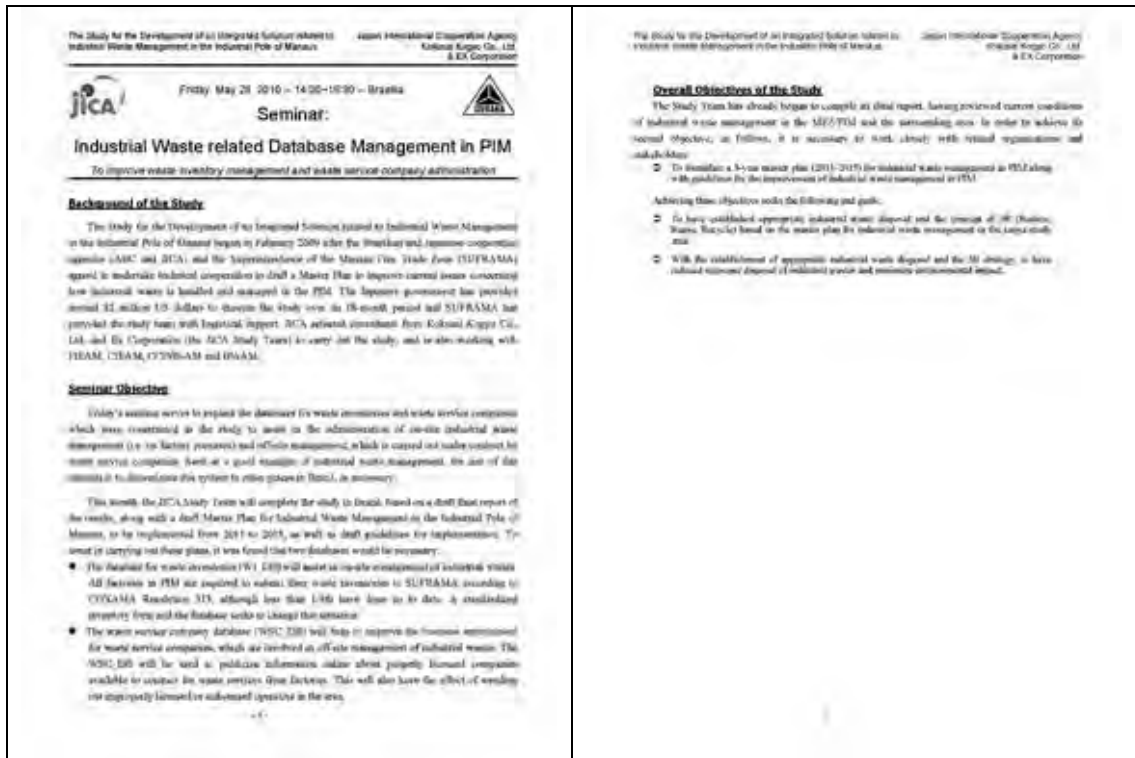



## 2.7.2 Presentation Materials

Handout for Seminar in Brasilia: May 28, 2010

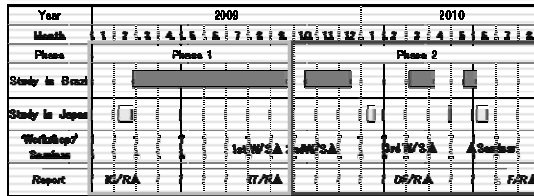


### Presentation 1 for Seminar in Brasilia (May 28, 2010): Introduction to the Study

<p><b>Session 1</b></p> <p><b>Introduction of the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</b></p> <p>May 28, 2010 Susumu SHIMURA JICA Study Team</p> <p>1</p>	<p><b>Agenda</b></p> <ol style="list-style-type: none"> <li>1. Outline of the Study</li> <li>2. Objectives of the Seminar</li> <li>3. Study Results related to the Objectives</li> <li>4. Needs of Waste Inventory Database (WI_DB) System and Waste Service Company Database (WSC_DB) System</li> </ol> <p>2</p>
<p><b>1. Outline of the Study (1): Objectives of the Study</b></p> <ul style="list-style-type: none"> <li>To review the current conditions of industrial waste management (IWM) in the Manaus Free Trade Zone (MFZ)/Industrial Pole of Manaus (PIM) and the surrounding area and compile the results into a report.</li> <li>To formulate a master plan for IWM (five-year plan from 2011 to 2015) in PIM and a guideline for the improvement of IWM in PIM.</li> </ul> <p>3</p>	<p><b>1. Outline of the Study (2): Study Area and Target Waste</b></p> <ol style="list-style-type: none"> <li>1. Study Area</li> <li>2. Target Waste</li> </ol> <p>Industrial waste factories are required to report by waste inventory under CONAMA Resolution 313.</p> <ul style="list-style-type: none"> <li>General Industrial Waste (GIW)</li> <li>Health Waste (HeIW)</li> <li>Construction Waste (ConW)</li> <li>Radioactive-Waste (RadW)</li> </ul>  <p>4</p>

### 1. Outline of the Study (3): Study Schedule

- Phase 1: Study of current conditions (February 2009 - September 2009)
- Phase 2: Formulation of the industrial waste management master plan and guidelines (October 2009 - August 2010)



### 2. Objectives of the Seminar

#### Objectives of the Seminar are:

- To disseminate some of the results of the Study, which may be useful for the federal government organizations concerning industrial waste management (IWM) to support other state environmental authorities to establish proper IWM.
- Especially waste inventory database (WI\_DB) system to identify and establish both on-site (at Factory) and off-site (outside Factory) IWM and proposed waste service company database (WSC\_DB) system to control and manage WSCs.

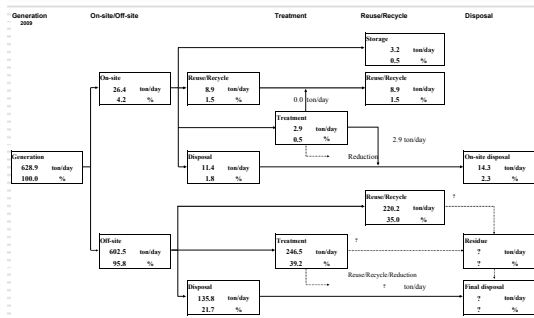
### 3. Study Results related to the Objectives (1): Waste Stream (1)

- A Waste Stream is very useful tool for identification of current IWM in a factory as well as some area, even in the country.
- To identify the waste stream in the study area, the following surveys were conducted:
  1. GIW => Survey for 187 Factories
  2. HeIW => Survey for 10 Medical Institutions
  3. ConW => Survey for 10 Construction Sites
  4. RadW => Survey for 8 Institutions which use radioactive materials
  5. Off-site IWM => Survey for 90 WSCs

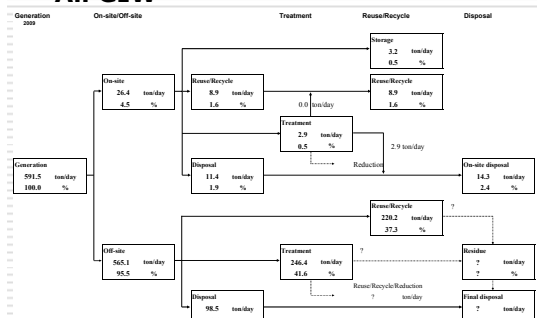
### 3. Study Results (2): IW Generation

Industrial Waste	Non-HIW (ton/day)	HIW (ton/day)	Total Generation (ton/day)
General Industrial Waste (GIW)	471.8	119.7	591.5
Health Waste (HeIW)	0.2	0.2	0.4
Construction Waste (ConW)	37.0	0.0	37.0
Radioactive Waste (RadW)	0.0	0.0	0.0
<b>Total IW</b>	<b>509.0</b>	<b>119.9</b>	<b>628.9</b>

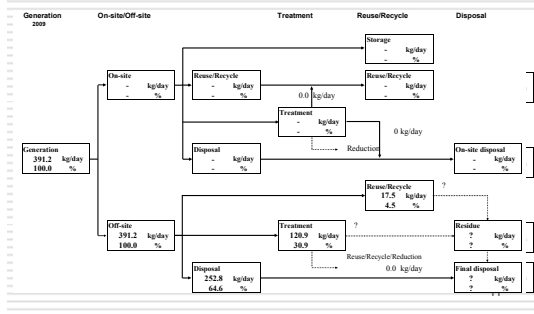
### 3. Study Results (3): IWM Flow (1): All IW



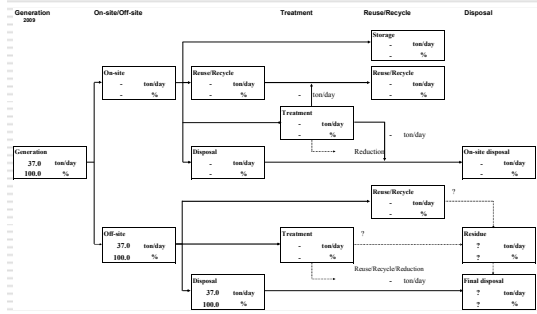
### 3. Study Results (4): IWM Flow (2): All GIW



### 3. Study Results (5): IWM Flow (3): Health waste



### 3. Study Results (6): IWM Flow (4): Construction waste



### 3. Study Results (7): Current IWM issues (1)

#### Extremely low on-site waste treatment and disposal at factories

Study Area	On-site disposal (%)	Off-site disposal (%)
1. PIM Industrial Waste	4.2	95.8
General Industrial Waste	4.5	95.5
Health Waste	0.0	100.0
Construction Waste	0.0	100.0
2. Bangkok Metropolitan Area, Thailand (2002)	35.0	65.0
3. Mie Prefecture, Japan (2000)	53.9	46.1

### 3. Study Results (8): Current IWM issues (2)

#### 1. Insufficient understanding of actual conditions concerning waste service companies

a → The number of WSCs is uncertain

WSC Classification	Number of WSCs
With Environmental License	67 <sup>*1</sup>
Without Environmental License	23 <sup>*2</sup>
<b>Total</b>	<b>90</b>

(Note) \*1: Of these 67 companies, 35 were on the IPAAM WSC list, and 32 were added by the local consultant  
\*2: These 23 companies were found by the local consultant 14

### 3. Study Results (9): Current IWM issues (3)

Insufficient understanding of actual conditions concerning waste service companies

b → Discord between WSC operation and environmental licenses

Replies from surveyed WSCs

Possession of Environmental License	1) Collection / Transportation	2) Intermediate Treatment	3) Final Disposal	4) Reuse / Recycling	Total
With	41	9	10	42	102
Without	7	0	0	18	25
<b>Total</b>	<b>48</b>	<b>9</b>	<b>10</b>	<b>60</b>	<b>127</b>

Results after checking environmental licenses of WSCs

Possession of Environmental License	Collection / Transportation	Intermediate Treatment	Final Disposal	Reuse / Recycling	Unable to categorize <sup>*1</sup>	Total
With EL	26	24	0	21	4	75

### 4. Needs of Waste Inventory Database (WI\_DB) System and Waste Service Company Database (WSC\_DB) System (1)

□ The reasons of why the WI\_DB system is developed are:

- To solve current issues such as lack of information on the final destination, current WIs submitted by generators are not aggregated and analyzed.
- To identify the current IWM (waste stream, etc.) in each factory as well as the PIM by using the WIs submitted.
- So that IPAAM and SUFRAMA will be able to identify the current issues of the IWM in PIM.

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### 4. WI\_DB System (1)

#### a. Benefit of WI

- For Generators: To identify its on-site and off-site IWM
- For IPAAM: To identify on-site and off-site IWM of PIM and Amazonas State by aggregation and analysis of the WIs
- For SUFRAMA: To identify IWM of PIM/DI which is requested by the State Public Ministry

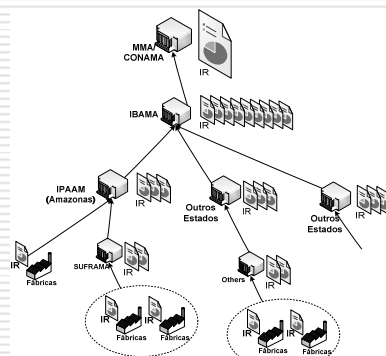
### 4. WI\_DB System (2)

#### b. Aim of the System

- To easily process the report content as data and eliminate differences in reporting methods and content by standardizing the measurement units, coding, etc.
- To depict the on-site and off-site IWMs (waste streams) of each factory, DIs, PIM and the state if generators correctly enter the data according to the WI\_DB system user's guide
- To easily aggregate and analyze the waste inventories submitted by each factory
- WI\_DB System follows CONAMA Resolution 313 except additional information on health-care and construction wastes information

### 4. WI\_DB System (3)

If the system is disseminated to the individual factory and it properly makes its WI, both state and federal authority draw their IW stream



### 4. WI\_DB System (4)

#### c. Disseminating the WI\_DB System to other States and Industrial Parks

- The Ministry of Environment (MMA) collaborates with the Ministry of Development, Industry and Foreign Trade (MDIC) and the Brazilian Cooperation Agency (ABC) to hold a seminar for stakeholders in each State to disseminate the WI\_DB system.
- When holding the seminars, seek cooperation with SUFRAMA and IPAAM which are experienced in using the WI\_DB system.
- SUFRAMA and IPAAM, in response to a request by the MMA will actively dispatch technicians with experience in using the WI\_DB system.

### 4. Needs of Waste Inventory Database (WI\_DB) System and Waste Service Company Database (WSC\_DB) System (2)

□ The reasons of why the WSC\_DB system is developed are:

1. To solve current issues such as no one knows number of WSCs operating as well as their service fields.
2. To control non-licensed WSCs and licensed who provided different service from licensed one.
3. To regulate improper waste treatment and disposal.

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## Thank you very much for your attention

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### Presentation 2 for Seminar in Brasilia (May 28, 2010): Development of the Waste Inventory Database (WI\_DB)

### Wastes Inventory Development of the Wastes Inventory Data Base WI\_DB

May 28, 2010  
Counterpart to JICA Study Team  
For the Study for the Development of an Integrated  
Solution Related to Industrial Waste Management in  
the Industrial Pole of Manaus

#### Resolution CONAMA N. 313 from 29 October 2002 (Industrial Wastes National Inventory)

**Wastes Inventory:** Is the set of information about the generation, characteristics, storage, transport, treatment, reuse, recycling, recovery and final disposal of the wastes generated by the industries.

- In 2002, the National Council of the Environment (CONAMA) issued Resolution 313.
- According to this Resolution (Art. 8), each Industry should register monthly (and keep) the wastes generation data in order to get information for the National Industrial Wastes Inventory.
- The environment state organizations should submit to IBAMA the data of the Wastes Inventories (Art. 4).

#### Resolution CONAMA N. 313 from 29 October 2002 Scheme of the information requested by the resolution of CONAMA

#### Information the factories should prepare to complete the wastes inventory form

#### 1. General Information on the Factories

Campos	Estado	Observações
Inscrição Suframa	02.000.0000-00	
Estado Suframa	Formosa T	
Endereço para correspondência		
Inscrição Industrial	02.00000.000 - Distrito Industrial	
Endereço Industrial		
Categoria	02000000	
Sua	020000000000	
Comércio Exterior		
Nome	Formosa T	
Local	Comunidade dos Formosa Industrial	
UF	Amazonas	
Município	Formosa T	
CEP	69000-000	
Características da atividade industrial:		
Atividade principal: fabricação de produtos de papel, celulose, papelão e papelão laminado para uso comercial e de escritório, exceto fabricação de pasta		
Código CNAE	2611-1/01	
Local	02.000.0000	
Latitude	02 02' 24.42" W	
Longitude	069 00' 00.00" W	

2. List of Raw Materials
3. Factory Annual Production
4. Production Process (Generation)

#### 4. 5.1. List and Codify All Wastes Generated

No.	Descrição	Código CONAMA	Quantidade (Ton/ano)	
1	LIXOORGÂNICO	A001	Resíduos de refeitórios	100
2	PAPEL/PAPELÃO	A006	Resíduos de papel e papelão	200
3	MADERAPALETS	A009	Resíduos de madeira sem substâncias tóxicas	50
4	METAISFERROSOS	A004	Refugo de metais ferrosos	1.000
Total			1.350	

CONAMA wastes table

#### 5.3. Register the Quantity of All Types of Wastes Generated in that Year

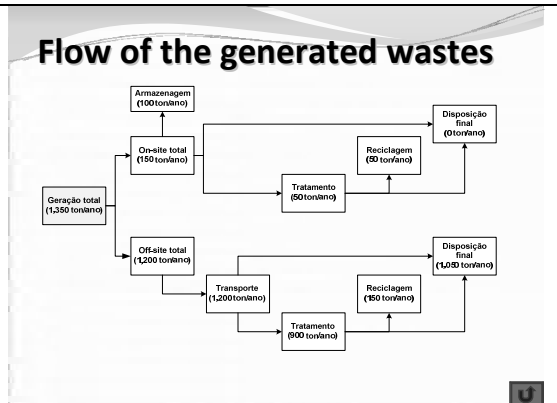
Single unit  
(Ton/Year)

5.4. Verify if the wastes generated are treated On-site or Off-site

No.	Descrição	Código CONAMA	Quantidade (Ton/ano)	
1	LIXOORGÂNICO	AD01	Resíduos de refeitório	100
2	PAPEL/PAPELÃO	AD06	Resíduos de papel e papelão	200
3	MADERAPALETES	AD09	Resíduos de madeira sem substâncias tóxicas	50
4	METALFERROSOS	AD04	Resíduo de metais ferrosos	1.000
<b>Total</b>			<b>1.350</b>	

Mês	Transporte		Tratamento		Reciclagem		Disposição final		Armazenamento	
	On	Off	On	Off	On	Off	On	Off	On	Off
2008	200	200	100	100	100	100	100	100	100	100
2009	200	200	100	100	100	100	100	100	100	100
2010	200	200	100	100	100	100	100	100	100	100
2011	200	200	100	100	100	100	100	100	100	100
2012	200	200	100	100	100	100	100	100	100	100
2013	200	200	100	100	100	100	100	100	100	100
2014	200	200	100	100	100	100	100	100	100	100
2015	200	200	100	100	100	100	100	100	100	100
2016	200	200	100	100	100	100	100	100	100	100
2017	200	200	100	100	100	100	100	100	100	100
2018	200	200	100	100	100	100	100	100	100	100
2019	200	200	100	100	100	100	100	100	100	100
2020	200	200	100	100	100	100	100	100	100	100
2021	200	200	100	100	100	100	100	100	100	100
2022	200	200	100	100	100	100	100	100	100	100
2023	200	200	100	100	100	100	100	100	100	100
2024	200	200	100	100	100	100	100	100	100	100
2025	200	200	100	100	100	100	100	100	100	100
2026	200	200	100	100	100	100	100	100	100	100
2027	200	200	100	100	100	100	100	100	100	100
2028	200	200	100	100	100	100	100	100	100	100
2029	200	200	100	100	100	100	100	100	100	100
2030	200	200	100	100	100	100	100	100	100	100
Total	2.000	2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000



### Sistema Offline BD\_IR

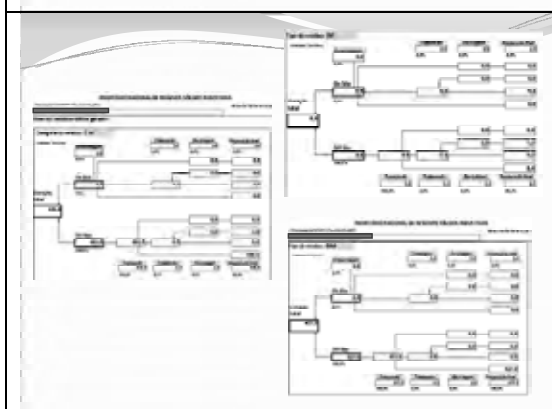
- The offline WI\_DB system is developed by Microsoft Access, can install and use in the PC of the factories
- The system is developed so that each factory can have the record of the waste generated daily, and this way they can go knowing the generation and flow of their waste. Also this system will be a tool to the factories to facilitate to input correctly the WI information's according to the CONAMA resolution.
- If the factory input the record periodically at the end of the year can prepare a WI report with waste flow by one click
- IPAAAM with collaboration of SUFRAMA will provide the copy of the system to the factories, and will provide training and orientation of the use of the system

### Offline WI\_DB System

Input periodically the information of the generated waste

### Offline WI\_DB System

### Print WI report, with waste flow



### General scheme to implement the WI\_DB

- Task for WI\_DB Data Analysis:**
  - Connect with the factory or organization to the WI\_DB System
  - Check at the information of the WI\_DB System and make a copy of the data into the offline system
- Task for IT Support:**
  - Check the WI\_DB System and make a copy of the data into the offline system
  - Check the WI\_DB System and make a copy of the data into the offline system

### Systematization of the DB


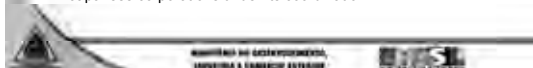
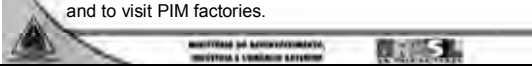


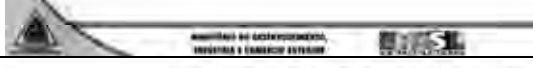


Work flow to implement WI of the CONAMA Resolution No. 313/2002

Thank you very much for your attention

*ISHIBASHI Kunito*  
 kunitoishibashi@yahoo.com

Presentation 3 for Seminar in Brasilia (May 28, 2010): WI\_DB Implementation

	<p style="text-align: center;"><b>AGENDA:</b></p> <ol style="list-style-type: none"> <li>1- INTRODUCTION</li> <li>2- HISTORY OF THE WASTE MANAGEMENT IN PIM</li> <li>3- BEGINNING OF THE STUDY</li> <li>4- DATABASE IMPLEMENTATION</li> </ol>
<p><b>1- INTRODUCTION</b></p> <p>MANAUS FREE TRADE ZONE CREATION (Law # 3.173/1957, altered by the article 1st of the Law-Decree # 288/1967)</p> <p>“Manaus Free Trade Zone is an area of free trade, importation and exportation and special fiscal incentives. It is established with the aim of creating in Amazonas countryside an <u>industrial, commercial and agropastoral farming center</u>, with all economical conditions which allow its development, facing the local factors and the great distance from the consumption centers which are the aim of its products”</p>	<p><b>1- INTRODUCTION</b></p> <p style="text-align: center;"><b>MANAUS FREE TRADE ZONE</b></p> <p><b>SUFRAMA</b>          CREATED IN 1967 THROUGH THE ARTICLE 10 OF THE LAW-DECREE # 288/67.</p> <p><b>MISSION</b>          PROMOTE THE SUSTAINABLE DEVELOPMENT WITH GENERATION, ATTRACTION AND CONSOLIDATION OF INVESTMENTS SUPPORTED IN TECHNOLOGICAL CAPACITY DEVELOPMENT, AIMING FOR INTERNATIONAL COMPETITIVENESS.</p>
	<p><b>2- HISTORY</b></p> <p><b>2.1- ANNUAL WASTE INVENTORY</b></p> <p><b>CONAMA RESOLUTION # 313, OF OCTOBER 29th, 2002</b></p> <p><b>Art. 4th</b>          1st. The information foreseen in this article shall be delivered to the <b>environment state agency</b> and shall be updated each period of twenty-four months, or in a shorter term, according to the agency decision.</p> <p><b>Art. 6th</b> Within the maximum period of two years, starting in the date of publication of this resolution, The <b>environment state agencies</b> shall present to <b>IBAMA</b> the data of the inventory mentioned in the art. 2nd, in the form to be defined by this institute.</p> <p><b>Art. 8th</b> The Industries shall <b>register monthly</b> from the sixtieth day after the date of this Resolution publication, and maintain the data about the generation and destination of the waste generated in the industrial unit, so that the data may be obtained for the <b>Industrial Waste National Inventory</b>.</p>

<p><b>2-HISTORY</b></p> <p><b>2.1- ANNUAL WASTE INVENTORY</b></p> <p>For the projects which are approved by SUFRAMA Administration Council (CAS) the accomplishment of what is stated in CONAMA Resolution 313 has been observed since then. Thus, the factories are requested to send to SUFRAMA the Annual Waste Inventory properly referred by the environment state organ (IPAAM)</p> 	<p><b>3-STUDY</b></p> <p><b>COOPERATION SUFRAMA - JICA</b></p> <p><i>The first step to create a proper industrial waste management system is to understand the current disposal of the IW correctly.</i></p> <p><b>2005</b></p> <p>In response to a demand of PIM class entities , SUFRAMA raised the possibility of establishing a mapping of the industrial waste conditions through a technical cooperation with development Japanese corporations under its coordination.</p> 
<p><b>3-STUDY</b></p> <p><b>COOPERATION SUFRAMA - JICA</b></p> <p><b>2006</b></p> <p>The technical cooperation project was inserted in the macro Agreement existent between Brazil and Japan, through the Brazilian Cooperation Agency – ABC – of the Ministry of Foreign Affairs – MRE – and the Japanese International Cooperation Agency – JICA.</p> <p>In November, JICA technician were in Manaus to hold meetings with the industry class entities, state and municipal environmental agencies, and with SUFRAMA technicians, for the elaboration of a Project Work Draft, and to visit PIM factories.</p> 	<p><b>3-STUDY</b></p> <p><b>COOPERATION SUFRAMA - JICA</b></p> <p><b>2008</b></p> <p>-In August, a new mission of JICA was in Manaus for the adjustments/updates in the Project Work Draft.</p> <p>-It was celebrated the Technical Cooperation Term #4, between ABC, SUFRAMA and JICA, in Oct/31/2008, its extract was published in the Union Official Journal of 11/20/2008.</p> 
<p><b>3-STUDY</b></p> <p><b>COOPERATION SUFRAMA - JICA</b></p> <p><b>2009</b></p> <p>-In 02/27/2009, The definite JICA Consultants arrived in Manaus. It was established the reason of regular weekly meetings on Mondays, at SUFRAMA headquarters to share with the Study partners, the progress reached and the challenges raised in each planned step.</p> <p>-Surveys were made in the generator factories and industrial waste service companies to understand the current situation of industrial waste management in PIM:</p> 	<p><b>3-STUDY</b></p> <p><b>COOPERATION SUFRAMA - JICA</b></p> <p><b>METHODOLOGY</b></p> <ul style="list-style-type: none"> <li>- Weekly meetings</li> <li>- Newsletters</li> <li>- Workshops</li> <li>- Thematic Seminars</li> <li>-Training of SUFRAMA, IPAAM and CIEAM/FIEAM/CCINB-AM technicians in Japan</li> </ul> 
<p><b>3-STUDY</b></p> <p><b>SUFRAMA'S COUNTERPART</b></p> <ul style="list-style-type: none"> <li>- Technical support</li> <li>- Articulation with other agencies</li> <li>- Infrastructure support</li> <li>- Material support</li> </ul> 	<p><b>4- DATABASE IMPLEMENTATION</b></p> <p><b>4.1- DIFFICULTIES FOUND</b></p> <p>a)- Delay to receive annual waste inventories due to the fact that it is not na online sistem (paper reports)</p> <p>b)- Difficulty in the consolidation of the data due to the non-standartization while filling the waste inventory.</p> 

<p><b>4- DATABASE IMPLEMENTATION</b></p> <p><b>4.2- PROPOSED OBJECTIVES:</b></p> <ol style="list-style-type: none"> <li>To increase the number of inventories sent of 1/4 to 100% of the target.</li> <li>To Develop a database of waste inventories (WI_DB).</li> <li>To standardize the format of WI to unify the WI_DB, and prepare guidelines.</li> <li>To instruct the factories to indicate a responsible person to prepare the waste inventory.</li> <li>To make explanative meetings about how to fill out the waste inventories, to assure that the person in charge of that in the factories knows how to fill out the form.</li> </ol>	<p><b>4- DATABASE IMPLEMENTATION</b></p> <p><b>4.2- PROPOSED OBJECTIVES:</b></p> <ul style="list-style-type: none"> <li>Develop a WI_DB off-line system in Microsoft Access which can be installed and used in the factories PC.</li> <li>The system will be developed so that each factory may have the register of the waste generated daily, and this way they know the generation and the flow of the waste. This system will also be a tool which will facilitate the factories to introduce the information in the WI according to CONAMA resolution.</li> </ul>
<p><b>WI_DB General Plan</b></p> <p>BDI_IR - Banco de Dados do Inventário de Resíduos          BDI_ER - Banco de Dados do Registro de Empresas de Resíduos          CRI - Gerenciamento de Resíduos Industriais          ESR - Registro de Empresas de Resíduos</p>	<p><b>SUFRAMA WEB SITE</b></p>
<p><b>WI_DB Implementation Diagram</b></p> <p>Inventário de Resíduo</p>	<p>Thank you for your attention!</p> <p>David Rocha Silva  <a href="mailto:david.silva@suframa.gov.br">david.silva@suframa.gov.br</a>          (92) 3321-7280/7281</p>

Presentation 4 for Seminar in Brasilia, (May 28, 2010): Explanation of WSC\_DB

See 2.5.1 Presentation for Waste Service Company Seminar (April 7, 2010) above

**2.7.3 Outcomes**

The purpose of the seminar was to explain to federal stakeholders the waste inventory database (WI\_DB) and waste service company database (WSC\_DB) needed to disseminate the study results to other states in Brazil. After carrying out the program shown above, in which Mr. David Silva and Mr. Antonio Stroski fully explained the database systems, the following items were confirmed.



- Currently 14 of the 27 states in Brazil (including the Federal District) are submitting the waste inventory report.
- Resolution 313 is scheduled to be revised in 2010.
- In response to the suggestion in the presentations that the database of IBAMA and CONAMA be integrated with the database of IPAAM, Mrs. Tania Maria Pinto, representative of Ministry of Environment, suggested the codification of activities and the DB of Waste Management Companies should be in accordance with the register already existing in IBAMA: the Federal Technical Register of Potentially Pollutant Activities (Cadastro Tecnico Federal de Atividades Potencialmente Poluidoras).
- Mrs. Tania of MMA claimed\* that co-processing of hazardous waste is not considered in CONAMA's Resolution 313, and new limits for emissions from this process are under discussion to be changed. \*Upon review, hazardous waste is considered in CONAMA Resolution 313.
- Mr. Eguchi of JICA Brazil Office recommended extending the project to other parts of Brazil after it is implemented in Manaus.


