

3.12 Weekly Meeting (12)

3.12.1 Agenda for Weekly Meeting (12) on August 24, 2009

<p style="text-align: center;">Weekly Meeting (12)</p> <p style="text-align: center;">August 24, 2009 JICA Study Team 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;">Agenda</p> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed 																																																																					
<p>1. Work Progress: From August 17 to August 23, 2009</p> <ol style="list-style-type: none"> 1. Continue the factory survey, input and analyze the results obtained 2. Input and analyze the results of waste management companies (WMC) survey 3. Check the analysis report of the medical institution survey 4. Analyze the results of the construction waste survey 5. Analyze the results of the radioactive waste survey 6. Mr. Haddad arrived on August 18 and Mr. Ishibashi on August 20. 	<p>2. Schedule for this Week</p> <ol style="list-style-type: none"> 1. Continue the factory survey, input and analyze the results obtained 2. Input and analyze the results of waste management companies (WMC) survey 3. Finalize the analysis report of the medical institution survey 4. Check the results of the construction waste survey 5. Analyze the results of the radioactive waste survey 6. Preparation of IT/R (Interim Report). 																																																																					
<p>3. Subjects to be Discussed</p> <ol style="list-style-type: none"> a. Second draft analysis of medical institution survey b. First draft analysis of construction waste survey c. Environmental license of PIM/MFZ d. Current and Future Development of MFZ e. WMC Survey Progress 	<p>a. Second draft analysis of medical institution survey (1): Outline of medical institutions surveyed</p> <ul style="list-style-type: none"> <input type="checkbox"/> 334 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. => 37.1 % <input type="checkbox"/> The 10 medical institutions including Manaus Adventist Hospital were surveyed. Outline of them is as follows: <table border="1" data-bbox="874 1473 1391 1576"> <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>900</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>*1: including Part Time, *2: 9 clinics average, *3: Only emergency patients</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	900	Clinic	9	4.1 (*2)	1.2 (*2)	No answer	19 (*2)																																																			
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**a. Second draft analysis of medical institution survey (4):
Health Waste Generation in PIM, Unit = kg / day**

Generation Category	A. 9 Clinics Average	B. 124 Clinics (B = A x 124)	C. Whole Factories in PIM (B x 440/334)	D. General Hospital	E. Whole PIM (E = C + D)
Class A	0.957	118.7	156.4	26.2	182.6
Class B	0.271	33.6	44.3	1.7	46.0
Hazardous Waste Total	1.228	152.3	200.7	27.9	228.6
Class C	1.171	145.2	191.3	94.0	285.3
Health Waste Total	2.399	297.5	392.0	121.9	513.9

a. Second draft analysis of medical institution survey (5): Current Issues

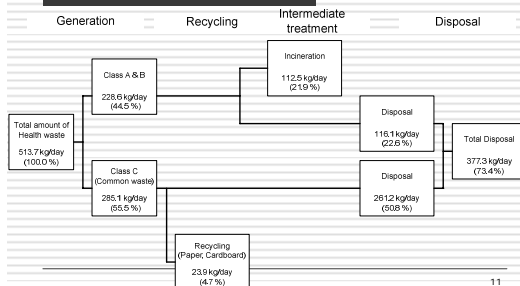
1. Establishment of health waste management system in PIM

- More than 1/3 of the factories in PIM have a clinic.
- Factories and a hospital in PIM generate considerable amount of hazardous health wastes, 228.6 kg/day.
- This is due to over 100,000 people working in PIM/MFZ.

Country/City	Study Year	Population	Generation Amount (kg/day)	Unit Generation (g/person/day)
Chile / Santiago	1995	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	117,253*1	229	1.95

*1: Total number of employees in 440 factories operating in PIM/MFZ

a. Second draft analysis of medical institution survey (6): Current Health Waste Flow



b. Second draft analysis of construction waste survey (1): Outline of Construction Work

- 334 factories of the SUFRAMA factory list (Perfil Das Empresas Com Projetos Aprovados Pela SUFRAMA Dez/2008) were phoned and replied. In total 123 factories had construction work(s) in past one year. => **36.8 %**
- The 10 factories were randomly selected from 123 and surveyed. Outline of construction work (s) is as follows:

Type of Construction Work	Nos. of Factories	Portion (%)
1. New construction	2	20.0
2. Additional construction	0	0.0
3. Demolition	0	0.0
4. Renovation	6	60.0
5. Others*1	2	20.0
Total	10	100.0

- *1: 1. Installation of the WWTF (Waste water treatment facility)
- 2. Construction of a retaining wall and drainage of the rain water.

**b. Second draft analysis of construction waste survey (2):
Construction Waste Generation from 10 Factories**

Waste No	Description of Waste	Total Number of Answer	A. Generation Amount (kg)	B. Generation Amount (kg/day)	Classification & Generation of Waste by CONAMA Resolution 307 (kg/day)			
					Class A	Class B	Class C	Class D
01	Excavated soil	5	32,985	90.4	90.4			
02	Concrete debris	7	53,830	147.5	147.5			
03	Asphalt debris	1	62,500	171.2	171.2			
04	Brick debris	5	3,015	8.3	8.3			
06	Tile and ceramic	1	10	0.0	0.0			
11	Plastic/vinyl sheet	1	430	1.2		1.2		
12	Iron-bar, steel materials	5	250	0.7	0.4	0.3		
13	Small metal waste	5	571	1.6	0.1	1.5		
17	Plaster boards	1	20	0.1	0.1			
20	Wood debris	3	1,335	3.7	2.8	0.8		
21	Timber form	1	200	0.6		0.6		
22	Scaffolding material	1	1,230	3.4		3.4		
23	Interior timber	3	1,150	3.2	2.9	0.3		
24	Packing (cardboard)	4	960	2.6	0.3	2.3		
29	Machine oil	1	74	0.2	0.2			
33	Ash	2	165	0.5	0.5			
44	Mixed construction waste	2	674,000	1,846.6	1,846.6			
	Total	48	832,725	2,281.4	2,271.2	10.3	0.0	0.0

b. First draft analysis of construction waste survey (3): Construction Waste Generation in PIM/MFZ (1)

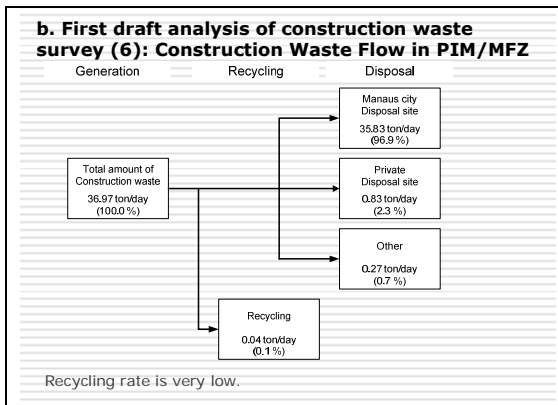
- GR (Generation Rate) = GA (Generation Amount of 10 Factories surveyed) / 10**
- TGA (Total Generation Amount of PIM/MFZ) = GR x TNF (Total Number of Factories which had construction work in past one year)**
- TNF = 440 x 123/334**

**b. First draft analysis of construction waste survey (4):
Construction Waste Generation in PIM/MFZ (2)**

Waste No	Description of Waste	GR (kg/day)	TGA (ton/day)	Portion (%)
1	Excavated soil	9.04	1.46	4.0
2	Concrete debris	14.75	2.39	6.5
3	Asphalt debris	17.12	2.77	7.5
4	Brick debris	0.83	0.13	0.4
6	Tile and ceramic	0	0.00	0.0
11	Plastic/vinyl sheet	0.12	0.02	0.1
12	Iron-bar, steel materials	0.07	0.01	0.0
13	Small metal waste	0.16	0.03	0.1
17	Plaster boards	0.01	0.00	0.0
20	Wood debris	0.37	0.06	0.2
21	Timber form	0.06	0.01	0.0
22	Scaffolding material	0.34	0.06	0.1
23	Interior timber	0.32	0.05	0.1
24	Packing (cardboard)	0.26	0.04	0.1
29	Machine oil	0.02	0.00	0.0
33	Ash	0.05	0.01	0.0
44	Mixed construction waste	184.66	29.92	80.9
	Total	228.18	36.97	100.0

b. First draft analysis of construction waste survey (5): Construction Waste Generation in PIM/MFZ (3)

- Waste Generation in accordance with CONAMA Resolution 307**
- 1. **Class A (Reusable or recyclable as aggregate): 36.8 tons/day**
- 2. **Class B (Recyclable as non-aggregate): 0.2 tons/day**
- 3. **Class C (Uneconomical recyclables): 0.0 tons/day**
- 4. **Class D (Hazardous waste): 0.0 tons/day**



b. First draft analysis of construction waste survey (7): Issues (1): Construction Permit

- Results: Only (?) 60% of construction work got a construction permit.**
 - Question: Does any construction work conduct without a permit or license?
- Results: Only (?) 50% of construction work made a construction waste management plan according to CONAMA Resolution 307 .**
 - Question: Does any construction work conduct without a construction waste management ?

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- b. First draft analysis of construction waste survey (8): Issues (2): Recycling & Manifest**
- Results: Recycling rate is very little only 0.1% because over 80% of mixed wastes are discharged and disposed of at Manaus City Landfill. Almost all (96.9%) of the waste were disposed of at Manaus City Landfill.**
 - How much of tipping fee for disposal at the landfill.
 - Results: Only 22.9% (11 items of 48 in total) use a manifest for discharge of the waste.**
 - Question: Does the construction waste need to use manifest system? Any specific items or amount?

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b. First draft analysis of construction waste survey (9): Issues (3): Manifest

Waste No	Description of Waste	Total Number of Answer	Answer		
			a. Yes	b. No	c. I don't know.
01	Excavated soil	5	1	4	
02	Concrete debris	7	2	4	1
03	Asphalt debris	1		1	
04	Brick debris	5	2	2	1
06	Tile and ceramic	1		1	1
11	Plastic/vinyl sheet	1		1	
12	Iron-bar, steel materials	5	2	2	1
13	Small metal waste	5		4	1
17	Plaster boards	1	1		
20	Wood debris	3		2	1
21	Timber form	1	1		
22	Scaffolding material	1		1	
23	Interior timber	3	1	2	
24	Packing (cardboard)	4	1	2	1
29	Machine oil	1		1	
33	Ash	2		2	
44	Mixed construction waste	2		2	
Total		48	11	30	7

b. First draft analysis of construction waste survey (10): Issues (4): Off-site disposal

Waste No	Waste materials generated in your site	Total Number of Answer	Answer			
			Manaus City Landfill	Private Landfill	Other	Do not know
01	Excavated soil	5	3	1	1	
02	Concrete debris	7	5	1	1	1
03	Asphalt debris	1	1			
04	Brick debris	5	3	1		1
06	Tile and ceramic	1				1
11	Plastic/vinyl sheet	1	1			
12	Iron-bar, steel materials	5	2	1	1	1
13	Small metal waste	5	1	1	2	1
17	Plaster boards	1	1			
20	Wood debris	3		1	1	1
21	Timber form	1	1			
22	Scaffolding material	1	1			
23	Interior timber	3	1	1	1	
24	Packing (cardboard)	4	2	1	1	1
29	Machine oil	1		1		
33	Ash	2	2			
44	Mixed construction waste	2	2			
Total		48	26	8	7	7
Disposal amount by the Survey (kg/day)		2,281.4	2,211.1	51.0	18.9	0.5
PIM disposal amount (ton/day)		36.97	35.82	0.85	0.30	0.0

c. Environmental license of PIM/MFZ (1)

- Background**
 - In December 2001 CAOMAPH (Operational Support Center for Environmental Prosecutor Office) of the Public Ministry of Amazonas State requested SUFRAMA to get Environmental license of PIM/MFZ by conducting EIA of PIM/MFZ.
 - From 1968 PIM/MFZ has been evolved without a development plan covering whole area including environmental protection of it. => No central environmental management facility plan.
 - In stead each factory of PIM/MFZ had to develop its area and install its own environmental protection facilities with an environmental license from IPAAM.

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c. Environmental license of PIM/MFZ (2)

- Question**
 - What kind of work, report or procedure does SUFRAM need for getting the Environmental license of PIM/MFZ?
 - What kind of report does the CAOMAPH request SUFRAMA to prepare? How does it evaluate? It seems to be quite difficult to show the environmental situation of PIM/MFZ as a whole, air, water quality, noise levels, waste management, etc. => Integrate each development plan of factory or set some monitoring points and monitor there? Conduct survey like JICA study?
 - On the other hand, each factory of PIM/MFZ got environmental license from IPAAM. => Why does IPAAM conduct a monitoring to check document submitted and current operation, i.e. comply or not?

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d. Current and Future Development of MFZ (1)

(1) Current industrial orientation of MFZ
Trade Balance in Manaus Free Zone (Unit: US\$1,000)

	Overseas Trade Market			Domestic Trade Market			Total Balance G=C+F
	Export A	Import B	Balance C=A-B	Outer MFZ D	Inner MFZ E	Balance F=D-E	
2005	2,024,197	4,762,124	-2,737,927	16,890,800	5,150,909	11,739,891	9,001,964
2006	1,482,729	5,917,621	-4,434,892	21,267,627	6,013,773	15,253,854	10,818,962
2007	1,043,617	6,299,076	-5,255,459	24,651,826	6,598,410	18,053,416	12,797,957
2008	1,192,007	8,556,620	-7,364,613	28,984,038	7,918,709	21,065,329	13,700,716

MFZ is characterized by...

- ➡ Import substituting assembling industries.
- ➡ Export processing industries is still limited.

