidence for sustainable fisheries management,” are almost cleared at the time of the terminal evaluation, and are expected to be achieved by the end of the project. Outputs 1 – 9 are almost achieved at the time of evaluation and the level of the goal attainment is very high. Evaluation for individual indicators is as follows.</p> <p><u>Indicator 1: The strategy and plan are recommended for sustainable resource management.</u></p> <p>The English version of a proposal for sustainable resource management utilizing scientific data has been formulated. This indicator is considered to be attainable as detailed correction of the proposal, formulation of the Spanish version of the proposal, and recommendation for the Director General of INCOPECSA and administrative council are planned to be implemented in the future.</p> <p><u>Indicator 2: The strategy and plan are recommended for improvement of quality control of marine products.</u></p> <p>The proposal for the improvement of quality control of fishery products will not be released in English but in Spanish, whose draft has been already made, and is expected to be completed by the end of the project.</p> <p>(2) Achievement Status of Outputs</p> <p><u>Output 1. The operational and managerial system of the Project Unit is enhanced.</u></p> <p>Level of attainment of Output 1 is very high.</p> <p>Although there was a shortage in some budgets including the maintenance cost, deployment of counterparts, securing of budget, and establishment of project operation system were carried out as</p>		

they were planned, and public relations activities through posters and pamphlets featuring fish and shellfish, and through educational videos are actively implemented.

Output 2. Data required for resource management is collected.

Level of attainment of Output 2 is very high.

Review and analysis of statistical data of fish catches, research on fishermen's activities, and collection of biological information were implemented on schedule, were compiled in 22 reports, and are planned to be released in four academic papers in the future.

Output 3. Databases are introduced to accumulate data and to increase convenience of access to necessary data.

Level of attainment of Output 3 is very high.

A database format for compiling statistical and biological data has been formulated. In addition, marine Geographic Information System (GIS) software and hardware system has been introduced, and academic thesis using the data is about to be completed.

Output 4. Utilizing databases, technologies of data processing for stock assessment are introduced.

Level of attainment of Output 4 is very high.

Techniques to assess maturity and sex ratio of fish and shellfish, and relational expression between length and weight, and to read annual growth rings on otolith, as well as analysis method of length composition data, and several evaluation methods for fishery resources have been transferred to five counterparts.

Output 5. Institutional framework for recommending fishery-management policies is established.

Level of attainment of Output 5 is very high.

The Resources Evaluation Committee has been established under the project. Three persons from UNA, four persons from INCOPECA, and two persons from JICA participated in the Committee as members. The Evaluation Committee implemented resource evaluation on target species using the data collected during the project, and formulated a recommendation for resource management especially on Japanese glass shrimp (*Pasiphaea japonica*) and star snapper (*Lutjanus stellatus*).

Output 6. The condition and problems of quality control of marine products distribution from fishing boats to fish stores are clarified.

Level of attainment of Output 6 is high.

Research on fishermen, shellfish collectors, and distributors was implemented and it revealed the status and issues of quality control from fishing to distribution and sales. However, the relationship

between freshness and prices in the domestic market needs to be clarified in the rest of the project period.

Output 7. C/Ps acquire the techniques of freshness tests and freshness maintenance.

Level of attainment of Output 7 is very high.

The Spanish version of the manual on freshness testing methods and freshness maintenance methods (such as *ikejime* and ice storage techniques) has been formulated, and proper transfer of techniques to counterparts through the manual and practical training was confirmed.

Output 8. The improvement of monitoring system of toxic shellfish is advanced.

Level of attainment of Output 8 is very high.

Various range of monitoring and testing were carried out, including the assessment of toxic plankton within the sea water, toxic level of shellfish meat, and accumulation status of heavy metals inside the shellfish meat, and two reports were submitted to the Red Tide Council.

Output 9. C/Ps acquire the knowledge and technique for dissemination of quality control to stake-holders.

Level of attainment of Output 9 is high.

Twenty six textbooks and pamphlets have been prepared so far. Moreover, three educational videos, number of PowerPoint presentation materials for seminars, and six types of posters featuring fish and shellfish were also made. The counterparts utilize these materials effectively.