### **3. Weekly Meetings**

## 3 Weekly Meetings

### 3.1 Weekly Meeting (1)

#### 3.1.1 Agenda for Weekly Meeting (1) on March 9, 2009

<p style="text-align: center;"><b>Weekly Meeting (1)</b></p> <hr/> <p style="text-align: center;"><b>March 9, 2009</b>  <b>JICA Study Team</b>                  For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</p> <p style="text-align: right;">1</p>	<p style="text-align: center;"><b>Agenda</b></p> <hr/> <ol style="list-style-type: none"> <li>1. Work Progress</li> <li>2. Schedule for the Next Week</li> <li>3. Subjects to be Discussed</li> </ol> <p style="text-align: right;">2</p>
<p><b>1. Work Progress: From February 27 to March 9, 2009</b></p> <hr/> <ol style="list-style-type: none"> <li>1. Explanation and Discussion of the Inception Report (IC/R) =&gt; Presentation and M/M on IC/R</li> <li>2. Meeting with IPAAM, SEMULSP, MMA, ABC, MDIC, EOJ and JICA Brazil.</li> <li>3. Field visits to 1. the Landfill of Manaus Municipality, 2. Papel, Caixas e Embalagens, 3. Cometais Comercio de Metais Ltda., 4. Moto Honda da Amazonia Ltda. and 5. CETRAM.</li> <li>4. Preparation of a questionnaire for factory survey.</li> </ol> <p style="text-align: right;">3</p>	<p><b>2. Schedule for the Next Week</b></p> <hr/> <ol style="list-style-type: none"> <li>1. Preparation of a questionnaire for factory survey</li> <li>2. Preparation of a questionnaire for industrial waste management companies</li> <li>3. Preparation of medical waste survey</li> <li>4. Preparation of construction waste survey</li> <li>5. Preparation of radioactive waste survey</li> </ol> <p style="text-align: right;">4</p>
<p><b>3. Subjects to be Discussed</b></p> <hr/> <ol style="list-style-type: none"> <li>a. Confirmation and clarification of the study area, target waste and waste management companies</li> <li>b. Factory survey                         <ol style="list-style-type: none"> <li>b.1 Schedule</li> <li>b.2 Definition of waste generation source (factory), waste, reuse and recycle</li> </ol> </li> </ol> <p style="text-align: right;">5</p>	<p>a. Confirmation and clarification of the study area, target waste and waste management companies (1): Study Area (1)</p> <hr/> <p>Q.1 According to the S/W (Scope of the Work), "The Study area corresponds to an area comprising those plants approved by the Governing Council of SUFRAMA (CAS) within an area of 10,000 km<sup>2</sup> as defined by Decree Law 288/67 and its regulation (Decree 61.244/67), in the Industrial Pole of Manaus (PIM)". Then, what those plants are? they mean the factories approved by the SUFRAMA.</p> <p>Q.2 What does the PIM (Industrial Pole of Manaus: Polo Industrial de Manaus) mean? Does PIM include an individual factory? Does PIM mean a complex of factories?</p> <p style="text-align: right;">6</p>

<p><b>a. Confirmation and clarification of the study area , target waste and waste management companies (2): Study Area (2)</b></p> <p><b>Q.3</b> Is the location map of PIM available?</p> <p><b>Q.4</b> What is difference between PIM and DI (Industrial District: Distrito Industrial)?</p>  <p style="text-align: right;">7</p>	<p><b>a. Confirmation and clarification of the study area , target waste and waste management companies (3): Target Wastes (1)</b></p> <p><b>Q.5</b> According to the S/W, "The target waste is the industrial waste generated in the PIM, shown as Appendix II to the S/W". However, Appendix II includes wastes from 1.Industry, 2.Hospital (Medical Institution), 3.Construction, 4.Radioactive. Therefore, the target waste should be changed "the waste generated in the PIM, shown as Appendix II to the S/W".</p> <p><b>Q.6</b> Are there available data on the wastes from 1.Industry, 2.Hospital (Medical Institution), 3.Construction, 4.Radioactive, respectively?</p> <p style="text-align: right;">8</p>														
<p><b>a. Confirmation and clarification of the study area , target waste and waste management companies (4): Target Wastes (2) Industrial Waste (1)</b></p> <p><b>Q.7</b> To confirm the following definitions on the Industrial waste (IW):</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Is the waste generated from factory?</li> <li><input type="checkbox"/> Proper disposal of the IW is the responsibility of generator?</li> <li><input type="checkbox"/> Control organization is IPAAM?</li> </ul> <p><b>Q.8</b> What is the Industrial Classification in Brazil? Is it the same as the ISIC (International Standard of Industrial Classification)?</p> <p><b>Q.9</b> The S/W designates two categories of hazardous waste from production processes (see the Table 3 of the IC/R). Why 1.2 (biological, pharmaceutical) is separate from 1.1 (waste oil, sludge)? This categorization does not exist in CONAMA Resolution 313.</p> <p style="text-align: right;">9</p>	<p><b>a. Confirmation and clarification of the study area , target waste and waste management companies (5): Target Wastes (3) Industrial Waste (2)</b></p> <table border="1" data-bbox="887 723 1385 869"> <tbody> <tr> <td>1. Industry (factory)</td> <td><b>Waste discharged from (production) Process</b></td> </tr> <tr> <td></td> <td>1. Hazardous (waste oil, sludge, etc)</td> </tr> <tr> <td></td> <td>2. Hazardous (biological, pharmaceutical)</td> </tr> <tr> <td></td> <td>3. Non-hazardous</td> </tr> <tr> <td></td> <td><b>Waste discharged from Offices (non-production process)</b></td> </tr> <tr> <td></td> <td>4. Hazardous (luminescence lamp, battery, etc)</td> </tr> <tr> <td></td> <td>5. Non-hazardous</td> </tr> </tbody> </table> <p><b>Q.10</b> What kind of waste categorization will be applied to the Brazil's National Solid Waste Policy Bill being discussed in the parliament?</p> <p style="text-align: right;">10</p>	1. Industry (factory)	<b>Waste discharged from (production) Process</b>		1. Hazardous (waste oil, sludge, etc)		2. Hazardous (biological, pharmaceutical)		3. Non-hazardous		<b>Waste discharged from Offices (non-production process)</b>		4. Hazardous (luminescence lamp, battery, etc)		5. Non-hazardous
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<p><b>a. Confirmation and clarification of the study area , target waste and waste management companies (6): Target Wastes (4) Health Waste</b></p> <p><b>Q.11</b> To confirm the following definitions on the Health waste:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Is the waste generated from medical institution?</li> <li><input type="checkbox"/> Proper disposal of the health waste is the responsibility of generator?</li> <li><input type="checkbox"/> What is the control organization?</li> <li><input type="checkbox"/> Should waste categorization follow the ABNT 12808/1993? Provide a copy of the ABNT 12808/1993.</li> </ul> <p><b>Q.12</b> Does the medical institution (referred to as "hospital" in S/W) indicate institutions located in the PIM area, small clinics within a factory, or both.</p> <p><b>Q.13</b> What is the objective for the inclusion of the Health waste in the Study?</p> <p style="text-align: right;">11</p>	<p><b>a. Confirmation and clarification of the study area , target waste and waste management companies (7): Target Wastes (5) Construction Waste</b></p> <p><b>Q.14</b> To confirm the following definitions on the Construction waste:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Definition and categorization:</li> <li><input type="checkbox"/> Proper disposal of the construction waste is the responsibility of contractor, owner of the property or who?</li> <li><input type="checkbox"/> What is the control organization?</li> </ul> <p><b>Q.15</b> Is it possible that waste disposal is informed upon approval of construction applications? If yes, those records will be used as a basis for the study.</p> <p><b>Q.16</b> What kind of construction site shall be included? Is it PIM area or factory in PIM area?</p> <p style="text-align: right;">12</p>														
<p><b>a. Confirmation and clarification of the study area , target waste and waste management companies (8): Target Wastes (6) Radioactive Waste</b></p> <p><b>Q.17</b> To confirm the following definitions on the Radioactive waste:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Definition and categorization:</li> <li><input type="checkbox"/> Proper disposal of the radioactive waste is the responsibility is of generator?</li> <li><input type="checkbox"/> What is the control organization?</li> </ul> <p><b>Q.18</b> Who discharges the radioactive waste?</p> <p><b>Q.19</b> Are there records and information on the generation sources?</p> <p style="text-align: right;">13</p>	<p><b>a. Confirmation and clarification of the study area , target waste and waste management companies (9): Waste management companies</b></p> <p><b>Q.20</b> To confirm the following aspects on the Licensing System of Waste Management Companies:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Industrial code of waste management company</li> <li><input type="checkbox"/> Who give the license?</li> <li><input type="checkbox"/> License period</li> <li><input type="checkbox"/> List of licensed companies and licensed activities</li> </ul> <p><b>Q.21</b> Are there some unlicensed companies? If yes how do we survey them?</p> <p style="text-align: right;">14</p>														

<p><b>b. Factory Survey (1): Schedule</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>March 16: Selection of 200 target factory</b></li> <li><input type="checkbox"/> <b>March 23: Finalization of questionnaire</b></li> <li><input type="checkbox"/> <b>March 31: Selection of local consultant</b></li> <li><input type="checkbox"/> <b>July 31: Draft report from the local consultant</b></li> <li><input type="checkbox"/> <b>August 31: Final report</b></li> </ul> <p style="text-align: right;">15</p>	<p><b>b. Factory Survey (2): Definition of Waste generation source, Waste, Reuse, and Recycle (1)</b></p> <p><b>Waste generation source</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>The waste generation sources in a factory are classified into following two categories.</b> <ol style="list-style-type: none"> <li><b>1. Non-production process source:</b> The waste generation source, excluding the production process area, such as canteens, administration area and so on.</li> <li><b>2. Production process source:</b> The waste generation source related to the production of final products of a factory.</li> </ol> </li> </ul> <p style="text-align: right;">16</p>																																																																																																																							
<p><b>b. Factory Survey (3): Definition of Waste generation source, Waste, Reuse, and Recycle (2)</b></p> <p><b>Waste</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>In this questionnaire the waste generated in a factory is called as industrial waste. The industrial waste is classified into the following two categories:</b> <ol style="list-style-type: none"> <li><b>1. Non-Hazardous Industrial Waste (Non-HIW):</b> Non- HIW generated from both non-production and production processes.</li> <li><b>2. Hazardous Industrial Waste (HIW):</b> HIW generated from both non-production and production processes.</li> </ol> </li> </ul> <p style="text-align: right;">17</p>	<p><b>b. Factory Survey (2): Definition of Waste generation source, Waste, Reuse, and Recycle (1)</b></p> <p><b>Accordingly, Industrial waste can be classified into four categories as follows.</b></p> <ol style="list-style-type: none"> <li><b>1. Non-HIW generated from Non-production process</b></li> <li><b>2. HIW generated from Non-production process</b></li> <li><b>3. Non-HIW generated from Production process</b></li> <li><b>4. HIW generated from Production process</b></li> </ol> <p style="text-align: right;">18</p>																																																																																																																							
<p><b>b. Factory Survey (2): Definition of Waste generation source, Waste, Reuse, and Recycle (1)</b></p> <p><b>Reuse</b></p> <p><b>To use waste again, or repeatedly, without processing, or only with simple treatment (e.g. use a used bottle after rinsing).</b></p> <p><b>Recycle</b></p> <p><b>To use waste again as raw material (including energy source) with chemical, physical and/or biological processing (e.g. producing compost from food waste, manufacturing cement using wastewater sludge).</b></p> <p style="text-align: right;">19</p>	<p><b>Non-Hazardous Industrial Waste (Class II waste)</b></p> <table border="1" style="width: 100%;"> <thead> <tr> <th>Type of Non-HIW</th> <th>Non-HIW Code</th> </tr> </thead> <tbody> <tr><td>Waste from animal such as bone, skin, hair (Food waste)</td><td>NH01</td></tr> <tr><td>Wood</td><td>NH02</td></tr> <tr><td>Paper</td><td>NH03</td></tr> <tr><td>Plastic or polymers and resins</td><td>NH04</td></tr> <tr><td>Textile and fiber</td><td>NH05</td></tr> <tr><td>Grease, animal oil, vegetable oil</td><td>NH06</td></tr> <tr><td>Rubbers and Leather</td><td>NH07</td></tr> <tr><td>Ash/dust from coal-fired power plants, etc.</td><td>NH08</td></tr> <tr><td>Metals and metal alloys such as aluminum, copper, bronze</td><td>NH09</td></tr> <tr><td>Ceramic &amp; Glasses</td><td>NH10</td></tr> <tr><td>Stone, sand or material that have composition of soil such as tile, brick, gypsum, cement</td><td>NH11</td></tr> <tr><td>Mixed waste (This code shall be applied in case wastes are discharged without separation.)</td><td>NH12</td></tr> <tr><td>Others</td><td>NH13</td></tr> </tbody> </table> <p style="text-align: right;">19</p>	Type of Non-HIW	Non-HIW Code	Waste from animal such as bone, skin, hair (Food waste)	NH01	Wood	NH02	Paper	NH03	Plastic or polymers and resins	NH04	Textile and fiber	NH05	Grease, animal oil, vegetable oil	NH06	Rubbers and Leather	NH07	Ash/dust from coal-fired power plants, etc.	NH08	Metals and metal alloys such as aluminum, copper, bronze	NH09	Ceramic & Glasses	NH10	Stone, sand or material that have composition of soil such as tile, brick, gypsum, cement	NH11	Mixed waste (This code shall be applied in case wastes are discharged without separation.)	NH12	Others	NH13																																																																																											
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	4.3 Copy machines and similars		17.1 Two wheel																																																																																																																					
F05	Wood		17.2 Naval																																																																																																																					
F06	Mechanical		17.3 Other transport material industry																																																																																																																					
	6.1 Watch	F18	Construction																																																																																																																					
	6.2 Other mechanical industries	F19	Others																																																																																																																					
F07	Metallurgy		19.1 Optical																																																																																																																					
F08	Non metallic minerals		19.2 Toys																																																																																																																					
F09	Furniture		19.3 Devices, equipment, and fotogr. accessories																																																																																																																					
F10	Paper, cardboard, cellulose		19.4 Pens and disposable razors																																																																																																																					
F11	Rubber		19.5 Other several industries																																																																																																																					

Code of Production Process	
Code	First Category
P01	Wastes Resulting From Exploration, Mining, Quarrying, And Physical And Chemical Treatment of Minerals
P02	Wastes From Agriculture, Horticulture, Aquaculture, Forestry, Hunting and Fishing, Food Preparation and Processing
P03	Wastes From Wood Processing And The Production of Panels And Furniture, Pulp, Paper And Cardboard
P04	Wastes From The Leather, Fur And Textile Industries
P05	Wastes From Petroleum Refining, Natural Gas Purification And Pyrolytic Treatment of Coal
P06	Wastes From Inorganic Chemical Processes
P07	Wastes From Organic Chemical Processes
P08	Wastes From The Manufacture, Formulation, Supply And Use (MFSU) of Coatings (Paints, Varnishes And Vitreous Enamels), Adhesives, Sealants And Printing Inks
P09	Wastes From The Photographic Industry
P10	Wastes From Thermal Processes
P11	Wastes From Chemical Surface Treatment And Coating of Metals And Other Materials; Non-Ferrous Hydrometallurgy
P12	Wastes From Shaping And Physical And Mechanical Surface Treatment of Metals And Plastics
P13	Oil Wastes And Wastes of Liquid Fuels (Except Edible Oils, And Those In Chapters 05, 12 And 19)
P14	Waste Organic Solvents, Refrigerants and Propellants (except 07 and 08)
P15	Waste packing; Absorbents, Wiping Cloths, Filter Materials and Protective Clothing not Otherwise Specified
P16	Wastes Not Otherwise Specified In The List

## Next Weekly Meeting

☐ **March 16 2009 (Monday)**

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### 3.1.2 Minutes of Meeting for Weekly Meeting (1) on March 9, 2009

Weekly Meeting (1)	Minutes & Agenda																																								
<p>For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</p> <p>15:00pm - 17:30pm March 9, 2009 JICA Study Team Office in SUFRAMA</p> <p><b>Agenda</b></p> <ol style="list-style-type: none"> <li>1. Report progress</li> <li>2. Schedule for the next week</li> <li>3. Subjects to be discussed</li> </ol> <p><b>Attendees</b></p> <table border="0"> <tr> <td>1. Sr. Luis Filipe SINDAU</td> <td>SUFRAMA's Industrial Projects Commission</td> </tr> <tr> <td>2. André Azeiteiro</td> <td>Alexandre of ENECOP</td> </tr> <tr> <td>3. Alexandre Radoni</td> <td>Representative of FIEAC/CIAM/CIOSH/AM</td> </tr> <tr> <td>4. Rayner Duarte Jr.</td> <td>Representative of FROGAMM</td> </tr> <tr> <td>5. Clive Henderson</td> <td>Representative of SEMULSP</td> </tr> <tr> <td>6. Wilson Oliveira</td> <td>Representative of IEL</td> </tr> <tr> <td>7. Juliano Mourão</td> <td>Member of SUFRAMA</td> </tr> <tr> <td>8. 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Work progress: February 27<sup>th</sup>, 2009 – March 6<sup>th</sup>, 2009</p> <p>Starting with work progress evaluation:</p> <ol style="list-style-type: none"> <li>1. Evaluation and Discussion of the Inspection Report (IGR) → Preparation and M/M of IGR</li> <li>2. Meeting with (PRAMA, SEMULSP, MMA, ABC, MDC, EDC) and JICA Staff</li> <li>3. Field visits to 1. the Landfill of Manaus Municipality, 2. Fajal, Córrea &amp; Enchimentos, 3. Concrete Company of Manaus Ltd., 4. São Vicente do Anacleto Ltd. and 5. CETRAM</li> <li>4. Presentation of a questionnaire for factory survey</li> </ol> <p>II. Schedule for the next two weeks</p> <ol style="list-style-type: none"> <li>1. Presentation of a questionnaire for factory survey</li> <li>2. Presentation of a questionnaire for industrial waste management companies</li> <li>3. Preparation of medical waste survey</li> <li>4. Preparation of construction waste survey</li> <li>5. Preparation of radioactive waste survey</li> </ol> <p>III. Subject to be Discussed</p> <p>The following issues were discussed at the weekly meeting:</p> <ol style="list-style-type: none"> <li>a. Confirmation and clarification of the study area, target waste and waste management companies</li> <li>b. Factory survey</li> <li>b.1 Schedule</li> <li>b.2 Definition of waste generation source (factor), waste, reuse and recycle</li> </ol> <p>4. Confirmation and clarification of the study area, target waste and waste management companies</p> <p><b>Subject 1</b> According to the I/W (Scope of the Work), the Study area corresponds to an area comprising (Total Area) approved by the Governing Council of SUFRAMA (CAS) within an area of 10,000 and as defined by Decree Law 28667 and its regulations Chapter 11 (PART), in the Industrial Pole of Manaus (IPM). Thus, what does plant size? Are only the industries approved by the SUFRAMA?</p> <p><b>Conclusion of the WM (I)</b> Those plants mean located in the IPM.</p> <p><b>Subject 2</b> What does the IPM (Industrial Pole of Manaus - Polo Industrial de Manaus) mean? Does IPM include an industrial factory? Does IPM mean a complex of industries?</p> <p><b>Conclusion of the WM (I)</b> The IPM means a complex of industries (industries) approved by the SUFRAMA within the Manaus Free-Trade Zone of 10,000 km<sup>2</sup> area, i.e. the IPM area under the jurisdiction of the SUFRAMA. (Annex of Study, Volume 10, 11, 12a, 12a-b)</p>
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<p><b>Subject 2</b> Is the location map of PM available?</p> <p><b>Conclusion of the WM (1)</b> A list of factories with its location will be supplied by the SUPRAMA.</p> <p><b>Subject 4</b> What is difference between PM and CI (Industrial District) Design intention?</p> <p><b>Conclusion of the WM (1)</b> Main difference of waste and toxic of the CI is that SUPRAMA provides fund for the investor with the aim of J TIRI. In addition, a waste-treatment infrastructure is also provided in the CI.</p> <p><b>Subject 5</b> According to the SW, The target waste is the industrial waste generated in the PM, shown as Appendix 3 in the SW. However, Appendix 4 includes wastes from 1) Industry, 2) Hospital (Medical institutions), 3) Construction, 4) Fisheries. Therefore, the target waste should be changed. The waste generated from the industries exists in the PM, shown as Appendix 3 in the SW.</p> <p><b>Conclusion of the WM (1)</b> It is agreed that the target waste should be changed. The waste generated from the industrial waste in the PM, shown as Appendix 3 in the SW.</p> <p><b>Subject 6</b> Are there available data on the waste from 1) Industry, 2) Hospital (Medical institutions), 3) Construction, 4) Fisheries (respectively)?</p> <p><b>Conclusion of the WM (1)</b> There are some available data on the wastes. However, those data are provided by the other organization (see SUPRAMA).</p> <p><b>Subject 7</b> To confirm the following definitions on the hazardous waste (HW):  <ul style="list-style-type: none"> <li>Is the waste generated from factory?</li> <li>Proper disposal of the HW is the responsibility of generator?</li> <li>Control organization is IPAM?</li> </ul> </p> <p><b>Conclusion of the WM (1)</b> The above subject is confirmed as follows:  <ul style="list-style-type: none"> <li>Yes, it is.</li> <li>Proper disposal of the HW is the responsibility of generator? These parties (generator, transporter and receptor) may have responsibility. However, the Brazil's National Solid Waste Policy Bill being considered in the Parliament states the generator is the only responsible party.</li> <li>Control organization is IPAM? Yes, it is.</li> </ul> </p> <p><b>Subject 8</b> What is the Industrial Classification (ICB) (1) if the same as the ICB intention (Standard of Industrial Classification)?</p> <p><small>(Notes of Subject (week 01, 1-1) (The 1st set)</small></p>	<p><b>Conclusion of the WM (1)</b> The Industrial Classification in Brazil is the National Records of Business Activities (CNAE) for the registration of the companies, and the MERCOSUL Common Nomenclature (NCM), for the registration of products. Verify relevance of ICB.</p> <p><b>Subject 9</b> The SW designates two categories of hazardous waste from production processes (see the Table 3 of the ICRI). Why 1,2 (biological, pharmaceutical) is separate from 1-1 (waste oil, sludge)? This categorization does not exist in CDNAMA Resolution 213.</p> <p><b>Conclusion of the WM (1)</b> It should be:  <ul style="list-style-type: none"> <li>Waste discharged from (production) Process <ul style="list-style-type: none"> <li>Hazardous waste of sludge, biological, pharmaceutical, etc.;</li> <li>2) Non-hazardous</li> </ul> </li> <li>Waste discharged from Offsite (non-production) process <ul style="list-style-type: none"> <li>Hazardous (transmission lamp, battery, etc.)</li> <li>Non-hazardous</li> </ul> </li> </ul> </p> <p><b>Subject 10</b> What kind of waste categorization will be applied to the Brazil's National Solid Waste Policy Bill being discussed in the parliament?</p> <p><b>Conclusion of the WM (1)</b> The subject should be asked to the Ministry of Environment. The generator is supposed to implement waste becoming logistics.</p> <p><b>Subject 11</b> To confirm the following definitions on the health waste:  <ul style="list-style-type: none"> <li>Is the waste generated from medical institution?</li> <li>Proper disposal of the health waste is the responsibility of generator?</li> <li>What is the control organization?</li> <li>Should waste categorization follow the ABNT 12005-1/2007? Provide a copy of the ABNT 12005-1/2007.</li> </ul> </p> <p><b>Conclusion of the WM (1)</b> The above subject is confirmed as follows:  <ul style="list-style-type: none"> <li>Is the waste generated from medical institution? Yes, and also dental, and pharmaceuticals</li> <li>Proper disposal of the health waste is the responsibility of generator? These parties (generator, transporter and receptor) may have responsibility.</li> <li>What is the control organization? It may be SEMMA, IPAM or ANVISA (National Sanitary Surveillance Agency).</li> <li>Should waste categorization follow the ABNT 12005-1/2007? Provide a copy of the ABNT 12005-1/2007. It is able to purchase to the internet. Also check CDNAMA (SW Resolution) and the Central Administrative Resolution 309 of ANVISA.</li> </ul> </p> <p><b>Subject 12</b> Does the medical institution referred to as "hospital" in SW include institutions located in the PM area, both inside and/or a factory, or both?</p> <p><b>Conclusion of the WM (1)</b> The medical institutions to be studied in the Study are a hospital and clinics of Institutes A (1) (generator (NCKK)). The medical institution located in the CI but outside SUPRAMA jurisdiction are excluded.</p> <p><small>(Notes of Subject (week 01, 1-1) (The 1st set)</small></p>
<p><b>Subject 13</b> What is the objective for the inclusion of the Health waste in this Study?</p> <p><b>Conclusion of the WM (1)</b> SUPRAMA needs to identify current waste management including the health waste in its jurisdiction.</p> <p><b>Subject 14</b> To confirm the following definitions on the Contractor waste:  <ul style="list-style-type: none"> <li>Definition and categorization.</li> <li>Proper disposal of the contractor waste is the responsibility of contractor, owner of the property or not?</li> <li>What is the control organization?</li> </ul> </p> <p><b>Conclusion of the WM (1)</b> The above subject is confirmed as follows:  <ul style="list-style-type: none"> <li>Definition and categorization. It should be in accordance with CDNAMA 203-Resolution and ABNT 12005-1/2007.</li> <li>Proper disposal of the contractor waste is the responsibility of contractor, owner of the property or not? It is in accordance with the contract between contractor and owner of the property.</li> <li>What is the control organization? It is SEMMA and SUPRAMA (Urban Planning Municipal Institute) for Manaus City jurisdiction and IPAM for the Amazonia State outside the City.</li> </ul> </p> <p><b>Subject 15</b> Is it possible to use thermal or enhanced vapor separation technologies? If yes, their residues will be used as a basis for the study.</p> <p><b>Conclusion of the WM (1)</b> No, it is not relevant.</p> <p><b>Subject 16</b> What kind of construction site shall be included? Is it PM area or factory in PM area?</p> <p><b>Conclusion of the WM (1)</b> The construction sites to be studied in the Study are those in ID (Industrial District). The construction sites located in the CI but outside SUPRAMA jurisdiction are excluded.</p> <p><b>Subject 17</b> To confirm the following definitions on the radioactive waste:  <ul style="list-style-type: none"> <li>Definition and categorization.</li> <li>Proper disposal of the radioactive waste is the responsibility of generator?</li> <li>What is the control organization?</li> </ul> </p> <p><b>Conclusion of the WM (1)</b> IPAM or SEMMA will be able to reply the above subject.</p> <p><b>Subject 18</b> What discharge the radioactive waste?</p> <p><b>Conclusion of the WM (1)</b> IPAM or SEMMA will be able to reply the above subject.</p> <p><small>(Notes of Subject (week 01, 1-1) (The 1st set)</small></p>	<p><b>Subject 19</b> Are there records and information on the generation sources?</p> <p><b>Conclusion of the WM (1)</b> IPAM or SEMMA will be able to reply the above subject.</p> <p><b>Subject 20</b> To confirm the following aspects on the Licensing System of Waste Management Companies:  <ul style="list-style-type: none"> <li>Industrial scale of waste management company.</li> <li>When does the license?</li> <li>License period.</li> <li>List of licensed companies and licensed activities.</li> </ul> </p> <p><b>Conclusion of the WM (1)</b> IPAM will be able to reply the above subject.</p> <p><b>Subject 21</b> Are there some unlicensed companies? If yes how do we survey them?</p> <p><b>Conclusion of the WM (1)</b> IPAM or SEMMA will be able to reply the above subject.</p> <p><b>6. Factory survey</b>  <b>6.1 Schedule</b>  The following schedule for the factory survey is acknowledged:  <ul style="list-style-type: none"> <li>March 10: Selection of 200 target factory.</li> <li>March 23: Finalization of questionnaire.</li> <li>March 31: Selection of local consultant.</li> <li>July 31: Draft report from the local consultant.</li> <li>August 31: Final report.</li> </ul> </p> <p><b>6.2 Definition of waste generation sources (factory), waste, make and recycle.</b>  The subject will be discussed in the next weekly meeting to be held on March 16. The meeting was closed at 02:30pm.</p> <p><small>(Notes of Subject (week 01, 1-1) (The 1st set)</small></p>

## 3.2 Weekly Meeting (2)

### 3.2.1 Agenda for Weekly Meeting (2) on March 16, 2009

<p style="text-align: center;"><b>Weekly Meeting (2)</b></p> <p style="text-align: center;"><b>March 16, 2009</b> <b>JICA Study Team</b> For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</p>	<p><b>Agenda</b></p> <ol style="list-style-type: none"> <li>1. Work Progress</li> <li>2. Schedule for the This Week</li> <li>3. Subjects to be Discussed</li> </ol>
<p><b>1. Work Progress: From March 9 to 16, 2009</b></p> <ol style="list-style-type: none"> <li>1. Meeting with IPAAM for discussion of licensing system of waste management companies.</li> <li>2. Meeting with IBAM for coordination of our study with the Solid Waste Master Plan Study for Manaus City.</li> <li>3. Preparation of factory survey by setting selection criteria of target factories.</li> <li>4. Preparation of a questionnaire for waste management companies</li> </ol>	<p><b>2. Schedule for the This Week</b></p> <ol style="list-style-type: none"> <li>1. Preparation of a tender document for factory survey</li> <li>2. Preparation of a questionnaire for industrial waste management companies</li> <li>3. Preparation of health waste survey</li> <li>4. Preparation of construction waste survey</li> <li>5. Preparation of radioactive waste survey</li> </ol>
<p><b>3. Subjects to be Discussed</b></p> <ol style="list-style-type: none"> <li>a. Confirmation of minutes of the weekly meeting (1) =&gt; See M/M (Minutes of the Weekly Meeting (1))</li> <li>b. Factory survey</li> <li>c. Survey on waste management companies</li> </ol>	<p><b>b. Factory survey</b></p> <ol style="list-style-type: none"> <li>1. Schedule</li> <li>2. Definition of waste generation source and waste</li> <li>3. Waste category</li> <li>4. Selection of target factories</li> <li>5. Possible local consultants for the survey</li> </ol>
<p><b>b. Factory Survey (1): Schedule</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> March 16: Selection of 200 target factory</li> <li><input type="checkbox"/> March 19: Finalization of questionnaire</li> <li><input type="checkbox"/> March 20: Invitation of local consultants</li> <li><input type="checkbox"/> March 27: Tender close</li> <li><input type="checkbox"/> March 30: Negotiation with the lowest bidder</li> <li><input type="checkbox"/> March 31: Selection of the local consultant</li> <li><input type="checkbox"/> April 1 – 15: Trial factory survey</li> <li><input type="checkbox"/> July 31: Draft report from the local consultant</li> <li><input type="checkbox"/> August 31: Final report</li> </ul>	<p><b>b. Factory Survey (2): Definition of Waste Generation Source and Waste (1)</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The waste generation sources in a factory are classified into following two categories.             <ol style="list-style-type: none"> <li>1. Non-production process source: The waste generation sources are canteens, administration area, clinic, construction and so on, excluding the production process area. =&gt; Note: Waste generated clinic (health service) and construction shall be studied by the health waste and construction waste survey.</li> <li>2. Production process source: The waste generation source related to the production of final products of a factory.</li> </ol> </li> </ul>