<p>d. Current and Future Development of MFZ (2)</p> <p>(2) Future (Expected) industrial development in MFZ</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>➔ Promotion of Export-Oriented Industries ➢ Increase foreign currency earnings</p> <p>➔ Promotion of High Value-Added Industries ➢ Enhance the country's industrial competitiveness in the international market</p> </div> <p>➔ It will change the character of industrial waste from easily recyclable and treatable ones to those containing substances difficult to recycle and treat such as heavy metals, effluent with high content of waste acid/alkali, and so forth.</p>	<p>d. Current and Future Development of MFZ (3)</p> <p>Main industrial sources of hazardous waste generation</p> <table border="1"> <thead> <tr> <th>Types of Waste</th> <th>Hazardous substances</th> <th>Sources</th> </tr> </thead> <tbody> <tr> <td>soot & dust</td> <td>Hg, Cd, Pb, Cr, As, Se, DXN</td> <td> <ul style="list-style-type: none"> • metal casting/refining/processing • potteries • pigment production • chemical fertilizer (phosphate) • industrial waste incineration (waste plastic, etc.) </td> </tr> <tr> <td>Waste oil</td> <td>Trichloroethylene, tetrachloroethylene, dichloromethane, carbon tetrachloride, benzene, serene, etc.</td> <td> <ul style="list-style-type: none"> • spinning/textile industry • printing • chemical (organic/inorganic) • Glass industry • electroplating/surface finishing • oil refining • dry cleaning </td> </tr> </tbody> </table>	Types of Waste	Hazardous substances	Sources	soot & dust	Hg, Cd, Pb, Cr, As, Se, DXN	<ul style="list-style-type: none"> • metal casting/refining/processing • potteries • pigment production • chemical fertilizer (phosphate) • industrial waste incineration (waste plastic, etc.) 	Waste oil	Trichloroethylene, tetrachloroethylene, dichloromethane, carbon tetrachloride, benzene, serene, etc.	<ul style="list-style-type: none"> • spinning/textile industry • printing • chemical (organic/inorganic) • Glass industry • electroplating/surface finishing • oil refining • dry cleaning 																																				
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<p>d. Current and Future Development of MFZ (4)</p> <p>Main industrial sources of hazardous waste generation</p> <table border="1"> <thead> <tr> <th>Types of Waste</th> <th>Hazardous substances</th> <th>Sources</th> </tr> </thead> <tbody> <tr> <td>Sludge, waste acid/alkali</td> <td>Hg, Cd, Pb, Cr, As, CN, PCB, Trichloroethylene, tetrachloroethylene, dichloromethane, carbon tetrachloride, benzene, serene, Se, DXN, etc.</td> <td> <ul style="list-style-type: none"> • spinning/textile industry • wood chemical treatment • pulp and paper (PCB) • printing • chemical fertilizer (As) • inorganic pigment • other chemical (organic/inorganic) • synthetic resin/rubber • petrochemical • pesticide, pharmaceutical • electroplating/surface finishing • Potteries, glass • oil refining • ferrous/non-ferrous metal • dry cleaning • Others </td> </tr> </tbody> </table>	Types of Waste	Hazardous substances	Sources	Sludge, waste acid/alkali	Hg, Cd, Pb, Cr, As, CN, PCB, Trichloroethylene, tetrachloroethylene, dichloromethane, carbon tetrachloride, benzene, serene, Se, DXN, etc.	<ul style="list-style-type: none"> • spinning/textile industry • wood chemical treatment • pulp and paper (PCB) • printing • chemical fertilizer (As) • inorganic pigment • other chemical (organic/inorganic) • synthetic resin/rubber • petrochemical • pesticide, pharmaceutical • electroplating/surface finishing • Potteries, glass • oil refining • ferrous/non-ferrous metal • dry cleaning • Others 	<p>e. WMC Survey Progress Result of the WMCs survey(1)</p> <p>Progress of the survey</p> <table border="1"> <thead> <tr> <th>Event</th> <th>Timing</th> </tr> </thead> <tbody> <tr> <td>Finalization of list provided by IPAAM</td> <td>March 31st, 2009</td> </tr> <tr> <td>Survey start</td> <td>April 6th, 2009</td> </tr> <tr> <td>Draft of 1st product (Portuguese, 52 companies)</td> <td>June 25th, 2009</td> </tr> <tr> <td>Draft of final product (English, 85 companies)</td> <td>August 22nd, 2009</td> </tr> </tbody> </table>	Event	Timing	Finalization of list provided by IPAAM	March 31 st , 2009	Survey start	April 6 th , 2009	Draft of 1 st product (Portuguese, 52 companies)	June 25 th , 2009	Draft of final product (English, 85 companies)	August 22 nd , 2009																													
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e. Result of the WMCs survey (6) Details activity of IPAAM Code			
Code	Activity	Code	Activity
2217	Incineration	2601	Road transportation of hazardous cargo
2218	Co-processing of wastes	2615	Transportation of solid IW
2214	Package manufacturing	3001	Treatment of solid IW without chemicals
2407	Collection & treatment of IW	3002	Treatment of liquid IW
2410	Collection & transportation of inert SW	3003	Treatment solid IW using chemicals
2411	Collection & commercialization of SW	3004	Treatment of pallet
2413	Distribution & supply of water	3005	Recycle of waste paper & cardboard

SW:Solid waste, IW;Industrial waste, HIW; Hazardous industrial waste ³³

Next Weekly Meeting

☐ Next Meeting will be 31 August 2009 (Monday) at 3:00 PM

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3.12.2 Minutes of Meeting for Weekly Meeting (12) on August 24, 2009

Weekly Meeting (12) For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus		Minutes & Agenda	
15:00pm-17:50pm 24 August 2009 (Meeting Room 3a in Annex 1 of SUPRAMA)		J. Work Progress: From 17 to 23 August 2009	
Agenda 1. Work progress 2. Schedule for this week 3. Subjects to be discussed		1. Continue the factory survey, at least its report and analyze the obtained results; 2. Inception and analysis of the results of the waste management companies survey; 3. Verification of the analysis report of the medical institutions survey; 4. Analysis of the results of the construction wastes survey; 5. Analysis of the results of the radioactive wastes survey; 6. Mr. Harada arrived in Manaus on 24 August and Mr. Saito on the 20 th	
Attendees 1. Alexandre Kudochi Representative of F&B/MC/AMOC/PAAM 2. Antonio Roberto Stehli Representative of IPAAM 3. Jairo Cezari Representative of UDR/INCO/AMM 4. Delcio N. Pinak Representative of SEMMA 5. Myrian Carlini Representative of SEMMA 6. Ulysses Marques Representative of SEMMA 7. Jorge Carlos Technician of DEA Ltda. 8. Paulo Ricardo Farias Technician of CPCA 9. Paulo Castro Technician of CPCA 10. Luciano da Costa Technician of CPCA 11. Julia Tin Borges Representative of THY Ltda. 12. André Assunção Assessor of ERLENOR (DELOG/SUPRAMA) 13. Oreste Salme de Almeida COLOG/SUPRAMA 14. Emanoel Barbosa Filho COLOG/SUPRAMA 15. Daniel Elias COLOG/SUPRAMA 16. Bruno Barreto COCOM/SUPRAMA 17. Rita de Cassia Mello JACS/SUPRAMA 18. Marco Ribeiro CODEX/SUPRAMA 19. Ralfy Garcia CODEX/SUPRAMA 20. Antonio Santos Jr. Support to JICA in SUPRAMA 21. Marcelo Barros Support to JICA in SUPRAMA 22. Sr. Susumu SHIMURA Team Leader of JICA Study Team 23. Sr. Tetsuo SUZUKI Member of JICA Study Team 24. Sr. Satoru SHIMOTO Member of JICA Study Team 25. Sr. Shig MASAKURA Member of JICA Study Team 26. Sr. Tetsuo SUZUKI Member of JICA Study Team 27. Sr. Takashi WAKABAYASHI Member of JICA Study Team 28. Sr. Yujiro OHYASHI Data Bank Support of JICA Study Team 29. Jose de Antonio Nogueira Interpreter of JICA		Schedule for this week 1. Continue the factory survey and formalize the report; 2. Inception and analysis of the results of the waste management company survey; 3. Finalize the analysis report of the medical institutions survey; 4. Analyze the results of the construction wastes survey; 5. Analyze the results of the radioactive wastes survey 6. Preparation of the Inception Report.	
Subjects to be discussed The following subjects were discussed at the Meeting: a. Confirmation of the Minutes of the Weekly Meeting (11). See topics of the MWM (Minutes of the Weekly Meeting (11)). b. Analysis of the second draft of the medical institutions survey. c. Analysis of the first draft of the construction wastes survey. d. Environmental Licenses of PRMOPB. e. Current and Future Development of PRMOPB. f. Progress of the WMC Survey.		Subjects to be discussed a. Confirmation of the Minutes of the Weekly Meeting (11). See topics of the MWM (Minutes of the Weekly Meeting (11)). The content of the report received by prior Meeting was not questioned (prev. Sponsors/Institutions may be done by e-mail along the week). b. Analysis of the second draft of the medical institutions survey c. Outline of the survey of medical institutions	
(Meeting Room 3a in Annex 1 of SUPRAMA)		(Meeting Room 3a in Annex 1 of SUPRAMA)	

• 134 factories from the list supplied by SUPRAMA (Parê dos Empregos com Projetos Aprovados pela SUPRAMA - December 2008) were contacted by CPCA Ltda. and answered the survey. Out of those, 134 answered they have their own clinic (37.1% of the total).

• 10 medical institutions, including the Adventist Hospital of Manaus, were deeply surveyed. Their results are the following:

Medical institutions survey – second draft

Category	Complex	N. of institutions (%)	Staff	Average Hospitalized Patients	Average non-hospitalized patients
Hospital	11	43.3	75	48	400
Clinic	0	4.3 (*)	3.2 (*)	no answer	1.5 (*)

(*) Including each thing, % average of the 10 clinics.

6.2 Surveyed waste generating sources (unit = kg/day)

Quantity of the health waste surveyed

Category of health waste	Average amount	Clinic (average)
Class A: Infectious Waste:	285.2	6.7
A.1 Infectious waste:	18.7	1.3
A.2 Blood and derivatives:	13.2	0.4
A.3 Targets, anatomic pathological and exudates:	16.2	0.1
A.4 Sharps and cutting:	11.8	0.0
A.5 Contaminated gauze:	4.2	0.6
A.6 Treatment of patients:	16.5	1.3
Class B: Special Waste:	11.7	1.8
B.1 Medicative waste:	0.0	0.0
B.2 Pharmaceutical waste:	7.0	0.0
B.3 Hazardous chemical waste:	4.7	1.1
Total of Classes A and B (Hazardous Waste):	300.9	8.6
Class C: Common Waste:	698.0	63.3 (*)

Volume of the Survey (Sheet 1): 01/14/2009

Total (Classes A, B and C)	992.8	19.8
* Only to dispose in other places in the factory		

6.3 Total number of factories operating in PM

Quantity of factories from the already visited and surveyed

Description	Total of Factories	Operating / Closed
1. Factories which answered	134	Operating
2. Factories out of operation	0	Closed
3. Factories which (located in a road from SUPRAMA to answer the survey)	0	Operating
4. Factories which refused to cooperate	2	Operating
5. Factories with no general contact during the period of the survey	0	Operating
6. Factories not of Manaus	0	Operating
Total	136	

Observations:

- Number of factories in the list of SUPRAMA: 415 (Parê dos Empregos com Projetos Aprovados pela SUPRAMA - December 2008)
- Some number of factories in operation: 415 - 27 (closed) - 48 (out of PM) / 290 = 69% (to be considered during periodicity of 2009)
- Factories contacted in state 3, 4 and 5, were identified as closed, were deleted from the data base of the economic in operation.

It was mentioned 07 factories which could not be surveyed are subsidiaries of Andrade Lima, who could increase the number of factories in operation to 442. Nevertheless, potential changes in the allowed quantities will only be taken into account after the final audit of the report of the first audit of the State.

6.4 Generation of health waste in PM (unit = kg/day)

Category	A. Average of Class A (%)	B. 124 Clinics (B + A = 114)	C. 08 Factories in PM (C + B = 442 / 114)	D. Average of Class B (%)	E. 68 PM (E + C = 9)
Class A	0.437	116.7	134.8	28.2	162.8
Class B	0.371	37.6	36.2	7.7	48
Class C	0.424	124.1	26.7	17.3	129.3
Class D	0.131	16.2	10.1	9.0	185.3
Total of Health	1.399	294.6	297.8	62.9	614.9

Volume of the Survey (Sheet 1): 01/14/2009

6.5 Current issues

Setting of the health waste management system in PM

- Mais de 1/3 das SÍntomas levantadas no PM têm origem local;
- As fábricas e o Hospital no PM geram uma quantidade considerável de resíduos de saúde perigosos: 228.6 Kg/dia;
- Esses resíduos precisam do fato de mais de 100.000 pessoas estarem trabalhando no PM/PM atualmente.

Levantamento de Resíduos de Saúde em outras partes do mundo

Country/City	Year of the Study	Population	Estimated amount (kg/day)	Staff (full-time/ day)
China / Santiago	2001	5 042 000	20 000	2.94
Turkey / Adana	1998	3 104 632	4 463	2.48
Turkey / Marcin	1990	243 830	2 139	2.39
Azerbaijan / Baku	2000	2 051 200	3 491	2.28
Colombia / Páramo Norte	2001	3 139 424	983	3.40
San Lanka / Randy	2001	312 040	392	4.81
Uruguay / Montevideo	2001	346 591	1 400	1.83
Brazil / PM de Manaus	2009	1 472 234 (*)	529	3.42

Source: JICA Study Team: EXC

(*) Number of employees in the PM/Manaus (considered as PM/PM).

6.6 Current health waste flow

Health (PM Survey Sheet 1): 01/14/2009

Comments: The large quantity of common wastes (paper, cardboard, restaurant) is due to the Adventist Hospital being included in the survey. so some attention is suggested such amount should be analyzed separately. Estimating of the wastes flow per number of employees of the factories and the Hospital will be considered after September 2009.

6.7 Analysis of the final draft of the construction wastes survey

6.1 Outline of the surveyed constructions

• 335 factories from the list of SUPRAMA (Parê dos Empregos com Projetos Aprovados pela SUPRAMA - December 2008) were contacted by CPCA Ltda. A total of 122 factories carried out some kind of construction between June 2008 and May 2009 (~36.8% of the total).

