

### Attachment 1: PDM.

Project Name : Follow-up Phase of the Aquaculture Development Project in the Northwest Coastal Region of the Republic of Madagascar

Project Area : The Northwest Coastal Region of the Republic of Madagascar

Target Group : Staff of CDCC

Project Period : 2.5 years from Dec. 1, 2003

Version : No.1

Date February 26, 2005

Super Goal	Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
<p>Small-scale shrimp culture is developed in a sustainable way with the participation of small-scale farmers in the Northwest Coastal Region of Madagascar.</p>	<p>Number of small-scale farm with 50ha or less of the pond area and total pond areas of small-scale shrimp culture is increased in compare to the year 2003 when the follow-up phase started.</p>	<p>Record of provincial fishery office of Mahajanga</p>	<ol style="list-style-type: none"> <li>1. Malagasy government does not change its policy for fisheries and local industry.</li> <li>2. Industrial structure of Madagascar does not change significantly.</li> <li>3. Price of shrimp does not tumble.</li> <li>4. Natural disaster such as tsunami and hurricane etc. does not occur.</li> </ol>	
<p>Overall Goal</p>	<p>Shrimp culture technology developed through the Project Activities is put to practice and its effectiveness is verified.</p>	<p>Number of small-scale shrimp farm utilizes technologies developed by the Project increased.</p>	<p>Record of provincial fishery office of Mahajanga</p>	<ol style="list-style-type: none"> <li>1. Industrial structure of Madagascar does not change significantly.</li> <li>2. Price of shrimp does not tumble.</li> <li>3. Natural disaster such as tsunami and hurricane etc. does not occur.</li> </ol>
<p>Project Purpose</p>	<p>Capability of the Shrimp Culture Development Center is strengthened in order to develop shrimp culture technology considering the local environment and conditions.</p>	<p>In the examination result at the pilot farm in where artificial diet developed by CDCC used, shrimp is produced with feed conversion of 2.5 or lower.</p>	<p>Reports compiled by the Project Questionnaire to Japanese experts Questionnaires to counterparts</p>	<ol style="list-style-type: none"> <li>1. Natural environment of the northwestern Madagascar does not change significantly.</li> <li>2. Price of shrimp does not tumble.</li> </ol>
<p>Outputs</p>	<ol style="list-style-type: none"> <li>1. Pond management for small-scale farm is developed.</li> <li>2. Feed for small-scale shrimp culture is improved.</li> <li>3. Epidemic prevention method for small-scale shrimp farm is improved.</li> </ol>	<ol style="list-style-type: none"> <li>1. Shrimp culture system is developed in obtaining shrimp of 2.5g or larger within 150 days.</li> <li>2. Feed with 3.0 or lower of the feed conversion in experimental tanks of CDCC is developed using locally available raw materials mainly.</li> <li>3-1. Counterpart(s) can diagnose major shrimp diseases other than virus-derived ones by himself/themselves.</li> <li>3-2. Shrimp shows strong resistance against diseases other than <i>P. monodon</i> is identified.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reports compiled by the Project</li> <li>2. Reports compiled by the Project</li> <li>3-1. Reports compiled by the Project</li> <li>3-2. Reports compiled by the Project</li> </ol>	<ol style="list-style-type: none"> <li>1. Natural disaster such as tsunami and hurricane etc. does not occur.</li> <li>2. Unpredictable diseases cause destructive influences on shrimp juveniles do not occur.</li> </ol>

Activities	Inputs (The Japanese Side) • Dispatch of Japanese Experts Long-term expert : 1 person (Shrimp Culture) Short-term experts : 4 persons • Implementation of trainings In country training : 2persons • Provision of equipment Vehicle, Analyzing equipment etc. (US\$ 70.9 thousand) • Project Operation Expense US\$ 127.3 thousand (Remarks: US\$1=110 JPY)	(The Malagasy Side) • Provision and Maintenance of Building and Facilities • Assignment of the Counterparts : 9 persons • Provision of Equipment and the Maintenance • Local Cost US\$20 thousand in 2003 US\$60 thousand in 2004 US\$50 thousand in 2005 US\$70 thousand in 2006 Preconditions 1. Basic technologies for shrimp culture production are available in CDCC. 2. The CDCC works for accomplishing its role. 3. Articles and booklets on research development and extension of shrimp culture are available in CDCC.
1-1. Conduct market analysis for small-scale shrimp farm 1-2. Select pilot farm(s) located nearby the CDCC 1-3. Provide technical supports for the above farm(s) 1-4. Publish technical manuals on pond management for small-scale shrimp culture 2-1. Investigate raw materials available locally for formulating diet 2-2. Improve facility and equipment for production of feed in CDCC 2-3. Develop and verify cost-effective feed production technologies in CDCC 2-4. Hold seminars on feed development for small-scale shrimp culture 2-5. Publish technical manuals on feed development for small-scale shrimp farm 3-1. Develop and verify epidemic prevention method for hatchery and pond of CDCC 3-2. Hold seminars on epidemic prevention for small-scale shrimp culture 3-3. Publish technical manuals on epidemic prevention method for small-scale shrimp culture 3-4. Examine a possibility of introduction of disease-resistance shrimp species for small-scale shrimp farm(s)		