<p><b>b. Factory Survey (3): Definition of Waste Generation Source and Waste (2)</b></p> <p><input type="checkbox"/> In Brazil the wastes are classified as:</p> <p>a) Class I waste – Hazardous; and b) Class II waste – Non-hazardous.     Class II A– Non-inert     Class II B– Inert</p> <p><input type="checkbox"/> The waste generated in a factory is called as industrial waste (IW). Industrial waste is classified into the following four categories:</p> <ol style="list-style-type: none"> <li>1. Non-HIW (Non Hazardous Industrial Waste) generated from Non-production process</li> <li>2. HIW (Hazardous Industrial Waste) generated from Non-production process</li> <li>3. Non-HIW generated from Production process</li> <li>4. HIW generated from Production process</li> </ol>	<p><b>b. Factory Survey (4): Waste Category (1)</b></p> <p><input type="checkbox"/> CONAMA Resolution 313 and ABNT NBR 10004 classifies non-hazardous and hazardous wastes into large numbers of categories by their generation sources, chemical characteristics, etc.</p> <p><input type="checkbox"/> It is impossible to identify the waste amount according to the above category.</p> <p><input type="checkbox"/> In the Study in order to identify the current IW management (IWM) both in the generation and after generation sources the Non-HIW and HIW are classified into 13 and 15 categories respectively.</p>																																																																																																																																																																														
<p><b>b. Factory Survey (5): Waste Category (2) Non-HIW (Class II A – Non-inert and Class II B – Inert)</b></p> <table border="1"> <thead> <tr> <th>Type of Non-HIW</th> <th>Non-HIW Code</th> </tr> </thead> <tbody> <tr><td>Waste from animal such as bone, skin, hair (Food waste)</td><td>NH01</td></tr> <tr><td>Wood</td><td>NH02</td></tr> <tr><td>Paper</td><td>NH03</td></tr> <tr><td>Plastic or polymers and resins</td><td>NH04</td></tr> <tr><td>Textile and fiber</td><td>NH05</td></tr> <tr><td>Grease, animal oil, vegetable oil</td><td>NH06</td></tr> <tr><td>Rubbers and Leather</td><td>NH07</td></tr> <tr><td>Ash/dust from coal-fired power plants, etc.</td><td>NH08</td></tr> <tr><td>Metals and metal alloys such as aluminum, copper, bronze</td><td>NH09</td></tr> <tr><td>Ceramic &amp; Glasses</td><td>NH10</td></tr> <tr><td>Stone, sand or material that have composition of soil such as tile, brick, gypsum, cement</td><td>NH11</td></tr> <tr><td>Mixed waste (This code shall be applied in case wastes are discharged without separation.)</td><td>NH12</td></tr> <tr><td>Others</td><td>NH13</td></tr> </tbody> </table> <p>Non-inert or inert is subject to the solubilization test.</p>	Type of Non-HIW	Non-HIW Code	Waste from animal such as bone, skin, hair (Food waste)	NH01	Wood	NH02	Paper	NH03	Plastic or polymers and resins	NH04	Textile and fiber	NH05	Grease, animal oil, vegetable oil	NH06	Rubbers and Leather	NH07	Ash/dust from coal-fired power plants, etc.	NH08	Metals and metal alloys such as aluminum, copper, bronze	NH09	Ceramic & Glasses	NH10	Stone, sand or material that have composition of soil such as tile, brick, gypsum, cement	NH11	Mixed waste (This code shall be applied in case wastes are discharged without separation.)	NH12	Others	NH13	<p><b>b. Factory Survey (6): Waste Category (3) Relationship between Waste Code of Class II and Class III of CONAMA Resolution 313 and Proposed One</b></p> <table border="1"> <thead> <tr> <th>Team Code</th> <th colspan="6">CONAMA Code</th> </tr> </thead> <tbody> <tr><td>NH01</td><td>A001</td><td>A024</td><td>A499</td><td>A599</td><td>A699</td><td>A999</td></tr> <tr><td>NH02</td><td>A009</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>NH03</td><td>A006</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>NH04</td><td>A007</td><td>A107</td><td>A108</td><td>A207</td><td>A208</td><td></td></tr> <tr><td>NH05</td><td>A010</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>NH06</td><td>-</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>NH07</td><td>A008</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>NH08</td><td>A111</td><td>A299</td><td></td><td></td><td></td><td></td></tr> <tr><td>NH09</td><td>A004</td><td>A005</td><td>A011</td><td>A012</td><td>A013</td><td>A014</td></tr> <tr><td></td><td>A016</td><td>A104</td><td>A105</td><td>A204</td><td>A399</td><td>A015</td></tr> <tr><td>NH10</td><td>A017</td><td>A025</td><td>A117</td><td>A799</td><td></td><td></td></tr> <tr><td>NH11</td><td>-</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>NH12</td><td>A002</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>NH13</td><td>A003</td><td>A018</td><td>A019</td><td>A021</td><td>A022</td><td>A023</td></tr> <tr><td></td><td>A027</td><td>A028</td><td>A029</td><td>A099</td><td>A199</td><td>A308</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td>A898</td><td>A899</td></tr> </tbody> </table> <p>CONAMA Code : RESOLUTION Nº 313, OF 29 OF OCTOBER OF 2002 Annex II Industrial Solid Residues</p>	Team Code	CONAMA Code						NH01	A001	A024	A499	A599	A699	A999	NH02	A009						NH03	A006						NH04	A007	A107	A108	A207	A208		NH05	A010						NH06	-						NH07	A008						NH08	A111	A299					NH09	A004	A005	A011	A012	A013	A014		A016	A104	A105	A204	A399	A015	NH10	A017	A025	A117	A799			NH11	-						NH12	A002						NH13	A003	A018	A019	A021	A022	A023		A027	A028	A029	A099	A199	A308						A898	A899																											
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<p><b>b. Factory Survey (9): Selection of target factories (2)</b></p> <ol style="list-style-type: none"> <li>1. Discussion of the contents of the proposed questionnaire</li> <li>2. For the factory survey and its reporting is it possible to provide an Auto CAD data for the Study area and Manaus city?</li> <li>3. When will we able to receive some Waste Inventories submitted by factories for reference?</li> <li>4. Letter shall be issued by SUFRAMA for the factory survey. =&gt; See an example</li> <li>5. Letter shall be sent more than 200 factories.</li> <li>6. Provision of an ID card for the study team member.</li> </ol>	<p><b>b. Factory Survey (10): Selection of target factories (3) List of Factories according to the code and location</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Factory Code</th> <th colspan="2">Manaus City</th> <th colspan="4">Other area</th> <th rowspan="2">Sub-total</th> </tr> <tr> <th>Industrial District</th> <th>Outside</th> <th>Boa Vista - RR</th> <th>Itanduba-Am</th> <th>Itacaitara-AM</th> <th>Vilhena - RO</th> </tr> </thead> <tbody> <tr><td>F01</td><td>4</td><td>12</td><td></td><td>1</td><td></td><td>1</td><td>18</td></tr> <tr><td>F02</td><td>0</td><td>0</td><td></td><td></td><td></td><td></td><td>0</td></tr> <tr><td>F03</td><td>6</td><td>3</td><td></td><td></td><td></td><td>1</td><td>10</td></tr> <tr><td>F04</td><td>73</td><td>52</td><td></td><td></td><td></td><td></td><td>125</td></tr> <tr><td>F05</td><td>2</td><td>1</td><td></td><td></td><td>2</td><td></td><td>5</td></tr> <tr><td>F06</td><td>19</td><td>9</td><td></td><td></td><td></td><td></td><td>28</td></tr> <tr><td>F07</td><td>23</td><td>20</td><td></td><td></td><td></td><td></td><td>43</td></tr> <tr><td>F08</td><td></td><td>2</td><td></td><td></td><td></td><td></td><td>2</td></tr> <tr><td>F09</td><td>1</td><td>3</td><td></td><td></td><td></td><td></td><td>4</td></tr> <tr><td>F10</td><td>7</td><td>6</td><td></td><td></td><td></td><td></td><td>13</td></tr> <tr><td>F11</td><td>2</td><td>1</td><td></td><td></td><td></td><td></td><td>3</td></tr> <tr><td>F12</td><td></td><td>5</td><td></td><td>1</td><td></td><td></td><td>6</td></tr> <tr><td>F13</td><td>13</td><td>15</td><td></td><td></td><td></td><td></td><td>28</td></tr> <tr><td>F14</td><td>32</td><td>35</td><td></td><td></td><td></td><td></td><td>67</td></tr> <tr><td>F15</td><td></td><td>1</td><td></td><td></td><td></td><td></td><td>1</td></tr> <tr><td>F16</td><td></td><td>2</td><td></td><td></td><td></td><td></td><td>2</td></tr> <tr><td>F17</td><td>15</td><td>16</td><td></td><td></td><td></td><td></td><td>31</td></tr> <tr><td>F18</td><td></td><td>3</td><td></td><td></td><td></td><td></td><td>3</td></tr> <tr><td>F19</td><td>7</td><td>5</td><td></td><td></td><td></td><td></td><td>12</td></tr> <tr><td>Total</td><td>204</td><td>191</td><td></td><td>1</td><td>3</td><td>1</td><td>401</td></tr> </tbody> </table> <p>Source : Perfil das Empresas, com Projetos Aprovados Pelos SUFRAMA, I Parte, Dez/2008</p>	Factory Code	Manaus City		Other area				Sub-total	Industrial District	Outside	Boa Vista - RR	Itanduba-Am	Itacaitara-AM	Vilhena - RO	F01	4	12		1		1	18	F02	0	0					0	F03	6	3				1	10	F04	73	52					125	F05	2	1			2		5	F06	19	9					28	F07	23	20					43	F08		2					2	F09	1	3					4	F10	7	6					13	F11	2	1					3	F12		5		1			6	F13	13	15					28	F14	32	35					67	F15		1					1	F16		2					2	F17	15	16					31	F18		3					3	F19	7	5					12	Total	204	191		1	3	1	401
Factory Code	Manaus City		Other area				Sub-total																																																																																																																																																																								
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<p><b>b. Factory Survey (11): Selection of target factories (4)</b> Number of factories without outside Manaus City</p> <table border="1"> <thead> <tr> <th rowspan="2">Factory Code</th> <th colspan="2">Industrial District</th> <th colspan="2">Outside</th> <th colspan="2">Total</th> </tr> <tr> <th>Number</th> <th>(%)</th> <th>Number</th> <th>(%)</th> <th>Number</th> <th>(%)</th> </tr> </thead> <tbody> <tr><td>F01</td><td>4</td><td>2.0</td><td>12</td><td>6.3</td><td>16</td><td>4.5</td></tr> <tr><td>F02</td><td>0</td><td>0.0</td><td>0</td><td>0.0</td><td>0</td><td>0.0</td></tr> <tr><td>F03</td><td>6</td><td>2.9</td><td>3</td><td>1.6</td><td>9</td><td>2.5</td></tr> <tr><td>F04</td><td>73</td><td>35.7</td><td>52</td><td>27.3</td><td>125</td><td>31.3</td></tr> <tr><td>F05</td><td>2</td><td>1.0</td><td>1</td><td>0.5</td><td>3</td><td>1.2</td></tr> <tr><td>F06</td><td>19</td><td>9.3</td><td>9</td><td>4.7</td><td>28</td><td>7.0</td></tr> <tr><td>F07</td><td>23</td><td>11.3</td><td>20</td><td>10.5</td><td>43</td><td>10.7</td></tr> <tr><td>F08</td><td>0</td><td>0.0</td><td>2</td><td>1.0</td><td>2</td><td>0.5</td></tr> <tr><td>F09</td><td>1</td><td>0.5</td><td>3</td><td>1.6</td><td>4</td><td>1.0</td></tr> <tr><td>F10</td><td>7</td><td>3.4</td><td>6</td><td>3.1</td><td>13</td><td>3.2</td></tr> <tr><td>F11</td><td>2</td><td>1.0</td><td>1</td><td>0.5</td><td>3</td><td>0.7</td></tr> <tr><td>F12</td><td>0</td><td>0.0</td><td>5</td><td>2.6</td><td>5</td><td>1.5</td></tr> <tr><td>F13</td><td>13</td><td>6.4</td><td>15</td><td>7.9</td><td>28</td><td>7.0</td></tr> <tr><td>F14</td><td>32</td><td>15.7</td><td>35</td><td>18.3</td><td>67</td><td>16.8</td></tr> <tr><td>F15</td><td>0</td><td>0.0</td><td>1</td><td>0.5</td><td>1</td><td>0.2</td></tr> <tr><td>F16</td><td>0</td><td>0.0</td><td>2</td><td>1.0</td><td>2</td><td>0.5</td></tr> <tr><td>F17</td><td>15</td><td>7.4</td><td>16</td><td>8.4</td><td>31</td><td>7.7</td></tr> <tr><td>F18</td><td>0</td><td>0.0</td><td>3</td><td>1.6</td><td>3</td><td>0.7</td></tr> <tr><td>F19</td><td>7</td><td>3.4</td><td>5</td><td>2.6</td><td>12</td><td>3.0</td></tr> <tr><td>Total</td><td>204</td><td>100.0</td><td>191</td><td>100.0</td><td>395</td><td>100.0</td></tr> <tr><td>(%)</td><td></td><td>51.6</td><td></td><td>48.4</td><td></td><td>100.0</td></tr> </tbody> </table>	Factory Code	Industrial District		Outside		Total		Number	(%)	Number	(%)	Number	(%)	F01	4	2.0	12	6.3	16	4.5	F02	0	0.0	0	0.0	0	0.0	F03	6	2.9	3	1.6	9	2.5	F04	73	35.7	52	27.3	125	31.3	F05	2	1.0	1	0.5	3	1.2	F06	19	9.3	9	4.7	28	7.0	F07	23	11.3	20	10.5	43	10.7	F08	0	0.0	2	1.0	2	0.5	F09	1	0.5	3	1.6	4	1.0	F10	7	3.4	6	3.1	13	3.2	F11	2	1.0	1	0.5	3	0.7	F12	0	0.0	5	2.6	5	1.5	F13	13	6.4	15	7.9	28	7.0	F14	32	15.7	35	18.3	67	16.8	F15	0	0.0	1	0.5	1	0.2	F16	0	0.0	2	1.0	2	0.5	F17	15	7.4	16	8.4	31	7.7	F18	0	0.0	3	1.6	3	0.7	F19	7	3.4	5	2.6	12	3.0	Total	204	100.0	191	100.0	395	100.0	(%)		51.6		48.4		100.0	<p><b>b. Factory Survey (12): Selection of target factories (5)</b> Number of Employee without outside Manaus City</p> <table border="1"> <thead> <tr> <th rowspan="2">Factory Code</th> <th colspan="2">Industrial District</th> <th colspan="2">Outside</th> <th colspan="2">Total</th> </tr> <tr> <th>Number</th> <th>(%)</th> <th>Number</th> <th>(%)</th> <th>Number</th> <th>(%)</th> </tr> </thead> <tbody> <tr><td>F01</td><td>444</td><td>0.5</td><td>1,914</td><td>6.6</td><td>2,358</td><td>6.3</td></tr> <tr><td>F02</td><td>0</td><td>0.0</td><td>0</td><td>0.0</td><td>0</td><td>0.0</td></tr> <tr><td>F03</td><td>512</td><td>0.6</td><td>294</td><td>1.0</td><td>806</td><td>1.6</td></tr> <tr><td>F04</td><td>46,948</td><td>51.5</td><td>12,812</td><td>43.8</td><td>59,760</td><td>27.3</td></tr> <tr><td>F05</td><td>357</td><td>0.4</td><td>20</td><td>0.1</td><td>377</td><td>0.5</td></tr> <tr><td>F06</td><td>5,715</td><td>6.3</td><td>2,123</td><td>7.3</td><td>7,838</td><td>4.7</td></tr> <tr><td>F07</td><td>4,143</td><td>4.6</td><td>1,566</td><td>5.4</td><td>5,709</td><td>10.5</td></tr> <tr><td>F08</td><td>0</td><td>0.0</td><td>412</td><td>1.4</td><td>412</td><td>1.0</td></tr> <tr><td>F09</td><td>145</td><td>0.2</td><td>378</td><td>1.3</td><td>523</td><td>1.6</td></tr> <tr><td>F10</td><td>1,328</td><td>1.5</td><td>421</td><td>1.4</td><td>1,749</td><td>3.1</td></tr> <tr><td>F11</td><td>52</td><td>0.1</td><td>61</td><td>0.2</td><td>113</td><td>0.5</td></tr> <tr><td>F12</td><td>0</td><td>0.0</td><td>251</td><td>0.9</td><td>251</td><td>2.6</td></tr> <tr><td>F13</td><td>994</td><td>1.1</td><td>586</td><td>2.0</td><td>1,580</td><td>7.9</td></tr> <tr><td>F14</td><td>4,483</td><td>4.9</td><td>3,446</td><td>11.8</td><td>7,929</td><td>18.3</td></tr> <tr><td>F15</td><td>0</td><td>0.0</td><td>467</td><td>1.6</td><td>467</td><td>0.5</td></tr> <tr><td>F16</td><td>0</td><td>0.0</td><td>876</td><td>3.0</td><td>876</td><td>1.0</td></tr> <tr><td>F17</td><td>22,647</td><td>24.8</td><td>2,856</td><td>9.8</td><td>25,503</td><td>8.4</td></tr> <tr><td>F18</td><td>0</td><td>0.0</td><td>141</td><td>0.5</td><td>141</td><td>1.6</td></tr> <tr><td>F19</td><td>3,183</td><td>3.5</td><td>563</td><td>1.9</td><td>3,746</td><td>2.6</td></tr> <tr><td>Total</td><td>90,951</td><td>100.0</td><td>29,187</td><td>100.0</td><td>120,138</td><td>100.0</td></tr> <tr><td>(%)</td><td></td><td>75.7</td><td></td><td>24.3</td><td></td><td>100.0</td></tr> </tbody> </table>	Factory Code	Industrial District		Outside		Total		Number	(%)	Number	(%)	Number	(%)	F01	444	0.5	1,914	6.6	2,358	6.3	F02	0	0.0	0	0.0	0	0.0	F03	512	0.6	294	1.0	806	1.6	F04	46,948	51.5	12,812	43.8	59,760	27.3	F05	357	0.4	20	0.1	377	0.5	F06	5,715	6.3	2,123	7.3	7,838	4.7	F07	4,143	4.6	1,566	5.4	5,709	10.5	F08	0	0.0	412	1.4	412	1.0	F09	145	0.2	378	1.3	523	1.6	F10	1,328	1.5	421	1.4	1,749	3.1	F11	52	0.1	61	0.2	113	0.5	F12	0	0.0	251	0.9	251	2.6	F13	994	1.1	586	2.0	1,580	7.9	F14	4,483	4.9	3,446	11.8	7,929	18.3	F15	0	0.0	467	1.6	467	0.5	F16	0	0.0	876	3.0	876	1.0	F17	22,647	24.8	2,856	9.8	25,503	8.4	F18	0	0.0	141	0.5	141	1.6	F19	3,183	3.5	563	1.9	3,746	2.6	Total	90,951	100.0	29,187	100.0	120,138	100.0	(%)		75.7		24.3		100.0
Factory Code		Industrial District		Outside		Total																																																																																																																																																																																																																																																																																																																											
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F18	0	0.0	3	1.6	3	0.7																																																																																																																																																																																																																																																																																																																											
F19	7	3.4	5	2.6	12	3.0																																																																																																																																																																																																																																																																																																																											
Total	204	100.0	191	100.0	395	100.0																																																																																																																																																																																																																																																																																																																											
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F02	0	0.0	0	0.0	0	0.0																																																																																																																																																																																																																																																																																																																											
F03	512	0.6	294	1.0	806	1.6																																																																																																																																																																																																																																																																																																																											
F04	46,948	51.5	12,812	43.8	59,760	27.3																																																																																																																																																																																																																																																																																																																											
F05	357	0.4	20	0.1	377	0.5																																																																																																																																																																																																																																																																																																																											
F06	5,715	6.3	2,123	7.3	7,838	4.7																																																																																																																																																																																																																																																																																																																											
F07	4,143	4.6	1,566	5.4	5,709	10.5																																																																																																																																																																																																																																																																																																																											
F08	0	0.0	412	1.4	412	1.0																																																																																																																																																																																																																																																																																																																											
F09	145	0.2	378	1.3	523	1.6																																																																																																																																																																																																																																																																																																																											
F10	1,328	1.5	421	1.4	1,749	3.1																																																																																																																																																																																																																																																																																																																											
F11	52	0.1	61	0.2	113	0.5																																																																																																																																																																																																																																																																																																																											
F12	0	0.0	251	0.9	251	2.6																																																																																																																																																																																																																																																																																																																											
F13	994	1.1	586	2.0	1,580	7.9																																																																																																																																																																																																																																																																																																																											
F14	4,483	4.9	3,446	11.8	7,929	18.3																																																																																																																																																																																																																																																																																																																											
F15	0	0.0	467	1.6	467	0.5																																																																																																																																																																																																																																																																																																																											
F16	0	0.0	876	3.0	876	1.0																																																																																																																																																																																																																																																																																																																											
F17	22,647	24.8	2,856	9.8	25,503	8.4																																																																																																																																																																																																																																																																																																																											
F18	0	0.0	141	0.5	141	1.6																																																																																																																																																																																																																																																																																																																											
F19	3,183	3.5	563	1.9	3,746	2.6																																																																																																																																																																																																																																																																																																																											
Total	90,951	100.0	29,187	100.0	120,138	100.0																																																																																																																																																																																																																																																																																																																											
(%)		75.7		24.3		100.0																																																																																																																																																																																																																																																																																																																											
<p><b>b. Factory Survey (13): Selection of target factories (6) Selection Method</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 180 target factories shall be selected from those listed in the "Perfil das Empresas com Projetos Aprovados Pela SUFRAMA, DEZ/2008".</li> <li><input type="checkbox"/> 20 target factories shall be selected from sub-contractors of the above-factories =&gt; Are there any lists of those sub-contractor factories?</li> <li><input type="checkbox"/> Selection Criteria             <ol style="list-style-type: none"> <li>(1) Category of Factory : Selected from all 19 categories of industries</li> <li>(2) Location : 110 factories from DI, 70 from outside DI and 20 from sub-contractors of DI factories</li> <li>(3) Target factories are selected in accordance with rate and number of factories of each categories =&gt; See next screen</li> </ol> </li> </ul>	<p><b>b. Factory Survey (14): Selection of target factories (7) Proposed Number of Sample (Draft)</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Factory Code</th> <th colspan="2">Distrito Industrial</th> <th colspan="2">Outside</th> <th colspan="2">Total</th> </tr> <tr> <th>Number of Sample</th> <th>(%)</th> <th>Number of Sample</th> <th>(%)</th> <th>Number of Sample</th> <th>(%)</th> </tr> </thead> <tbody> <tr><td>F01</td><td>2</td><td>2.0</td><td>5</td><td>6.9</td><td>7</td><td>4.0</td></tr> <tr><td>F02</td><td>0</td><td>0.0</td><td>0</td><td>0.0</td><td>0</td><td>0.0</td></tr> <tr><td>F03</td><td>3</td><td>2.9</td><td>1</td><td>1.4</td><td>4</td><td>2.3</td></tr> <tr><td>F04</td><td>39</td><td>35.7</td><td>20</td><td>27.7</td><td>59</td><td>32.4</td></tr> <tr><td>F05</td><td>1</td><td>1.0</td><td>0</td><td>0.0</td><td>1</td><td>0.6</td></tr> <tr><td>F06</td><td>10</td><td>9.3</td><td>3</td><td>4.2</td><td>13</td><td>7.2</td></tr> <tr><td>F07</td><td>12</td><td>11.3</td><td>8</td><td>11.1</td><td>20</td><td>11.2</td></tr> <tr><td>F08</td><td>0</td><td>0.0</td><td>1</td><td>1.4</td><td>1</td><td>0.6</td></tr> <tr><td>F09</td><td>1</td><td>0.5</td><td>1</td><td>1.4</td><td>2</td><td>0.8</td></tr> <tr><td>F10</td><td>4</td><td>3.4</td><td>2</td><td>2.8</td><td>6</td><td>3.2</td></tr> <tr><td>F11</td><td>1</td><td>1.0</td><td>0</td><td>0.0</td><td>1</td><td>0.6</td></tr> <tr><td>F12</td><td>0</td><td>0.0</td><td>2</td><td>2.8</td><td>2</td><td>1.1</td></tr> <tr><td>F13</td><td>7</td><td>6.4</td><td>6</td><td>8.3</td><td>13</td><td>7.2</td></tr> <tr><td>F14</td><td>17</td><td>15.7</td><td>13</td><td>18.1</td><td>30</td><td>16.6</td></tr> <tr><td>F15</td><td>0</td><td>0.0</td><td>0</td><td>0.0</td><td>0</td><td>0.0</td></tr> <tr><td>F16</td><td>0</td><td>0.0</td><td>1</td><td>1.4</td><td>1</td><td>0.6</td></tr> <tr><td>F17</td><td>8</td><td>7.4</td><td>6</td><td>8.3</td><td>14</td><td>7.8</td></tr> <tr><td>F18</td><td>0</td><td>0.0</td><td>1</td><td>1.4</td><td>1</td><td>0.6</td></tr> <tr><td>F19</td><td>4</td><td>3.4</td><td>2</td><td>2.8</td><td>6</td><td>3.2</td></tr> <tr><td>Total</td><td>108</td><td>100.0</td><td>72</td><td>100.0</td><td>180</td><td>100.0</td></tr> <tr><td>(%)</td><td></td><td>60.0</td><td></td><td>40.0</td><td></td><td>100.0</td></tr> </tbody> </table>	Factory Code	Distrito Industrial		Outside		Total		Number of Sample	(%)	Number of Sample	(%)	Number of Sample	(%)	F01	2	2.0	5	6.9	7	4.0	F02	0	0.0	0	0.0	0	0.0	F03	3	2.9	1	1.4	4	2.3	F04	39	35.7	20	27.7	59	32.4	F05	1	1.0	0	0.0	1	0.6	F06	10	9.3	3	4.2	13	7.2	F07	12	11.3	8	11.1	20	11.2	F08	0	0.0	1	1.4	1	0.6	F09	1	0.5	1	1.4	2	0.8	F10	4	3.4	2	2.8	6	3.2	F11	1	1.0	0	0.0	1	0.6	F12	0	0.0	2	2.8	2	1.1	F13	7	6.4	6	8.3	13	7.2	F14	17	15.7	13	18.1	30	16.6	F15	0	0.0	0	0.0	0	0.0	F16	0	0.0	1	1.4	1	0.6	F17	8	7.4	6	8.3	14	7.8	F18	0	0.0	1	1.4	1	0.6	F19	4	3.4	2	2.8	6	3.2	Total	108	100.0	72	100.0	180	100.0	(%)		60.0		40.0		100.0																																																																																																																																																																
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<p><b>b. Factory Survey (15): Possible local consultants for the survey</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The local consultants (LCs) for the survey shall have experiences for the factory survey or preparation of waste inventory in accordance with the CONAMA Resolution 313.</li> <li><input type="checkbox"/> Based on the above criteria, the Team propose the following LCs:             <ol style="list-style-type: none"> <li>1. FUCAPI</li> <li>2. SEA LTDA (Environmental Study and Services of Amazon)</li> <li>3. TechEn (Technology &amp; Environment)</li> <li>4. Others to be recommended by the C/P</li> </ol> </li> </ul>	<p><b>c. Survey on waste management companies (1)</b></p> <p><b>Q1. Does SUFRAMA have a registration system of waste management companies? Or Is SUFRAMA able to distinguish a waste management company (transport, treatment, reuse, recycle and final disposal of wastes) from other companies?</b></p> <p><b>Q2 How can we survey the waste management companies which is not registered in IPAAM?</b></p>																																																																																																																																																																																																																																																																																																																																
<p><b>Next Weekly Meeting</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> March 23, 2009 (Monday)</li> </ul>																																																																																																																																																																																																																																																																																																																																	

