

終了時評価調査結果要約表（英文）

<b>I. Outline of the Project</b>	
<b>Country :</b> The Republic of Senegal	
<b>Project title :</b> The Enhancement of Sustainability in the Mangrove Forest Management of Saloum Delta	
<b>Issue/Sector :</b> Sustainable Use of Natural Resources	
<b>Cooperation scheme :</b> Technological Cooperation Project	
<b>Division in charge :</b> Global Environment Dept. Forest and Environment Conservation Division II	
<b>Total cost :</b> 253,802,000yen	
<b>Period of Cooperation</b>	November/2005~March/2008 (R/D): 29/Aug/2005
	<p><b>Partner Country's Implementing Organization :</b> Department of Water, Forests, Hunting, Soil Conservation, Ministry of Environment, Protection of Nature, Reservoirs and Artificial Lakes</p> <p><b>Supporting Organization in Japan :</b> Ministry of Agriculture, Forestry and Fisheries</p>
<b>Related Cooperation :</b>	
<p><b>1 Background of the Project</b></p> <p>The government of Senegal elaborated in June 2002 the "Poverty Reduction Strategy Paper (DSRP)" to reduce poverty by half, until 2015. For the environment sector, it focuses the 'Natural resource and environment management'.</p> <p>Senegal has reviewed the new Senegal forest policy in April 2005. The new Senegal forest policy last by the year 2025 and it aims to contribute to poverty reduction through the management and the sustainable conservation of forest resources and biodiversity, providing population need by respecting the decentralization policy and maintaining socio-ecological balances.</p> <p>Within the context of environment sector mentioned above, the government of Senegal has presented to the government of Japan a request for implementation the "Project aimed at the enhancement of the sustainability in the mangrove forest management of Saloum Delta in the republic of Senegal". The Record of discussion of the project has been signed by the both countries in August 2005. The present project is the phase of implementation of "The Study on sustainable management of the mangrove in the Petite Côte and Saloum Delta in the Republic of Senegal" that the government of Japan has done through Japan international cooperation agency (JICA) from 2001 to March 2005.</p> <p>Based on the achievement of the pilot project of the study, the present project has started at the end of May 2006 after a preliminary study undertaken from December 2005 to February 2006 in order to reinforce the sustainability of the activities in the villages.</p>	
<p><b>2 Project Overview</b></p> <p><b>(1) Overall Goal</b></p> <p>It will be created the chance to know how to improve living conditions of the population in the target area as the result of the sustainable management of mangrove forest.</p> <p><b>(2) Project Purpose</b></p> <p>The population of targeted villagers will be enabled to utilize and manage the mangrove forest resources in the sustainable and diffusible manner.</p> <p><b>(3) Outputs</b></p>	

1. Populations of target villagers become capable of carrying out their activities regularly and of using a part of the profits in order to conserve and to restore the mangrove forest.
2. Consciousness of local administrators and technical officers who lead population will be raised.
3. Activities to be achieved in the short and middle term for sustainable management of mangrove forest are clarified.

**(4) Inputs**

**Japanese side :**

1. Experts have been assigned below  
5 experts sent in every 3 years.
2. Counterparts training  
2 C/Ps have benefited from the training and one another will be sent in January 2008.
3. Budget  
Around 253 million Japanese yen or around 1016 million FCFA has been expended.

**Senegalese Side :**

1. Counterparts have been assigned as follows  
8 C/Ps have been assigned.
2. Provision of land, building and facilities  
Land and office are prepared for the project team by Senegalese side, but the office is repaired with the budget of Japanese side in 2005 JFY.
3. The Budget

The budget of Senegalese side has not set aside for the year 2005 and 2006. For the year 2007, approximately 192 million FCFA has authorized as the counterpart's budget and 18 million FCFA has been executed.

**II. Evaluation Team**

<b>Members of Evaluation Team</b>	1. Mr. Eizen Irei / Leader	Resident Representative, JICA Senegal Office
	2. Mr. Kenichi Takano/ Evaluation Management	Executive Technical Advisor to the Director General, Global Environment Dept, JICA
	3. Mr. Ippei Matsuhisa/ Evaluation Planning	Program officer, Forestry and Nature Conservation, Global Environment Dept, JICA
	4. Ms. Satomi Tanaka/ Evaluation Analysis	Consultant, CDC International
	5. Mr. Koichi Kato/ Mission Management	Assistant Resident Representative, JICA Senegal Office
	6. Mr. Ibrahima Ndiaye/ Evaluation Analysis	Deputy Chief, Division of follow-up and Evaluation, Department of Water, Forest, Hunting and Soil Conservation, Ministry of Environment, Protection of Nature, Reservoirs and Artificial Lakes
	7. Mr. Mame Mort Diagne/ Evaluation Analysis	Deputy Chief, Reforestation and Conservation of soils, Department of Water, Forest, Hunting and Soil Conservation, Ministry of Environment, Protection of Nature, Reservoirs and Artificial Lakes
<b>Period of Evaluation</b>	3 <sup>rd</sup> /Dec/ 2007~ 18 <sup>th</sup> /Dec/ 2007	<b>Type of Evaluation :</b> Terminal