Attachment 2 : Achievement Grid (Result)

Category	Indicators	Source of Information	Method	Accomplishment
Input	Malagasy Side			
	1. Maintenance of building and facilities	Site Inspection, C/P, J/E	Confirm whether necessary input was carried out as scheduled, and check the current condition	Necessary input was carried out. However, many cracks on the hatchery tanks need to be repaired.
	2. Allocation of C/Ps			
	2-1. Number	P/D	Confirm whether the C/Ps were allocated as planned in terms of the number	Nine(9) C/Ps were always assigned for the Project as planned.
	2-2. Quality and Timing	P/D, C/P, J/E	Based on interview, ask about level of satisfaction of expert and CDCC	All the C/Ps have sufficient motivations for the Project activities, and their technical knowledge and skills were improved satisfactory during the Project period.
	3. Equipment etc.			
	3-1. Amount	P/D, C/P, J/E	Confirm whether the budget was disbursed sufficiently for the delivery and installation of the equipment	The amount of budget disbursed for purchasing equipment and consumables etc. was insufficient

Abbreviations: "P/D"=Project Documents, "C/P"=Counterpart(s) including implementing agency, "J/E"=Japanese Expert(s)

Category	Indicators	Source of Information	Method	Accomplishment
	3-2. Quality and Timing	P/D, C/P, J/E	Based on interview, ask about level of satisfaction of expert and C/P	The quality of the supply of equipment etc. has almost no problem. However, the timing of the same tended to be delay.
	4. Operational Cost			
	4-1. Amount	P/D, C/P, J/E	Confirm whether the operational cost was allocated as planned in terms of the amount	1 million Fmg, 3 million Fmg, 5 million Fmg, 7 million Fmg were allocated for CDCC by FDHA <sup>1</sup> in 2003, 2004, 2005, and 2006, respectively. The allocated budget has been increased year by year. On the contrary, sale of post-larvae of CDCC has decreased because large-scale producers produce the post-larvae by themselves nowadays.
	4-2. Quality and Timing	P/D, C/P, J/E	Based on interview, ask about level of satisfaction of expert and C/P	CDCC had a problem of timing of budget disbursement from the central government.
	Japanese Side			
	5. Dispatch of Japanese experts			
	5-1. Number and Assignment Duration	P/D, C/P, J/E	Confirm whether the J/Es were dispatched as planned in terms of the number and the assignment duration	A long-term expert (26M/M) was dispatched as planned up to February 2006. Also three (3) short-term experts (5M/M) were dispatched as required. A short-term expert on pathology is going to be dispatched by the end of the Project.
	5-2. Quality and Timing	P/D, C/P, J/E	Based on interview, ask about level of satisfaction of C/P	According to the interviews, and the answers to questionnaire, capability and timing of dispatch of Japanese experts were judged as appropriate.

1 FDHA: Fonds de Développement Halieutique et Aquacole (Development Fund for Fishery Resources and Aquaculture)

Abbreviations: "P/D"=Project Documents, "C/P"=Counterpart(s) including implementing agency, "J/E"=Japanese Expert(s)

Category	Indicators	Source of Information	Method	Accomplishment
	6. Implementation of Training for the C/Ps			
	6-1. Number and Training Duration	P/D, C/P, J/E	Confirm whether the C/Ps were trained as planned in terms of the number and the training duration	Two (2) C/Ps participated in the in-country training up until February 2006 (1M/M).
	6-2. Quality and Timing	P/D, C/P, J/E	Based on interview, ask about level of satisfaction of expert and C/P	Quality and timing of the trainings had no problem.
	7. Provision of Equipment			
	7-1. Amount	P/D, C/P, J/E	Confirm whether the equipment was provided as planned in terms of the amount	Equipment of 7.8 million Yen [US\$70,900 (US\$1=110 Yen)] in value were provided by the government of Japan to CDCC as planned.
	7-2. Quality and Timing	P/D, C/P, J/E	Based on interview, ask about level of satisfaction of expert and C/P	Most of the equipment are maintained well and used for the Project activities effectively. Quality and timing of provision of equipment was evaluated as fair. The timing of the provision of equipment in the fiscal year 2003 was postponed because of problem of provisional procedure in the Japanese side. However, the fact didn't affect implementation of the project activities.
	8. Assistance to local cost			

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Category	Indicators	Source of Information	Method	Accomplishment
	8-1.Amount	P/D, C/P, J/E	Confirm whether the budget was allocated adequately in terms of the amount	14 million Yen [US\$ 127,300 (1US\$=110 Yen)], was spent as local expenses for the Project activities. It was appropriate in terms of amount.
	8-2. Quality and Timing	P/D, C/P, J/E	Based on interview, ask about level of satisfaction of expert and C/P	Local expenses were considered as adequately spent.
	Final Note for the Input Achievement: In general, inputs from both governments have been made appropriately. However, delay of budget disbursement from the Malagasy government should be noted.			
Activities	1.Establishment of shrimp culture techniques for small-scale farms			
	1-1.Proof experiment in CDCC	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	Proof experiments at CDCC were implemented adequately. Though some experiments were canceled because of delay of brood-stock preparation etc., sufficient data was collected based on the experiments conducted. The activity contributed to accomplishment of the output.

