

**Argentina**  
**Project for Technical Capacity Development**  
**for Industrial Wastewater and Waste**  
**Pollution Mitigation**

**Final Report of Technical Cooperation**

**April 1, 2001 ~ March 31, 2005**

## 1. Achievements of the Project

### 1-1 Developed Manual

#### Operation Manual of Equipment

No.	Title of Manual
1	DIGESTIONES A MICROONDAS DEL MODA , MARS 5
2	LA MINISONDA HYDROLAB
3	DBO TRAK
4	MUESTREADOR AUTOMATICO AMERICAN SIGMA 900MAX
5	REACTOR DE DQO ( MODEL 45600 )
6	MICROSCOPIO DE FLUORESCENCIA OLYMPUS
7	MICROTOX ( TEST DE TOXICIDAD UTILIZANDO BACTERIAS LUMINISCENTES)
8	ETODO STANDARD ASTM D93
9	DETERMINACION DE PUNTO DE INFLAMACION EN VASO CERRADO
10	PENSKY - MARTENS
11	VISCOSIMETRPO COLE PARMER
12	MANUAL OPERATIVO DEL TITULADOR DIGITAL
13	CROMATOGRAFO IONICO
14	INDUCTIVELY COUPLED PLASMA SPECTROMETRY
15	ATOMIC ABSORPTION SPECTROMETRY

## Manuals of analytical method for wastes and waste water

No.	Title of Manual
1	DIGESTION ACIDA DE AGUAS PARA METALES DISUELTOS O TOTALES RECUPERABLES POR FLAA O ICPO
2	DIGESTION ACIDA DE MUESTRAS Y EXTRACTOS ACUOSOS PARA METALES TOTALES POR FLAA O ICP
3	DIGESTION ACIDA ASISTIDA POR MICROONDAS DE MUESTRAS ACUOSAS Y EXTRACTOS
4	DIGESTION ACIDA DE MUESTRAS Y EXTRACTOS ACUOSOS PARA METALES TOTALES POR GFAA
5	DIGESTION ACIDA DE ACEITES PARA METALES POR FLAA O ICP
6	DISOLUCION DE ACEITES, GRASAS O CERAS
7	DIGESTION ACIDA DE SEDIMENTOS, BARROS Y SUELOS
8	DIGESTION ACIDA ASISTIDA POR MICROONDAS DE MUESTRAS SEDIMENTOS, BARROS Y SUELOS
9	ION ACIDA ASISTIDA POR MICROONDAS DE MATRICES SILICEAS Y ORGANICAS
10	DIGESTION ALCALINA PARA CROMO HEXAVALENTE
11	EXTRACCION LIQUIDO – LIQUIDO EN AMPOLLA DE DECANTACION
12	EXTRACCION CONTINUA LIQUIDO – LIQUIDO
13	EXTRACCION SOXHLET
14	EXTRACCION POR ULTRASONIDO
15	METODO DE LIMPIEZA CON FLORISIL
16	METODO DE LIMPIEZA CON SILICA GEL
17	ELIMINACION DE AZUFRE
18	METODO DE LIMPIEZA ACIDO SULFURICO Y PERMANGANATO DE POTASIO
19	ABSORCION ATOMICA DE ARSENICO TECNICA POR HORNO
20	ABSORCION ATOMICA DE BARIO TECNICA POR HORNO
21	ABSORSCION ATOMICA DE CADMIO TECNICA POR HORNO
22	ABSORCUION ATOMICA DE CROMO TECNICA POR HORNO
23	ABSORCION ATOMICA DE COBRE TECNICA POR HORNO
24	ABSORCION ATOMICA DE PLOMO TECNICA POR HORNO
25	MERCURIO EN RESIDUOS SOLIDOS O SEMISOLIDOS TECNICA POR VAPOR FRIO
26	ABSORCION ATOMICA DE NIQUEL TECNICA POR HORNO
27	ABSORCION ATOMICA DE SELENIO TECNICA POR HORNO
28	ABSORCION ATOMICA DE PLATA TECNICA POR HORNO
29	ABSORCION ATOMICA DE CINCO TECNICA POR HORNO
30	METODO DE ANALISIS DE FENOLES POR CROMATOGRAFIA GASEOSA
31	METODO DE ANALISIS DE PESTICIDAS ORGANOCORADOS POR CROMATOGRAFIA GASEOSA

No.	Title of Manual
32	METODO DE ANALISIS DE PCBs POR CROMATOHGRAFIA GASEOSA
33	METODO DE ANALISIS DE PAHs POR CDROMATOGRAFIA GASEOSA
34	METODO DE ANALISIS DE HIDROCARBUROS CLORADOS POR CROMATOGRAFIA GASEOSA
35	METODO DE ANALISIS DE COMPUESTOS ORGANOFOSFORADOS POR CROMATOGRAFIA GASEOSA
36	METODO DE ANALISIS DE PAHs POR CROMATOGRAFIA LIQUIDA
37	ESPECTROMETRIA DE EMISION ATOMICA
38	ABSORCION ATOMICA
39	ABSORCION ATOMICA DE ARSENICO TECNICA DE HIDRURO GASEOSO
40	ABSORCION ATOMICA DE ANTIMONIO Y ARSENICO REDUCCION CON BOROHI DRURO
41	ABSORCION ATOMICA DE BARIO TECNICA DE ASPIRACION DIRECTA
42	ABSORCION ATOMICA DE CADMIO TECNICA DE ASPIRACION DIRECTA
43	ABSORCION ATOMICA DE CROMO TECNICA DE ASPIRACION DIRECTA
44	ABSORCION ATOMICA DE COBRE TECNICA DE ASPIRACION DIRECTA
45	ABSORCION ATOMICA DE PLOMO TECNICA DE ASPIRACION DIRECTA
46	MERCURIO EN RESIDUOS LIQUIDOS TECNICA POR VAPOR FRIO
47	ABSORCION ATOMICA DE NIQUEL TECNICA DE ASPIRACION DIRECTA
48	ABSORCION ATOMICA SE SELENIO TECNICA DE HIDRURO GASEOSO
49	ABSORCION ATOMICA DE SELENIO REDUCCION CON BOROHI DRURO
50	ABSORCION ATOMICA DE PLATA TECNICA DE ASPIRACION DIRECTA
51	ABSORCION ATOMICA DE CINCO TECNICA POR ASPIRACION DIRECTA

## Manual of Pollution Evaluation

No.	Title of Manual
1	Air / Gas Sampling
2	AMS Gas Vapor Probe Kits
3	Bomba vacio (AMS GVP kit)
4	General Field Sampling Guidelines
5	Ground water well sampling
6	HAPSITE GC / MS INTRODUCCIÓN A LAS CARACTERÍSTICAS Y COMPONENTES Modulo nº 1
7	HAPSITE GC / MS INTRODUCCIÓN A LA CROMATOGRAFÍA GASEOSA Modulo nº 2
8	HAPSITE GC / MS INTRODUCCIÓN A LA ESPECTROMETRIA DE MASAS Modulo nº 3
9	HAPSITE GC / MS PANORAMA DE LOS METODOS ANALÍTICOS Y LOS PROGRAMAS Modulo nº 4
10	HAPSITE GC / MS OPERACIONES DE ENCENDIDO Y APAGADO Modulo nº 5
11	HAPSITE GC / MS FUNCIONES DE AJUSTE (TUNNING) DEL HAPSITE Modulo nº 6
12	HAPSITE GC / MS DESARROLLO DEL "FULL SCAN METHOD" Modulo nº 7
13	HAPSITE GC / MS DESARROLLO DEL MÉTODO DE MONITOREO DE ION SELECCIONADO Modulo nº 8
14	HAPSITE GC / MS INTERPRETACIÓN DE UN CROMATOGRAMA Modulo nº 9
15	HAPSITE GC / MS DESARROLLO DEL MÉTODO DE LEAK CHECK (Verificación de pérdidas) Modulo nº 10
16	HAPSITE GC / MS DESARROLLO DEL MÉTODO DE MS ONLY (Sólo espectrometría de masa) Modulo nº 11
17	HAPSITE GC / MS SISTEMA DE MUESTREO CON HEADSPACE Modulo nº 12
18	Lamotte STH -14 Outfit. Soil Sampling kit
19	MANUAL DEL USUARIO DEL MUESTREADOR AUTOMÁTICO AMERICAN SIGMA 900MAX
20	Minisonda
21	Preservacion y almacenamiento LETS Rev2
22	Soil Gas Sampling
23	Soil Sampling Guidelines
24	Testing hints for improving SOIL SAMPLING ACCURACY
25	Waste and Fresh water sampling
26	Weather Link Software: Manual del Usuario

## 1 - 2 LIST OF THESIS

	Title	Speaker	Contributor/Scientific Association	Year
1	Kinetics and Mechanisms of EDTA Photocatalytic Degradation by TiO <sub>2</sub>	R.E Ferreyra, etc	Oxidation technologies for water and wastewater treatment (II), Water Science Technology	2001
2	Kinetics and Mechanism of EDTA photocatalytic degradation by TiO <sub>2</sub> under various experimental condition.	R.E Ferreyra, etc	Int. J. Photoenergy	2001
3	Simultaneous spectrophotometric determination of rare-earth and transition elements using partial least squares (PLS) multivac calibration	R.E Ferreyra, etc	Journal of Analytical Chemistry.	2001
4	Kinetics and Mechanism of EDTA photocatalytic degradation by TiO <sub>2</sub> under various experimental condition.	Rosana E. Ferreyra, etc	International journal Of Photoenergy	Vol.3 2001
5	Environmental status and problems in Argentina - (Part-1)	Michio Kuriyagawa	Magazine of the Association of Resources and Materials	2002/7/1
6	Environmental status and problems in Argentina - (Part-2)	Michio Kuriyagawa	Magazine of the Association of Resources and Materials	2002/9/1
7	Influence in the conditions of solvents which affect the oxidation of aromatic compounds containing a mixture of iron and porphyrin.	Mikio Kawasaki, Anabel Kuriss, Masami Fukushima, Sho Sawada, Kenji Tatsumi, Michio	Japan Association of Analytical Chemistry - The 51st national meeting	2002/9/1
8	EDTA elimination by oxydation advanced technologies	R.E Ferreyra, etc	SETACLA publishind paper	2003
9	Organic compound measurement by SPME AIST method	Evelia Gonzales	National Institute of Advance Industrial Science and Technology-Tsukuba Japan	2003
10	Analysis of hydrocarbons (GRO) in trace of gasoline in water by solid phase separation method	Masatoshi Nagata, Evelia Gonzales, Anabel Kuriss	Japan Association of Analytical Chemistry - The 52nd national meeting	2003/9/1
11	The industry and energy in Argentina - Environmental Problems, Industry and Energy- Part 1	Dr Michio Kuriyagawa	Magazine of the Association of International Communication Vol.8 No.1	2003/11/1
12	The industry and energy in Argentina - Environmental Problems, Industry and Energy- Part 2	Dr Michio Kuriyagawa	Magazine of the Association of International Communication Vol.8 No.1	2003/11/1
13	Recycling of Wastewater containing Iron Cyanide Complex using UV Photodecomposition and UV Ozone Oxidation in combination with an Ion Exchange Resin Method	Hiromutsu Wada, Sergio Hanela, Yoshio Hirayama, Kazuko Yanaga and Yasuhiro Kuroda	Bulletin of the Chemical Society of Japan (The Chemical Society of Japan)	Placed in March issue of 2005

### LIST OF RECORDS OF SEMINARS - YEAR 2001

DATE	ORGANIZED BY	SEMINAR TITLE	TITLE OF CONFERENCE	PLACE	LECTURER
12/12/2001	The Japan-Argentina Chamber of Commerce	Monthly Meeting of the Japan-Argentina Chamber of Commerce	About the Prevention of the Contamination Project	Chino Central Restaurant (Bs As)	Michio Kuriyagawa
04/12/2001	National Institute of Industrial Technology (INTI)		Improvement of Institutions and Training of Researchers in Japan	National Institute of Industrial Technology (INTI)	Michio Kuriyagawa
18/12/2001	INA-JICA Project	Clean Production	•Clean Production (Chemical Sector) •Clean Production (Mechanical Sector)	National Institute of Water (INA)	Ryuichi Hirai Osamu Abe
25/03/2002	INA-JICA Project	Seminar of Techniques applied in the Project	•Computer Simulation Applications related to Underground water Contamination •Risk Management of Chemical products	National Institute of Water (INA)	Takeshi Komai Mamoru Tominaga

**LIST OF RECORDS OF SEMINARS - YEAR 2002**

DATE	ORGANIZED BY	SEMINAR TITLE	TITLE OF CONFERENCE	PLACE	LECTURER
17/05/2002	Ministry of Environment	Seminar of Global Warming	Problem of Global Warming and the role of Kyoto Protocol	Ministry of Environment	Michio Kuriyagawa
25-27/09/2002	INA-JICA Project	Seminar of Techniques applied in the Project	<ul style="list-style-type: none"> <li>•Leather industry technology in Japan (without chromium)</li> <li>•History of Pollution in Japan, and progress of countermeasures</li> <li>•Clean Production applied in Mechanic Industries (CP) and presentation of actual cases by CP.</li> <li>•Clean Production</li> </ul>	Argentina Industry Association (UIA)	Taiki Houzan Koji Takahashi Yoshio Hirayama Ryuichi Hirai
01-02/10/2002	INA (Mendoza Institute)	Seminar of National Institute of Water	•What is Clean Production?	INA (Mendoza Institute)	Ryuichi Hirai
21/10/2002	United Nations	Seminar about Environment	•Disposal Techniques of PCB in Japan	Suipacha Hotel	Ryuichi Hirai
17-18/10/2002	Soda Solvay Co.	Seminar Soda Solvay Co. (internal)	Clean Production Activities	Soda Solvay Co. (Bahia Blanca city)	Ryuichi Hirai
26/11/2002	INA-JICA Project	Seminar of Techniques applied in the Project	<ul style="list-style-type: none"> <li>•About Environmental Management</li> <li>•Measuring Soil contamination parameters</li> <li>•Computer simulation for Evaluation of Contamination</li> </ul>	National Institute of Water (INA)	Takashi Ibusuki Tsutomu Yamaguchi Takeshi Komai
26/03/2003	INA-JICA Project	Seminar of Techniques applied in the Project	OECD activities related to the safety of chemical substances	National Institute of Water (INA)	Masaru Kitano
27/03/2003	Ministry of Environment	Seminar about PCB	•Problems of Disposal of PCB in Japan	Ministry of Environment	Masaru Kitano
27/03/2003	INA-JICA Project	General Purpose Seminar	The chemical substances and our lives	Alvear Hotel	Masaru Kitano