**III. Results of Evaluation**

**1. Summary of Evaluation Results**

**1-1 Achievement of the Output**

### 1. Output 1

Output 1	Indicators
Populations of target villagers become capable of carrying out their activities regularly and of using a part of the profits in order to conserve and to restore the mangrove forest.	<ol style="list-style-type: none"><li>1. Situation of profits from income generation activities included the ones which reduce the firewood consumption, state of management of project and its cost.</li><li>2. Amount saved for activities aiming the conservation and the restoration of mangrove forest and state of contributive supports for these activities.</li></ol>

Total income from income generation activities including reduction of the firewood consumption is 1,647,400 FCFA, total revenue from the activities is 610,785, cost for rotation of activities is 292,464 FCFA.

The skills and techniques needed for their activities such as plantation and shell transformation are well mastered by the villagers. The villagers have mastered very well the *Rhizophora* plantation but *Avicennia* plantation has encountered difficulties due to the natural conditions such as the chlorination of the land

### 2. Output 2

Output 2	Indicators
Consciousness of local administrators and technical officers who lead population will be raised.	Number of site visits in villages.

Good implication of the forestry officers in the project activities has helped increase the level of their consciousness.

According to the results of the interviews, certain forestry officers pay a visit to the village once a week especially in the season of the reforestation which shows their determinations for their work taking into consideration that some villages are very remote and hard to access, even though it is their mandates.

Local administrations such as community rural are also involved in the project. The seminar called "CR Seminar" held once in every six months in all the 4 communities rural of the project area have been carried out to raise the awareness of not only members of local communities but also the high rank officials such as the head of the department and the cities.

### 3. Output 3

Output 3	Indicators
Activities to be achieved in the short and middle term for sustainable management of mangrove forest are clarified.	The contents of action plan and its suitable description style.

For this purpose, the action plan composed of the activities for sustainable management of mangrove is defined for all the 11 villages which cover the period of the project and the next three years after its completion.

The plans themselves have been just distributed to the villagers, therefore the level of understanding and awareness on the plans are found to be moderate and differs from one village to another. The description of the action plan is not very illustrative covering the points needed for the action.

However, the activities for sustainable management of mangrove are clearly shown to the villagers through the project implementation and the fact that in all the villages the concept of the action plan is put on shows that the plan is acknowledged within the villages.

### 1-2 Achievement of the Project purpose

Project Purpose	Indicators
The population of targeted villagers will be enabled to utilize and manage the mangrove forest resources in the sustainable and diffusible manner.	<ol style="list-style-type: none"> <li>1. State of mangrove forest resources in the targeted villages. (such as the area of mangrove forest, quantity of fish that are caught etc.)</li> <li>2. Capacity of the population and village organizations.</li> <li>3. Proper supports and managements by the staffs of local administrations and technical officers.</li> </ol>

1. Total afforestation and reforestation area of mangrove forest is 9.76 ha and community forest area is 6.74 ha in the target villages. The part of revenue from income generation activities was used for afforestation and reforestation activities in Djirnda and Mounde. Although there is no data evidence for the state of mangrove forest resources at the target villages, mangrove resources have not changed as much. Although quantity of bonga shad that are caught might be a little, it is not clear whether resources have decreased or not.
2. Skills and techniques necessary to implement activities which contribute to build the environmental conservation system have been learned through the project activities such as planting mangrove trees, harvest of mangrove oysters, fabrication of life jacket, workers' soft boots and groves, improvement of shellfish processing, protection and cultivation of young half-crenate ark, beekeeping, ecotourism, improved cooking oven for smoked bonga shad, improved cooking oven for households and so on. Institution management ability and financial management ability which are important to build and implement the environmental conservation system have been developed through 4 trainings which were held between 2006 and 2007. At the same time, motivation, accountability and sense of independence of villagers have been improved. Capacity of the villagers and of the village organizations has significantly improved. This fact can be confirmed by the techniques mastered and even improved by the villagers such as the gloves and the boots.
3. The local administrations and technical officers are widely included in the process of the project through the participation of activities and seminars, although the implication of technical officers from fishery department seems weak.