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Category	Indicators	Source of Information	Method	Accomplishment
	1-2. Selection of Pilot farm(s)	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	A pilot farm was selected as a model pond for demonstration activities done by the Project. Though the second pilot farm has been selected recently and no activities have been done at the second farm yet, the technology that the Project developed was demonstrated at the prime pilot farm.
	1-3. Technical support for Pilot farm(s)	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	Supports for construction of the pilot farm, technical transfer to the owner and workers have been implemented using locally available feed. As the result, a profit through shrimp culture at the pilot farm was verified.
	1-4. Technical support for small-scale shrimp farms	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	Small-scale farmers visit to CDCC to obtain good quality seed (post larvae). CDCC provides necessary information and seeds based on their requirement. It is an incentive of those who operates small-scale shrimp farms.

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Category	Indicators	Source of Information	Method	Accomplishment
	1-5. Publication of manuals	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	
	(1) Field guide book	-ditto-	-ditto-	The manual was completed.
	(2) Pond preparation	-ditto-	-ditto-	Around 90% of the manual was completed.
	(3) Water quality	-ditto-	-ditto-	Around 80% of the manual was completed.
	(4) Fertilization	-ditto-	-ditto-	Around 70% of the manual was completed.
	(5) Rearing techniques	-ditto-	-ditto-	Around 70% of the manual was completed.
	1-6. Market research	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	The market research was implemented as planned. Based on the results, the technical indicators were decided. Therefore, the achievement contributed to accomplishment of the outputs.

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Category	Indicators	Source of Information	Method	Accomplishment
	(1) Market research in Tana and Mahajunga	·ditto·	·ditto·	Market research in Tana and Mahajunga was implemented as planned in order to know marketing price of shrimp and examine to lower the manufacturing cost for shrimp production.
	(2) Seminar on domestic and international markets	·ditto·	·ditto·	Seminars on domestic and international market were implemented as planned based on the result of the market analysis.
	(3) Seminar on production cost and project technical targets	·ditto·	·ditto·	Seminars on production cost and the technical target were implemented as planned based on the result of the market analysis.
	(4) Post harvest treatment	·ditto·	·ditto·	Using ice, processing etc. were conducted as measures to improve post harvest treatment.
	2. Development of artificial feed			
	2-1. Selection of raw materials	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	All the activity was finished. Yam powder was verified as an effective agent for stabilizing feed in water. Some good raw materials that are available locally were identified and verified the effectiveness. They are shrimp head, dried shrimp, dried <i>Euphausia sp.</i> , snail meat, dried trash fish, fish powder, oil-extracted peanut meal, rice bran, and flour.

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Category	Indicators	Source of Information	Method	Accomplishment
	2-2. Improvement of facility and equipment	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	All the activity was finished. Wet laboratory of CDCC was improved by introducing solar power system as a countermeasure against frequent blackout. Existing hammer mil was modified in order to powder raw materials and it contributed to produce feed a lot at once. Also a green house as a place for drying raw materials was prepared, in where modified pot for boiling fresh raw materials was equipped.
	2-3. Development of cost effective diet	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	All the activity was finished. Water stability of feed was drastically improved. Also nutritional value of the feed was improved. Feed for brood-stock of shrimp, freshwater giant prawn, brood-stock of tilapia was tested to produce.
	(1) Improvement of water stability	-ditto-	-ditto-	100% of the activity was completed.
	(2) Improvement of nutritional value	-ditto-	-ditto-	100% of the activity was completed.

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Category	Indicators	Source of Information	Method	Accomplishment
	2-4. Proof experiment	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	In the Silvan's pond, a pilot farm, higher growth rate was recorded than the one in the experimental tanks. Good growth rate of shrimp was obtained in compare to the previous core project by using feed developed by the follow-up cooperation.
	2-5. Seminar and training course	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	Around 50% of the activity was completed. Practical training on feed manufacturing for shrimp was implemented twice. A short-term expert advised private feed manufacturing company to improve the manufacturing process.
	2-6. Publication of manuals	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	Around 80% of the activity was completed. A draft of the manual on feed development for small-scale shrimp culture is prepared.

