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1．ミニッツ（合同評価報告書）（英文）

MINUTES OF MEETING
BETWEEN
THE URUGUAYAN MID-TERM REVIEW TEAM
AND
THE JAPANESE MID-TERM REVIEW TEAM
ON
THE PROJECT ON WATER POLLUTION CONTROL AND
MANAGEMENT OF WATER QUALITY
IN THE SANTA LUCIA RIVER BASIN
IN THE ORIENTAL REPUBLIC OF URUGUAY

The Japanese Mid-Term Review Team (hereinafter referred to as 'the Japanese Team'), organized by Japan International Cooperation Agency (hereinafter referred to as 'JICA') and headed by Dr. Mitsuo Yoshida, visited the Oriental Republic of Uruguay (hereinafter referred to as 'Uruguay') from September 23 to October 9, 2009, for the purpose of conducting the joint mid-term review on the Project on Water Pollution Control and Management of Water Quality in the Santa Lucia River Basin (hereinafter referred to as 'the Project') on the basis of the Record of Discussions signed on March 28, 2008.

During its stay in Uruguay, the Japanese Team had a series of discussions and exchanged views with the Uruguayan Mid-Term Review Team (hereinafter referred to as 'the Uruguayan Team') headed by Ms. Magdalena Hill.

As a result of discussions, the Uruguayan Team and the Japanese Team mutually agreed upon the Mid-Term Review Report as annexes.

Both sides agreed on that the Minutes of Meeting and its appendixes are prepared in both English and Spanish. In case any discrepancy arises in interpretation, the English text shall prevail.

Montevideo, October 9, 2009

Dr. Mitsuo Yoshida
Leader
Japanese Mid-Term Review Team
Japan International Cooperation Agency
(JICA)

Ing. José Luis Genta
Responsible for
National Directorate of Environment
(DINAMA)
Ministry of Housing, Land Planning and
Environment (MVOTMA)

Appendix I The Mid-Term Review Report
Appendix II List of Attendants

THE MID-TERM REVIEW REPORT ON THE PROJECT ON WATER POLLUTION CONTROL AND MANAGEMENT OF WATER QUALITY IN THE SANTA LUCIA RIVER BASIN IN THE ORIENTAL REPUBLIC OF URUGUAY

Montevideo, October 9, 2009

Mid-Term Review Team

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Chapter 1 OUTLINE OF THE MID-TERM REVIEW

1.1 Background of the Mid-term Review

The Oriental Republic of Uruguay is a country with an area of 176,000 km^2, and a population of about 3.30 million. Although population density is low, and the Santa Lucia River basin hosts approximately 12% of the total population, over 60% of the poplation benefits from water usage from this basin. Consequently, this situation must be addressed and the necessary steps be taken to prevent water pollution in Santa Lucia River. The sources of pollution include sewage, industrial wastewater, leachate from solid waste, as well as runoff from agricultural fields as its non-point source. Heavy metal pollution associated with tanneries has also been reported. In order to control pollution, Uruguay has been implementing various measures, such as construction of sewerage systems and waste disposal facilities, enforcement of industrial wastewater control regulations, etc. Nevertheless, these efforts have been largely isolated, and not well coordinated.

Under the circumstances, the Government of Uruguay requested the Government of Japan technical cooperation, and the Development Study entitled "The Project on Capacity Development for Water Quality Management in Montevideo and Metropolitan Area" was conducted by National Directorate of Environment (DINAMA) and Japan International Cooperation Agency (JICA) from October 2003 until January 2007. The study developed an integrated Master Plan (M/P), and carried out various related activities, such as production of manuals and development of a water quality database SISICA. However, further development of environmental management capacity is required to implement the M/P. Hence, after the Preparatory Study by JICA in November 2007, both governments agreed to implement the technical cooperation project entitled "the Project on Water Pollution Control and Management of Water Quality in the Santa Lucia River Basin" (hereinafter referred to as "the Project") in March 2008.

The project started from April 2008 and the JICA expert team (JET) was dispatched from June 2008. This mid-term review is conducted in order to monitor the progress and evaluate the achievements after the first half of the Project.

1.2 Objectives of the Mid-term Review

The specific objectives of the mid-term review are outlined as follows.

(1) To review the progress of implementation process and achievement of the Project

(2) To evaluate the Project in accordance with the five evaluation criteria (relevance,

effectiveness, efficiency, impact and sustainability)

(3) To draw the factors to promote/impede the effects

(4) To consider the necessary actions to be taken and make recommendations for the Project

(5) To summarize the results of the study in a mid-term review report

1.3 Members of the Mid-term Review Team

The mid-term review team (hereinafter referred to as "the Team") consist of the following members.

1.3.1 the Uruguayan side

(1) Mr. Luis Reolón, Director, Environmental Quality Evaluation Division (DECA), DINAMA

(2) Ms. Silvia Aguinaga, Director, Environmental Control and Performance Division (DCDA), DINAMA

(3) Ms. Magdalena Hill, Project Coordinator, DECA, DINAMA

1.3.2 the Japanese side

(1) Dr. Mitsuo Yoshida, Senior Advisor (Water, Waste and Environment), JICA

(2) Ms. Eriko Tamura, Senior Program Officer, Global Environment Department, JICA

(3) Mr. Choshin Haneji, Environmental Chemistry & Management Consultant, Japan Development Service Co., Ltd. (JDS)

1.4 Schedule of the Mid-term Review

9/22 (Tue)	Mr. Haneji is dispatched from Japan 11:45 Narita - 9:15 Chicago(JL 010) 13:00 Chicago – 17:05 Miami(AA1896) 23:20 Miami-
9/23 (Wed)	Mr. Haneji arrives in Uruguay 13:05 Montevideo(AA943)
9/24 (Thu)	10:00 Mr. Haneji meets with JICA Uruguay Office and JET 16:30 Kick off meeting with DINAMA, JET, and JICA Uruguay Office
9/25 (Fri))	10:00-13:00 Mr. Haneji interviews DECA 14:00-17:00 Mr. Haneji interviews DCDA 17:30 Mr. Haneji meets with JICA Uruguay Office
9/26 (Sat)- 9/27 (Sun)	Mr. Haneji analyzes collected answers to questionnaires and drafts Mid-term Review Report

9/28 (Mon)	10:00-11:30 Mr. Haneji interviews DINASA 12:00-13:30 Mr. Haneji interviews OSE 15:00-16:30 Mr. Haneji interviews RENARE
9/29 (Tue)	10:00-11:30 Mr. Haneji interviews IDB 14:00-15:30 Mr. Haneji interviews DINAMA Lab
9/30 (Wed)	10:00-11:30 Mr. Haneji interviews IMM 15:30-17:00 Mr. Haneji interviews IMSJ
10/1 (Thu)	10:30-12:00 Mr. Haneji interviews IMFlorida 14:30-16:00 Mr. Haneji interviews IMLavalleja 18:30 Mr. Haneji meets with JICA Office Dr. Yoshida and Ms. Tamura leave Japan 19:10 Narita
10/2 (Fri)	Dr. Yoshida and Ms. Tamura arrive in Uruguay - 8:10 Sao Paulo (JL 010) 9:15 Sao Paulo –11:50 Montevideo(JJ8046) 09:00-09:50 Mr. Haneji interviews UNDP/PNUMA 10:00 Mr. Haneji interviews EU 15:00 Japanese Review Team members has a meeting with JICA Uruguay Office and JET
10/3 (Sat)	Japanese Review Team members drafts Mid-term Review Report
10/4 (Sun)	Japanese Review Team members drafts Mid-term Review Report
10/5 (Mon)	Review Team members review the draft Mid-term Review Report. 10:00 Presentations • Water Quality Indexes for the Santa Lucia River Basin / Alejandro Cendón (DECA) • Environmental Control Division – Summary of Activities / Rosario Lucas (DCDA) • Strategy and Progress regarding the Non –Point Source Pollution Status Report for Santa Lucia Basin (Uruguay) / Alicia Crosara (DECA) • Environmental Information System for the Santa Lucia River Basin/ Yuri Resnichenko and Martín Fernández (DECA) 16:00 Courtesy call to Minister
10/6 (Tue)	11:00 Mr. Haneji interviews World Bank (WB) Reports and M/M discussions.
10/7 (Wed)	Reports and M/M discussions.
10/8 (Thu)	Reports and M/M discussions.
10/9 (Fri)	AM Signing of M/M at Review Team meeting 15:00 Japanese Review Team members reports to Japanese Embassy

	16:00 Japanese Review Team members reports to JICA Uruguay Office Japanese Review Team leaves Uruguay (Ms. Tamura & Mr. Haneji) 17:30 Move to the airport 20:15 Montevideo – 21:45 Sao Paulo (JJ8397) 22:55 Sao Paulo -
10/10 (Sat)	(Dr. Yoshida) 3:09 Montevideo – 8:35 Panama City (CM284) 10:07 Panama City – 13:42 Havana (AF479)
10/11 (Sun)	(Ms. Tamura & Mr. Haneji) -12:55 Narita (JL047)

1.5 Methodology of Mid-term Review

The Project was evaluated based on the Project Design Matrix (PDM), which is a summary of table of this Project. The revision of the PDM was discussed at the Fourth Steering Committee on April 23, 2009, and subsequently approved on May 27, 2009. The mid-term review was carried out based on this revised PDM.

1.5.1 Procedure

First, the Japanese Team drafted the evaluation grid which identified the specific evaluation points and the data collection methods. For the data information collection, the Team applied methods such as the questionnaire survey, reference survey, site visit and the interview with stakeholders. The Team analyzed and evaluated the Project in terms of the achievement level of the Project, the implementation process, and five evaluation criteria consisted on Relevance, Effectiveness, Efficiency, Impact and Sustainability, which were originally defined by Development Assistance Committee (DAC) in Organization for Economic Cooperation and Development (OECD). Finally, the Team made the recommendations based on the results.

1.5.2 Points for the evaluation

(1) Achievement level and Implementation Process of the Project

The achievement levels in terms of Inputs, Activities, Outputs and Project Purposes were assessed in comparison with the revised PDM and Plan of Operation (PO) and the actual results of the Project. The implementation process of the Project was also confirmed from the various viewpoints such as monitoring and communication.

(2) Evaluation Criteria

In addition to verification of achievement level and implementation process of the Project, the Team assesses the Project from the following five evaluation criteria.

1) Relevance: An overall assessment of whether the project purpose and overall goal are in line with policy of both sides and with partner country's needs.

2) Effectiveness: A measure of whether the project purpose has been achieved. This is then a question to degree to which the outputs contribute towards achieving the intended project purpose.

3) Efficiency: A measure of the production of outputs (results) of the Project in relation to the total resource inputs.

4) Impact: The positive and negative changes, produced directly and indirectly as the result of the Project.

5) Sustainability: An overall assessment of the extent to which the positive changes achieved by the Project can be expected to last after the completion of the Project.

(3) Results of Evaluation

The Team evaluated future possibility to achieve Project Purpose and Outputs at the time of the termination of the Project according to the following four (4) ratings;

A: Project Purpose/Outputs will be achieved.

B: Project Purpose/Outputs will be achieved under some conditions.

C: Project Purpose/Outputs will not be fully achieved.

D: Project Purpose/Outputs will be difficult to be achieved.

Chapter 2 OUTLINE OF THE PROJECT

The Project has been carried out since June 2008. The expected Overall Goal, Project Purposes and Outputs written in the revised PDM are as follows:

Overall Goal:

- Measures to improve water quality of Santa Lucia River Basin are taken.
- Cooperate and strengthen the programs and projects of pollution control and water quality management in cooperation with actors involved, for promoting improved environmental management in other river basin.

Project Purpose:

The capacity of DINAMA and other institutions involved with respect to water pollution

control / water quality management for Santa Lucia River Basin is strengthened.

Outputs:

(1) The management system of DINAMA with respect to pollution source control/water quality management is developed.

(2) The coordination and collaboration system among relevant institutions subject to control of water pollution source/water quality management is established.

(3) The capacity of DINAMA and other institutions involved with respect to water monitoring system of river and effluent is strengthened.

(4) The capacity of DINAMA and other institutions involved with respect to data compilation, analysis and evaluation.

(5) The capacity of DINAMA with respect to inspection, evaluation and enforcement subject to pollution source management is strengthened.

(6) The integrated information systems with respect to water pollution control / water quality management is constructed and used.

Chapter 3 PROJECT PERFORMANCE

3.1 Inputs

3.1.1 Inputs from the Japanese Side

In total, the Japanese side has allocated and appropriated necessary budget for the project activities and management as shown in the following table.

Unit: Thousand Yen

	Preparatory Stage	1st Year	2nd Year	3rd Year	total
Total Budget for Project Implementation	15,225	72,154	73,752	63,846	224,977

* 1st Year: April 2008 ~ March 2009, 2nd Year: April 2009 ~ March 2010, 3rd Year: April 2010 ~ March 2011

Below are the details regarding main inputs provided by JICA (all the numbers and figures below are as October 2009).

(1) Dispatch of JET

Five (5) experts were dispatched sixteen (16) times in total. Details are given in the ANNEX 1.

(2) Provision of equipment

Equipment used for the technical transfer was provided from the Japanese side. Details are given in the ANNEX 2.

(3) Support for local cost (cost for seminars, training courses and publications, etc..)

Local cost for the Project is supported as shown in the following table.

Unit: Thousand Yen

	1st Year	2nd Year
Local Cost supported by JICA	3,655	11,300

(4) Materials for training course, publications and printed materials

3.1.2 Inputs from the Uruguayan Side

(1) Technical and administrative counterpart personnel to JICA experts

The Uruguayan side nominated four (4) administrative management counterparts and eleven (11) technical counterparts for conducting project activities in the R/D. After Project Consultation Mission dispatched in April 2009, two (2) staffs were assigned officially from State Sanitary Works Administration (OSE) to cooperate within the Project framework.

Planned (Expected C/P in R/D)	Actual
One (1) Project Director Two(2) Project Managers Eleven(11) Technical counterparts	One (1) Project Director Two(2) Project Managers One(1) Project Coordinator Thirteen (13) Technical counterparts

(2) Land, buildings and facilities necessary for the implementation of the Project

(3) Office space and necessary facilities for the JET

DINAMA Provides Office Space and Equipment, Using Network Access, Telephone Line, Printer, Fax, and Photocopy.

(4) Operational cost for Project (transportations for the project activities, chemical analysis cost, travel expenses for counterpart personnel, administration cost)

Costs for sampling, chemical analysis, utilities, internet access, travel expenses for counterpart personnel, etc. have been borne by DINAMA.

Cost for non-point workshop in March 2009 was borne by DINAMA and DGSSAA.

3.2 Outputs

The Project is composed of six Outputs. The results of mid-term review for each output are as follows:

3.2.1 Output 1

The management system of DINAMA with respect to pollution source control / water quality management is developed.

The Objectively Verifiable Indicators (OVI) for the Output 1 are the following three items according to the PDM:

1) The number of seminars, training courses and/or meetings and the number of participants
2) Contents of pollution control capacity assessment
3) Contents of the Action Plan

In the first half period of the Project, a number of seminars, workshops and meetings including Steering Committee meetings which were directly or indirectly related to the Output 1(see Annex 5, Evaluation Question 2.1). There are written records of 62 meetings with total participants of 338. In addition, there are a lot of informal meetings between DINAMA and JET, and DINAMA internal meetings to coordinate project activities. These are greatly contributed for the achievements of Output 1.