**LIST OF RECORDS OF SEMINARS - YEAR 2003**

DATE	ORGANIZED BY	SEMINAR TITLE	TITLE OF CONFERENCE	PLACE	LECTURER
16/04/2003	The Association of Chemical and Petrochemical Industry	Activities of Clean Production	• Progress about the Activities of Clean Production	The Association of Chemical and Petrochemical Industry	Ryuichi Hirai
07/05/2003	INA, CNEA (Nat. Committee of Atomic Energy)	JICA CNEA mutual interchange Seminar	• The environmental research by JICA Project and INTI. • Clean Production applied in Metal Finishing Industry • Activities of Clean Production	Atomic Energy Research Laboratory	Michio Kuriyagawa Yoshio Hirayama Ryuichi Hirai
25/06/2003	INA-JICA Project	Recent Development of Analytical Techniques	• Measuring Volatile compound in water/air by GC or HPLC-1 • Analysis of Pesticide of low/high decomposition substances by using SIM method.	Panamericano Hotel	Yukio Watanabe Kazuaki Nojima
26/06/2003	INA.CNEA.INTI(Nat.Inst.Industrial Technology)	First Workshop for Analytical Techniques	• Measuring Volatile compound in water/air by GC or HPLC-1 • Analysis of Environment Hormons by Mass Spectrometry	National Institute of Water (INA)	Yukio Watanabe Kazuaki Nojima
01/07/2003	National University of Technology (UTN)	University class session	• About the Global Warming	National University of Technology (UTN)	Michio Kuriyagawa
13/08/2003	Atomic Energy Research Laboratory	Third Country Training Course	• Global Warming and Technologies for Countermeasures	Atomic Energy Research Laboratory	Michio Kuriyagawa
22/08/2003	INA-JICA Project	Water Treatment and Clean Production	• Waste Water Treatment Technology and application in Japan • Records of Clean Production activities in Japan (Water and Energy saving in the Industries)	Pan American Hotel	Yoroku Wada Yoshio Hirayama
26/08/2003	"Libertad" Foundation	Water Treatment and Clean Production	• Waste Water Treatment Technology and application in Japan • Records of Clean Production activities in Japan (Water and Energy saving in the Industries) • Activities of Clean Production	"Libertad" Foundation (Rosario)	Yoroku Wada Yoshio Hirayama Ryuichi Hirai
01/09/2003	National University of South (UNS)		• Waste Water Treatment Technology and application in Japan	National University of South (UNS)	Yoroku Wada
10/09/2003		13th Argentina National Meeting of Hygiene and Environment - Clean Production	• Records of Clean Production activities in Japan (Water and Energy saving in the Industries)	Parque Norte (Bs As)	Yoshio Hirayama

**LIST OF RECORDS OF SEMINARS - YEAR 2003**

DATE	ORGANIZED BY	SEMINAR TITLE	TITLE OF CONFERENCE	PLACE	LECTURER
21/10/2003	INA-JICA Project	Seminar of Techniques applied in the Project	<ul style="list-style-type: none"> <li>• Research of underground water flow by traceability Tests</li> <li>• Computerized Simulation Technology for Contamination Evaluation - Theory and actual applications</li> <li>• Trends for Applications of Microanalysis by Electronic wire Probe and Mesbauer Spectroscopy method for Contamination Evaluation</li> </ul>	National Institute of Water (INA)	Retsu Matsunaga Takeshi Komai Takaaki Kobayashi
28/10/2003	Japanese Culture Center	Japanese Culture Week event	Cyclic type Society - For a better life	"Recoleta" Culture Center (Bs As)	Michio Kuriyagawa
10/12/2003	INA-JICA Project	Seminar of Techniques applied in the Project	<ul style="list-style-type: none"> <li>• Residue Plastic Recycling in Japan</li> <li>• Clean Production Activities in Japan and Argentina</li> <li>• Establishment of Cyclic type Society in Japan</li> </ul>	Panamericano Hotel	Keisaku Yamamoto Ryuichi Hirai Michio Kuriyagawa
17/12/2003	National University of Technology (UTN)	Plastic Recycle	• Energy Recovery by combustion of residue Plastics	National University of Technology (UTN)	Keisaku Yamamoto
12/12/2003	Santa Fe Province	Seminar of Clean Production	<ul style="list-style-type: none"> <li>• Residue Plastic Recycling in Japan</li> <li>• Clean Production Activities in Japan and Argentina</li> <li>• Establishment of Cyclic type Society in Japan</li> </ul>	Rio Grande Hotel- (Santa Fe city)	Keisaku Yamamoto Ryuichi Hirai Michio Kuriyagawa
23/02/2004	INA-JICA Project	Monitoring of Ocean Contamination and Analytical Techniques	Global scale observations of toxic chemical contaminant through ocean research ship	National Institute of Water (INA)	Masayuki Kunugi
16/03/2004	CNEA. INTI. INA	Second Workshop for Analytical Techniques	Development of Analytical Techniques for PCB's isomers	Atomic Energy Research Laboratory	Anabel Kuriss

**LIST OF RECORDS OF SEMINARS - YEAR 2004**

DATE	ORGANIZED BY	SEMINAR TITLE	TITLE OF CONFERENCE	PLACE	LECTURER
30/04/2004	INA-JICA Project	Seminar of Technology of Waste Water and actual practice, for Buenos Aires area	Activities part of Waste Water Treatment	National Institute of Water (INA)	Yoroku Wada
11/05/2004	The Association of Metal Surface Finishing Companies of Rosario	Seminar of Technology of Waste Water and actual practice, for Rosario area	Activities part of Waste Water Treatment	Technical Park of Rosario	Yoroku Wada
13/05/2004	The Association of Metal Surface Finishing Companies of Rosario	Seminar of Technology of Waste Water and actual practice, for Venado Tuerto area (Santa Fe Prov.)	Activities part of Waste Water Treatment	Corben Co. Factory	Yoroku Wada
10/06/2004	UTN International Society of Bio Chemistry	First International Seminar for Sustainable Production Methods	Establishment of Cyclic type Society (examples of Japan)		Michio Kuriyagawa
17/06/2004	Secretariat of Environment and Production of Tucuman	Survey Team for Industrial Park of Tucuman Prov. and Workshop with C/P diffusion team	Promotion of Industrial Park - Productivity cases by CP	Tucuman city, Minning Research Center	Hiroshi Oomori
17/06/2004	Secretariat of Environment and Production of Tucuman	Seminar for Utilization of Industrial Park and Clean Production of Tucuman Province	High Grade utilization of Industrial Park - Clean Production	Tucuman city, Minning Research Center	Hiroshi Oomori
18/06/2004	INA-JICA Project	Seminar for Clean Production	High Grade utilization of Industrial Park - Clean Production	National Institute of Water (INA)	Hiroshi Oomori
23/06/2004	Industrial Park of Pilar (Bs As Province)	Seminar for High Grade Utilization of Industrial Park of Pilar	High Grade utilization of Industrial Park - Clean Production	Industrial Park of Pilar- Meeting room	Hiroshi Oomori
24/06/2004	Development Society of Gualeguaychu (E.Rios Prov)	Workshop with the Diffusion group of Clean Production of Gualeguaychu	Clean Production and Productivity	Gualeguaychu Ind. Park Development Foundation-Meeting Room	Hiroshi Oomori
24/06/2004	Development Society of Gualeguaychu	Seminar for Industrial Park of Gualeguaychu and Clean Production Technology	High Grade utilization of Industrial Park - Clean Production	Gualeguaychu Ind. Park Development Foundation-Meeting Room	Hiroshi Oomori
24/06/2004	JETRO, JICA, JBIC	CDM Subcommittee	Global Warming and CDM Projects, actions by Brazil, Chile and Uruguay	JETRO (Bs As Office)	Michio Kuriyagawa
25/06/2004	Development Society of Gualeguaychu (E.Rios Prov)	Seminar for High Grade Utilization of Industrial Park of Gualeguaychu	High Grade utilization of Industrial Park	Gualeguaychu Ind. Park Development Foundation-Meeting Room	Hiroshi Oomori
29/06/2004	Secretariat of Environment and Sustainable Development of Entre Rios Province	Seminar of Promotion of Industrial Park of Parana city	High Grade utilization of Industrial Park - Clean Production	Parana Ind. Park Development- Meeting Room	Hiroshi Oomori
30/06/2004	Industrial Union of Santa Fe Province	Seminar of Promotion of Industrial Park and Clean Production Technology, of Santa Fe	High Grade utilization of Industrial Park - Clean Production	Manufacturers Association of Santa Fe - Meeting Room	Hiroshi Oomori
01/07/2004	The Association of Metalurgy Industry of Rosario	Seminar of Promotion of Industrial Park and Clean Production Technology, of Rosario	High Grade utilization of Industrial Park - Clean Production	Metalurgical Manufacturer Association of Rosario - Meeting Room	Hiroshi Oomori
06/07/2004	UTN (National University of Technology)	Seminar of Promotion of Industrial Park and Clean Production Technology	High Grade utilization of Industrial Park - Clean Production	National University of Technology (UTN)	Hiroshi Oomori
08/07/2004	Municipality of Balcarce, Buenos Aires Prov.	Seminar for Disposal of Urban Solid Residue and final disposal	Establishment of Cyclic type Society in Japan	Balcarce city (Bs As Prov.)	Michio Kuriyagawa

**LIST OF RECORDS OF SEMINARS - YEAR 2004**

DATE	ORGANIZED BY	SEMINAR TITLE	TITLE OF CONFERENCE	PLACE	LECTURER
08/07/2004	Municipality of Balcarce, Buenos Aires Prov.	Seminar for the Problem of Urban Solid Residue	·Recycle of plastics (PET bottles) ·Cyclic Type Society	Balcarce city (Bs As Prov.)	Ryuichi Hirai Michio Kuriyagawa
22/07/2004	Municipality of Rio Gallegos, Santa Cruz Prov.	Seminar for Environmental Problem	Simple Waste Water facilities by using plastics	Rio Gallegos city (Santa Cruz Prov)	Ryuichi Hirai
18/08/2004	INA-JICA Project	Green Chemistry and Clean Production	Green Chemistry Technology	National Institute of Water (INA)	Makoto Misono
20/08/2004	University of Litoral (Santa Fe), INA-JICA Project	Green Chemistry and Clean Production	·The frontier line of Green Chemistry for a Sustainable Society ·Recent developments on Green	Santa Fe city - Rio Grande Hotel	Makoto Misono
24/08/2004	Municipality of Salta, Salta Prov.	A class in doctoral course of Catholic University (including common public)	·The problems of Global Warming ·Recycling of Plastics and Waste Water Treatment		Michio Kuriyagawa Ryuichi Hirai
28/08/2004	Municipality of La Plata, Buenos Aires Prov.	Seminar for Water Quality and Echotechnology, year 2004	·Problems of Solid Waste in Japan and Recycle Society ·Recycle of Plastics ·Waste Water and Press Filter applications ·Cleaning works in Japan Garden of Bs As	La Plata Provincial Park	Michio Kuriyagawa Ryuichi Hirai Hirayama Yoshio Sakai Toshio
07-08/10/2004	Tucuman Province	A class in doctoral course of National University of Tucuman (including common public)	·Japan Cyclic type Society ·Present status of Plastic Recycle		Michio Kuriyagawa Ryuichi Hirai
13/10/2004	"Green Garden" Foundation	Seminar about the Importance of the Life	·The Recycle in Japan and the Problem of solid waste in Japan	Japanese Garden (Bs As)	Michio Kuriyagawa
15-16/10/2004	Municipality of Rio Grande, Tierra del Fuego Prov.	International Seminar	·Cyclic Type society of Japan ·The problems of Global Warming ·Environmental Problems in Buenos Aires and Rio Gallegos	<CENT 35>	Michio Kuriyagawa Ryuichi Hirai
09/11/2004	CNEA (Arg. National Atomic Energy Committee )	Economical Waste Water Treatment system in Latin America	·Waste Water Treatment	CNEA	Ryuichi Hirai
23/12/2004	JICA	Meeting for Safety Measures	·Presentation about Industrial Contamination Prevention Project	Emperador Hotel	Michio Kuriyagawa

### 3. Record of Inputs

#### 3.1 List of Japanese Experts

##### 1. Long term experts

	Field	Name	Duration of Dispatch
1	Chief Advisor	Dr. M. Kuriyagawa	2001.5.24-2005.3.31
2	Coordinator	Mr. K. Sakairi	2001.4.1-2005.3.31
3	Chemical Analysis	Mr. T. Sakai	2001.4.1-2005.3.31
4	Pollution Evaluation	Dr. M. Nagata	2001.5.10-2005.5.9
5	Cleaner Production (Chemical industry)	Dr. R. Hirai	2002.4.1-2005.3.31
6	Cleaner Production (Mechanical industry)	Mr. Y. Hirayama	2002.9.1-2005.3.31

##### 2. Short term experts

	Field	Name	Duration of Dispatch
1	Cleaner Production (Chemical industry)	Dr. R. Hirai	2001.12.10 - 2001.12.21
2	Cleaner Production (Mechanical industry)	Mr. O. Abe	2001.12.10-2001.12.21
3	Pollution Evaluation	Dr. T. Komai	2002.3.19-2002.3.29
4	Pollution Evaluation	Dr. M. Tominaga	2002.3.19-2002.3.29
5	Cleaner Production (Chemical industry)	Dr. D. Houzan	2002.9.22-2002.10.1
6	Cleaner Production (Chemical industry)	Mr. H. Takahashi	2002.9.22-2002.10.1
7	Pollution Evaluation	Dr. T. Komai	2002.11.19-2002.11.30
8	Pollution Evaluation	Dr. T. Yamaguchi	2002.11.19-2002.11.30
9	Pollution Evaluation	Dr. T. Ibusuki	2002.11.19-2002.11.30
10	Chemical Analysis	Dr. M. Kitano	2003.3.18-2003.3.30
11	Chemical Analysis	Mr. K. Nojima	2003.6.17-2003.6.29
12	Chemical Analysis	Dr. I. Watanabe	2003.6.17-2003.6.29
13	Cleaner Production (Mechanical industry)	Dr. H. Wada	2003.8.10-2003.9.7
14	Pollution Evaluation	Dr. T. Komai	2003.10.14-2003.10.24
15	Pollution Evaluation	Dr. T. Kobayashi	2003.10.14-2003.10.24
16	Pollution Evaluation	Dr. I. Matsunaga	2003.10.14-2003.10.24
17	Cleaner Production (Chemical industry)	Mr. K. Yamamoto	2003.12.3-2003.12.20
18	Cleaner Production (Mechanical industry)	Dr. H. Wada	2004.4.25-2004.5.23
19	Cleaner Production (Mechanical industry)	Mr. H. Omori	2004.6.12-2004.7.10
20	Cleaner Production (Chemical industry)	Dr. M. Misono	2004.8.11-2004.8.23
21	Pollution Evaluation	Dr. M. Nagata	2004.11.20-2004.11.30
22	Pollution Evaluation	Mr. H. ICHIKAWA	2005.1.28-2005.2.7

## List of counterpart personnel

### (1) Technical Counterpart Personnel

	Name	Title	Working period
1	Gomez, Carlos A.	Chemical Engineer	April 2001 to July 2004
2	Natale, Oscar	Chemical Engineer, Master of Science	August 2004 to final of the Project
3	Duran, Jorge	Chemical Engineer, Master of Science	During all the Project
4	Higa, Luis E.	Chemical Engineer	During all the Project
5	Lopolito, M. Fernanda	Chemical Engineer	During all the Project
6	Kuriss, Anabel	Chemistry	July 2001 to final of the Project
7	Ferreira, Rosana	Chemistry, Master of Science	July 2001 to final of the Project
8	Corujeira Gallo, Agustín	Chemical Engineer	January 2002 to final of the Project
9	Gonzales, Evelia	Chemical Engineer	November 2001 to final of the Project
10	Casserly, Carolina	Biologist	July 2001 to final of the Project
11	Rossen, Ariana	Biologist	January 2002 to final of the Project
12	Doberti, Franco	Chemical technician	July 2001 to August 2004
13	Hanela, Sergio	Chemical technician	July 2001 to final of the Project
14	Carbonell, Alan	Chemical technician	February 2004 to final of the Project
15	Savarese, Ariel	Chemical technician	March 2004 to final of the Project