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Category	Indicators	Source of Information	Method	Accomplishment
	3.Improvement of epidemic disease prevention measures			
	3-1. Improvement of epidemic disease prevention measures	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	Around 80% of the activity was completed. Measures for epidemic prevention consist of countermeasures against mainly bacterium-derived diseases and water control technology seem to be nearly completed by the end of the project waiting for opinions of a short-term expert on pathology.
	(1)Improvement of pathology laboratory and equipment	·ditto·	·ditto·	Around 95% of the activity was completed. It was identified that high density of zinc in water causes zoea syndrome of hatched larvae and low hatching rate, also verified that chelating agent is effective to improve the hatching rate.
	(2)Improvement of bacterial examination techniques	·ditto·	·ditto·	Around 90% of the activity was completed.
	(3)Improvement of water quality control techniques	·ditto·	·ditto·	Around 80% of the activity was completed. Measures for water quality control were taken both in pond and hatchery of CDCC. Pond preparation, using manure for pond, and introduction of tilapia water, un-use of formalin for combating against Necrocyosis for hatchery.
	(4)Publication of technical reports and manuals	·ditto·	·ditto·	Around 75% of the activity was completed. A manual on epidemic prevention method was prepared.

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Category	Indicators	Source of Information	Method	Accomplishment
	3-2.Seminar and training course	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	Around 70% of the activity was completed. Trainings for extension of freshwater giant prawn were implemented twice. Seminars on water management and epidemic prevention method were implemented three times.
	3-3.Inspection of small-scale farms with pathologist	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	Around 50% of the activity was completed.
	3-4.Introduction of disease resistance species	P/D, C/P, J/E	Based on the information collected, confirm whether the target of this activity is achieved, and the achievement contribute to accomplishment of the outputs	Around 95% of the activity was completed. Freshwater giant prawn was chosen as a disease resistance species. Staff of CDCC produced 100 thousand seeds of the species.
	Final Note for the Achievement of the Activities: In general, the activities have been carried out appropriately. Especially, activities on feed development finished completely. Activities on epidemic prevention are subject to complete after assignment of short-term expert on the same field.			

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Category	Indicators	Source of Information	Method	Accomplishment
Outputs	1. Pond management for small-scale shrimp farms is developed.	P/D, C/P, J/E	Confirm whether this output is accomplished by measuring verifiable indicators in PDMe	The results at the pilot farm show that the Project obtained shrimp of 25.4g in average within 112 days. Therefore, this output was attained the verifiable indicator as obtaining shrimp of 25g or larger within 150 days.
	2. Feed for small-scale shrimp culture is improved.	P/D, C/P, J/E	Confirm whether this output is accomplished by measuring verifiable indicators in PDMe	In the experimental tank of CDCC, 3 kinds of feed with feed conversion of 1.9-2.8 were developed using locally available raw materials mainly. Therefore, this output was attained the verifiable indicator as developing feed with the same of 3.0 or lower.
	3. Epidemic prevention method for small-scale shrimp farms is improved.	P/D, C/P, J/E	Confirm whether this output is accomplished by measuring verifiable indicators in PDMe	A counterpart can diagnose major shrimp diseases other than virus-derived ones by herself. As for identification of disease-resistant species other than <i>P. monodon</i> , <i>Macrobrachium spp.</i> , freshwater giant prawn was identified.
Final Note for Outputs Achievement: The achievement of the outputs is evaluated to be satisfactory. The verifiable indicators to evaluate pond management and feed development are satisfied. As for epidemic prevention, an expert on the field is going to be dispatched by the end of the project to accomplish the said output. Since comprehensive measures for epidemic prevention are crucial issues for shrimp culture, advices of the above expert are indispensable for the future.				

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Category	Indicators	Source of Information	Method	Accomplishment
Project Purpose	Capability of the CDCC is strengthened in order to develop shrimp culture technology considering the local environment and conditions	P/D, C/P, J/E	Confirm whether the project purpose is accomplished by measuring verifiable indicators in PDMe based on results of interviews etc.	The project purpose was attained. Capability of CDCC was strengthened to develop shrimp culture technology considering local environment and conditions.
	Final Note for the Project Purpose Achievement: The achievement of the project purpose is evaluated to be satisfactory. CDCC has obtained technical capability on small-scale shrimp culture appropriate to local environment and conditions.			
Overall Goal	Shrimp culture technology developed through the Project Activities is put to practice and its effectiveness is verified.	P/D, C/P, J/E	Confirm in what extent the overall goal is accomplished by measuring verifiable indicators in PDMe based on results of interviews etc.	The overall goal has not been achieved yet since the profitable technology meet local environment and conditions for small-scale farms was verified at the pilot farm currently. It is expected that the said technology will be put to practice by small-scale farms in the near future when small-scale shrimp farms are willing to continue shrimp culture according to their choice.
Super Goal	Small-scale shrimp culture is developed in sustainable with the participation of small-scale farmers in the Northwest Coastal Region of Madagascar.	P/D, C/P, J/E	Confirm in what extent the super goal is accomplished by measuring verifiable indicators in PDMe based on results of interviews etc.	A possibility of attainment of the super goal is questionable due to change of economic environment of shrimp culture. Price of shrimp in international market dropped down in these 3-5 years. Industrial shrimp culture farms in Madagascar pay maximum effort to maintain their business somehow. Local market seems to be only a choice for small-scale farms to sell their products. It is a reason why development of small-scale shrimp culture in the Northwest Coastal Region can be less expected in short term unless the situation change again. Also more financial support is expected to provide to small-scale farms.