### 1-3 Achievement of the overall goal

Overall Goal	Indicators
It will be created the chance to know how to improve living conditions of the population in the target area as the result of the sustainable management of mangrove forest.	<ol style="list-style-type: none"> <li>1. State of mangrove forest resources at the surrounding of targeted villages. (such as the area of mangrove forest, quantity of fish that are caught, etc.)</li> <li>2. Promotion of the economic activities that contribute to the sustainable management of mangrove forest resources at the surrounding of targeted villages.</li> <li>3. State of extension to the surrounding of target villages for the sustainable management system of mangrove forest resources which is established in the targeted villages by the project.</li> </ol>

1. Although there is no data of evidence for the state of mangrove forest resources at the surrounding target villages, mangrove resources such as forestry and fishery are not big changes as before. It is not clear whether the phenomena are in all part of delta, part of delta, decrease of resources or problems of operation even though quantity of bonga shad that are caught might be a little.

2. Although the number of target villages of the project is limited to 11, the project made a good effort to spread the activities to neighboring villages by holding CR seminars and village visiting. Judging from the situation of activities already done in target villages, the activities are expected to disseminate as far as to neighboring villages.
3. Environmental Fund system has not been extended to the surrounding target villages yet.

### **(1) Relevance**

Relevance is high as shown below in detail:

The mangrove forest of the target area has been decreased, especially during 1970s by over production of fuel woods. Therefore, the project which aims the villagers' sustainable management of mangrove forest is matching with the needs of the target area.

The Overall Goal and Project Purpose of the project are still matching with the relevant Senegalese national policies, such as Second version of the Poverty Reduction Strategy Paper (PRSP II 2006-2010), Policy Paper of Environmental Sector and Forestry Policy of Senegal( FPS, 2005-2025).

According to the latest "JICA Country Program of Senegal" (2006), environment conservation including the prevention of desertification is identified as one of the important development issues. Especially participatory and sustainable management of natural resources and environment is regarded as important approach.

The Approach of the project which establishes the link of the activities of livelihood improvement and reforestation is efficient for the management of natural resources in the perspective of elaborating the initiative and ownership of the villagers.

### **(2) Effectiveness**

The Effectiveness of the project is generally high as shown below in detail:

1. Degree of achievement of the project purpose  
Project Purpose is almost achieved. The Environment Fund is established in all target villages with the ownership of villagers. Within the project term, it was difficult to exercise the Environment Fund but two villages (Djirnda and Mounde) of 11 target villages have already exercised it.
2. Contribution of outputs to the achievement of the project purpose  
Contribution of Output1 to the achievement of the project purpose is relatively high. Though only two villages expense the cost of environment conservation activities from the Environment Fund, the Fund is established in all of 11 target villages and the villagers know the concept of it and they have exercised reforestation activity. Therefore, although the Environment Fund is still in a primary stage in most of the villages, Ooutput1 contributes to the achievement of the project purpose in the means of Environment Fund and exercising the conservation activity.  
Contribution of Output2 is moderate. Although the implementation structure of Forest Department in Foundiougne is not enough to cover all the activities introduced by the project, their consciousness toward collaboration with local villagers has been raised.  
Contribution of Output3 is relatively high; villagers can recognize the project purpose as their own goal of their activity through planning the Action Plan during the project team and elaborating the Action Plan about three years after the project termination.

### **(3) Efficiency**

The efficiency of the project is generally high. Detailed assessment of efficiency is as follows:

1. Adequacy of Inputs

#### Japan Side:

As for the dispatch of experts, its number, timing, term and techniques were mostly appropriate. Although the term of dispatch was reduced from the initial plan, the experts have played their roles

appropriately within their limited terms and contributed to the achievement of outputs.

Counterpart trainings were conducted appropriately in number and timing but the training term was short and the contents of training were less specialized to the project.

Provision of equipment was appropriate in terms of amount, timing, 2. Factors that promoted realization of effects management and utilization.

#### Senegal Side:

As for the assignment of counterpart personnel, their number, timing, specialty and its level was appropriate. Land and facility are also appropriately allocated for the project. The project office was reconstructed by the budget of JICA Senegal Office in 2005 JFY.

Senegalese local cost for the year 2005 and 2006 were not allocated and approximately 192 million FCFA has authorized as the counterparts' budget for year 2007 and 18 million FCFA has executed.

#### 2. Promoting / preventing factors for the achievement of Outputs

High motivation and ownership of the villagers and commitment of the project staffs toward the implementation of the project was promoted the achievement of Outputs, especially Output 1.