### (2) Administrative counterpart personnel

	Name	Title	Working period
1	Jerez, Cristina		During all the Project
2	Cantarella, Oscar		During all the Project
3	Gonzalez, Maria		March 2003 to final of the Project

### 3.2 Counterpart training in Japan

	Field	Name	Duration
1	Project Management	Adolfo Luis CERIONI	2001.8.26-2001.9.6
2	Project Management	Alberto Carlos GOMEZ	2001.8.26-2001.9.6
3	Project Management	Jorge DURAN	2002.2.10-2002.3.7
4	Chemical Analysis (Organic)	Anabel KURISS	2002.5.26-2002.7.6
5	Chemical Analysis (Inorganic)	Rosana FERREYRA	2002.10.6-2002.11.16
6	Biology	Carolina CASSERLY	2002.10.6-2002.11.16
7	Pollution Evaluation	Luis Eduardo HIGA	2003.7.2-2003.7.29
8	Chemical Analysis (Organic)	Maria Evelia GONZALES	2003.9.21-2003.11.15
9	Chemical Analysis (Organic)	Franco DOBERTI	2004.1.12-2004.2.21
10	Cleaner Production	Sergio HANELA	2004.1.12-2004.2.21
11	Pollution Evaluation	Agustin Corujeira GALLO	2004.7.19-2004.9.4
12	Chemical Analysis (Inorganic)	Graciela Mabel PIN	2004.7.19-2004.9.25
13	Biology	Ariana Altair ROSSEN	2005.1.17-2005.2.26
14	Chemical Analysis (Organic)	Maria Evelia GONZALES	2005.2.27-2005.3.17

### 3.3 Equipment list (list of equipment which cost over 1,600,000 yen)

	Item	manufacture	Model	quantity
1	AUTOMATIC WATER SAMPLER	AMERICAN SIGMA	900MAX	1
2	TOTAL ORGANIC CARBON ANALYZER	SHIMADZU	TOC-5000A	1
3	ICP	JARRELL ASH	IRIS ADVANTAGE	1
4	ATOMIC ABSORPTION SPECTROPHOTOMETER	HITACHI	Z-5000	1
5	GAS CHROMATOGRAPH	HP-AGILENT	HP6890	1
6	GAS CHROMATOGRAPH MASS SPECTROMETER SYSTEM	HP-AGILENT	HP5973N	1
7	LC-MS	HP-AGILENT	LC/MSD VL	1
8	UV-VISIBLE SPECTROPHOTOMETER	SHIMADZU	UV-2450	1
9	INFRARED SPECTROPHOTOMETER	SHIMADZU	FTIR-8900	1
10	ION CHROMATOGRAPH	DIONEX	DX-500	1
11	HPLC	SHIMADZU	LC-10ADvp	1
12	REVERSE OSMOSIS WATER PURIFIER	YAMATO KAGAKU & MILLIPORE	WA710	1
13	TOXICITY AND MUTAGENICITY TEST SYSTEM	MICROBICS · MICROTOX	MODEL 500	1
14	ELEMENTAL ANALYZER METER	PERKIN ELMAR	2400	1
15	MICROWAVE SAMPLE PREPARATION	CEM	MARS5X	1
16	MICROSCOPE SET	OLYMPUS	BX51	1
17	X-RAY FLUORESCENCE ANALYZER	Thermo ARL	ADVANT'X	1
18	DRAFT CHAMBER	YAMATO KAGAKU	KFS180	3
19	COD METER	HACH	COD TEST SET	2
20	BOD METER(HACH · 26197-00 & OTHER)	HACH	26197-00 & OTHER	2
21	PORTABLE SPECTROPHOTOMETER	HACH	DR / 2010-19	2
22	MULTI MONITORING SYSTEM	HYDROLAB	4	2
23	SAFETY CABINET	YAMATO	CCV-1301EC	1
24	SOIL SAMPLER	DAIKI RIKA	DIK-121B	1
25	Water Quality Data Sonde	HYDROLAB	MiniSonde 4	1
26	MICROBIAL FERMENTOR	Applikon	P100	1
27	Portable Gas Chromatograph-Mass Spectrometer	HAPSITE	INFICON	1
28	Portable Gas Chromatohraph	SRI	8610C	1
29	Water Level Meter Bailer/SoilGas Vapor Probe/	WATER MARK	Model 101	1Set
30	Head Space Sampler	AGILENT	7694	1
31	MICROWAVE SAMPLE PREPARATION	CEM	MARS5X	1
32	IR STANDARD SPECTRAL DATABASE	BIO-RAD	4470-ULUG-2250 4366-A-2250 4327-L-2250	1Set
33	MULTI MONITORING SYSTEM	HYDROLAB	4	1
34	NITROGEM GENERATOR	ATLAS COPCO	SF2	1
35	AUTOMATIC NITROGEM ANALYZER	FOSS TECATOR	2200	1
36	AUTOSAMPLER	AGILENT	TDSA2(GERSTEL)	1





## Summary of main activities

### Fiscal Year 2001

As a measure for controlling the security, it was installed an UV monitoring sensor furnished with an alarm device in the laboratory. (Including a telephone caller system in case of detection of an irregular situation) At the same time, in order to improve the accuracy of the results of the tests, it was ordered to install the tiles in the floor of the laboratory.

### Fiscal Year 2002

The technology transfer has been carried out as follows:

Purpose: Contamination Evaluation based on computerized simulation system

Period of execution: 11 to 18 of November 2002

Name of institution of counterpart: United States of America, New Mexico State

National Laboratory of Los Alamos

### Fiscal Year 2004

It were published the activities of the Project through an international Seminar, centered on the results. The Seminar was held at Four Seasons Hotel, on November 24 to 25, 2004, during 2 days and also at the Project site on National Laboratory of Water (INA) during 1 day.

#### **4. PLAN FOR PROJECT EXECUTION MANAGEMENT**

##### **1) Assignment of Multiple Persons in Charge for each Analytical Equipment**

Through the Project, a large number of analytical equipments have been provided. We received a recommendation from Prof. Niiyama, the Chief of the National Committee for Supporting our Project, indicating the assignment of multiple persons in charge for each analytical equipment. This means, if the assigned person in charge would be only one, in the eventual case of a resignation of the counterpart in charge, by any reason, it would be required a new training program for another counterpart member which will imply a loss of efficiency.

Following that directive, in the project it was decided to assign 2 persons per equipment (in some equipment more than two). Furthermore, as a consequence of the assignment of more than one person per equipment, it was created a cooperative mood of sharing the tasks, so that it was positive for promoting the deepening of mutual relation among counterparts. During the period of the Project, resignation case of personnel was two. One is in the field of chemical analysis. In his case, there was no impact to our project. Another is in the field of evaluation of contamination. He is only one counter part who knows about the computer simulation, so that INA needs to find another person who will learn about the computer simulation.

##### **2) Concept of an incentive for the Counterpart**

The INA, considering that it is a national institution of research, each counterpart is carrying out research works in parallel to routine works of requested analysis, so that they need to improve their research knowledge. For this purpose, we directed them to work positively in order to prepare and publish scientific papers in scientific societies and so on.

Furthermore, for the purpose to issue the papers, and in order to monitoring the latest scientific works and activities, we also directed counterpart to participate in the scientific events. Also, several counterpart members have been dispatched to research laboratories in Japan (mainly to National Institute of Advanced Industrial Science and Technology: AIST), requesting a training pointing out the promotion of the investigation.

By this way, it was prepared the base for the execution of research, so that each counterpart has been trained to cope with the research works by themselves.

##### **3) Relationship with Counterparts**

Considering the fact of carrying out research together with the counterparts, we paid attention in the relationship with them, not only in the field of the daily works but in other various field also. For this purpose, we prepared some informal events such as “Japanese language class”, “Dressing Kimono and taking photographs”, etc.

**4) Activities targeted to external institutions**

For the diffusion of the results of our research works, we expanded our activities to the several institutions related to the Project. Moreover, we contacted the universities (UTN, etc), governmental institutions (Secretariat of Environment, etc), private companies associations (Union of Argentina Industry, Chemistry and Petrochemical Union, Metal Finishing Union, etc), in order to exchange information and give them technical recommendations.

Also, we have deepened our relationship with the Japanese Chamber of Commerce in Argentina and other Japanese associations.

## 5. REVISIONS OF THE PDM (Project Design Matrix)

In the PDM document at the beginning of the Project (See please Attachment 5.1), they were stated the following 3 items as the Overall Goal:

1. Technology on Cleaner Production will be diffused in the Argentine Republic.
2. Measures for improvement of environmental conditions based on evaluation results of actual pollution analysis will be implemented in the Argentine Republic.
3. Pollution in the Matanza Riachuelo River Basin will be mitigated.

On the other hand, for the Project purpose, the following was stated:

“The Activities (research and diffusion of technology) on control capacity for industrial wastewater and waste will be strengthened in INA.”

The Project developed the activities aiming to these goals, but due to the crisis on December 2001 including the “default” etc, the economic situation of Argentina became deteriorated so that the outskirts conditions have been changed.

At the starting stage of the Project, it was planned to develop the Project by a close contact with the Matanza-Riachuelo Executive Committee, aiming the contamination clean-up of the Matanza-Riachuelo river basin. However, the Matanza-Riachuelo Executive Committee status became “dormant” now. For this reason, the items of Evaluation of Contamination and Cleaner Production in particular, originally planned to cover the Matanza-Riachuelo, have been changed to widening the range of activities to all the territory of Argentina.

Also, at the end of the Project, they were clarified the objectives related to the 3 items (chemical analysis, evaluation of the contamination, cleaner production)

### 1) Chemical Analysis

Regarding to the Chemical Analysis, the INA is aiming to be the core laboratory (reference laboratory) for this specialty in Argentina and in South America. For this purpose, it was implemented the brush-up of the technology for the chemical analysis and the certification of ISO 17025 standard during the period of the Project.

### 2) Evaluation of the Contamination

For the evaluation of the contamination, the objective for the Counterpart have been settled as the technical self-support for these activities as consulting works, through the improvement of their knowledge by the OJT and the mastering of the application of computer simulation program on the evaluation of contamination.

### 3) Cleaner Production

At the beginning of the Project, regarding to Cleaner Production in Argentina, there was

a plan to establish a Cleaner Production Center, centered by the Secretariat of Environment, but medium & small enterprises did not have an interest on Cleaner Production. So, it was studied what kind of activities could be carried out in a limited time of 3 years. At least, in the matters related to machinery and chemical process, we considered the possibility to make small scale demonstration plants, so that it was settled an objective to spread the Cleaner Production to the maximum number of private companies based on this concept.

On the other hand, it was mentioned in the PDM the assignment of one counterpart of “biologist”, but the actual activities have not been described clearly. So, as result of discussions with INA, it was decided to develop an activity related to “bio-remediation”.

Regarding to the Intermediate Evaluation of the Project, additionally to the discussion described above, we received the following comments regarding to INA and the overview for future projection of Environmental Policy of Argentina.

### \* Structuring the monitoring system for environment

In the future, the Argentina government, through the Secretariat of Environment and Sustainable Development will establish the monitoring system for environment. And it is expected that the monitoring system will be established in many provinces.

Based on this, Monitoring of Contamination Source and the Monitoring of Ambient will be established and operated with the Laboratory Network System.

At this stage, assuming that INA will be operating as Central Laboratory, it will be carried out the “technical capacity building”.

### \* Status of the regulations for Industrial Wastewater Emissions

Regarding to the Industrial Wastewater Emissions, for a future, the INA will establish the standard procedures for chemical analysis with the purpose to be issued to the government. Also, regarding to the Regulations for the Wastewater Emissions, the INA will participate in the proposal to the government, drawing up the determination methods according to the actual conditions. Additionally, INA, depending on the decision of the authorities, would be the nominated as the Institute for Certification in order to carry out all these works.

The Technical Cooperation will be carry out based on this overview, and the establish of the analytical methods and the methods of determination of Wastewater Emission Standards can be positioned in an expected level.

\* Actualization of the policies for the Prevention of the Industrial Contamination by the industry sector

Regarding to the policies for the Prevention of the Industrial Contamination by the industry sector, it is highly influenced by the economic situation but it can be assumed that for the future, policies for the Prevention of Industrial Contamination can be put in effect not only by the big companies but by the medium and small companies.

Under the point of view of the Project, it will be developed the technical cooperation by technology transfer of Cleaner Production in the field of chemical industries and metal plating industries, etc to those companies having intention to introduce these technologies. Assuming the future situation of technology demand by the counterpart, the technology transfer will be done starting from a basic level.

Regarding to the technology for the Prevention of Industrial Contamination, supposing that there will be a increasing necessity of technology diffusion, it will be carried out a study about the actual conditions of the diffusion activities for Cleaner Production. Also, it will be made activities aiming a study for future needs for the technology of Cleaner Production and needs for the training programs by INA.

Based on the above, it was revised the document of PDM during the Intermediate Evaluation stage. Regarding to the Overall Goal, it was established one as a target for few years after the Project, and another one as a Super Goal to be applied for several years later from the first one. (refer to Attachment 5.2)

For the Project, a Joint Coordination Committee Meeting was held after the revision of the document and the explanation of the revision of the PDM were given.

Regarding to the Final Evaluation of the Project, held on September 2004, a new discussion was made about a revision of the PDM. As a part of the discussion, the following comments have been issued: "In this Project, a general revision of the PDM was tried during the Intermediate Stage Evaluation. However, this fact is having a problem of validity considering that –among others reasons– the revision didn't have the sufficient consensus by the related parties. They are not pointed out the details such as the content of the activities or the numerical values of the indicators but, the points are where are the limits for the authorization of revisions of items such as the Project Goal or Overall Goal, as observed in this opportunity, so that it is required to establish a clear indication about the authority <by whom they have been made> and the related procedures. "

Furthermore, based on the opinion saying that:

"Due to the modifications in the Project Name and the role of INA (refer to Notes below), the Project is becoming not aligned to the actual situation. As a result of discussions

among the related parties (members of both, Japan side and Argentina side), it is desirable a revision in order to be adjusted to the actual situation. "the Mission of the Final Evaluation proposed a new Project Name and Overall Goal as follows:

Project Name: "Project for Technical Capacity Development for Industrial Wastewater and waste"

Overall Goal: "Water pollution issues in Argentina will be mitigated."

Once received this result of evaluation, a new proposal of modifications of Project Name, Overall Goal, Indicators, Methods to obtain the data of Indicators have been received from the JICA Head Office. These were proposed to INA and obtained the related approval so that the revision has been made as follows. (refer to Attachment 5.3)

Project Name: "Establishment of Control Capacity for Industrial Wastewater and Waste (Technical Capacity Development for Industrial Wastewater and Waste Pollution Mitigation)"

Overall Goal: "Water pollution issues in Argentina will be mitigated."