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Grid of Implementation Process (Result)

Category	Indicators	Source of Information	Method	Accomplishment
Appropriateness of the implementation of the project activities	Delay of the activities	P/D, C/P, J/E	Confirm in what extent the project activities have been implemented without delay	There were some delays of the activities. The main causes were delay of disbursement and insufficiency of Malagasy budget.
Relevance of method of technical transfer		P/D, C/P, J/E	Confirm if there were some remarkable points on method of technical transfer	Technical transfer was smoothly implemented.
Appropriateness of the project management system	Monitoring system, Decision making process, situation of internal communication of the project	P/D, C/P, J/E	Based on interviews and results of analysis on the relevant documents, confirm the situation of the project management system	On February 6 in 2006, a steering committee was organized to reform CDCC. By the reform, organization structure of CDCC and hierarchy in the organization of CDCC became clear. Decision making system, for example, way of application for using budget has been transparent. Also staff meetings have been implemented regularly, once a month amongst all staff, once a week between director and division head, and once a week amongst staff of the each section of CDCC. Because of the recent reform, the project management system has been drastically improved.
Change of C/P personnel	Presentation skill, ability of thinking and writing etc.	P/D, C/P, J/E	Based on interviews and results of analysis on the relevant documents, confirm if there were any change of C/Ps	Through the follow-up phase of the project, presentation skill, ability of thinking and writing of the C/Ps improved. Especially, those improvements can be seen in biologists and technicians.
	Final Note for the Implementation Process: Ability of the counterparts improved. It is remarkable that management system of CDCC has been improved drastically by the efforts of Malagasy government and Japanese experts.			

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Attachment 3 : Evaluation Grid

Category	Indicators	Source of Information	Method	Evaluation
Relevance	Relevance of the Project for Malagasy Government Policy	Master plan for fishery and aquaculture development for the year 2002-06	Confirm whether the Project still meets the current Malagasy national policy	The development of marine shrimp culture is described in the Master Plan of the Direction of Fisheries and Aquaculture (2004 – 2007) as one of priority programs. CDCC is expected to be a core institute for the promotion of shrimp culture and re-stocking of shrimp for the future in Madagascar. The objectives of the project are in accordance with the national policy.
	Relevance of the Project for the target demand of the target area and the society	Fishery statistics etc.	Confirm whether the Project meet demand of the target area and the society	Despite the recent slump of market price of shrimp, importance of shrimp culture as key industry in the northwest coastal region has not changed. A certain number of small-scale farms still have interest in investing on shrimp culture. The project established a profitable model of shrimp culture required by small-scale farms.
	Relevance of technical transferring opportunity of the C/Ps	Project documents, C/P	Confirm whether the Project provide technical transferring opportunity to C/Ps fairly	Technical transferring opportunities were fairly provided for C/Ps <sup>1</sup> through on-the-job training and in-country training.
	Relevance of the Project for the superiority of Japanese technology	Expert, Relevant documents	Confirm whether the Project use superiority of Japanese technology on shrimp culture	Japanese technology on shrimp culture of <i>P. japonicus</i> is advantageous for the technical transfer, especially feed development, water quality control and epidemic prevention. Therefore, relevance from the Japanese technological superiority is high.
Final Note for Relevance: The project has high relevance to the national development policy and needs of society. The project is reasonably designed and implemented.				

1. C/Ps: counterparts

Category	Indicators	Source of Information	Method	Evaluation
Effectiveness	1. Achievement of the Project Purpose	Accomplishment Grid, C/P; Expert, Project documents	Confirm whether the Project purpose is achieved	The project purpose was achieved. The project resulted 0.74 of feed conversion in the pilot farm and it is lower than 2.5 of the same as a verifiable indicator of the project purpose.
	2. Contribution of the outputs to the Project Purpose	Accomplishment Grid, C/P; Expert, Project documents	Confirm whether the outputs contributed to the achievement of the Project purpose	A profit was partially verified in the pilot farm through attainment of the outputs.
Final Note for Effectiveness: Effectiveness of the project is high. The indicator of the project purpose is accomplished by the outputs.				
Efficiency	1. Comparison of outputs with inputs	Accomplishment Grid, C/P; Expert, Project documents	Confirm whether the quantity and quality of inputs can be justified to attain the outputs	All the inputs contributed to attain outputs. Quality and quantity of inputs was appropriate. The duration of a short-term expert on pathology is evaluated as too short because the field is specific and no other experts could cover the field.
	2. Timing of Inputs	Accomplishment Grid, C/P; Expert, Project documents Confirm whether the inputs are provided timely	Most of inputs were executed as scheduled, except delays in disbursement of Malagasy budget, which affected the progress of project activities.	Most of inputs were executed as scheduled, except delays in disbursement of Malagasy budget, which affected the progress of project activities.
Final Note for Efficiency Efficiency of the project is, on the whole, satisfactory. However, outside factors, such as frequent blackout and case of theft, obstructed to attain outputs to some extent.				