Overall coordination between DECA and DCDA, who are two main actors of the Project, has been good. In the early phase, the Project made deliberate efforts to improve joint activities by both divisions. Regarding the Environmental Laboratory, some specific activities related to monitoring were carried out according to the plans. However, at the beginning of the Project, other specific activities were foreseen, that for reasons outside the scope of the Project, were suspended or eliminated. The involvement of the Environmental Laboratory in shared activities should be improved.

A capacity assessment has been made in the first half period of the Project, and three required capacities are pointed by the Project for achieving the Output 1 (see ANNEX 4, Evaluation Question 2.1). Based on the results of the capacity assessment, the Action Plan (see Progress Report No. 1, Appendix 2) has been prepared for improving the management system of DINAMA with respect to pollution source control / water quality management.

Tangible achievements could be observed through above-mentioned activities mainly conducted

by DECA and DCDA (see ANNEX 4, Evaluation Question 2.1).

Thus, the Team concluded that the Output 1 will be achieved by the end of the Project if DINAMA sustains the efforts based on the Action Plan in the last half period of the Project.

3.2.2 Output 2

The coordination and collaboration system among relevant institutions subject to control of water pollution source / water quality management is established.

OVI for the Output 2 are the following two items according to the PDM:

1) Contents of issues to be solved
2) Contents of coordination and collaboration system

The coordination and collaboration among relevant institutions subject to control of water pollution source / water quality management are considerably improved by the practice during the first half period in comparing with the time before the commencement of the Project. DINAMA-DINASA relation has improved significantly in the last 6 months, and DINAMA now has an access to DINASA's hydrological and water abstraction databases. DINAMA-OSE collaboration is also improving with the officers assigned from OSE to work in DINAMA. DINAMA now has a set of OSE water quality data, and also DINAMA's efforts including the non-point source (NPS) work will eventually benefit for OSE. DINAMA-MGAP relation is improving through the NPS work, and DINAMA now has a lot of information about different aspects of agriculture activities (see ANNEX 4, Evaluation Question 2.2).

Although above-mentioned great progress of DINAMA's collaboration with national institutions of water sector, the coordination and collaboration between DINAMA and local government such as municipalities are not enough. According to the results of questionnaire and interview surveys by the Team, the difficulty has to do with formal limitations to fully commit to environmental management. They may be ready to receive assistance (e.g., kit) from DINAMA, but that does not mean they are ready to commit more resources (e.g., more time in the field, or budget for maintenance of equipment). Also there is little institutional framework to support their commitment, even if they are willing to participate (see ANNEX 4, Evaluation Question 2.2).

Thus, the Team concluded that the Output 2 will be achieved by the end of the Project. However, the coordination and collaboration issues between DINAMA and municipalities are remained

for future challenge, which will require functional coordination mechanisms for conducting environmental management of Santa Lucia River basin.

Considering the problems mentioned above, formal establishment of coordination mechanisms should not be expected by the end of the Project. It is necessary for DINAMA and municipalities to start discussing about practical mechanisms for coordination.

3.2.3 Output 3

The Capacity of DINAMA and other institutions involved with respect to water monitoring system of river and effluent is strengthened.

OVI for the Output 3 are the following four items according to the PDM:

1) The number of seminars, training courses and/or meetings and the number of participants
2) Contents of issues to be solved
3) Contents of monitoring plan
4) Number of analyzed water and sediment samples and parameters in laboratory and accuracy of the analysis

As the activities related to the Output 3 in the first half period of the Project, one seminar and one training course were organized by DINAMA under the cooperation of JET, and the attendants were 28 and 10, respectively. Various meeting were also conducted 23 times in the course of Output 3 activities, and the total attendants were 212. In these opportunities, DINAMA successfully enhanced knowledge, skill and technology with respect to water monitoring system of river and effluent (see ANNEX 4, Evaluation Question 2.3).

The JET has pointed that the main issue observed in current DINAMA's water monitoring system seems DRIP (data rich information poor) syndrome. Indeed, DINAMA used to spend a lot of time and resources for monitoring and accumulated lots of raw data, but had rather little information about the state of water quality of Santa Lucia River, such as whether the water is polluted or not, which parameter is important, how serious the problems are (see ANNEX 4, Evaluation Question 2.3). This has improved significantly over the last 1.5 years.

In general, the analytical capacity of the DINAMA Laboratory is good, and approximately 14 analytical parameters were generated on reliable level for samples collected from 32 sample stations. Every two months the sampling has been done. The Laboratory can make analysis with the detection limits stipulated by the Decree 253/79 and its amendments although some water

quality analysis required detection limit lesser than stipulated by the Decree (see ANNEX 4, Evaluation Question 2.3). A total of 250 samples approximately have been analyzed so far by the Laboratory in the course of Project activities.

Thus, the Team concluded that the Output 3 will be achieved by the end of the Project if efforts for improving the analytical capacity are intensified and similar efforts are sustained for other concerned activities in the last half period of the Project.

3.2.4 Output 4

The capacity of DINAMA and other institutions involved with respect to data compilation, analysis and evaluation subject to water pollution source control is strengthened.

OVI for the Output 4 are the following four items according to the PDM:

1) The number of seminars, training courses and/or meetings and the number of participants
2) Content of pollution source inventory list
3) Number of monitoring data at individual pollution source and the contents
4) Contents of the result of analysis

As the activities related to the Output 4 in the first half period of the Project, two seminars were organized by DINAMA under the cooperation of JET, and the attendants were 15 and 61, respectively. Various meeting were also conducted 42 times in the course of Output 4 activities, and the total attendants were more than 363 persons.

DINAMA's capacity on data compilation, analysis and evaluation subject to water pollution source control has been significantly strengthened through the Output 4 activities in the first half period of the Project.

Regarding to the water quality monitoring of river, it was digitized all DINAMA's water quality data of Santa Lucia River, which are available from the Environmental Information System. Based on the database, DINAMA is going to publish a state of the water quality report.

As for water quality of effluent, it was digitized analytical results of over 700 effluent samples of 86 point sources stayed in Santa Lucia River basin in order to analyze the pollution loads. As the first step, BOD indexed pollution load from industries of each sub-basin in Santa Lucia River basin was estimated and DINAMA estimated BOD indexed pollution load from domestic wastewater and sewerage treatment plant.

On the other hand for non-point source pollution, it was collected relevant information from various organizations (DINAMA, INE, RENARE, DGSSAA, DICOSE, OPYPA, INIA, universities, etc.), and a preliminary report has been prepared.

DINAMA and the relevant organization are working toward understanding of pollution mechanism by preparation for pollution load map and identification of critical area from monitoring data and pollution load estimation as a part of Output 4 activities in the last half period of the Project.

Thus, the Team concluded that the Output 4 will be achieved by the end of the Project if similar efforts are sustained in the last half period of the Project.

3.2.5 Output 5

The capacity of DINAMA with respect to inspection, evaluation and enforcement subject to pollution source management is strengthened.

OVI for the Output 5 are the following three items according to the PDM:

1) The number of seminars, training courses and/or meetings and the number of participants
2) Contents of issues to be solved
3) Contents of pilot study

As the activities related to the Output 5 in the first half period, one seminar was organized by DINAMA under the cooperation of JET, where the number of attendants was 32. Various meeting were also conducted 21 times in the course of Output 5 activities, and the total attendants were more than 178 persons.

In these occasions, DINAMA significantly strengthened the capacity on inspection, evaluation and enforcement subject to pollution source management.

Three tangible outputs were identified in the course of Output 5 activities during the first half period: i) in general collaboration with municipalities has improved, in particular when dealing with cases of specific claims by the population, ii) starting compilation of required maps: agricultural use, topography, erosion, etc, and iii) expansion of enforcement under Decree 253/79, incorporating nutrients control.

Although this Project was structured around control of point sources, it is suspected that contribution of non-point source pollution was far greater than the point sources, and DINAMA and relevant organizations started this line of work from March 2009. Based on preliminary assessment, it appears non-point source pollution is important (accounting for probably 70-80% of nitrogen and phosphorous exports to the river), but is still far from establishing un-refutable scientific evidences to support importance of non-point source pollution in the area. Although non-point source pollution control is within the competence of DINAMA, it involves the MGAP directly as organization responsible for farming production policies.

DINAMA and JET are yet to design the pilot study on environmental impacts of non-point sources such as agricultural/animal husbandry activities, which will be planned as the activities for the Output 5. DINAMA has already done some work on dairy firms and feedlots.

Thus, the Team concluded that the Output 5 will be achieved by the end of the Project if the efforts are sustained in the last half period, and the outputs related to the non-point source control will be larger-than-expected achievements.

3.2.6 Output 6

The integrated information systems with respect to water pollution control / water quality management is constructed and used.

OVI for the Output 6 are the following two items according to the PDM:

1) Contents of basic data and information on pollution sources and water quality
2) Contents and accessibility of environmental information related to Santa Lucia River Basin

Environmental Information System related to Santa Lucia River basin is a comprehensive information management system created by the Environmental Information Section of DINAMA.

The Project has been mainly supporting the development of the following two modules in the first half period: i) a module (MapServer/PostgreSQL/PostGIS) to show water quality of Santa Lucia River, locations of point pollution sources with basic information, and ii) a module to control input of water quality data by various stakeholders (e.g., municipalities, DINAMA Laboratory) and to manage database, which is similar to the SISICA.

Three tangible outputs were generated in the course of Output 6 activities during the first half

period: First, the database for the water quality was completed. Second, data of the drainage from point sources (industrial and domestic) was incorporated to the Environmental Information System and partially for the non-point sources were incorporated to the Environmental Information System. Third, the water quality data generated jointly with the municipalities in the Santa Lucia River basin was incorporated.

Thus, the Team concluded that the Output 6 will be achieved by the end of the Project if the efforts are sustained and the two modules in Environmental Information System is fully functionalized in the last half period of the Project.

3.3 Project Purpose

The Capacity of DINAMA and other institutions involved with respect to water pollution control / water quality management for Santa Lucia River Basin is strengthened.

According to the PDM, OVI is defined for evaluating the fulfillment of the Project Purpose:

1) Status of implementation of Action Plan to improve pollution control management system
2) Status of utilization of coordination and collaboration system among institutions involved
3) Status of information sharing among relevant institutions
4) Status of data management related to pollution control
5) Actual performance of instruction to pollution sources

As for the OVI 1, the Action Plan, which contains eleven activities, has been prepared and currently implemented by the DINAMA under the cooperation of JET.

As for the OVI 2, the coordination and collaboration with national institutions such as DNH/DINASA, MGAP and OSE, has been significantly improved. Information sharing and collaboration for data analysis are implemented among the institutions and DINAMA.

As for the OVI 3, DINAMA has been constructing Environmental Information System and a part of the information was publicized through website.

As for the OVI 4, water quality data and pollution source data toward and managed by database. One of the prominent output is the water quality report which is going to be published.

As for the OVI 5, DINAMA's capacity for instruction to pollution sources was improved and pilot study for the practice is under consideration, which will be implemented in the last half

period of the Project.

With respect to DECA and DCDA, their capacity is growing rapidly in line with the PDM and PO, and moreover the results are tangible. Among the things DINAMA has achieved so far include:

- DINAMA now has the Santa Lucia River water quality data, all digitized and verified.
- DINAMA also has most of the effluent data, digitized and verified.
- DINAMA is going to publish a water quality report.
- DINAMA adapted and applied the water quality indexes.
- DINAMA has analyzed pollution loads indexed by BOD from point sources.
- DINAMA has analyzed pollution loads indexed by BOD from domestic sources.
- DINAMA is making efforts to address non-point source pollution issues.
- DINAMA has developed a comprehensive Environmental Information System.

The Project has tapped the real potential of DINAMA, and the results are highly satisfactory.

With respect to other organizations, they are generally making good progresses, and everything is more or less according to the PDM and the PO. Nevertheless, foresaw serious difficulties to pursue a number of activities in the original PDM, in particular with Output 2, largely because of the institutional restrictions of national level.

Thus, the Team concluded that the Project Purpose is expected to be achieved by the end of the Project if the efforts are sustained in the last half period of the Project. However, the coordination and collaboration in formal manner such as "basin management committee" are remained for future challenge, which secure fully functional coordination mechanism for conducting environmental management of Santa Lucia River basin.

3.4 Overall Goal

- Measures to improve water quality of Santa Lucia River Basin are taken.

- Cooperate and strengthen the programs and projects of pollution control and water quality management in cooperation with actors involved for promoting improved environmental management in other river basin.

According to the PDM, the following two OVIs are defined for evaluating the fulfillment of the Overall Goal:

(1) Number of measures taken for improvement of water quality of Santa Lucia River Basin

(2) Status of establishment of pollution control / water quality management system

It is too early to evaluate of fulfillment of the Overall Goal of the Project at the mid-term review time. However, the Team found several important achievements and impacts for attaining the Overall Goal.

Regarding the implementation of measures for water quality improvement, DINAMA is improving the control point sources. In addition, the Project started the work on control of non-point source pollution. This may take time, but are making significant progress toward the Overall Goal.

Regarding the establishment of collaborative framework for water quality management, it is still premature to say if we can expect a regulation of the prevailing legislation in near future, but are seeing many signs of improvement, especially OSE-DINAMA and DINASA-DINAMA, even in the first half period.

This Project has been fully woven into DINAMA's activities, and most likely DINAMA will continue growing its capacity along the same path.

3.5 Project Implementation Process

The implementation process of the Project is reviewed from three view points; i.e., project management, communication and technical cooperation method:

3.5.1 Project Management

The project management including decision-making has been carried out by Project Director, two Project Managers and Coordinator under the cooperation of JET, while important issues have been authorized by the Steering Committee meeting, such as approval of project reports, Action Plan and revision of PDM.

The Project Director, who is the National Director of Environment, has shown general direction of the Project, and two Project Managers, who are the directors of DECA and DCDA, and one Project Coordinator are playing management roles for the Project. Such management system was effective to enhance close collaboration of two divisions DECA and DCDA, main two actors of the Project. The Project Managers and Coordinator are always communicating to the Chief Advisor of JET, which secured smooth communication between the Uruguayan and the Japanese sides.

The Steering Committee meeting was organized four times in the first half period, where DINAMA and Cooperation Institutions were attended. The authorization process of important issues by the Steering Committee meeting is rather formal, but the meetings encouraged communication among stakeholders as well as information sharing.

The Team concluded that the management system of the Project is sufficiently functional under the strong ownership of DINAMA counterparts. It was highly evaluated for achieving effective and efficient implementation of the Project in the first half period.

3.5.2 Communication

Inter-personal communications within the Project reach a satisfactory level, despite the language barrier with JET. Actors like DINASA, MGAP, OSE and municipalities identified that communication with the Project was less fluid during the early stage of the Project.

In the course of implementation of the Project, the communication between DINAMA and national institutions such as DINASA, MGAP, OSE, has been significantly improved, but that between DINAMA and municipalities should be strengthened.

In the questionnaire survey results indicate that it is necessary to increase candid dialogue among Project site members (JET and counterparts) and JICA in order to enhance common understanding of the Project.

As a whole, the Team concluded that the communication within the Project is satisfactory level, but there is a room to be improved between the Project internal member and external stakeholders.

