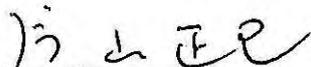
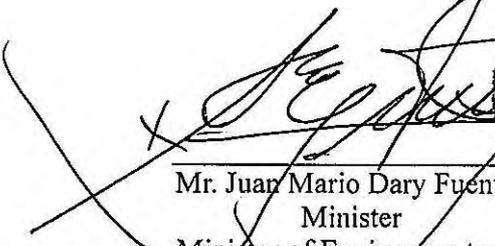


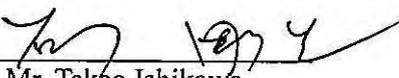
MINUTES OF MEETINGS  
BETWEEN  
JICA PROJECT TEAM AND JICA MONITORING MISSION  
AND  
MINISTRY OF ENVIRONMENT AND NATURAL RESOURCES  
THE REPUBLIC OF GUATEMALA  
ON  
THE SECOND JOINT COORDINATING COMMITTEE MEETING  
FOR  
THE PROJECT FOR CAPACITY DEVELOPMENT FOR WATER ENVIRONMENT  
CONSERVATION IN THE METROPOLITAN AREA

Guatemala City, July 4<sup>th</sup>, 2006

  
Mr. Masami Katayama  
Leader  
JICA Project Team

  
Mr. Juan Mario Dary Fuentes  
Minister  
Ministry of Environment and  
Natural Resources(MARN)



  
Mr. Takeo Ishikawa  
Leader  
JICA Monitoring Mission

Witnessed by

  
Mr. Yoshitaka Misawa  
Resident Representative  
JICA Guatemala Office

Done in duplicate in Spanish and English languages, each text being equally authentic. In case of any divergence of interpretation, the English text shall prevail.

## **1. Introducción**

With the presence of The Minister and Vice Minister of Environment and Natural Resources Lic. Juan Mario Dary Fuentes and Arq. Sergio Enriquez Veliz Rizzo respectively, the 2nd Joint Coordinating Committee (hereinafter referred to as "JCC") meeting was held on July 4<sup>th</sup>, 2006 at the meeting room (Los Bosques) of the Ministry of Environment and Natural Resources (hereinafter referred to as "MARN") with Thirty Nine (39) participants including MARN officials, representatives from related governmental organizations, municipalities and donors as listed in the Annex-1.

Main issues confirmed in the JCC meeting are summarized as below:

## **2. Main Issues**

### **1) Presentation of Mr. Kei Omura:**

Mr. Omura, member of the Advisory Committee for the project Support, presented the issue: "Water Quality Management in Aichi Prefecture, Japan" and topics related to this Project

### **2) Project Matrix Design (PDM<sub>1</sub>) and Plan of Operation (PO<sub>1</sub>)**

PDM<sub>1</sub> and PO<sub>1</sub> were approved as the framework of the Stage 2 of the Project.

The major characteristics of the PDM<sub>1</sub> and PO<sub>1</sub> are as follows;

#### **a) Focus on implementation of the Wastewater Regulations**

Considering the enforcement of the Wastewater Regulations May 2006, the PDM<sub>1</sub> is focused on the activities related to contribute to capacity development for the smooth implementation of the regulations.

#### **b) Concentration of the principal activities before September 2008.**

Despite that the project period of the Stage 2 remains three years, in accordance with the process for the wastewater control required by the Regulations, the major part of the project activities will be implemented by September 2008. In the remaining period (from September 2008 to September 2009), basically MARN will by themselves continue to implement the activities in the aim of securing the sustainability, having technical support from JICA experts.

### **3) Necessity of More dynamic Participation of Counterpart personnel**

It is confirmed that dynamic participation of the counterpart personnel in the Project is necessary to attain the Project Purpose, the extent of which should be equally responsible for both sides. Therefore, the MARN promised to take an action to facilitate the participation of the counterparts.

### **4) Ensuring the sustainable and effective implementation of the Wastewater Regulation**

To ensure the sustainable and effective implementation of the wastewater regulation, MARN will elaborate a manual for an administrative sanction and legal penalty based on the pilot activities. In addition, a Study of a rational way of water quality analysis will be conducted by MARN.

### **5) Nomination of Person in Charge for Each Activity**

MARN will assign the person in charge for those activities in which the post remains vacant by the beginning of the Stage 2.