The project as well as previous Development Study conducted in the target area from 2001 to 2005 emphasized the utilization of local techniques especially in the villagers' livelihood improvement activities.

The project has appropriately utilized and improved the knowledge and techniques acquired in the previous Development Study.

The project has also appropriately utilized the local consultant who has much of local resources and information to complement the activities of experts.

#### (4) Impact

Some positive impacts are observed.

##### 1. Expectation to the achievement of the overall goal

The overall goal of the project, opportunities of the improvement of the people's life in the target area are created through the sustainable management of the mangrove forest resources, is expected to be achieved in certain degree within the following three years, if the Environment Fund will be functioned properly. Some features of it can be observed from the examples as followings;

- 1) Some villages outside the target villages are trying to implement eco-tourism following the way of the target villages.
- 2) In Sangako village, the people of neighboring villages such as Siwo, one of the target village, and Bani which is not target village visits there to learn the reforestation techniques.
- 3) The teachers of boots and gloves manufacturing in Bagalere are voluntarily teaching the way of manufacturing to Diogan, not the target village, replying on their request.
- 4) Though the enhancement of the village organization, in some villages, the person who took leadership in the village has appeared.
- 5) In Siwo village, villagers have succeeded to increase the price of their product of shell by improving the processing of packing and labeling. Their product, the dried shell, was used to be sold 850 FCFA but now they can sell it at 2000 FCFA in the market.

##### 2. Unintended Positive impact

In Sangako Village, the positive influences of reforestation activity have been already observed, in terms of prevention of bushfire.

3. Unintended Negative impact  
No unintended negative impacts are observed.

(5) Sustainability

Sustainability about villagers' activity is relatively high. Sustainability of mangrove forest management utilizing the Environment Fund is not yet clearly secured. Detailed assessment of efficiency is as follows:

1. Organizational and Financial sustainability
  - 1) Major counterpart personnel of the project will not remain the present position after the termination of the project. Project Coordinator is going to retire at December 2007. Assistant Coordinator has made a request to the DEFCCS to receive training in the long period. Although the other counterparts in Foundiougne will possibly remain in the present position, the supporting structure after the project is not clearly secured.
  - 2) Financial sustainability is not considered to be secured. Throughout the project, Senegalese local cost was not sufficiently expensed. Forest Department of Foundiougne will possibly face financial constraint if Forest Department will not take necessary measure to secure the budget for the department. Senegalese side has informed the team that there will be the conservation of mangrove program in the regional level financed by IUCN and Wetland International but it is not sure whether this program will involve the Forest Department of Foundiougne at this point.
2. Technical and organizational structure of the villages
  - 1) Most of the techniques have been acquired by the villagers and some of them are disseminated by the villagers' own initiatives.
  - 2) Most of the villagers recognize the concept of the Environment Fund by the meetings, action plan and signboards shown in the villages. At the two villages (Djirnda and Mounde) revenues was accumulated in the Environment Fund and the villagers have used the fond for the conservation of the mangrove.
  - 3) The organization of the village such as the Villagers' Development Committee has functioned enough to manage the villagers' activities.
  - 4) Since the system of sustainable management and use of mangrove by the villagers utilizing the Environment Fund has just been established, the system will need the monitoring and support to be functioned by itself in the target villages and for the further dissemination of the target area.

## 2. Conclusion

The team concludes that the project purpose was mostly accomplished with the five criteria of evaluations being mostly met.

The sustainability of the project however is a challenge that faces taking into account that the profits of the income generating activities have not earned in most of the villages and that the monitoring system giving the assistances to the villagers in the course of implementation of activities has not been elaborated.

The team also noticed that the some of the features of the project which can be divided into strength and weakness of the project as follows;

1. Strength of the project
  - 1) The principal activities of the project such as reforestation of mangroves, income generating activities and reduction of the use of mangroves for the fish transformation are widely practiced and are very much appreciated by the villagers. The techniques and know-how needed for these activities have been mastered by the villagers to the extent that instructors of certain technique have even emerged among the villagers, which show that, technically speaking, there was a good chance of continuity and of the

diffusion of them toward other surrounding villages.