### 3.2.2 Minutes of Meeting for Weekly Meeting (2) on March 16, 2009

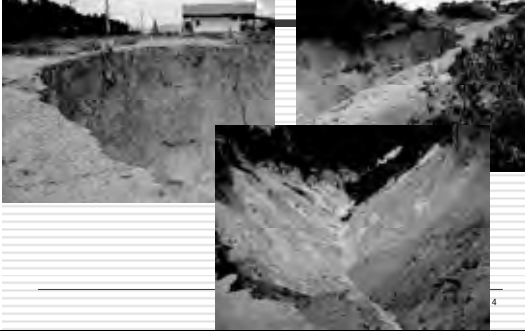
<p style="text-align: center;"><b>Weekly Meeting (2)</b> For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</p> <p style="text-align: center;">15:00pm-17:30pm March 16, 2009 JICA Study Team Office in SUFRAMA</p> <p><b>Agenda:</b> 1. Work progress 2. Schedule for this week 3. Subject to be discussed</p> <p><b>Attendees:</b> 1. Luis Filipe Mendes Industrial Physics Analysis Technical Coordinator, Foreign Trade Demand Commission, Assistant of EMBRAPA 2. Maria Claudete Bezzi Representative of FEMACOM/COMIBRA 3. André Araújo Representative of FEAM 4. Alexandre Kaama Representative of IFAM 5. Fabrice Inoue Dutra Representative of IFAM 6. Yasuhisa Ito Representative of IFAM 7. Olyve Facchinetti Representative of SEMULOP/SEMAM 8. Jaime Ortega Representative of UOP/UNIOAMAM 9. Usiel Mariani Representative of SEMA 10. Adalberto Mouton Member of SUFRAMA 11. Nivaldo Sousa Director of SUFRAMA 12. Carlos Augusto de Almeida Member of SUFRAMA 13. Estevão Manoel Pinó Member of SUFRAMA 14. Armando Santos Jr. SUFRAMA's Support 15. Marcelo Barros SUFRAMA's Support 16. Kathy Idanca SUFRAMA's Support 17. Any Masuda JICA Study Team Leader 18. Mr. Satoru Gotohara JICA Study Team Member 19. Mr. Tamiyuki Suzuki JICA Study Team Member 20. Mr. Akihiro Kikuchi JICA Study Team Member 21. Mr. Masaharu Kura JICA Study Team Member 22. Mr. Shoji Nakamura JICA Study Team Member</p>	<p style="text-align: center;"><b>Minutes &amp; Agenda</b></p> <p style="text-align: center;"><b>I. Work Progress: From 09 to 15 March 2009</b></p> <ol style="list-style-type: none"> <li>Meeting with IFAM to discuss the licensing system of the waste management companies</li> <li>Meeting with SEMA to coordinate JICA's study with Manaus Solid Waste Master Plan Study.</li> <li>Factory survey preparation by establishing the selection criteria of the target factories.</li> <li>Preparation of a questionnaire for the FIM waste management companies</li> </ol> <p style="text-align: center;"><b>II. Schedule for this week</b></p> <ol style="list-style-type: none"> <li>Preparation of a tender document for the factory survey.</li> <li>Preparation of the questionnaire for the FIM waste management factories.</li> <li>Preparation of the health waste survey.</li> <li>Preparation of the construction waste survey.</li> <li>Preparation of the radioactive waste survey.</li> </ol> <p style="text-align: center;"><b>III. Issues to be discussed</b></p> <p>The following issues were discussed at the meeting:</p> <ol style="list-style-type: none"> <li>Continuation of the factory survey (1) (see topic of Weekly Meeting Minutes (1)).</li> <li>Factory survey.</li> <li>Waste management companies survey.</li> </ol> <p><b>a. Continuation of the Weekly Meeting Minutes (1) (see topic of the WMM (Weekly Meeting Minutes) (1)).</b> The answers to issues 01 to 03, 05, 06, 09 and 12 and 14 were confirmed. The answers to issues 04, 07, 08, 10 and 11 were either clarified or modified. As for issues 17 to 21, they are being addressed with both SEMA and IFAM as the opportunity may arise.</p> <p><b>b. Factory survey:</b> The following issues were discussed at the meeting:</p> <ol style="list-style-type: none"> <li>Schedule.</li> <li>Definition of the waste generating source and the waste.</li> <li>Waste categories.</li> <li>Selection of the target factories.</li> <li>Possible local investment for the current survey.</li> </ol> <p><b>3.1 Schedule</b></p>																																																																																																																																																																
<p>The following schedule was confirmed at the meeting:</p> <ul style="list-style-type: none"> <li>16 March: Selection of 200 target factories.</li> <li>18 March: Finalization of the questionnaire.</li> <li>20 March: Invitations to local consultants.</li> <li>27 March: Closing of the questionnaires.</li> <li>30 March: Negotiation with the lowest bid provider.</li> <li>31 March: Selection of the local consultants.</li> <li>05 to 15 April: Factory survey.</li> <li>31 July: Preliminary report of the local consultants.</li> <li>31 August: Final Report.</li> </ul> <p><b>3.2 Definition of the waste generating source and the waste</b> The following issues were discussed and confirmed at the meeting:</p> <p>The waste generating sources in a factory are classified in the two following categories:</p> <ol style="list-style-type: none"> <li>Non-productive process source: The waste generating source is the production process area, such as cleaning, maintenance work, etc., and activities which are not done. The waste generated by the cleaning, health services, and constructions will be studied in the health and construction waste survey.</li> <li>Productive process source: The waste generating source is the production of the final goods at a factory.</li> </ol> <p>In order the waste is classified as:</p> <ol style="list-style-type: none"> <li>Class 1 - Hazardous waste</li> <li>Class 2 - Non-hazardous waste</li> </ol> <p style="text-align: center;">Class 1 A - Non-inert Class 1 B - Inert</p> <p>The waste generated in a factory is called industrial waste (IW). The industrial waste is classified in the two following categories:</p> <ol style="list-style-type: none"> <li>Non-HW (Non-hazardous Industrial Waste) generated in the non-productive process.</li> <li>HW (Hazardous Industrial Waste) generated in the non-productive process.</li> <li>Non-HW (Non-hazardous Industrial Waste) generated in the productive process. HW</li> <li>HW (Hazardous Industrial Waste) generated in the productive process.</li> </ol> <p><b>3.3 Waste categories</b> The following issues were discussed and confirmed at the meeting:</p>	<p>The Resolution 315 of CONAMA and the ABNT NBR 10.004 classify both hazardous and non-hazardous waste in a wide number of categories as per the generating source: chemical, pharmaceutical, etc. However, it is essential to identify the amount of waste according to the category mentioned above.</p> <p>In the Study of JICA, in order to identify the correct Industrial Waste Management (IWM), both of the generation source and after discharge from the generation source, Non-HW and HW are classified in 12 and 13 categories, respectively, a total of 25 categories. After studying the contents of the attachment 5th Table of the Type of user code and user flow, HW was divided upon as shown below:</p> <table border="1" data-bbox="874 1108 1300 1366"> <thead> <tr> <th>Type of Non-HW (Class 1 A - Non-inert and Class 1 B - Inert)</th> <th>HW Code</th> </tr> </thead> <tbody> <tr> <td>Effluent water (including general water, cooling water, etc.)</td> <td>HW01</td> </tr> <tr> <td>Sludge</td> <td>HW02</td> </tr> <tr> <td>Water</td> <td>HW03</td> </tr> <tr> <td>Public or city/works atmosphere</td> <td>HW04</td> </tr> <tr> <td>Exhaust gas</td> <td>HW05</td> </tr> <tr> <td>Exhaust steam of refrigerator, etc.</td> <td>HW06</td> </tr> <tr> <td>Exhaust gas</td> <td>HW07</td> </tr> <tr> <td>Exhaust steam (high-temperature steam, etc.)</td> <td>HW08</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW09</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW10</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW11</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW12</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW13</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW14</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW15</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW16</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW17</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW18</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW19</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW20</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW21</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW22</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW23</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW24</td> </tr> <tr> <td>Exhaust steam (low-temperature steam, etc.)</td> <td>HW25</td> </tr> </tbody> </table> <p>Both non-inert and inert wastes are subject to solidification test.</p> <p>The relation between the proposed Class 1 Codes and the Classes 1 and 2 Codes of Resolution 315 of CONAMA are supposed to be included in the factory questionnaire.</p> <table border="1" data-bbox="874 1422 1300 1624"> <thead> <tr> <th>Proposed Codes</th> <th colspan="8">CONAMA's Codes</th> </tr> </thead> <tbody> <tr> <td>HW01</td> <td>A001</td> <td>A104</td> <td>A400</td> <td>A005</td> <td>A009</td> <td>A008</td> <td></td> <td></td> </tr> <tr> <td>HW02</td> <td>A006</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>HW03</td> <td>A007</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>HW04</td> <td>A002</td> <td>A107</td> <td>A305</td> <td>A207</td> <td>A209</td> <td></td> <td></td> <td></td> </tr> <tr> <td>HW05</td> <td>A010</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>HW06</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>HW07</td> <td>A008</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>HW08</td> <td>A111</td> <td>A009</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>HW09</td> <td>N004</td> <td>A005</td> <td>A211</td> <td>A012</td> <td>A213</td> <td>A014</td> <td>A016</td> <td></td> </tr> <tr> <td>HW10</td> <td>A003</td> <td>A104</td> <td>A305</td> <td>A214</td> <td>A200</td> <td></td> <td></td> <td></td> </tr> <tr> <td>HW11</td> <td>A011</td> <td>A005</td> <td>A111</td> <td>A109</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Type of Non-HW (Class 1 A - 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The letter is to be sent to more 200 factories.</p> <p>Answer: In order to assist JICA in the schedule to survey and analyze data, it was suggested the preliminary distribution of the Questionnaire to all 401 companies to be finalized with a deadline to send the Questionnaire. Depending on the content of the answers the 200 factories to be visited will be defined. Such suggestion was well liked by JICA Team.</p> <p>B. Provide IDs for the study team members.</p> <p>Answer: As soon as the information about names, pictures and job title of the people to carry out the technical visits is sent to SUPRAMA's Human Resources General Department, the said IDs will be eventually done.</p> <p>List of the factories to be visited are per location table</p> <table border="1"> <thead> <tr> <th>Factory Code</th> <th>Manaus</th> <th>Other Areas</th> <th>Total</th> </tr> <tr> <th>Code</th> <th>ID</th> <th>Code</th> <th>ID</th> </tr> </thead> <tbody> <tr> <td>F01</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F02</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F03</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F04</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F05</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F06</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F07</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F08</td> <td>...</td> 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will not be visited in the survey.</p>								ANEX 1	ANEX 2							ANEX 2	ANEX 3	ANEX 4	ANEX 5	ANEX 6	ANEX 7	ANEX 8	ANEX 9	ANEX 10	ANEX 11	ANEX 12	ANEX 13	ANEX 14	ANEX 15	ANEX 16	ANEX 17	Types of HW (Class 1)	HW Code	Examples of HW	Organic Acid	19021	Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> ), Hydrochloric acid (HCl), Nitric acid (HNO <sub>3</sub> ), Phosphoric acid (H <sub>3</sub> PO <sub>4</sub> ), Other organic acids	Organic Solvent	19022	Hydrocarbon (C <sub>4</sub> -C <sub>10</sub> ), Phenolic acid (HCOOH), Other organic solvents	Other	19023	Organic acids (HClO <sub>4</sub> , Acetic acid (CH <sub>3</sub> COOH), Citric acid, Oxalic acid (HOOC-COOH), Other organic materials	Inorganic Compound	19024	Inorganic acids: H <sub>2</sub> SO <sub>4</sub> , HNO <sub>3</sub> , HCl, H <sub>3</sub> PO <sub>4</sub> , H <sub>2</sub> SiO <sub>3</sub>	Inorganic Compound	19025	Fluoride, nitrate, nitrite, cyanide, arsenite, etc.	Organic Compound	19026	Acetic acid, Ethanol, etc.	Organic Compound	19027	Acetic acid, Ethanol, acetone, Chloroform, Benzene, Toluene, etc.	Organic Compound	19028	Formic acid, Oxalic acid, Sulfuric acid, etc.	Other Compound	19029	Free Amino Acids (including all Enzymes, Biotin, etc.)	Other Compound	19030	Phenol, Methylene Chloride, Dioxin, etc.	Treatment Sludge	19031	Sludge, Sludge, Sludge, Sludge, Sludge, Sludge, etc.	Other Compound	19032	...	Other Compound	19033	...	Other Compound	19034	...	Other Compound	19035	...	Other Compound	19036	...	Other Compound	19037	...	Other Compound	19038	...	Other Compound	19039	...	Other Compound	19040	...	Code	Full name Description	Code	Full name Description	F01	...	F02	...	F03	...	F04	...	F05	...	F06	...	Factory Code	Manaus	Other Areas	Total	Code	ID	Code	ID	F01	...	...	...	F02	...	...	...	F03	...	...	...	F04	...	...	...	F05	...	...	...	F06	...	...	...	F07	...	...	...	F08	...	...	...	F09	...	...	...	F10	...	...	...	F11	...	...	...	F12	...	...	...	F13	...	...	...	F14	...	...	...	F15	...	...	...	F16	...	...	...	F17	...	...	...	F18	...	...	...	F19	...	...	...	F20	...	...	...	F21	...	...	...	F22	...	...	...	F23	...	...	...	F24	...	...	...	F25	...	...	...	F26	...	...	...	F27	...	...	...	F28	...	...	...	F29	...	...	...	F30	...	...	...	F31	...	...	...	F32	...	...	...	F33	...	...	...	F34	...	...	...	F35	...	...	...	F36	...	...	...	F37	...	...	...	F38	...	...	...	F39	...	...	...	F40	...	...	...	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F100	...	...	...	<table border="1"> <thead> <tr> <th>Factory Code</th> <th>Production Lines</th> <th>List of ID</th> <th>Total</th> </tr> <tr> <th>Code</th> <th>Number</th> <th>Code</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>F01</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F02</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F03</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F04</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F05</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F06</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F07</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F08</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F09</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F10</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F11</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F12</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>F13</td> 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F64	...	...	...	F65	...	...	...	F66	...	...	...	F67	...	...	...	F68	...	...	...	F69	...	...	...	F70	...	...	...	F71	...	...	...	F72	...	...	...	F73	...	...	...	F74	...	...	...	F75	...	...	...	F76	...	...	...	F77	...	...	...	F78	...	...	...	F79	...	...	...	F80	...	...	...	F81	...	...	...	F82	...	...	...	F83	...	...	...	F84	...	...	...	F85	...	...	...	F86	...	...	...	F87	...	...	...	F88	...	...	...	F89	...	...	...	F90	...	...	...	F91	...	...	...	F92	...	...	...	F93	...	...	...	F94	...	...	...	F95	...	...	...	F96	...	...	...	F97	...	...	...	F98	...	...	...	F99	...	...	...	F100	...	...	...	Factory Code	Production Lines	List of ID	Total	Code	Number	Code	Number	F01	...	...	...	F02	...	...	...	F03	...	...	...	F04	...	...	...	F05	...	...	...	F06	...	...	...	F07	...	...	...	F08	...	...	...	F09	...	...	...	F10	...	...	...	F11	...	...	...	F12	...	...	...	F13	...	...	...	F14	...	...	...	F15	...	...	...	F16	...	...	...	F17	...	...	...	F18	...	...	...	F19	...	...	...	F20	...	...	...	F21	...	...	...	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Organic Acid	19021	Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> ), Hydrochloric acid (HCl), Nitric acid (HNO <sub>3</sub> ), Phosphoric acid (H <sub>3</sub> PO <sub>4</sub> ), Other organic acids																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Organic Solvent	19022	Hydrocarbon (C <sub>4</sub> -C <sub>10</sub> ), Phenolic acid (HCOOH), Other organic solvents																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Other	19023	Organic acids (HClO <sub>4</sub> , Acetic acid (CH <sub>3</sub> COOH), Citric acid, Oxalic acid (HOOC-COOH), Other organic materials																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Inorganic Compound	19024	Inorganic acids: H <sub>2</sub> SO <sub>4</sub> , HNO <sub>3</sub> , HCl, H <sub>3</sub> PO <sub>4</sub> , H <sub>2</sub> SiO <sub>3</sub>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Inorganic Compound	19025	Fluoride, nitrate, nitrite, cyanide, arsenite, etc.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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<p><b>Selection method of the target companies:</b></p> <p><b>The Team Proposal</b> 100 target factories will be selected among those listed in the 'Profile of the Companies with Projects Approved by SUFRAMA, Part I, December 2006'</p> <p><b>Comments from participants:</b> In fact, it will be 300 factories. Each week we will discuss the selection of the companies in Parts II, III and IV of the</p> <p><b>The Team Proposal</b> 20 target factories will be selected among those controlled by the factories in PIM. Is there any list of those outsource companies of outside PIM?</p> <p><b>Comments from participants:</b> As per the outsource companies, in order to identify 20 of them, it is important to define the waste management in short subsection and in that case what would the limit of management be. There is a real difficulty to identify them. If factories are not obliged to send information of the companies that they outsource for their production process. Furthermore, even the outsource companies usually have their projects approved by SUFRAMA, most of them, and thus they face incentives for their own production processes. It may, therefore, be hard to leave the selection method stable, as well as to exclude the companies without a project approved by SUFRAMA from the study.</p> <p><b>Target companies selection criteria:</b></p> <p>(1) Factory Category: selected among all 19 industrial categories. <b>No comments.</b></p> <p>(2) Layout: 1 in 10 factories from (C), 10 out of (D) and 20 outsource by (E) factories. <b>Comments:</b> As mentioned, the criteria for the 25 outsource companies other than PIM were developed.</p> <p>(3) The target factories will be selected according to the number and the percentage of factories of each category, as in the chart below.</p> <p><b>Selection of the Target Factories: Proposed Sample Number (Draft)</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Factory Code</th> <th colspan="2">Industrial District</th> <th colspan="2">Dist of (C)</th> <th colspan="2">Total</th> </tr> <tr> <th>Number of Samples</th> <th>(%)</th> <th>Number of Samples</th> <th>(%)</th> <th>Number of Samples</th> <th>(%)</th> </tr> </thead> <tbody> <tr> <td>F11</td> <td>1</td> <td>0.1</td> <td>5</td> <td>0.2</td> <td>6</td> <td>0.2</td> </tr> <tr> <td>F12</td> <td>5</td> <td>0.2</td> <td>1</td> <td>0.0</td> <td>6</td> <td>0.2</td> </tr> <tr> <td>F13</td> <td>5</td> <td>0.2</td> <td>1</td> <td>0.0</td> <td>6</td> <td>0.2</td> </tr> <tr> <td>F14</td> <td>20</td> <td>0.7</td> <td>20</td> <td>0.7</td> <td>40</td> <td>1.4</td> </tr> <tr> <td>F15</td> <td>1</td> <td>0.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>0.0</td> </tr> <tr> <td>F16</td> <td>10</td> <td>0.3</td> <td>0</td> <td>0.0</td> <td>10</td> <td>0.3</td> </tr> <tr> <td>F17</td> <td>10</td> <td>0.3</td> <td>0</td> <td>0.0</td> <td>10</td> <td>0.3</td> </tr> <tr> <td>F18</td> <td>1</td> <td>0.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>0.0</td> </tr> <tr> <td>F19</td> <td>1</td> <td>0.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>0.0</td> </tr> <tr> <td><b>Total</b></td> <td><b>100</b></td> <td><b>3.3</b></td> <td><b>26</b></td> <td><b>0.8</b></td> <td><b>126</b></td> <td><b>3.7</b></td> </tr> </tbody> </table> <p><small>Ministry of Health, January 2007 (in draft)</small></p>	Factory Code	Industrial District		Dist of (C)		Total		Number of Samples	(%)	Number of Samples	(%)	Number of Samples	(%)	F11	1	0.1	5	0.2	6	0.2	F12	5	0.2	1	0.0	6	0.2	F13	5	0.2	1	0.0	6	0.2	F14	20	0.7	20	0.7	40	1.4	F15	1	0.0	0	0.0	1	0.0	F16	10	0.3	0	0.0	10	0.3	F17	10	0.3	0	0.0	10	0.3	F18	1	0.0	0	0.0	1	0.0	F19	1	0.0	0	0.0	1	0.0	<b>Total</b>	<b>100</b>	<b>3.3</b>	<b>26</b>	<b>0.8</b>	<b>126</b>	<b>3.7</b>	<table border="1"> <tbody> <tr> <td>F20</td> <td>1</td> <td>0.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>0.0</td> </tr> <tr> <td>F21</td> <td>1</td> <td>0.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>0.0</td> </tr> <tr> <td>F22</td> <td>1</td> <td>0.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>0.0</td> </tr> <tr> <td>F23</td> <td>1</td> <td>0.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>0.0</td> </tr> <tr> <td>F24</td> <td>1</td> <td>0.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>0.0</td> </tr> <tr> <td>F25</td> <td>1</td> <td>0.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>0.0</td> </tr> <tr> <td>F26</td> <td>1</td> <td>0.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>0.0</td> </tr> <tr> <td>F27</td> <td>1</td> <td>0.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>0.0</td> </tr> <tr> <td>F28</td> <td>1</td> <td>0.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>0.0</td> </tr> <tr> <td>F29</td> <td>1</td> <td>0.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>0.0</td> </tr> <tr> <td><b>Total</b></td> <td><b>20</b></td> <td><b>0.6</b></td> <td><b>0</b></td> <td><b>0.0</b></td> <td><b>20</b></td> <td><b>0.6</b></td> </tr> <tr> <td><b>Total</b></td> <td><b>120</b></td> <td><b>3.9</b></td> <td><b>26</b></td> <td><b>0.8</b></td> <td><b>146</b></td> <td><b>4.3</b></td> </tr> </tbody> </table> <p><b>No comments.</b></p> <p><b>6. SP/other local consultants for the present survey.</b> The Local Consultants (LC) for the factory survey are supposed to find companies in the local industry or to possess inside knowledge as per COFRAMA's 210 Resolution.</p> <p>Based on the criteria mentioned above, the Team proposes the following LCA:</p> <ol style="list-style-type: none"> <li>1. FUCAP;</li> <li>2. Sisa IPTA (Environmental Studies and Services of Amazon);</li> <li>3. TocaEn (Technology &amp; Environment); and</li> <li>4. Other to be recommended by the CO.</li> </ol> <p><b>Comments:</b> Local consultant of RBM will be hired to carry information about health and consumption waste.</p> <p><b>7. Waste management companies survey (1)</b></p> <p><b>Q1:</b> Has SUFRAMA got a waste management companies survey? Or, is SUFRAMA capable of implementing a waste management company waste transportation, treatment, reuse, recycling and final disposal from other companies?</p> <p><b>Comments from participants:</b> This is not mentioned in RBM. SUFRAMA is not with waste management by PIM. It is not authorized by IPAM to carry out such activity. There is an Operational License for the companies which dispose their waste, provided they are located in PIM. All PIM companies must be licensed by SUFRAMA. The legal area will be covered only by SUFRAMA and IPAM.</p> <p><b>Q2:</b> How can we survey the waste management companies not registered in IPAM?</p> <p><b>Comments from participants:</b> The area will be covered together with the companies of RBM.</p> <p><small>Ministry of Health, January 2007 (in draft)</small></p>	F20	1	0.0	0	0.0	1	0.0	F21	1	0.0	0	0.0	1	0.0	F22	1	0.0	0	0.0	1	0.0	F23	1	0.0	0	0.0	1	0.0	F24	1	0.0	0	0.0	1	0.0	F25	1	0.0	0	0.0	1	0.0	F26	1	0.0	0	0.0	1	0.0	F27	1	0.0	0	0.0	1	0.0	F28	1	0.0	0	0.0	1	0.0	F29	1	0.0	0	0.0	1	0.0	<b>Total</b>	<b>20</b>	<b>0.6</b>	<b>0</b>	<b>0.0</b>	<b>20</b>	<b>0.6</b>	<b>Total</b>	<b>120</b>	<b>3.9</b>	<b>26</b>	<b>0.8</b>	<b>146</b>	<b>4.3</b>
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<p>The invitation for the next Weekly Meeting (7). It is held on 23 March, will be sent by e-mail up to Friday (27). This present Meeting (7) finished at 17:30.</p> <p><small>Ministry of Health, January 2007 (in draft)</small></p>	<p><small>Ministry of Health, January 2007 (in draft)</small></p>																																																																																																																																																																							

### 3.3 Weekly Meeting (3)

#### 3.3.1 Agenda for Weekly Meeting (3) on March 23, 2009

<p style="text-align: center;"><b>Weekly Meeting (3)</b></p> <p style="text-align: center;"><b>March 23, 2009</b> <b>JICA Study Team</b> For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</p> <p style="text-align: right;">1</p>	<p><b>Agenda</b></p> <ol style="list-style-type: none"> <li>1. Work Progress</li> <li>2. Schedule for the This Week</li> <li>3. Subjects to be Discussed</li> </ol> <p style="text-align: right;">2</p>
<p><b>1. Work Progress: From March 16 to 23, 2009</b></p> <ol style="list-style-type: none"> <li>1. Meeting with IPAAM for discussion of licensing system and lists of waste management companies.</li> <li>2. Meeting with IBAM for coordination of our study with the Solid Waste Master Plan Study for Manaus City.</li> <li>3. Preparation of tender document for factory survey and invitation of 3 local consultants for bidding, i.e. 1. FUCAPI, 2. SEA LTDA (Environmental Study and Services of Amazon), and 3. TechEn (Technology &amp; Environment).</li> <li>4. Preparation of a questionnaire for waste management companies examination of licensed companies lists.</li> <li>5. Site visit to DI (Industrial District) I and II.</li> </ol> <p style="text-align: right;">3</p>	<p><b>Site visit to DI: Needs to control development on steep land and take measures for erosion</b></p>  <p style="text-align: right;">4</p>
<p><b>2. Schedule for the This Week</b></p> <ol style="list-style-type: none"> <li>1. Bidding and negotiation for factory survey</li> <li>2. Preparation of a tender document for industrial waste management companies</li> <li>3. Preparation of health waste survey</li> <li>4. Preparation of construction waste survey</li> <li>5. Preparation of radioactive waste survey</li> </ol> <p style="text-align: right;">5</p>	<p><b>3. Subjects to be Discussed</b></p> <ol style="list-style-type: none"> <li>a. Confirmation of minutes of the weekly meeting (2) =&gt; See M/M (Minutes of the Weekly Meeting (2))</li> <li>b. Survey on waste management companies</li> <li>c. Others</li> </ol> <p style="text-align: right;">6</p>
<p><b>b. Survey on waste management companies</b></p> <ol style="list-style-type: none"> <li>1. Schedule</li> <li>2. Selection of target companies</li> <li>3. Questionnaire (Draft)</li> <li>4. Possible local consultants for the survey</li> </ol> <p><b>Note: Waste Management Companies: WMCs</b></p> <p style="text-align: right;">7</p>	<p><b>b. Waste Management Companies Survey(1): Proposed Schedule</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> March 23: Explanation of questionnaire and company list (draft)</li> <li><input type="checkbox"/> March 25 at 17:00: Deadline of comments on above draft</li> <li><input type="checkbox"/> March 27: Invitation of local consultants</li> <li><input type="checkbox"/> April 1: Tender close</li> <li><input type="checkbox"/> April 3: Selection of local consultant</li> <li><input type="checkbox"/> April 3 - 15: Trial Survey</li> <li><input type="checkbox"/> July 31: Draft report from the local consultant</li> <li><input type="checkbox"/> August 31: Final report</li> </ul> <p style="text-align: right;">8</p>

**b. Waste Management Companies Survey(2): Target waste management companies**

WMCs of industrial wastes, medical wastes and construction wastes are target WMCs in this survey.

Business	Waste	Business	Waste
Storage & Transportation	Industrial waste	Reuse/Recycle/Recover	Industrial waste
	Medical waste		Medical waste
	Construction waste		Construction waste
Treatment	Industrial waste	Final disposal	Industrial waste
	Medical waste		Medical waste
	Construction waste		Construction waste

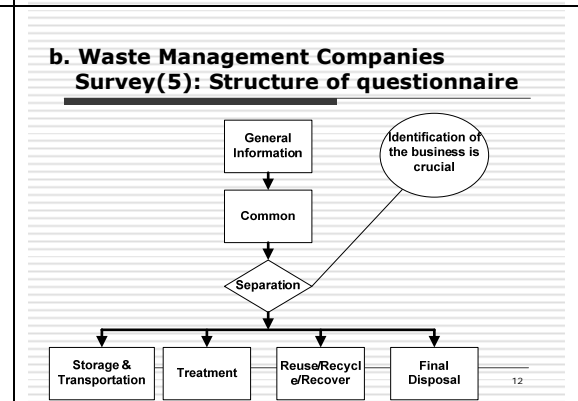
**b. Waste Management Companies Survey(3): Licensed companies**

Classification	Number
Storage & Transportation	18
Transportation & Treatment	2
Transportation & Recycling	10
Transportation, Treatment and	2
Transportation & Final disposal	3
Waste treatment	21
Recycling/Recovering	11
Final Disposal	0
<b>Total</b>	<b>67</b>

**b. Waste Management Companies Survey(4): Selection of target waste management companies**

**Q1. There are very few licensed final disposal companies and they are disposing specific wastes such as CRT. How does target wastes dispose?**  
(by unlicensed companies?/at municipal landfill?)

**Q2. Are there any other waste management companies?**  
(total number of target WMCs: maximum 90)



**b. Waste Management Companies Survey(6): Possible local consultants for the survey**

- The local consultants (LCs) for the survey shall have experiences for the industrial waste management or preparation of waste inventory in accordance with CONAMA resolution 313.
- Based on the above criteria, the Team propose the following LCs:
  1. FUCAPI
  2. SEA LTDA (Environmental Study and Services of Amazon)
  3. TechEn (Technology & Environment)
  4. Paulo Farias Environmental Consultant
  5. Others to be recommended by the C/P

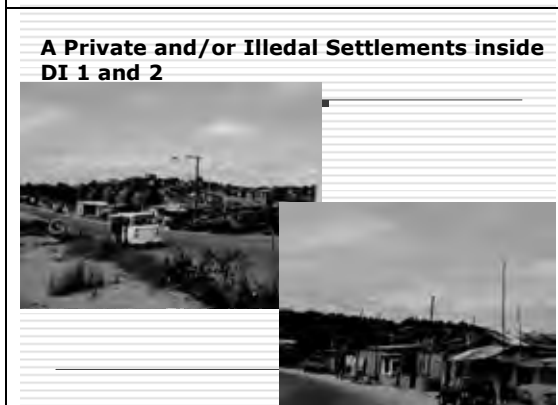
**c. Others**

**Q1. Who will take a responsible for factory IWM database?**  
The Team needs to discuss the responsible person about what kind of database to be constructed.