### **6) Mid Term and Final Evaluation**

In accordance with the provision of Article V. of the Record of Discussions dated December 2<sup>nd</sup>, 2005, the Mid-Term Evaluation will be conducted around March 2008 and the Final Evaluation will be conducted around March 2009.



## 7) Smooth Succession after the General Election.

Guatemala will hold General Elections on November 2007. In order for the new authorities to be able to receive all the information regarding this Project, MARN promises to guarantee an ordered, systematized and integral transference of the project, to assure the sustainable continuation of the project in agreement with the officially approved in the Record of Discussions between the Japan International Cooperation Agency (JICA) and the authorities concerned of the Republic of Guatemala on Japanese Technical Cooperation, signed in December 2<sup>nd</sup>. 2005 and the Minutes of Meetings between the Japanese preparatory study team and the Ministry of Environment and Natural Resources dated September 12<sup>th</sup>. 2005.

## 8) Presentation of New JCC Members

The following entities are nominated as a member of JCC

Representative of the Guatemalan Accreditation Office (OGA)

Representative of Ministry of Health and Social Assistance

Representative of Ministry of Agriculture, Livestock and Nourishing (MAGA)

Representative of Villa Nueva Municipality

Representative of Mixco Municipality

Representative of San Pedro Ayampuc Municipality

Representative of Chinautla Municipality

Representative of Guatemala Municipality

Representative of Villa Canales Municipality

Representative of San Miguel Petapa Municipality

Representative of Amatitlan Municipality

Annex-1 Participants List of the second JCC

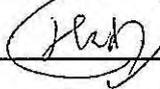
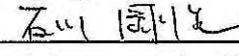
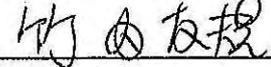
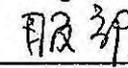
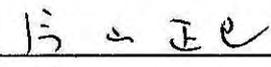
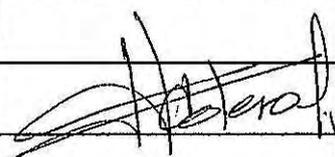
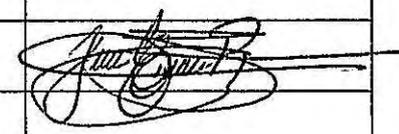
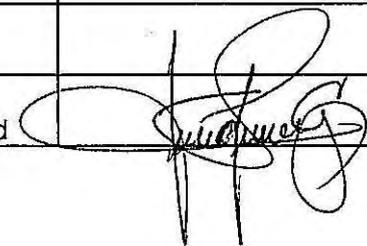
Annex-2 PDM<sub>1</sub>. PO<sub>1</sub>

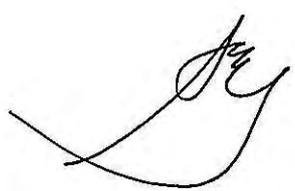
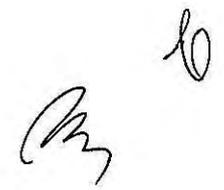
**"Proyecto Sobre Fortalecimiento de la Capacidad de Conservacion del Ambiente Acuático en el Area Metropolitana"**

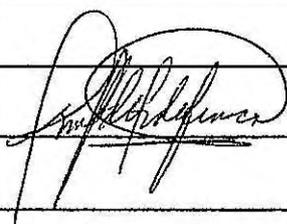
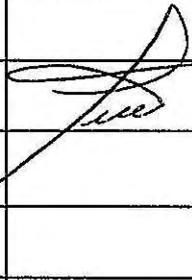
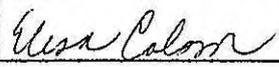
**Lista de Asistencia**

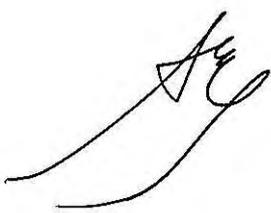
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4 de Julio de 2006