• 70 among the 122 surveyed factories were randomly selected. The numbers of the constructions are the following:

Survey of the constructions – final draft

Type of Construction	N. of Factories	Percentage (%)
1. New construction	71	65.7
2. Additional construction	0	0.0
3. Renovation	46	42.4
4. Demolition	0	0.0
5. Others (*)	0	0.0
Total	107	100.0

(*) 5 = installation of WTS (wastewater treatment station); 3 = construction of a construction wall and drainage of plant's water.

6.2 Generation of construction wastes of 10 factories of PM

Factory	Waste Type	Quantity (kg/day)	Notes
[List of 10 factories]	[Waste Type]	[Quantity]	[Notes]

Volume of the Survey (Sheet 1): 01/14/2009

• Instead of that, each factory of PMZFM developed its own area and made its own environmental administration management with a license issued by IFAMA.

Comment: The enterprise located in the great area, and specifically in the industrial District (I and II) areas, have the minimum and maximum occupation rates of 30% and 70% respectively. **The remaining 30% must be kept for the incorporation of waste or secondary treatment. The 80% occupation rate set by the Brazilian Forest Code is needed only in rural areas territories.**

2. Questions

• What kind of report or procedure (SUPRAMA needs to obtain the environmental license for PMZFM?

Answer: The licensing of PM and NMS areas after SUPRAMA has fulfilled the Procedures Adjustment Agreement signed with the State Public Ministry. Besides that, **the results obtained in the study being now carried out by JICA will provide good elements with the responsible agencies.**

• What sort of report do CACAPM request SUPRAMA to prepare? What sort of evaluation does it do? It seems to be difficult to show the environmental situation of PMZFM as a whole, at, water quality, noise levels, wastes management, etc. How to integrate each factory developed plan or set some monitoring points and monitor from the Headquarters? Carry out a survey like the Study of JICA?

Answer: As mentioned before, look for solutions for those issues starting from the First Report of JICA Study and coordinate actions of the participant entities. The CACAPM demanded from SUPRAMA and then from IFAMA, an **Adjustment Agreement signed in 2002** in both organizations could have systematic verification works of the waste management in PMZFM by means of technical visitations and by installing the register a special system. One can say the effort for the evaluation of the environmental impact of wastes and the **SRMART** of its environmental link has been positive.

Continuity of JICA Team: On the other hand, each factory of PMZFM got its environmental license from IFAMA, it would be good if IFAMA evaluated the submitted documents and the operation conditions of each company, i.e. whether it is conformity or not.

4. Current and future development of ZFM

1) Current industrial ecosystem of ZFM.

Year	Manufacture Exports		Manufacture Imports		Balance (Total)	Ratio (%)
	Value	%	Value	%		
2005	1,023.140	1,000.00	1,023.140	1,000.00	0.0000	0.0000
2006	1,840.774	1,000.00	1,494.341	1,000.00	346.433	23.1900
2007	2,114.171	1,000.00	1,220.656	1,000.00	893.515	42.2800

Source: JICA Study Group (12)-03-13-2009

Year	2005	2006	2007	2008	2009	2010	2011
Value	1,023.140	1,840.774	2,114.171	2,284.000	2,424.170	2,120.000	1,900.000

Source: **WTO** and **IFAMA**

1) ZFM is currently (de)activating by

→ Investors replacing the extremely expensive.

Comments of the attendees: This mission statement was recommended. The correct is "invest transformation industry replacing the goods exports".

→ The processing industries exports are still limited.

Comments of the attendees: In fact, the main part of the PM industries is still to supply the demand of the local market. Nevertheless, such tendency to **change from local to export** is seen clearly (extension of their export/industries intended to increase exports).

2) Future industrial development (supported) of ZFM

Promotion of the Exporting Industries

→ Increasing of foreign currency gains.

Comments of the attendees: Beside the mentioned objective, Manaus Free Zone needs to **use part of the income** made with the exports of the industrial production for the development of other economic activities, **mainly in the countryside**, besides contributing to improve the socio-economic levels of the local inhabitants.

Promotion of the high added value industries

→ Improvement of the industrial competitiveness of the country in the international market.

Comments of the attendees: **Such objective requires investment in labor force qualification and R&D. A large amount of the revenue of SUPRAMA is invested in that sector**, not only in PM, but also in the free States under its jurisdiction. The PM has been able of attracting and retention factories of some of the most modernized of the world, mainly in electronic-electronic sector. **The industries whose productions are based on processed technologies are still in a initial development phase.**

Comments of JICA Team: That will change the character of the industrial sector, from basic recyclable unit towards to those containing substances which are hard to be recycled or treated, such as heavy metals. Industries with high competitiveness of qualitative and as well.

Answer of the attendees: The intensification of the industrial activity of PM tends to increase the generation rate of hazardous wastes, but that will also depend on eventual changes of the federal legislation of ZFM as the Institute may incorporate other types of industries (biomass, gases and refrigeration, etc./based Productive Processes).

Main industrial sources of industrial wastes generation

Source: JICA Study Group (12)-03-13-2009

Types of wastes	Hazardous substances	Sources
solid W waste	Hg, Cd, Pb, Cr, Ni, Cu, Zn, etc.	<ul style="list-style-type: none"> Waste (chemical / mining, pollers) Production of pigments/paints Chemical factories (pharmacies) Incorporation of essential metals (electronic waste and others)
oil waste	Chlorinated, polychlorinated, polybrominated, polyfluorinated, etc.	<ul style="list-style-type: none"> Textile industry Printing Chemical (organic / inorganic) Paints Galvanization / electroplating Oil refining Oil refinery

Main industrial sources of hazardous wastes generation:

Types of wastes	Hazardous substances	Sources
Solid waste/hazardous waste	Hg, Cd, Pb, Cr, Ni, Cu, NiCr, PCBs, polychlorinated, polybrominated, polyfluorinated, etc.	<ul style="list-style-type: none"> Textile industry Wood chemical treatment Plastic and resin (PVC) Printing Chemical fertilizer (oil) Organic synthesis Other chemical synthesis Waste / agricultural culture Automotive Industrial / pharmaceutical Galvanization / electroplating Paints Future / plastic Oil refining Paints / non-halogenated Oil refinery Chemical

1. Progress of the WMC Survey

Progress of the WMC survey

Item	Start	Finish
Production of the database by IFAMA	Mar 11 th / 2009	-
Survey start	Apr 13 th / 2009	-
Start of IFAMA survey (Production of documents)	May 11 th / 2009	-
Start of the database preparation (Production of documents)	August 27 th / 2009	-

Source: JICA Study Group (12)-03-13-2009

Classification of the results in the list of WMC

Result of the survey	Number of companies
WMCs Succeeded?	23
WMCs Documented	9
WMCs Classified	17
WMCs Followed	13
WMCs Monitored	1
WMC Change (in will or abandonment of WMC activities)	2
WMCs still need to be investigated/Answer: No	2
Total	68

1. Results

- IFAMA provided a list with 68 WMCs.
- All companies of the list have got an environmental license (operational).
- Nevertheless, the consultant was not able to identify 17 WMCs companies in the said list.
- And besides that, the consultant found other 25 WMCs which have got environmental license (operational).

2. Questions

• Why 17 WMCs from the list of IFAMA could not be identified?

Answer: The off-site treatment of wastes can be considered a competitive market. So, probably, those 17 WMCs have **gone bankrupt. They can be deleted from the scope of the Study.**

• Why 25 WMCs which are not in the list of IFAMA have got an environmental license?

Answer: Probably **the list of IFAMA was not complete**. The survey will also serve for the organization may continue its updating and monitoring efforts with the WMCs.

• Are there some WMCs which are not in the list of IFAMA?

Answer: **Probably yes, but some of them are under investigation.**

Classification of the surveyed WMCs per license / without license

License / Without license	Companies
License	63 (91 IFAMA + 25 others)
Without license	23 (25 IFAMA)
Total	86

Source: JICA Study Group (12)-03-13-2009

• JICA Study Team will carry out the analysis of the off-site management of the wastes by the WMCs based on the results of the MS survey for the 1st Workshop on 11 December although some attendees suggested the MS survey should be organized separately.
 • The additional data of the CW WMCs pending survey will be analyzed after the 1st Workshop.

Code and Classification of the surveyed General WMCs

Code	List of SPAM (31 March 2009)	Surveyed by JICA		
		WMC in the list of SPAM	WMC not in the list of SPAM	Total
22W	Commercial & Services	7	4	11
24W	Activities Services	22	9	31
26W	Transport & Terminal	18	2	20
28W	Waste treatment and recycling	18	4	22
Others		0	13	13
Total		65	23	88

Contents of the activities of SPAM (code)

Code	activity	Date	activity
22W	Commercial	2009	Asst transportation of household waste
24W	Activities services	2009	Transportation of used oil
26W	Transport & terminal	2009	Treatment of used oil without chemicals
28W	Waste treatment and recycling	2009	Treatment of H ₂ O ₂
28W	Waste treatment and recycling	2009	Treatment of oil in water treatment
28W	Waste treatment and recycling	2009	Treatment of paper
28W	Waste treatment and recycling	2009	Recovery of metal scraps & chemicals

01 - Breakdown Industrial
 Next Weekly Meeting
 Next Weekly Meeting (13) at 8 AM (time is) 71 August 2009 (Monday), at 8 pm in the Auditorium of SUPRAMA / No Meeting (12) finished at 5:30 pm.

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3.13 Weekly Meeting (13)

3.13.1 Agenda for Weekly Meeting (13) on August 31, 2009

<p style="text-align: center;">Weekly Meeting (13)</p> <p style="text-align: center;">August 31, 2009 JICA Study Team 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;">Agenda</p> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed <p style="text-align: right;">2</p>									
<p>1. Work Progress: From August 24 to August 30, 2009</p> <ol style="list-style-type: none"> 1. Continue the factory survey, input and analyze the results obtained 2. Input and analyze the results of waste management companies (WMC) survey 3. Finalize the analysis report of the medical institution survey 4. Check the results of the construction waste survey 5. Analyze the results of the radioactive waste survey 6. Preparation of IT/R (Interim Report). <p style="text-align: right;">3</p>	<p>2. Schedule for this Week</p> <ol style="list-style-type: none"> 1. Continue the factory survey, input and analyze the results obtained 2. Input and analyze the results of waste management companies (WMC) survey 3. Finalize the analysis report of the construction waste survey 4. Finalize the analysis report of the radioactive waste survey 5. Preparation of IT/R (Interim Report) 6. Preparation of Workshop (1) 7. Attendance of National Conference of Environmental Law and the Amazon Subject <p style="text-align: right;">4</p>									
<p>3. Subjects to be Discussed</p> <ol style="list-style-type: none"> a. Schedule of preparation and submission of IT/R (Interim Report) b. First draft analysis of radioactive waste survey c. First draft analysis of factory survey d. First draft analysis of WMCs Survey <p style="text-align: right;">5</p>	<p>a. Schedule of preparation and submission of IT/R (1)</p> <ul style="list-style-type: none"> <input type="checkbox"/> The Interim Report (IT/R) will be submitted to SUFRAMA in beginning of October. <input type="checkbox"/> The number of copies of the IT/R is as follows: <input type="checkbox"/> SUFRAMA is requested to deliver the reports to relevant organizations. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Report</th> <th style="text-align: center;">Language</th> <th style="text-align: center;">Nos of Copies</th> </tr> </thead> <tbody> <tr> <td>1. Summary</td> <td>• English • Portuguese</td> <td>• 10 • 10</td> </tr> <tr> <td>2. Main Report</td> <td>• English • Portuguese</td> <td>• 10 • 10</td> </tr> </tbody> </table> <p style="text-align: right;">6</p>	Report	Language	Nos of Copies	1. Summary	• English • Portuguese	• 10 • 10	2. Main Report	• English • Portuguese	• 10 • 10
Report	Language	Nos of Copies								
1. Summary	• English • Portuguese	• 10 • 10								
2. Main Report	• English • Portuguese	• 10 • 10								
<p>a. Schedule of preparation and submission of IT/R (2)</p> <p>The IT/R contains the phase 1 study results.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Current conditions of study area <input type="checkbox"/> Content and results of industrial, health, construction and radioactive waste generation source survey <input type="checkbox"/> Content and results of survey of waste management companies to understand off-site waste management <input type="checkbox"/> Current Industrial Waste Management and Issues <input type="checkbox"/> Current Health Waste Management and Issues <input type="checkbox"/> Current Construction Waste Management and Issues <input type="checkbox"/> Current Radioactive Waste Management and Issues <p style="text-align: right;">7</p>	<p>a. Schedule of preparation and submission of IT/R (3)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Once the content of the IT/R is approved, the C/P and study team will begin the second phase "Formulation of the Industrial Waste Management Master Plan and Guidelines", starting in mid-October 2009. <input type="checkbox"/> Due to the reporting schedule, the opinions to be gathered in the first workshop, held on September 11th, may not be included the IT/R. <input type="checkbox"/> Nevertheless, these will be duly analyzed and taken into account when formulating the M/P. <p style="text-align: right;">8</p>									

b. First draft analysis of radioactive waste survey (1)

- 8 institutions of 14 ones in MFZ, which use radioactive materials and have a license of CNEN, were surveyed.
- No radioactive waste are generated.

Purpose of use (Type)	Number of target
Nuclear measurers - control of nuclear measuring processes in DI	5
Analytical Techniques in DI	2
Nuclear medicine outside DI	1
Total	8

b. First draft analysis of radioactive waste survey (2): Radioactive materials management in PIM (1)

- All 7 factories in DI surveyed have licence of the use of radioactive materials.
- The purpose of the use is to control production process and control of the products.
- Details are as follows:

Specify	Answer
Filling level inspection/ measurement	4
Measurement of the PVC sailcloth in the process	1
Products dimension control	1
Verification of the solder	1

b. First draft analysis of radioactive waste survey (3): Radioactive materials management in PIM (2)

- Radioactive materials management of 7 factories in DI is well established.
- Those are used in the controlled area.
- Storage of radiation sources is as follows:

Storage of Radiation Sources	Answer	%
It is stored inside of the controlled area with special container.	2	28.6
It is stored inside of the controlled area and installed inside of the X-ray equipment.	3	42.8
It is installed in a level measurement device	1	14.3
It is installed in a device within the controlled area	1	14.3
Total	7	100.0

c. First draft analysis of factory survey (1): Category of 134 Factories Surveyed

134 factories surveyed shares 30.5% in Total number of those operation in PIM/MFZ.