3.5.3 Method for technical cooperation

According to the results of questionnaire survey and interviews with the Project members, JET and DINAMA had a number of discussions about the most effective approaches to capacity development. DINAMA is most interested in the capacity building of DINAMA workforce. Considering very limited resource and time for the Project and technical level of DINAMA counterparts, JET has adopted learning-and-doing approach as main mode of learning, and not through lectures and formal training courses.

The Team identified that the learning-and-doing approach was quite successful and efficient,

because plenty of technical achievements have been realized by DINAMA counterparts in the first half period.

Chapter 4 Results of the Mid-term Review

According to the evaluation for the first half period, the Team concluded that the Project has been implemented satisfactory in the period, but so many challenges also remains for the last half period. Therefore the total evaluation on future possibility to achieve the Project Purpose is rated "B" according to the criteria described in the section 1.5.2(3).

4.1 Evaluation for Each of the Five Criteria

(1) Relevance

The Project is highly relevant because Santa Lucia River is the source of drinking water for the metropolitan area. The selection of the Santa Lucia River was appropriate considering the importance of the watershed, distributed geographically in six municipalities surrounding metropolitan area of Montevideo, in which almost half of population is occupying.

DINAMA is an appropriate implementation agency for a technical cooperation project on water environment. The objective and the activities of the Project aiming conservation of water resources are in line with DINAMA's mission consisting of the protection of environment under the concept of sustainable development. The mission also orients to offer better quality of life of the people and the use of natural resources with awareness on the conservation of ecosystems, in coordination with relevant stakeholders.

The selection of the Cooperation Institutions was appropriate. With initiative of the participants, protocol on the water quality monitoring for Santa Lucia River is continuing from 2004, among the municipalities with administrative jurisdiction on the watershed area. By the other hand, DINASA, OSE and MGAP are respectively institutions inherent to hydrology and management of policy for water resources, water supply and sewerage system, and management of the agricultural uses of water. Involvement of these institutions in the Project is quite important for securing the sustainability of the expected outputs.

In September 2009 the law on water resources was approved at the National Parliament, waiting for ratification by the central government. The law establishes as competence of MVOTMA and introduces the concept of watershed management among other stipulations. The outputs of the Project are expected to be good references for implementation of the law.

(2) Effectiveness

Effectiveness of the Project is considered to be moderate by the following reasons;

Output 1, regarding development of the management system of water quality and pollution source control in DINAMA, better collaboration is required with the Environmental Laboratory of DINAMA, specially in terms of quantity of samples to be processed, in attaining detection levels according to technical requirements of the Project and in improving results delivery times.

Because Important Assumption in PDM were not defined sufficiently at the designing stage of the Project, the achievement of Output 2, regarding coordination and collaboration system among relevant institutions subject to water quality management, is expected to have limited results under the original PDM. The lack of legal framework with respect to decentralization makes difficult to involve the municipalities effectively into the initially planned activities of the Project. Meanwhile, introduction of watershed management concepts under the scenario in the original PDM requires enormous efforts and resources, also for limited outcomes, thus the original PDM was revised and objective verifiable indicators (OVI) for Output 2 were clarified.

Outputs 3 to 6 seem to be achieved by implementing the activities planned in the Project, and will be mainly contributed to the achievement of the Project Purpose.

(3) Efficiency

Efficiency of the Project is moderate by the following reasons;

Progress of activities and achievement of six (6) outputs are at generally satisfactory level at the mid-term stage of the Project. Some activities has been slightly delayed because DINAMA counterparts need to deal with their daily works other than the project activities and coordination with relevant organizations takes time, however, these delays can be recovered in the latter period of the Project.

There are some additional important assumptions which inhibit the smooth implementation of the Project, such as the lack of a legal framework with respect to decentralization and delegation of tasks.

Capabilities of DINAMA counterparts contribute to the smooth technical transfer of advanced skills and knowledge including pollution load analysis.

(4) Impact

The Team observed various Impact of the Project.

DINAMA is now better positioned to start discussing various pollution issues with stakeholders, e.g., protection of water sources with OSE, non-point source pollution with MGAP, etc, because DINAMA has enough information to present.

Increase of available data on water environment also supports to formulate new projects to access funds from cooperation agencies.

Some municipalities have shown intentions to use the experiences of the Project to the water quality management of other river basin.

Municipalities	Target river basin
Montevideo and Canelones	Carrasco River
San Jose and Florida	San Jose River
Lavalleja	Merin Lake affluent rivers

(5) Sustainability

Sustainability of the Project is relatively high from the following view points;

DINAMA has strong ownership for the Project and their capacities are high enough to develop the knowledge and skills acquired through the activities in the Project by themselves. The DINAMA counterparts are aware of need to incorporate the necessary cost into the 5-year budget plan being prepared now.

Uruguayan national awareness on the environmental protection and conservation of natural resources is gradually arising. Recent law bill discussed at the National Parliament had been approved by unanimous decisions. Following this, vision and mission of DINAMA are in line with the Project Purpose and Overall Goals.

Regardless of the lack of legal framework with respect to the decentralization on the environmental affairs,, intention of the municipalities in Santa Lucia River basin to continue the water quality monitoring assures continuity of collaborative management of water environment.

4.2 Factors promoting sustainability and impact

(1) Factors concerning to Project Planning

One of the focuses of the Project is enhancing capacity of generation of data and information of water environment which are basis for all actions related to protection of water environment. Improvement of accessibility to environmental information is expected to promote necessary measures to be taken by relevant stakeholders.

(2) Factors concerning to the Implementation Process

Most DINAMA counterparts also work for IDB's Peoject, and this makes coordination easier among two projects. Development of Environmental Information System is supported by both JICA and IDB, and information exchange among two projects enables to construct comprehensive database.

4.3 Factors inhibiting sustainability and impact

(1) Factors concerning to Project Planning

1) Designing of the Project was conducted in the very short period of time in the preparatory study, so information concerning important assumption such as decentralization policy was not fully considered into the framework of the Project. It also inhibited to share the common understandings of the Project among the stakeholders.

(2) Factors concerning to the Implementation Process

It took time and effort to understand the exact needs of DINAMA and modify the project plan.

4.4 Conclusions

In conclusion, the Mid-term Review Team summarizes the following results (4.4.1), and some findings from a capacity development perspective (4.4.2):

4.4.1 Results of Mid-term Review of the Project

From the mid-term point of view, the Project Purpose will be achieved at the end of the Project period. The institutionalization of a coordination and collaboration system among relevant stakeholders subject to control of water pollution source/water quality management is, however, rather difficult for local municipality level, because political commitment at high level is necessary.

Due to the high skills of the staff in DINAMA, the improvement of technology level and the implementation of technical activities by DECA and DCDA have shown considerable progress, which were essentially aimed by Outputs 3 and 4. The improvement of management system related to DECA and DCDA defined by Output 1 is a relatively long process but will be achieved by the end of the Project. Thus, Outputs 1, 3 and 4 are expected to be achieved by the end of the Project if the scheduled Project activities are properly implemented.

The information system for the water quality of Santa Lucia River Basin, currently under

construction, is expected to be completed with various water environment information. In addition to the point source control, the Project is preparing a pilot study for the reconnaissance of the impact from non-point sources, which is the great progress of DINAMA's capacity for water pollution control. Those are the significant contributions of Outputs 5 and 6, which will be hopefully achieved by the end of the Project.

It is too early to estimate the achievement of Overall Goal at the time of mid-term Review, but on the basis of the fulfillment of above-mentioned Outputs as well as most part of the Project Purpose by the end of the Project, the Overall Goal can be achieved if appropriate coordination and collaboration system among the stakeholders of Santa Lucia River Basin has been established.

After the reviewing of overall implementation and achievements of the Project in the first half period of the Project term, the Mid-term Review Team concluded that the Relevance of the Project is very high, the Effectiveness is moderate, the Efficiency is high, the positive Impacts are found, and the Sustainability is high.

4.4.2 Findings and Evaluation from a Capacity Development Perspective

Capacity Development (CD) refers to the ongoing process of enhancing the problem-solving abilities by taking into account all the factors at the individual, organizational and institutional-societal levels. In the public sector like MVOTMA, as water management authority, it is very essential to focus on institutions, public policies, and social organizations as well as improving the competence of individuals and organizations. Because sustainable and effective outcomes cannot be realized without such a mechanism which is called "enabling environment".

In this aspect, therefore, the Team analyzed the findings as follows:

(1) Importance of broader approach to solve problems

The Project succeeded in producing visible outputs and human resources development of DINAMA and is now challenged to contribute to improve policies and institutional setup so that water pollution control and management of water quality issues in the Santa Lucia River Basin can get progressively better with practical and sustained solutions.

It is still an ongoing process, but DINAMA is now expected to play a role of hub on water environment information of Santa Lucia River Basin, and the Project and all relevant stakeholders can come together to create a better "enabling environment".

(2) Importance of the CD at institutional level

However, there is room to promote a more effective coordination mechanism and institutional setup, for instance, having stronger involvements at municipal level and enhancing networks among local authorities in accordance with the present institutional structure.

(3) Accumulation of knowledge and skills through CD at individual and organizational levels

There are many proofs of capacity improvement at individual and organizational development levels comparing with the situation before the Project started. At the same time, however, DINAMA has not yet achieved the level expected by the Project in terms of both quantity and quality of the environmental management.

Chapter 5: Recommendations and Lessons Learned

As mentioned in the Conclusions in previous chapter, the Project is successfully operating, as a whole, under the unremitting efforts of DINAMA in particular DECA and DCDA. The Team reaffirmed that such efforts are the key and shall be sustained in the last half period of the Project, which secure the achievement of each Output as well as the Project Purpose.

5.1 Recommendations

5.1.1 Recommendations to the Project for the activities in last half period

The Mid-term Review Team, in addition, made the following recommendations:

(1) To revise PDM to clarify activities, indicators and external conditions

It is obvious that uncertainty relative to decentralization and/or delegation of environmental management and institutional setup is the external barrier for achieving the Overall Goals. It is recommended for the Project administration to revise the column of Important Assumption on PDM and to propose the necessary action for institutional arrangement on the issue to the upper echelons of the central government.

It is also recommended to clarify some undefined activities proposed on PDM such as the pilot project in the Output 5 and case study on non-point source control.

(2) To enhance the communication with stakeholders

More frequent information sharing with stakeholders is recommendable. Some stakeholders

seemed not to fully understand the effort and progress of the Project. In order to deepen understanding of stakeholders and seek more involvement, the following actions should be continued:

1) Use of technical committee in order to fill the gap of manpower of DINAMA, which is proposed by the Minister.
2) Communication shall be strengthened by letters with stakeholders and high level officers in MVOTMA and DINAMA
3) Frequent update of information of the Project in DINAMA's website is recommended, as well as dissemination of its contents.
4) To support to the Environmental Laboratory of DINAMA, with respect of its analytical capacities.
5) Coordination with the IDB project in relevant issues.

(3) To follow-up on the concerned legal framework

Recently, the National Parliament approved unanimously the bill of law of water resources proposed by MVOTMA. The law pursues formulation and implementation of the national plan for the water resources, integrating water uses and water quality conservation issue; and the establishment of the integrated information system considering data on meteorology, hydrology water uses and water quality and quantity, which are directly or indirectly related to the Project. The Project should follow closely the development of regulation of the law.

5.1.2 Recommendations to DINAMA

The amendment bill on the current Decree 253/79 regarding water pollution control contains activities such as introduction of toxicity tests and concept of mixing zones for the control of effluents. The current capacity of DINAMA is not prepared for their execution. It is desirable to analyze how to deal with these issues in the future.

5.2 Lessons Learned

(1) Involvement of a legal section

When planning activities of the projects, feasibility should be carefully considered from legal view points, since it is difficult to conduct activities which are not clearly supported by laws or regulations. Involvement of a legal section may be a effective solution in order to motivate necessary changes of laws and regulations.

ANNEX1: Dispatch Records of Japanese Experts and Dispatch records of Project Consultation Mission

Dispatch records of Foreign Experts (as of the End of September, 2009)

Name	Field	Period of Dispatch	(day)	Organization/Company Name
Itaru OKUDA	Chief Advisor / Capacity Development	03 Jun. 2008 - 08 Jul. 2008 21 Aug. 2008 - 12 Nov. 2008 21 Feb. 2009 - 22 Mar. 2009 20 Apr. 2009 - 26 Jun. 2009 10 Aug. 2009 - present	36 84 30 68 -	Nippon Koei Co. LTD
Derek Johnson	Monitoring / Pollution Control (Management)	09 Jun. 2008 - 03 Sep. 2008 07 Jan. 2009 - 16 Mar. 2009 20 Jun. 2009 - 13 Aug. 2009	85 69 55	Nippon Koei Co. LTD (Cooperating Staff)
Shinsuke Sato	Inspection / Pollution Control (Treatment)	03 Jun. 2008 - 27 Jun. 2008 05 Oct. 2008 - 29 Oct. 2008 19 Jul. 2009 - 20 Aug. 2009	25 25 33	Nippon Koei Co. LTD
Shunsuke Hieda	Data Analysis / Evaluation / GIS / Coordination (2)	20 Apr. 2009 - 19 Apr. 2009 26 Sep. 2009 - present	30 -	Nippon Koei Co. LTD
Akira Morikawa	Water Analysis / Coordination (1)	03 Jul. 2008 - 28 Aug. 2008 07 Jan. 2009 - 10 Mar. 2009 20 Jun. 2009 - 16 Aug. 2009	87 63 58	Nippon Koei Co. LTD

Dispatch records of Project Consultation Mission (as of the End of September, 2009)

Name	Field	Period of Dispatch	(day)	Organization/Company Name
Mitsuo Yoshida	Leader	09 Jun. 2008 - 17 Jun.2009	9	JICA
Mitsuo Yoshida	Leader	20 Apr. 2009 - 27 Apr. 2009	8	JICA
Eriko Tamura	Cooperation Planning			
Mitsuo Yoshida	Leader	01 Oct. 2009 - 10 Oct. 2009	10	JICA
Eriko Tamura	Cooperation Planning	01 Oct. 2009 - 11 Oct. 2009	11	
Choshin Haneji	Evaluation and Analysis	22 Sep. 2009 - 11 Oct. 2009	20	Japan Development Service Co., Ltd. (JDS)

Records of Home Assignment of Foreign Experts in Japan and UK (as of the End of September, 2009)

Name	Field	Period of Dispatch	(day)	Organization/Company Name
Itaru Okuda	Chief Advisor / Capacity Development	27 May. 2008 - 2 Jun. 2008 09 Feb. 2009 - 13 Feb. 2009 17 Apr. 2009 - 19 Apr. 2009	7 5 3	Nippon Koei Co. LTD
Derek Johnson	Monitoring / Pollution Control (Management)	14 Aug. 2009 - 18 Aug. 2009	5	Nippon Koei Co. LTD (Cooperating Staff)
Akira Morikawa	Data Analysis / Evaluation / GIS / Coordination (2)	27 May. 2008 - 29 May. 2008	3	Nippon Koei Co. LTD

ANNEX2: List of equipment accompanied with the JICA Expert Team under the Project

Equipment Name	JFY Granted	Quantity	Amount (Yen)	Amount (USD)	Site installed	Setup Date	Working Situation as of End of September '09
Printer	2008	1 set	49,421	549.00	DINAMA office	02/2009	Working
Office LAN System	2008	1 set	5,491	61.00	DINAMA office	02/2009	Working
UPS Stabilizer	2008	2 sets	17,566	179.34	DINAMA office	03/2009	Working
Projector	2008	1 set	81,259	829.60	DINAMA office	03/2009	Working
Computer for Server	2009	1 set	371,045	3,883.26	DINAMA office	07/2009	Working
Computer for Water Quality Simulation	2009	1 set	187,330	1,960.54	DINAMA office	07/2009	Working
Computer for GIS Working	2009	1 set	101,872	1,066.16	DINAMA office	07/2009	Working
GIS System Software	2009	1 set	-	-	DINAMA office	to be purchased	-
Total			813,985	8,529			

*Provision of field measurement kits for demonstration was cancelled because activities using field measurement kits were cancelled due to legislative restrictions concerning role of municipalities for environmental monitoring.