Category	Indicators	Source of Information	Method	Evaluation
Impact	1. Possibility to accomplish the Overall and Super Goal of the Project	C/Ps, Expert, Project documents	Confirm whether the overall goal and super goal seem to be accomplished	It is difficult to conclude if the overall goal and super goal will be attained or not, since price of shrimp was dropped down in compare to the time when the previous core project had been implemented. An important assumption seems to be an obstacle to accomplish the overall goal and super goal.
	2. Impacts on policy	C/Ps, Expert, Project documents	Confirm whether the outcomes of the Project influence the governmental policy	Positive impact can be seen because the Malagasy government is preparing a development plan for small-scale shrimp culture to benefit small farmers.
	3. Impacts on socio-economy	C/Ps, Expert, Project documents	Confirm what happened as a result of the Project to socio-economy	From economic aspect, no positive impacts can be seen at present, since a profit was proven only in a pilot farm. However, many small-scale farmers have been showing their interest on shrimp culture and participated in trainings prepared by CDCC.
	4. Impacts on industry	C/Ps, Expert, Project documents	Confirm what happened as a result of the Project to industry	No specific impacts can be seen. Though it is a policy of Malagasy government to produce only large sized shrimp of <i>P. monodon</i> as a target of shrimp culture, there isn't a fact that small-scale farms get a big profit from their activities at present.
	5. Impacts on institutions	C/Ps, Expert, Project documents	Confirm what happened as a result of the Project to institutions	Positive impact can be seen. Activities of CDCC have been frequently introduced by mass medias. Moreover, several students and trainees have been visiting CDCC. The presence of CDCC is becoming higher in Madagascar.
	6. Impacts on environment	C/Ps, Expert, Project documents	Confirm what happened as a result of the Project to environment	No negative impacts can be seen. All operational farms including CDCC paid special attention to the environment, specifically for the protection of mangroves and the vicinity. Environmental impact study is mandated before aquaculture farms constructed in any case in Madagascar.
Final Note for Impacts: Some positive impacts have been seen. However, due to some constraints such as drop of shrimp price, tightening of importing condition required by EU etc., possibility of attainment of overall goal and super goal seem to be low at present.				

Category	Indicators	Source of Information	Method	Evaluation
Sustainability (1)	1. Policy aspect	C/P, Expert	Assess future policy on fishery development	Sustainability from the policy aspect is high. Fishery and aquaculture development is one of the prioritized sectors in the DSRP <sup>2</sup> .
	2. Institutional aspect			
	2-1. Political support to CDCC	C/P, Expert	Assess a plan of development policy to continue the Project activities after the end of the Project period	Since the master plan for capture fishery and aquaculture 2004-2007 is validated as of the terminal evaluation, sustainability of the project seems to be high in short-term.
	2-2. Decision making process and personnel management	C/P, Expert	Assess the management capability of CDCC to continue the Project activities after the end of the Project period	The management capability of CDCC was low in beginning of the project. But the same changed to be high by overcoming some troubles such as loss of equipment, difficulty of collecting money of the sales, technical vacations of the employees and so forth. Currently organizational reform is on going. Therefore, sustainability in this aspect is considered as being high.
	2-3. Organizational stability	C/P	Assess the organizational stability of CDCC in relation to the organizational structure in the Ministry	Organizational structure of CDCC has steadily positioned and firmed under the Directorate of Fishery and Fishery Resources of the Ministry of Agriculture, Livestock and Fisheries in February of 2006. Sustainability from the organizational aspect has become high.

2 DSRP: Document de Stratégie pour la Réduction de la Pauvreté (Strategic Plan for Poverty Reduction)

Category	Indicators	Source of Information	Method	Evaluation
Sustainability (2)	3. Financial aspect	C/R, Expert	Assess financial conditions whether it can continue the Project activities financially	Sustainability from the financial aspect is precarious. The budget of CDCC has been from central government for a part of labor cost and the own fund by creating from sales of shrimp seed, and those have been insufficient. But CDCC is continuously making the effort to obtain other new fund.
	4. Technological aspect			
	4-1. Technical capability of CDCC's staff	C/R, Expert	Assess the technical capability of CDCC staff to continue the Project activities after the end of the Project period	Sustainability from the technical aspect of CDCC's staff is fairly high. Though most of the staff of CDCC is employed in one-year contract basis, however, the resignation rate of the staff in these 10 years is 14%. It is relatively stable. Those who work in CDCC had experience of training participation in Japan and other countries and they sustain the technology.
	4-2. Technical capability of CDCC for the extension of small-scale shrimp culture	C/R, Expert	Assess the technical capability of CDCC to disseminate the technologies applicable to current small-scale shrimp farms	Technical capability of CDCC is fairly good for small-scale shrimp farms. During the previous core project, extension of the technology was one of the duties of CDCC. Afterwards, CDCC has been cooperating with some agencies and projects such as PACTAF <sup>3</sup> , SPRH <sup>4</sup> , EASTA <sup>5</sup> and so forth for implementing the extension. The activities with such foundations have been showing good results. In February of 2006, extension function of CDCC has just reorganized.
Final Note for Sustainability: In overall, sustainability from policy, institutional, and technical aspects has become higher recently. Sustainability from financial aspect is precarious at present. Therefore, CDCC needs to make effort to enhance financial sustainability by diversifying the activities and providing shrimp larvae for releasing to increase the budget resources.				