Factory code	District Industrial			Outside			Total number of factory (A)	Surveyed number of factory	
	Number of Factory		Sub-total	Number of Factory		Sub-total		Number (B)	% (B/A)
	Part 1	Part 2		Part 1	Part 2				
PF01	3	3	12	12	15	2	13.3		
PF02									
PF03	6	6	3	7	16	4	25.0		
PF04	64	1	66	51	5	98	45	37.2	
PF05	2	2			2				
PF06	19	19	9	9	28	9	32.1		
PF07	29	2	25	19	3	22	47	16	34.0
PF08		1	1	2	3	5	1	16.7	
PF09	1	1	3	1	4	5	2	40.0	
PF10	7	7	6	6	13	7	53.8		
PF11	2	2	1	1	1	3			
PF12			4	9	13	13	2	15.4	
PF13	13	2	15	15	4	19	34	7	20.6
PF14	31	2	33	35	7	42	75	22	29.3
PF15			1	1	1	1			
PF16			2	2	2				
PF17	15	15	16	2	18	33	14	42.4	
PF18	1	1	2	3	5	6			
PF19	7	7	5	8	13	20	3	15.0	
Total	193	9	202	186	52	238	440	134	35.5

c. First draft analysis of factory survey (2): Feature of 134 factories surveyed (1)

1. 67.5% (83/123 Fac.) is established after 1991.
2. Average compound (121 Fac.) and building (116 Fac.) areas are 5.1 ha and 1.22 ha respectively.
3. Total and average number of employees (125 Fac.) is 34,395 persons and 276 respectively.
4. Installation rates of industrial and domestic wastewater treatment facilities are 26.6 % and 54.3 % respectively.
5. Rate of installation of storage space of dangerous substances on the ground is 60.6 % (77/127 Fac.) + underground 19.6 % (21/107 Fac.)

c. First draft analysis of factory survey (3): Feature of 134 factories surveyed (2)

Pollution control facilities	Valid answer (A)	1. Yes (B)	% (B/Ax100)
a. Boiler	129	16	12.4
b. Incinerator	128	3	2.3
c. Industrial wastewater treatment facilities	128	34	26.6
d. Domestic wastewater treatment facilities	129	70	54.3
e. Dust collector	128	16	12.5
f. Air control facilities	126	17	13.5
g. Plating process	127	3	2.4
h. Powder Painting process	129	12	9.3
i. Water Painting process	126	18	14.3
j. Metal coating process	129	10	7.8
k. Storage space of Dangerous substance (Underground: Oils, Volatile substance, etc.)	107	21	19.6
l. Storage space of Dangerous substance (Above surface: Oils, Volatile substance, etc.)	127	77	60.6
m. Others	92	14	15.2

c. First draft analysis of factory survey (4): Feature of 134 factories surveyed (3)

6. Waste Inventory (WI)
 - 73.1% (95/130 Fac.) have obligation to submit WI but 26.9% (35/130 Fac.) not.
 - 88.4% (84/95 Fac.) of obliged Fac. submitted WI but 11.6 % (11/95 Fac.) not.
7. Separate Discharge of Non-Production and Production Process Waste => Yes: 87.7% (114/130 Fac.), No: 12.3% (16/130 Fac.)
8. Separate Discharge of Non-HIW and HIW => Yes (100% + Partly): 79.4% (100/126 Fac.), No: 20.6% (26/126 Fac.)

c. First draft analysis of factory survey (5): Feature of 134 factories surveyed (4)

Base: Population = 26		
Q4	Answer	%
1. We don't know the difference between Non-HIW and HIW.	0	0.0
2. The volume of waste is too small to separate.	9	34.6
3. The production process makes it difficult to separate Non-HIW and HIW.	3	11.5
4. The collection service does not require to separate Non-HIW and HIW.	2	7.7
5. It is troublesome and waste of time to separate Non-HIW and HIW.	1	3.8
6. It seems unnecessary to separate Non-HIW and HIW.	0	0.0
7. It is difficult to separate Non-HIW and HIW.	0	0.0
8. Even though Non-HIW and HIW are separated, there are no ways to utilize them.	1	3.8
9. Others	16	61.5
Total	32	---

<p>c. First draft analysis of factory survey (6): Feature of 134 factories surveyed (5)</p> <p>9. Health service in the factory => Yes: 40.6% (52/128 Fac.) <= Yes: 37.1% (124/334 Fac.) by Medical institution survey</p> <p>10. Generation of radioactive wastes => No: 100% (126 Fac.) <= No: 100% (8 Fac.) by radioactive waste survey</p> <p style="text-align: right;">17</p>	<p>c. First draft analysis of factory survey (7): Future Management of IW</p> <p>1. Generation of IW => No change: 28.0% (35/125 Fac.), Increase: 36.8% (46/125 Fac.), Decrease: 22.4% (28/125 Fac.).</p> <p>2. 3Rs plan for IW => No: 67.2% (84/125 Fac.), Yes: 32.8% (41/125 Fac.)</p> <p>3. Improvement plan for IWM in the factory => No: 78.9% (97/123 Fac.), Yes: 21.1% (26/123 Fac.)</p> <p style="text-align: right;">18</p>																																																														
<p>c. First draft analysis of factory survey (8): Waste Exchange (WE)</p> <p>1. Knowledge of WE => Yes: 70.9% (90/127 Fac.), No: 29.1% (37/127 Fac.)</p> <p>2. Interest of WE => Yes (Very much + Eventually): 71.5% (90/126 Fac.), No: 28.5% (36/126 Fac.)</p> <p>3. Involvement of WE at present => Yes: 35.7% (45/126 Fac.), No: 57.2% (72/126 Fac.), No answer: 7.1% (9/126 Fac.)</p> <p style="text-align: right;">19</p>	<p>c. First draft analysis of factory survey (9): Financial Matters and Evaluation of Current IW System (1)</p> <p>1. Payment to transportation company => 188,400 R\$/year (Average of 44 Fac.)</p> <p>2. Expenditure of on-site (in the factory) IWM => 138,500 R\$/year (Average of 17 Fac.)</p> <p>3. Current IW System => No Problems: 29.3% (36/123 Fac.), Some Problems: 70.7% (87/123 Fac.)</p> <p style="text-align: right;">20</p>																																																														
<p>c. First draft analysis of factory survey (10): Financial Matters and Evaluation of Current IW System (2)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">Base: Population = 87</th> </tr> <tr> <th>Q21</th> <th>Answer</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>1. We do not know the difference between hazardous and non-hazardous industrial waste.</td> <td>0</td> <td>0.0</td> </tr> <tr> <td>2. We do not segregate hazardous from non-hazardous industrial waste.</td> <td>5</td> <td>5.7</td> </tr> <tr> <td>3. There are no or only limited services available for industrial waste treatment.</td> <td>29</td> <td>33.3</td> </tr> <tr> <td>4. High cost of industrial waste treatment.</td> <td>48</td> <td>55.2</td> </tr> <tr> <td>5. Reuse and recycling of industrial waste is non-existent or limited.</td> <td>36</td> <td>41.4</td> </tr> <tr> <td>6. There are no reliable and licensed companies offering treatment and/or disposed service, in Manaus.</td> <td>27</td> <td>31.0</td> </tr> <tr> <td>7. Others</td> <td>13</td> <td>14.9</td> </tr> <tr> <td style="text-align: center;">Total</td> <td>158</td> <td>---</td> </tr> </tbody> </table> <p style="text-align: right;">23</p>	Base: Population = 87			Q21	Answer	%	1. We do not know the difference between hazardous and non-hazardous industrial waste.	0	0.0	2. We do not segregate hazardous from non-hazardous industrial waste.	5	5.7	3. There are no or only limited services available for industrial waste treatment.	29	33.3	4. High cost of industrial waste treatment.	48	55.2	5. Reuse and recycling of industrial waste is non-existent or limited.	36	41.4	6. There are no reliable and licensed companies offering treatment and/or disposed service, in Manaus.	27	31.0	7. Others	13	14.9	Total	158	---	<p>d. First draft analysis of WMCs Survey (1): Code & Activity of Environmental License of IPAAM</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Activity</th> <th>Code</th> <th>Activity</th> </tr> </thead> <tbody> <tr> <td>22**</td> <td>2217 Incineration</td> <td>26**</td> <td>2601 Road transportation of hazardous cargo</td> </tr> <tr> <td></td> <td>2218 Co-processing of wastes</td> <td></td> <td>2615 Transportation of solid IW</td> </tr> <tr> <td></td> <td>2214 Package manufacturing</td> <td>30**</td> <td>3001 Treatment of solid IW without chemicals</td> </tr> <tr> <td>24**</td> <td>2407 Collection & treatment of IW</td> <td></td> <td>3002 Treatment of liquid IW</td> </tr> <tr> <td></td> <td>2410 Collection & transportation of inert SW</td> <td></td> <td>3003 Treatment solid IW using chemicals</td> </tr> <tr> <td></td> <td>2411 Collection & commercialization of SW</td> <td></td> <td>3004 Treatment of pallet</td> </tr> <tr> <td></td> <td>2413 Distribution & supply of water</td> <td></td> <td>3005 Recycle of waste paper & cardboard</td> </tr> </tbody> </table> <p>SW: Solid waste, IW: Industrial waste, HIW: Hazardous industrial waste</p>	Code	Activity	Code	Activity	22**	2217 Incineration	26**	2601 Road transportation of hazardous cargo		2218 Co-processing of wastes		2615 Transportation of solid IW		2214 Package manufacturing	30**	3001 Treatment of solid IW without chemicals	24**	2407 Collection & treatment of IW		3002 Treatment of liquid IW		2410 Collection & transportation of inert SW		3003 Treatment solid IW using chemicals		2411 Collection & commercialization of SW		3004 Treatment of pallet		2413 Distribution & supply of water		3005 Recycle of waste paper & cardboard
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<p>d. First draft analysis of WMCs Survey (2): Proposal for License Code for WMCs</p> <p>1. Issues of current code</p> <p><input type="checkbox"/> WMCs are dispersed in several code</p> <p><input type="checkbox"/> Difficult to find out WMCs by current</p> <p>2. Proposal</p> <p><input type="checkbox"/> Give a new code for only WMCs => 33**</p> <p><input type="checkbox"/> Activity shall be according to the waste management activities like 1. Collection & transportation, 2. Reuse & recycling, 3. Treatment and 4. Final disposal.</p> <p><input type="checkbox"/> WMCs survey results will be analyzed according to the above four activities.</p> <p style="text-align: right;">23</p>	<p>d. First draft analysis of WMCs Survey (3): Type of WM Business of 85 WMCs</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="5">Total</th> </tr> <tr> <th>Collection & Transportation</th> <th>Treatment</th> <th>Disposal</th> <th>Recycle</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>45</td> <td>8</td> <td>11</td> <td>55</td> <td>119</td> </tr> </tbody> </table> <p style="text-align: center;">Treatment</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Treatment with Incinerator</th> <th>Composting</th> <th>Co-processing</th> <th>Wastewater Treatment</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>1</td> <td>1</td> <td>2</td> <td>8</td> </tr> </tbody> </table> <p style="text-align: center;">Final Disposal</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>IW + CW</th> <th>CW</th> <th>DW</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>5</td> <td>2</td> <td>11</td> </tr> </tbody> </table> <p style="text-align: right;">IW: Industrial waste CW: Construction waste DW: Domestic waste</p>	Total					Collection & Transportation	Treatment	Disposal	Recycle	Total	45	8	11	55	119	Treatment with Incinerator	Composting	Co-processing	Wastewater Treatment	Total	4	1	1	2	8	IW + CW	CW	DW	Total	4	5	2	11																													
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d. First draft analysis of WMCs Survey (4): Location of WMCs

	Base:	85	
	Answer	85	100%
	Answer		%
1	1. Industrial District 1	15	18%
2	2. Industrial District 2	12	14%
3	3. Outside of Industrial District, but inside of	55	65%
4	4. Outside of Manaus City Zone	3	4%
	Total	85	100%

d. First draft analysis of WMCs Survey (5): Number of employee

	Base:	85	
	Answer	82	96%
	Answer		%
1	1 Less than 10	32	39%
2	2 10 - 50	35	43%
3	3 50 - 100	7	9%
4	4 more than 100	8	10%
	Total	82	100%

d. First draft analysis of WMCs Survey (6): Reason of start the business here

	Base:	85	
	Answer	51	60%
	Answer		%
1	1 Tax incentive	7	14%
2	2 Business opportunity	25	49%
3	3 Profit and contribution for local society in the environment	14	27%
4	4 Others	5	10%
	Total	51	100%

d. First draft analysis of WMCs Survey (7): Problems and Issues (Legal system)

	Base:	85	
	Answer	80	94%
	Total		%
1	1 Legal framework is complicated	44	55%
2	2 Inspection and monitoring system of industrial waste is insufficient	51	64%
3	3 Government policy for industrial waste management is vague and unclear	47	59%
4	4 Law, regulation and resolutions are stringent	40	50%
5	5 Others	7	9%
	Total	189	

d. First draft analysis of WMCs Survey (8): Problems and Issues (Manifest)

	Base:	85	
	Answer	84	99%
	Answer		%
1	1. Yes	29	35%
2	2. No	55	65%
	Total	84	100%

d. First draft analysis of WMCs Survey (9): Problems and Issues (Waste fee)

	Base:	85	
	Answer	74	87%
	Total		%
1	1 The fee the client is prone to low	64	86%
2	2 Informal agents render their services at very low prices	52	70%
3	3 Others	5	7%

Multiple answer allowed

d. First draft analysis of WMCs Survey (10): Problems and Issues (Cost)