Indicators:

- 1) Data of water pollution obtained from monitoring activities at factories and contaminated sites will be accumulated in the Secretariat of Environment and Sustainable Development
- 2) Facts about remediation of polluted sites.
- 3) The number of consultation cases of cleaner production dealt by INA, UTN, INTI, Secretariat of Environment and Sustainable Development, and other related organizations.
- 4) Quality of surface and underground water, and quality of soil and air related to water quality is improved.
- 5) Amount of pollutant emitted from pollution sources such as factories, etc. is reduced.

Methods for obtaining the data of indicators

- 1) Completion reports on developing standard analytical methods and pollution simulation.
- 2) Documents submitted to auditing authority of ISO17025 in system audit and technical audit.
- 3) Financial statements of the INA (balance sheet, profit and loss statement, cash flow sheet.)
- 4) The reports of contracted work for chemical analysis, site evaluation and cleaner production.



### **Note: Transformations of INA**

On 1973, it was established the National Institute of Hydraulic Science and Technology (INCYTH) under the umbrella of the Secretariat of Water Resources, part of Ministry of Public Works. In 1993, it was transferred to the Secretariat of Natural Resources and Human Ambient, and in 1994 it was renamed as National Institute of Water and Environment (INAA) as integration of the National Control of the Prevention of Contamination and the South American Center of the Basel Agreement, becoming the institution for the research-investigation-diffusion of all matters related to protection of water resources and the environment. On the other hand, in 1998 the INAA was assigned as both General Secretary and Technical Secretary of the Executive Committee for the Purification of Matanza-Riachuelo River Basin, which is flowing through Buenos Aires Province, project started thanks to a credit from IDB. (overall budget of USD500 M) In 1999, the Secretariat of Natural Resources and Human Ambient was dismantled and their functions redistributed in: Secretariat of Environment and Sustainable Development of Ministry of Social Development, Sub Secretariat of Water Resources of the Ministry of Planning Public Investment, and Secretariat for Mining of the Ministry of Economic and industry.

The position of the INAA has been located within the Sub-Secretariat of Water Resources but, at this stage, under the point of view of their duties, they are continuing the activities related to study and research of environment.

On 2001, the naming of INAA have been changed from "National Institute of Water and Environment" to "National Institute of Water" so that the section of environment, including the management, personnel, budget have been moved to the Secretariat of Environment and Sustainable Development. The duties of INA becomes the matters related to the studies and research for the use and protection of water resources, and the matters of environment have been removed. The plan assigned on 1998 for the Matanza-Riachuelo have been set back at a stage of 1% of progress, due to the Argentina's economic crisis, originated by the fact that the procurement activities by Argentina's side for USD250M could not achieve their objectives.

Now, the Secretariat of Environment and Sustainable Development is under the Ministry of Health and Environment. INA now belongs to the Under-Secretariat for Water Resources, the Secretariat for Public Works, the Ministry of Federal Planning, Public Investment and Service after it belonged to Under-Secretariat for Water Resources, Secretariat for Public Works, Ministry of Infrastructure and Housing.

Project Name: Project on Establishment of Control Capacity for Industrial Wastewater and Waste

Period: four (4) years

Target area: Greater Buenos Aires

Target Group: Centro de Tecnologia del Uso del Agua (CTUA), Instituto Nacional del Agua (INA)

& Industries & government agencies related to wastewater and wastes.

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><u>Overall Goal :</u></p> <ol style="list-style-type: none"> <li>1. Technology on Cleaner Production will be diffused in the Argentine Republic.</li> <li>2. Measures for improvement of environmental conditions based on evaluation results of actual pollution analysis will be implemented in the Argentine Republic.</li> <li>3. Pollution in the Matanza Riachuelo River Basin will be mitigated.</li> </ol>	<ul style="list-style-type: none"> <li>• The number of companies asking for the consultation to related agencies promoting Cleaner Production is increased.</li> <li>• Definite Projects on improvement of environmental situation are implemented.</li> <li>• The water quality in Matanza Riachuelo is improved</li> </ul>	<ul style="list-style-type: none"> <li>• The record of consultation by related agencies promoting Cleaner Production.</li> <li>• The plan of operation on the improvement of environmental condition and its report.</li> <li>• The report on the water quality in Matanza Riachuelo river.</li> </ul>	<ul style="list-style-type: none"> <li>• No substantial change of the regulation on pollution in the Argentine Republic.</li> <li>• Industries co-operate to implement the transferred technologies.</li> <li>• The polluted situation will not be worse than the time project started.</li> </ul>
<p><u>Project Purpose :</u></p> <p>The Activities (research and diffusion of technology) on control capacity for industrial wastewater and waste will be strengthened in INA.</p>	<ul style="list-style-type: none"> <li>• Reports on each technology transferred are published by 2004.</li> <li>• The number of analytical items is increased.</li> <li>• The manuals on each technology transferred are prepared.</li> <li>• The materials for diffusion of each technology transferred are prepared and distributed to the concerned industries and organizations.</li> <li>• The number of research work on wastewater and waste required by the related government organizations and industries are increased.</li> </ul>	<ul style="list-style-type: none"> <li>• The Plan of Operation</li> <li>• The reports on each technology transferred for internal use</li> <li>• The reports on each technology transferred for external use</li> <li>• Manuals on each technology transferred</li> <li>• The materials for distribution</li> <li>• The record of the distribution of materials</li> <li>• The produced report for the related organizations</li> </ul>	<ul style="list-style-type: none"> <li>• No drastic change in industrial structure and economic situation in the Argentine Republic</li> <li>• Industries comply with the environmental regulation.</li> <li>• The related authorities such as INTI, Environmental Authority, Water Resources, and Federal and Provincial Governments are positive toward the environmental activities.</li> </ul>

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><u>Outputs</u> :</p> <p>1. The administrative system of the project is established.</p>	<ul style="list-style-type: none"> <li>• Appropriate number and specialty of C/P will be allocated according to the plan.</li> <li>• Role and responsibility of persons in charge will be clearly stated.</li> <li>• The results of the regular monitoring (twice a year) are summarized.</li> <li>• The budget is allocated as scheduled.</li> <li>• The evaluation items on each technology transferred are prepared and used.</li> </ul>	<ul style="list-style-type: none"> <li>• The actual list of C/P allocation.</li> <li>• The document on division of duties of persons in charge</li> <li>• PO and the report of implementation.</li> <li>• Monitoring reports</li> <li>• Plan of Budget and the report of its practice.</li> <li>• The evaluation items on each technology transferred</li> </ul>	<ul style="list-style-type: none"> <li>• No considerable changes of the INA structure and members who took the training program, and the division of responsibility.</li> <li>• The C/P personnel who took the technology transfer continue working for INA.</li> <li>• Industries co-operate to the INA's activities.</li> </ul>
<p>2. The equipment and materials are installed, operated and maintained appropriately.</p>	<ul style="list-style-type: none"> <li>• The repair work for the facilities is completed as scheduled.</li> <li>• The arranged equipment and materials are procured in the scheduled period.</li> <li>• The equipment and materials are installed as scheduled.</li> <li>• The C/P can operate and maintain the installed equipment by themselves within a year.</li> <li>• The manual for operation and maintenance of equipment and materials is prepared in a year and used.</li> <li>• The expendable supplies are provided for its needs.</li> </ul>	<ul style="list-style-type: none"> <li>• The record of completion of repair work for the facilities</li> <li>• The plan and record of procurement of machinery and materials.</li> <li>• The record of Actual installation and maintenance of equipment and materials</li> <li>• Record of activities including acquired individual skill level referring to the evaluation items</li> <li>• The manual for operation and maintenance of equipment and materials.</li> <li>• The record of provided expendable supplies</li> </ul>	<ul style="list-style-type: none"> <li>• The Matanza Riachuelo Committee co-operates to INA's activity.</li> </ul>
<p>3. C/P acquire technology related to instrumental/chemical analysis of the polluted water and soil.</p>	<ul style="list-style-type: none"> <li>• The resume for each technology transfer training is prepared before starting training.</li> <li>• The manuals are prepared within three months after completion of each technology transfer.</li> <li>• The 80% of the checklist of the technologies to be transferred is covered by 2003.</li> <li>• C/P acquire the technology of instrumental/chemical analysis at least 80%.</li> <li>• More than 30 of analytical items are added.</li> </ul>	<ul style="list-style-type: none"> <li>• The resume for training</li> <li>• The manual prepared through the technology transfer.</li> <li>• Record of activities including acquired individual skill level referring to the evaluation items</li> <li>• The reports on each technology transferred</li> <li>• The pollution evaluation map</li> </ul>	

<p>4. C/P acquire technology related to evaluation and elucidation on actual polluted conditions.</p>	<ul style="list-style-type: none"> <li>• The resume for each technology transfer training is prepared before starting training.</li> <li>• The manuals are prepared within three months after completion of each technology transfer.</li> <li>• The 80% of the checklist of the technologies to be transferred is covered by 2004.</li> <li>• An actual pollution evaluation map is made.</li> <li>• A report on causes of pollution is completed.</li> </ul>	<ul style="list-style-type: none"> <li>• The resume for training</li> <li>• The manual prepared through the technology transfer.</li> <li>• Record of activities including acquired individual skill level referring to the evaluation items</li> <li>• The reports on each technology transferred</li> <li>• The pollution evaluation map</li> <li>• The report on causes of pollution</li> </ul>	
<p>5. C/P acquire technology related to instrumental/chemical analysis of industrial wastewater and hazardous waste.</p>	<ul style="list-style-type: none"> <li>• The resume for each technology transfer training is prepared before starting training.</li> <li>• The manuals for each technology transfer training are prepared by 2004.</li> <li>• The 80% of the checklist of evaluation manual is covered.</li> <li>• More than 30 of sampling survey are implemented.</li> </ul>	<ul style="list-style-type: none"> <li>• The resume for training</li> <li>• The manual prepared through the technology transfer.</li> <li>• Record of activities including acquired individual skill level referring to the evaluation items</li> <li>• The reports on each technology transferred</li> </ul>	
<p>6. C/P acquire technology related to production processes, including wastewater treatment, for its improvement in chemical and machinery industries.</p>	<ul style="list-style-type: none"> <li>• The resume for each technology transfer training is prepared before starting training.</li> <li>• The manuals for each technology transfer training are prepared by 2005.</li> <li>• The 80% of the checklist of evaluation manual is covered.</li> <li>• A report on survey on actual polluted situation is prepared.</li> <li>• A survey on relation between wastewater and production process of specific companies is conducted and the report is prepared.</li> <li>• The manual of training for cleaner production technology is prepared.</li> <li>• More than 3 of consultations for evaluation / improvement technology to specified industries are implemented.</li> </ul>	<ul style="list-style-type: none"> <li>• The resume for training</li> <li>• The manual prepared through the technology transfer.</li> <li>• Record of activities including acquired individual skill level referring to the evaluation items</li> <li>• The reports on each technology transferred</li> <li>• The survey report on actual environmental impact caused by chemical/machinery industries</li> <li>• The survey report on relation between wastewater and production process of specific companies</li> <li>• The report on consultation</li> </ul>	
<p>7. C/P implement training and technology transfer programs on control capacity for industrial wastewater and waste for diffusion of the technology to outside of the INA.</p>	<ul style="list-style-type: none"> <li>• The training and technology transfer plan is formulated each year.</li> <li>• The materials for distribution are prepared by each program.</li> <li>• Based on the plan, information materials are provided to certain organizations at least twice by 2004.</li> <li>• Seminars are held at least twice as scheduled.</li> </ul>	<ul style="list-style-type: none"> <li>• The training plan</li> <li>• The information materials provided</li> <li>• The record of seminar</li> <li>• The record of information provided.</li> </ul>	

<p><u>Activities :</u></p> <p>1-1. Allocate the appropriate number and specialty of staff based on the plan.  1-2. Confirm the division of duties.  1-3. Formulate the operation plan.  1-4. Formulate and implement monitoring Plan  1-5. Formulate the budgetary plan.  1-6. Record the activities on individual C/P level.  1-7. Prepare evaluation items of each technology to be transferred.</p> <p>2-1. INA prepares facilities for the project use.  2-2. Formulate the preparation plan and procure equipment and materials.  2-3. Implement the installation of machinery, and guide in the operation and maintenance of the equipment and materials.  2-4. Prepare manuals on maintenance of the equipment and materials suits for the situation.</p> <p>3-1. Prepare the resume for technology transfer training.  3-2. Outline the technology of sampling polluted water and soil.  3-3. Outline the technology of instrumental/chemical analysis for hazardous chemical substances in polluted water and soil.  3-4. Introduce the sampling technology for polluted water and soil and prepare the manual.  3-5. Introduce the measurement and instrumental/ chemical analysis technologies for polluted water and soil on site and prepare the manual  3-6. Introduce the measurement and instrumental/ chemical analysis technologies for polluted water and soil in the laboratory and prepare the manual</p> <p>4-1. Prepare the resume for technology transfer training.  4-2. Introduce the theory on evaluation and elucidation on actual polluted conditions.  4-3. Introduce the technology for evaluation and elucidation on actual polluted conditions based on the measurement and instrumental/ chemical analysis results, and prepares the manual.</p> <p>5-1. Prepare the resume for technology transfer training.  5-2. Outline the analytical and treatment technology on industrial wastewater and hazardous waste.  5-3. Introduce the technology for sampling and instrumental/ chemical analysis of industrial wastewater and hazardous waste, and prepare the manual.</p> <p>6-1. Prepare the resume for technology transfer training.  6-2. Investigate actual situations of chemical and machinery industries having serious environmental affects in Matanza Riachuelo River Basin and prepare the report.  6-3. Outline production processes and wastewater treatment in the particular chemical and machinery industries.</p>	<p style="text-align: center;"><u>Inputs</u></p> <p><u>Argentine Side :</u></p> <p>1. Allocation of Budget: 1,500 thousand dollars.  2. Allocation of Counterpart Personnel and Supporting Staff  Environmental Engineering: 24.0 M/M  Senior Sanitary Engineer: 24.0 M/M  Senior Chemical Engineer: 38.0 M/M  Chemical Engineer * 2: 96.0 M/M  Junior Chemical Engineer * 2: 96.0 M/M  Analytical Chemistry * 2: 96.0 M/M  Biologist: 48 M/M  Chemistry Technologist *2: 96.0 M/M</p> <p>Total: 12 counterpart personnel, 518.0 M/M</p> <p>3. Provide Building and Facilities  4. Provide Machinery and Equipment  5. Privilege toward Japanese Experts</p> <p><u>Japanese Side :</u></p> <p>1. Dispatch of Study Team</p> <p>2. Dispatch Experts  ( long-term experts )  Chief Advisor: 48.0 M/M  Coordinator,: 48.0 M/M  Chemical Analysis : 36.0 M/M  Pollutant Evaluation: 36.0 M/M  Cleaner Production (chemical industry): 36.0 M/M  Cleaner Production (machinery industry): 36.0 M/M</p> <p>Total: 6 experts, 240.0 M/M</p> <p>( short-term experts )  1<sup>st</sup> year: Cleaner Production (chemical industry)  Cleaner Production (machinery industry)</p> <p>Short-term experts on specific field will be dispatched in accordance with necessity</p> <p>3. Training of Counterpart Personnel in Japan  One to three trainee in a year</p> <p>4. Provision of Machinery and Equipment  See attached lists</p>	<ul style="list-style-type: none"> <li>• The C/P personnel who take the training program will not be changed.</li> <li>• Transportation and clearance of the procured machinery and materials will not be delayed significantly.</li> <li>• Industries and related organizations co-operate to the activities of INA.</li> </ul>
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<p>6-4. Introduce the evaluation and improvement technology for the processes in the particular chemical and machinery industries based on the results of wastewater analysis and prepare the manual.</p> <p>6-5. Introduce the evaluation and improvement technology for the wastewater treatment of the particular chemical and machinery industries based on the results of wastewater analysis and prepare the manual.</p> <p>7-1. Plan the training program targeting industries etc.</p> <p>7-2. Prepare materials for training program and technology transfer.</p> <p>7-3. Give at least two seminars for technology transfer targeting industries and related government agencies (See attached sheets for tentative plan).</p> <p>7-4. Distribute information, such as manuals, bulletins and so on, and give one-day workshop for the diffusion of information.</p>		<p><u>Pre-conditions :</u></p> <p>The agreement on the content of the project between government of the Argentine Republic and Japan.</p>
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Project Name: Project on Establishment of Control Capacity for Industrial Wastewater and Waste

Period: four (4) years

Target area: Argentine Republic

Target Group: Centro de Tecnologia del Uso del Agua (CTUA), Instituto Nacional del Agua (INA)

also the industry and government agencies related to wastewater and wastes.