<sup>3</sup> PACTAF: Promotion de l'Aquaculture de Crevet de Type Artisanal et Familial (Promotion of Shrimp Culture for Artisanal and Family Type)

<sup>4</sup> SPRH: Service de la Peche et des Ressources Halieutiques (Service of Fisheries and Fishery Resources)

<sup>5</sup> EASTA: Ecole d'Application des Sciences Technique et Agricole (School of Application for Agriculture and Science Technology)

## Attachment 4: Long / Short term experts

(as of February 2006)

Name of Expert	Subject	Long / Short	Duration of Dispatch	Organization experts belonged to before the dispatchment
Goro NEZAKI	Shrimp Culture	Long term	2003.12.14 - 2006.5.31	Mitsui Norine Marine Products
Hideto IWAKAWA	Water Quality Control	Short term	2005. 1.16 - 2005. 3.17	Mitsui Norine Marine Products
Toru FUJIKI	Disease Prevention	Short term	2005. 2. 28 - 2005. 3. 23	OAFIC (Overseas Agro Fisheries Consultants, Inc.)
Zenzo IIDA	Feed Development	Short term	2005. 3. 22 - 2005. 5. 19	Ex. Director of Nippai

Attachment 5: Assignment of Malagasy Counterpart Personnel and Acceptance of Malagasy Counterpart

	Name of counterparts	Field/Position/Subject	Duration of assignment		2003	2004	2005	2006
			From	To				
1	Mr. RATOLOJANAHARY Hygin Marius	Secretary General	2004.3	Present				
2	Mr. ANDRIANTSOA Mamy Hyacynthe	Project Director Director of Fisheries and Halieutic Resoueces	2004.3	Present				
3	Mr. Etienne RAMDIMBTHDRIMAMANA	Project Director Director of Aquaculture	2003.12	2004.3				
3	Mr. RAFIDISON Roginah	Project Coordinator Chef of Aquaculture	2003.12	Present				
4	Mr. RABEMAZAVA Jarrel Edmond	Project manager Director of CDCC	2003.12	2005.12				
5	Ms. Marceline	Project manager Director of CDCC/ Director of CDPH-M	2003.12	2005.12				
6	Ms. RAZAFINDRADOANY Louise	Head of Amborovy Hatchery Station Biologist/Pathology	2003.12	Present				
7	Mr. RAKOTONAIVO Jean Harimonjy	Head of Antshanibingo Pond and Training Station Biologist/Pond Culture	2003.12	Present				
8	Ms. RATSIMBAZAFY Hanitra	Deputy Head of Antshanibingo Pond and Training Station, Biologist/Feed	2003.12	Present				
9	Ms. RASOARINORO Marie Juliette	Deputy Head of Antshanibingo Pond and Training Station, Biologist/Feed	2003.12	Present				
10	Ms. RAMANAMBITANA Hardy Séraphin	Biologist/Pond Culture/Feed Development	2003.12	Present				

Attachment 6: Trainees in Japan and Madagascar

(1) Trainees in Japan: 0

(2) Trainees in Madagascar: 2

Name	Duration	Subject	Name of Institute	Position at trainee	Present position
Ms.RATSIMBAZA FY Hanitra	08 – 22 August 2005	Feed Development	Analyse nutritionnelle des aliments et des granulés Département de Recherches Zootecniques et Vétérinaires	Deputy Station Head/ Biologist	Deputy Station Head/ Biologist
RASOARINORO Juliette	15 September – 01 October 2005	Pathology	Les techniques d'analyse microbiologique Institut Pasteur de Madagascar	Deputy Station Head/ Biologist	Deputy Station Head/ Biologist

Attachment 7 : List of Equipment provided by Japanese side

List of Donation equipment (DL) and Hand carry equipment (HE)