	Base:	85	
	Answer	74	87%
	Total		%
1	1 Price of materials and chemicals is high	44	59%
2	2 Labor cost is high	33	45%
3	3 Utilities (water, electricity etc) cost is high	59	80%
4	4 Cost of environmental countermeasures is a burden	32	43%
5	5 Availability of materials is low	26	35%
6	6 The availability of technology is low	37	50%
7	7 Others	3	4%

Multiple answer allowed

d. First draft analysis of WMCs Survey (11): Problems and Issues (Environment)

	Base:	85	
	Answer	83	98%
	Total		%
1	1 Environmental consciousness regarding waste management is low in the society.	74	89%
2	2 Sewage network does not cover all the Industrial Districts and Manaus City Zone	54	65%
3	3 Illegal dumping of wastes is a problem	72	87%
4	4 Manifest does not operate efficiently for tracking the flow of wastes	27	33%
5	5 It is difficult to find reliable analysis laboratory	38	46%
6	6 Others	3	4%

Multiple answer allowed

<p>d. First draft analysis of WMCs Survey (12): Problems and Issues (Equipment and Technology))</p> <table border="1"> <tr> <td>Base:</td> <td>85</td> <td></td> </tr> <tr> <td>Answer</td> <td>61</td> <td>72%</td> </tr> <tr> <td></td> <td>Total</td> <td>%</td> </tr> <tr> <td>1 Procurement of waste management equipments and facilities is difficult in this area.</td> <td>44</td> <td>72%</td> </tr> <tr> <td>2 Education and training for labors regarding appropriate waste management is a problem.</td> <td>43</td> <td>70%</td> </tr> <tr> <td>3 Others</td> <td>3</td> <td>5%</td> </tr> </table> <p>Multiple answer allowed</p> <p style="text-align: right;">33</p>	Base:	85		Answer	61	72%		Total	%	1 Procurement of waste management equipments and facilities is difficult in this area.	44	72%	2 Education and training for labors regarding appropriate waste management is a problem.	43	70%	3 Others	3	5%	<p>d. First draft analysis of WMCs Survey (13): Promotion of WM industry (Legal System)</p> <table border="1"> <tr> <td>Base:</td> <td>85</td> <td></td> </tr> <tr> <td>Answer</td> <td>81</td> <td>95%</td> </tr> <tr> <td></td> <td>Total</td> <td>%</td> </tr> <tr> <td>1 Formulation of comprehensive law and regulation of waste management</td> <td>41</td> <td>51%</td> </tr> <tr> <td>2 Formulation of law and regulation regarding Reuse/Recycle/Recover of waste</td> <td>40</td> <td>49%</td> </tr> <tr> <td>3 Formulation of waste management plan in PIM area</td> <td>40</td> <td>49%</td> </tr> <tr> <td>4 Improvement or speeding of environmental licensing system</td> <td>64</td> <td>79%</td> </tr> <tr> <td>5 Improvement of waste tracking system (Manifest system)</td> <td>46</td> <td>57%</td> </tr> <tr> <td>6 Improvement of classification of hazardous and non-hazardous wastes</td> <td>48</td> <td>59%</td> </tr> <tr> <td>7 Enhancement of public administration capacity regarding waste management</td> <td>60</td> <td>74%</td> </tr> <tr> <td>8 Tightening of regulations for unlicensed waste management companies</td> <td>41</td> <td>51%</td> </tr> <tr> <td>9 Easing of control and regulation</td> <td>39</td> <td>48%</td> </tr> <tr> <td>10 Others</td> <td>2</td> <td>2%</td> </tr> </table> <p>Multiple answer allowed</p>	Base:	85		Answer	81	95%		Total	%	1 Formulation of comprehensive law and regulation of waste management	41	51%	2 Formulation of law and regulation regarding Reuse/Recycle/Recover of waste	40	49%	3 Formulation of waste management plan in PIM area	40	49%	4 Improvement or speeding of environmental licensing system	64	79%	5 Improvement of waste tracking system (Manifest system)	46	57%	6 Improvement of classification of hazardous and non-hazardous wastes	48	59%	7 Enhancement of public administration capacity regarding waste management	60	74%	8 Tightening of regulations for unlicensed waste management companies	41	51%	9 Easing of control and regulation	39	48%	10 Others	2	2%			
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Answer	81	95%																																																											
	Total	%																																																											
1 Formulation of comprehensive law and regulation of waste management	41	51%																																																											
2 Formulation of law and regulation regarding Reuse/Recycle/Recover of waste	40	49%																																																											
3 Formulation of waste management plan in PIM area	40	49%																																																											
4 Improvement or speeding of environmental licensing system	64	79%																																																											
5 Improvement of waste tracking system (Manifest system)	46	57%																																																											
6 Improvement of classification of hazardous and non-hazardous wastes	48	59%																																																											
7 Enhancement of public administration capacity regarding waste management	60	74%																																																											
8 Tightening of regulations for unlicensed waste management companies	41	51%																																																											
9 Easing of control and regulation	39	48%																																																											
10 Others	2	2%																																																											
<p>d. First draft analysis of WMCs Survey (14): Promotion of WM industry (Financial support)</p> <table border="1"> <tr> <td>Base:</td> <td>85</td> <td></td> </tr> <tr> <td>Answer</td> <td>62</td> <td>73%</td> </tr> <tr> <td></td> <td>Total</td> <td>%</td> </tr> <tr> <td>1 Provision of public financial support for equipping of waste management equipments and facilities</td> <td>38</td> <td>61%</td> </tr> <tr> <td>2 Provision of tax privilege for equipping of waste management equipments and facilities</td> <td>56</td> <td>90%</td> </tr> <tr> <td>3 Provision of public financial support for equipping of environmental protection and control equipments and facilities</td> <td>42</td> <td>68%</td> </tr> <tr> <td>4 Provision of tax privilege for equipping of environmental protection and control equipments and facilities</td> <td>51</td> <td>82%</td> </tr> <tr> <td>5 Others</td> <td>4</td> <td>6%</td> </tr> </table> <p>Multiple answer allowed</p> <p style="text-align: right;">35</p>	Base:	85		Answer	62	73%		Total	%	1 Provision of public financial support for equipping of waste management equipments and facilities	38	61%	2 Provision of tax privilege for equipping of waste management equipments and facilities	56	90%	3 Provision of public financial support for equipping of environmental protection and control equipments and facilities	42	68%	4 Provision of tax privilege for equipping of environmental protection and control equipments and facilities	51	82%	5 Others	4	6%	<p>d. First draft analysis of WMCs Survey (15): Promotion of WM industry (Business Environment)</p> <table border="1"> <tr> <td>Base:</td> <td>85</td> <td></td> </tr> <tr> <td>Answer</td> <td>74</td> <td>87%</td> </tr> <tr> <td></td> <td>Total</td> <td>%</td> </tr> <tr> <td>1 Appropriate understanding of waste management business by both public administration, generator and local people</td> <td>51</td> <td>69%</td> </tr> <tr> <td>2 Appropriate understanding of waste management fee by generators</td> <td>49</td> <td>66%</td> </tr> <tr> <td>3 Promotion of environmental education regarding waste management for both public administration, generator and local people</td> <td>68</td> <td>92%</td> </tr> <tr> <td>4 Establishment of information system of wastes and generators</td> <td>67</td> <td>91%</td> </tr> <tr> <td>5 Increasing of reliable laboratories</td> <td>49</td> <td>66%</td> </tr> <tr> <td>6 Price reduction of electricity, fuel and water</td> <td>64</td> <td>86%</td> </tr> <tr> <td>7 Establishment of business chain regarding waste management of Reuse/Recycle/Recover</td> <td>64</td> <td>86%</td> </tr> <tr> <td>8 Developing of consensus-building systems for establishment of waste management facilities</td> <td>50</td> <td>68%</td> </tr> <tr> <td>9 Others</td> <td>2</td> <td>3%</td> </tr> </table> <p>Multiple answer allowed</p>	Base:	85		Answer	74	87%		Total	%	1 Appropriate understanding of waste management business by both public administration, generator and local people	51	69%	2 Appropriate understanding of waste management fee by generators	49	66%	3 Promotion of environmental education regarding waste management for both public administration, generator and local people	68	92%	4 Establishment of information system of wastes and generators	67	91%	5 Increasing of reliable laboratories	49	66%	6 Price reduction of electricity, fuel and water	64	86%	7 Establishment of business chain regarding waste management of Reuse/Recycle/Recover	64	86%	8 Developing of consensus-building systems for establishment of waste management facilities	50	68%	9 Others	2	3%
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<p style="text-align: center;">Next Weekly Meeting</p> <p style="text-align: center;"><input type="checkbox"/> Next Meeting will be 8 September 2009 (Tuesday) at 3:00 PM</p> <p style="text-align: right;">37</p>																																																													