**Q2. Is it possible to provide a map showing the boundary of the MFZ and Manaus Municipality?**

**Q3. Is it possible to provide a map showing Non-SUFRAMA (private or illegal settlements) area within the DI 1 and 2?**

**Q4. Does SUFRAMA have a plan to relocate them?**



**Next Weekly Meeting**

- March 30, 2009 (Monday)

### 3.3.2 Minutes of Meeting for Weekly Meeting (3) on March 23, 2009

Weekly Meeting (3) for the Study for the Development of an Integrated Solution related to the Industrial Waste Management in Manaus Industrial Pole																																									
15:00 to 17:00 23 March 2009 Training Room of CGRWUN, 05 (Area of SUPRAMA)																																									
<b>Agenda</b> 1. Work-Program 2. Schedule for this week 3. Issues to be discussed																																									
<b>Attendees</b> <table border="0"> <tr> <td>1. Akemiyo Kaitani</td> <td>Representative of IIG (SACB/MACCOB/AM)</td> </tr> <tr> <td>2. Akihiko Itoyoshi</td> <td>Representative of IPAM</td> </tr> <tr> <td>3. Chie Maruyama</td> <td>Representative of SEMALSP</td> </tr> <tr> <td>4. Aina Ueno</td> <td>Representative of USF/PMG/SAMB</td> </tr> <tr> <td>5. Ushio Maruyama</td> <td>Representative of ISAM</td> </tr> <tr> <td>6. Luiz Flavio Simões</td> <td>Industrial Projects Analysis Consultant/Coordinator</td> </tr> <tr> <td>7. Anisla Anuha</td> <td>Assessor of SUPRAMA</td> </tr> <tr> <td>8. Kazuo Nishi</td> <td>Assessor of SUPRAMA's Main Office</td> </tr> <tr> <td>9. Adamson Muelke</td> <td>Member of SUPRAMA</td> </tr> <tr> <td>10. Ciprino Batista de Almeida</td> <td>Member of SUPRAMA</td> </tr> <tr> <td>11. Emerson Barbosa Filho</td> <td>Member of SUPRAMA</td> </tr> <tr> <td>12. Amelinda Santos Jr.</td> <td>Support SUPRAMA</td> </tr> <tr> <td>13. Miriela Barros</td> <td>Support SUPRAMA</td> </tr> <tr> <td>14. Maria Ribeiro</td> <td>Support SUPRAMA</td> </tr> <tr> <td>15. Sr. Susumu SHIMIZU</td> <td>Leader of JICA's Study Team</td> </tr> <tr> <td>16. Sr. Toshiaki YOSHIOKI</td> <td>JICA's Study Team Member</td> </tr> <tr> <td>17. Sr. Ichiro KUROKI</td> <td>JICA's Study Team Member</td> </tr> <tr> <td>18. Sr. Masahiko IURA</td> <td>JICA's Study Team Member</td> </tr> <tr> <td>19. Sr. Shoji TANAHARA</td> <td>JICA's Study Team Member</td> </tr> <tr> <td>20. Any Missed</td> <td>Interpreter</td> </tr> </table>		1. Akemiyo Kaitani	Representative of IIG (SACB/MACCOB/AM)	2. Akihiko Itoyoshi	Representative of IPAM	3. Chie Maruyama	Representative of SEMALSP	4. Aina Ueno	Representative of USF/PMG/SAMB	5. Ushio Maruyama	Representative of ISAM	6. Luiz Flavio Simões	Industrial Projects Analysis Consultant/Coordinator	7. Anisla Anuha	Assessor of SUPRAMA	8. Kazuo Nishi	Assessor of SUPRAMA's Main Office	9. Adamson Muelke	Member of SUPRAMA	10. Ciprino Batista de Almeida	Member of SUPRAMA	11. Emerson Barbosa Filho	Member of SUPRAMA	12. Amelinda Santos Jr.	Support SUPRAMA	13. Miriela Barros	Support SUPRAMA	14. Maria Ribeiro	Support SUPRAMA	15. Sr. Susumu SHIMIZU	Leader of JICA's Study Team	16. Sr. Toshiaki YOSHIOKI	JICA's Study Team Member	17. Sr. Ichiro KUROKI	JICA's Study Team Member	18. Sr. Masahiko IURA	JICA's Study Team Member	19. Sr. Shoji TANAHARA	JICA's Study Team Member	20. Any Missed	Interpreter
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<b>Minutes &amp; Agenda</b> 1. Work-Program (From 15 to 23 March 2009)																																									
7. Meeting with IPAM to discuss about the bidding system and the list of the PM waste management companies. 8. Meeting with IFAM about the commission of AIA's Study with the Manaus-based Waste Market Pilot Study.																																									
5.1 Schedule The following schedule was confirmed by the attendees of the Meeting:																																									
<ul style="list-style-type: none"> <li>23 March: Establishment of the Questionnaire and the list of the waste management companies (WMC).</li> <li>25 March (at 9 pm): Final deadline for comments on the draft questionnaire.</li> <li>27 March: Invitation to local consultation.</li> <li>01 April: Closing of bidding.</li> <li>03 April: Selection of the local consultant (company).</li> <li>03 to 10 April: Trial survey.</li> <li>21 July: Preliminary report of local consulting.</li> <li>31 August: Final report.</li> </ul>																																									
5.2 Selection of the target waste management companies The industrial, health and construction (IHC) are the target WMC's of the general survey. According to JICA's Study Team, the WMC's have started the following business:																																									
<table border="1"> <thead> <tr> <th>Business</th> <th>Waste</th> <th>Business</th> <th>Waste</th> </tr> </thead> <tbody> <tr> <td rowspan="3">1. Storage &amp; Transportation (C1)</td> <td>Industrial Waste</td> <td rowspan="3">2. Reuse, Recycling &amp; Recovery (C2)</td> <td>Industrial Waste</td> </tr> <tr> <td>Health Waste</td> <td>Health Waste</td> </tr> <tr> <td>Construction Waste</td> <td>Construction Waste</td> </tr> <tr> <td rowspan="3">3. Treatment (C3)</td> <td>Industrial Waste</td> <td rowspan="3">4. Final Disposal (C4)</td> <td>Industrial Waste</td> </tr> <tr> <td>Health Waste</td> <td>Health Waste</td> </tr> <tr> <td>Construction Waste</td> <td>Construction Waste</td> </tr> </tbody> </table>		Business	Waste	Business	Waste	1. Storage & Transportation (C1)	Industrial Waste	2. Reuse, Recycling & Recovery (C2)	Industrial Waste	Health Waste	Health Waste	Construction Waste	Construction Waste	3. Treatment (C3)	Industrial Waste	4. Final Disposal (C4)	Industrial Waste	Health Waste	Health Waste	Construction Waste	Construction Waste																				
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The aforementioned C1, C2, C3 and C4 were assumed before the purpose of each waste management company, i.e., to the difference between the waste disposal and the existing sorting business.																																									
As for the IHC's business by IPAM, the following representative survey was carried out by JICA's Study Team. Both are the 87 Operation Licenses received from the said facility up to now:																																									
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5.3. Presentation of a document for the factory survey and invitation to local consultation for the competing bidding (FCAP): 1. SEA LIDA (Environmental Studies and Services of Amazon), and 2. TechN (Technology & Environment). 4. Preparation of the waste management companies questionnaire and evaluation of the received companies (C1 and C2). 5. Site visit to C2 (Industrial District) (1--morning and 2--afternoon) visit. Comment of the Team: It is necessary to extend the interview of these levels and take measures against erosion in Industrial District areas, mainly in part 1.																																									
<b>6. Schedule for this Week</b>																																									
1. Competing bidding and negotiation for the factory survey. 2. Preparation of a document following the questionnaire for the PM waste management companies. 3. Preparation of the health waste survey. 4. Preparation of the construction waste survey. 5. Preparation of the industrial waste survey.																																									
<b>6. Issues to be discussed</b>																																									
The following issues were discussed at the Meeting:																																									
a. Continuation of the Weekly Meeting Minutes (Report) (1). Use of topics of the IFAM (Minutes of the Weekly Meeting (Report) (2)). b. Waste management companies survey. c. Others.																																									
4. Continuation of the minutes of the Weekly Meeting (1). New topics of the WMC (Minutes of the Weekly Meeting (Report) (2)). The answers related to the Topics in Question 1 were given (typed or presented) (selection of the target factories), Protocol 1 of the Team (Selection meeting of the target factories), and the Questionnaire 1 and 2 of the Waste management companies survey.																																									
2. Waste management companies survey. The following issues were discussed at the Meeting:																																									
1. Schedule. 2. Selection of the target waste management companies. 3. Questionnaire (IHC). 4. Possible local consultants for the survey.																																									
Note: Waste Management Companies - WMC's Industrial Waste Management Companies - IWC's																																									
<table border="1"> <thead> <tr> <th>Recycling &amp; Recovery</th> <th>11</th> </tr> </thead> <tbody> <tr> <td>Final Disposal</td> <td>0</td> </tr> <tr> <td>Total</td> <td>11</td> </tr> </tbody> </table>		Recycling & Recovery	11	Final Disposal	0	Total	11																																		
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During a site visit of JICA's Study Team, on 03/23 in the morning, to the main office of IPAM, copies of the waste management companies Licenses were provided, which are to be properly registered along the week.																																									
Issues: 1. There are five licensed final disposal companies and they dispose specific wastes such as CRT. How to the target waste (disposed by non-licensed companies?) in the Municipal landfill? Abandon's (unsorted). Besides the companies which carry out the final disposal of CRT, two other local companies carry out the final disposal of CRT activities. The Municipal Landfill receives most part of the target waste - non-hazardous waste. Hazardous wastes are sent out of the State. There are not official private landfill working in Manaus (including an IPAM (operated license), although there are a few clandestine ones, especially for small non-hazardous waste.																																									
On 03/05 (Thursday), from 12 to 18 pm, IPAM will hold a public meeting in Manaus Agriculture Federal School about the nomination of the first industrial waste for the treatment of the hazardous waste of Manaus, under the responsibility of CETRAM. The meeting aims for discussing the Environmental Impact Report - RIMA of the construction.																																									
JICA's Study Team Answer: No comments.																																									
2. Are there other waste management companies? (maximum number of WMC's targeted by the Study: 80 companies) Abandon's comments: IPAM classified itself to send information/documents concerning the matter up to 03/23, Wednesday morning.																																									
JICA's Study Team Answer: No comments.																																									
5.3. Questionnaire (IHC). The attendees of the Meeting received a draft of the questionnaire to be applied to the waste management companies. It was established by JICA's Study Team that essential comments/suggestions about the said draft are to be communicated up to 03/25 (Wednesday). It was explained each management company should fill at least one of the four business activities (C1, C2, C3 and C4) defined by the study. An example of JICA will follow the local consultant to the first site visits, assumed to be the hardest ones.																																									



The IWM waste management components equidistribute follows the following structure:

Attendee's comments:  
No comments.

2.4. Reliable local consultants for the survey  
The local consultants (LCs) for the survey should have experience in industrial waste management or in preparing waste inventory, according to CONAMA 315 Resolution: from 15/09/2002.

Based on the criteria above, the Team proposes the following LC's (companies to join the consulting bidding):

1. FJCAPI;
2. Sava LTDA. (Environmental Studies and Services of the Amazon);
3. TropicEn (Technology & Environment);
4. Paulo Farias Environmental Consulting (permission approved by the attendees); and
5. Other to be recommended by the CIP (up to 03/25)

C. Others

Q1. Who will be in charge of the IWM data base? The Team has to discuss who the person in charge of the data base will be and what kind of data base it is to be constructed.

Answer: FIEAM was appointed, since it embraces the Companies Unions and besides, its branches would be the ones to benefit from the Data Base. It was suggested to construct it by importing the data base of COIS/COPIV (M. Raimundo Sampaio) and COIS/COPIV (M. Sebastião Akoum Filho) either in Excel or Access, under SQL Server. Among the justifications of the DB we may highlight the following: identify/map the waste management BASE on the current processes flow, create an industrial waste data report with real time update and support, and promote a communication between the information present in SUFRAMA and IPAAAM.

Source: [https://www1.fortle.com.br](#)

IPAAAM has not got a database of the NMRCs yet, but it will be carrying out its own inventory along the year, as it is stated in the Behavior Adjustment Agreement of the technical cooperation agreement signed with JICA. Besides of that, Mr. Antonio Soares is supposed to discuss with representatives of SUFRAMA and FIEAM the characteristics of it, as the three representatives, both the indicators of SUFRAMA (legal part of the project, together with IPAAAM and FIEAM (commercial part of the project) should have to come from their superior management. Anyway, an expert in DB, already hired by JICA, will attend to the next weekly meeting to address the issue.

Q2. Is it possible to supply us with a map showing the limits of MP2 and the Municipality of Manaus?  
Answer: Yes, it is. Mr. Luiz Paulo Coimbra committed himself to supply us with such map.

Q3. Is it possible to supply us with a map showing the areas not belonging to SUFRAMA (private areas or illegal settlements) within (S) 1 and 3?  
Answer: It is possible to identify illegal settlements and private lands located in industrial Districts by using surveys conducted in former aspects. As for the illegal settlements, San plans of industrial District 1 and 2 will be issued, identifying the urban occupation areas of Nova Yliria, Moura, and Comunidade Parque Moura.

Q4. Has SUFRAMA got a plan to relocate them?  
Answer: SUFRAMA had tried to get the illegally occupied lands back through lawsuits, and it is now heading for the final decision of Justice. If successful, certain located areas are about to become legal through a Privancy Measure issued by Federal Government.

In the end, there were a few questions left to be discussed at next Meeting:



- What human resources are to be allocated for the construction/maintenance of the DB (IT analyst, software/analyst, others)?
- What are the real necessities (if SUFRAMA, IPAAAM, the companies and its representatives) for the waste management survey?
- Should we construct another integrated DB for the waste generating facilities management?
- Who will be in charge of the Data Base of the NMRC's in the future?

(The invitation for the next Weekly Meeting (4), to be held on 09/08/2023, will be sent by e-mail up to Friday 27th.)

Source: [https://www1.fortle.com.br](#)

## 3.4 Weekly Meeting (4)

### 3.4.1 Agenda for Weekly Meeting (4) on March 30, 2009

<p style="text-align: center;"><b>Weekly Meeting (4)</b></p> <hr/> <p style="text-align: center;"><b>March 30, 2009</b>  <b>JICA Study Team</b>                  For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</p> <p style="text-align: right;">1</p>	<p><b>Agenda</b></p> <hr/> <ol style="list-style-type: none"> <li>1. Work Progress</li> <li>2. Schedule for the This Week</li> <li>3. Subjects to be Discussed</li> </ol> <hr/> <p style="text-align: right;">1</p>
<p><b>1. Work Progress: From March 23 to 30, 2009</b></p> <hr/> <ol style="list-style-type: none"> <li>1. Bidding and negotiation for factory survey</li> <li>2. Preparation of a tender document for Survey of waste management companies</li> <li>3. Preparation of health waste survey</li> <li>4. Preparation of construction waste survey</li> <li>5. Preparation of radioactive waste survey</li> </ol> <hr/> <p style="text-align: right;">3</p>	<p><b>2. Schedule for the This Week</b></p> <hr/> <ol style="list-style-type: none"> <li>1. Preparation for trial interview survey for selected factories.</li> <li>2. Bidding and negotiation for the survey of waste management companies</li> <li>3. Preparation of health waste survey</li> <li>4. Preparation of construction waste survey</li> <li>5. Preparation of radioactive waste survey</li> </ol> <hr/> <p style="text-align: right;">4</p>
<p><b>3. Subjects to be Discussed</b></p> <hr/> <ol style="list-style-type: none"> <li>a. Confirmation of minutes of the weekly meeting (3) =&gt; See M/M (Minutes of the Weekly Meeting (3))</li> <li>b. Confirmation of Information Provided</li> <li>c. Results of Bidding of Factory Survey</li> <li>d. The survey of waste management companies</li> <li>e. Inquiries</li> <li>f. Others</li> </ol> <hr/> <p style="text-align: right;">5</p>	<p>b. Confirmation of Information Provided : Boundary of MFZ</p> 
<p><b>Question</b></p> <hr/> <ul style="list-style-type: none"> <li><input type="checkbox"/> How was the area of MFZ decided ?</li> <li><input type="checkbox"/> Why the expansion of the MFZ going towards east?</li> <li><input type="checkbox"/> Do you have the area(km2) and the population of the municipality overlapped areas in the physical area of MFZ?</li> </ul> <hr/> <p style="text-align: right;">7</p>	<p>B. Confirmation of Information Provided: Illegal Settlement within DI</p> 

### Question

- Illegal settled area is the place with brown color?
- Are there more illegal settled area within DI?
- Are there any area which excluded from SUFRAMA jurisdiction? If yes, do you have any map indicating those area?

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### C. Tender Results of Factory Survey

Tenderer	Tender Price: R\$	Position
SEA Ltd.	140,000	1
Amazon Ambiental	276,355	3
FUCAPI	262,892	2

Contract was made and signed on 26th March 2009

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### Introduction of SEA LTD.

- Sr. Jorge Garcez
- Procedure of Factory Survey
  1. Trial Interview Survey for 3 to 5 factories
  2. Optimization of Questionnaire Sheet
  3. Sending Questionnaire Sheet
  4. Make an appointment for interview
  5. Conducting interview survey for 200 factories
  6. Data Input

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### Schedule for Factory Survey

Work Description	2009								
	2	3	4	5	6	7	8	9	
Contract				▽					
Trial Interview Survey				■					
Finalization of Questionnaire				■					
Sending Questionnaire Sheet to relevant Factories				■					
Chasing for the answer					■				
Conducting Interview Survey					■	■	■	■	
Compiling Survey Result								■	

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### Selection of Factories for Trial Interview: 5 Factories

FACIS JV code	Inside Distrito Industrial	Outside DI	All areas
F01	4	12	16
F02	0	0	0
F03	6	10	16
F04	74	57	131
F05	3	1	4
F06	19	9	28
F07	25	23	48
F08	1	5	6
F09	1	4	5
F10	7	6	13
F11	2	1	3
F12	0	14	14
F13	15	19	34
F14	34	42	76
F15	0	1	1
F16	0	2	2
F17	15	18	33
F18	1	6	7
F19	7	13	20
Total	214	243	457

- 1. Sony
- 2. NOKIA
- 3. SHOWA
- 4. MUSASHI
- 5. MOTO HONDA

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### d. Survey of waste management companies(1)

Category	Number
Collection and Transportation	21
Recycle/Reuse/Recover	27
Treatment	16
Final Disposal	3
Others	5
Total	82

Data Source: IPAAM Environmental License

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### d. Survey of Waste Management Companies (2): Proposed Schedule

- March 27: Invitation of local consultants**
- April 1: Tender close**
- April 3: Selection of local consultant**

Letter for asking cooperation for study on waste management companies.

Issued by IPAAM or SUFRAMA?

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### Schedule for Survey of Waste Management Companies

Work Description	2009								
	2	3	4	5	6	7	8	9	
Contract				▽					
Finalization of Questionnaire				■					
Sending Questionnaire Sheet to relevant WMC				■					
Make an appointment to conduct interview					■	■	■	■	
Conducting Interview Survey					■	■	■	■	
Data Submission in Excel format								■	
Answer to the Client query								■	
Submission of Final Report									■

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<p><b>e. Inquiry : CONAMA Waste Code (Treatment &amp; Recycle)</b></p> <p>Q.1: What is difference between code of incineration (T01) and incineration with chamber (T02) ?</p> <p>Q.2: What is process of Re-refining of oils(R11)</p> <p style="text-align: right;">17</p>	<p><b>About Environmental License</b></p> <p>Q3: The code has a Potential Polluter /Degradation (see example)                  e.g. Transported e armazenamento de residuos perigosas, Potencial Poluidor /Degradador: Medio</p> <p>How is "Grande and Pequeno"?</p> <p>Is Potential Polluter associated with the "activity"?</p> <p style="text-align: right;">18</p>
<p><b>Waste Management Companies</b></p> <p>Q4: Are there any final recycler of iron scrap here?                  Iron scrap normally can be recycled in the WMCs that have electric furnaces.</p> <p>Q5: How is final recycler of non-ferrous scrap? Are there secondary non-ferrous smelter here?</p> <p style="text-align: right;">19</p>	<p><b>Change of waste characteristics</b></p> <p>Present profile of Industrial District                  Major industry is fabricating industry or assembly industry?                  After 5 or 10 years, will profile of the Industrial District change?</p> <p>Q6: Does SUFRAMA have 5 or 10 years plan of Industrial District?</p> <p style="text-align: right;">20</p>
<p><b>Information for other generators</b></p> <p>Q7: Is PETROBRAS Uruc plant oil refinery or natural gas purification plant?</p> <p>Q8: Is this plant a PIM?</p> <p>Q9: Around Manaus port, are there any ship building or maintenance companies?                  If so, how do they treat and dispose oil containing wastes such as slop, ballast tank wastewater, bunker sludge and etc?</p> <p style="text-align: right;">21</p>	<p><b>f. Information Required from CP</b></p> <p><input type="checkbox"/> Are there any Illegal Dumpsite in DI or PIM? Who can guide for us to visit?</p> <p><input type="checkbox"/> Are there any waste management companies with good practice in Brazil and where it is ?</p> <p><input type="checkbox"/> Can you provide us the materials explaining procedure and requirement of environmental license?</p> <p style="text-align: right;">22</p>
<p><b>Next Weekly Meeting</b></p> <p><input type="checkbox"/> <b>April 6, 2009 (Monday)</b></p> <p style="text-align: right;">23</p>	

### 3.4.2 Minutes of Meeting for Weekly Meeting (4) on March 30, 2009

**Weekly Meeting (4) for the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus**

13:00 to 17:00  
30 March 2009  
Training Room of CORRJ N. 05 (Sector 1 of SUPRAMA)

**Agenda**

1. Work progress
2. Schedule for this week
3. Subjects to be discussed:

**Attendees**

1. Akihiro KAKIDA	Representative of FIE/PROGAMM
2. Antonio SENE	Representative of IRAM
3. Jane Cruz	Representative of USPP/PROGAMM
4. Ulfar Mangera	Representative of S&M
5. Jorge Simões	Technical Manager of SEA LTD.
6. Luis Paulo Simões	Projects Analysis General Coordinator
7. Ana Maria Souza	Economic and Business Studies General Coordinator
8. Andy Assis	Assistant of SRECORP
9. Carlos Gomes de Almeida	Member of SUPRAMA
10. Ernani Roberto Filho	Member of SUPRAMA
11. Maria Helena Rios	CGTEC/SUPRAMA
12. Isabela Figueira	CGSOC/SUPRAMA
13. Erica Ribeiro	CGOCS/SUPRAMA
14. Kathy Garcia	CGOES/SUPRAMA
15. Amanda Barros Jr.	Supporter of JICA in SUPRAMA
16. Márcio Barros	Supporter of JICA in SUPRAMA
17. Sr. Carlos KONO	JICA Study Team Leader
18. Sr. Takeshi KUZUKI	JICA Study Team Member
19. Sr. Masahiro FUKA	JICA Study Team Member
20. Sr. Joji HIKAMURA	JICA Study Team Member
21. Any Missed	

**Report & Agenda**

Work Progress: From 22 to 29 March 2009

1. Tender and negotiation for factory survey

2. Preparation of the tender for waste management companies survey.
3. Preparation for health waste survey.
4. Preparation for construction waste survey, and
5. Preparation for radioactive waste survey.

**a. Schedule for this Week: 30 March to 04 April, 2009**

1. Preparation of the final survey interview in the selected companies.
2. Tender and negotiation for waste management companies survey.
3. Preparation for health waste survey.
4. Preparation for construction waste survey, and
5. Preparation for radioactive waste survey.

Note: The preparation for health and construction waste survey has been postponed due to the fact that IRAM is already carrying out a similar work for Manaus (30 Feb).

**b. Items to be discussed**

The following issues were discussed at the Meeting:


- a. Confirmation of the Minutes of Weekly Meeting (3). See topic of MEMO (Minutes of Weekly Meeting (3)).
- b. The information/documents required have been provided.
- c. Results of the factory survey tender.
- d. Waste management companies survey.
- e. Question.
- f. Information required from the C. P. P.

4. Confirmation of the Minutes of Weekly Meeting (3). See topic of MEMO (Minutes of Weekly Meeting (3)).

As for the public meeting held by IRAM on March 28 (Thursday) regarding the construction of the first industrial landfill for hazardous waste treatment in Manaus, part of the topics of previous Weekly Meeting, it has been informed that the State Ministry of Public Works submitted the respective Environmental Impact Report - EIMA to be reviewed. As for Question 21. Others, it was emphasized that IRAM, represented by Mr. Antonio Sene, will be responsible for the delivery of the EIMA, as discussed at the Meeting of the Inaugural Report on 02/02/2009. In that sense, both SUPRAMA (as the named a representative) and FICAM (Mr. Alexandre Kashiwa) will collaborate in this matter. The project on EIMA will attend to the Meeting on April 02.

**b. The information/documents required have been provided**

**Boundary of Manaus Free Zone**



- a. Are the areas near the illegal settlements?
 

Answer: The two large areas in orange and the dark one at the west of the map show legal settlement areas (S&M SUPRAMA) and the municipality's jurisdiction, including the area of (green-to) Quarenta (dark area).
- a. Are there more illegal settlements in (2) area?
 

Answer: There are other areas whose location may be to be supported by CORRJ by April 1<sup>st</sup>.
- a. Is there any area excluded from SUPRAMA's jurisdiction? If yes, is there any plan including such area?
 

Answer: The areas in orange and the dark one mentioned before have been moved from SUPRAMA to the municipality's jurisdiction, including the area of (green-to) Quarenta (dark area).

**c. Results of the factory survey tender**


The result of special tenders (LCE) for the survey is shown below:

Tenderer	Amount (BRL)	Place
SEA Ltda. (Estados Associados e Serviços de Análises)	140.500,00	1 <sup>st</sup>
FICORP	262.800,00	2 <sup>nd</sup>
Fiorbás (Instituto Ambiental)	276.250,00	3 <sup>rd</sup>

JICA Study Team (highlighted even the lowest amount) was contacted right after we have (20) selected the quantity of companies to be surveyed a day (two for orange). The Contract was drawn and signed on 26 March 2009.

**Introduction of SEA Ltda.**

1. Introduction of Mr. Jorge Garcia - Director and Technical Manager of SEA LTD.



**Legal Settlements within Industrial District**

Minutes of Weekly Meeting 30\_Mar\_2009 (3)

Minutes of Weekly Meeting 30\_Mar\_2009 (3)

Comments: We still do not have a clear basis about IWM in Amazonas, but people in charge of that in both public and private sector. There has never been political goodwill in accomplishing a survey aiming for a master plan of the IWM in Amazonas.

- Procedures for the Factory Survey:
  1. Trial Survey interview in 3-5 sample factories;
  2. Questionnaire Sheet Optimization;
  3. Questionnaire Sheet Remittance;
  4. Schedule of the interview;
  5. Factory Survey interview in 200 factories; and
  6. Completion of the data.

**Factory Survey Schedule**

Note: The Questionnaire will be sent to 457 factories through a SUPRAMA's Notice at the end of April 2008.

Selection of the Factories for the Trial Interview

Source: "Study Meeting (4)" (2008-04)

Factory Activity Code	Inside Industrial District	Out of Industrial District	All the areas of ID
F01	4	10	14
F02	0	0	0
F03	0	16	16
F04	14	37	51
F05	3	1	4
F06	16	0	16
F07	25	23	48
F08	1	5	6
F09	1	4	5
F10	0	0	0
F11	0	1	1
F12	0	14	14
F13	12	10	22
F14	34	42	76
F15	0	1	1
F16	0	0	0
F17	15	15	30
F18	1	0	1
F19	7	13	20
<b>Total</b>	<b>714</b>	<b>343</b>	<b>1057</b>

The trial interviews aim for checking the applicability of the Questionnaire with the actual necessary adjustments in the beginning of the interviews.

The 05 selected factories (trial factories):  
 Code F04 (Electronic Sector) - Sony and Philips  
 Code F07 (Metallurgy Sector) - Dinoro and Mascher  
 Code F17 (Textile Sector) - Imao Fibra de Amazonas, LTD.

According to JICA Study Team, the criteria adopted for the selection followed the industrial wastes diversity and the use of water in industrial processes, as well as the relationship with suppliers.

Comments of the attendees: According to the representative of COOPFEANUCOOP-AM, it would be more adequate to pick the companies which have no advanced IWM, so the suitability of the Questionnaire may be effectively assessed. In the selected companies, all of which are big-sized and known for having efficient waste management systems, suitable unclear profiles of the Questionnaire could be left aside by the trial survey. After all, the official of CODEC (Associação de Indústrias Locais do Amazonas) stated:

- 27 March: Invitation to local consultation
- 31 April: Closing of tender
- 30 April: Selection of local consultant

With the letter advising the waste management companies to cooperate to the study by IPRAM to SUPRAMA, it was stated: it will be a follow issued by SUPRAMA, since it is one of the objectives of the Agreement.

**Schedule for the Survey of the Industrial Waste Management Companies**

mentioned there is an extensive structural (bioreactor) system, for instance, Mato Verde de Amazonas, one of the largest and oldest companies of ITI and Saviel de América, LTDA. (paper factory (PTQ) located outside of ID). Because of that, it was suggested the selection of the factories for the trial of the Questionnaire among the five most important industrial poles of PM, i.e.:

- Code F04 (Electronic Sector)
- Code F06 (Mechanic Sector)
- Code F07 (Metallurgy Sector)
- Code F13 (Chemical Sector)
- Code F17 (Textile Sector)

Answer of JICA Team: According to the representative of SEA Ltda., that took five large factories with great IWMs was emphasized not to delay this phase of the study. As for the companies not registered in main sector, they are a challenge to be overcome by the team of three local consultants. Adequate approach methodologies are to be offered for each factory. Nevertheless, the suggestion above was accepted. The five target factories will be defined based on the new criteria, together with SEA Ltda.

Comments of the attendees: It was also suggested a workshop should be held for the organizations of the factories to be interviewed before the remittance of the Questionnaire, at which there would be a detailed explanation of this project in order to lower up the awareness and interest of the companies to take part of the Study. It was decided such work would be carried out after the Trial Survey of the five selected factories.

ii. Waste management companies survey

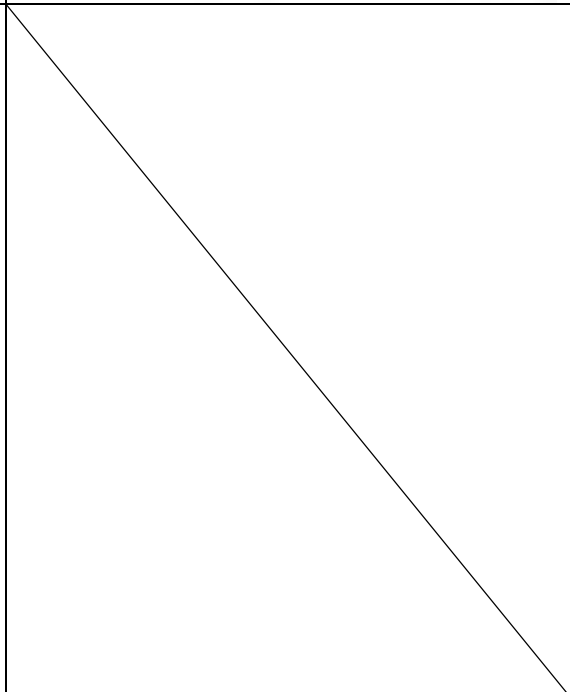
Categorization of the Companies (WMC)

Category	Number
Collection and Transportation	21
Recycling / Reuse / Recovery	27
Treatment	16
Final Disposal	1
Others	6
<b>Total</b>	<b>62</b>

Source: Environmental Licenses of IPRAM.