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><u>Super Goal :</u>                      1. Environmental pollution caused by industrial and other activities is considerably reduced, due to establishment of a national environmental monitoring system, implementation of pollution abatement measures taken in by the industry, and dissemination of cleaner production and effluent treatment technologies in the Argentine Republic.</p>	<ul style="list-style-type: none"> <li>• Quality of surface and underground water, soil, and air is improved.</li> <li>• Amount of pollutant emitted from factories, etc. is reduced.</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental monitoring data on the quantity of polluting materials emitted from related factories and from other monitoring activities.</li> </ul>	
<p><u>Overall Goal :</u>                      1. Under national environmental monitoring system established in some years, information of pollution in terms of chemical analysis for water, soil and air is accumulated, which leads to clarification of situation of contamination in the Argentine Republic.                       2. Remediation of polluted site is implemented, as a result of polluted site evaluation throughout the whole country.                       3. Cleaner Production technology is disseminated to the industries in the whole country.                       4. INA becomes a local and regional center for human resources development in environmental technology.</p>	<ul style="list-style-type: none"> <li>• Data of situation of contamination and pollutants from monitoring activities in factories and contaminated sites will be accumulated.</li> <li>• Facts about remediation of polluted sites will be accumulated.</li> <li>• The number of consultation cases to Cleaner Production promoting agencies is increased.</li> </ul>	<ul style="list-style-type: none"> <li>• The report on the water and air quality in Argentina.</li> <li>• Completion reports and remediation plans.</li> <li>• The record of consultation cases by Cleaner Production promoting agencies.</li> </ul>	<ul style="list-style-type: none"> <li>• Argentine Republic establishes a national environmental monitoring system constructing laboratory network with INA as the central laboratory. The Secretariat of Environment and Sustainable Development shall play a key role in policy building.</li> <li>• Argentine Republic introduces effective measures for industrial pollution regulations, such as charging penalty to polluters and supporting investment of pollution abatement devices, and so on.</li> <li>• The industries keep compliance with environmental protection policy through implementing technology of Cleaner Production and End of Pipe (EOP) treatment technology.</li> <li>• There are no drastic negative changes in the economic situation in the Argentine Republic.</li> </ul>

<p><u>Project Purpose</u> :</p> <p>INA can fully utilize technologies of chemical analysis and site evaluation, and develops introductory level of cleaner production technology. INA becomes eligible in position as the central laboratory in future environmental monitoring system (lab network). The INA becomes professional in technical services of pollution prevention, i.e., a reference laboratory in chemical analysis, a research institute in polluted site evaluation, and a consultant for cleaner production.</p>	<ul style="list-style-type: none"> <li>• Capability of chemical analysis on developing standard analytical methods of environmental parameters, and pollution simulation to correlate pollution source and effects.</li> <li>• Capability of quality assurance in chemical analysis proved by ISO 17025.</li> <li>• Capability of laboratory management in the system of Lab and business management.</li> <li>• The number of jobs related to chemical analysis, site evaluation and cleaner production from governments and industries will be increased.</li> </ul>	<ul style="list-style-type: none"> <li>• Completion reports on developing standard analytical methods and pollution simulation.</li> <li>• Documents submitted to auditing authority of ISO17025 in system audit and technical audit.</li> <li>• Financial statements of the INA (balance sheet, profit and loss statement, cash flow sheet.)</li> <li>• The reports of contracted work for chemical analysis, site evaluation and cleaner production.</li> </ul>	<ul style="list-style-type: none"> <li>• The Secretariat of Environment and Sustainable Development prepares and implements the policy establishing national environmental monitoring system. INA's role as environmental reference laboratory is acknowledged by the Government.</li> <li>• There are no substantial change, but there should be improving tendency in the enforcement of regulations on industrial pollution in the Argentine Republic.</li> <li>• There are no more substantial negative change in the economic situation in the Argentine Republic.</li> <li>• Situation of contamination becomes clearer and site remediation is promoted in the Argentine Republic.</li> <li>• INA can establish cooperative relation with Ministry of Production and Union of Industry in terms of technical service of industrial pollution abatement .</li> </ul>
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Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><u>Outputs</u> :</p> <p>1. The administrative system of the project is established.</p>	<ul style="list-style-type: none"> <li>• Appropriate number of C/P will be allocated according to their specialty and plan.</li> <li>• Role and responsibility of persons in charge will be clearly stated.</li> <li>• Activity plans of operation will be made.</li> <li>• The results of regular monitoring (twice a year) are summarized.</li> <li>• The budget is allocated as scheduled.</li> <li>• The list of evaluation items, which is used for evaluating the degree of technology transfer, is made and is being used.</li> </ul>	<ul style="list-style-type: none"> <li>• The actual list of C/P allocation.</li> <li>• The document on duties of persons in charge</li> <li>• PO and the report of implementation.</li> <li>• Monitoring reports of technical transfer</li> <li>• Plan of budget and the report of its practice.</li> <li>• The evaluation items on each transferred technology.</li> </ul>	<ul style="list-style-type: none"> <li>• There are no substantial changes in the INA structure and key members of INA.</li> <li>• The C/P personnel that are trained during the Project period continue working for INA.</li> <li>• Industries cooperate with INA's activities.</li> <li>• Related organizations understand, support and cooperate with INA as a technical service institute in the field of pollution prevention</li> </ul>



<p>2. Equipment and materials are installed, operated and maintained appropriately.</p>	<ul style="list-style-type: none"> <li>• The repair work for the facilities is completed as scheduled.</li> <li>• The arranged equipment and materials are procured within the scheduled period.</li> <li>• The equipment and materials are installed as scheduled.</li> <li>• The C/P can operate and maintain the installed equipment by themselves within a year.</li> <li>• The manual for operation and maintenance of equipment and materials is prepared in a year and used practically.</li> <li>• The expendable supplies are provided for its needs.</li> </ul>	<ul style="list-style-type: none"> <li>• The record of completion of repair work for the facilities</li> <li>• The plan and record of procurement of machinery and materials.</li> <li>• The record of actual installation and maintenance of equipment and materials</li> <li>• The record of activities including acquired individual skill level referring to the evaluation items</li> <li>• The manual for operation and maintenance of equipment and materials.</li> <li>• The record of provided expendable supplies</li> </ul>
<p>3. C/P acquire technology related to instrumental/chemical analysis for analyzing polluted water, soil and air. Counterpart personnel also acquire creativity for developing standard methods of analysis on environmental parameter, starting with PCB and heavy metals. Thus, the INA is able to assist the government in forming standard methods of analysis on environmental parameters and actually applicable regulation of industrial effluent.</p>	<ul style="list-style-type: none"> <li>• Completion reports are prepared by the C/P on development of standard analytical method of environmental parameters.</li> <li>• The training material for technology transfer is prepared before starting training.</li> <li>• The technologies of more than 25 items for operating equipment and 55 items for chemical analysis are acquired by two or more C/P in each item before the end of the project.</li> </ul>	<ul style="list-style-type: none"> <li>• Completion reports on development of standard analytical methods.</li> <li>• The training material for technology transfer.</li> <li>• The project activity report.</li> </ul>

<p>4. C/P acquire technology related to polluted site evaluation and acquire some level of remediation technology of polluted sites. Biodegradation technology is included in capacity building target in order for remediation of polluted sites.</p>	<ul style="list-style-type: none"> <li>• The training material of site evaluation for technology transfer is prepared before starting training.</li> <li>• More than 10 manuals for each technology transferred are prepared before the end of the project.</li> <li>• C/P attain level 3 or more in all 25 items of the evaluation list and level 4 or more for 60 % of all of the items in the evaluation list before the end of the project.</li> <li>• More than 15 reports on evaluation and elucidation on actual polluted site are completed.</li> <li>• The report on bioremediation is completed.</li> </ul>	<ul style="list-style-type: none"> <li>• The training material for technology transfer.</li> <li>• The technical manual.</li> <li>• The project activity report.</li> <li>• The report on evaluation on actual polluted sites</li> <li>• The report of bioremediation</li> </ul>	
<p>5. C/P acquire introductory level of technology related to cleaner production in chemical and machinery industries.</p>	<ul style="list-style-type: none"> <li>• The training materials for cleaner production for technology transfer training are prepared before starting training.</li> <li>• More than 4 manuals for transferred technology are prepared before the end of the project.</li> <li>• C/P attain level 3 or more in all 9 items of the evaluation list for the chemical field, level 3 in 13 items for mechanical field, and level 4 or more for 40 % of all of the items before the end of the project.</li> <li>• More than 10 consulting works for cleaner production are completed.</li> <li>• The cleaner production technology is introduced to 2 or more organizations and/or companies.</li> </ul>	<ul style="list-style-type: none"> <li>• The training material for technology transfer.</li> <li>• The technical manual.</li> <li>• The project activity report.</li> <li>• The reports on each technology transferred</li> <li>• The reports of the results of cleaner production</li> </ul>	

<p>6. C/P builds capacity to implement training and technology transfer programs, establish public awareness towards pollution, and diffuse pollution prevention technologies (chemical analysis, site assessment, and cleaner production) to industries and other governmental organizations.</p>	<ul style="list-style-type: none"> <li>• A long-term plan for training and technology transfer program is formulated.</li> <li>• Based on the plan, information materials are provided to certain organizations at least twice by 2004.</li> <li>• Seminars are held at least twice as scheduled.</li> <li>• Public awareness is heightened as an effect of reports, brochures, newspapers, and internet newsletters.</li> <li>• The situation of diffusion of cleaner production activities is clarified in Argentine Republic.</li> </ul>	<ul style="list-style-type: none"> <li>• The future long-term training plan</li> <li>• The record of seminar</li> <li>• Record of Information provided (reports, newspapers, newsletters, etc.)</li> <li>• Database of diffusion of cleaner production activities.</li> </ul>	
<p>7. The INA establishes enough level of quality assurance in chemical analysis technology through applying to ISO17025, and also strengthens its laboratory management system that includes financial and business management.</p>	<ul style="list-style-type: none"> <li>• The process and results of audit by authority of ISO17025.</li> <li>• The process and situation of financial management and business management.</li> </ul>	<ul style="list-style-type: none"> <li>• Documents submitted to auditing authority of ISO17025 in system audit and technical audit.</li> <li>• Financial statements of the INA (balance sheet, profit and loss statement, cash flow sheet)</li> <li>• Business plan document of the INA including billing system for technical services issued to clients.</li> </ul>	

Project Name: Project for Technical Capacity Development for Industrial Wastewater and Waste Pollution Mitigation

Period: four (4) years

Target area: Argentine Republic

Target Group: Centro de Tecnología del Uso del Agua (CTUA), Instituto Nacional del Agua (INA) also the industry and government agencies related to wastewater and wastes.

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><u>Overall Goal :</u> Water pollution issues in Argentina will be mitigated.</p>	<ol style="list-style-type: none"> <li>1) Data of water pollution obtained from monitoring activities at factories and contaminated sites will be accumulated in the Secretariat of Environment and Sustainable Development.</li> <li>2) Facts about remediation of polluted sites.</li> <li>3) The number of consultation cases of cleaner production dealt by INA, UTN, INTI, Secretariat of Environment and Sustainable Development, and other related organizations.</li> <li>4) Quality of surface and underground water, and quality of soil and air related to water quality is improved.</li> <li>5) Amount of pollutant emitted from pollution sources such as factories, etc. is reduced.</li> </ol>	<ol style="list-style-type: none"> <li>1) Environmental monitoring data from the sources of related factories and other relevant monitoring activities.</li> <li>2) The report on the water and air quality in Argentina.</li> <li>3) Reports and plans on remediation of polluted sites.</li> <li>4) The record of consultation cases dealt by cleaner production promoting agencies.</li> </ol>	<ol style="list-style-type: none"> <li>1) Argentine Republic introduces effective measures for industrial pollution regulations, such as charging penalty to polluters and supporting investment of pollution abatement devices, etc..</li> <li>2) The industries keep compliance with environmental protection policy through implementing technology of Cleaner Production and End of Pipe (EOP) treatment technology.</li> <li>3) There are no drastic negative changes in the economic situation in the Argentine Republic.</li> </ol>
<p><u>Project Purpose :</u> INA can fully utilize technologies of chemical analysis and site evaluation, and develops introductory level of cleaner production technology. The INA becomes capable to provide technical services of pollution prevention, i.e., a reference laboratory in chemical analysis, a research institute in polluted site evaluation, and a consultant for cleaner production.</p>	<ul style="list-style-type: none"> <li>• Capability of chemical analysis on developing standard analytical methods of environmental parameters, and pollution simulation to correlate pollution source and effects.</li> <li>• Capability of quality assurance in chemical analysis proved by ISO 17025.</li> <li>• Capability of laboratory management in the system of Lab and business management.</li> <li>• The number of jobs related to chemical analysis, site evaluation and cleaner production from governments and industries will be increased.</li> </ul>	<ul style="list-style-type: none"> <li>• Completion reports on developing standard analytical methods and pollution simulation.</li> <li>• Documents submitted to auditing authority of ISO17025 in system audit and technical audit.</li> <li>• Financial statements of the INA (balance sheet, profit and loss statement, cash flow sheet. )</li> <li>• The reports of contracted work for chemical analysis, site evaluation and cleaner production.</li> </ul>	<ol style="list-style-type: none"> <li>1) There are no substantial change, but there should be improving tendency in the enforcement of regulations on industrial pollution in the Argentine Republic.</li> <li>2) There are no more substantial negative change in the economic situation in the Argentine Republic.</li> <li>3) Situation of contamination becomes clearer and site remediation is promoted in the Argentine Republic.</li> <li>4) INA can establish cooperative relation with the Ministry of Production and Union of Industry in terms of technical service of industrial pollution abatement .</li> </ol>