3.13.2 Minutes of Meeting for Weekly Meeting (13) on August 31, 2009

<p>Weekly Meeting (13) For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus.</p> <p>16:00pm-17:50pm 31 August 2009 Deputy Superintendence Meeting Room, at SUFRAMA.</p> <p>Agenda</p> <ol style="list-style-type: none"> 1. Work progress 2. Schedule for this week 3. Subjects to be discussed <p>Attendees</p> <table border="0"> <tr><td>1. Alexandre Kadoh</td><td>Representative of FEAMCOEMCOBAM</td></tr> <tr><td>2. Antonio Alberti Simas</td><td>Representative of INAM</td></tr> <tr><td>3. Dárcio R. Paoli</td><td>Representative of SEMULP</td></tr> <tr><td>4. Myrian Cunha</td><td>Representative of SEMWAS</td></tr> <tr><td>5. Lister Marques</td><td>Representative of IBAM</td></tr> <tr><td>6. Jorge Gouvea</td><td>Technical Manager of SEA Ltda.</td></tr> <tr><td>7. Paulo Ricardo Farias</td><td>Technical Manager of OFCS</td></tr> <tr><td>8. Wilson Fleurydele</td><td>Technician of OFCA</td></tr> <tr><td>9. Leão Riquelme</td><td>Technician of OFCA</td></tr> <tr><td>10. Isabela de Caste</td><td>Technician of OFCA</td></tr> <tr><td>11. Cláudia Helena Sotomaior</td><td>Pln. and Budget Evaluation Gen. Coordinator SUFRAMA</td></tr> <tr><td>12. André Augusto</td><td>Assessor of SRENOR</td></tr> <tr><td>13. Laila Fátima Góes</td><td>Eng. and Arch. Project Analysis Coordinator</td></tr> <tr><td>14. Carlos Sávio de Almeida</td><td>COLOG/SUFRAMA</td></tr> <tr><td>15. David Silva</td><td>COLOG/SUFRAMA</td></tr> <tr><td>16. Ivo Brasil</td><td>COGMO/SUFRAMA</td></tr> </table> <p>Meeting (13) (Weekly Meeting) (13) (13) (13) (13)</p>	1. Alexandre Kadoh	Representative of FEAMCOEMCOBAM	2. Antonio Alberti Simas	Representative of INAM	3. Dárcio R. Paoli	Representative of SEMULP	4. Myrian Cunha	Representative of SEMWAS	5. Lister Marques	Representative of IBAM	6. Jorge Gouvea	Technical Manager of SEA Ltda.	7. Paulo Ricardo Farias	Technical Manager of OFCS	8. Wilson Fleurydele	Technician of OFCA	9. Leão Riquelme	Technician of OFCA	10. Isabela de Caste	Technician of OFCA	11. Cláudia Helena Sotomaior	Pln. and Budget Evaluation Gen. Coordinator SUFRAMA	12. André Augusto	Assessor of SRENOR	13. Laila Fátima Góes	Eng. and Arch. Project Analysis Coordinator	14. Carlos Sávio de Almeida	COLOG/SUFRAMA	15. David Silva	COLOG/SUFRAMA	16. Ivo Brasil	COGMO/SUFRAMA	<table border="0"> <tr><td>17. Antonio Pinheiro</td><td>COGMO/SUFRAMA</td></tr> <tr><td>18. Rita de Cassia Maril</td><td>SADG/SUFRAMA</td></tr> <tr><td>19. Marcus Ribeiro</td><td>CODEX/SUFRAMA</td></tr> <tr><td>20. Kelly Denis</td><td>CODEX/SUFRAMA</td></tr> <tr><td>21. Amendo Santos Jr.</td><td>Support to JICA in SUFRAMA</td></tr> <tr><td>22. Mirna Barros</td><td>Support to JICA in SUFRAMA</td></tr> <tr><td>23. Dr. Susumu SHIMURA</td><td>Team Leader of JICA Study Team</td></tr> <tr><td>24. Sr. Yumoto SUZUKI</td><td>Member of JICA Study Team</td></tr> <tr><td>25. Sr. Shoji NAKAMURA</td><td>Member of JICA Study Team</td></tr> <tr><td>26. Sr. Steven LINDSTROM</td><td>Member of JICA Study Team</td></tr> <tr><td>27. Sr. José Farias HADDAD</td><td>Member of JICA Study Team</td></tr> <tr><td>28. Sr. Kuniyoshi SHIBASAKI</td><td>JICA Study Team Data Base Expert</td></tr> <tr><td>29. José de Almeida Michel Ferreira</td><td>Interpreter of JICA</td></tr> </table> <p>Minutes & Agenda</p> <p>I. Work Progress: From 24 to 30 August 2009</p> <ol style="list-style-type: none"> 1. Continue the factory survey and insert and analyze the obtained results. 2. Insert and analyze the results of the waste management companies survey. 3. Finalization of the analysis report of the medical institutions survey. 4. Verification of the construction wastes survey results. 5. Analysis of the radioactive wastes survey results. 6. Elaboration of the Interim Report. <p>II. Schedule for this week</p> <ol style="list-style-type: none"> 1. Continue the factory survey and insert/analyze the obtained results. 2. Input and analyze the results of the waste management companies survey. 3. Finalize the construction wastes survey analysis report. <p>Meeting (13) (Weekly Meeting) (13) (13) (13) (13)</p>	17. Antonio Pinheiro	COGMO/SUFRAMA	18. Rita de Cassia Maril	SADG/SUFRAMA	19. Marcus Ribeiro	CODEX/SUFRAMA	20. Kelly Denis	CODEX/SUFRAMA	21. Amendo Santos Jr.	Support to JICA in SUFRAMA	22. Mirna Barros	Support to JICA in SUFRAMA	23. Dr. Susumu SHIMURA	Team Leader of JICA Study Team	24. Sr. Yumoto SUZUKI	Member of JICA Study Team	25. Sr. Shoji NAKAMURA	Member of JICA Study Team	26. Sr. Steven LINDSTROM	Member of JICA Study Team	27. Sr. José Farias HADDAD	Member of JICA Study Team	28. Sr. Kuniyoshi SHIBASAKI	JICA Study Team Data Base Expert	29. José de Almeida Michel Ferreira	Interpreter of JICA
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<ol style="list-style-type: none"> 4. Finalize the radioactive wastes survey analysis report. 5. Prepare the Interim Report. 6. Prepare the 1st Workshop. 7. Attend to the "National Conference of Environmental Law and the American Issue" on 09/09/2009, in Tropical Hotel Manaus. <p>III. Subjects to be discussed</p> <p>The following subjects were discussed at the Meeting:</p> <ol style="list-style-type: none"> a. Confirmation of the Minutes of the Weekly Meeting (12). See topics of the MINM (Minutes of the Weekly Meeting (12)). b. Schedule for the preparation and presentation of the Interim Report: c. Final draft analysis of the factory survey. d. Final draft analysis of the wastes management companies survey. e. Final draft analysis of the radioactive wastes survey. <ol style="list-style-type: none"> a. Confirmation of the Minutes of the Weekly Meeting (12). See topics of the MINM (Minutes of the Weekly Meeting (12)). The content of the Minutes of the last Meeting may be modified / updated via e-mail along this week. b. Schedule for the preparation and presentation of the Inception Report <p>b.1 Outline:</p> <ul style="list-style-type: none"> • The Interim Report will be presented to SUFRAMA in early October. • The number of copies will be as follows: <table border="1"> <thead> <tr> <th>Report</th> <th>Language</th> <th>Quantity</th> </tr> </thead> <tbody> <tr> <td>1. Summary</td> <td>English</td> <td>(1)</td> </tr> <tr> <td></td> <td>Portuguese</td> <td>(10)</td> </tr> </tbody> </table> <p>Meeting (13) (Weekly Meeting) (13) (13) (13) (13)</p>	Report	Language	Quantity	1. Summary	English	(1)		Portuguese	(10)	<table border="1"> <thead> <tr> <th>1. Inception Report</th> <th>English</th> <th>Portuguese</th> </tr> </thead> <tbody> <tr> <td></td> <td>(1)</td> <td>(10)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • SUFRAMA will be in charge of delivering such copies to the entities considered as relevant for the activities of the Study. <p>b.2 Interim Report (result of the 1st Phase of the Study)</p> <p>The following aspects will be presented:</p> <ul style="list-style-type: none"> • Content conditions of the study area. • Content and results of the industrial, health, consumption and radioactive wastes generation sources. • Content and results of the wastes management companies survey in order to understand the life cycle management of the wastes generated in PMZFM. • Issues and current management of the industrial wastes. • Issues and current management of the health wastes. • Issues and current management of the construction wastes, and • Issues and current management of the radioactive wastes. <p>b.3 2nd Phase of the Study</p> <ul style="list-style-type: none"> • As soon as the content of the interim Report is approved, JICA Study Team and the Counterpart will initiate the 2nd Phase of the Study, notably "Formulation of the Industrial Wastes Management Master Plan and Guidelines" starting the works in mid October 2009. • Due to the short time for the elaboration and presentation of the Interim Report, the systems to be obtained from the 1st Workshop of the Project, on 11 September 2009, will not be included in it. • Nevertheless, such surveys will be duly analyzed and considered for the formulation of the Master Plan. <p>Note: The finalization of the Inception Report up to late September is a demand of the Technical Cooperation Agreement, signed between the Governments of Brazil and Japan. But, once new information from the several surveys are received from the consultants in charge of them, the pertinent parts in the Interim Report may be modified.</p> <p>Meeting (13) (Weekly Meeting) (13) (13) (13) (13)</p>	1. Inception Report	English	Portuguese		(1)	(10)																																											
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(up to 08/31/2009)</p> <p>The 134 surveyed factories account for 30.5% of the total in operation in PIMZFM (44). Although this quantity may seem to be below the expectations, JICA Study Team states the information surveyed so far has been relevant for the study. Also, some doubts about the surveyed system have been found, but nothing that would make their analysis difficult. SEA Ltd. informed that by the end of September, it intends to finish a total of 189 factories, 166 from Part 1 of the Participatory Enterprise.com Projecto Alavysitas and SUPRAMA (December 2008) and 23 from Part 2.</p> <p>c.2 Characteristics of the 134 surveyed factories</p> <ol style="list-style-type: none"> 67.9% of the factories (92 out of 134) which answered the Questionnaire initiated their operations after 1981. The average dimensioned (121 facilities) and building area (116 facilities) comprise 5.1 ha to 1.22 ha respectively. The total and average numbers of employees of 126 factories comprise 34,396 and 276 people, respectively. <p>Header of weekly meeting (13) - 08/31/2009</p>	Factory No.	Company Name	Year of Operation	Number of Employees	Production Value (BRL)	Waste Generation (kg/day)	Waste Treatment Method	Waste Storage Method	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	<ol style="list-style-type: none"> The percentage of the installed industrial and domestic WWTs (Wastewater Treatment Systems) sum up 29.0 % with 54.2 % in relation to the surveyed factories, respectively. The percentage of storage space for hazardous substances on ground level is 60.8 % (77 out of 127 factories). As for the underground storage, it is 19.6% (25 out of 127 factories). <p style="text-align: center;">Surveyed pollution control plants</p> <table border="1"> <thead> <tr> <th>Pollution control plants</th> <th>Amounts (A)</th> <th>Yrs (B)</th> <th>% (B/A x 100)</th> </tr> </thead> <tbody> <tr><td>A. Sewer:</td><td>119</td><td>19</td><td>15.9</td></tr> <tr><td>B. Treatment:</td><td>139</td><td>0</td><td>0.0</td></tr> <tr><td>C. Treatment installed for industrial process:</td><td>246</td><td>29</td><td>11.8</td></tr> <tr><td>D. Domestic wastewater treatment plants:</td><td>139</td><td>27</td><td>19.4</td></tr> <tr><td>E. Sludge collection:</td><td>139</td><td>19</td><td>13.6</td></tr> <tr><td>F. Air treatment plants:</td><td>236</td><td>17</td><td>7.2</td></tr> <tr><td>G. Flaring systems:</td><td>237</td><td>0</td><td>0.0</td></tr> <tr><td>H. Powder handling process:</td><td>529</td><td>14</td><td>2.6</td></tr> <tr><td>I. Water reclaiming process:</td><td>139</td><td>18</td><td>12.9</td></tr> <tr><td>J. Water reclaiming process:</td><td>139</td><td>19</td><td>13.6</td></tr> <tr><td>K. Special for the storage of hazardous substances (contingency case, vehicle accidents, etc.):</td><td>139</td><td>17</td><td>12.2</td></tr> <tr><td>L. Others for the storage of hazardous substances (liquid waste, etc., mobile accidents, etc.):</td><td>139</td><td>21</td><td>15.1</td></tr> <tr><td>M. Others:</td><td>62</td><td>16</td><td>25.8</td></tr> </tbody> </table> <p>Source: JICA Study Team / SEA Ltd. (up to 08/31/2009)</p> <p>Comment of the attendees: It is a full the PIMZFM into a hazardous waste storage space. Not all factories are obliged to use a domestic and/or industrial wastewater treatment system. According to the representative of SUPRAMA, such demand is only made to enterprises with over 40 employees, as per Municipal Law n. 1.902/2007 (type of physical waste). Once, if it is a recent demand, many factories of PIMZFM are still trying to cope with it, in some cases, they use mainly filters and incinerators.</p> <p>The Industrial District has an wastewater collection network, so there are only private facilities in that sense. The Government has taken an action to control the Oxygen Demand Demand (COD) rates in the river and generate 18 (Header of weekly meeting (13) - 08/31/2009)</p>	Pollution control plants	Amounts (A)	Yrs (B)	% (B/A x 100)	A. Sewer:	119	19	15.9	B. Treatment:	139	0	0.0	C. Treatment installed for industrial process:	246	29	11.8	D. Domestic wastewater treatment plants:	139	27	19.4	E. Sludge collection:	139	19	13.6	F. Air treatment plants:	236	17	7.2	G. Flaring systems:	237	0	0.0	H. Powder handling process:	529	14	2.6	I. Water reclaiming process:	139	18	12.9	J. 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C. Treatment installed for industrial process:	246	29	11.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
D. Domestic wastewater treatment plants:	139	27	19.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
E. Sludge collection:	139	19	13.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
F. Air treatment plants:	236	17	7.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
G. Flaring systems:	237	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
H. Powder handling process:	529	14	2.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
I. Water reclaiming process:	139	18	12.9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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K. Special for the storage of hazardous substances (contingency case, vehicle accidents, etc.):	139	17	12.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
L. Others for the storage of hazardous substances (liquid waste, etc., mobile accidents, etc.):	139	21	15.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
M. Others:	62	16	25.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
<p>Manus: The higher the COD rates are, i.e., the quantity of oxygen to keep the microorganisms which feed from organic and insoluble organic wastes rises, the more polluted the water source will be.</p> <p>B. Waste Incentives (WI)</p> <ol style="list-style-type: none"> 73.1% (98 out of 134 factories) are obliged to submit a waste inventory, but 28.4% (38 out of 134 factories) claimed not to be. 58.4% (84 out of 144 factories) which claimed to be obliged to submit the WI did so, but 11.8% (11 out of 93 factories) have not submitted it yet. <p>Comment of the attendees: WI is these data, it maybe require additional explanations about the former survey questionnaire by the hired consultants may be lacking, since in fact all factories of PIM are obliged to submit the WI on annual basis so they may get their licenses issued by IPAAM. On the other hand, SEA Ltd. assumed many factories of PIMZFM have people in charge of the wastes who are not really qualified for such, so maybe because of that they may not have answered the questionnaire in a proper way, besides not filling certain "closed questions" of 4. According to the representative of IPAAM, the factory which still have not got the conditions to submit their WI as per Resolution 313/2002 of CONAMA should do it by filling out the proforma sheet elaborated by IPAAM.</p> <ol style="list-style-type: none"> Companies which discharge wastes from both production process and non-production process separately => Yes: 87.7% (114 out of 130 factories); No: 12.3% (16 out of 130 factories). Companies which dispose Non-HW and HW separately => Yes (100% + certainty): 78.4% (100 out of 128 factories); No: 21.6% (28 out of 128 factories). <p>Comment of JICA Team: Such information raises doubts/concerns, and should be double-checked, it was emphasized the Study is a joint work between the technicians of JICA with the local consultants and the lawyer representatives of the Government, and that further concerns about the difficulties in filling certain tasks should not be mentioned at the Weekly Meetings due to the nature of other topics to be addressed and the short time available. SEA</p> <p>Header of weekly meeting (13) - 08/31/2009</p>	<p>SEA can justify its delay in finishing the factory survey (such as the contingency of certain factories in operation) in the Final Report of the Project.</p> <p style="text-align: center;">Separate Discharge of Non-HW and HW</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Amounts</th> <th>%</th> </tr> </thead> <tbody> <tr><td>1. 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Some factories gave more than one answer.</p> <ol style="list-style-type: none"> Have a clinic in the factory => Yes: 40.0% (52 out of 130 factories). According to the medical institution survey => Yes: 57.1% (124 out of 217 factories). Generation of radioactive wastes => No: 100% (126 factories). According to the radioactive wastes survey => No: 100% (9 factories). <p>Comment: Results of the corresponding surveys.</p> <p>c.2 Future management of industrial wastes in PIMZFM</p> <ol style="list-style-type: none"> Generation of industrial wastes => No change of the generated amounts: 28.0% (35 out of 125 surveyed factories); Increase of the generated amounts: 36.8% (46 out of 125 factories); Decreasing: 22.4% (28 out of 125 factories). <p>Comment: The expectation for the increase of the HW volume is small.</p> <ol style="list-style-type: none"> 39% for HW => No: 67.2% (64 out of 125 factories); Yes: 32.8% (41 out of 125 factories). <p>Header of weekly meeting (13) - 08/31/2009</p>	Item	Amounts	%	1. Do not know the difference between Non-HW and HW:	0	0.0	2. The volume wastes is too small to be segregated:	0	0.0	3. The production process involves the segregation of Non-HW and HW difficult:	2	11.8	4. The collection services does not demand the segregation of Non-HW and HW:	2	11.8	5. Segregating Non-HW and HW is difficult but takes time:	1	5.9	6. It is not necessary to segregate Non-HW and HW:	0	0.0	7. Although the amount is pre-segregated from the HW, there is no why they can be mixed:	1	5.9	8. 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<p>3. Industrial wastes management improvement cost => No: 78.9% (37 out of 123 factories), Yes: 21.1% (20 out of 123 factories).</p> <p>From: The final result shows it is not really, and which needs to increase.</p> <p>4. Waste exchange</p> <p>1. Know the WE => Yes: 72.8% (89 out of 122 factories), No: 29.1% (37 out of 122 factories).</p> <p>2. Are interested in WE => Yes (A lot + a little): 71.5% (80 out of 112 factories), No: 28.5% (32 out of 112 factories).</p> <p>3. Involved with WE today => Yes: 55.1% (45 out of 125 factories), No: 44.9% (37 out of 125 factories), No answer: 7.1% (9 out of 125 factories).</p> <p>Comment of the attendees: Waste exchange is some sort of market which involves factories and WMC in which purchasing, sales and exchange of wastes take place. Its dissemination is related mainly to economic crises periods, being more common among cement factories. Nevertheless, it is not regulated in PR507M law. Besides, this legislation sets the atmosphere for which is responsible for the wastes, no matter what their off-site flow is.</p> <p>4.5 Financial issues and evaluation of the current RW system</p> <p>1. Expenses on transportation companies => R\$ 138,400/year (average of all factories).</p> <p>2. On-site expenses on industrial wastes management => R\$ 138,500/year (average of 17 factories).</p> <p>3. Current RW System => No problems: 29.3% (35 out of 123 factories), With problems: 70.7% (87 out of 123 factories).</p> <p>Problems on the RW current system:</p> <table border="1"> <thead> <tr> <th>Reason</th> <th>Number</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>Q23 of the Factory Survey (Qualitative)</td> <td></td> <td></td> </tr> <tr> <td>1. Do not know the difference between HW and factory W</td> <td>5</td> <td>6.8</td> </tr> <tr> <td>2. Do not separate HW from factory W</td> <td>5</td> <td>7.2</td> </tr> <tr> <td>3. 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Others 27 27/0/09</p> <p>Total 138 138/0/09</p> <p>Obs.: Some factories gave more than one answer.</p> <p>4. Final draft analysis of the WMC survey</p> <p>4.1 Code and activity of the (PRAM environmental license):</p> <p>Categorization of the environmental license to be adopted in the Study of JICA</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Activity</th> <th>Code</th> <th>Activity</th> </tr> </thead> <tbody> <tr> <td>243*</td> <td>Extraction</td> <td>191*</td> <td>Waste transportation of radioactive waste</td> </tr> <tr> <td>210*</td> <td>On processing of wastes</td> <td>242*</td> <td>Transportation of waste HW</td> </tr> <tr> <td>219*</td> <td>Package manufacturing</td> <td>231*</td> <td>Treatment of solid HW without chemicals</td> </tr> <tr> <td>243*</td> <td>Collection & treatment of SW</td> <td>2009</td> <td>Treatment of liquid HW</td> </tr> <tr> <td>2410</td> <td>Collection & transportation of used SW</td> <td>2002</td> <td>Treatment and recovery of liquids</td> </tr> <tr> <td>2411</td> <td>Collection & transportation of SW</td> <td>2004</td> <td>Treatment of waste</td> </tr> <tr> <td>1912</td> <td>Disposal, & storage of waste</td> <td>2005</td> <td>Storage of waste prior to landfilling</td> </tr> </tbody> </table> <p>HW: solid waste; SW: industrial waste; HW: hazardous industrial waste</p> <p>The environmental license of PRAM has various categorizations of industrial wastes management companies. Nevertheless, for the purpose of the Study, not the processes will be modified to the classifications indicated in the code below, related to collection and transportation, reuse and recycling, treatment and final disposal services.</p> <p>4.2 License code proposal for the WMC</p> <p>1. Issues of the current code</p> <p>* The WMC are licensed in several codes: (Number of Factory Meeting (14): 20/0/2009)</p>	Code	Activity	Code	Activity	243*	Extraction	191*	Waste transportation of radioactive waste	210*	On processing of wastes	242*	Transportation of waste HW	219*	Package manufacturing	231*	Treatment of solid HW without chemicals	243*	Collection & treatment of SW	2009	Treatment of liquid HW	2410	Collection & transportation of used SW	2002	Treatment and recovery of liquids	2411	Collection & transportation of SW	2004	Treatment of waste	1912	Disposal, & storage of waste	2005	Storage of waste prior to landfilling
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<p>* It is hard to find the WMC by the current system</p> <p>2. Proposal of JICA Study Team</p> <p>* Give a new code only for the WMC => 32**</p> <p>* The activity of this new code will follow the following activities: 1. Collection and transport; 2. Reuse and recycling; 3. Treatment and 4. Final Disposal.</p> <p>* The results of the WMC survey will be analyzed as per the activities above.</p> <p>Next Weekly Meeting</p> <p>Next Weekly Meeting (14) will take place on 4 September 2009 (Tuesday), at 3 pm, in a venue still to be defined in (S)PRAMA. This Meeting (14) finishes at 05:00 pm.</p> <p>(Number of Factory Meeting (14): 20/0/2009)</p>																																																						