LIST OF COUNTERPARTS
FOR THE PROJECT ON WATER POLLUTION CONTROL AND MANAGEMENT OF WATER QUALITY IN THE SANTA LUCIA RIVER BASIN
(AS OF THE END OF SEPTEMBER 2009)

Name	Role in the Project	Position
Alicia Torres	Project Director	National Director of National Direction of Environment (DINAMA)
Silvia Aguinaga	Project Manager	Director of Division of Environmental Control and Performance, (DINAMA)
Luis Reolón	Project Manager	Director of Division of Environmental Quality Evaluation, (DINAMA)
Magdalena Hill	Project Coordinator	Former Director of Division of Environmental Quality Evaluation, (DINAMA)
Gabriel Yorda	Technical counterpart	Chief of Quality Department
Rosario Lucas/ Juan Pablo Peregalli	Technical counterpart	Chief of Emission Control Department
Virginia Fernández	Technical counterpart	Chief of Environmental Information System
Alejandro Cendón	Technical counterpart	Expert appointed to Quality Department
César García	Technical counterpart	Expert appointed to Quality Department
Javier Martínez	Technical counterpart	Expert appointed to Quality Department
Gerardo Balero	Technical counterpart	Expert appointed to Emission Control Department
Juan Pablo Peregalli	Technical counterpart	Expert appointed to Emission Control Department
Imelda Ramos	Technical counterpart	Expert appointed to Emission Control Department
Sandra Castro	Technical counterpart	lab expert
Rosina Segui	Technical counterpart	GIS Technical Staff
Carla Brunetto (OSE)	Technical counterpart	Water Quality and Pollution Source Expert
Luis Nicola (OSE)	Technical counterpart	Water Quality and Pollution Source Expert

ANNEX 4: Evaluation Grid of the Mid-term Review

Project Name: Project on Water Pollution Control and Management of Water Quality in the Santa Lucia River Basin

October 8, 2009

Evaluation Criteria	Evaluation Questions: Main questions	Evaluation Questions: Sub-questions	Results
A. Verification of performance	1. Is input implemented as planned?	1.1 Are dispatched JICA Experts (JET) in line with the established qualification?	**Evaluation by the Team** Yes, JICA Experts satisfies required qualification. **Basis of Judgment** <Source: DINAMA> a. Chief Advisor / Capacity Development: Highly skilled for the coordination tasks of the Project and technically solid with good relationship with DINAMA teams (DECA and DCDA). b. Monitoring / Pollution Control (Management): Proficient knowledge and wide experience that was share with DINAMA technical team (DECA and DCDA). High capacity for the understanding of Uruguayan situation and how to adopt his knowledge in line with the real situation of the Country. c. Inspection / Pollution Control (Treatment): Dedicated and knowledge on pollution control, providing suggestions that was applied for the control of pollution sources. d. Data Analysis / Evaluation / GIS / Coordination (2): Not enough time to evaluate performance, however demonstrated knowledge on the matter. e. Water Analysis / Coordination (1): Demonstrated knowledge on the matter and proposed alternatives for the improvement of the analysis on the basin.
		1.2 Is JET following PO schedules?	**Evaluation by the Team** Yes. JICA Experts follows the schedule written in PO. **Basis of Judgment:** <Source: DINAMA> Assignment of JET based on PO:

Japanese Expert	Yes	No	Comment
Chief Advisor / Capacity Development	✓		
Monitoring / Pollution Control (Management)	✓		In accordance with initial PDM/PO and its subsequent revisions

Evaluation Criteria	Evaluation Questions: Main questions	Evaluation Questions: Sub-questions	Results

Inspection / Pollution Control (Treatment)	✓		
Data Analysis / Evaluation / GIS /Coordination (2)	✓		Low participation yet
Water Analysis / Coordination (1)		✓	Could not realized the activities with kits

1.3 Are the expenses for seminars, publications, training course materials, etc. provided by JET?

Evaluation by the Team

Yes. Most planned expenses are borne by JET and DINAMA supports some expense.
Some activities are conducted without any cost.

Basis of Judgment:

<Source: JET>

Expenses borne by JET:

Item	Yes	No	Comment
Seminars	√	√	Most seminars are done at DINASA with essentially no cost. Cost for the non-point workshop in March was borne by DINAMA (and MGAP/DGSA).
Publications	√		Costs for printing of Progress Reports are paid by JET
Training course materials	√	√	So far no "formal" training course has been implemented.
Others			N/A

1.4 Are inputs of Uruguayan side implemented as planned?

Evaluation by the Team

Yes, in a general point of view. The allocation of resources has been done as planned.

Basis of Judgment:

<Source: DINAMA/JET>

It was easy to foresee that DINAMA could not dedicate so many human resources only for the Santa Lucia River issues. JET presumed this problem from the beginning, and always implemented the Project considering the available resources. Overall, JET is highly satisfied with DINAMA's dedication and inputs to the Project.

Counterparts assigned for JICA Experts:

Japanese Expert	Name(s)	Position/Institution
Chief Advisor / Capacity Development	Luis Reolon Silvia Aguinaga Magdalena Hill	DECA DCDA DECA

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			<table><tr><td>Monitoring / Pollution Control (Management) Inspection / Pollution Control (Treatment)</td><td>Silvia Aguinaga Rosario Lucas Juan-Pablo Peregalli, and other members of Control Division</td><td>DCDA</td></tr><tr><td>Data Analysis / Evaluation / GIS / Coordination (2) Water Analysis / Coordination (1)</td><td>Gabriel Yorda Alejandro Cedon and other members of Evaluation Division</td><td>DECA</td></tr><tr><td>Data Analysis / Evaluation / GIS / Coordination (2)</td><td>Virginia Fernandez and other members of IT Section (+ Alejandro, Cerdon Hugo)</td><td>Environmental Information Section of DINAMA</td></tr><tr><td>Water Analysis / Coordination (1)</td><td>Sandra Castro and other members of the lab</td><td>Environmental Laboratory of DINAMA</td></tr></table> It has to be mentioned, that there are numerous other people who are actively involved in the Project including experts from other organizations.<u>Office space for JICA Experts</u>: -Address of the office location: c/o DINAMA, Galicia 1133 Esquina AV. Rondeau, Montevideo -Availability of facilities: Desks for each expert and secretary, internet connection, phone line. The main problem with the office space is that the JET members are split between the first and second floors while there is only one secretary/interpreter. At times this has caused communication problems.
	2. Is output produced as planned?	2.1 Output 1. What is the progress on the development of the system regarding water pollution control and water quality management in DINAMA?	**Evaluation by the Team** Tangible achievements could be observed through the concerned activities mainly conducted by DECA and DCDA. - OVI-1.1: Seminars and meetings have been taken as shown in the tables below. - OVI-1.2: Capacity assessment for DINAMA and relevant organizations was realized. - OVI-1-3: Action Plan was formulated for eleven activities in line with PDM and PO.
			Basis of Judgment: <Source: DINAMA/JET> <u>Tangible outputs</u>: - It was realized the update of database on the Santa Lucia River basin and is continuing its maintenance. Also, exists similar approaches for other river basins of the country. - It was started monitoring of nitrogen and phosphorus on the effluents of the industries stayed in Santa Lucia River basin. - It was estimated the pollution load in terms of BOD_5. - It was incorporated in GIS data on all point sources of the basin, and is in progress the completion

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	

for the other basins of the country.

- It is maintained the monitoring of water quality jointly with the municipalities.
- It was drafted a Water Quality Report with application of Water Quality Indexes suggested by the Project.

Required capacities:

- Further strengthening of the environmental information system for better interrelations with Cooperation Institutions.
- Permanent contract assignment of the staffs in DECA and DCDA.
- Coordinative management with the laboratory for the planning of monitoring tasks.

Overall coordination between DCDA and DECA seems reasonable. In the early phase, the Project made deliberate efforts to bring DCDA and DECA together. It is not unusual to see members of DCDA in DECA, and also the Non-point work has been pursued together.

It has to be admitted that the relation with DINAMA Lab has been quite limited, and the physical distance to the lab makes it even more difficult to build smooth relation between DINAMA/JET – DINAMA Lab. From the onset of the Project, it was clear that DINAMA expected this Project to be mainly for the DECA and DCDA not for the Project for the Lab.

Also, the fact that the Project had to abandon the ICP-MS and the kit activities did not help. It was organized a number of meetings to fix SISILAB as a temporary measure to repair the information link between the Lab and DECA / DCDA of DINAMA. While this was completed, it was officially decided that the Lab was going to replace SISILAB with new software, and this line of work has not been pursued after that.

There are other DINAMA issues the Project has not been able to fully address. They are DINAMA's internal management issues, such as budgeting, fiscal management, human resources management, leadership and other organizational issues.

The following table includes seminar, training courses and meetings for all Outputs (note that some activities are overlapping). These are formal – semiformal meetings/activities that JET has taken part in, and JET has written records of 62 meetings with total participants of 338. In addition, JET and DINAMA have a lot of informal meetings, and DINAMA has their own internal meetings to coordinate project activities.

Name of Activity	Output	meetings	attendants
StC meeting 1	Output 1-6	1	14
StC meeting 2	Output 1-6	1	8
StC meeting 3	Output 1-6	1	14

Evaluation Criteria	Evaluation Questions: Main questions	Evaluation Questions: Sub-questions	Results

StC meeting 4	Output 1-6	1	10
Tech. Committee meeting 1	Output 3	1	16
Seminar 1	Output 1-6	1	28
Seminar 2	Output 5	1	35
Seminar 3	Output 4, 5	1	68
Meetings on control of point sources	Output 4, 5	5	>30
Meetings on environmental monitoring	Output 3	6	34
Meetings on non-point sources	Output 1, 2, 4	21	155
Coordination - General	Output 1-6	6	30
Coordination - IT	Output 6	6	36
Coordination - Laboratory	Output 3, 6	2	8
Coordination - Projects	Output 1-6	6	40
Municipal Labs visits	Output 2, 3	5	n/d
Presentations by JET	Output 3, 4. 5	4	108

Agenda regarding Output 1:

Activity	Main Agenda regarding Output 1	Number of attendants: Invitees	Number of attendants: Assistants
Seminar 1	Experiences of pollution control in Japan and Europe	28	
Seminar 4	To be implemented in late October		
Meetings	Various, 33 meetings	225	

2.2 Output 2. What is the progress on the establishment of the system regarding coordination and collaboration among relevant institutions?

Evaluation by the Team

Formal establishment of coordination mechanisms cannot be expected by the end of the Project. It is required for the municipalities to start discussing about practical mechanisms for coordination with DINAMA and other relevant organizations.

- OVI-2.1: Issues to be solved was recognized.
- OVI-2.2: Coordination and collaboration system are not completed. Protocol for emergency communication is developed.

Basis of Judgment:

<Source: DINAMA/JET>

Tangible outputs:

- Maintenance of good relationships with Cooperation Institutions improving notoriously with DINASA and OSE, throughout reception of officers involved directly to the Project.
- Relevant information from several divisions/departments of MGAP.

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			Required capacities: - Establishment of mechanism for the coordination with Cooperation Institutions. - Improvement of coordination between related divisions of MGAP with proper approach. Opportunities: - The law bill on water resources, strengths the possibility of introduction of watershed management, as is proposed by the Project. A problem is measuring commitments of relevant organizations (e.g., municipalities) toward the cause. They may be ready to receive assistance (e.g., kit), but that does not mean they are ready to pitch in their resources (e.g., more time in the field, or budget for maintenance of equipment). Also there is little institutional framework to support their commitment, even if they are willing to participate. Considering these problems, it was necessary to reduce the expectation for Output 2. The new PDM and the PO do not expect any formal establishment of coordination mechanisms. It is required these organizations to participate in meetings, and start discussing about practical mechanisms for coordination. Decentralization or delegation of roles of environmental administration to municipalities can be initiated from DINAMA or municipalities. DINAMA might be able to request municipalities to do more environmental work using the clause of Environmental Protection Law, but from the legal point of view, there are some aspects which must be defined. It should be noted that this kind of move may not be beneficial for DINAMA. DINAMA might lose the authority and the budget to carry out monitoring and pollution control. With regard to municipalities, this Project has started looking into the possibility of getting the OPP fund in order to purchase kits for municipalities. This approach is maybe more manageable and quick compared with the processes that depend on political actions. Nevertheless, apparently this is not easy, and buying a kit is not the real solution for decentralization of environmental management. DINAMA-DINASA relation has improved significantly in the last 6 months, and DINAMA now has an access to DINASA's hydrological and water right databases. DINAMA-OSE relation is also improving with the dispatch of OSE officers. DINAMA now has a set of OSE water quality data, and also DINAMA's efforts (including the NPS work) will eventually benefit OSE. DINAMA-MGAP relation is improving through the NPS work, and DINAMA now has a lot of information about different aspects of agriculture activities.

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
		2.3 Output 3. What is the progress on the strengthening of the system for the water monitoring on rivers and effluents?	**Evaluation by the Team** DINAMA spend a lot of time and resources for monitoring and have lots of raw data, but rather little information about the state of water quality of Santa Lucia River, such as whether the water is polluted or not, which parameter is important, how serious the problems are. - OVI-3.1: Seminars and meetings have been taken as shown in the following table. - OVI-3.2: Issues to be solved was recognized. - OVI-3.3: Monitoring plan was revised. - OVI-3.5: Number of analyzed water samples, sediment samples, analyzed parameters in laboratory: In general, the analytical capacity of the DINAMA Laboratory is good,

Basis of Judgment:

<Source: DINAMA/JET>

Tangible output:

- The laboratory can make analysis with the detection limits stipulated by the Decree 253/79 and its amendments.

Required capacities:

- Regular availability of the laboratory analysis service including for sediment samples.
- Some water quality analysis requires detection limits lesser than stipulated by Decree 253/79.
- Improvement of laboratory capacity for agrochemicals and toxicological tests.

The main issue seems DRIP (data rich information poor) syndrome. DINAMA spend a lot of time and resources for monitoring and have lots of raw data, but very little information about water quality of Santa Lucia River, such as whether the water is polluted or not, which parameter is important, how serious the problems are. This is why decided to digitize all data, and start doing some analysis.

In general, the analytical capacity of the lab is high. Apparently there were some data handling issues, such as mix up in units, multiple entries of same data, etc.