Proposed Schedule

Source: "Study Meeting (4)" (2008-04)

<p><b>4. Questions (Questions of JICA Team)</b></p> <p><b>COMMA Waste Code (Treatment &amp; Recycling)</b></p> <p>Q1. What is the difference between incineration code (T01) and incineration with sludge (T02)? Answer: Chapter waste secondary combustible charcoal (T01) is incinerated without secondary combustion charcoal.</p> <p>Q2. What is the site re-cycling process (R11)? Answer: Mainly using sludge and waste removal. Waste oil makes secondary level oil for sludge.</p> <p><b>About Environmental Licensing</b></p> <p>Q3. Has the code got a permitting / degradation problem? (Example: Turbidity and storage of hazardous waste - including asbestos medium degradation process. What would you do for problems to deal with the existing permit associated to the activity? Answer: To be discussed on April 8</p> <p><b>Waste Management Companies</b></p> <p>Q4. Is there here any iron slag that recycler? The iron slag can normally be recycled at the SMCs processing similar products. Answer: There is no final recycler of iron slag in Manaus area. Iron sludge generated here are collected, segregated, compacted and piled. Then it is transported to GERGAL Corporation in Pernambuco State. This company produces (steel material) for steel products (steel pipe / slab) with electric furnaces.</p> <p>Q5. How is the final recycling of non-ferrous slag? Is there a non-ferrous secondary foundry here? Answer: Aluminum - there is a local recycler. Name of the company is TECAL. Steel - there is a local recycler. Name of the company is COOKSDM.</p> <p><b>Waste Characteristics Change</b></p> <p>Q6. As for the current profile of the Industrial District, do most of the activities perform assembly or manufacturing? Should the Industrial District profile change in the next 05 to 10 years? Answer: Changes always depend on the economic activity of Brazil, as well as on the worldwide context.</p> <p>Q7. Has SURRAMA got a plan for the required (invest for the next 05 to 10 years)?</p> <p><small>Source: a World Bank, 20, 2004 (a)</small></p>	<p>Answer: Prices for the processing of the IC productive chain have been elaborated focused on the chemical, electro-chemical, ferro-chemical, metallurgy and mechanic sectors. The Official of COGEC committed himself to supply the possible material related to the subject.</p> <p><b>Information about waste generators</b></p> <p>Q8. Is the plant of Petrobras in Uruti a petroleum refinery or a natural gas purification station? Answer: Uruti plant extracts oil and natural gas. Name of its refinery is REMAN, which is a Petrobras group company. REMAN is inside IC 1 and 6 is a PM company.</p> <p>Q9. Is that plant part of PM? Answer: REMAN is. Uruti is not.</p> <p>Q10. Is there any shipment in Manaus ports area? If there is, how do they treat and dispose of waste, sludge, residue, slurry, chemical sludge and etc? (Answer: This kind of waste oil is collected and water is separated. Then it is used as a low-quality fuel for diesel and etc. It looks like untreated receptors are engaged in that business.)</p> <p><b>Information of PM under the jurisdiction of SURRAMA</b></p> <ul style="list-style-type: none"> <li>What are the benefits granted to MPZ factories (gold, silver, etc.)? Answer: To be discussed next meeting.</li> <li>What are the obligations of such factories to MPZ (license fees, etc.)? Answer: To be discussed next meeting.</li> <li>What other companies, apart from the factories, are granted with such benefits? Answer: To be discussed next meeting.</li> <li>What benefits are the companies granted with? Answer: To be discussed next meeting.</li> </ul> <p><b>Information supplied from the CPF</b></p> <ul style="list-style-type: none"> <li>Is there any illegal dumping in IC or PMZ sites exist here? Answer: There were a few of them about ten years ago (waste leakage), but they were practically eliminated. They are no longer identified, only in the maps, which are to be made available by the Official of COGEP up to IC 10.</li> <li>Are there waste management companies with good practices in Manaus? Where are they located? <small>Source: a World Bank, 20, 2004 (a)</small></li> </ul>
<p>Answer: There are many, such as GEPRIL, located in Cantagem (Petroleum Refinery Pole in Bahia State) and SORRACOS (oil &amp; chemical and industrial wastes in Curitiba and Bayreuth with industrial engine wastes and the Volkswagen factory, all of which are located in São Paulo State.</p> <ul style="list-style-type: none"> <li>These provide us with materials explaining the procedures and demands for the environmental licensing? Known (PAAE) will make such material available by April 2<sup>nd</sup>.</li> </ul> <p>The invitation for next Weekly Meeting (5) to be held on April 6, 2006, will be sent by e-mail up to Friday April 7<sup>th</sup>. This Meeting is to be held at 9 pm.</p> <p><small>Source: a World Bank, 20, 2004 (a)</small></p>	

## 3.9 Weekly Meeting (9)

### 3.9.1 Agenda for Weekly Meeting (9) on June 22, 2009

<p style="text-align: center;"><b>Weekly Meeting (9)</b></p> <p style="text-align: center;"><b>June 22, 2009</b> <b>JICA Study Team</b> For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</p> <p style="text-align: right;">1</p>	<p style="text-align: center;"><b>Agenda</b></p> <ol style="list-style-type: none"> <li>1. Work Progress</li> <li>2. Schedule for this Week</li> <li>3. Subjects to be Discussed</li> </ol> <p style="text-align: right;">2</p>
<p><b>1. Work Progress: From June 15 to June 21, 2009</b></p> <ol style="list-style-type: none"> <li>1. Continue the factory survey and checking the results obtained</li> <li>2. Conduct waste management companies (WMC) survey and checking the results obtained</li> <li>3. Tenders for medical institution survey and construction waste survey</li> <li>4. Study on radioactive waste</li> <li>5. Meeting with the Superintendent on June 18</li> </ol> <p style="text-align: right;">3</p>	<p><b>2. Schedule for this Week</b></p> <ol style="list-style-type: none"> <li>1. Continue the factory survey and checking the results obtained</li> <li>2. Conduct waste management companies (WMC) survey and checking the results obtained</li> <li>3. Commencement of the medical institution survey and construction waste survey</li> <li>4. Continue the study on radioactive waste</li> <li>5. Mr. Haddad will leave for Rio on June 23</li> <li>6. Shimura, Suzuki, Nakamura and Steven will leave for Japan on June 25.</li> </ol> <p style="text-align: right;">4</p>
<p><b>3. Subjects to be Discussed</b></p> <ol style="list-style-type: none"> <li>a. Confirmation of minutes of the weekly meeting (8) =&gt; See M/M (Minutes of the Weekly Meeting (8))</li> <li>b. Response to the claim comes from the company for factory survey</li> <li>c. Findings from field investigation of WMC by the Study Team</li> <li>d. Results of the tender for the Medical institution survey and construction waste survey</li> <li>e. Target institutions for radioactive waste survey</li> <li>f. Outlines of the Workshop (1)</li> </ol> <p style="text-align: right;">5</p>	<p><b>b. Response to the claim comes from the company for factory survey</b></p> <p><b>Claim:</b> The claim from a company that they submitted a waste inventory (WI) and why they should provide it again.</p> <p><b>Response:</b></p> <ol style="list-style-type: none"> <li>1. The main purpose of this Factory Survey is to identify a current industrial waste flow in PIM which we could not find out by the WI submitted.</li> <li>2. SEA LTDA checked the WI submitted and found out more information necessary for pursuing the purpose of the Survey. =&gt; Explain by SEA</li> <li>3. We prepared Newsletter No. 2 which describes the background and purpose of several surveys being conducted by the local consultants.</li> <li>4. Please utilize Newsletter No. 2 for responding the companies complaining.</li> </ol> <p style="text-align: right;">6</p>
<p><b>c. Findings from field investigation of WMC by the Study Team (1)</b></p> <ol style="list-style-type: none"> <li>1. WMCs have difficulties for the competition with low technology/low price companies and informal sector.</li> <li>2. A certain amount of wastes, which should be treated, recycled and disposed by the licensed WMCs, disappear. Possible destination is the municipality landfill or illegal dumping.</li> <li>3. WMCs are reluctant to invest on a new facility and expansion and/or improvement of existing plants. Because in addition to the 1. and 2. they don't know amount and characteristic of the waste generated in this area. =&gt; Needs of identifying the current waste flow.</li> <li>4. In many cases, permitted wastes in the environmental license (Operation) cover a wide range. =&gt; They should be specified clearly (narrowed down) with technical evaluation.</li> </ol> <p style="text-align: right;">7</p>	<p><b>c. Findings from field investigation of WMC by the Study Team (2)</b></p> <ol style="list-style-type: none"> <li>5. It is difficult to identify and characterize wastes. Reasons are:             <ul style="list-style-type: none"> <li><input type="checkbox"/> Few capable laboratory to study and analyze wastes</li> <li><input type="checkbox"/> Prices of analysis are too high</li> </ul> </li> <li>6. Demarcation of the competence for licenses and penalties between IPAAM and SEMMA is not clear</li> <li>7. Poor communication between generators and IPAAM concerning adequate disposal process of hazardous wastes =&gt; In Japan recommendation system for good practice WMC has started recently.</li> <li>8. Generators sometimes deliver the WMC mixed wastes of hazardous and non-hazardous without analysis or characterization</li> </ol> <p style="text-align: right;">8</p>



#### d. Tender Results (1): Medical Institution Survey

Tenderer	Tender Price: (US\$)	Position
OPCA Ltda.	9,000	1
SEA Ltd.	13,700	2
IBAM	Declined	-
FUCAPI	Declined	-

Contract was made and signed on 19th June 2009

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#### d. Tender Results (2): Construction Waste Survey

Tenderer	Tender Price: (US\$)	Position
OPCA Ltda.	9,000	1
SEA Ltd.	13,700	2
Ambiental Amazônia	46,859.2	3
IBAM	Declined	-
FUCAPI	Declined	-

Contract was made and signed on 19th June 2009

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#### e. Target Institutions of Radioactive waste survey (1)

- The survey in Rio identified the 14 institutions (see next screen) in Manaus generate radio active wastes.
- Among the 14 institutions the following five are proposed to be surveyed:
  1. CENTRO DE MED NUC E ULTRASONOGRAFIA DO AMAZONAS
  2. BRASIL NORTE BEBIDAS LTDA
  3. MICROSERVICE TECNOLOGIA DIGITAL DA AMAZONIA LTDA
  4. COIMPA INDUSTRIAL LTDA
  5. INSTITUTO NOKIA DE TECNOLOGIA
- 4 institutions other than No.1 are located in PIM.

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#### e. Target Institutions of Radioactive waste survey (2)

No	Type	Institution
1	Great bearing irradiators (1)	FUNDAÇÃO DE HEMATOLOGIA E HEMOTERAPIA DO AMAZONAS
2	Nuclear medicine (1)	CENTRO DE MED NUC E ULTRASONOGRAFIA DO AMAZONAS
3	(2)	FUNDAÇÃO DE APOIO INSTITUCIONAL RIO SOLIMÕES - UNISOL
4	Nuclear measurers (1)	AMAPOLY INDUSTRIA E COMERCIO LTDA
5	- Control of nuclear measuring processes (2)	BRASIL NORTE BEBIDAS LTDA *1
6	(3)	CERVEJARIAS KAISER BRASIL S/A - MANAUS/AM
7	(4)	CIA DE BEBIDAS DAS AMERICAS - AMBEV - FILIAL MANAUS
8	(5)	MICROSERVICE TECNOLOGIA DIGITAL DA AMAZONIA LTDA *1
9	Investigation (1)	INPA/INSTITUTO NACIONAL DE PES
10	Prospection of Oil (1)	SCHLUMBERGER SERVICOS DE PETROLEO LTDA - URUCU
11	X-ray (1)	FCECON - FUNDAÇÃO CENTRO DE CONTROLE DE ONCOLOGIA
12	(2)	IMAM - INSTITUTO DE MAMA DO AMAZONAS LTDA
13	Analytical techniques (1)	COIMPA INDUSTRIAL LTDA *1
14	(2)	INSTITUTO NOKIA DE TECNOLOGIA *1

\*1 : Listed in the "Profile of the Companies with Projects Approved by SUFRAMA - Dez/2008"

#### f. Outlines of the Workshop (1): Workshop & Seminar Schedule

Date	Event	Purpose
September: Friday the 11th	Workshop 1	Opinion gathering
November	Workshop 2	Concept development
March	Workshop 3	Comments on draft plan
May	Seminar	Announcement of study results & Master Plan

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#### f. Outlines of the Workshop (1): Purpose

- Opinion gathering from stakeholders on the current conditions of industrial waste management and policy for improvement
- Present results of:
  - Factory Study
  - Study of Waste Management Companies
  - Radioactive Waste Study
  - Medical Waste Study
  - Construction Waste Study
- Hold workshops to discuss possible policies for improvement

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#### f. Outlines of the Workshop (1): Workshop One Outline

- Host: SUFRAMA
- Date and Venue:
  - 11 September 2009 (Friday) <10th is unavailable>
  - SUFRAMA, the Floriano Pacheco Auditorium
- Time:
  - 8:00 AM ~ 5:30 PM (including short breaks and 2-hour lunch)
- Participants:
  - Estimated 50 ~ 100
  - St/C, TCSC, C/P, other government institutions, waste generators, waste management companies, environmental NGOs, media/journalists, local consultants, JICA study team

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#### f. Outlines of the Workshop (1): Morning Session

Time	Title	Presenter
8:00 - 8:30	Registration	-
8:30 - 8:40	Opening Remarks	Chairperson
8:40 - 9:00	Objectives and overview	SUFRAMA, JICA team
9:00 - 10:00 (1 hour)	Generation Sources: Current conditions, issues	C/P
10:00 - 10:15	Coffee Break	-
10:00 - 11:00 (1 hour)	After-Discharge Management: Current conditions, issues	C/P
11:00 - 1:00	Lunch	-

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<p><b>f. Outlines of the Workshop (1): Afternoon Session</b></p> <table border="1"> <thead> <tr> <th>Time</th> <th>Title</th> <th>Presenter</th> </tr> </thead> <tbody> <tr> <td>1:00 – 3:00 (2 hours)</td> <td>Workshop: Improvement policy for IWM</td> <td>Participants</td> </tr> <tr> <td>3:00 – 3:30</td> <td>Break and Preparation</td> <td>C/P</td> </tr> <tr> <td>3:30 – 4:30 (1 hour)</td> <td>Group Presentations</td> <td>Participants, C/P</td> </tr> <tr> <td>4:30 – 5:00 (30 minutes)</td> <td>Summary</td> <td>SUFRAMA, JICA</td> </tr> <tr> <td>5:00 – 5:30 (30 minutes)</td> <td>Closing Remarks</td> <td>Chairperson</td> </tr> </tbody> </table> <p style="text-align: right;">17</p>	Time	Title	Presenter	1:00 – 3:00 (2 hours)	Workshop: Improvement policy for IWM	Participants	3:00 – 3:30	Break and Preparation	C/P	3:30 – 4:30 (1 hour)	Group Presentations	Participants, C/P	4:30 – 5:00 (30 minutes)	Summary	SUFRAMA, JICA	5:00 – 5:30 (30 minutes)	Closing Remarks	Chairperson	<p><b>f. Outlines of the Workshop (1): Planning</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Weekly Meetings: 10 August ~ (5 meetings)</li> <li><input type="checkbox"/> Budget:             <ul style="list-style-type: none"> <li>■ No budget prepared for travel or accommodation</li> <li>■ Budget available for technical support and refreshments, other</li> </ul> </li> <li><input type="checkbox"/> Invitations:             <ul style="list-style-type: none"> <li>■ Mail &amp; Fax→ then Telephone</li> </ul> </li> <li><input type="checkbox"/> Coordinators:             <ul style="list-style-type: none"> <li>■ Steven Sundstrom (JICA)</li> </ul> </li> </ul> <p style="text-align: right;">18</p>
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<p><b>f. Outlines of the Workshop (1): Other Points for Discussion</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> PROSAMIM event</li> <li><input type="checkbox"/> Workshop Chairperson</li> <li><input type="checkbox"/> Morning Session Presenters             <ul style="list-style-type: none"> <li>■ IW generation sources</li> <li>■ IW “after discharge” management</li> </ul> </li> <li><input type="checkbox"/> Afternoon Session             <ul style="list-style-type: none"> <li>■ Discussion Space</li> <li>■ Group Presentations</li> <li>■ Summary</li> <li>■ Closing Remarks</li> </ul> </li> </ul> <p style="text-align: right;">19</p>	<p><b>Next Weekly Meeting</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Next Meeting will be 10 August 2009 (Monday) at 3:00 PM</li> </ul> <p style="text-align: right;">20</p>																		

### 3.9.2 Minutes of Meeting for Weekly Meeting (9) on June 22, 2009

<p style="text-align: center;"><b>Weekly Meeting (9) For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</b></p> <p style="text-align: center;">15:00pm-17:30pm 22 June 2009 JICA Study Team Office (in SUFRAMA)</p> <p><b>Agenda</b></p> <ol style="list-style-type: none"> <li>1. Work progress</li> <li>2. Schedule for this week</li> <li>3. Subjects to be discussed</li> </ol> <p><b>Attendees</b></p> <table border="0"> <tr> <td>1. Alexandre Kozlita</td> <td>Representative of FICAM/CIAM/COMBAM</td> </tr> <tr> <td>2. Antonio Simão</td> <td>Representative of IFAMAM</td> </tr> <tr> <td>3. Jairo Cirne</td> <td>Representative of LIG/PROSAMIM</td> </tr> <tr> <td>4. Débora R. Paula</td> <td>Representative of SENALUP</td> </tr> <tr> <td>5. Mylene Cunha</td> <td>Representative of ZEP/ISA</td> </tr> <tr> <td>6. Lúcia Mourão</td> <td>Representative of IBAM</td> </tr> <tr> <td>7. Denis Paiva</td> <td>Technician of ISA L&amp;E</td> </tr> <tr> <td>8. André Guerra</td> <td>Technician of OPCA</td> </tr> <tr> <td>9. Paula Ricardo Farias</td> <td>Technician of OPCA</td> </tr> <tr> <td>10. José César Braga</td> <td>Technician of OPCA</td> </tr> <tr> <td>11. Ricardo Páliz (v)</td> <td>Technician of OPCA</td> </tr> <tr> <td>12. Adão Araújo</td> <td>Assistant of ERMENY</td> </tr> <tr> <td>13. Lúcia Fátima Bumbido Gomes</td> <td>Eng. and Arch. Projects Analysis Coordinator</td> </tr> <tr> <td>14. Carlos Ezequiel de Almeida</td> <td>COORDINATOR</td> </tr> <tr> <td>15. Adilson Araújo</td> <td>COORDINATOR</td> </tr> <tr> <td>16. Neyla Almeida Santos</td> <td>COORDINATOR</td> </tr> <tr> <td>17. Kelly Gonalves</td> <td>COORDINATOR</td> </tr> <tr> <td>18. Antonio Carlos Jr.</td> <td>Support to JICA in SUFRAMA</td> </tr> <tr> <td>19. Marisa Gomes</td> <td>Support to JICA in SUFRAMA</td> </tr> <tr> <td>20. Sr. Susumu ENOJIMA</td> <td>Team Leader of JICA Study Team</td> </tr> <tr> <td>21. Sr. Tetsuo SUZUKI</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>22. Sr. Steven SUNDBLACK</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>23. Sr. Shig NAKAMURA</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>24. Sr. José Falcão HADDAD</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>25. Any Maciel</td> <td>Interpreter of JICA</td> </tr> </table> <p style="text-align: center;"><b>Minutes &amp; Agenda</b></p> <p style="text-align: center;">Work Progress: From 15 to 21 June 2009</p> <p>1. Continue the waste management companies survey (WMC) and update/verify the obtained results.</p>	1. Alexandre Kozlita	Representative of FICAM/CIAM/COMBAM	2. Antonio Simão	Representative of IFAMAM	3. Jairo Cirne	Representative of LIG/PROSAMIM	4. Débora R. Paula	Representative of SENALUP	5. Mylene Cunha	Representative of ZEP/ISA	6. Lúcia Mourão	Representative of IBAM	7. 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Tender for the health waste and construction waste survey.</p> <p>4. Radioactive wastes study.</p> <p>5. Meeting with the Representative of SUFRAMA on 18 June.</p> <p style="text-align: center;"><b>A. Schedule for this week</b></p> <ol style="list-style-type: none"> <li>1. Continue the waste management companies survey (WMC) and update/verify the obtained results.</li> <li>2. Carry out the waste management companies survey (WMC) and verify the results obtained.</li> <li>3. Beginning of the health waste and construction waste survey.</li> <li>4. Continue the radioactive waste survey.</li> <li>5. Mr. Haddad will go back to Rio de Janeiro on 23 June.</li> <li>6. Mr. Shozaki, Mr. Suzuki, Mr. Falcão and Mr. Steven Sundstrom will return to Japan on 25 June.</li> </ol> <p style="text-align: center;"><b>B. Subjects to be discussed</b></p> <p>The following subjects were discussed at the Meeting:</p> <ol style="list-style-type: none"> <li>1. Confirmation of the Minutes of the Weekly Meeting (8) (see topics of the MWM (Minutes of the Weekly Meeting (8))</li> <li>2. Answer to the complaint of the company about the factory survey (WMC)</li> <li>3. Discussions of the field inventories in the WMC carried out by the Study Team of JICA.</li> <li>4. Results of the tender for the health waste and construction waste surveys.</li> <li>5. Target institutions of the radioactive waste survey.</li> <li>6. Overview of the 1<sup>st</sup> Workshop.</li> </ol> <p><b>a. Confirmation of the Minutes of the Weekly Meeting (8)</b> (see topics of the MWM (Minutes of the Weekly Meeting (8))</p> <p>As for the request to PROSAMIM provide us with the material related to the licensed 40 waste quality emission (passant) carried out by the Federal University of the State of Amazonas - UFAM, the representative of PROSAMIM informed already she had committed herself to send the Industrial Contamination Control Plan developed by LIG/PROSAMIM. Which she will do these coming days.</p> <p>As for the progress of the works of the factory survey, the coordinator of ISA L&amp;E, who was at the meeting requested the updating of some indicators presented in the past Report. As for the delivery of the factory survey questionnaire to the WMC, the following figures were presented:</p> <table border="1"> <tr> <td>Final Target of the Project</td> <td>457</td> <td>100%</td> </tr> <tr> <td>Companies in the database of SUFRAMA</td> <td>389</td> <td>85.1% of the total</td> </tr> <tr> <td>Companies which have answered the questionnaire</td> <td>312</td> <td>70.2% of the total</td> </tr> <tr> <td>Companies which have not received the questionnaire</td> <td>85</td> <td>18.7% of the total</td> </tr> </table> <p>Minutes of Meeting (Meeting 9) - 22 June 2009</p>	Final Target of the Project	457	100%	Companies in the database of SUFRAMA	389	85.1% of the total	Companies which have answered the questionnaire	312	70.2% of the total	Companies which have not received the questionnaire	85	18.7% of the total
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<p>envelope for several reasons: (being address, address out of Manaus, issues in the management in receiving it)</p> <p>Companies which did not have the notice of 36 0.00% of the total</p> <p>Envelope with a sealed envelope</p> <p>Source: SEA Ltd.</p> <p>As for the returned answered questionnaires, the following survey was presented:</p> <table border="1"> <tr><td>1<sup>st</sup> Week - 11 to 15/05/2009</td><td>21 answers</td></tr> <tr><td>2<sup>nd</sup> Week - 18 to 22/05/2009</td><td>13 answers</td></tr> <tr><td>3<sup>rd</sup> Week - 25 to 29/05/2009</td><td>18 answers</td></tr> <tr><td>4<sup>th</sup> Week - 01 to 05/06/2009</td><td>18 answers</td></tr> <tr><td>5<sup>th</sup> Week - 08 to 12/06/2009</td><td>07 answers</td></tr> <tr><td>6<sup>th</sup> Week - 15 to 19/06/2009</td><td>11 answers</td></tr> <tr><td>Total up to 22/06/2009</td><td>88 answers (28% out of 313 questionnaires delivered)</td></tr> </table> <p>Source: SEA Ltd.</p> <p><b>Progress of the visits to the WMC</b></p> <table border="1"> <tr><td>Companies visited up to 22/06/2009</td><td>84</td><td>27% of the total</td></tr> <tr><td>Total of companies visited to be visited</td><td>300</td><td>100%</td></tr> </table> <p>Source: SEA Ltd.</p> <p>As for the cooperation that the medical institutions previously selected for the health visits survey may be required except for the Adventist Hospital of Manaus, it was suggested to the company which visit the center, to use as clearing criteria the quantity of accidents registered in the last twelve months and the diversity of the activities developed by the facilities.</p> <p>As Adventist Hospital mentioned the opinion that the accidents in the factories involve mainly vaccination and small first aid treatments, many of the health visits generated in those institutions are not relevant, but there are exceptions such as medicines with the validity date expired.</p> <p>Just as it happened in the preliminary selection of the medical institutions, the inclusion of the factories target of the construction waste survey was done from the 87 companies which had returned the factory survey questionnaire submitted up to the 15/06/2009. It was also taken into account the possibility to change those factories as non-companies when the questionnaires it was suggested for the final selection of the target factories to take into account the size of the construction and expansion carried out in the last twelve months. Due to the short time available to validate the self survey, relevant information concerning the construction management conditions and in the construction companies which usually carry out construction of that sort in the companies of MP will be verified.</p> <p>Model of Weekly Meeting 09 - 28/07/09</p>	1 <sup>st</sup> Week - 11 to 15/05/2009	21 answers	2 <sup>nd</sup> Week - 18 to 22/05/2009	13 answers	3 <sup>rd</sup> Week - 25 to 29/05/2009	18 answers	4 <sup>th</sup> Week - 01 to 05/06/2009	18 answers	5 <sup>th</sup> Week - 08 to 12/06/2009	07 answers	6 <sup>th</sup> Week - 15 to 19/06/2009	11 answers	Total up to 22/06/2009	88 answers (28% out of 313 questionnaires delivered)	Companies visited up to 22/06/2009	84	27% of the total	Total of companies visited to be visited	300	100%	<p>b. Answering the conclusion of the company about the factory survey (WMC)</p> <p>Comment: If the company already presents a Waste Inventory (WI) as SUPRAMA on regular basis, why should that be done again?</p> <p>Answer:</p> <ol style="list-style-type: none"> <li>The main objective of the factory survey is to identify the current waste flow of MP (and if not possible to be evaluated only with the WI of the factories).</li> <li>SEA Ltda. after checking the WI, also concluded more information are needed for the progress of the survey, what was explained to the completing company.</li> <li>The Study Team of JICA prepared the Newsletter N. 2, which described the background and the purpose of the various surveys which are being carried out by the local consultants.</li> <li>The Newsletter N. 2 should be used by SEA Ltda. in order to, solve the doubts and concerns of that and other companies.</li> </ol> <p>According to SEA Ltda. issues related to personal systems are one of the reasons why facilities are reluctant to answering the questionnaires.</p> <p>c. Observations of the field survey in the WMC by the Study Team of JICA</p> <p>On 17 and 18/06, the following WMC were visited with focus in the activities of incineration and co-processing: Caxari, Eternal, EMAG, Purito, GETRAM, (Lagoa) Agronegócios, Povoado Metalúrgico Rio Largo.</p> <p>About the visits we face the observations below:</p> <ol style="list-style-type: none"> <li>The WMC have difficulty in complying with the prices of the technology companies and the informal sector.</li> <li>A certain amount of factory wastes which should be treated, recycled and disposed by the formal WMC end up disappearing. Probably the destination of those wastes is the municipal sanitary landfill in the Povoado Aremópo.</li> <li>The WMC are reluctant to investing in new facilities as expansion and improvement of the existing plants. Apart from items 1 and 2, they know the quantity and characteristics of the wastes generated in the Industrial District area. It is necessary to identify in detail what the current waste flow is.</li> <li>In many cases, the wastes allowed by the environmental licenses (Operational Licenses) cover a wide diversity of sub-products. They should be clearly specified by means of a business plan, since they embrace all different flows.</li> <li>It is difficult to identify and categorize the wastes. In the following reasons:             <ul style="list-style-type: none"> <li>The laboratories are capable of studying and to analyzing wastes.</li> <li>The prices of the analysis are very high.</li> <li>The setting of the licensing and permits encompasses, under the responsibility of (PRAMA) and CEAMA, a real issue.</li> </ul> </li> </ol> <p>Model of Weekly Meeting 09 - 28/07/09</p>																																																																
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<p>7. The communication between the waste generating companies and IPAM as for the appropriate process of hazardous wastes is defined. In Japan a system of communication of good practices established by WMC started being used recently, with good results.</p> <p>8. The WMC sometimes deliver non-hazardous wastes mixed with hazardous wastes to the WMC without analysis and/or characterization.</p> <p>Although some factories sleep awake (PRAMA &amp; the organization capable) in regional level to supervise the fulfillment of the environmental demands and grant operative licenses for the industrial activities, for which it collects the permit service fees. That entity is also responsible for the operation of the WMC, for which it could charge and send more information concerning the level of disposal that has been accomplished by these.</p> <p>Due to the size of their own appropriate laboratories, some WMC perform analysis of wastes, some at in the environmental aspect. The Study Team of JICA and the Technical Support of SUPRAMA will research about the existence of an official program of financing which may enable the WMC to install modern laboratories of analysis of wastes in their facilities.</p> <p>d. Results of the tender for the health waste and construction waste survey</p> <p><b>Final Result - health waste survey</b></p> <table border="1"> <thead> <tr> <th>Tenderer</th> <th>Amount (US\$)</th> <th>Position</th> </tr> </thead> <tbody> <tr> <td>OPCA Ltda.</td> <td>8 000.00</td> <td>1<sup>st</sup></td> </tr> <tr> <td>SEA Ltda.</td> <td>13 700.00</td> <td>2<sup>nd</sup></td> </tr> <tr> <td>IBAM</td> <td>Did not participate</td> <td>-</td> </tr> <tr> <td>FUCAP</td> <td>Did not participate</td> <td>-</td> </tr> </tbody> </table> <p>The contract with the consultant OPCA Ltda. was signed on 12 June 2009.</p> <p><b>Final Result - construction waste survey</b></p> <table border="1"> <thead> <tr> <th>Tenderer</th> <th>Amount (US\$)</th> <th>Position</th> </tr> </thead> <tbody> <tr> <td>OPCA Ltda.</td> <td>8 000.00</td> <td>1<sup>st</sup></td> </tr> <tr> <td>SEA Ltda.</td> <td>13 700.00</td> <td>2<sup>nd</sup></td> </tr> <tr> <td>Arquiteto Amador (Instituto de Engenharia de Arquitetura)</td> <td>46 600.00</td> <td>3<sup>rd</sup></td> </tr> </tbody> </table> <p>Model of Weekly Meeting 09 - 28/07/09</p>	Tenderer	Amount (US\$)	Position	OPCA Ltda.	8 000.00	1 <sup>st</sup>	SEA Ltda.	13 700.00	2 <sup>nd</sup>	IBAM	Did not participate	-	FUCAP	Did not participate	-	Tenderer	Amount (US\$)	Position	OPCA Ltda.	8 000.00	1 <sup>st</sup>	SEA Ltda.	13 700.00	2 <sup>nd</sup>	Arquiteto Amador (Instituto de Engenharia de Arquitetura)	46 600.00	3 <sup>rd</sup>	<table border="1"> <tr> <td>IBAM</td> <td>Did not participate</td> <td>-</td> </tr> <tr> <td>FUCAP</td> <td>Did not participate</td> <td>-</td> </tr> </table> <p>The contract with the consultant OPCA Ltda. was done and signed on 18 June 2009.</p> <p>b. Target institutions for the radioactive waste survey</p> <p>The survey in Rio de Janeiro identified the 14 institutions which generate radioactive wastes in Amazon. (Brazil below)</p> <table border="1"> <thead> <tr> <th>#</th> <th>Type</th> <th>Institution</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Research Institute</td> <td>INSTITUTO DE PESQUISA E DESENVOLVIMENTO EM CIÊNCIAS</td> </tr> <tr> <td>2</td> <td>Center</td> <td>CENTRO DE MED. NUCLEAR E ULTRASSONOGRAFIA DO AMAZONAS</td> </tr> <tr> <td>3</td> <td>Foundation</td> <td>FUNDAÇÃO DE APOIO INSTITUCIONAL PRO SOUZA - FIPROSO</td> </tr> <tr> <td>4</td> <td>Company</td> <td>ARAFELY PRODUÇÃO E COMÉRCIO LTDA</td> </tr> <tr> <td>5</td> <td>Company</td> <td>BRAMA - BOMAS (BRAS) S/A</td> </tr> <tr> <td>6</td> <td>Company</td> <td>CONSTRUTORA NORBERT ODEBRECHT S/A</td> </tr> <tr> <td>7</td> <td>Company</td> <td>CIA. 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E ULTRASSONOGRAFIA DO AMAZONAS is not located in MP.</p> <p>c. Overview of the 1<sup>st</sup> Workshop</p> <p><b>Schedule of the Workshops / Seminar</b></p> <table border="1"> <thead> <tr> <th>Date</th> <th>Event</th> <th>Progress</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Model of Weekly Meeting 09 - 28/07/09</p>	IBAM	Did not participate	-	FUCAP	Did not participate	-	#	Type	Institution	1	Research Institute	INSTITUTO DE PESQUISA E DESENVOLVIMENTO EM CIÊNCIAS	2	Center	CENTRO DE MED. NUCLEAR E ULTRASSONOGRAFIA DO AMAZONAS	3	Foundation	FUNDAÇÃO DE APOIO INSTITUCIONAL PRO SOUZA - FIPROSO	4	Company	ARAFELY PRODUÇÃO E COMÉRCIO LTDA	5	Company	BRAMA - BOMAS (BRAS) S/A	6	Company	CONSTRUTORA NORBERT ODEBRECHT S/A	7	Company	CIA. 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There is budget available for technical support, coffee break, etc.</li> <li>Invitations: We will share by email, fax and telephone.</li> <li>Comments: Steven Sundstrom - JICA, Maria Grazia Buato - SUPRAMA</li> </ul> <p><b>Other points of discussion</b></p> <ul style="list-style-type: none"> <li>Partnership with PROGAMM</li> </ul> <p>Comment: On the 10th/2009, there will be a first public meeting for the master plan of wastes (all types) submitted by the City Hall of Manaus. About four meetings ago, Mrs. Jane Correa, representative of PROGAMM, mentioned the event as being of interest for the present Study in participatory level. Taking into account the fact that she is already committed to the organization of that public meeting, besides the budget planning, the representative of PROGAMM should also act in close collaboration directly with the Workshop by including lecturers and opening space for participation in other similar events.</p> <p>Notes (if necessary) (p. 13-20/09)</p>	8:30 - 8:40	Opening	President (to be defined)	8:40 - 9:00	Objectives and overview	SUPRAMA, JICA, Team	9:10 - 10:00 (1 hour)	Demonstrating Sources (WGC) current conditions and issues	COP	10:05 - 10:15	Coffee Break	-	10:20 - 11:00 (1 hour)	After Original Management (WGC) current conditions and issues	COP	11:00 - 13:00	Lunch	-	13:00 - 13:10	Title	Lecturer	13:10 - 15:00 (2 hour)	Workshop improvement policy of the WGC	Attendees	15:00 - 15:30 (1 hour)	Break and preparation	COP	15:30 - 16:30 (1 hour)	Presentation of the groups	Attendees, COP	16:30 - 17:00 (30 minutes)	Summary	SUPRAMA, JICA	17:00 - 17:30 (30 minutes)	End	President (to be defined)
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<ul style="list-style-type: none"> <li>Feasibility of Workshop - it will be defined later on</li> <li>Morning Lecturer: Waste Generating Sources (WGC) After (Success) Managers of Industrial Wastes (WAC)</li> </ul> <p>Comment: Mr. Ademilton Mourão suggested the representatives of the academia should be included among the lecturers. What would facilitate professionals from the University of the State of Amazonas and from the Federal University of Amazonas - UFAM. In that sense, it was scheduled a meeting with the professor João Mano Leticia Andrade from UFAM, who possesses several researches/publications in the area.</p> <ul style="list-style-type: none"> <li>Afternoon activities: Open discussion, Groups Presentation, Summary, Ending</li> </ul> <p style="text-align: center;"><b>Next Weekly Meeting</b></p> <p>Next Meeting (10) will be held on 10 August 2009 (Monday), at 2 pm, in a room of SUPRAMA to be defined. The present Meeting (9) finished at 04:30 pm.</p>																																																							