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><i>Outputs :</i> 1. The administrative system of the project is established.</p>	<ul style="list-style-type: none"> <li>• Appropriate number of C/P will be allocated according to their specialty and plan.</li> <li>• Role and responsibility of persons in charge will be clearly stated.</li> <li>• Activity plans of operation will be made.</li> <li>• The results of regular monitoring (twice a year) are summarized.</li> <li>• The budget is allocated as scheduled.</li> <li>• The list of evaluation items, which is used for evaluating the degree of technology transfer, is made and is being used.</li> </ul>	<ul style="list-style-type: none"> <li>• The actual list of C/P allocation.</li> <li>• The document on duties of persons in charge.</li> <li>• PO and the report of implementation.</li> <li>• Monitoring reports of technical transfer</li> <li>• Plan of budget and the report of its practice.</li> <li>• The evaluation items on each transferred technology.</li> </ul>	<ul style="list-style-type: none"> <li>• There are no substantial changes in the INA structure and key members of INA.</li> <li>• The C/P personnel that are trained during the Project period continue working for INA.</li> <li>• Industries cooperate with INA's activities.</li> <li>• Related organizations understand, support and cooperate with INA as a technical service institute in the field of pollution prevention.</li> </ul>
<p>2. Equipment and materials are installed, operated and maintained appropriately.</p>	<ul style="list-style-type: none"> <li>• The repair work for the facilities is completed as scheduled.</li> <li>• The arranged equipment and materials are procured within the scheduled period.</li> <li>• The equipment and materials are installed as scheduled.</li> <li>• The C/P can operate and maintain the installed equipment by themselves within a year.</li> <li>• The manual for operation and maintenance of equipment and materials is prepared in a year and used practically.</li> <li>• The expendable supplies are provided for its needs.</li> </ul>	<ul style="list-style-type: none"> <li>• The record of completion of repair work for the facilities.</li> <li>• The plan and record of procurement of machinery and materials.</li> <li>• The record of actual installation and maintenance of equipment and materials.</li> <li>• The record of activities including acquired individual skill level referring to the evaluation items.</li> <li>• The manual for operation and maintenance of equipment and materials.</li> <li>• The record of provided expendable supplies.</li> </ul>	
<p>3. C/P acquire technology related to instrumental/chemical analysis for analyzing polluted water, soil and air. Counterpart personnel also acquire creativity for developing standard methods of analysis on environmental parameter, starting with PCB and heavy metals. Thus, the INA is able to assist the government in forming standard methods of analysis on environmental parameters and actually applicable regulation of industrial effluent.</p>	<ul style="list-style-type: none"> <li>• Completion reports are prepared by the C/P on development of standard analytical method of environmental parameters and on pollution simulation and mathematical modeling.</li> <li>• The training material for technology transfer is prepared before starting training.</li> <li>• The technologies of more than 25 items for operating equipment and 55 items for chemical analysis are acquired by two or more C/P in each item before the end of the project.</li> </ul>	<ul style="list-style-type: none"> <li>• Completion reports on development of standard analytical methods and pollution simulation.</li> <li>• The training material for technology transfer.</li> <li>• The project activity report.</li> </ul>	

<p>4. C/P acquire technology related to polluted site evaluation and acquire some level of remediation technology of polluted sites. Biodegradation technology is included in capacity building target in order for remediation of polluted sites.</p>	<ul style="list-style-type: none"> <li>· The training material of site evaluation for technology transfer is prepared before starting training.</li> <li>· More than 10 manuals for each technology transferred are prepared before the end of the project.</li> <li>· C/P attain level 3 or more in all 25 items of the evaluation list and level 4 or more for 60 % of all of the items in the evaluation list before the end of the project.</li> <li>· More than 15 reports on evaluation and elucidation on actual polluted site are completed.</li> <li>· The report on bioremediation is completed.</li> </ul>	<ul style="list-style-type: none"> <li>· The training material for technology transfer.</li> <li>· The technical manual.</li> <li>· The project activity report.</li> <li>· The report on evaluation on actual polluted sites.</li> <li>· The report of bioremediation.</li> </ul>
<p>5. C/P acquire introductory level of technology related to cleaner production in chemical and machinery industries.</p>	<ul style="list-style-type: none"> <li>· The training materials for cleaner production for technology transfer training are prepared before starting training.</li> <li>· More than 4 manuals for transferred technology are prepared before the end of the project.</li> <li>· C/P attain level 3 or more in all 9 items of the evaluation list for the chemical field, level 3 in 13 items for mechanical field, and level 4 or more for 40 % of all of the items before the end of the project.</li> <li>· More than 10 consulting works for cleaner production are completed.</li> <li>· The cleaner production technology is introduced to 2 or more organizations and/or companies.</li> </ul>	<ul style="list-style-type: none"> <li>· The training material for technology transfer.</li> <li>· The technical manual.</li> <li>· The project activity report.</li> <li>· The reports on each technology transferred.</li> <li>· The reports of the results of cleaner production.</li> </ul>
<p>6. C/P builds capacity to implement training and technology transfer programs, establish public awareness towards pollution, and diffuse pollution prevention technologies (chemical analysis, site assessment, and cleaner production) to industries and other governmental organizations.</p>	<ul style="list-style-type: none"> <li>· A long-term plan for training and technology transfer program is formulated.</li> <li>· Based on the plan, information materials are provided to certain organizations at least twice by 2004.</li> <li>· Seminars are held at least twice as scheduled.</li> <li>· Public awareness is heightened as an effect of reports, brochures, newspapers, and internet newsletters.</li> <li>· The situation of diffusion of cleaner production activities is clarified in Argentine Republic.</li> </ul>	<ul style="list-style-type: none"> <li>· The future long-term training plan</li> <li>· The record of seminar.</li> <li>· Record of Information provided (reports, newspapers, newsletters, etc.)</li> <li>· Database of diffusion of cleaner production activities.</li> </ul>

<p>7. The INA establishes enough level of quality assurance in chemical analysis technology through applying to ISO17025, and also strengthens its laboratory management system that includes financial and business management.</p>	<ul style="list-style-type: none"> <li>• The process and results of audit by authority of ISO17025.</li> <li>• The process and situation of financial management and business management.</li> </ul>	<ul style="list-style-type: none"> <li>• Documents submitted to auditing authority of ISO17025 in system audit and technical audit.</li> <li>• Financial statements of the INA (balance sheet, profit and loss statement, cash flow sheet. )</li> <li>• Business plan document of the INA including billing system for technical services issued to clients.</li> </ul>	
<p><u>Activities :</u></p> <p>1-1. Allocate the appropriate number and specialty of staff based on the plan.          1-2. Confirm the division of duties.          1-3. Formulate the operation plan.          1-4. Formulate and implement monitoring plan          1-5. Formulate the budgetary plan.          1-6. Record the activities on individual C/P level.          1-7. Prepare evaluation items of each technology to be transferred.</p> <p>2-1. INA prepares facilities for the project use.          2-2. Formulate the preparation plan and procure equipment and materials.          2-3. Implement the installation of machinery.          2-4. Guide in the operation and maintenance of the equipment and materials.          2-5. Prepare manuals on maintenance of the equipment and materials suits for the situation.          2-6. Manage the expenditure for the equipment and materials.</p> <p>3-1. Prepare the texts for technology transfer of instrumental/chemical analysis for polluted water, soil and air.          3-2. Prepare the manual for operation of equipment and materials.          3-3. Prepare the manual for instrumental/chemical analysis for polluted water, soil and air.          3-4. Introduce the technical outline of instrumental/chemical analysis and technologies for operation of analytical equipment.          3-5. Develop the standard analytical method for PCB and heavy metals.</p>	<p style="text-align: center;"><u>Inputs:</u></p> <p><u>Argentine Side :</u></p> <p>1. Allocation of Budget: 1,500 thousand dollars.          2. Allocation of Counterpart Personnel and Supporting Staff          Environmental Engineering: 24.0 M/M          Sanitary Engineer: 24.0 M/M          Chemical Engineer: 38.0 M/M          Chemical Engineer * 2: 96.0 M/M          Chemical Engineer * 2: 96.0 M/M          Analytical Chemistry * 2: 96.0 M/M          Biologist: 48 M/M          Chemistry Technologist *2: 96.0 M/M          Total: 12 counterpart personnel, 518.0 M/M</p> <p>3. Provide Building and Facilities          4. Provide Machinery and Equipment          5. Privilege toward Japanese Experts</p> <p><u>Japanese Side :</u></p> <p>1. Dispatch of Study Team          Dispatch of Interim Evaluation Team          2. Dispatch Experts          (long-term experts )          Chief Advisor: 48.0 M/M          Coordinator: 48.0 M/M          Chemical Analysis: 36.0 M/M          Pollutant Evaluation: 36.0 M/M          Cleaner Production (chemical industry): 36.0 M/M          Cleaner Production (machinery industry): 36.0 M/M</p>	<ul style="list-style-type: none"> <li>• The C/P personnel who take the training program will not be changed.</li> <li>• Transportation and clearance of the procured machinery and materials will not be delayed significantly.</li> <li>• Industries and related organizations co-operate to the activities of INA.</li> </ul>	

<p>4-1. Prepare the text for technology transfer of evaluation and elucidation of contaminated site.                  4-2. Prepare the manual for site evaluation technologies.                  4-3. Introduce the technology for designing the evaluation and elucidation on actual polluted conditions.                  4-4 Prepare the reports on actual polluted sites.                  4-5 Introduce biodegradation technologies for cleaning polluted sites and prepare the reports.</p> <p>5-1. Prepare the text for technology transfer of cleaner production.                  5-2 Prepare the manual for cleaner production.                  5-3. Introduce the theory on the cleaner production in the chemical and machinery industries.                  5-4 Introduce the cleaner production technology in the particular chemical and machinery industries, and prepare the report.                  5-5 Introduce the design concept of the cleaner production in the particular chemical and machinery industries, and prepare the report.</p> <p>6-1. Investigate the contaminated condition of Matanza-Riachuelo basin and prepare the report.                  6-2. Investigate the diffusive activities for cleaner production and prepare the report.                  6-3. Have seminar for technology transfer targeting industries and related government agencies                  6-4 Distribute information, such as manuals, bulletins, newsletters, newspapers and so on for the diffusion of information.                  6-5 Establish the long term plan of training and technology transfer for the diffusion of information.</p> <p>7-1. INA strengthens its laboratory management system through applying to ISO170025.                  7-2. INA establishes enough level of financial and business management.</p>	<p>Total: 6 experts, 240.0 M/M</p> <p>(short-term experts )                  1st year: Cleaner Production (chemical industry)                  Cleaner Production (machinery industry)</p> <p>Short-term experts on specific field will be dispatched in accordance with necessity.</p> <p>3. Training of Counterpart Personnel in Japan</p> <p>Three to four trainees in a year</p> <p>4. Provision of Machinery and Equipment                  See attached lists</p>	<p><u>Pre-conditions</u> :</p> <p>The agreement on the content of the project between government of the Argentine Republic and Japan.</p>
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## 6.RECORD OF JOINT COORDINATION MEETING

### 6 – 1 1st JOINT COORDINATION MEETING

Date: July 07, 2001

#### **1st JOINT COORDINATION MEETING MEMORANDUM (records)**

Place:	National Institute of Water (INA)
Time	
10:00 – 10:10	Registration
10:10 – 10:45	INA's President (Mr. Eng Adolfo CERIONI) Declaration of opening of the Joint Coordination Meeting Confirmation of the role of the Joint Coordination Meeting
10:45 – 11:10	JICA Chief Advisor (Dr. Michio Kuriyagawa) Presentation of the methodology of Project Design Matrix applied by JICA
11:10 – 12:00	INA – Director of the Technology Center for the Use of Water (Eng. Carlos A. Gomez) Brief Explanation of the Project INA – Technology Center for the Use of Water – Responsible of the Technological Application Program (Eng. Jorge Duran) Explanation about the progress of the Project
12:00 – 12:20	Questions and Answers
12:20 – 12:30	INA's President Declaration of the closing of the Joint Coordination Meeting
12:30 – 13:00	Visit to the facilities of the Project
13:00 –	Lunch (hosted by INA)

	Name	Position
1	Eng. Adolfo CERIONI	President of National Institute of Water
2	Dr.Fernando LLERENA	Ministry of Foreign Affairs – Director of Bilateral Cooperation Office
3	Lic.Andrea FORNASARI	Ministry of Foreign Affairs – Bilateral Cooperation Office – Japan Sector
4	Eng.Victor POCHAT	Ministry of Infrastructure and Housing Director of Water Resources Policy, Coordination and Development Office
5	Eng. Alberto CALAMANTE	Member of Executive Committee for Environmental Management and Handling of Matanza-Riachuelo Basin
6	Eng. Raul Antonio LOPARDO	National Institute of Water- G. Manager of Programs and Projects
7	Eng. Carlos A. GOMEZ	National Institute of Water- Director of the Technology Center for the Use of Water
8	Eng. Jorge DURÁN	National Institute of Water- Responsible of the Program of Technological use of Water
9	Eng. María F. LOPOLITO	National Institute of Water- Counterpart
10	Eng. Luis HIGA	National Institute of Water- Counterpart
11	Eng. Oscar LLANOS	National Institute of Water- Secretary
12	Mr. Takashi HONDA	Japan Embassy in Argentina - Minister
13	Dr. Masahiro KUMOMI	JICA Argentina Office – Chief Representative
14	Mr. Juan Carlos YAMAMOTO	JICA Argentina Office
15	Dr. Michio KURIYAGAWA	JICA- Chief Advisor
16	Dr. Toshio SAKAI	JICA- Expert of Chemical Analysis
17	Dr. Masatoshi NAGATA	JICA- Expert of Contamination Evaluation
18	Mr. Kenji SAKAIRI	JICA- Project Coordinator

## **MINUTE OF MEETING OF THE FIRST JOINT COORDINATION**

**JULY 18 2001**

At the National Institute of Water, Presidency building located inside INA's premises, at Ezeiza-Canuelas Highway, Jorge Newbery branch road km 1.5, on July 18 2001 10:00AM, with the attendance and representation of:

Ministry of Infrastructure and Housing ,

Eng. Victor POCHAT

Director of Water Resources Policy, Coordination and Development Office,

Japan Embassy in Argentina,

Mr. Takashi HONDA

Minister

Ministry of Foreign Affairs,

Dr. Fernando LLERENA

Director of Bilateral Cooperation Office,

Lic. Andrea FORNASARI

Bilateral Cooperation Office – Japan Sector

Executive Committee for Environmental Management and Handling of Matanza-Riachuelo Basin,

Eng. Alberto CALAMANTE

National Institute of Water,

Eng. Adolfo CERIONI - President of the Institute

Eng. Raul Antonio LOPARDO - Programs and Projects General Manager

Eng. Carlos A. GOMEZ - Director of the Technology Center for the Use of Water (CTUA), and responsible of this Project,

Eng. Jorge Duran - Second Responsible of the Program of Technological use of Water

Eng. Maria F. LOPOLITO

Eng. Luis HIGA

Both assigned personnel to the Project, (counterparts)

Eng. Oscar LLANOS - Member of the CTUA,

Japan International Cooperation Agency

Mr. Masahiro KUMOMI – JICA Argentina Chief Representative

Mr. Juan Carlos YAMAMOTO – JICA Argentina,

Dr. Michio KURIYAGAWA

Mr. Toshio SAKAIRI

Dr. Masatoshi NAGATA

Mr. Kenji SAKAIRI

It is opened the First Joint Coordination Meeting related to the INA-JICA Agreement.