Date	ID		Location	Name of equipment	Specification	No.	Domestic	Price (JPY)	Responsible
	Y	No.							
04.03.24	DL	03 01 -01	V	Digital camera	Canon IXUS II 3.2 M pixels, SD memory 16Mb	1	3,798,000 FMG	59,242	Louissette
04.03.24	DL	03 01 -02	G	Digital camera	Canon IXUS II 3.2 M pixels, SD memory 16Mb	1	3,798,000 FMG	59,242	Hary
04.03.25	DL	03 02 -01	V	Water Distillation Apparatus	MERIT W400, 4L/h	1	21,715,770 FMG	338,727	Louissette
04.03.25	DL	03 02 -02	G	Water Distillation Apparatus	MERIT W400, 4L/h	1	21,715,770 FMG	338,727	Juliet
04.03.25	DL	03 03	G	Biological Microscope	Paralux L1100	1	11,705,783 FMG	182,589	Juliet
04.03.30	DL	03 04	V	Color Laser Printer	Epson Aculaser C-4100, Spare toner; Black 1, Blue 1, Yellow 1, Red 1.	1	29,169,074 FMG	454,985	NEZAKI
04.03.30	DL	03 05 -01	V	Personal computer	D-Star, Pentium IV 2.8 MHz, Memory 512 Mb, HDD 80 GB, 15" TFT	1	6,728,743 FMG	104,956	Louissette
04.03.30	DL	03 05 -02	G	Personal computer	D-Star, Pentium IV 2.8 MHz, Memory 512 Mb, HDD 80 GB, 15" TFT	1	6,728,743 FMG	104,956	Hary
04.03.30	DL	03 06	G	Generator	SDMO 2.5kva	1	5,081,218 FMG	79,258	Hary
04.03.30	DL	03 07	G	Water Pump with Engine	SDMO TR3.60H, 75mm	1	6,463,346 FMG	100,817	Hary
05.01.03	DL	03 09	G	Water Pump with Engine <sup>2</sup> (Replacement of DL0308)	Honda GX 160, SHE-80X	1	-	-	Hary

Date	ID	Name of equipment	Specification	No.	Domestic	Price (JPY)	Responsible
04.03.30	DL 03 10	Compressor	Ax Air 24L	1	1,500,000 FMG	23,397	Hary
04.03.30	DL 03 12	4WD station wagon	TOYOTA Land Cruiser 105/STD	1	275,000,000 FMG	4,289,502	NEZAKI
05.10.10	DL 05 01 -01	Water pump with diesel engine	LAUNTOP 社, LDP 30CL with 25 m suction hose	1	2,716,000 Ar	149,724	Hary
05.10.10	DL 05 01 -02	Water pump with diesel engine	LAUNTOP 社, LDP 30CL with 25 m suction hose	1	2,716,000 Ar	149,724	Hary
05.10.28	DL 05 02	Water pump with diesel engine	Yammer TF140 with 10 m suction hose	1	4,860,000 Ar	267,916	Hary
04.02.19	HE 03 01	Notebook type Personal computer	Dell Latitude D600, MP-4, 512 Mb memory, No. 6VCRCIX, Office XP Pro-J, Windows XP HE-J, Power cable	1	18,409,609 FMG	338,300	NEZAKI
04.02.19	HE 03 02	Soft ware	Adobe Acrobat Ver. 6 Standard J.	1	2,084,209 FMG	38,300	NEZAKI
04.02.19	HE 03 03	Digital camera	Minolta Dimage A-1, Battery, Speed light, Polar filter, CF memory 128Mb x 2	1	9,697,288 FMG	178,200	NEZAKI
04.03.16	HE 03 04	DO meter	Toko Kagaku TOX-90i	1	8,706,880 FMG	160,000	Hary
04.03.16	HE 03 05	pH/ORP meter	Toko Kagaku TPX-90six	1	6,258,070 FMG	115,000	Hary
05.01.17	HE 04 01	LCD Projector	Plus US-112	1	2,245,572 Ar	131,320	NEZAKI
05.05.11	HE 04 02	Bed dryer	National AD-P80LS	1	760,950 Ar	44,500	Hanitra
05.05.11	HE 04 03	Rice cake maker	Toshiba APC 364 (G)	1	923,400 Ar	54,000	Hanitra

Abbreviations: G; Antshanbingo pond and Training Station V; Amborovy Hatchery Station

CD; Office of Station Head, LD ; Biological Laboratory, JE ; Office of JICA Expert, BL; Office of Biologist, MF; Mechanical room

<sup>1</sup> DL0308G Water Pump with Engine (SDMO TR3.60H) was lent to small scale shrimp Farm of Long Fe, and was stolen there.

<sup>2</sup> DL0309G-MF Engine Pump (Honda GX 160, SHE-80X) was replaced by Long Fe instead of DL0308. Price of machine was not informed.

Attachment 8: Provision of Local Cost by Japanese side

Year	Local cost (Yen)
2003	2,000,000
2004	6,280,000
2005	5,724,000
Total cost (2003-2005)	14,004,000

Attachment 9: Budget allocated for the Project by Malagasy Side

Year	Budget	
	Local Currency*	(= US\$)
2003	1 million FMG	20 thousand US\$
2004	3 million FMG	60 thousand US\$ (as of the time of budget allocated)
2005	1 million AR = 5 million FMG	50 thousand US\$
2006	1.4 million AR = 7 million FMG	70 thousand US\$
Total Budget (2003~2006)	16 million FMG	200 thousand US\$

\* Unit of Local Currency

Until December 2004: FMG

From January 2005: AR (5 FMG = 1 AR)