- 2) Frequent contacts with the villages, especially the one through the self-evaluation meetings held once a three months have helped enormously the villagers realize the status quo and the directions that they follow until the next meetings and at the same time the meetings have played a role to strengthen the social ties among the villagers and made it possible to share the same goal for the development of the village.
  - 3) The committees and commissions in charge of the income generating activities are well organized in terms of the structure and are determined to work collectively and solve whatever the problems as a group which can be one of the positive factors to assure the continuity of the project activities on their own.
  - 4) The Environment Fund has just commenced its function in all the 11 villages of the project sites and we has not known at this stage the real outcome of the fund that could contribute to the sustainable management of the mangrove resources by the villagers. It is confirmed, however, that the management systems and rules of the fund such as the managing committees and the rates of the distribution have been installed and set in every villages. The fact that two villages have already made some expenditure from the fund for the plantation of mangroves shows is the potential of the fund as the locomotive for the sustainable management of mangrove resources by the villagers.
  - 5) Authentification of a life jacket by the government of Senegal (Ministry of Marine Economy) is one of the accomplishments of the project in terms of income generation of the villagers.
2. Weakness of the project
- 1) Managerial aspects of the activities (such as bee keeping and fish cage making) concerning planning, strategy of productions and ales, procurement of the materials for the activities in general and the management of the Environment Fund (such as accounting and transparency) are the difficulties that the villagers feel might arise in the course of the execution, except the village of Mbam and Kamatane Banbara which are highly organized in term of production and sales life jackets.
  - 2) The tools that can assure the sustainability of the project are well built in. The action plans for the next 3 years established in all the 11 villagers will be very good guidelines that the villagers can always refer to for their development. The Environment Fund is a creation of the villagers that makes sure the connection between the income generating activities and the management of the natural resources, and that can assure them of financial sustainability for the management. It is observed, however, that the system of the monitoring for these 2 tools has not been elaborated well enough, therefore there is a risk that they might fall into the situation where the tools do not function as expected.

### **3. Recommendations**

It is clear that the project needs the assistance that assures the continuity of the project outputs. For this purpose, the team makes recommendations to the FORESTRY DEPARTMENT as follows

1. The framework for the sustainability
  - 1) It is immediate need to clarify how to secure, by mobilizing the forestry officers of Foundiougne, the continuity and the sustainability of the project activities. Therefore, it is recommended that the FORESTRY DEPARTMENT discusses to make clear the framework of assistance which permits the consolidations of the project outputs.
  - 2) Regarding the framework, the budget and human resources necessary for the follow-up have to be discussed thoroughly to make the framework realistic and practical. Assistant Coordinator of the project should stay in the same post in order to assure the continuity of the project. The commitment of the Forestry Department to release the budget necessary to follow the activities is also essential.



- 3) The implication of other authorities such as fishery department and the rural communities into the follow-up should also be assured. To that purpose, The FORESTRY DEPARTMENT needs to take initiatives to establish the coordination committee between the authorities concerned to bring the competence of each authority to the benefits of the sustainable mangrove management by the villagers.
  - 4) The function of the framework of assistance will be mainly for the monitoring and technical assistance to the villagers in the project sites. Details are summarized below.
2. The Monitoring (Action Plan and the Environment Fund)
    - 1) The action plan established for the development of every 11 villagers for the next 3 years can be a very good tool for the authorities concerned to refer to in order to make sure the progress of the activities of villagers.
    - 2) It is recommended that the framework of assistance assures the periodic meetings between the authorities concerned and the villagers to clarify the progress of the activities based on the action plans and the appropriate measures to be taken to overcome whatever the difficulties observed during such meetings.
    - 3) The Environment Fund is also the one that needs the monitoring for its evolution. The team puts emphasis on the fact that it is the fund that assures the initiative of the villagers financially for the sustainable management of natural resources. Since the fund has just started its existence, it is recommended that the framework of assistance enables authorities concerned to give the support to the villagers not only to the activities using the fund but also to the management of the fund in general. The detail contents of the support given should be discussed within the framework.
  3. Technical Assistance
    - 1) The techniques needed for these activities are mastered by the villagers, but since some of the activities such as bee keeping and fish cage making are newly introduced, there are possibilities that the villagers encounter the technical difficulties through their activities. Since there are activities not directly related to the environment in general such as in fisheries and bee keeping, the coordination committee which includes the authorities concerned has to assure the technical assistance.
    - 2) For that end, it has to be well discussed among the FORESTRY DEPARTMENT for the good function of the committee to assure the sustainability of the technical assistance needed.
    - 3) JICA recognizes the importance of the monitoring to fully secure the sustainability of the project.

#### **4. Lessons Learned**

1. It is learned that the use of the existing committee is more effective in terms of the continuity of the activities rather than creating new one for a new activity.
2. It should be noted that the periodic meetings among the FORESTRY DEPARTMENT should have been held with more wide scale inviting related officers of the FORESTRY DEPARTMENT to reflect their various kinds of viewpoints to the project implementation.