At the 10:05AM, Mr. Cerioni delivered the speech, pointing out the importance of the Project of Sustainable Technologies for the Prevention of the Contamination. He also commented the roles of the INA and the projects carried out <by INA> on the year 2000, the institutional mapping of INA, the agreements signed on the last 10 years and other thematic and institutional programs going on.

At 10:40AM, Dr. Kuriyagawa delivered the speech to explain the objectives of the Project.

He explained about the control system for the wastewater and solid waste from the industry, the external and internal conditions, objectives, products and other topics referred to Clean Production. Dr. Kuriyagawa commented that, JICA is interested to develop, not only the technology transference but also joint researches with INA, so that the results can be issued at international level.

At 10:55AM, Mr. Gomez delivered the speech to explain the objectives of the Clean Production technology, the main applicable regulations for the generation of contaminants, explaining that according to the new Argentina's Constitution, Article 44, the repair of the damages caused to the environment are mandatory. After that, he mentioned about the contamination flow contributed by different types of industries, the problem of the solid waste landfills, the settlement or infrastructure abandonment of some industries, and finally about the schedule of the activities. He made a statement saying that, in order to go ahead with the actions, it was selected the Matanza-Riachuelo basin.

At 11:45AM, Mr. Duran delivered the speech to explain the contributions by each party to the Project. He explained the details about the equipment provided by JICA for the laboratory, and the construction works inside building for reforms and enlargement of the facilities inside the CTUA building and the new personnel to be incorporated.

At 11:45AM Secretary Mr Llerena delivered the speech, to express the gratitude to the parties for the participation to the Project, and their collaboration aiming the successful end of the Project.

At 11:50AM, Mr. Kumomi delivered the speech to express their hope that any further problem in the future can be solved through a good communication, despite the personnel involved in the Project are from so different countries.

At 11:55AM, Mr. Cerioni delivered the speech to announce that for the opening ceremony of the new laboratory, it will be invited the Argentina President, so that his presence will remark the importance of this project. So, he declared the closing of the Joint Meeting and the records of this memorandum are finished.

## 6 – 2 THE 2st JOINT COORDINATION MEETING

Date: November 28, 2003

### **The 2nd Joint Coordination Meeting – Memorandum**

Place:	National Institute of Water
10:00 – 10:10	Reception of participants
10:10 – 10:20	President of National Institute of Water Mr.Oscar Valentin LICO. Declaration of opening of the Joint Meeting
10:20 – 10:50	National Institute of Water, responsible for the Program of Technology of Water Control, Mr Jorge DURAN. Explanation about the progress of the Project.
10:50 – 11:00	Questions and Answers
11:00 – 11:15	JICA Chief Advisor (Dr Michio Kuriyagawa) Explanation for the revised version of PDM.
11:15 – 12:00	National Institute of Water, Director of the Center of Technology of the Use of Water (Mr Carlos A. GOMEZ) <ul style="list-style-type: none"><li>- Measures for the comments from the Mission of Intermediate Evaluation of the Project.</li><li>- Environmental Study of the Matanza-Riachuelo Basis system.</li></ul>
12:00 – 12:45	Discussions
12:45:	President of National Institute of Water. Declaration of the closing of the Joint Meeting.

## The 2nd Joint Coordination Meeting, Attendance List

	Member	Title	Name	Position
1	x	Ing.	AMICARELLI, Hugo Pablo	Ministry of Public Services and Infraestructure, Secretary of Public Works
2	x	Ing.	LICO, Oscar Valentín	President of the National Institute of Water
3	x	Cdor.	DEGANO, Daniel Osvaldo	Administrative Secretary of the Executive Committee of Matanza-Riachuelo Basin Environmental Control
4	x	Dr.	SAVINO, Atilio	Ministry of Health, Secretary of the Sustainable Development of Environment
5		Ing.	LOPARDO, Raúl Antonio	National Institute of Water, Program Manager
6	x	Sra.	CAFIERO, Ana Luisa	Ministry of Foreign Affairs, Director of the International Cooperation Dept.
7		Sr.	RIVOLTA, Martín	Ministry of Foreign Affairs, Dept. of International Cooperation, Manager
8		Sra.	DE FORNASARI, Andrea	Ministry of Foreign Affairs, Coordinator for Japan
9		Ing.	CARBAJAL, Ariel G.	Ministry of Social Development, Secretariat of Environment Maintenance, Secretary
10		Ing.	ARSELLI, Carlos M.	Ministry of Health, Secretary of the Sustainable Development of Environment, Office of Control of
11	x		TAKAGI, Hiroyasu	Japan Embassy in Argentina, Councilor
12	x		TAKAI, Masao	JICA Argentina Office, Chief Representative
13		Sr.	YAMAMOTO Juan Carlos	JICA Argentina Office
14		Sr.	SATAKE, Alcides	JICA Argentina Office
15		Ing.	LOPARDO, Raúl Antonio	National Institute of Water, Program Manager
16	x	Ing.	GOMEZ, Carlos Alberto	National Institute of Water, Center of Technology of Water, director
17	x	Ing.	DURAN, Jorge	National Institute of Water, Program of Water Technology, Responsible chief
18		Ing.	HIGA, Luis	National Institute of Water, counterpart
19		Ing.	LLANOS, Oscar	National Institute of Water, secretary
20	x		KURIYAGAWA, Michio	JICA Chief Advisor
21	x		SAKAI, Toshio	JICA Expert for Chemical Analysis
22	x		NAGATA, Masatoshi	JICA Expert for Evaluation of Contamination
23	x		SAKAIRI, Kenji	JICA Administrative Coordinator
24	x		HIRAI, Ryuichi	JICA Expert for Clean Production
25	x		HIRAYAMA, Yoshio	JICA Expert for Clean Production

## MEMORANDUM OF JOINT COORDINATION MEETING

ON NOV 28 2003

At 10:10 AM, it was declared the official opening of the Joint Coordination Meeting.

This Coordination Meeting was held based on to center the discussions about the item 4 below.

- 1) Presentation by Mr. Duran of the activities going on and the records of 2.5 years of the INA-JICA Project (herein after "the Project")
- 2) Presentation by Dr. Kuriyagawa of PDM revised during the Mission of Intermediate Evaluation of the Project
- 3) Presentation by Mr. Gomez about the actions to be taken for the comments received from the Mission.
- 4) Environmental Study of the Matanza-Riachuelo Basin

### **Topic 1: Progress of the Project (Mr. Duran)**

This Meeting is the Second Joint meeting held here. Regarding to the First Joint Meeting, since it was held when the Project just started, it was explained only the potential capacity of the Project at that time.

But for this 2nd Meeting, since we have spent more than the half of the period of the Project, I will explain about their development. For this purpose, I would like to back to the objective of the Project at the beginning stage:

- To strengthening of the technical capabilities of the National Institute of Water related to the research and diffusion of the technology for the sustainable prevention of the industrial contamination.

In order to achieve this objective, it was holding up 4 activities:

- Chemical analysis
- Evaluation of the Contamination
- Clean Production
  - Chemical Industries
  - Mechanical Industries
- Waste water treatment



He presented the general plan of the Project, indicating the items stated in the original PDM, and introduced the Japanese side Team, the INA's Team, and finally the counterparts. He made a detailed explanation about the contents of the Chemical Analysis.

Since the establishment of the Sustainable Technology Experimental Laboratory (LETS) on 2002 up today, it was analyzed a total of 1069 samples, requested by the private companies and public institutions.

The main activities of the Evaluation of the Contamination are as follows:

- Aluminum sulfate company: Evaluation of contamination due to long time leakage
- City Subway: Evaluation of the leakage of combustible from gas station
- CEAMSE (solid waste company): Environmental evaluation of "Villa Dominico" land fills.
- Steel manufacturing company: Environmental evaluation.

Regarding to all these studies, the following activities have been developed:

- Data analysis by using SURFER system
- Evaluation of the contaminated areas
- Reporting about the restoration procedures

Explanation about Clean Production activities

Regarding to the Chemical sector, it was signed an agreement for cooperation of technical advise with private companies member of the Chemical & Petrochemical Industries Association. Up today, 3 steps of technical advise have been developed: to aluminum sulfate company, edible oil company and plastic resin manufacturer.

Regarding to the mechanical sector, there are an agreement with private company which is in a stage of awaiting the final signature between Mechanical Companies Association (SADAM), and INA, Mr Lico. In this sector, 2 steps of technical advise have been developed with DROPUR Co. and ELECTROPLATERS Co. Also, it was developed a technical advise for DORAPLAT, a company located in the area of Matanza-Riachuelo and not associated with the Mechanical Association of SADAM.

On the other side, technical advise to the following companies have been developed also: Repsol YPF in Mendoza, ALBERTI Co, MERCK SHARP Co, and DOME Co, MONSANTO in Zarate city, and ICONA Co.

All these activities are charged works. In a total, charged works for private companies are 19, and for public companies are 7. It was remarked the base plan for obtaining the certification of quality system and their establishment in the system, which was not included at earlier stage of

the Project. The LETS laboratory is in a process of preparation to obtain the certification of ISO17025, so that it was explained the content of these preparation activities.

For this purpose, JICA signed a contract with specialists in order to perform these kinds of activities on exclusive basis.

The development of seminars and training courses for internal and external personnel is one of the most important activities for this Project.

On November 2002, it was held a seminar under the auspices of UIA (Union Industrial Argentina). After that, a series of conferences are organized periodically by the Japanese experts and the counterpart members. On December of this year, they are planned two seminars to be held on Dec 10 and 12.

Regarding to the training of the internal personnel of the Institute, it was organized a training courses through JICA funds for: Ms. Fernanda Lopolito (admitted for a Master Course), Ms. Anabel Kuriss, Ms. Rosana Ferreyra, Ms. Carolina Casserly, Ms. Ariana Rossen, Mr. Agustín Corujeira (on year 2001), Ms. Evelia Gonzáles (on 2003).

For the year 2004, it is planned to invite Mr. Sergio Hanela for a training course related to Clean Produccion, and Mr. Franco Doberti for a training course for Gas Chromatography (GC, HPLC, GC-MS).

Regarding to the studies for the university, Ms. Anabel Kuriss is developing research works related to her studies for the master degree.

Mr. Agustin Corujeira is attending a master course of a university aiming to obtain the master degree. Regarding to Ms. Carolina Casserly and Ms. Arianna Rossen, (both biologists), at the present are involved in a series of research which could be linked to doctoral thesis in the future.

The LETS laboratory is in process to receive as trainee, personnel graduated from universities and students. The purpose is to give a chance for research without charges. At present, they are in this program 6 students from UTN university, 1 person from UCA, 1 person graduated as nutritionist, 1 person graduated as Environmental Analyst, and 1 person of chemistry.

Regarding to the field of Clean Production, there are conversations for establishing an agreement for receiving trainees from UBA, and the FRBA of UTN University. Also, there is a plan to develop a training program for students from two industrial schools.

Regarding to the topics described below, we received questions as follows:

Q: - These objectives are accomplished?

A: - They are accomplished. The INA's capabilities on these activities are strengthen.

Q: - How is the view for the future?

A: - It is expected that INA can keep the personnel which is capable to operate these equipment after the completion of the Project, provided that these and others new equipment will be maintained properly. On the other hand, there is a high expectancy for 5 counterpart members in obtaining the master degree and other 2 members in process to obtain the doctorate degree. In order to put INA in a higher position as research institution, some contacts with others institutions such as CNEA, INTI are in progress.

The cooperation carried out by JICA, which made possible the accomplishment of these results has been pointed out and expressed their gratitude.

## **Topic 2: Revised version of PDM (Dr. Kuriyagawa)**

The PDM document has been revised in the occasion of the Mission for Intermediate Evaluation that came in Argentina on May.

Considering that the activities of the Project are over passing the original plan, this PDM revision has been made.

In the PDM, the following 3 items are indicated:

- 1) Superior Objective (the objective aimed by the Project)
- 2) Medium Level Objective (The objective aimed to be accomplished after few years after the completion of the Project )
- 3) Objective of the Project (The objective aimed to be accomplished at the end of the Project )

The objective 1) implies the solution of the problem of contamination by establishing a national program of environment monitoring system. For this purpose, there is a high expectancy for the implementation of the Clean Production.

The objective 2) means to establish the countermeasures through the data collected by the environmental monitoring system. The basic idea is to spread the activities of Clean Production and transform INA as the research center on this field.

The objective 3), related to the chemical analysis and the evaluation of the contamination, is to develop activities in order to get the condition for the LETS as "reference laboratory" in this field, through the improvement in the technical capabilities. Regarding to the field of Clean Production, the INA will be capable to give consulting services.

Over all these items, there are 7 items fixed as target:

The first item, related to the infrastructure, is almost complete.

The second item is centered in the application of the equipment and protection. At present, the equipments are used on frequent basis. But, considering that actually the maintenance costs of the equipment are covered by JICA, INA must study the way how to cover these costs in the future.

The item 3, is related to the chemical analysis, analysis of waste water and soils. It is planned also the development of standard methods of analysis for PCBs and heavy metals.

Regarding to the chemical analysis, it was elevated a proposal of extension of one year from the original period.

The item 4, is related to the evaluation of the contamination. This activity, since is planned for 3 years, the related expert is planned to return to Japan on May of next year. However, it is desirable to get a further cooperation by the same specialist in the future.

The item 5, corresponding to the Clean Production sector, they are assigned two experts for this specialty. Despite the activities related to this sector have been started with a delay of 1 year, it is planned to make the best efforts in order to accomplish the objectives before the end of the Project. In order to accomplish the objectives, INA will develop the activities in close relationship with others institutions.

The Item 6, related to the technical level of the counterpart, it is not observed any problem about this matter.

The Item 7 is related to the certification of ISO17025. This target is a strategic objective for INA aiming to obtain an international level of the laboratory.

Finally, it was pointed out that all these items imply a strategy for the control and administration of financial aspects, referring to the strengthening aspects of INA.

### **Topic 3: Comments from the Mission of Intermediate Evaluation (Mr Gomez)**

There are 4 important comments issued by the Mission of Intermediate Evaluation.

The first is, the PDM has been reviewed.

The second is, to carry out the financial analysis of the funds assigned by the Project and the funds obtained by their own.

He expressed their gratitude for the cooperation from JICA and the JICA expert team, carried out despite the Argentina's economic crisis on the year 2001. Also, he remarked the financial unbalance covered by the cooperation of JICA, for the execution of the activities.

The third, is related to the joint activities and close relationship with other institution such as the Secretariat of Environment Sustainable Development.

At the time when this Project started, the INA was an institute part of their organization. For ensuring the transference and diffusion of the technology given by JICA, this Project is requesting the support for maintaining the relationship of the institute with the Secretariat of Environment even after the change of the position in the organization structure.

The Project, at the earlier stage was planned to have as a target of studies the Matanza-Riachuelo basin. After the nomination of Mr Degano as the Secretary of the Executive Committee for the Cleaning of Matanza-Riachuelo Basin (herein after "the M-R Committee") , the activities once stopped in the past have been recovered so that it is planned to carry out the studies by the Secretariat of Environment together with the Municipality of Buenos Aires.

The fourth, the last item, is related to the activities aiming to positioning the INA as the reference laboratory related to the environmental monitoring at country level and in the region. This is the highest level objective of the Project. The technical capability of an institution is defined by the grade of responsibility and compromise which can be developed to the society and by their human resources.