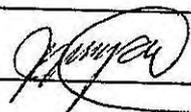
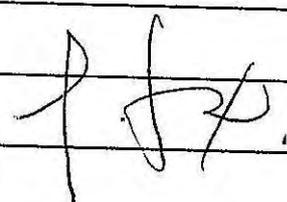
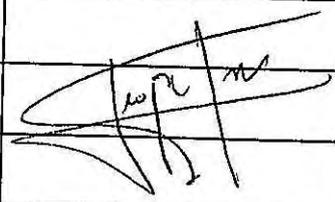
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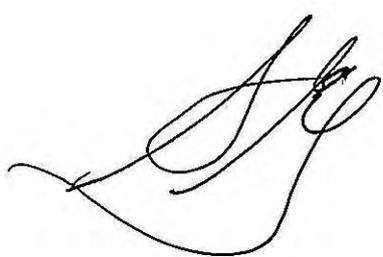
No.	Nombre	Cargo	Firma
	<b>JICA</b>		
1	Kei Omura	Asesor Jica Japón	
2	Yoshitaka Misawa	Representante Residente JICA Guatemala	
3	Takeo Ishikawa	Representante JICA Japón	
4	Tomonori Takeuchi	Coordinador JICA Japón	
5	Toshiko Hattori	Coordinador JICA Guatemala	
6	Masami Katayama	Líder JICA Project Team	
7	Kazuyoshi Kageyama	Miembro JICA Project Team	
	<b>Municipalidad de Guatemala</b>		
8	Sr. Álvaro Arzú Irigoyen	Alcalde	
9	Arq. Paola Constantino	Representante municipalidad	
10	Arq. Luís Felipe Cotero	Representante municipalidad	
11	Arq. Boris López	Representante municipalidad	
	<b>Municipalidad de Santa Catarina Pinula</b>		
12	Sr. José Antonio Coro García	Alcalde	
13	Ing. Juan Carlos Paz <del>4</del>	Representante municipalidad	
	<b>Municipalidad de Amatitlán</b>		
14	Sr. Erwin Orlando Alfaro Mijangos	Alcalde	
15	Sr. Alfonso González	Representante municipalidad	

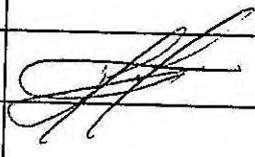
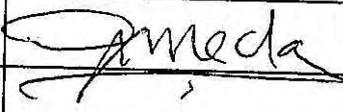
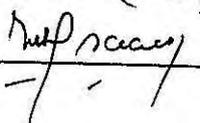
No.	Nombre	Cargo	Firma
	<b>Municipalidad de Villa Canales</b>		
16	Sr. Miguel Ángel García Domínguez	Alcalde	
	<b>Municipalidad de Villa Nueva</b>		
17	Sr. Salvador Gandara Gaitan	Alcalde	
18	Lic. Dinorah Herrera	Representante municipalidad	
	<b>Municipalidad de Mixco</b>		
19	Sr. José Amilcar Rivera Estévez	Alcalde	
20	Sr. Héctor de León	Representante municipalidad	
	<b>Municipalidad de San Miguel Petapa</b>		
21	Sr. Rafael Eduardo González Rosales	Alcalde	
	<b>Municipalidad de Chinautla</b>		
22	Sr. Edgar Arnoldo Medrano Menéndez	Alcalde	
	<b>Municipalidad de San Pedro Ayampuc</b>		
23	Sr. Eduardo Avalos Figueroa	Alcalde	
	<b>JAPON</b>		
24	Takahiro Yamauchi	Primer Secretario	
	<b>SEGEPLAN</b>		
25	Dr. Hugo Eduardo Beteta Méndez Ruiz	Secretario General	
26	Dr. Julio Almengor	Asesor	
27	Lic. Elisa Colóm	Asesor	
	<b>INFOM</b>		
28	Ing. Billy Alexander Roca García	Gerente	




No.	Nombre	Cargo	Firma
29	Ing. Alfredo Zarata	Asesor	
	<b>UNIVERSIDAD DE SAN CARLOS</b>		
30	Ing. Pedro Saravia	Director Escuela de Ingeniería	
31	Ing. Guillermo García Ovalle	Asesor	
	<b>AMSA</b>		
32	Ing. Edgar Rolando Zamora Ruiz	Director Ejecutivo	
33	Arq. Juan Pablo Vidaurre	Sub-Director Ejecutivo	
34	Arq. Rina Girón	Asesor	
	<b>INSIVUMEH</b>		
35	Ing. Edy Sánchez	Director	
36	Ing. Pedro Tax	Asesor	
	<b>EXBECARIOS DE FRANCIA</b>		
37	Ing. Manuel Urrutia	Director	
	<b>LABORATORIO NACIONAL DE SALUD</b>		
38	Lic. Ismael Mansilla	Jefe	
	<b>EMPAGUA</b>		
39	Ing. Hugo Vásquez	Sub-Director	
40	Ing. Rodolfo González Morazo	Asesor	
41	Ing. Julio Escoto	Asesor	
42	Ing. Mario Rojas	Asesor	
	<b>MAGA</b>		
43	Ing. Álvaro Aguilar Prado	Ministro	