## 3.10 Weekly Meeting (10)

### 3.10.1 Agenda of Weekly Meeting (10) on August 10, 2009

<p style="text-align: center;"><b>Weekly Meeting (10)</b></p> <p style="text-align: center;"><b>August 10, 2009</b>  <b>JICA Study Team</b>                  For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</p> <p style="text-align: right;">1</p>	<p><b>Agenda</b></p> <ol style="list-style-type: none"> <li>1. Work Progress</li> <li>2. Schedule for this Week</li> <li>3. Subjects to be Discussed</li> </ol> <p style="text-align: right;">2</p>
<p><b>1. Work Progress: From June 22 to August 9, 2009</b></p> <ol style="list-style-type: none"> <li>1. Continue the factory survey and checking the results obtained</li> <li>2. Conduct waste management companies (WMC) survey and checking the results obtained</li> <li>3. Conduct the medical institution survey and construction waste survey</li> <li>4. Continue the study on radioactive waste</li> <li>5. Shimura, Suzuki, and Sugimoto arrived on July 31.</li> </ol> <p style="text-align: right;">3</p>	<p><b>2. Schedule for this Week</b></p> <ol style="list-style-type: none"> <li>1. Continue the factory survey and checking the results obtained</li> <li>2. Input and analyze the results of waste management companies (WMC) survey</li> <li>3. Input and analyze the results of the medical institution survey</li> <li>4. Conduct the construction waste survey and input and analyze the results of the survey</li> <li>5. Input and analyze the results of the radioactive waste survey</li> <li>6. Nakamura and Steven will arrive on August 14.</li> </ol> <p style="text-align: right;">4</p>
<p><b>3. Subjects to be Discussed</b></p> <ol style="list-style-type: none"> <li>a. Progress of the factory survey</li> <li>b. Progress of the WMC survey</li> <li>c. Progress of medical institution survey</li> <li>d. Progress of construction waste survey</li> <li>e. Progress of radioactive waste survey</li> <li>f. Outlines of the Workshop (1)</li> <li>g. Information and data required for identification economic conditions at national, regional and PIM (SUFRAMA) Area</li> <li>h. Information and data required for identification of human resources and financial capacity of SUFRAMA</li> </ol> <p style="text-align: right;">5</p>	<p><b>a. Progress of the factory survey</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 200 Factories survey has not been completed due to the delay of reply from factory, etc.</li> <li><input type="checkbox"/> Survey data of 106 factories were input and being analyzed by August 7.</li> <li><input type="checkbox"/> By August 14 more 74 factories will be input. But remaining 20 factories survey will be questioned.</li> <li><input type="checkbox"/> The JICA Study Team will conduct analysis of current waste management of factories in PIM based on the 180 in order to prepare the workshop (1).</li> <li><input type="checkbox"/> When we will get data of the remaining 20 factories, current waste management of factories will be reviewed.</li> </ul> <p style="text-align: right;">6</p>
<p><b>b. Progress of the WMC survey</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 91 WMCs survey has been completed.</li> <li><input type="checkbox"/> Survey data is being input.</li> <li><input type="checkbox"/> The Study Team will start analysis of the data from August 14.</li> </ul> <p style="text-align: right;">7</p>	<p><b>c. Progress of the medical institution survey</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 313 factories were interviewed whether they have a medical institution or not in their compounds.</li> <li><input type="checkbox"/> 107 factories among 313 have a medical institution</li> <li><input type="checkbox"/> The interview survey of 10 medical institutions including Manaus Adventist Hospital has been completed.</li> <li><input type="checkbox"/> Survey data were input.</li> <li><input type="checkbox"/> The Study Team will complete the first draft analysis of the data by August 14.</li> </ul> <p style="text-align: right;">8</p>

<p><b>d. Progress of the construction waste survey</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 313 factories were interviewed whether they have had construction work from June 2008 to May 2009 or not in their compounds.</li> <li><input type="checkbox"/> 111 factories among 313 have had construction work.</li> <li><input type="checkbox"/> The interview survey of 9 construction sites has been completed.</li> <li><input type="checkbox"/> Remaining one site survey data and data input will be completed soon.</li> <li><input type="checkbox"/> The Study Team will complete the first draft analysis of the data by August 14.</li> </ul> <p style="text-align: right;">9</p>	<p><b>e. Progress of radioactive waste survey</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The survey in Rio identified the 14 institutions in Manaus use radio active materials.</li> <li><input type="checkbox"/> Among the 14 institutions the following five were surveyed:             <ol style="list-style-type: none"> <li>1. Brasil Norte Bebidas (Coca Cola)</li> <li>2. Amapoly Ind. Com. (Locomotiva)</li> <li>3. Cia. Bebidas das Americas (AMBEV)</li> <li>4. Cervejaria Kaiser Brasil</li> <li>5. Microservice Tecnologia Digital da Amazonia</li> </ol> </li> <li><input type="checkbox"/> No institution generates radioactive wastes</li> </ul> <p style="text-align: right;">10</p>																																																																
<p><b>f. Outlines of the Workshop (1): Proposed Program</b></p> <table border="1"> <thead> <tr> <th>Date</th> <th>Time</th> <th>Venue</th> <th>Objective</th> </tr> </thead> <tbody> <tr> <td>September 11, 2009</td> <td>8am - 5:30pm</td> <td>SUFRAMA Auditorium</td> <td>Opinion Gathering</td> </tr> <tr> <th>Session</th> <th>Time*</th> <th>Title</th> <th>Speaker</th> </tr> <tr> <td></td> <td>8:00 - 8:30</td> <td>Registration</td> <td>-</td> </tr> <tr> <td></td> <td>8:30 - 8:40</td> <td>Opening Address</td> <td>Chair: Ms. Maria Gracilene Belota</td> </tr> <tr> <td></td> <td>8:40 - 9:00</td> <td>Workshop objectives and overview</td> <td>JICA</td> </tr> <tr> <td>1</td> <td>9:00 - 9:30</td> <td>On-site: Current Conditions and Issues</td> <td>Counterpart</td> </tr> <tr> <td>2</td> <td>9:30 - 10:00</td> <td>Off-site: Current Conditions and Issues</td> <td>Counterpart</td> </tr> <tr> <td>3</td> <td>10:00 - 10:30</td> <td>PROSAMIN Study Report</td> <td>Ms. Jane Crespo, PROSAMIN</td> </tr> <tr> <td>4</td> <td>10:30 - 11:00</td> <td>Domestic &amp; Health Waste Management</td> <td>João Bosco Ladislau de Andrade, PhD, Associated Professor / UFAM</td> </tr> <tr> <td></td> <td>11:00 - 1:00</td> <td colspan="2" style="text-align: center;">Lunch</td> </tr> <tr> <td></td> <td>1:00 - 3:00</td> <td colspan="2">Workshop Groups (up to 4, may use a staggered schedule for multiple participation):             <ul style="list-style-type: none"> <li>• On-site waste management: current conditions and issues</li> <li>• Off-site waste management: current conditions and issues</li> <li>• Improvement policy for industrial waste management</li> <li>• Other: Participant suggested topic</li> </ul> </td> </tr> <tr> <td></td> <td>3:00 - 4:00</td> <td>Group presentations (5/15 minutes each)</td> <td>Group Representatives</td> </tr> <tr> <td></td> <td>4:00 - 4:30</td> <td colspan="2" style="text-align: center;">Break**</td> </tr> <tr> <td>5</td> <td>4:30 - 5:00</td> <td>Summary</td> <td>SUFRAMA/JICA</td> </tr> <tr> <td></td> <td>5:00 - 5:30</td> <td>Closing remarks</td> <td>SUFRAMA/JICA</td> </tr> </tbody> </table> <p style="text-align: right;">12</p>	Date	Time	Venue	Objective	September 11, 2009	8am - 5:30pm	SUFRAMA Auditorium	Opinion Gathering	Session	Time*	Title	Speaker		8:00 - 8:30	Registration	-		8:30 - 8:40	Opening Address	Chair: Ms. Maria Gracilene Belota		8:40 - 9:00	Workshop objectives and overview	JICA	1	9:00 - 9:30	On-site: Current Conditions and Issues	Counterpart	2	9:30 - 10:00	Off-site: Current Conditions and Issues	Counterpart	3	10:00 - 10:30	PROSAMIN Study Report	Ms. Jane Crespo, PROSAMIN	4	10:30 - 11:00	Domestic & Health Waste Management	João Bosco Ladislau de Andrade, PhD, Associated Professor / UFAM		11:00 - 1:00	Lunch			1:00 - 3:00	Workshop Groups (up to 4, may use a staggered schedule for multiple participation): <ul style="list-style-type: none"> <li>• On-site waste management: current conditions and issues</li> <li>• Off-site waste management: current conditions and issues</li> <li>• Improvement policy for industrial waste management</li> <li>• Other: Participant suggested topic</li> </ul>			3:00 - 4:00	Group presentations (5/15 minutes each)	Group Representatives		4:00 - 4:30	Break**		5	4:30 - 5:00	Summary	SUFRAMA/JICA		5:00 - 5:30	Closing remarks	SUFRAMA/JICA	<p><b>f. Outlines of the Workshop (1): Discussion</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Contents of the program</li> <li><input type="checkbox"/> Who will be lecturers for session 1, 2, 3 and 5?</li> <li><input type="checkbox"/> Who will be participants?</li> </ul> <p style="text-align: right;">12</p>
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<p><b>g. Information and data required for identification economic conditions at national, regional and PIM (SUFRAMA) Area</b></p> <ol style="list-style-type: none"> <li>1. Key socio-economic indicators             <ul style="list-style-type: none"> <li><input type="checkbox"/> Gross Domestic Product (national /regional /local) categorized by economic sectors</li> <li><input type="checkbox"/> Industrial production, export and import by commodities</li> <li><input type="checkbox"/> Employment by economic sectors</li> </ul> </li> <li>2. Economic/financial incentives provided for the investment in SUFRAMA area             <ul style="list-style-type: none"> <li><input type="checkbox"/> Financial/tax incentives</li> <li><input type="checkbox"/> Non-financial/economic incentives</li> </ul> </li> </ol> <p style="text-align: right;">13</p>	<p><b>h. Information and data required for identification of human resources and financial capacity of SUFRAMA</b></p> <ol style="list-style-type: none"> <li>1. Revenue and Expenditure of SUFRAMA: Budget             <ul style="list-style-type: none"> <li><input type="checkbox"/> Revenue (major sources of revenue, budget allocation system)</li> <li><input type="checkbox"/> Expenditure (Operational expenses and development expenses)</li> </ul> </li> <li>2. Human resources of SUFRAMA             <ul style="list-style-type: none"> <li><input type="checkbox"/> Number of permanent/non-permanent staff of SUFRAMA by sections with their required qualifications</li> </ul> </li> </ol> <p style="text-align: right;">14</p>																																																																
<p><b>Next Weekly Meeting</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Next Meeting will be 17 August 2009 (Monday) at 3:00 PM</li> </ul> <p style="text-align: right;">15</p>																																																																	

### 3.10.2 Minutes of Meeting for Weekly Meeting (10) on August 10, 2009

<p style="text-align: center;"><b>Weekly Meeting (10) For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</b></p> <p style="text-align: center;">11:00pm-12:30pm 10 August 2009 Meeting Room of the Deputy Secretariat in SUPRAMA</p> <p><b>Agenda</b></p> <ol style="list-style-type: none"> <li>1. Work progress</li> <li>2. Schedule for this week</li> <li>3. Subjects to be discussed</li> </ol> <p><b>Attendees</b></p> <table border="0"> <tr><td>1. Alexandre Saitoh</td><td>Representative of PEANGLERWOOD (P)</td></tr> <tr><td>2. Tetsuro Yamaguchi</td><td>Representative of PEANGLERWOOD (AM)</td></tr> <tr><td>3. Yoshiki Suzuki</td><td>Representative of IFAM</td></tr> <tr><td>4. Ruynei Oliveira Jr.</td><td>Representative of PROGRAMM</td></tr> <tr><td>5. Dárcio R. Pinho</td><td>Representative of SEMASA</td></tr> <tr><td>6. Milton Cordeiro</td><td>Representative of SEMMA</td></tr> <tr><td>7. Jairo Marques</td><td>Representative of SIAM</td></tr> <tr><td>8. Jorge Garcia</td><td>Technician of SEA Ltda.</td></tr> <tr><td>9. Saulo Pinho</td><td>Technician of SEA Ltda.</td></tr> <tr><td>10. André Guerra</td><td>Technician of SEA Ltda.</td></tr> <tr><td>11. Paulo Ricardo Farias</td><td>Technician of ORCA</td></tr> <tr><td>12. José Carlos Braga</td><td>Technician of ORCA</td></tr> <tr><td>13. Ricardo Pacheco</td><td>Technician of ORCA</td></tr> <tr><td>14. Paulo Costa</td><td>Technician of ORCA</td></tr> <tr><td>15. Lúcia Fátima Simões Lima</td><td>Eng. and Avth. Priority Analysis Coordinator</td></tr> <tr><td>16. Carlos Soares de Almeida</td><td>COLOG/SUPRAMA</td></tr> <tr><td>17. Emanoel Barbosa Filho</td><td>COLOG/SUPRAMA</td></tr> <tr><td>18. Roberto Barreto</td><td>COGASA/SUPRAMA</td></tr> <tr><td>19. Alvaro Fátima de Moura</td><td>COGASA/SUPRAMA</td></tr> <tr><td>20. Karilly Gomes</td><td>COGASA/SUPRAMA</td></tr> <tr><td>21. Armando Santos Jr.</td><td>Support to JICA in SUPRAMA</td></tr> <tr><td>22. Hélio Gomes</td><td>Support to JICA in SUPRAMA</td></tr> <tr><td>23. Mr. Itsumasa SHIMIZU</td><td>Team Leader of JICA Study Team</td></tr> <tr><td>24. Mr. Taroichi SUZUKI</td><td>Member of JICA Study Team</td></tr> <tr><td>25. Mr. Satoshi SUGIMOTO</td><td>Member of JICA Study Team</td></tr> <tr><td>26. José de Almeida Moura Pereira</td><td>Interpreter of JICA</td></tr> </table> <p>Approved by the organizer (Mr. Itsumasa Shimizu)</p>	1. Alexandre Saitoh	Representative of PEANGLERWOOD (P)	2. Tetsuro Yamaguchi	Representative of PEANGLERWOOD (AM)	3. Yoshiki Suzuki	Representative of IFAM	4. Ruynei Oliveira Jr.	Representative of PROGRAMM	5. Dárcio R. Pinho	Representative of SEMASA	6. Milton Cordeiro	Representative of SEMMA	7. Jairo Marques	Representative of SIAM	8. Jorge Garcia	Technician of SEA Ltda.	9. Saulo Pinho	Technician of SEA Ltda.	10. André Guerra	Technician of SEA Ltda.	11. 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Continue the waste generating companies survey (WGC) and appropriation of the obtained results.</li> <li>2. Carry out the waste management companies survey (WMC) and check the obtained results.</li> <li>3. Carry out the medical institutions and construction wastes survey.</li> <li>4. Continue the radioactive wastes survey.</li> <li>5. Mrs. Simoes and Suzuki arrived in Manaus on 31 July and Mr. Sugimoto on 02 August.</li> </ol> <p style="text-align: center;">B. Schedule for this week:</p> <ol style="list-style-type: none"> <li>1. Continue the factory survey and check the obtained results.</li> <li>2. Input and analyze the results of the waste management companies survey.</li> <li>3. Input and analyze the results of the health waste survey.</li> <li>4. Input and analyze the results of the construction waste survey.</li> <li>5. Input and analyze the results of the radioactive wastes survey.</li> <li>6. Mr. Nakamura and Steven Simonsen will arrive in Manaus on 18 August.</li> </ol> <p style="text-align: center;">C. Subjects to be discussed</p> <p>The following subjects were discussed at the Meeting:</p> <ol style="list-style-type: none"> <li>a. Confirmation of the Minutes of the Weekly Meeting (9). See topics of the MWM (Minutes of the Weekly Meeting (9)).</li> <li>b. Progress of the factory survey.</li> <li>c. Progress of the waste management companies survey.</li> <li>d. Progress of the medical institutions survey.</li> <li>e. Progress of the construction wastes survey.</li> <li>f. Progress of the radioactive wastes survey.</li> <li>g. Outlets of the Workshop 1.</li> <li>h. Information and data necessary for the identification of the economic conditions in national and regional entities, as well as in the area of PIM (SUPRAMA).</li> <li>i. Information and data necessary for the identification of fresh resources and the financial capability of SUPRAMA.</li> </ol> <p>a. Confirmation of the Minutes of the Weekly Meeting (9). See topics of the MWM (Minutes of the Weekly Meeting (9)).</p> <p>As it has been pointed, PROGRAMM also to July a CD containing the Industrial Contamination Control Plan (developed by UGP/PROGAMM) which was delivered to the members of JICA Study Team. This initiative by JICA is aimed to hold a public meeting for the wastes master plan elaborated by ISAM for the City Hall of Manaus this once more reviewed.</p> <p>Delivered: Eduardo Simões (10) / 11:00-12:30</p>
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<p>"The other questions which were not answered at the Meeting on 09/22/2009 have to do with the organization of Workshop 1 about the Study of JICA, and will be addressed in item "g" of the Minute.</p> <p><b>B. Progress of the factory survey</b></p> <p>The JICA Study Team explained as follows:</p> <ul style="list-style-type: none"> <li>• The survey of the 200 factories has not been finished yet, mainly due to the delay of the factories in sending their answers.</li> <li>• The data of 110 surveyed factories have been input and analyzed up to 07 August.</li> <li>• Up to 14 August there is an estimate of the answers of over 20 factories WMC have been processed. The survey of the remaining 70 will be pending by SEA Ltda.</li> <li>• JICA Study Team will carry out the analysis of the current waste management of the factories of PIM based on 180 answers to be finalized for the preparation of Workshop 1.</li> <li>• As soon as the data of 20 remaining factories is received, the current management of the wastes will be revealed.</li> </ul> <p>After the explanation, the following were discussed in the meeting:</p> <p>The technicians in charge of the consulting company SEA Ltda., Mr. Jorge Garcia, presented a few general observations to the current stage of the works of the factory survey, as seen below:</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Target of the Factory (Survey)</th> <th>Actual (Completed)</th> <th>Ratio (%) (Completed/Target)</th> </tr> </thead> <tbody> <tr> <td>WGC</td> <td>100 factories</td> <td>100 factories</td> <td>100%</td> </tr> <tr> <td>WMC</td> <td>200 factories</td> <td>110 factories</td> <td>55%</td> </tr> <tr> <td>Health</td> <td>100 factories</td> <td>100 factories</td> <td>100%</td> </tr> <tr> <td>Construction</td> <td>100 factories</td> <td>100 factories</td> <td>100%</td> </tr> <tr> <td>Radioactive</td> <td>100 factories</td> <td>100 factories</td> <td>100%</td> </tr> </tbody> </table> <p>According to Mr. Jorge Garcia, due to the low feedback of the survey target companies, the lack of knowledge on some parts of the questionnaire by those in charge of the waste control in the factories, and also the refusal in receiving and answering the factory questionnaires (in some cases, when the information provided in the waste inventory demanded annually by the PIM factories law or OIAM may be false if compared to the verified reality.</p> <p>Mr. Lúcia Fátima Simões acknowledged that may happen, and at the same time he carried out how the companies could cooperate in a more decisive way in that process, once SUPRAMA has no imposing power concerning the environmental laws. Many factories of PIM would be very hot focused in their daily activities, thus neglecting regional environmental regulations, policies.</p> <p>Delivered: Eduardo Simões (10) / 11:00-12:30</p>	Field	Target of the Factory (Survey)	Actual (Completed)	Ratio (%) (Completed/Target)	WGC	100 factories	100 factories	100%	WMC	200 factories	110 factories	55%	Health	100 factories	100 factories	100%	Construction	100 factories	100 factories	100%	Radioactive	100 factories	100 factories	100%	<p>Mr. Paulo Pinho stated the quantity of factories surveyed in the factory survey, although they may be under the target, is significant, since it embraces the main companies of PIM. After all, the remaining 70 will also serve to develop a higher awareness among the non-cooperating factories.</p> <p>The presentation of the factory survey report for 09/14/2008 will count on 130 surveyed factories. Besides the correct signed between SEA Ltda. and JICA, having expired, the local consulting company proposed to go on with the factory survey up to the end of September, aiming for finalizing that report with 180 answers from factories with complete projects approved by SUPRAMA and 20 with simplified project, totaling the 200 demanded by the Project. In the end the JICA Study Team acknowledged the difficulties of the work and accepted to extend the time limit of submission of factory survey data by the end of September 2009.</p> <p><b>C. Progress of the survey of the WMC</b></p> <p>Regarding the progress of the survey of the WMC, the JICA Study Team explained as follows:</p> <ul style="list-style-type: none"> <li>• The survey of 51 waste management companies was finished.</li> <li>• The data of the survey are still being processed.</li> <li>• JICA Study Team will start the analysis of the data from 14 August on.</li> </ul> <p><b>D. Progress of the medical institutions survey</b></p> <p>Regarding the progress of the medical institutions survey, the JICA Study Team explained as follows:</p> <ul style="list-style-type: none"> <li>• 201 factories have been interviewed with the objective of realizing whether they have or not their own clinic.</li> <li>• 124 of the 201 surveyed factories have a clinic.</li> <li>• The 10 selected institutions have been surveyed, including the Adventist Hospital of Manaus.</li> <li>• The data of the survey have been processed, the 10 interviewed companies comprising 7,179 employees and have generated a total of 273.67 kg of health waste in the last 12 months.</li> <li>• The Study Team will conclude the first analysis up to 14 August.</li> </ul> <p><b>E. Progress of the construction waste survey</b></p> <p>Regarding the progress of the construction waste survey, the JICA Study Team explained as follows:</p> <ul style="list-style-type: none"> <li>• 201 factories have been interviewed in order to find out whether have carried out some type of construction between June 2008 and May 2009.</li> <li>• 126 of the 201 surveyed factories did carry out some type of construction within that period.</li> <li>• The survey of 10 construction sites has been finished.</li> <li>• Mr. Rafael Medeiros a Concrete Ltda., initially selected, was replaced with Yamani Moraes da Anacosta Ltda.</li> <li>• The Study Team will complete the initial analysis of the data up to 14 August.</li> </ul> <p><b>F. Progress of the radioactive wastes survey</b></p> <p>Regarding the progress of the radioactive wastes survey, the JICA Study Team explained as follows:</p> <ul style="list-style-type: none"> <li>• The survey carried out at CHER, in Rio de Janeiro, by Serbion consulting company, identified 14 isotopes of 16 different types of radioactive materials.</li> </ul> <p>Delivered: Eduardo Simões (10) / 11:00-12:30</p>																												
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## 3.11 Weekly Meeting (11)