For this aspect, Mr. Duran explained the activities developed by INA.

It has been proposed the methods to develop the studies along the M-R basin, and it was analyzed together with the M-R Committee several times. Finally there was a proposal from the Committee to JICA for the execution of the studies. Actually, they are awaiting the issue of the execution plan from JICA, in order to organize the related discussions.

On the other hand, JICA has the following records related to activities for environmental studies:

- 1) INA-JICA Project (2001-2005)
- 2) Study of atmospheric contamination in the area of Dock Sud
- 3) Study of strategic actions for environmental promotion in industrial areas of Buenos Aires city (Dec 2002 – Mar 2003)
- 4) Study of evaluation of the contamination in Villa Dominico solid waste landfill.

#### **Topic 4: The Environmental Study of the Matanza-Riachuelo basin (Mr Gomez)**

The proposal of the Study in the M-R basin is structured from 4 steps. At the beginning, the period of the study was planned for Aug 2003 – April 2004 but later it was modified to December 2003 – March 2004.

The INA and the M-R Committee have information collected in a data base. The plan is to review up this data base through the monitoring of waste water, mud and atmosphere to be done through this study. Since it is planned to monitoring the atmosphere and the soil, it is necessary to select the contaminated sites.

Regarding to the sampling of atmosphere and soil, the INA already took samples in the past. Also, regarding to the information of industrial plants, INA is preparing a data base. On the other hand, INA has a long experience for the mathematical modeling of the M-R basin system so that they will modify this modeling based on the new data.

The final objective will be the determination of the relationship between the contamination of the basin and the illegal emissions of waste water into the river system. This study will be carried out based on the mutual relation with others departments inside INA itself.

The public relations with the community will be done through the M-R Committee. Since it will be necessary to monitor the origin of the contamination, based on information from the M-R Committee, it will be necessary the cooperation of the local authorities of the related municipalities.

Considering that the results to be obtained through the Project will be opened to the community, it is necessary the implementation of a systemized information.

Finally, it will be monitored those industrial factories which are in trouble to accomplish the reference environmental standards, so that some agreements for support them in order to reach a better grade of accomplishment will be signed.

Under this point of view, the Project will become a latent technology source for support the execution of this kind of programs in the factories.

The expected final results of the Project are as follows:

- 1) An updated data base of information of industries
- 2) An updated data base of information of water quality
- 3) Evaluation of non pre-treated waste water emitted from industries
- 4) Mathematical model of water quality
- 5) Evaluation of atmosphere and soil in the contamination reported areas
- 6) Establishment of incentives for industries promoting a plan to accomplish the reference environmental standards.
- 7) Creation of an information system by Internet
- 8) Opening of the information to the community

It is planned the opening of environmental information (past, present, recent) to the community in the M-R Committee home page. It will be published the information of those industries accomplishing the reference standards, as a way to incentive the measures against the pollution, establishing some prizes, and the information of the others industries also. The information to be published is aiming effects for the future.

This is, since the purpose is to highlight the industries which does not produces pollution, it is required the consent of the authorities of the municipalities, and the associations of the related sectors also.

In order to ensure the sustainability of this Study, it will be proposed the structuring of a Coordination Committee. This is in response to the 3<sup>rd</sup> comment from the Mission of Intermediate Evaluation.

## **Questions and Answers**

Q: - What is the reason to fix the time limit on March 31, 2004?

A: - This is due to the necessity to complete –as per accounting system-the works simultaneously when the fiscal year in Japan ends. During January, since it is vacation season, it is too difficult to joint the management of the related institutes. Also, considering that sampling works on the upstream side of the basin will be carried out immediately, it is necessary to make discussions of coordination for safety measures and it is necessary to call the Police of the basin.

Q: - The certification of ISO 17025 is an important step for the LETS. How is the progress at present?

A: - The LECA lab already has the certification and the quality system is established for the center as a whole. The applications for the LETS are in progress and during 2004 it is expected to obtain such certification.

Q: - Under the technical point of view, the INA will become the highest level research center in South America. In Sao Paulo, Brazil, there is a similar competitor institution which received cooperation from JICA, but it is expected from INA to win the competence and to become the top one center. INA is having highly qualified personnel in their staff. During the stage of the beginning of the Project, Argentina faced one of the deepest crisis. JICA, normally does not input so big funds for developed countries such as Argentina, but since they are preparing a budget for year 2004, this will serve to cooperate and maintain at high level the name of INA.

INA is having a high capacity of the personnel and on the equipment, so, based on the given cooperation is in a favorable position to ensure the sustainability for the future.

However, the Project is obtaining their own incomings by the requested tests from private companies but it seems that these incomings are not returning to the Project.

This fact must be explained in writing.

A: - We will issue the answer in writing, but let us investigate. We thanks the cooperation from JICA. At the beginning of the Project, Argentina faced a deepest economic crisis, but at that time INA received a support from Argentina government for this Project. Regarding to the provided equipment, <Argentina side > covered the costs of taxes and importation duties. Also, the costs of the personnel are covered by INA. It is aiming to deepen the close relationship with JICA. The funds earned by the Project must be returned to refinancing the Project. It is the INA basic principle. We would like to receive the question in writing.

Q: - We are not in condition to issue documents in this event, but we will instruct to prepare the necessary papers. The remaining period of the Project is 1.5 years from now. It is important the certification of ISO 17025 for the level up of the naming of INA but for this purpose, it is necessary not only the cooperation from JICA but also the income returning to the Project.

A: - The objective of the establishment of the Center is the diffusion of the technology. Also, considering that INA personnel was reduced due to the training course of one member in Japan (Ms Lopolito) in order to get the master degree, under the point of view of incomes to the Project, it is planned to incorporate a new counterpart for covering the open vacancy.



Comment-1:

We would like to transmit the greetings from Foreign Office Minister Mrs Ana Cafiero, absent today in this Meeting. The Foreign Office is paying attention on the importance of this kind of Meeting. This is because it is discussed and reviewed the works developed up to now and the plans for the future. Considering the high position of JICA as cooperation agency of top one developed country in the World, the Argentina, together with JICA, receiving the cooperation for one of the institute is considered as an honor. Also, under personal point of view, I have a good relationship with JICA Chief Representative Mr Takai.

The cooperation from Japan has some particular characteristics. Among them, we can remark the careful monitoring of the local needs, the correct action to improve the counterpart institution, and for this purpose it implies the working with excellent agency of Japan and top level institution of Argentina. We are very happy to hear appreciation words referred to INA technical staff from Chief Representative Mr Takai. Also, we are honored since we have selected Japan as the country to work together.

A lot of people ask about the purpose of the policies of the Foreign Affairs, but as indicated by Mr Gomez, the human resources are very important capital. So, for the Foreign Office, we would like to promote the diffusion of these human resources and equipment in Center and South America. For this purpose, apart from the cooperation from Japan, a strategy for the technical transference in Latin America exists.

Precisely, for this purpose the programs of "Argentina Fund for the Horizontal Cooperation" and the "Programs of Partnership" of Japan exist.

Through the second system, some of the human resources trained thanks to Japan cooperation are now cooperating in Third Countries. For the technical cooperation inside and outside of the country, it is necessary to enhance the resources.

Finally, I would like to express my respects to all the attendants to the Meeting.

Comment-2:

For the Japan Embassy, this Project is one of the most important in the country.

The Chief Advisor Dr Kuriyagawa as first, and the others experts also are all well known scientists in Japan. This Project is one of the selected point to be observed when visitors are coming from Japan. Also, the high technology handled by the Project has been highlighted by emeritus professor Dr Kitano. Among the projects developed in the past, there is cases of failure observed after the completion. For this Embassy, we expect to have a strong relations with JICA and the Japanese experts even after the end of the Project, in order to ensure the sustainability.

Comment-3:

We thank the invitation to this Meeting. Despite the economic crisis and the changes in the organization, our evaluation is high for the faith showed by INA. We consider that INA can develop the leadership actions.

Speech of closing the Meeting

We understand that this kind of Meeting helps to the success of the Project. INA has taken notice about their responsibility for the Project by second time. The fact that local authorities approved this type of Project is something grateful. If all this can be linked directly to the improvement on the life quality of the community, it will be possible the environmental improvement of Argentina. |

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6-3 Minute of the meeting held in March 16<sup>th</sup> at INA

Time: 10:30am

Present people:

- President of INA, Oscar V. Lico
- Vice-President of INA, Jose Luis Bezi
- Director of Matanza-Riachuelo Committee, Daniel Osvaldo Degano
- Environmental Management of Water Resources Unit, Sustainable Development and Environment Secretariat, Miguel Gomez (In behalf of the General Director)
- Director of Prevention and Management of Contamination, Sustainable Development and Environment Secretariat, Carlos M. Arsell
- Counsellor of Japan Embassy, Hiroyasu Takagi
- Director of JICA office in Argentina, Masao Takai
- JICA office in Argentina, Alcides Satake
- Director of Programmes and Projects of INA, Raul A. Lopardo
- Director of CTUA (Responsible of the Project), Oscar Natale
- Chief of LETS (2<sup>nd</sup> Responsible of the Project), Jorge Duran
- INA, Luis E. Higa
- INA, Oscar Llanos
- INA' President Assitant, Clara Cabrera
- Chief Adviser of the INA-JICA Project, Michio Kuriyagawa
- Expert in chemical analysis, Toshio Sakai
- Expert in cleaner production, Ryuichi Hirai
- Expert in cleaner production, Yoshio Hirayama
- INA-JICA Project Manager, Kenji Sakairi
- INA-JICA Project Assistant, Nadia Mantel Amari
- Personnel of the INA-JICA Project, Alejandra Masuda
- Personnel of the INA-JICA Project, Yesica Rodríguez
- Interpreter, Mario Sawada

Opening Address by Oscar V. Lico, President of INA,

- 1) Presentation of the results and achievements of the INA-JICA Project by Jorge Duran, Chief of LETS
- 2) Announcement of the new denomination of the Project and its over-goal by Michio Kuriyagawa, Chief Advisor of the INA-JICA Project
- 3) Introduction of the Capacitating Course and the future cooperation activities between INA and JICA by Oscar Natale, Director of CTUA
- 4) Results and Recommendations
  - Mr. Raul A. Lopardo, Director of Programmes and Projects of INA recommended publishing the results and achievements of the Project in the web page of the INA. Also emphasized that the resignation of an engineer should not affect the activity at the laboratory. There should be a system, which considers the capacitating of human resources to continue the Project.
  - Mr. Masao Takai, Director of JICA office in Argentina expressed his satisfaction about the Project. But on the other hand, he was concerned about the lack of interest of the Argentine Government in the field of science, technology and environmental affairs, and consequently its backwardness compared to Brazil and Chile. Mr. Takai guaranteed the future cooperation of JICA for the Capacitating Course on the condition as long as the INA fulfils the following 3 requirements:
    - INA should insure the budget for the new project.
    - Create and elaborate enough incentives that motivate the staff to stay at the INA.
    - Argentina should overcome Brazil and Chile in the field of science, technology and environmental affairs in four years.
  - Mr. Raul Lopardo, Director of Programmes and Projects of INA compromised to make his best efforts in keeping all the staff, though it is difficult to compete with personal reasons, as there are lots of reasons for the resignation. Moreover, Mr. Lopardo mentioned the possibility that the INA has of bestowing a scholarship of a doctor degree course to personnel of the INA. Besides, there is a tendency of the Argentine Government in giving more importance to environmental tasks, scientific and technological matters.
  - Mr. Hiroyasu Takagi, Counsellor of Japan Embassy recognized the importance of the Project and regretted the fact that it is not continuing any long. But it was comforting to know that a new project will be carried out instead. Also wished that the exchange of human capacities would be kept between the INA and JICA. Furthermore, he agreed that although the Argentine Government has the minimum interest in the environmental affairs, the environmental matter is important and the professionals that take part in this kind of task should be proud and should contribute in the environmental policy.
  - Carlos M. Arsellì estimated the achievements of the Project such as investigations in Dock Sud, Rio Gallegos and Tucuman. Besides, the national and the provincial government take decisions related to environmental matters, which means that it is necessary to do a good coordination among them. Finally, the reason why the Ministry of Health and Environment didn't know about this Project is just that it was not under his area.
- 6) Closing address by the Director of Programmes and Projects of INA, Mr. Raul Lopardo.

## 7. AIMING TO ACHIEVE THE OVERALL GOAL

The established Overall Goal now is “It will be reduced the water contamination in Argentina”. As indicators for this goal, they are stated the following:

- 1) Data of water pollution obtained from monitoring activities at factories and contaminated sites will be accumulated in the Secretariat of Environment and Sustainable Development
- 2) Facts about remediation of polluted sites.
- 3) The number of consultation cases of cleaner production dealt by INA, UTN, INTI, Secretariat of Environment and Sustainable Development, and other related organizations.
- 4) Quality of surface and underground water, and quality of soil and air related to water quality is improved.
- 5) Amount of pollutant emitted from pollution sources such as factories, etc. is reduced.

Detail activities item by item which aim the achievement of these objectives are as follows:

- 1) Data of water pollution obtained from monitoring activities at factories and contaminated sites will be accumulated in the Secretariat of Environment and Sustainable Development

Technical support to the Pollution Control Direction, the Secretariat of Environment and Sustainable Development, which is carrying out the control of waste water from factories in Buenos Aires Province, will be carried out. Up to now, the INA is receiving the samples taken from contamination sites and working as per “analysis request” received from the Pollution Control Direction, the Secretariat of Environment and Sustainable Development. The analysis data obtained during the process of the cooperation between both parties will be collected. On the other hand, all the data collected during the monitoring activities in INA will be linked to a water quality data base network operated by various organizations.

- 2) Facts about remediation of polluted sites.

Considering the economic crisis suffered by Argentina, it will be very difficult to implement a cleaning process of soils by removing it etc, same as the applied one in Japan. On the contrary, the “bio-remediation” is comparatively more economical on costs, and applicable directly on the contamination sites, and also very useful for the cases of hydrocarbon spill which are occurring on frequent basis in Argentina. In the future, INA will fix as objective their application in contamination sites through an approach with REPSOL-YPF Company and so on.

- 3) The number of consultation cases of cleaner production dealt by INA, UTN, INTI, Secretariat of Environment and Sustainable Development, and other related organizations.

INA will do a promotion activity of consulting works related to Cleaner Production by using analytical equipments in the laboratory. Also, INA will deepen the relationship with other institutions such as Sustainable Development Center of UTN, the Cleaner Production Unit of the Secretariat of Environment and Sustainable Development, INTI, to develop activities for introducing the Cleaner Production technology and increasing the number of cases of consultation.

- 4) Quality of surface and underground water, and quality of soil and air related to water quality is improved.

The water is an important resource in the Latin American region. A training program for capacity building will be done through OJT and environmental oriented training, pointing out the importance of the protection of these resources in the region.

On the other hand, INA will do a technical advise to Provinces in Argentina related to 73 chemical substances, which are included in the Ambient Water Guideline in Argentina, and at the same time, INA will work on for the environment improvement of each province.

- 5) Amount of pollutant emitted from pollution sources such as factories, etc. is reduced.

For this purpose, the contamination sources (such as industrial plants) will be identified, and make technical advise for the countermeasures. INA will work on to promote the incorporation of technologies related to waste water treatment and Cleaner Production, actually having by INA, to those plants.