3.14 Weekly Meeting (14)

3.14.1 Agenda for Weekly Meeting (14) on September 8, 2009

<p style="text-align: center;">Weekly Meeting (14)</p> <p style="text-align: center;">September 8, 2009 JICA Study Team 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;">1</p>	<p>Agenda</p> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed <p style="text-align: center;">2</p>
<p>1. Work Progress: From August 31 to September 7, 2009</p> <ol style="list-style-type: none"> 1. Continue the factory survey, input and analyze the results obtained 2. Input and analyze the results of waste management companies (WMC) survey 3. Finalize the analysis report of the construction waste survey 4. Finalize the analysis report of the radioactive waste survey 5. Preparation of IT/R (Interim Report) 6. Preparation of Workshop (1) 7. Attendance of National Conference of <u>Environmental Law and the Amazon Subject</u> <p style="text-align: center;">3</p>	<p>2. Schedule for this Week</p> <ol style="list-style-type: none"> 1. Continue the factory survey, input and analyze the results obtained 2. Preparation of industrial waste flows for each industry and waste category 3. Analyze the results of waste management companies (WMC) survey 4. Preparation of IT/R (Interim Report) 5. Hold Workshop (1) <p style="text-align: center;">4</p>
<p>3. Subjects to be Discussed</p> <ol style="list-style-type: none"> a. Procedure of Workshop (1) b. Workshop (1) objectives c. Draft lecture document for Session 1: Current Conditions and Issues on On-site IWM d. Draft lecture document for Session 2: Current Conditions and Issues on Off-site IWM <p style="text-align: center;">5</p>	<p>a. Procedure of Workshop (1)</p> <p><input type="checkbox"/> Workshop documents: The following presentations shall be delivered to the participants:</p> <ol style="list-style-type: none"> 1. Workshop objectives and procedure <= Draft is discussed today 2. Session 1 and 2 <= Draft is discussed today 3. Session 3 and 4 => When can we get? <p><input type="checkbox"/> Who will summarize the workshop (1)? => SUFRAMA, FIEAM, IPAAM</p> <p style="text-align: center;">6</p>
<p>Next Weekly Meeting</p> <p><input type="checkbox"/> Next Meeting will be 14 September 2009 (Monday) at 3:00 PM</p> <p style="text-align: center;">7</p>	

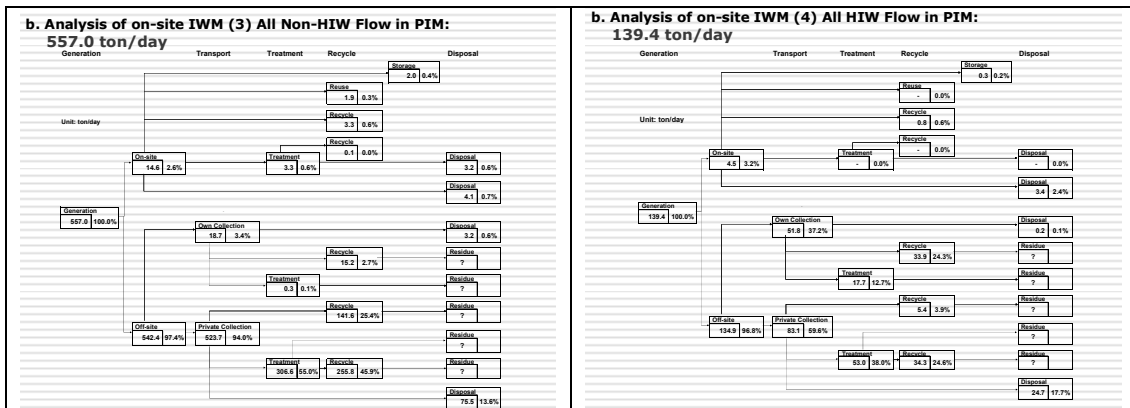
3.14.2 Minutes of Meeting for Weekly Meeting (14) on September 8, 2009

<p>Weekly Meeting (14) 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 08 September 2009 JICA Study Team Office in SUFRAMA</p> <p>Agenda</p> <ol style="list-style-type: none"> 1. Work progress 2. Schedule for this week 3. Subjects to be discussed <p>Attendees</p> <table border="0"> <tr> <td>1. Alexandre Kadozi</td> <td>Representative of FEAMOC/AMOCOR/AM</td> </tr> <tr> <td>2. Antonio Adami Simão</td> <td>Representative of IFAM</td> </tr> <tr> <td>3. Carlos H. Paula</td> <td>Representative of SEMULOP</td> </tr> <tr> <td>4. Ueslei Marques</td> <td>Representative of SAMA</td> </tr> <tr> <td>5. Tereza Yamaguchi</td> <td>Director of Yamaguchi Consultoria Ltda.</td> </tr> <tr> <td>6. Ricardo Pimenta</td> <td>Technician of CIPCA</td> </tr> <tr> <td>7. José Higueras</td> <td>Technician of CIPCA</td> </tr> <tr> <td>8. Raula Castro</td> <td>Technician of CIPCA</td> </tr> <tr> <td>9. 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Mr. Shiro NAKAMURA</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>23. Mr. Tetsuo TSUNOYAMA</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>24. Mr. Hiroko HAYASHI</td> <td>JICA Study Team Data Entry Support</td> </tr> <tr> <td>25. José de Almeida Mendes Feres</td> <td>Interpreter of JICA Study Team</td> </tr> </table> <p>Minutes_Jweekly_Meeting14.doc</p>	1. Alexandre Kadozi	Representative of FEAMOC/AMOCOR/AM	2. Antonio Adami Simão	Representative of IFAM	3. Carlos H. Paula	Representative of SEMULOP	4. Ueslei Marques	Representative of SAMA	5. Tereza Yamaguchi	Director of Yamaguchi Consultoria Ltda.	6. Ricardo Pimenta	Technician of CIPCA	7. José Higueras	Technician of CIPCA	8. Raula Castro	Technician of CIPCA	9. Isabella de Costa	Technician of CIPCA	10. Maria Graziela Brito	Foreign Trade General Coordinator (SUFRAMA)	11. Carlos Walter de Almeida	COLOG/SUFRAMA	12. David Lima	COLOG/SUFRAMA	13. João Brasil Filho	ODMO/SUFRAMA	14. André Pinheiro	ODMO/SUFRAMA	15. 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Preparation of the 1st Workshop of the Study, and 7. Participation in the "National Conference of Environmental Law and the Association (Assoc) - in 08/02/2009" in Tropical Hotel Manaus. <p>E. Schedule for this week</p> <ol style="list-style-type: none"> 1. Continue the factory survey and insert and analyze the obtained results. 2. Prepare the waste flows of industrial wastes for each type of industry and integrity of industrial/waste. 3. Analyze the results of the waste management companies survey. 4. Continue the preparation of the Innovation Report, and 5. Hold the 1st Workshop, on 08/11/2009. <p>B. Subjects to be discussed</p> <p>The following subjects were discussed at the Meeting:</p> <ol style="list-style-type: none"> a. Confirmation of the Minutes of the Weekly Meeting (14). See topics of the MWM (Minutes of the Weekly Meeting) (14) b. Procedures of the 1st Workshop. c. Objectives of the 1st Workshop. d. Drafts of the Session 1 lectures of the Workshop: Current Conditions and Issues of the on-site IAWI and e. Drafts of the Session 2 lectures of the Workshop: Current Conditions and Issues of the off-site IAWI. <p>a. Confirmation of the Minutes of the Weekly Meeting (13). See topics of the MWM (Minutes of the Weekly Meeting) (13)</p> <p>This content of the minutes of the prior Meeting made available in the attachments, both by e-mail and printed and handed in during the Meeting, may be amended/updated by e-mail or during the week.</p> <p>b. Procedures of the 1st Workshop</p> <p>The following activities, among others, will be in the Ministry to be finalized at the attendance of the Workshop (p-ings/notes provided by JICA Study Team):</p> <ol style="list-style-type: none"> 4. Complete schedule <p>Minutes_Jweekly_Meeting14.doc</p>
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<p>• Status of Session 1 lectures (On-site and Off-site Industrial Wastes Management) and Session 2 (PROSAMN Study and Management of Domestic and Health Visitors - LFAM); and</p> <p>• Newsletter of the progress of the Study until September 2009</p> <p>For all it is necessary to make this files available with the presentations of Session 2 (Workshop 2), once the ones in Session 1 are being elaborated by JICA Study Team itself.</p> <p>• Estimate for delivering the slides of LFAM presentation: 09/08/2009</p> <p>• Estimate for delivering the slides of PROSAMN presentation: 09/10/2009</p> <p>The final arrangements related to the organization of the 1st Workshop, as for the logistics supplied by SUFRAMA, registration of the guests and the fees, as well as the hotel selection, will be discussed at a meeting with the interested parties on 09/09/2009, at 10 am, in JICA Office in Suframa.</p> <p>Question: Who will summarize the Workshop (SUFRAMA, IFAM, IFAM, someone else)?</p> <p>Answer: The summary of the Workshop will be done by SUFRAMA (Mr. Graziela), which will also elaborate the written abstract of the event.</p> <p>c. Objectives of the 1st Workshop</p> <p>The main motivation of the 1st Workshop is to explain the objectives of the work and gather opinions in the sense of identifying the current scenario of the waste management in Manaus Industrial Pole, in order to map the problems which may cause difficulties for a better performance of such economic sector and thus contribute the improvement and optimization proposals to be included in the reactive Master Plan.</p> <p>d. Drafts of the Session 1 lectures of the Workshop: Current Conditions and Issues of the on-site IAWI</p> <p>During the Meeting, Mr. Simons presented the draft of the lecture concerning the topic. Many of the information have been presented at the Weekly Meetings, the differences is taking have been explained with charts. According to Mr. Kazumi, this first version is ok, but the following aspects should be adjusted:</p> <ul style="list-style-type: none"> • Decrease the quantity of information (because of the time (around 20 minutes)); • Make the English version easier to the Portuguese ones; • Approach the business opportunities which will occur during the implementation of the Master Plan, such as the reconstruction of the access exchange; <p>e. Drafts of the Session 2 lectures of the Workshop: Current Conditions and Issues of the off-site IAWI</p> <p>During the Meeting, Mr. Nakamura presented the draft of the lecture concerning the topic. According to Mr. Shiro, this first version is ok, but the following aspects should be adjusted:</p> <ul style="list-style-type: none"> • Decrease the quantity of information (because of the time (around 20 minutes)); • Make the English version easier to the Portuguese ones; • Compare the achievements of the IAWI and other operation (aircraft granted by IFAM) chair; <p>Minutes_Jweekly_Meeting14.doc</p>	<p>• Proposal to summarize the categorization of the waste management activities: collection and transport, reuse and recycling, treatment, and final disposal;</p> <p>• Definition of the categorization for the co-processing of industrial wastes: whether treatment (as in Japan) or final disposal (as in Brazil).</p> <p>Next Weekly Meeting</p> <p>The Next Meeting (15) will take place on 14 September 2009 (Monday), at 3 pm, in a venue to be defined inside SUFRAMA. This Meeting (14) finished at 5 pm.</p> <p>Minutes_Jweekly_Meeting14.doc</p>																																																		