No.	Nombre	Cargo	Firma
44	Ing. Carlos Cobos	Asesor	
45	Ing. Oscar Hernández	Asesor	
	<b>UNIVERSIDAD DEL VALLE</b>		
46	Sr. Edwin Castellanos	Asesor	
47	Dra. Margaret Diks	Asesor	
	<b>OGA</b>		
48	Lic. Pablo Alexander Pineda M	Jefe	
	<b>CAMARA DE INDUSTRIA</b>		
49	Sr. Khalil de León	Ejecutivo de Gestión Ambiental	
	<b>SALUD</b>		
50	Ing. Esteban Piedra Santa	Jefe Departamento de Programas de Salud y Ambiente	
51	Sr. Ricardo Gossman	Asesor Dirección de Regulación, Vigilancia y control de la salud	
	<b>MARN</b>		
52	Lic. Juan Mario Dary Fuentes	Ministro	
53	Arq. Sergio Véliz	Viceministro de Ambiente	
54	Lic. Luís Argueta	CONAGUA	
55	Ing. Alejandro Recinos Gómez	Asesor Gestión Ambiental	
56	Ing. Eyda Araceli Lorenzana	Asesor Gestion Ambiental	
57	Ing. Guillermina Cortéz	Asesor Gestion Ambiental	
58	Lic. Mario Isaacs	Asesor Políticas y Estrategias	
59	Lic. Selene Enríquez	Asesor Políticas y Estrategias	
60	Lic. Ana Luisa de León	Asesor Participación Social	

No.	Nombre	Cargo	Firma
61	Lic. Julia Flores	Asesor Participación Social	
62	Ing. Byron González	Sub-Director Informática	
63	Lic. Leonel Aquino	Sub-Director SIA	
64	Lic. Carmen Samayoa	Asesor Cumplimiento Legal	
65	Lic. Ricardo Clossé	Sub-Director Coordinación Nacional	
66	Dr. Rolando Torres	Comisionado	
67	Lic. Carolina Campos	Director Cumplimiento Legal	
68	Lic. Federico Franco	Director Coordinación Nacional	
69	Dr. Jorge Vargas	Director SIA	
70	Lic. Edgar Contreras	Director Administración y Finanzas	
71	Ing. Carlos Abel Noriega	Director Gestión Ambiental	
72	Arq. José Luís Menéndez	Director Políticas y Estrategias	
73	Lic. Milton Cabrera	Director Participación Social	
74	Ing. Mauricio Flores	Director Informática	
75	F. VORONADO	DGCN	
76	Flor de María Salazar	URHYC	
77	Olivia Orellana	RHC	
78	Carlos Alvarado	Síndico II CHINGUA	
79	Ricardo Serrano	Asesor legal U. Rec. Hídricas	
80	Mauro Umutee	Consultor	
81	Mario A. Isaacs	CONSULTOR HYDRO	
82	Andrés Dela	MARN	
83	Nobunaki Hanana	SEGEPLAN / JICA	

84 Erick Asdon Recursos Hídricos

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Table 2.2.1 Updated PDM by Project Team

Project Title: The Project for Capacity Development for Water Environment Conservation in the Metropolitan Area

Project Period: March 2006 to September 2009 (42 months)

Target Area: Nine (9) Municipalities in the Metropolitan Area of Guatemala (Guatemala, Mixco, Villa Nueva, Villa Canales, Chimalta, San Miguel Petapa, San Pedro Ayampuc, Santa Catarina Pinula and Amatitlan