Agenda regarding Output 3:

Activity	Main Agenda regarding Output 3	Number of attendants	
		Invitees	Assistants
Seminar 1	Experiences of pollution control in Japan and Europe	28	
Training courses	1 presentation	10	
Meetings	Various, 23 meetings	212	

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			Approximately 14 analytical parameters were generated on reliable level for samples collected from 32 sample stations. Every two months the sampling has been done. The Laboratory can make analysis with the detection limits stipulated by the Decree 253/79 and its amendments although some water quality analysis required detection limit lesser than stipulated by the Decree. A total of 250 samples approximately have been analyzed so far by the Laboratory in the course of Project activities
		2.4 Output 4. What is the progress on the strengthening capacities for the compilation, analysis and evaluation of data concerning water pollution sources?	**Evaluation by the Team** DINAMA's capacity on data compilation, analysis and evaluation subject to water pollution source control has been significantly strengthened in the first half period of the P roject. - OVI-4.1: Seminars and meetings have been taken as shown in below table. - OVI-4.2: For the pollution source inventory list, information related to the point source effluent along the Santa Lucia River basin has been inventoried. - OVI-4.3: It was digitized analytical results of over 700 effluent samples of 86 point sources stayed in Santa Lucia River basin. - OVI-4.4: Pollution mechanism in Santa Lucia River basin is clarified. Pollution loads from point and non-point sources are analyzed.
			Basis of Judgment: <Source: DINAMA/JET> Tangible output: - Regularity of inspections for the effluents of the all 86 point sources stayed in Santa Lucia River basin. Required capacities: - Further enhancement of technical capacity for the identification and quantitative estimation of the non-point pollution sources. Water quality of river: It was digitized all DINAMA water quality data of Santa Lucia River. They are available from the Environmental Information System, and DINAMA recently produced a state of the water quality report. Water quality of effluent: It was digitized analytical results of over 700 effluent samples from the basin. Non-point source pollution: it was collected relevant information from various organizations (DINAMA, INE, RENARE, DGSSAA, DICOSE, OPYPA, INIA, universities, etc.), and we are in the process of analyzing pollution loads. A preliminary report is available. These become the basis for the second part of the work on theoretical representation of pollution mechanism – possibly mathematical modeling of pollution process. Now, DINAMA and the relevant organization are summarizing Non-point Source Report in Santa Lucia

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			River Basin. After completion of the report, they will start to work for understanding pollution mechanism by preparation for pollution load map and identification of critical area from monitoring data and pollution load estimation. DCDA has SADI, IPO inspections and Legal Declaration dataset, which all contain information on different aspects of pollution sources. Have an excel file containing the entire effluent data (over 700 samples) of 86 point sources in the Santa Lucia River Basin. This was digitized last year in order to analyze the pollution loads. In addition, information on the list of industries in Uruguay is available for internal use and will shortly be available for external use. With respect to the detail of pollution source inventory list, DINAMA Pollution Control Division maintains it. As the first step, BOD pollution load from industries of each sub-basin in Santa Lucia River basin was estimated and DINAMA estimated BOD indexed pollution load from domestic wastewater and sewerage treatment plant and made the presentation at the 3rd Seminar. Now, DINAMA and the relevant organization are summarizing Non-point Source Report in Santa Lucia River Basin including pollution load estimation from non-point sources. After completion of the report, they will start to work for understanding pollution mechanism by preparation for pollution load map and identification of critical area from monitoring data and pollution load estimation Review of the Lavalleja Municipality laboratory Analytical Quality Control Data as an exercise for management of analytical quality. The data for duplicate and control samples showed that the analysis being carried out by the laboratory is under control with good precision and accuracy. Agenda regarding Output 4:

Activity	Main Agenda regarding Output 4	Number of attendants	
		Invitees	Assistants
Seminar 1	Introduction to approach of water pollution mechanism analysis	15	5
Seminar 3	Non-point source workshop	61	
Meetings	Various, mainly non-point, 42 meetings	>363	

		2.5 Output 5 What is the progress on the strengthening capacities for the inspection, evaluation and enforcement inherent to the	**Evaluation by the Team** DINAMA significantly strengthened the capacity on inspection, evaluation and enforcement subject to pollution source management. - OVI-5.1: Seminars and meetings have been taken as shown in the following table.

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
		management of pollution sources?	- OVI-5.2: Issues to be solved was recognized. - OVI-5.3: A pilot study to obtain practical information to control pollution in Santa Lucia River basin is implemented.
			Basis of Judgment: <Source: DINAMA/JET> Tangible output: - Good coordination with the Municipalities for the punctual cases of contamination. - Was started compilation of required maps: agricultural use, topography, erosion, etc. - Practice of enforcement under Decree 253/79. Required capacities: - Systematic coordination mechanism with the municipalities for the inspection activities. - Obtainment of secondary information regarding non-point sources, such as land use data. OSE claims they are experiencing problems with algal blooms, algal toxins and pesticides. Judging from the nitrogen and phosphorous levels as well as the agriculture-dominant land use in the area, this is not surprising. There is another study by a university about the eutrophication levels of streams and reservoirs (Paso Severino and Canelon Grande), which also suggests that there are enough nitrogen and phosphorous in water to trigger eutrophication problems. Nitrate-level in groundwater is also high, and according to OSE data, as much as 20% of the wells have nitrate concentration higher than 10 mg-N/L. In addition, there seem to be localized heavy metal issues. Some municipality officers usually accompany during field visits, and many of them are enthusiastic about environmental issues. Also, many DINAMA officers want more participation of municipalities. However, they are public officers and they are on duty based on their mandates and regulations. Although this Project was structured around control of point sources, it is suspected that contribution of non-point source pollution was far greater than the point sources, and started this line of work in March 2009. Based on preliminary assessment, it appears non-point source pollution is very important (accounting for probably 70-80% of nitrogen and phosphorous exports to the river), but is still far from establishing un-refutable scientific evidences to support importance of non-point source pollution in the area. Control of non-point source is the scope of DINAMA and MGAP assists DINAMA. DINAMA organized a workshop on the issue in March, which was held in MGAP. The problem of non-point source pollution is gradually getting attention, and there are some researches, such as Laguna de Sauce, Paso Severino Non-point source pollution can be an important issue for

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			Uruguay, but there is essentially no information. JET still needs to discuss with DINAMA about how DINAMA is controlling violators and what DINAMA can do further. It was examined the effluent data of 86 industries in the basin, some 700 samples, and it seems only about 1/4 of them are releasing effluents that exceed the effluent standard (JET is yet to discuss with DINAMA how to define violation). The main problem is that those violators are often large meat or leather companies and nearly a half of the BOD load is associated with the violators. Effluents from these industries are very difficult to treat as they are very concentrated and also the volume is high. With respect to nitrogen and phosphorous, the contributions of violators may be even higher - our preliminary estimate shows that 80 to 90 % of nitrogen and phosphorous loads are associated with meat industry, though this is yet to be verified with real data. Anyway, now DINAMA has some data to start comparing industries based on pollution load, and DINAMA's capacity is improving rapidly. DINAMA and JET are yet to design the pilot study on environmental impacts of non-point sources such as agricultural/animal husbandry activities. DINAMA has already done some work on dairy firms. Agenda regarding Output 5:

Activity	Main Agenda regarding Output 5	Number of attendants	
		Invitees	Assistants
Seminar 2	Pollution load analysis	32	
Meetings	Various, 21 meetings	>178	

	2.6 Output 6 What is the progress on the construction of the integrated information system for the control of water pollution and management of water quality?	**Evaluation by the Team** There is a great progress. The database for the water quality was completed. Data of the drainage from point sources (industrial and domestic) was incorporated to the Environmental Information System and partially for the non-point sources were also incorporated. Water quality data generated jointly with the municipalities in the Santa Lucia River basin was also incorporated. - OVI-6.1: Monitoring database and pollution source database are reconstructed considering the data and information needs. - OVI-6.2: Monitoring database and pollution source database are incorporated into the Environmental Information System of DINAMA. **Basis of Judgment:** <Source: DINAMA/JET> Tangible output: - The database for the water quality was completed. Is under construction tools for the users. - It was incorporated to the Information System all drainages from point sources and partially for the non-point sources. - It is available information of water quality data generated jointly with the Municipalities.

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			Environmental information related to Santa Lucia River basin is a comprehensive information management system created by the Environmental Information Section of DINAMA. The Project is mainly supporting the development of the following two modules: - A module (MapServer/PostgreSQL/PostGIS) to show water quality or Santa Lucia River, locations of pollution sources with basic information on the source (most data on pollution source are for internal use only) - A module to control input of water quality data from municipalities and the laboratory. It is similar to SISICA. In addition, DINAMA has a set of databases to process pollution control processes (ADI regulated industries, Judicial declaration, and inspection). These are being modified with support from IDB. A large number of IT staff at DINAMA are employed by IDB, and thus it is difficult to separate the JICA component from the IDB component. DINAMA Environment Information Section has been developing the database of pollution sources (effluent water quality) and water quality monitoring data. As the function of the database, DINAMA can come to manage it on internal web-page.
	3. Are there prospects that the project objective will be achieved?	3.1 Is the capacity, inherent to the control of water pollution and management of water quality of DINAMA and involved institutions, enhanced?	**Evaluation by the Team** The Project Purpose is expected to be achieved by the end of the Project if the efforts are sustained in the last half period of the Project. However, the coordination and collaboration in formal manner such as "basin management committee" are remained for future challenge, which secure fully functional coordination mechanism for conducting environmental management of Santa Lucia River basin. - OVI-1: The Action Plan, which contains eleven activities, has been prepared and currently implemented by the DINAMA under the cooperation of JET. - OVI-2: The coordination and collaboration with national institutions such as DINASA, MGAP and OSE, has been significantly improved. Information sharing and collaboration for data analysis are implemented among the institutions and DINAMA. - OVI-3: DINAMA has been constructing Environmental Information System and a part of the information was publicized through website. - OVI-4: Water quality data and pollution source data toward and managed by database. One of the prominent output is the water quality report which is the first publication on water quality prepared by DINAMA. - OVI-5: DINAMA's capacity for instruction to pollution sources was improved and pilot study for the practice is under consideration, which will be implemented in the last half period of the Project.
			Basis of Judgment:

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			<Source: DINAMA/JET> With respect to DECA and DCDA, their capacity is growing rapidly – in line with the PDM and PO, and moreover the results are tangible. Among the things DINAMA has achieved so far include: - DINAMA now has the Santa Lucia River water quality data, all digitized and verified. - DINAMA also has most of the effluent data, digitized and verified. - DINAMA is gong to publish a water quality report. - DINAMA developed water quality indexes. - DINAMA has analyzed BOD loads from point sources. - DINAMA has analyzed BOD loads from domestic sources. - DINAMA is making efforts to address non-point source pollution issues. - DINAMA has developed the sophisticated Environmental Information System. The Project has tapped the real potential of DINAMA, and the results are highly satisfactory. With respect to other organizations, they are generally making good progresses, and everything is more or less according to the revised PDM and the PO. Nevertheless, foresaw serious difficulties to pursue a number of activities in the original PDM, in particular with Output 2, largely because of the institutional problems. Hence, it was relaxed expectations for these organizations. It is required from these organizations basically participation and cooperation. Improvement of environmental management by municipalities is one of the most important issues to the Project. However, there is an important step that has to be taken before we can proceed with this activity, which is to confirm their formal commitment to environmental management. It would be the best if these municipalities have some kind of local environmental ordinance to legally empower themselves to work on such issues. Otherwise, it is maybe illegal to involve municipalities. Another issue is the lack of a clear vision for decentralization of environmental management, namely where money-power-responsibility go. While both DINAMA and municipalities agree on the idea of developing the environmental management capacity of municipalities, DINAMA's idea is to "request" municipalities to carry out basic work, such as monitoring and simple inspections, preferably with the municipality's budget. Municipalities would probably want entire transfer of the power and the budget. The idea of a basin committee is also premature, and needs time to make it more concrete. With respect to OSE, DINASA and MGAP, the Project is not doing capacity development of these organizations. Nonetheless, the Project is making efforts to lower the institutional barriers between these organizations by creating a temporal window through which these organizations can see through what DINAMA has, and if they so desired, grab opportunities to work together.

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
B. Verification of implementation process	1. Are activities implemented as planned? Have any changes with respect of original PO?		**Evaluation by the Team** Yes, the activities are mostly implemented as planned according to the PDM and PO revised in May 2009.
			Basis of Judgment: <Source: JET> Output 1: It is impossible to set up a management system, and to solve DINAMA management issues will take several months. Hence, the schedule was extended until the end. Output 2: Again it is impossible to establish a coordination system in several months. Probably this will take 2 to 5 years, if there is enough social will. If there is no will, this will not happen. Output 3: This output has been carried out more or less according to the original PO, except activities related to the kit and training of the Lab have been dropped. Output 4: The Project started this activity earlier than originally scheduled, because we needed concrete data on water quality and pollution loads to carry out other activities. Currently, are taking more time than originally planned largely because we are dealing with non-point source issue, which was probably not anticipated in the original PDM and the PO. Output 5: Pollution control is very complicated. There are so many different issues to cover, which include non-point source. The Project is taking more time than originally anticipated. Output 6: This was carried out from the onset because DINAMA was already working on this Project was started. DINAMA has already developed a comprehensive system, but DINAMA needs further support in order to make the system more robust and sustainable. Without support, it is possible that the system collapses within few years.
	2. Is there any problem in the method for technology transfer?		**Evaluation by the Team** No. The approach of learning-by-doing is greatly evaluated.
			Basis of Judgment: <Source: JET> JET and DINAMA had a number of discussions about the most effective approaches to capacity development. In general, DINAMA is most interested in the capacity building of DINAMA workforce, and they resented the idea of putting a lot of their time and their resources for nothing. From the JET side, shortage of JET's resources was a concern. JET's resources are so thinly stretched. Hence, JET decided to adopt learning-by-doing approach as our main mode of learning, and not through lectures and formal training courses, which tend to be not practical and often require a lot of time for preparation.