3-2 Summary of Evaluation Results

(1) Relevance:

The relevance of the Project is very high.

- The Project's super goal is consistent with the policies for poverty and gap reduction that are presented by the Government of Costa Rica.
- The Law of Establishment of INCOPESCA defines the institutional role as promoting aquaculture, protecting marine biological resources, and achieving proper use of fisheries resources in order to increase economical yields from the fisheries resources by regulating its use.
- UNA presents its vision of addressing important items for the equal and sustainable human development, and places high priority on the social contribution.
- More than 3,500 fishermen live on the fisheries resources in the Gulf of Nicoya, which is the most productive fishing ground in Costa Rica. The Project sets its overall goal of understanding the changes of fisheries resources and realizing sustainable resource management in the Gulf of

Nicoya, which also meets the demand of fishermen.

- The project purpose is enabling the UNA and INCOPECSA to present a scientific evidence for sustainable fisheries management, which is an indispensable element for the attainment of the overall goal.
- Although the Project had no activities especially intended for women, the workshops and seminars implemented under the Project were always attended by female participants, and contributed to the improvement of their knowledge and skills.

(2) Effectiveness

The effectiveness of the Project is very high.

- The achievement of the project purpose is the result of the accumulation of small attainments. The coordination between the two organizations with different characteristics, UNA and INCOPECSA, reinforced through the implementation of the Project, was another factor that enhanced the effectiveness of the Project.
- The researchers had opportunities to evaluate the resources of Japanese glass shrimp and star snapper in the Gulf of Nicoya during the activities of the Project. Based on the results of the evaluation, a proposal for resource management of these two species was concluded.
- In the quality control sphere, not only the importance of the safety issue of fisheries products, such as food poisoning bacteria and shellfish poison, but also of the freshness was shown to the counterparts in Costa Rica. The specialists and counterparts promoted the dissemination of knowledge to fishermen, distributors, and retailers through workshops and seminars. Standing on such activities, a draft strategy was formulated for improving the quality control of fisheries products in Costa Rica.

(3) Efficiency

The efficiency of the Project is very high because both Japanese side and Costa Rica's side made sufficient inputs, and because these inputs were properly utilized.

- A synergistic effect was seen as both UNA and INCOPECSA addressed coordinated activities, taking a lead in the areas of their own specialties, which are the area of research and analysis, and the area of fisheries statistics, knowledge dissemination and education, respectively.
- The position of leader was handed over to the successor in a timely manner at the halfway stage of the project period, which produced an effect to raise efficiency and effectiveness. Continuous work of a coordinator and two specialists from the start of the Project also reduced loss of time caused by the replacement of staff, and resulted in high efficiency of the implementation of the Project.
- In addition, equipment that are kept not used were not seen in the Project, since, based on the

consultation with the counterparts, most of the equipment was procured within Costa Rica and procurement of those which required high maintenance costs was avoided as much as possible.

(4) Impact

Although the basis for achieving the overall goal has been established through the project activities, and the possibility of attaining the overall goal is high, it requires political decisions and actions to realize sustainable management and use of fisheries resources.

- Data of the maturation period of Japanese glass shrimp, which was revealed in the Project, are used for setting the fishing ban period by INCOPECA.
- A database system and format (ACCESS is used) to compile biological information and statistical data of catches have been introduced, which are planned to be used for the compilation of fisheries statistics of not only the Gulf of Nicoya, but also of the whole nation.
- As a result of the effect of activities concerning quality control, there are increasing cases of displaying and selling fish on ice in a tray sealed with plastic wrap, from a viewpoint of hygiene control, at supermarkets in the capital city, San Jose.

(5) Sustainability

The sustainability of the Project is high since there is a high possibility of both UNA and INCOPECA continuing the activities after the closing of the Project. However, further efforts are required to develop the activities and to achieve the overall goal.