Target Group: Staff of the Ministry of Environment and Natural resources

Narrative summary	Objectively verifiable indicators	Means of verification	Important assumptions
<p>&lt;Overall Goal&gt;</p> <ul style="list-style-type: none"> <li>Public policy and regulation on water environment conservation in the metropolitan area is effective.</li> </ul>	<ul style="list-style-type: none"> <li>50 % of the 9 municipalities and selected industries accomplish the first stage reduction schedule of the wastewater regulation (for the municipalities in 2015 and for industries in 2011).</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring results by MARN</li> </ul>	<ul style="list-style-type: none"> <li>Water environment-oriented policy of the Guatemalan government does not change.</li> </ul>
<p>&lt;Project Purpose&gt;</p> <ul style="list-style-type: none"> <li>MARN's implementation capacity of the wastewater regulation for water environment conservation in the metropolitan area is reinforced.</li> </ul>	<ul style="list-style-type: none"> <li>The results of the Capacity Assessment regarding the wastewater regulation are improved from XX points in October 2006 to XX points in September 2009.</li> <li>Perception of MARN is improved from XX points in October 2006 to XX points in September 2009.</li> <li>The staff number of the Unit of Watershed and Water Resources of MARN is increased from 8 (7 permanent and 1 temporary) in July 2006 to 16 (8 permanent and 8 temporary) in September 2009.</li> </ul>	<ul style="list-style-type: none"> <li>Results of Capacity Assessment</li> <li>Questionnaire survey</li> <li>Annual Report of MARN</li> </ul>	<ul style="list-style-type: none"> <li>Budget of MARN does not decrease drastically.</li> <li>Mandates of MARN regarding water environment conservation are not changed.</li> </ul>
<p>&lt;Output&gt;</p> <p>Output 0: PDM<sub>1</sub> and PO<sub>1</sub> to be implemented in Stage2 are elaborated.</p>	<ul style="list-style-type: none"> <li>PDM<sub>1</sub> and PO<sub>1</sub> are elaborated.</li> </ul>	<ul style="list-style-type: none"> <li>PDM<sub>1</sub> and PO<sub>1</sub></li> </ul>	<ul style="list-style-type: none"> <li>Participation of counterpart personnel is ensured.</li> <li>Transfer of counterparts is less.</li> <li>The progress of the technical studies by industrial and agro-industrial wastewater generators is conducted on schedule.</li> <li>Budget for water quality analysis by MARN is ensured.</li> <li>Necessary information is provided in time.</li> </ul>
<p>Output 1: Strategy formulation capacity for effective enforcement of the wastewater regulation is reinforced.</p>	<ul style="list-style-type: none"> <li>By December 2007 strategies for effective enforcement of the wastewater regulation (financial frameworks for municipalities, collaboration mechanism with municipalities, incentives for industries, procedures of setup of environmental standards for water bodies) are proposed.</li> <li>The proposed four strategies are officially approved by the Minister of MARN.</li> <li>The proposed strategies are revised based on comments from related organizations.</li> <li>By November 2006 rational way of water quality analysis is studied.</li> <li>By September 2009 manuals for wastewater monitoring and legal process for wastewater control are furnished.</li> <li>By May 2007 an inventory of industrial and agro-industrial effluents is prepared.</li> <li>By August 2009 sampling and quality analysis of wastewater is conducted for 400 industrial and agro-industrial wastewater generators (200 under the pilot project and the rest 200 by MARN).</li> </ul>	<ul style="list-style-type: none"> <li>Proposed four strategies</li> <li>Approval by the Minister</li> <li>Comments from related organizations</li> <li>Revised four strategies</li> <li>Manuals or guidelines</li> <li>Inventory</li> <li>Map of sampling sites</li> <li>Results of water quality analysis</li> </ul>	<ul style="list-style-type: none"> <li>Participation of counterpart personnel is ensured.</li> <li>Transfer of counterparts is less.</li> <li>The progress of the technical studies by industrial and agro-industrial wastewater generators is conducted on schedule.</li> <li>Budget for water quality analysis by MARN is ensured.</li> <li>Necessary information is provided in time.</li> </ul>
<p>Output 2: Activities for the implementation of the wastewater regulation is commenced.</p>	<ul style="list-style-type: none"> <li>Digital map data are collected from MAGA by September 2006.</li> <li>Water quality monitoring data are continuously collected from AMSA.</li> <li>By September 2008 database system of water environmental information is established.</li> <li>By September 2008 training for management of the database system is provided to more than 30 staff of MARN.</li> <li>Between September 2008 and August 2009 updating of the database is made appropriately by the staff of MARN.</li> </ul>	<ul style="list-style-type: none"> <li>Agreement with AMSA</li> <li>Database system</li> <li>Training records</li> </ul>	<ul style="list-style-type: none"> <li>Participation of counterpart personnel is ensured.</li> <li>Transfer of counterparts is less.</li> <li>The progress of the technical studies by industrial and agro-industrial wastewater generators is conducted on schedule.</li> <li>Budget for water quality analysis by MARN is ensured.</li> <li>Necessary information is provided in time.</li> </ul>