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			JET choose themes whose outputs would directly benefit DINAMA, such as analysis of pollution load. Very often DINAMA has already thought about such matters or has already started working on them but has not completed them due to limited time, or because they were not sure whether they were doing it right. After a number of discussions, a JET member starts to work on them considering the typical international practice and his experiences. It has to be pointed out that DINAMA generally knows when to organize such awareness building / coordination activities. For example, the non-point source workshop was proposed and implemented by DINAMA initiative. DINAMA obviously saw the need to involve relevant organizations, and acted on it. For this DINAMA organized a team of moderators, and it took DINAMA a few months of preparation, including a number of meetings with key presenters from different organizations, as well as numerous internal meetings for preparation. Similarly, the Technical Committee meeting on monitoring kit was organized by DINAMA to discuss whether municipalities can procure kits with their own budgets.
	3. Is there any problem in the project management system?		**Evaluation by the Team** Not much, but smooth communication and sharing of common understandings should be encouraged.
			Basis of Judgment: <Source: JET> (1) Clarifying expectations about Project among DINAMA, JICA and JET This Project is being managed by DINAMA, JICA and JET. In principle, all these three should share the same expectations about the Project. However, even today, it seems there are serious differences in understanding and expectations about the roles of municipalities, establishment of a coordination mechanism, and other fundamental issues. These issues should be clarified immediately. (2) Communications between JICA and JET It seems JICA and JET are not communicating well. I have been informing JICA about various problems having in the conduction of the Project, and even changed the PDM and the PO (by adding the supplementary document so that we don't drastically change the PDM and the PO) to deal with difficulties. Once asked the JICA Uruguay Office to step in, so that JICA can see an independent view. However, it is not working. Tokyo is so far from Uruguay. JICA tries to listen to my information and comments, but they are not registered. (3) Decision making It is required to involve DINAMA for decision-making, and never leave them out. For example, the questionnaires for the mid-term review were prepared without consulting DINAMA. The same mistake with the Inception Report, which was prepared without consulting them, and of course it was completely

Evaluation Criteria	Evaluation Questions: Main questions	Evaluation Questions: Sub-questions	Results
			turned down.
	4. Does the project have a high recognition in DINAMA and municipalities?		**Evaluation by the Team** Yes, in DINAMA and relevant organizations. More relevant information from the municipalities is required to recognize their appreciation.
			Basis of Judgment: <Source: JET> Inside DINAMA the Project has high recognition in technical and institutional point of view.
	5. Are suitable Counterparts assigned?		**Evaluation by the Team** Yes.
			Basis of Judgment: <Source: DINAMA/JET> Compatibility of duties in charge by the C/Ps:

Japanese Expert	Name(s)	Compatibility of duties
Chief Advisor / Capacity Development	Silvia Aguinaga Luis Reolon Magdalena Hill	High
Monitoring / Pollution Control (Management)	Silvia Aguinaga	High
Inspection / Pollution Control (Treatment)	Rosario Lucas Juan-Pablo Peregalli	High
Data Analysis / Evaluation / GIS /Coordination (2)	Gabriel Yorda Virginia Fernandez	High
Water Analysis/ Coordination (1)	Sandra Castro Gabriel Yorda	High

	6. Is the degree of participation of the Cooperation Institutions and related organizations in the project high? Is the recognition with respect to the project high?		**Evaluation by the Team** Yes. The degree of participation is high and the recognition to the Project is also high.
			Basis of Judgment: <Source: DINAMA> The response of the Cooperation Institutions is adequate for the invitation and for the agreed issues.
	7. Did any other problems occur during implementation of the Project? What was the cause?		**Evaluation by the Team** No.
			Basis of Judgment:

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			<Source: JET> The following issues may be pertinent to the Project: - Suspension of one campaign for the water quality monitoring due to lack of budget for the analysis reagents, affected the works. - Participation of MVOTMA/DINAMA decision makers: More direct participations of the National Director, the legal advisor and the financial advisor in the Project may be desirable. - DINAMA's fiscal management: There have been problems of DINAMA's fiscal management, such as financing of installation of ICP-MS, purchase of kits for municipalities and purchase of reagents for DINAMA Lab. - Loss of human resources: Rosario Lucas, two seconded officers in the DCDA, IT experts
I. Relevance	1. Is the Project in line with the necessities of the society?	1.1 Is the project in line with the needs of the target region and society?	**Evaluation by the Team** Yes. The selection of the Santa Lucia River was appropriate considering the importance of the watershed, distributed geographically in six municipalities surrounding metropolitan area of Montevideo, in which almost half of population is occupying.
			Basis of Judgment: <Source: JET> It is highly relevant because it is the source of drinking water for Montevideo.
	2. Is the Project in line with the priorities of Uruguay and Japan sides?	2.1 Is the project consistent with the development policy of Uruguay?	**Evaluation by the Team** The law bill on water resources, waiting for ratification by the central government establishes as competence of MVOTMA and introduces the concept of watershed management among other stipulations. The outputs of the Project are expected to be good references for implementation of the law.
			Basis of Judgment: <Source: DINAMA> In last September was approved the law on water resources at the National Parliament, waiting for ratification by the central government. The law establishes as competence of MVOTMA and introduces the concept of watershed management among other stipulations. The outputs of the Project are expected to be good references for implementation of the Law.
		2.2 Is the project consistent with Japan's foreign aid policy and JICA's plan for country-specific program implementation?	**Evaluation by the Team** Yes.

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
	3. Is the Project formulated in a suitable approach?	3.1 Is the project suitable as a strategy to produce an effect with respect to the water quality management and pollution control for Santa Lucia river and other water body systems?	**Evaluation by the Team** Yes.
			Basis of Judgment: <Source: JET> Yes, the selection of the Santa Lucia River was appropriate considering the importance of the watershed, and for the continuation from the previous JICA study. Selecting a more urban river could have been possible, but a typical solution to urban water quality problem is development of a sewerage system, and as IDB is working on sewerage development. Also the choice of DINAMA as the counterpart was appropriate. Santa Lucia River is a good practice field for DINAMA, it is not far from Montevideo, it is an important water source for the region. The problem would be that this Project is directed to control point sources in highly agricultural area. This is somewhat distracting to construct the story. - The idea of basin-management is good, but we still need a lot of work to realize it in the Santa Lucia River Basin. If a large number of stakeholders in the area are seriously concerned about water quality issues and willing to participate, for example, if a draught and massive algal bloom paralyze Paso Severino, this idea might work. However, right now it is difficult to sell this idea to organizations in the basin. This requires all relevant stakeholders in the basin to discuss and shape the best mechanism to manage Santa Lucia River Basin, which is to be coordinated by DINASA. With respect to decentralization of environmental management, we should have thought about whether this means the decentralization of responsibility and power, or only decentralization of responsibility. This is a difficult issue. This Project complements on-going IDB project for strengthening environmental management capacity of DINAMA. Also, it complements a number of other projects, such as sewerage development, FREPLATA, SNAP, ECOPLATA, solid waste management, etc. The relation with the IDB Project must be followed up.
		3.2 Is the selection of the Cooperation Institutions appropriate?	**Evaluation by the Team** Yes, it was appropriate.
			Basis of Judgment: <Source: JET> The selection of the Cooperation Institutions was appropriate. However, the roles of each institution, i.e., exactly what we should expect from each organization, should have been identified more clearly considering what we can realistically achieve during the Project.

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
		3.3 Are there any ripple effects beyond the Cooperation Institutions?	**Evaluation by the Team** Yes, it is expected to influence for environmental management of other river basin. In addition other projects such as Biodiversity project.
			Basis of Judgment: <Source: JET> It is very likely that this Project provides a technical template to approach water quality issues in other river basins.
		3.4 Are the benefits of the effect and the burden of the costs fairly distributed?	**Evaluation by the Team** There is no major issue associated with sharing of burdens and costs.
			Basis of Judgment: <Source: JET> There is no major issue associated with sharing of burdens and costs. Among the local organizations, DINAMA is putting the most inputs to the Project and getting the most from it. OSE has seconded two officers to the Project, but they will also benefit from the Project.
		3.5 Does Japan have a technology advantage?	**Evaluation by the Team** Yes.
			Basis of Judgment: <Source: JET> While Japan is known to have good end-of-pipe technologies, so far they are not particularly relevant to the Project because we are working mainly on regulatory and administrative issues, and not details of pollution control technologies. There is no doubt that Japan's experience in pollution control is relevant. Nevertheless, it is difficult to bring Japanese systems to Uruguay. First there is a cultural acceptance issue. Also the land use is very different (only 0.2% of Japanese land is pasture), and environmental issues are quite different. Also, Japanese environmental policy tools are somewhat different from those in the US and in the European countries. As Uruguay is strongly influenced by European and to a lesser degree by the US culture.
II. Effectiveness	1. Is the Project conducted to achieve its objective?	1.1 Looking at the input and output performance and at the activity, is the Project objective likely achieved?	**Evaluation by the Team** The Project Purpose is expected to be achieved by the end of the Project if the efforts are sustained in the last half period of the Project. However, the coordination and collaboration in formal manner such as "basin management committee" are remained for future challenge, which secure fully functional coordination mechanism for conducting environmental management of Santa Lucia River basin.
			Basis of Judgment: <Source: JET>

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			Having said these, most likely the Project can achieve Outputs 3-6. The Project will also make some positive impact on Output 1. It is difficult to judge how far we can go with Output 2, but there is no doubt that this Project is making a progress. It is somewhat subjective, but there are a number of positive developments, and the Project purpose (The capacity of DINAMA and other institutions involved with respect to water pollution control / water quality management for Santa Lucia River Basin is strengthened.) is likely to be achieved.
		1.2 Are there any factors that inhibit the achievement of the Project objective?	**Evaluation by the Team** The lack of legal framework for decentralization and delegations of tasks makes difficult to involve the municipalities effectively into the initially planned activities of the Project. Meanwhile, the original PDM was revised and objective verifiable indicators (OVI) for Output 2 were clarified.
			Basis of Judgment: <Source: JET> As was relaxed the expectation for Output 2, most likely the Project can achieve the objective. However, within DINAMA, internal management issues are important.
	2. Are the outputs and the Project objective correlated in a causal relationship?	2.1 Is the output sufficient to achieve the Project objective?	**Evaluation by the Team** The Team concluded that at the stage of the mid-term review, numbers, contents and qualities of the outputs are considered sufficient.
			Basis of Judgment: <Source: JET> <u>a. Disciplines and expertise of JET</u>: Overall, the selection of the disciplines was appropriate. There is number of additional expertise desired for, but it depends on the total MM and what we are trying to achieve. - Environmental analysis and pollution control: microbiologist, agronomist, hydrologist, environmental risk specialist, toxicologist, wastewater treatment specialist - Environmental administration and management: Environmental/public policy, environmental/public laws, public financing, others. <u>b. Performance of computer system and GIS software</u>: Sufficient <u>c. Performance of seminars, training courses</u>: Required more MM d. <u>Usage of materials for training courses and publications</u>: Sufficient. JET had not done much formal training. JET could have prepared more materials, but usually

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			Each Expert of JET was working with two or three counterparts, and there is no point of preparing special materials. JET use of readily available documents downloaded from various institutions in the world.
		2.2 Are the important assumptions from the output to the Project objective correct also at the present point of time? Is it likely that the important assumptions will occur?	**Evaluation by the Team** Yes. The present important assumptions are still correct at the time of mid-term review.
			Basis of Judgment: <Source: JET> a. Continuity of DINAMA's policy on water quality conservation: This is going to be OK. This Project is an integral part of DINAMA's environmental management activities, and the issues are highly relevant to DINAMA. Most likely DINAMA will follow the same line of policy to deal with water quality issues. b. Additional important assumptions identified during conduction of the Project: There are so many issues related to basin management, decentralization of environmental management, etc. They essentially killed this part of the Project.
a. Efficiency	1. What is the level of achievement on the Project outputs?	1.1 Is the output achievement level adequate?	**Evaluation by the Team** Progress of activities and achievement of six (6) outputs are at generally satisfactory level at the mid-term stage of the Project. Some activities has been slightly delayed, however, these delays can be recovered in the latter period of the Project.
			Basis of Judgment: <Source: JET> The PO has been modified substantially, and thus most activities are now more or less according to the schedule.
		1.2 Are there any factors that inhibited the achievement of the output?	**Evaluation by the Team** There are some additional important assumptions which inhibit the smooth implementation of the Project, such as lack of the legal framework for decentralization and contingency works to deal with international disputes concerning environmental management of the pulp manufacturing factory in Uruguay.
	2. Were enough inputs and activities for the achievement of	2.1 Were the activities sufficient to produce the outputs?	**Evaluation by the Team** Progress of activities and achievement of six (6) outputs are at generally satisfactory level at the mid-term stage of the Project.

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
	outputs?		**Basis of Judgment:** <Source: JET> Output 1. It still not clear about the intended activities and products of this Output. In general, DINAMA management issues are not easy to resolve. There are so many unresolved issues, but on the other hand, these issues cannot be solved easily. Output 2. It is difficult to solve coordination and institutional issues in a year or two. Output 3.The Project we made a good progress considering the inputs. Output 4. The Project we made a good progress considering the inputs. At this moment, DINAMA and other institution are collecting basic information on data compilation, analysis and evaluation to understand pollution mechanism for taking measures of pollution control through preparation for Non-Point Source Report. After completion of the report, they will start to work for understanding pollution mechanism by preparation for pollution load map and identification of critical area from monitoring data and pollution load estimation. The above activities will be implemented mainly from last 2nd fiscal year and 3rd fiscal year.. Output 5. This is the activity for the second half of the Project, and it is still premature to say. However, current progress is good. Output 6. DINAMA has achieved more than expected. This is largely because they have been working on this for sometime. DINAMA information section has been developing the integrated information system by themselves not only water pollution control/water quality management but also whole environment information.
			Evaluation by the Team Progress of activities and achievement of six (6) outputs are at generally satisfactory level at the mid-term stage of the Project.
		2.2 Were the inputs sufficient to produce the outputs?	**Basis of Judgment:** <Source: JET> a. JICA Experts: It has been very difficult to run this Project, partly because the limited total input was thinly stretched over a long period of time. This means most of the time there are only one or two JET members in Uruguay, and they have to take care of various administrative works as well as their technical works. b. Seminars, publications, training courses: As it was stated above, the Project decided not to do lot of seminar, publications and training courses. Apparently, was held at least 62 meetings, and those do not include daily discussions. DINAMA seems to be learning quickly from our approaches, but we have to start thinking about new approaches. .

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			c. C/Ps participation: In general the C/P participation is more than satisfactory.
		2.3 Is there any influence from important assumptions?	**Evaluation by the Team** No.
			Basis of Judgment: <Source: JET> It has always been a continuous fight against various internal and external problems that prevent DINAMA and other institutions from achieving what they are supposed to achieve. First of all, the water quality is not so bad, and the social will to protect the river is not that strong. Most municipalities are not ready to assume environmental management responsibilities. DINAMA has to cover the entire country, but there aren't enough human resources, and on top of this they are busy with Botnia and other issues. DINAMA has been functioning as implementation/enforcement organization, and the capacity for policy-making is still very weak.
	3. Were the inputs provided timely?	3.1 Were the inputs of an adequate quantity and quality performed in the right time to conduct the activities as planned?	**Evaluation by the Team** Yes.
			Basis of Judgment: <Source: DINAMA/JET> DINAMA had difficulties in the process of purchase that affected monitoring activities. JET is spending a large amount of time for project management rather than project activities.
	4. Is the Project conducted in a good cost performance?	4.1 Does the output justify the cost to be invested?	**Evaluation by the Team** Yes. Benefit is very high.
			Basis of Judgment: <Source: JET> This Project is showing a good cost performance. This is partly because the counterparts are well educated and highly capable, but it is also because DINAMA is committed to this project, which is evident from their outputs.
	5. Are the Project activities compatible with those of JICA's Master Plan on Capacity	5.1 Is there any improvement/progress in the Project activities regarding strengthening of capacities for the management of water quality?	**Evaluation by the Team** Yes.
			Basis of Judgment: <Source: JET> There has been significant improvement in the capacity of DINAMA to manage water quality.
		5.2 Is there any	**Evaluation by the Team**

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
	Development for Water Quality Management?	improvement/progress in the Project activities regarding promotion of education and public participation?	The Project does not have the components regarding this issue.
			Basis of Judgment: <Source: JET> This aspect is quite weak, but before we talk to people we need to know whether the water is seriously contaminated or not. We still need more work, such as a national-level comparison of water qualities of different water bodies to get an idea about which water body is the worst, and which one is second.
		5.3 As for the strengthening of water pollution control, is there any collaborative relationship with institutions in charge of the management of industrial/agricultural activities?	**Evaluation by the Team** Yes.
			Basis of Judgment: <Source: JET> Yes, the relationships with relevant organizations, including OSE, DINASA and MGAP are OK. At least it is improving.
		5.4 As for the strengthening of water quality management, is there any collaborative relation with institutions in charge of the management of water right issuance, meteorological and hydrological information?	**Evaluation by the Team** Yes.
			Basis of Judgment: <Source: JET> The Project has communication with both OSE and DINASA. With DINASA there have been a number of discussions about how to coordinate DINASA's water right control and DINAMA's water discharge control. Also, DINAMA now has an access to DINASA's hydrological database – a major improvement for environmental management.
b. Impact	1. Is the Project conducted to achieve its overall goal?	1.1 Looking at the input and output performance and at the activity status, are there prospects that the overall goal will be produced as an effect of the Project?	**Evaluation by the Team** It is too early to evaluate of fulfillment of the Overall Goal of the Project at the mid-term review time.
			Basis of Judgment: <Source: JET> a. Implementation of measures for water quality improvement: DINAMA is already trying to control point sources. In addition, the Project started the work on control of non-point source pollution. This will take time, but are making significant progress toward this goal. b. Establishment of collaborative framework for water quality management: It is still premature to say if we can expect a legal or an official framework in near future, but are seeing many signs of improvement, especially OSE-DINAMA and DINASA-DINAMA.
		1.2 Are there prospects that the achievement of the overall goal will	**Evaluation by the Team** Yes.