### 3.11.1 Agenda of Weekly Meeting (11) on August 17, 2009

<p style="text-align: center;"><b>Weekly Meeting (11)</b></p> <p style="text-align: center;"><b>August 17, 2009</b> <b>JICA Study Team</b> For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</p> <p style="text-align: right;">1</p>	<p style="text-align: center;"><b>Agenda</b></p> <ol style="list-style-type: none"> <li>1. Work Progress</li> <li>2. Schedule for this Week</li> <li>3. Subjects to be Discussed</li> </ol> <p style="text-align: right;">2</p>																																																																																	
<p style="text-align: center;"><b>1. Work Progress: From August 10 to August 16, 2009</b></p> <ol style="list-style-type: none"> <li>1. Continue the factory survey and checking the results obtained</li> <li>2. Input and analyze the results of waste management companies (WMC) survey</li> <li>3. Input and analyze the results of the medical institution survey</li> <li>4. Conduct the construction waste survey and input and analyze the results of the survey</li> <li>5. Input and analyze the results of the radioactive waste survey</li> <li>6. <u>Nakamura and Steven arrived on August 14.</u></li> </ol> <p style="text-align: right;">3</p>	<p style="text-align: center;"><b>2. Schedule for this Week</b></p> <ol style="list-style-type: none"> <li>1. Continue the factory survey, input and analyze the results obtained</li> <li>2. Input and analyze the results of waste management companies (WMC) survey</li> <li>3. Check the analysis report of the medical institution survey</li> <li>4. Analyze the results of the construction waste survey</li> <li>5. Analyze the results of the radioactive waste survey</li> <li>6. <u>Mr. Haddad will arrive on August 18.</u></li> </ol> <p style="text-align: right;">4</p>																																																																																	
<p style="text-align: center;"><b>3. Subjects to be Discussed</b></p> <ol style="list-style-type: none"> <li>a. First draft analysis of medical institution survey</li> <li>b. Total number of factories operating in PIM</li> </ol> <p style="text-align: right;">5</p>	<p style="text-align: center;"><b>a. First draft analysis of medical institution survey (1): Outline of medical institutions surveyed</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 351 factories of the SUFRAMA factory list (Perfil Das Empresas Com Projetos Aprovados Pela SUFRAMA Dez/2008 ) were phoned and replied. In total 124 factories have a clinic. =&gt; 35.3 %</li> <li><input type="checkbox"/> The 10 medical institutions including Manaus Adventist Hospital were surveyed. Outline of them are as follows:</li> </ul> <table border="1" data-bbox="874 1406 1390 1509"> <thead> <tr> <th>Category</th> <th>Nos of Sample</th> <th>Nos of Employees (*1)</th> <th>Nos of Beds</th> <th>Ave. Nos of In-patients</th> <th>Ave. Nos of Out-patients</th> </tr> </thead> <tbody> <tr> <td>Hospital</td> <td>1</td> <td>439</td> <td>70</td> <td>48</td> <td>22 (*3)</td> </tr> <tr> <td>Clinic</td> <td>9</td> <td>4.1 (*2)</td> <td>1.2 (*2)</td> <td>No answer</td> <td>19 (*2)</td> </tr> </tbody> </table> <p style="text-align: right;">6</p> <p><small>*1: including Part Time, *2: 9 clinics average, *3: Only emergency patients</small></p>	Category	Nos of Sample	Nos of Employees (*1)	Nos of Beds	Ave. Nos of In-patients	Ave. Nos of Out-patients	Hospital	1	439	70	48	22 (*3)	Clinic	9	4.1 (*2)	1.2 (*2)	No answer	19 (*2)																																																															
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<p style="text-align: center;"><b>a. First draft analysis of medical institution survey (2): Health Waste Generation Surveyed, Unit = kg /week</b></p> <table border="1" data-bbox="304 1621 820 1935"> <thead> <tr> <th>Category of Health Waste</th> <th>General Hospital</th> <th>Clinics (Average)</th> </tr> </thead> <tbody> <tr> <td>Class A: Infectious Waste</td> <td>183.2</td> <td>16.7</td> </tr> <tr> <td>A.1 Infectious waste</td> <td>29.3</td> <td>2.0</td> </tr> <tr> <td>A.2 Blood and derivatives</td> <td>12.8</td> <td>0.5</td> </tr> <tr> <td>A.3 Surgical, anatomopatologic and exudates</td> <td>56.8</td> <td>6.1</td> </tr> <tr> <td>A.4 Piercing or cutting</td> <td>23.8</td> <td>5.4</td> </tr> <tr> <td>A.5 Contaminated animal</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>A.6 Patient care</td> <td>60.5</td> <td>2.7</td> </tr> <tr> <td>Class B: Special Waste</td> <td>11.7</td> <td>6.9</td> </tr> <tr> <td>B.1 Radioactive waste</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>B.2 Pharmaceutical waste</td> <td>7.0</td> <td>1.9</td> </tr> <tr> <td>B.3 Hazardous chemical waste</td> <td>4.7</td> <td>5.0</td> </tr> <tr> <td>Total of Class A and B (Hazardous Waste)</td> <td>194.9</td> <td>23.6</td> </tr> <tr> <td>Class C: Common Waste</td> <td>658.0</td> <td>8.2 (*1)</td> </tr> <tr> <td>Total</td> <td>852.9</td> <td>31.8</td> </tr> </tbody> </table> <p style="text-align: right;">7</p> <p><small>*1: May be discharged other places in factory.</small></p>	Category of Health Waste	General Hospital	Clinics (Average)	Class A: Infectious Waste	183.2	16.7	A.1 Infectious waste	29.3	2.0	A.2 Blood and derivatives	12.8	0.5	A.3 Surgical, anatomopatologic and exudates	56.8	6.1	A.4 Piercing or cutting	23.8	5.4	A.5 Contaminated animal	0.0	0.0	A.6 Patient care	60.5	2.7	Class B: Special Waste	11.7	6.9	B.1 Radioactive waste	0.0	0.0	B.2 Pharmaceutical waste	7.0	1.9	B.3 Hazardous chemical waste	4.7	5.0	Total of Class A and B (Hazardous Waste)	194.9	23.6	Class C: Common Waste	658.0	8.2 (*1)	Total	852.9	31.8	<p style="text-align: center;"><b>a. First draft analysis of medical institution survey (3): Health Waste Generation in PIM, Unit = kg /day</b></p> <table border="1" data-bbox="874 1659 1390 1951"> <thead> <tr> <th>Category</th> <th>A. 9 Clinics Average</th> <th>B. 124 Clinics (B = A x 124)</th> <th>C. Whole Factories in PIM (B x X / 351)</th> <th>D. General Hospital</th> <th>E. Whole PIM (E = C + D)</th> </tr> </thead> <tbody> <tr> <td>Class A</td> <td>2.39</td> <td>296.4</td> <td>??</td> <td>26.2</td> <td>??</td> </tr> <tr> <td>Class B</td> <td>0.99</td> <td>122.8</td> <td>??</td> <td>1.7</td> <td>??</td> </tr> <tr> <td>Hazardous Waste Total</td> <td>3.38</td> <td>419.2</td> <td>??</td> <td>27.9</td> <td>??</td> </tr> <tr> <td>Class C</td> <td>1.17</td> <td>145.1</td> <td>??</td> <td>94.0</td> <td>??</td> </tr> <tr> <td>Health Waste Total</td> <td>4.55</td> <td>564.3</td> <td>??</td> <td>121.9</td> <td>??</td> </tr> </tbody> </table> <p style="text-align: right;">8</p>	Category	A. 9 Clinics Average	B. 124 Clinics (B = A x 124)	C. Whole Factories in PIM (B x X / 351)	D. General Hospital	E. Whole PIM (E = C + D)	Class A	2.39	296.4	??	26.2	??	Class B	0.99	122.8	??	1.7	??	Hazardous Waste Total	3.38	419.2	??	27.9	??	Class C	1.17	145.1	??	94.0	??	Health Waste Total	4.55	564.3	??	121.9	??
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B.2 Pharmaceutical waste	7.0	1.9																																																																																
B.3 Hazardous chemical waste	4.7	5.0																																																																																
Total of Class A and B (Hazardous Waste)	194.9	23.6																																																																																
Class C: Common Waste	658.0	8.2 (*1)																																																																																
Total	852.9	31.8																																																																																
Category	A. 9 Clinics Average	B. 124 Clinics (B = A x 124)	C. Whole Factories in PIM (B x X / 351)	D. General Hospital	E. Whole PIM (E = C + D)																																																																													
Class A	2.39	296.4	??	26.2	??																																																																													
Class B	0.99	122.8	??	1.7	??																																																																													
Hazardous Waste Total	3.38	419.2	??	27.9	??																																																																													
Class C	1.17	145.1	??	94.0	??																																																																													
Health Waste Total	4.55	564.3	??	121.9	??																																																																													

<p><b>a. First draft analysis of medical institution survey (4): Health Waste Flow, Unit = kg /day</b></p> <ul style="list-style-type: none"> <li>It will be prepared when total number of factories with medical institutions (NFwM) will be identified.</li> <li>For the identification of the above, total number of factories (TNF), which is operating in PIM, shall be confirmed.</li> <li>NFwM = TNF/351</li> <li>Health Waste Generation = 564.3 x TNF/351 or = 564.3 x NFwM/124</li> </ul> <p style="text-align: right;">9</p>	<p><b>a. First draft analysis of medical institution survey (5): Current Issues (1)</b></p> <p><b>1. Establishment of health waste management system in PIM</b></p> <ul style="list-style-type: none"> <li>More than 1/3 of the factories in PIM have a clinic.</li> <li>Factories and a hospital in PIM generate considerable amount of hazardous health wastes, ?? kg/day.</li> <li>The generation amount is like it of over 100,000 city.</li> </ul> <table border="1"> <thead> <tr> <th>Country/City</th> <th>Study Year</th> <th>Population</th> <th>Generation Amount (kg/day)</th> <th>Unit Generation (g/person/day)</th> </tr> </thead> <tbody> <tr> <td>Chile / Santiago</td> <td>1998</td> <td>5,642,000</td> <td>20,000</td> <td>3.54</td> </tr> <tr> <td>Turkey / Adana</td> <td>1998</td> <td>1,196,620</td> <td>4,401</td> <td>3.68</td> </tr> <tr> <td>Turkey / Mersin</td> <td>1998</td> <td>643,850</td> <td>1,539</td> <td>2.39</td> </tr> <tr> <td>Azerbaijan / Baku</td> <td>2000</td> <td>2,051,200</td> <td>12,882</td> <td>6.28</td> </tr> <tr> <td>Cambodia / Phnom Penh</td> <td>2003</td> <td>1,199,414</td> <td>961</td> <td>0.80</td> </tr> <tr> <td>Sri Lanka / Kandy</td> <td>2002</td> <td>110,049</td> <td>530</td> <td>4.81</td> </tr> <tr> <td>Mongol / Ulaanbaatar</td> <td>2005</td> <td>866,591</td> <td>1,600</td> <td>1.85</td> </tr> <tr> <td>PIM in Manaus</td> <td>2009</td> <td>120,000</td> <td>447</td> <td>3.73</td> </tr> </tbody> </table>	Country/City	Study Year	Population	Generation Amount (kg/day)	Unit Generation (g/person/day)	Chile / Santiago	1998	5,642,000	20,000	3.54	Turkey / Adana	1998	1,196,620	4,401	3.68	Turkey / Mersin	1998	643,850	1,539	2.39	Azerbaijan / Baku	2000	2,051,200	12,882	6.28	Cambodia / Phnom Penh	2003	1,199,414	961	0.80	Sri Lanka / Kandy	2002	110,049	530	4.81	Mongol / Ulaanbaatar	2005	866,591	1,600	1.85	PIM in Manaus	2009	120,000	447	3.73
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<p><b>a. First draft analysis of medical institution survey (6): Current Issues (2)</b></p> <p><b>2. On-site health waste management</b></p> <ul style="list-style-type: none"> <li>On-site health waste management has been established at almost acceptable level. It of the general hospital seems to be well-established.</li> <li>However, the following issues were observed in the clinics of the factories: <ul style="list-style-type: none"> <li>Standard containers set in the ABNT NBR 12809 are not used in more than half of clinics.</li> <li>Although hazardous health wastes (HHWs) are separately stored according to the class and type of the HHWs, some clinics (2/8) discharged them mixed together for collection service.</li> </ul> </li> </ul> <p style="text-align: right;">11</p>	<p><b>a. First draft analysis of medical institution survey (7): Current Issues (3)</b></p> <p><b>3. Identification of off-site health waste management</b></p> <ul style="list-style-type: none"> <li>The medical institution survey could not identify the off-site health waste management due to insufficient manifest system and lack of discharger's responsibilities.</li> <li>Class C wastes are managed by municipal waste collection service. But off-site HHWM is questioned on the following aspects: <ul style="list-style-type: none"> <li>Some clinics (3/9) did not answer the off-site disposal method of HHW they discharged.</li> <li>Some of the HHW are disposed of at special pit at the landfill but no authorized hazardous waste landfill.</li> <li>Many HHWs are treated by the incinerators. But whether the incineration is properly operated or not is question.</li> </ul> </li> </ul> <p style="text-align: right;">12</p>																																													
<p><b>a. First draft analysis of medical institution survey (8): Question for Improvement</b></p> <p><b>1. Which organization shall take the responsibility for following aspects on health waste management in PIM?</b></p> <ul style="list-style-type: none"> <li>Health waste inventory and data management.</li> <li>Control and enforcement of on-site health waste management in clinics and hospital.</li> <li>Control and enforcement of off-site health waste management done by the waste management companies.</li> <li>Current manifest system of hazardous health waste.</li> <li>Responsibility of discharger on improper management of the hazardous health waste.</li> </ul> <p style="text-align: right;">13</p>	<p><b>b. Total number of factories operating in PIM (1)</b></p> <ul style="list-style-type: none"> <li>To know total number of factories (TNF) operating in PIM is critical issues for the estimation of waste generation in PIM.</li> <li>However, it is questioned.</li> <li>OPCA made phone calls to all factories in PIM as shown in the next screen.</li> <li>We use number of factories the ones identifies by OPCA phone call after confirmation of the following issues. <ol style="list-style-type: none"> <li>Factories with no contact (83) by the OPCA phone call. =&gt; Can we consider them as closed?</li> <li>Factories in SUFRAMA List but not in OPCA (9). =&gt; Can we consider them as closed?</li> </ol> </li> </ul> <p style="text-align: right;">14</p>																																													
<p><b>b. Total number of factories operating in PIM (2)</b></p> <table border="1"> <thead> <tr> <th>Description</th> <th>Total of Factories</th> <th>Operated / Closed</th> </tr> </thead> <tbody> <tr> <td>1. Factories answered</td> <td>334</td> <td>Operate</td> </tr> <tr> <td>2. Paralyzed factories</td> <td>17</td> <td>Close</td> </tr> <tr> <td>3. Factories which requested e-mail from SUFRAMA</td> <td>23</td> <td>Operate</td> </tr> <tr> <td>4. Factories which refused to cooperate</td> <td>2</td> <td>Operate</td> </tr> <tr> <td>5. Factories with no phone contact during the survey period</td> <td>83</td> <td>Operate or close?</td> </tr> <tr> <td>6. Factories out of Manaus</td> <td>15</td> <td>Operate</td> </tr> <tr> <td><b>Total</b></td> <td><b>474</b></td> <td></td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>Number of Factories in SUFRAMA List: 475 (Perfil das empresas com projetos aprovados pela SUFRAMA Dez/2008)</li> <li>Number of Factories in OPCA List: 474</li> <li>Number of Factories in Both Lists: 466</li> <li>Number of Factories in SUFRAMA List but not in OPCA: 9</li> <li>Number of Factories in OPCA but not in SUFRAMA List: 8</li> </ol> <p style="text-align: right;">16</p>	Description	Total of Factories	Operated / Closed	1. Factories answered	334	Operate	2. Paralyzed factories	17	Close	3. Factories which requested e-mail from SUFRAMA	23	Operate	4. Factories which refused to cooperate	2	Operate	5. Factories with no phone contact during the survey period	83	Operate or close?	6. Factories out of Manaus	15	Operate	<b>Total</b>	<b>474</b>		<p><b>Next Weekly Meeting</b></p> <ul style="list-style-type: none"> <li>Next Meeting will be 24 August 2009 (Monday) at 3:00 PM</li> </ul>																					
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### 3.11.2 Minutes of Meeting for Weekly Meeting (11) on August 17, 2009

**Weekly Meeting (11) For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus**

15:00pm-17:30pm  
17 August 2009  
Auditorium of SUPRAMA

**Agenda**

1. Work progress
2. Schedule for this week
3. Subjects to be discussed

**Attendees**

1. Flavio Dutra	Representative of FEAMCERAMCOBIS-AM
2. Alessandro Kadota	Representative of FEAMCERAMCOBIS-AM
3. Romario Pereira	Representative of PRAMA
4. Jairo Chagas	Representative of UGRUPROSAEM
5. Djalma B. Paula	Representative of S2 MUSA
6. Myrian Coimbra	Representative of S2 MUSA
7. Lister Marjans	Representative of S2 MUSA
8. Jorge Gomes	Technician of SEA Ltda.
9. Davi Paiva	Technician of SEA Ltda.
10. André Queiroz	Technician of SEA Ltda.
11. Paulo Ricardo Pinheiro	Technician of DPCA
12. Ricardo Pinheiro	Technician of DPCA
13. Vitor Chaves de Sousa	Foreign Trade General Coordinator/SUPRAMA
14. Adria Acosta	Assistant of ENENOR
15. Luiz Paulo Brandão-Santos	Eng. and Arch. Projects Advisor/Combrasil
16. Carlos Gomes de Almeida	COLOG/SUPRAMA
17. Emerson Barros Filho	COLOG/SUPRAMA
18. Daniel Silva	COLOG/SUPRAMA
19. Alexandre Frey	COLOG/SUPRAMA
20. Adilson Brandão	COLOG/SUPRAMA
21. Artur Rebelo	COLOG/SUPRAMA
22. Wilson Soares	COCOM/SUPRAMA
23. Wellington Costa	COCOM/SUPRAMA
24. Cleber Machado	COCOM/SUPRAMA
25. Rildo de Castro Neto	SACI/SUPRAMA
26. Alexandre Santos Jr.	Support to JICA in SUPRAMA
27. Helena Gomes	Support to JICA in SUPRAMA
28. Sr. Susumu SHIMURA	Team Leader of JICA Study Team
29. Sr. Tetsuo SUGIURA	Member of JICA Study Team
30. Sr. Satoru SUGIMOTO	Member of JICA Study Team
31. Sr. Shoji NAKAMURA	Member of JICA Study Team

Notes of Meeting (Meeting 11) - 11/18/2009

**Minutes & Agenda**

1. Work Progress: From 10 to 16 August 2009

1. Continue the wastes generating companies survey (WGC) and verification of the obtained results;
2. Input and analyze the results of the waste management companies survey;
3. Input and analyze the results of the medical institutions survey;
4. Carry out the non-hazardous waste survey and emission and analysis of the obtained results;
5. Reception and analysis of the results of the radioactive waste survey;
6. Mrs. Takemura and Sundstrom arrived in Manaus on 14 August.

**II. Schedule for this week**

1. Continue the factory survey and investigate the obtained results;
2. Input and analyze the results of the waste management companies survey;
3. Check the report of the local consultant concerning the analysis of the medical institutions survey;
4. Analyze the results of the construction waste survey;
5. Analyze the results of the radioactive waste survey;
6. Mr. Jiro Felício Haddad will arrive in Manaus on the 16<sup>th</sup> and Mr. Kostas Loukantonis on the 27<sup>th</sup> August.

**III. Subjects to be discussed**

The following subjects were discussed at the Meeting:

- a. Confirmation of the Minutes of the Weekly Meeting (10). Give topic of the MWM (Minutes of the Weekly Meeting (11)).
- b. Analysis of the first part of the medical institutions survey.
- c. Definition of the actual number of factories operating at IWM.
- d. Others.

a. Confirmation of the Minutes of the Weekly Meeting (10). See topic of the MWM (Minutes of the Weekly Meeting (11)).

The content of the Minutes of the last meeting was not discussed. The only outstanding issue is about who will be the Facilitator of the 1<sup>st</sup> Working.

b. Analysis of the first draft of the medical institutions survey.

**3.1 Outline of the surveyed medical institutions**

Notes of Meeting (Meeting 11) - 11/18/2009

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• 357 factories from the list supplied by SUPRAMA (Pereira's Employee.com - Projeto Agendas) pelo SUPRAMA - December 2009) were contacted by DPCA (Lima) and replied to the official survey. Out of these, 124 started to have their own sites (35.3% of the total).

• 10 institutions, including the Adventist Hospital of Manaus, were directly surveyed. The verified data are the following:

**Medical Institutions Survey - preliminary survey**

Category	Sample	Impurities (%)	Std.	Average of hospitalized Patients	Average of Non hospitalized Patients
Hospital	1	37.9	79	42	35.1 (%)
Clinic	9	4.2 (1%)	2.2 (1%)	96 (average)	24 (1%)

(1) including both-time (2) average of the 9 clinics (3) one emergency patients

Comment of the attendees: According to the representatives of FEAMCERAMCOBIS, it would be relevant to present the average of all possible beneficiaries of the clinics in the 9 factories, as well as the forecast of those employees for the other sites. It was also mentioned that a considerable number of factories which have got no internal clinic have agreements with hospitals across health care companies located out of PMZ area.

Answer from JICA Study Team: The result presented at this Meeting is just a draft of the survey, the suggested information will be taken into account.

**3.2 Surveyed waste generator (unit) & agreement**

**Quantity of health waste**

Category of Health Waste	Amount (quantity)	Units (Average)
<b>Class A: Infectious Waste</b>	<b>288.9</b>	<b>8.7</b>
A.1 Infectious Waste	28.2	2.2
A.2 Blood and Anatomic	1.02	0.1
A.3 Surgery, obstetric, pathological and excretions	18.0	0.2
A.4 Placing and casting	23.0	0.2
A.5 Contaminated animal	0.7	0.0
A.6 Treatment of patients	19.0	0.2
<b>Class B: Special Waste</b>	<b>3.5</b>	<b>0.0</b>

Notes of Meeting (Meeting 11) - 11/18/2009

3.3 Endocrine waste	2.0	0.0
3.3 Pharmaceutical waste	7.0	0.0
3.3 Hazardous chemical waste	4.7	0.0
Total B (Classes A and B) (Hazardous Waste)	136.8	0.0
Class C: Common Waste	436.0	8.2 (1%)
Total (Classes A, B and C)	552.0	8.8

(1) may be aligned in other places in the factory

Note: The data above have been recorded in relation to those presented at the Meeting.

**3.3 Generation of health waste in PMZ (unit) & agreement**

Category	A. Average of Clinics (%)	B. 124 Clinics (N = 8 x 124)	C. All factories in PMZ (N = 8 x N / 25%)	D. Approximate Hospital	E. 08 PMZ (N = C + D)
Class A	37.9	112.94	77	29.2	77
Class B	6.27	192.48	77	3.3	77
Class C (Hazardous)	4.2	132.34	77	2.7	77
Class C	1.07	102.2	77	0.0	77
Total (in Hospital)	4.4	242.84	77	111.0	77

Note: The data of year 1997 were divided by 3 (consistency of data in records)

Note: B is Actual number of factories with facilities approved by SUPRAMA, which will be surveyed by the remaining 124 factories listed by JICA.

**3.4 Health wastes flow (unit) & agreement**

- Will be proposed when the total number of factories with waste facilities among all in PMZ is identified.
- For that, the total number of factories (NTE) operating in PMZ should be confirmed.

Note: The understanding of the total number of factories of PMZ is a great challenge for the Study

- Calculation of NTE = 1077 / 251 (total of factories which responded the medical institutions survey)
- Generation of Health Waste = 237.62 (total of waste in the 124 factories with clinics) x (1077 / 251) or 237.62 x (404) / 100.

**3.5 General issues**

1. Establishment of the health waste management system in PMZ.

- Only 1/3 of the factories surveyed in PMZ have a clinic.
- The factories and 8 hospital in PMZ generate a considerable quantity of hazardous waste material, which compared to other analogue surveys carried out in other parts of the world.

Notes of Meeting (Meeting 11) - 11/18/2009

<p>• The generated amount is similar to over 100,000 liters around the world.</p> <p style="text-align: center;"><b>Health wastes surveys around the world</b></p> <table border="1"> <thead> <tr> <th>Country / City</th> <th>Year of the Study</th> <th>Population</th> <th>Generated Amount (kg/day)</th> <th>Unit (g/person/day)</th> </tr> </thead> <tbody> <tr> <td>Chile / Santiago</td> <td>2012</td> <td>6,642,880</td> <td>28,520</td> <td>2.34</td> </tr> <tr> <td>Burkina / Ouagadougou</td> <td>2018</td> <td>2,198,825</td> <td>4,481</td> <td>2.03</td> </tr> <tr> <td>Yaroslavl / Moscow</td> <td>2000</td> <td>841,350</td> <td>1,339</td> <td>1.59</td> </tr> <tr> <td>Abuja / Abuja</td> <td>2010</td> <td>2,853,280</td> <td>52,893</td> <td>18.51</td> </tr> <tr> <td>Cosmos / Phoenix Park</td> <td>2012</td> <td>3,191,014</td> <td>561</td> <td>0.18</td> </tr> <tr> <td>San Lanka / Colombo</td> <td>2012</td> <td>216,149</td> <td>320</td> <td>1.48</td> </tr> <tr> <td>Managua / Managua</td> <td>2005</td> <td>848,281</td> <td>1,815</td> <td>2.13</td> </tr> <tr> <td>Buenos Aires / Buenos Aires</td> <td>2005</td> <td>120,380</td> <td>440</td> <td>3.71</td> </tr> </tbody> </table> <p>Source: JICA Study Team/JICA</p> <p>2. On-site health waste management</p> <ul style="list-style-type: none"> <li>Waste set at acceptable levels. The management of the Assueto Hospital seems to be well set.</li> <li>Nevertheless, the following issues were noticed in the clinics of the factories:             <ul style="list-style-type: none"> <li>Clear half of the factories do not use the standard receptacles set by ANST (NR 1208)</li> <li>Although the hazardous health wastes are stored separately per class and Sped. Some clinics (2 out of 6) mix them for the collection.</li> </ul> </li> </ul> <p>The Team of JICA received a certain level of appreciation from the personnel of the clinics of the factories (with other areas of the company) mainly with the on-site waste managers. ANST (NR 1208) gives the mapping of wastes for the WMCs is documented, and for that issue areas of the companies should interest.</p> <p>3. Off-site health waste management</p> <ul style="list-style-type: none"> <li>The medical practitioners usually do not identify the off-site health wastes management, due to inefficient waste transfer systems and lack of responsibility of some operators.</li> <li>The Clear C levels are managed by the municipal collector service. But the off-site management is signed in the following aspects:             <ul style="list-style-type: none"> <li>Some clinics (3 out of 6) did not specify which method of off-site disposal they use for their hazardous health wastes.</li> <li>Some of the hazardous health wastes are disposed in a special pit in the municipal landfill, but the correct procedures would be to do so in an authorized hazardous wastes ponds.</li> <li>Many hazardous health wastes are incinerated, but it may not be very efficient unless the incinerator is properly maintained for that.</li> </ul> </li> </ul> <p>In theory, all WMC working in PM have got a license, and the complete operation of this manifests system is approved for the services in IFAMA. After all, it is through the WMCs are just for the services related to the factories. One way to be:</p> <p>Issue of Weekly Meeting (11) - 17/07/2018 <span style="float: right;">3</span></p>	Country / City	Year of the Study	Population	Generated Amount (kg/day)	Unit (g/person/day)	Chile / Santiago	2012	6,642,880	28,520	2.34	Burkina / Ouagadougou	2018	2,198,825	4,481	2.03	Yaroslavl / Moscow	2000	841,350	1,339	1.59	Abuja / Abuja	2010	2,853,280	52,893	18.51	Cosmos / Phoenix Park	2012	3,191,014	561	0.18	San Lanka / Colombo	2012	216,149	320	1.48	Managua / Managua	2005	848,281	1,815	2.13	Buenos Aires / Buenos Aires	2005	120,380	440	3.71	<p>other, the activities of the WMCs is also being surveyed, in which this and other issues concerning the off-site disposal will be deepened.</p> <p>3.6 Issues for improvement</p> <p>1. Which organization will be in charge of the following aspects of the health wastes management in PM?</p> <ul style="list-style-type: none"> <li>Health wastes inventory and data management.</li> <li>Control and application of the health wastes on-site management in the clinics and Hospital Hospitals.</li> <li>Control and application of the health wastes off-site management carried out by the waste management companies.</li> <li>Current system of the hazardous health waste manifest.</li> <li>Responsibility of the disposer for the improper management of hazardous health wastes.</li> </ul> <p>Comments of JICA Team: The responsibility for the surveillance of the wastes management in PM would be found in SUPRAMA. By the similar studies carried out in other sites around the world, although they did not have an industrial district comprising several land levels, all of it is the case in Manaus; this role would be found in the entity organization which coordinates the work.</p> <p>Comments of the attendees: As mentioned in other meetings SUPRAMA will be in charge of implementing the Health PMs by means of a department to be created for that purpose and with the support of several environmental organizations. The wastes inventory control is found in IFAMA, with SUPRAMA doing the follow up. The administration of the Data Base of the wastes generated in PM will be done by SUPRAMA, IFAMA and FEAS.</p> <p>As for the health wastes, as for the federal regulation, the regulations of the sanitary surveillance (RDC 308/2004 - ANVISA) and environment (Resolução 388/2006 - CONAMA) are followed. The equivalent organization in state level - Sanitary Surveillance Department (DEVISA-AM) under Amazonia State Environmental Protection Institute (PRAM) - and municipal - Coordinating Office of the Sanitary Surveillance of Manaus and Environmental Municipal Secretariat (SEMMA) - also follow the legislation.</p> <p>The government (state and municipal) organizations are responsible for the environmental licensing of the companies/industry, general level and all the final disposal of wastes. And facilities that they should also monitor the wastes management.</p> <p>2. Definition of the actual number of factories operating in PM</p> <ul style="list-style-type: none"> <li>Finalizing the total number of factories operating in PM is a common issue (to make) to estimate the generation of wastes in PM.</li> <li>Nevertheless, the quantities available now are questionable.</li> <li>OPCA called all factories of PM (ATE). We used the numbers of the factories classified by three categories: the construction of the following conditions:             <ul style="list-style-type: none"> <li>Factories with no phone contact according to OPCA (B) -&gt; May we consider them as closed?</li> <li>Factories in the list of SUPRAMA but not in the list of OPCA (C) -&gt; May we consider them as closed?</li> </ul> </li> </ul> <p>Issue of Weekly Meeting (11) - 17/07/2018 <span style="float: right;">3</span></p>			
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