<p>Output 3: Sustainable system of compilation and administration for water environmental information is established.</p>	<ul style="list-style-type: none"> <li>Perception and knowledge on the wastewater regulation among the municipalities, industries and local residents is improved from XX points in October 2006 to XX points in September 2009.</li> <li>Materials for dissemination of the wastewater regulation are developed by March 2007.</li> <li>Materials of formal education are developed by December 2007.</li> <li>Trainer's training is provided to 30 staff of the Ministry of Education by September 2008.</li> <li>Monitoring of the teachers' training is conducted between October 2008 and August 2009.</li> </ul>	<ul style="list-style-type: none"> <li>Questionnaire survey</li> <li>Materials for dissemination</li> <li>Materials of formal education</li> <li>Training records</li> <li>Monitoring report</li> </ul>	<ul style="list-style-type: none"> <li>Participation of counterpart personnel is ensured.</li> <li>Transfer of counterparts is less.</li> <li>The progress of the technical studies by industrial and agro-industrial wastewater generators is conducted on schedule.</li> <li>Budget for water quality analysis by MARN is ensured.</li> <li>Necessary information is provided in time.</li> </ul>
<p>Output 4: Environmental education and dissemination related to the wastewater regulation is implemented by MARN, based on the collaboration with related organizations.</p>	<ul style="list-style-type: none"> <li>Policy and Strategy, Water Quality Management, PCM, Organization and Institution, Water Quality Information, Water Quality Information, Organization and Institution (5 persons)</li> <li>Stage2: Policy and Strategy, Wastewater Control, Environmental Education, Water Quality Information, Organization and Institution (5 persons)</li> <li>Training Programs</li> <li>Expenses</li> <li>Pilot projects</li> <li>Database system preparation</li> <li>Others</li> </ul>	<ul style="list-style-type: none"> <li>Agreement with AMSA</li> <li>Database system</li> <li>Training records</li> <li>Monitoring report</li> </ul>	<ul style="list-style-type: none"> <li>Participation of counterpart personnel is ensured.</li> <li>Transfer of counterparts is less.</li> <li>The progress of the technical studies by industrial and agro-industrial wastewater generators is conducted on schedule.</li> <li>Budget for water quality analysis by MARN is ensured.</li> <li>Necessary information is provided in time.</li> </ul>
<p>&lt;Activities&gt;</p> <p>0-1: To review MARN's present condition regarding water environment conservation (legislation, strategies, activities, etc.)</p> <p>0-2: To examine feasibility of Activities 1-1 to 1-3, 2-1 to 2-3, 3-1 to 3-5, 4-1 to 4-3.</p> <p>0-3: To review and finalize PDM and PO for Stage 2 based on the 0-2 activity.</p> <p>1-1: To propose policies and strategies for effective enforcement of the wastewater regulation.</p> <p>1-2: To revise the proposed strategies based on comments from related organizations.</p> <p>1-3: To implement training for the staff of MARN and related organizations on water environment conservation policies and strategies.</p> <p>2-1: To prepare guideline for the implementation of wastewater control.</p> <p>2-2: To implement training for the staff of MARN and related organizations on wastewater control.</p> <p>3-1: To collect data on water environment information.</p> <p>3-2: To develop and manage water environmental information databases.</p> <p>3-3: To implement training for the staff of MARN and related organizations on data administration of water environment.</p> <p>4-1: To conduct environmental education/dissemination related to the wastewater regulation to the municipalities, industries and local residents.</p> <p>4-2: To develop environmental education materials, and provide trainer's training for water environmental education</p> <p>4-3: To implement training for the staff of MARN and related organizations on environmental education</p>	<p>&lt;Input&gt;</p> <p>Japanese side</p> <p>1. Experts :</p> <p>Stage 1: Policy and Strategy, Water Quality Management, PCM, Organization and Institution, Water Quality Information, Water Quality Information, Organization and Institution (5 persons)</p> <p>Stage2: Policy and Strategy, Wastewater Control, Environmental Education, Water Quality Information, Organization and Institution (5 persons)</p> <p>2. Training Programs</p> <p>3. Expenses</p> <p>(1) Pilot projects</p> <p>(2) Database system preparation</p> <p>(3) Others</p> <p>Guatemala side</p> <p>-For Stage 1 and Stage 2</p> <p>1. Counterpart personnel</p> <ul style="list-style-type: none"> <li>Chairman of Joint Coordinating Committee and Project Director (1 person)</li> <li>Deputy Project Director (1 Person)</li> <li>Project Manager (1 Person)</li> <li>Working Group Members</li> </ul> <p>2. Facilities for Japanese side</p> <p>The Guatemala side provides office space under the secure conditions. The facilities will be equipped with desks, meeting tables, communication equipment, etc.</p> <p>3. Equipment and materials</p> <p>The Guatemala side provides other necessary equipment and materials necessary for project implementation.</p> <p>4. Budget for project operation</p> <p>The Guatemala side provides salary and allowance for the staff of the Guatemalan side, including budget for travel expenses and operation expenses required under the project.</p>	<ul style="list-style-type: none"> <li>Agreement with AMSA</li> <li>Database system</li> <li>Training records</li> <li>Monitoring report</li> </ul>	<ul style="list-style-type: none"> <li>Participation of counterpart personnel is ensured.</li> <li>Transfer of counterparts is less.</li> <li>The progress of the technical studies by industrial and agro-industrial wastewater generators is conducted on schedule.</li> <li>Budget for water quality analysis by MARN is ensured.</li> <li>Necessary information is provided in time.</li> </ul>
<p>&lt;Preconditions&gt;</p> <ul style="list-style-type: none"> <li>Staff of MARN and other associated functions are assigned to the Project by an official instruction.</li> </ul>			<ul style="list-style-type: none"> <li>Staff of MARN and other associated functions are assigned to the Project by an official instruction.</li> </ul>