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
		have an impact on the development plan of Uruguay?	**Basis of Judgment:** <Source: JET> Definitely. Uruguay is fully aware of the need to build capacity for environmental management. DINAMA's capacity is growing rapidly, and it has more knowledge, more data, more contacts, and more confidence. DINAMA and other organizations still have a lot to do, but their experiences in Santa Lucia River will give them positive push toward better environmental management.
		1.3 Are there factors that impede the achievement of the overall goal?	**Evaluation by the Team** Not detected.
			Basis of Judgment: <Source: JET> a. Possibility for the Government of Uruguay not to adopt results of the Project: This Project has been fully woven into DINAMA's activities, and most likely DINAMA will continue growing its capacity along the same path. b. Status of cooperative relations with relevant organizations: As long as those key technical people remain at their positions, the relations among those people will be the same. It is a small country, and most technical people will likely to stay at his/her position regardless the political changes. Also, our environmental issues will remain the same, and so as the solutions. Hence, the relations among relevant organizations will not be affected by political changes and other factors.
	2. Are the overall goal and the Project Objective consistent?	2.1 Is the Project Objective formulated in line with the achievement of overall goal?	**Evaluation by the Team** Yes.
		2.2 Are the important assumptions from the Project Objective to the overall goal correct also at the present point of time?	**Evaluation by the Team** Yes.
			Basis of Judgment: <Source: JET> Yes. Also there are a number of important assumptions not considered in the PDM.
		2.3 Is the possibility high that the important assumptions are true?	**Evaluation by the Team** No.
			Basis of Judgment: <Source: JET> Overall, relevant organizations are moving toward the right direction. However, the real situations of municipalities and other organizations are not ripe enough to realize the Project as conceived in the original PDM.

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
	3. Is it expected ripple effects from the Project Outputs?	3.1 Are any effects or influences beyond the overall goal assumed?	**Evaluation by the Team** Yes. There are various effects and influence.
			Basis of Judgment: <Source: JET> a. Influence on the establishment of policies and on the preparation of laws, systems and standards: This Project will eventually influence development and enactment of related policies, laws, and regulations related to environmental management, in particular on control of point sources, non-point sources, water source protection, etc. b. Influence on social and cultural aspects: People are getting used to seeing more numbers, and start making informed decisions based on scientific data and reasoning, rather than speculation and wrong information. People are getting used to seeing the difference between transparent, functioning institutions and mismanaged institutions – DINAMA can set an example by producing regular reports and useful data for people. c. Influence on environmental protection: There is a high hope that the Project would promote environmental protection. The expectation of the municipalities to replicate the learned lessons from the Project is high. For example, municipalities of Montevideo with Canelones on Carrasco River, San Jose and Florida on San Jose River and Lavalleja for the system of Merin Lake. d. Influence from technological changes: Many industry owners and managers are getting aware that DINAMA is building its capacity quickly. DINAMA now know which factory is the most polluting one, and which one is the second most polluting one. Also DINAMA's database will make it easier to compare their environmental performance, such as the amount of pollution load per tonne of product.
		3.2 Are there different positive and negative influences due to differences between genders, ethnic groups, or social layers?	**Evaluation by the Team** Not detected.
		3.3 Are there any other negative impacts?	**Evaluation by the Team** Not detected.
			Basis of Judgment: <Source: JET> It is necessary to pay attentions on possible economic impacts of environmental protection (e.g., control of fertilizer use). Also, water quality is one of the most well-developed disciplines in DINAMA, and

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			Uruguay probably has other priority environmental issues (e.g., asbestos control).
c. Sustainability	1. Is DINAMA formulating its policy concerned management of water quality and water pollution control?	1.1 Will policy aid continue also after the cooperation is finished?	**Evaluation by the Team** It is expected to be improved.
			Basis of Judgment: <Source: DINAMA/Municipalities> Recent behavior of the National Parliament and the Central Government demonstrated their awareness for the conservation of the environment and the natural resources. The objective of the Project for the conservation of water resources is in line with the government policies. The intension of the municipality conforming Santa Lucia River basin to continue the water quality monitoring protocol is assured.
		1.2 Are the relevant regulations and legal systems prepared?	**Evaluation by the Team** Relevant law and regulations are in stage of formulation such as modification of decree 253/79 and the law on water resources.
			Basis of Judgment: <Source: JET> Depend on issue, but in general there are lots of loopholes in legal and regulatory systems for pollution control and water quality management.
		1.3 Will efforts to aid their spread afterwards be taken for certain?	**Evaluation by the Team** Since more data of water quality are open to the public and available for the relevant organizations, development of measures to improve water quality is expected to become easier. Some municipalities have shown intentions to use the experiences of the Project to the water quality management of other river basin.
			Basis of Judgment: <Source: JET> DINAMA needs to show its presence to other stakeholders, and the results of this Project are important to DINAMA. They have been already presenting JICA Project at a number of opportunities (e.g., non-point source pollution workshop, etc.).
	2. Are DINAMA's organization and financial sources sustainable?	2.1 Is there sufficient organizational capacity to implement activities to produce effects also after the cooperation has ended?	**Evaluation by the Team** Yes.
			Basis of Judgment: <Source: JET> Yes. It should be noted that budgeting/ fiscal management, management of human resources, and

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			decision-making at DINAMA are largely dependent on the new administration of DINAMA. Hence, it is still premature to say. Nevertheless, overall, DINAMA is capable of overcoming these problems.
		2.2 Is a sense of ownership towards the project at DINAMA sufficiently secured?	**Evaluation by the Team** Yes.
			Basis of Judgment: <Source: JET> Yes. At the middle management class and below, there is very strong project ownership. The Project still has to promote further support at the higher level. Probably the important thing is to show how the outputs of this Project are in line with DINAMA's performance, efficiency of management, and their political image
		2.3 Is the budget secured (including operating expenses)?	**Evaluation by the Team** Yes.
			Basis of Judgment: <Source: JET> DINAMA has started developing the 5-year budget plan right now. DINAMA's middle management is fully aware of the need to incorporate various costs into the budget
		2.4 How high is the probability that the budget increases in the future through the implementation of the project?	**Evaluation by the Team** Uncertain.
			Basis of Judgment: <Source: JET> It depends on how environmental issues stack up against important national issues, such as social security for aging population in the political arena, especially at the next national election. International environmental issues.
	3. Is the applied technology sustainable?	3.1 Are the methods of technology transfer used in the Project being accepted?	**Evaluation by the Team** Yes.
		3.2 Is equipment appropriately maintained and managed?	**Evaluation by the Team** Yes.
			Basis of Judgment: <Source: JET> Yes. Overall, there is no problem with maintenance of equipment. DINAMA's IT Section is fully aware of virus problems, and virus protection is in place. Nevertheless, it is very difficult to prevent a virus from

Evaluation Criteria	Evaluation Questions		Results
	Main questions	Sub-questions	
			spreading in the LAN. The project experienced a persistent virus problem, and although we are not for sure if this was the reason, a JET member's laptop became dysfunctional (we have to borrow DINAMA's laptop for a while).
		3.3 Can the technology be disseminated to other sites?	**Evaluation by the Team** Yes.
			Basis of Judgment: <Source: JET> Yes. Concerned technology is not site-specific, and there is no problem transferring the technology to other places.
	4. Is sustainable under the society, culture, and environment aspects?	4.1 Is there any possibility that a sustained effect is inhibited through a lack of consideration for women, the poor and the socially vulnerable?	**Evaluation by the Team** Not presumed.
		4.2 Is there any possibility that a sustained effect is impeded through a lack of consideration for the environment?	**Evaluation by the Team** Not presumed.
	5. Are there any other factors that might inhibit sustainability?		**Evaluation by the Team** Not presumed.

Project Design Matrix (PDM) **ANNEX5** Version: 20090519

Project Title: The Project on Water Pollution Control and Management of Water Quality in the Santa Lucia River Basin

Implementation Agency: National Directorate of Environment (DINAMA)

Cooperation institutions: OPP, DINASA, OSE, MGAP, IMM, IMC, IMSJ, IM Florida, IML, IM Flores

Project Site: The Santa Lucia River Basin of six municipalities (IMM, IMC, IMSJ, IM Florida, IML, IM Flores) and Pando River as a reference river

Project Period: April 2008 to March 2011 (Three Years)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Overall Goal			
- Measures to improve water quality of Santa Lucia River Basin are taken. - Cooperate and strengthen the programs and projects of pollution control and water quality management in cooperation with actors involved, for promoting improved environmental management in other river basin	- Number of measures taken for improvement of water quality of Santa Lucia River Basin - Status of establishment of pollution control / water quality management system.	Hearing from C/P	
Project Purpose			
The capacity of DINAMA and other institutions involved with respect to water pollution control / water quality management for Santa Lucia River Basin is strengthened.	1. Status of implementation of Action Plan to improve pollution control management system 2. Status of utilization of coordination and collaboration system among institutions involved 3. Status of information sharing among relevant institutions 4. Status of data management related to pollution control 5. Actual performance of instruction to pollution sources	The Action Plan St/C record, operation record DINAMA's web pages and reports available in public Monitoring ~~reports~~records, databases Instruction records	The Government of Uruguay proactively adopts the result of the Project. Relevant organizations continue to cooperate and coordinate with each other in order to improve environmental quality in
Outputs			
1 The management system of DINAMA with respect to pollution source control/water quality management is developed.	1.1 The number of seminars, training courses and/or meetings and the number of ~~attendants~~ participants 1.2 Contents of pollution control capacity assessment ~~and the contents~~ 1.3 Contents of the Action Plan	~~Implementation record of training courses~~ Records of seminars, training courses and/or meetings Report on pollution control capacity assessment The Action Plan	DINAMA's policy on water quality conservation is maintained.
2. The coordination and collaboration system among relevant institutions subject to control of water pollution source/water quality management is established.	2.1 Contents of issues to be solved 2.2 Contents of coordination and collaboration system 2.3 ~~Contents of consensus-building~~	Discussion records Records of St/C meetings and other meetings ~~Records on St/C meetings, agreement document~~	
3. The capacity of DINAMA and other institutions involved with respect to water monitoring system of river and effluent is strengthened.	3.1 The number of seminars, training courses and/or meetings and the number of participants 3.2 Contents of issues to be solved 3.3 Contents of monitoring plan 3.4 ~~Number of field measurement kits introduced to municipalities and status of utilization of the kits~~ 3.5 Number of analyzed water and sediment sample and parameters in laboratory and accuracy of analysis 3.6 ~~Reduction of organic substance discharged to Santa Lucia River Basin~~	Records of seminars, training courses and/or meetings Discussion records Monitoring plan Monitoring ~~reports~~records Monitoring ~~reports~~ records, laboratory ~~reports~~ records ~~Report of organic substance discharged~~	
4. The capacity of DINAMA and other institutions involved with respect to data compilation, analysis and evaluation subject to water pollution source control is strengthened.	4.1 The number of seminars, training courses and/or meetings and the number of participants 4.2 Contents of pollution source inventory list 4.3 Number of monitoring data at individual pollution source and the contents 4.4 Contents of the result of analysis	Records of seminars, training courses and meetings Pollution source inventory list Monitoring ~~reports~~ record on individual pollution source Reports on data analysis	
5. The capacity of DINAMA with respect to inspection, evaluation and enforcement subject to pollution source management is strengthened.	5.1 The number of seminars, training courses and/or meetings and the number of participants 5.2 Contents of issues to be solved 5.3 Contents of ~~sectoral manuals~~ pilot study 5.4 ~~Number of seminars and attendants~~	Records of seminars, training courses and meetings Discussion records Pollution control strategy ~~Sectoral manuals~~ Reports on pilot study ~~Records of seminars~~	
6. The integrated information systems with respect to water pollution control / water quality management is constructed and used.	6.1 Contents of basic data and information on pollution sources and water quality ~~Contents of basic design of integrated GIS~~ 6.2 Contents and accessibility of environmental information related to Santa Lucia River Basin	~~GIS base map~~ Water quality and pollution source databases ~~Document on basic design of integrated GIS~~ DINAMA's Environmental Information System	

Activities	Inputs		
	Japan Side	Uruguay Side	
1 OUTPUT 1 1.1 DINAMA verifies current pollution control system including laws and regulations, institution, staff, responsibility and capacity. 1.2 DINAMA and other institutions involved acquire knowledge on system and structures with regard to pollution control through training courses and other adequate manners. 1.3 DINAMA develops an Action Plan to enhance the system and structures with regard to pollution control. 1.4 DINAMA carries out the above-mentioned Action Plan to improve pollution control management system. **2 OUTPUT 2** 2.1 DINAMA and other institutions involved identify the issues to keep St/C working in sustainable manner. 2.2 St/C considers and determines the coordination and collaboration system among other institutions involved. 2.3 The Technical Committee composed of DINAMA and other relevant institutions conducts coordination and collaboration activities defined by 2.4 The institutions involved confirms the sustainable coordination and collaboration system based on the result of 2.3. **3 OUTPUT 3** 3.1 DINAMA and institutions involved strengthen knowledge and technologies with regard to monitoring of river water and effluent from pollution source through training courses and other means. 3.2 DINAMA verifies river water and pollution source monitoring 3.3 DINAMA reviews monitoring plan on river water and pollution sources based on item 3.2. 3.4 DINAMA and other institutions involved implement monitoring according to the revised plan. ~~3.5 DINAMA acquires the knowledge and techniques relative to the selection and use of kits in order to monitor water and effluents.~~ ~~3.6 DINAMA strengthens capacity of laboratory for the analysis of water, sediments, biota, and effluents.~~ 3.75 DINAMA ~~laboratory~~ strengthens the capacity to process data and make them available for ~~GIS~~ Environmental Information System. **4 OUTPUT 4** 4.1 DINAMA acquires technology of data analysis and evaluation through training courses and other means. 4.2 DINAMA reformulates pollution source inventory list. 4.3 DINAMA collects and analyzes monitoring data according to types of pollution sources.	JICA Experts • Leader (Capacity development at institutional and institutional level) • Water pollution source control • Analysis and evaluation of monitoring data • GIS • Lab chemical analysis ·Computer system and software for GIS ~~·Field measurement kits for demonstration~~ ·Cost for JICA Expert, seminars, training courses and publications ·Materials for training course, publications and printed materials	- Technical and administrative counterpart personnel to JICA experts ~~-Kits for distribution~~ - Land, buildings and facilities necessary for the implementation of the Project -Facilities mutually agreed upon as necessary - Office space and necessary facilities for the JICA experts and related members - Operational cost for Project (transportations for the project activities, chemical analysis cost, travel expenses for counterpart personnel, administration cost)	Counterparts remain assigned to carry out the activity. Appropriate budget is continuously allocated. The relationship among DINAMA and stakeholders continues to be cooperative. **Pre-Conditions** The commitment of DINAMA is secured for continuing efforts to realize water quality control/ management.