- In terms of the system, drafting works of the detailed regulations based on the new Fishing and Aquaculture Law has been started. As the regulation is expected to be reinforced by the Law, an institutional framework of the attainment of the overall goal is about to be established.
- In terms of the organizations, both UNA and INCOPECA have organizational capabilities to continue with the activities that have been launched during the Project. While many of the staff of INCOPECA have abundant experience and high capacity, recruiting and training human resources of a new generation is essential for the continuance of the activities, when taking into account the high age of the current staff.
- The sustainability of the Project is high since both UNA and INCOPECA perceives this project as the first phase of their own long-term plans, and are formulating a plan for the future second and third phases. In order to further improve the sustainability of the Project, it is important for the two institutions to reinforce the coordination with each other after the closing of the Project.
- When looking at the financial aspect, labor costs, business trip expenses and survey research expenses are paid from the regular activity budget without neither UNA nor INCOPECA allocating special budget for the Project, which suggests that there will be no problem in

continuing the activities that have been launched during the Project. However, there were some expenses that could not be timely paid although it was a small amount, so it is crucial to secure necessary budget for the purchase of goods and maintenance of equipment for implementing activities smoothly in the future.

- In terms of technologies, the sustainability has been improved by transferring technologies to multiple counterparts.

3-3 Factors that promoted realization of effects

Range of efficient inputs of Japanese side, including the five-year continuous activities by long-term experts, effective training in Japan for the counterparts by the short-term experts who participated in the activities in Costa Rica, and strict selection of equipment, promoted the development of the counterparts and contributed to the achievement of effects.

The strong ownership of the Costa Rica's side and the efforts of UNA and INCOPECA for the cooperation were the key to the success of the Project.

3-4 Factors that impeded realization of effects

- The assumptions that were made at the time of planning the Project, such as "20 – 40% of the fish caught by small-scale fishermen are unmarketable as they are not fresh," or "fresh fish are traded at higher prices," were not necessarily verified facts, and this often caused difficulty in obtaining common recognition regarding the priority of the project activities between the persons concerned.
- There were some disputes concerning costs charged on organizations in the recipient country due to the gap between the recognitions regarding the actual operational methods and regulations.

3-5 Conclusion

All the goals and outputs that were indicated in the Project Design Matrix (PDM) are expected to be achieved by the end of the Project, since enough technical contribution has been made in the sphere of resource evaluation and quality control, while establishing the implementation framework between UNA and INCOPECA, and recommendations for the fisheries resources management based on scientific evidence is likely to be continued. Therefore, it is relevant to end the Project on the date planned in the Record of Discussion (R/D).

3-6 Recommendations (Specific measures, proposals and advices on the Project)

- The results of the Project should be fully utilized for the future activities. That is, the strategies and plans on resource management and quality control that have been formulated during the

Project should be shared between the stakeholders, and it is indispensable for the Government of Costa Rica to make political decisions and take concrete measures based on the communication with the stakeholders.

- The role, function, and coordination of UNA and INCOPECSA should be reinforced, focusing on the activities that have been introduced and enhanced under the Project. In order to achieve this, JICA recommends establishing the Resources Evaluation Committee as a public organization for the resource management sphere, and interaction group between the two institutions for the quality control sphere.
- In the resource management sphere, as it is estimated that regulations based on poor scientific evidence will not function, information sharing between the relevant parties are essential. In the quality control sphere, it is important to educate consumers about the importance of maintaining freshness of fish and shellfish. If preference for the freshness is established among the consumers, it may lead to the incentives for distributors and fishermen, such as increased prices.
- Costa Rica, which achieved significant results through the Project, is expected to play the leading role in Central America, as resource management is often the issue of a broad area, and the issues in the surrounding countries are considered to be similar. It is beneficial to enhance the coordination with the surrounding countries through seminars.

3-7 Lessons Learned (Items learned from the Project, which are helpful for the finding, forming, implementation and operational management of other similar projects)

- Before launching a project, it is essential to collect sufficient information for the premise that would be the key for the implementation. In addition, at an early stage of the Project, precise verification of the assumption should be the first priority.
- In order to ensure sustainability of results of a project, it is preferred to utilize the existing schemes and frameworks in the aid recipient. The Project utilized the workshop that had been traditionally a requirement for renewing fishing license, upgraded its contents, and successfully established it as a sustainable activity for the future.
- Regarding the costs charged on organizations in the recipient country, not only the amount of cost but also its operational method and regulations should also be confirmed before launching a project. The gap between the recognition of both sides may cause delay in goal achievement or unwanted disputes.