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### Tentative Plan of Operations (Output-3)

Output-3: Compilation and administration of water environment information will be systematized

Activities	Expected Results	Schedule												Person in Charge	Implementer	Materials and Equipment	Cost	Remarks				
		2006			2007			2008			2009											
		3	6	9	12	3	6	9	12	3	6	9	12						3	6	9	12
3-1: To collect data on water environmental information.																						
3-1-1: To make an agreement with AMSA for acquiring of water quality monitoring data	Agreements	■																Nadia	Working group 3	None	Minimal	
3-1-2: To collect water quality monitoring data from AMSA	Collected Data	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Alejandro	Working group 3	None	Minimal	
3-1-3: To collect digital map data from MAGA	Digital map	■																Alejandro	Working group 3	None	Minimal	
3-1-4: To digitize the inventory of industries	Digital data		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Bayron	Working group 3	None	Minimal	
3-1-5: To digitize the technical study results	Digital data			■	■	■	■	■	■	■	■	■	■	■	■	■	■	Bayron	Working group 3	None	Minimal	
3-1-6: To digitize the wastewater monitoring results	Digital data				■	■	■	■	■	■	■	■	■	■	■	■	■	Bayron	Working group 3	None	Minimal	
3-2: To develop and manage water environmental information database.																						
3-2-1: To design the database system for water environmental information.	Specification of database system.			■														To be named	Working group 3	None	Minimal	
3-2-2: To establish the database system for water environmental information.	Database system																	To be named	Working group 3	Software	Cost required (Input by JICA)	
3-2-3: To implement training on the database system for water environmental information.	Report of training																	To be named	Working group 3	Computers	Minimal	
3-2-4: To operate and update the database system by MARN	Updating of system																	Bayron	Working group 3	None	Minimal	
3-2-5: To evaluate operation and updating of the database system by MARN	Evaluation																	Kurata	Working group 3	None	Minimal	
3-3: To implement training for the staff of MARN and related organization on data administration of water environment																						
3-3-1: To organize a technology transfer seminar with Mexican expert invited as a lecturer.	One-week seminar																	Katayama	JICA Project Team	Text, Seminar Place	Input by JICA	

Activities under the Project, ■■■■■ Activities under the responsibility of MARN