4.4	DINAMA acquires the capacity to describe the dynamics of water pollutants in the Santa Lucia River Basin.			
5	**OUTPUT 5**			
5.1	DINAMA acquires knowledge and technologies with regard to control pollution sources through training courses and other means.			
5.2	DINAMA identifies its gaps in terms of its capacity to inspect, evaluate and enforce the regulations relative to pollution sources.			
5.3	DINAMA works in relation to the gaps identified in the item 5.2.			
5.4	DINAMA prepares the pollution control strategy.			
5.5	~~DINAMA prepares sectoral manuals to minimize the pollution loading amount.~~ DINAMA implements a pollution control pilot study in order to gain practical information for pollution			
5.6	DINAMA disseminates the knowledge and technologies to polluters with regard to pollution source control and cleaner production through seminars and other means.			
6	**OUTPUT 6**			
6.1	~~DINAMA collects the information on GIS application through public seminars and other means.~~ DINAMA and other organizations exchange opinions about environmental information needs.			
6.2	DINAMA complies and organizes the basic data and information on pollution sources and water quality on the Santa Lucia River Basin ~~for GIS~~.			
6.3	DINAMA constructs the ~~GIS~~ water quality database~~module~~.			
6.4	DINAMA constructs the ~~GIS pollutant module~~ pollution source database.			
6.5	~~DINAMA prepares the basic design of integrated GIS.~~ DINAMA incorporates the water quality database and the pollution source database into the Environmental Information System.			

Plan of Operation (PO)

ANNEX6

The Project on Water Pollution Control and Management of Water Quality in the Santa Lucia River Basin

Version 20090519

Original Activities (DINAMA: *light blue*, JICA: *dark blue*) **Revised Activities** (DINAMA and other organizations: JET: *dark orange*)	2008									2009												2010												2011			DINAMA	JICA
	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	M/M	M/M
Activities 1																																					10	4
1.1 Verification of current pollution control system																																						
1.2 Knowledge acquisition on water pollution control system																																						
1.3 Develops an action plan to enhance the system and structures																																						
1.4 DINAMA carries out the above-mentioned Action Plan.																																						
Activities 2																																					15	6
2.1 DINAMA and other institutions involved identify the issues																																						
2.2 St/C considers and determines the coordination and collaboration system																																						
2.3 Technical Committee conducts coordination and collaboration activity																																						
2.4 The other institutions involved confirms the sustainable system.																																						
Activities 3																																					33	8
3.1 Acquisition of knowledge and technologies on monitoring																																						
3.2 DINAMA verifies river water and pollution source monitoring.																																						
3.3 Monitoring plan review on river water and pollution source.																																						
3.4 Implementation of monitoring according to the revised monitoring plans.																																						
~~3.5 Acquisition of knowledge and technologies on monitoring kits~~																																						
~~3.6 Strengthens capacity of laboratory~~																																						
~~3.7 DINAMA laboratory strengthens the capacity to process data.~~ 3.5 DINAMA strengthens the capacity to process data.																																						
Activities 4																																					33	9
4.1 Acquisition of knowledge and technologies of data analysis and evaluation																																						
4.2 DINAMA reformulates pollution source inventory list.																																						

	2008									2009													2010													2011			DINAMA	JICA
Original Activities (DINAMA: *light blue*, JICA: ***dark blue***) **Revised Activities** (DINAMA and other organizations: JET: dark orange)	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	M/M	M/M
4.3 Collection and analysis of monitoring data according to types of pollution sources.																																						
~~4.4 Investigation of the pollution mechanism of the Santa Lusia River Basin.~~ 4.4 Acquisition of capacity to describe dynamics of pollutants in the Santa Lucia River																																						
Activities 5																																					21	6
5.1 Acquisition of knowledge and technologies to control pollution sources																																						
5.2 Identifying the gaps of capacity to control pollution sources.																																						
5.3 DINAMA works in relation to the gaps identified in the item 5.2.																																						
5.4 DINAMA prepares the pollution control strategy.																																						
~~5.5 DINAMA prepares sectoral manuals for controlling pollution sources.~~ 5.5 DINAMA implements a pilot study in order to gain practical information.																																						
5.6 DINAMA disseminates knowledge of pollution source control																																						
Activities 6																																					13	6
~~6.1 Collection of the basic data and information on the Santa Lucia River Basin.~~ 6.1 Exchange of opinions about environmental information needs.																																						
6.2 Compilation and organization of the data and information.																																						
6.3 Construction of the ~~GIS of~~ water quality ~~module~~ database.																																						
~~6.4DINAMA constructs~~ Construction of the ~~GIS of pollutant module~~ pollution source database.																																						
6.5 ~~Basic design of integrated GIS.~~ 6.5 Integration of databases into Environmental Information System.																																						
Reporting and Other Events																																				Total	125	39
Reporting	IC/R					PR1						PR2						PR3					PR4						PR5						FR			
Other Events			Seminar No.1								Seminar No.3							Mid-term Review										Seminar No.5						Final Evaluation			
						Seminar No.2											Seminar No.4													Seminar No.6					Final Seminar			

* The number of MM input shown in the right two columns does not fully correspond to the time schedule bars, because some of items will be implemented within less than one month.

Status to be achieved and status at the beginning of the Project

Narrative Summary	Objectively Verifiable Indicators in PDM	Status to be achieved	Status before the Project
Overall Goal			
- Measures to improve water quality of Santa Lucia River Basin are taken. - Cooperate and strengthen the programs and projects of pollution control and water quality management in cooperation with actors involved, for promoting improved environmental management in other river basin.	- Number of measures taken for improvement of water quality of Santa Lucia River Basin. - Status of establishment of pollution control / water quality management system.	- Measures to minimize and control pollution from point and non-point sources are implemented in coordinated manner. - Systematic pollution control / water quality management system is established.	- Some sections of the river appear to be polluted, but the environmental conditions of Santa Lucia River are yet to be evaluated. - In the Santa Lucia River Basin, there are about 100 point sources controlled by DINAMA. For these sources, DINAMA carries out licensing, inspection, and other pollution control activities. - About 2,700 kg-BOD/day is discharged to the environment from 86 point sources. (c.f., 80,000 kg/day from IMM). At this point, information on other pollutants is not sufficient to evaluate pollution loads of other pollutants. - Average effluent concentrations of 17 sources, about 1/4 of the industries in the area exceed the effluent standard with respect to BOD. - The overall status of pollution control measures implemented in the basin is difficult to evaluate as available information, especially on those industries not regulated by DINAMA (e.g., non-point sources), is scarce. - As the result, strategization of pollution control / water quality management system has been limited.

Project Purpose	Objectively Verifiable Indicators	Status to be achieved by the end of the Project	Status at the beginning of the Project
The capacity of DINAMA and other institutions involved with respect to water pollution control / water quality management for Santa Lucia River Basin is strengthened.	Status of implementation of Action Plan to improve pollution control management system	- Action Plan is implemented as planned.	- Action Plan is yet to be developed.
	Status of utilization of coordination and collaboration system among institutions involved	- DINAMA, MGAP, OSE, municipalities, DINASA and other relevant organizations promote coordinated pollution control in the Santa Lucia River Basin.	- Coordination among relevant organizations exists, but not sufficient to realize effective pollution control.
	Status of information sharing among relevant institutions	- Information related to water quality and pollution control in the Santa Lucia River Basin is shared through DINAMA's Environmental Information System. - Critical information, such as hydrological data and land use maps are shared,	- Environmental Information System is under development.
	Status of data management related to pollution control	- River water quality data and pollution source data are stored and managed by databases and the results of monitoring are regularly reported.	- River water quality data and pollution source data are regularly collected, but have not been fully analyzed and evaluated. - The existing databases (e.g., SISICA) have connectivity and other problems, and need to be restructured.
	Actual performance of instruction to pollution sources	- Pollution control activities are strategized based on environmental conditions, pollution load, laws and regulation, resource requirement, and other factors.	- General vision for pollution control does exist, but it is not documented. - Shortage of information on environmental conditions, pollution loads, etc., makes it difficult to strategize pollution control activities.

Output	Objectively Verifiable Indicators	Status to be achieved by the end of the Project	Status at the beginning of the Project
Output 1: The management system of DINAMA with respect to pollution source control/water quality management is developed.	The number of seminars, training courses and/or meetings and the number of participants	- Seminars, training courses and/or meetings are held in order to improve the management system of DINAMA.	- Seminar, training courses and meetings are yet to be organized.
	Contents of pollution control capacity assessment	- Capacity assessment is carried out with respect to institutional, organizational and individual aspects.	- Capacity assessment is yet to be carried out.
	Contents of the Action Plan	- The Action Plan is developed and implemented.	- Action Plan is yet to be developed.
Output 2: The coordination and collaboration system among relevant institutions subject to control of water pollution source/water quality management is established.	Contents of issues to be solved	- DINAMA and MGAP discuss how to control agriculture-related pollution sources, including non-point sources. - DINAMA and OSE discuss how to share water quality information and protection of water resources. - DINAMA and municipalities discuss how to share responsibilities for environmental monitoring and pollution source control. - DINAMA and DINASA/DNH discuss how to manage Santa Lucia River with respect to both quality and quantity of river water. - DINAMA and DINASA/DNH discuss how to coordinate and systematize information related to authorization procedures for water intakes and water discharges.	- Coordination among relevant organizations exist, but not sufficient to implement effective pollution control. - These issues require institutionalization, and require high-level discussions.
	Contents of coordination and collaboration system	- DINAMA and relevant organizations organize Steering Committee/high-level meetings as well as Technical Committee meetings in order to discuss issues mentioned	- Steering Committee and Technical Committees are yet to be organized.

		above. - Protocol for emergency communication is developed.	
Output 3: The capacity of DINAMA and other institutions involved with respect to water monitoring system of river and effluent is strengthened.	The number of seminars, training courses and/or meetings and the number of participants.	- Seminars, training courses and/or meetings are held in order to further develop capacity to monitor river water quality and pollution sources.	- Seminar, training courses and meetings are yet to be organized.
	Contents of issues to be solved	- The efficiency and effectiveness of monitoring of rivers and pollution sources are improved through revision of the monitoring plans (river water and effluent).	- Monitoring of rivers has been carried out. However, the results are not reported, analyzed, and utilized for pollution control. - Similarly, effluents have been monitored, but the results have not been utilized for pollution control.
	Contents of monitoring plan	- The objectives, sampling points, sampling frequency, determinands and reporting routine are revised.	The monitoring plan is yet to be reviewed and revised.
	Number of analyzed water and sediment sample and parameters in laboratory and accuracy of analysis	- The number of water/sediment and effluent samples analyzed, reported and utilized for environmental management.	- TO BE CHECKED. - Over 700 effluent samples have been collected and analyzed in the last 3 - 4 years. However, they have not been analyzed, and utilized for pollution control. - River monitoring data have not been reported.
Output 4: The capacity of DINAMA and other institutions involved with respect to data compilation, analysis and evaluation subject to water pollution source control is strengthened.	The number of seminars, training courses and/or meetings and the number of participants	- Seminars, training courses and/or meetings are held in order to develop capacity to analyze and evaluate status and mechanisms of pollution.	- Seminar, training courses and meetings are yet to be organized.
	Contents of pollution source inventory list	- The contents of pollution source inventory list are reviewed, and revised.	- TO BE CHECKED. - DINAMA has at least pollution source database, small-industry database and inspection database.

	Number of monitoring data at individual pollution source and the contents	- The monitoring data at individual pollution source are reviewed, and if necessary re-organized for pollution control.	- Pollution source data are stored in different databases, and some information is yet to be digitized.
	Contents of the result of analysis	- Pollution loads from point and non-point sources are analyzed. - Pollution mechanism in the Santa Lucia River Basin is clarified.	- There is no information regarding pollution loads from point and non-point sources. - Pollution mechanism is yet to be clarified.
Output 5: The capacity of DINAMA with respect to inspection, evaluation and enforcement subject to pollution source management is strengthened.	The number of seminars, training courses and/or meetings and the number of participants	- Seminars, training courses and/or meetings are held in order to further develop capacity for pollution source management.	- Seminar, training courses and meetings are yet to be organized.
	Contents of issues to be solved	- A strategy for pollution control is developed considering environmental quality, pollution load, laws and regulations, resources required for enforcement and other aspects. - Pollution control activities are revised based on the strategies.	- DINAMA has an overall vision for pollution control, but it is not fully backed by monitoring data and other information.
	Contents of pilot study	- A pilot study to obtain practical information to control pollution in the Santa Lucia River Basin is implemented. (Details are to be decided)	- Various pollution control manuals are available in DINAMA, but they are not necessarily useful for on-the-ground pollution control activities.
Output 6: The integrated information systems with respect to water pollution control / water quality management is constructed and used.	Contents of basic data and information on pollution sources and water quality	- Monitoring database and pollution source database are reconstructed considering the data and information needs.	- There exist basic databases, but they are yet to be reconstructed.
	Contents and accessibility of environmental information related to Santa Lucia River Basin.	- Monitoring database and pollution source database are incorporated into the environmental information system of DINAMA.	- Environmental Information System is under development, and the databases are yet to be incorporated into the system.

LIST OF ATTENDANTS

< Ministry of Housing, Use of Land and Environment (MVOTMA) >

Mr. Carlos Colacce	Minister

<National Directorate of Environment (DINAMA)>

Mr. Jose Luis Genta	Responsible for DINAMA
Mr. Luis Reolón	Director of Environmental Quality Evaluation Division
Ms. Silvia Aguinaga	Director of Environmental Control and Performance Division
Ms. Magdalena Hill	Environmental Quality Evaluation Division

<JICA Mission>

Dr. Mitsuo Yoshida	Senior Advisor, JICA
Ms. Eriko Tamura	Senior Program Officer, Global Environment Department, JICA
Mr. Choshin Haneji	Environmental Chemistry & Management Consultant, Japan Development Service Co., Ltd. (JDS)

<JICA Uruguay>

Mr. Yoshikatsu Sato	Resident Representative, JICA Uruguay
Ms. Naomi Hiroi	Technical Cooperation, JICA Uruguay

<JICA Expert Team (JET)>

Dr. Itaru Okuda	Chief Advisor
Mr. Shunsuke Hieda	JICA Expert