3.15 Weekly Meeting (15)

3.15.1 Agenda for Weekly Meeting (15) on September 14, 2009

<p style="text-align: center;">Weekly Meeting (15)</p> <p style="text-align: center;">September 14, 2009 JICA Study Team 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>Agenda</p> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed <p style="text-align: right;">2</p>
<p>1. Work Progress: From September 8 to September 13, 2009</p> <ol style="list-style-type: none"> 1. Continue the factory survey, input and analyze the results obtained 2. Preparation of industrial waste flows for each industry and waste category 3. Analyze the results of waste management companies (WMC) survey 4. Preparation of IT/R (Interim Report) 5. Hold Workshop (1) <p style="text-align: right;">3</p>	<p>2. Schedule for this Week</p> <ol style="list-style-type: none"> 1. Continue the factory survey, input and analyze the results obtained 2. Preparation of industrial waste flows for each industry and waste category 3. Analyze the results of waste management companies (WMC) survey 4. Preparation of IT/R (Interim Report) 5. Mr. Shimura will leave on Sep. 17. 6. Mr. Suzuki, Mr. Nakamura and Mr. Sundstrom will leave on Sep. 18. <p style="text-align: right;">4</p>
<p>3. Subjects to be Discussed</p> <ol style="list-style-type: none"> a. Results of Workshop (1) b. Analysis of on-site industrial waste management c. Analysis of off-site industrial waste management d. Categorization of waste for database e. Categorization of WMCs for database <p style="text-align: right;">5</p>	<p>a. Results of Workshop (1)</p> <p><input type="checkbox"/> The following results of Workshop (1) will be reflected in the M/P formulation:</p> <ol style="list-style-type: none"> 1. Questions, comments and recommendations 2. Results of the group discussion <p style="text-align: right;">6</p>
<p>b. Analysis of on-site industrial waste management (IWM) (1)</p> <p style="text-align: right;">7</p>	<p>b. Analysis of on-site IWM (2) All IW Flow in PIM: 696.4 ton/day</p> <p>Unit: ton/day</p> <p>Generation: 696.4 (100.0%)</p> <p>On-site: 19.1 (2.7%)</p> <p>Off-site: 677.3 (97.3%)</p> <p>Private Collection: 886.8 (87.1%)</p> <p>Disposal: 100.3 (14.4%)</p> <p style="text-align: right;">8</p>



b. Analysis of on-site IWM (5): On-site IWM and Off-site IWM by Factory Survey (FS)

- PIM: Amount of on-site IWM is very small. No difference between Non-HIW and HIW.
- Bangkok: Amount of on-site IWM is very large. Big difference between Non-HIW and HIW. High cost of HIW disposal at off-site.

Area	Waste	On-site IWM	Off-site IWM
PIM	All IW	2.7%	97.3%
	Non-HIW	2.6%	97.4%
	HIW	3.2%	96.8%
Bangkok	Non-HIW	29.9%	70.1%
	HIW	56.3%	43.7% ¹¹

b. Analysis of on-site IWM (6): On-site IWM by FS

- PIM: No difference between Non-HIW and HIW.
- Bangkok: Big difference between Non-HIW and HIW. High cost of HIW disposal at off-site.

Area	Waste	Treatment	Reuse/ Recycling	Storage	Final Disposal
PIM	All IW	0.5%	0.9%	0.3%	1.6%
	Non-HIW	0.6%	0.9%	0.4%	0.7 (1.3*2)%
	HIW	0.0%	0.6%	0.2%	2.4%
Bangkok	Non-HIW	0.9%	13.1%	1.8%	14.1%
	HIW	32.8%	1.6%	0.4%	21.5%

b. Analysis of on-site IWM (7): Off-site IWM (Collection) by FS

- PIM: Considerable amount of IW is transported by factories for off-site treatment and recycling. Big difference between Non-HIW and HIW.
- Bangkok: Amount of factory transportation is nothing. Big difference between Non-HIW and HIW.

Area	Waste	Transportation by Factory		Collection by WMC	
		Rate	Ton/day	Rate	Ton/day
PIM	All IW	10.1%	70.5	87.1%	606.8
	Non-HIW	3.4%	18.7	94.0%	523.7
	HIW	37.2%	51.8	59.6%	83.1
Bangkok	Non-HIW	1.5%	95.8	68.6%	4,444.5
	HIW	0.1%	1.9	43.6%	665.4

b. Analysis of on-site IWM (8): On-site IWM by FS

- PIM: No difference between Non-HIW and HIW.
- Bangkok: Big difference between Non-HIW and HIW. High reuse/ recycle for non-HIW. High treatment for HIW. A few direct final disposal.

Area	Waste	Treatment		Reuse/ Recycle		Final Disposal	
		Rate	Ton/day	Rate	Ton/day	Rate	Ton/day
PIM	All IW	54.2%	377.6	28.2%	196.1	14.9%	103.4
	Non-HIW	55.1%	306.9	28.1%	156.8	14.2%	78.7
	HIW	50.7%	70.7	28.2%	39.3	17.8%	24.7
Bangkok	Non-HIW	2.5%	199.5	64.8%	4,198.8	2.8%	95.8
	HIW	28.9%	444.1	14.2%	216.1	0.6%	1.9

c. Analysis of off-site industrial waste management (IWM)

c. Analysis of off-site IWM (1): Business Field informed by WMCs

- WMCs with Environmental License (EL): 62
- WMCs without Environmental License: 23
- Business of 85 WMCs by their answer: 118

	Collection	Treatment	Final Disposal	Reuse/ Recycle	Total
With EL	38	8	9	38	93
Without EL	7	0	0	18	25
Total	45	8	9	56	118

**c. Analysis of off-site IWM (2):
Amount of Business**

- Amount of WBCs business by their answer:
 Almost all of IW are managed by licensed WMCs.

Type of Business	Waste	With EL	Without EL	Total
Collection	HIW	96	0	96
	Non-HIW	3,230	6	3,236
	Sub-total	3,326	6	3,332
Treatment	HIW	42	0	42
	Non-HIW	266	0	266
	Sub-total	308	0	308
Final Disposal	HIW	8	0	8
	Non-HIW	2,250	0	2,250
	Sub-total	2,258	0	2,258
Reuse/ Recycle	HIW	11	0	11
	Non-HIW	138	1	139
	Sub-total	149	2	151

**c. Analysis of off-site IWM (3):
Business Field checked by EL**

- Business fields (BF) written in EL and those informed by WMCs are quite different.
 Some WMCs may not have EL in IWM.

	Collection	Treatment	Final Disposal	Reuse/ Recycle	Not like WM Business *1	Total
BF informed	38	8	9	38	-	93
BF written in EL	23	24	0	17	4	68

1. Distribution and supply of water: 2WMCs, 2. Spray and cleaning with insecticide, 3. Retailer of wood products ¹⁸

**c. Analysis of off-site IWM (4):
Amount of Business after the check of EL**

- Amount of WBCs business by their answer

Type of Business	Waste	With EL	Without EL	Total
Collection	HIW	51	45	96
	Non-HIW	2,886	350	3,236
	Sub-total	2,937	395	3,332
Treatment	HIW	42	0	42
	Non-HIW	265	1	266
	Sub-total	307	1	308
Final Disposal	HIW	0	8	8
	Non-HIW	0	2,250	2,250
	Sub-total	0	2,258	2,258
Reuse/ Recycle	HIW	10	1	11
	Non-HIW	117	22	140
	Sub-total	127	23	151

c. Analysis of off-site IWM (5): Amount of collection informed by WMCs

- Large Scale WMCs with EL collect municipal waste from Manaus City.
 A large scale WMC without EL may collect IW.

Scale of WMC	Nos of Collection Company	HIW Collected	Non-HIW Collected	Total
Without License	20*1	44.7	350.3	395.0
1 less than 100ton/day	19	4.1	148.5	152.6
2 100 to 300 ton/day	1	40.6	201.8	242.4
With License	16*2	51.5	2,885.5	2,937.0
1 less than 100ton/day	11	26.5	150.9	177.4
2 100 to 300 ton/day	3	17.1	471.2	488.3
3 more than 300 ton/day	2	8.0	2,263.3	2,271.3
Grand Total	36	96.2	3,235.7	3332.0

**c. Analysis of off-site IWM (6):
Collection amount of Off-site and On-site survey**

- Excluding municipal solid waste (MSW) collection amount of 2 WBCs, collection amount of Off-site and On-site survey comes similar figure.

Waste	Collection Amount informed by Off-site	Collection Amount informed by On-site
1. Collection	3,332	NA
2. MSW Collection of 2 WMCs	2,263	NA
3. Industrial Waste	NA	696
4. Construction Waste	NA	37
5. Health Waste	NA	0.5
3+4+5	1,069	783.5

c. Analysis of off-site IWM (7): Business Fields (BF) informed by WMCs and Licensed BF

- It is very difficult issue to clearly define Treatment and Recycling Business.
 Business Fields (BF) informed by WMCs and Licensed BF checked by the Team differs.

Environmental License (EL)	Collection	Treatment	Final Disposal	Reuse/ Recycle	Total
1. Business Fields (BF) informed by WMCs	45	8	9	56	118
1.1 Without EL	7	0	0	18	25
1.2 With EL	38	8	9	38	93
2. Licensed BFs of 62 WMCs with EL	23	24	0	17	64

**c. Analysis of off-site IWM (8):
Treatment amount informed by WMCs**

- One WMC treats 90% of waste .

Scale (Treatment Amount)	Treatment WMCs	HIW	Non-HIW	Total
Without License	2	0.2	0.7	0.9
1 less than 100ton/day	2	0.2	0.7	0.9
With License	5	41.9	265.6	307.5
1 less than 100ton/day	4	1.3	29.0	30.3
2 100 to 300 ton/day	1	40.6	236.6	277.2
Grand Total	7	42.1	266.3	308.4

**c. Analysis of off-site IWM (9):
Treatment amount of Off-site and On-site survey**

- Off-site and on-site survey gives similar figure .

Waste	Treatment Amount informed by Off-site	Treatment Amount informed by On-site
1. Treatment Amount	308.4	377.6
2. Non-HIW	266.3	306.9
3. HIW	42.1	70.9

c. Analysis of off-site IWM (10):

Reuse/ Recycling amount informed by WMCs

- Reuse/ recycling amount of All WMCs are small, less 10ton/day except two WMCs .

Scale (Reuse/ Recycling Amount)	Reuse/ Recycling WMCs	HIW	Non-HIW	Total
Without License	32	10.3	22.2	32.5
1. less than 10ton/day	32	10.3	22.2	32.5
With License	13	0.8	117.7	118.5
1. less than 10ton/day	11	0.8	4.4	5.2
2. 10 to 50ton/day	1	0	46.7	46.7
3. more than 50ton/day	1	0	66.6	66.6
Grand Total	45	11.1	139.9	151.0

c. Analysis of off-site IWM (11):

Reuse/ Recycling amount of Off-site and On-site survey

- Non-HIW R/R amount of off-site and on-site survey gives similar figure but not for HIW R/R amount.
- The figure in the following table is total of treatment and R/R amount.

Waste	R/R Amount informed by Off-site	R/R Amount informed by On-site
1. Reuse/ Recycling (R/R) Amount	151.0 (459.4)	196.1 (573.7)
2. Non-HIW	139.9 (406.2)	156.8 (463.7)
3. HIW	11.1 (53.2)	39.3 (110.0)

c. Analysis of off-site IWM (12):

Final Disposal amount informed by WMCs

- Almost all of final disposal amount informed by WMCs are those of 2 companies which collect MSW of Manaus City.
- No IW informed by on-site survey is informed by the off-site (WMCs) survey.

Scale (Reuse/ Recycling Amount)	Reuse/ Recycling WMCs	HIW	Non-HIW	Total
Without License	6	8.0	2250.1	2258.1
1 less than 100ton/day	4	0.0	3.0	3.0
3 more than 300 ton/day	2	8.0	2247.0	2255.0
Grand Total	6	8.0	2250.1	2258.1

d. Categorization of waste for database

d. Categorization of waste for database (1)

- CONAMA Resolution 313 requires specified industries to report (using a waste inventory) on management conditions for industrial waste (IW) generated through industrial activity, including health, construction and radioactive waste.
- However, in JICA study wastes generated in a factory are categorized into the followings:
1. Health waste
 2. Construction waste
 3. Radioactive waste
 4. Industrial waste other than the above wastes
- For waste database shall use the above categorization

d. Categorization of waste for database (2): For Health waste

- We will modify our categorization below according to the new one, CONAMA 358.

Class	Type
Class A: Infectious waste	Type A.1 Biologic
	Type A.2 Blood and derivatives
	Type A.3 Surgical, anatomopatologic and exudates
	Type A.4 Piercing or cutting
	Type A.5 Contaminated animal
	Type A.6 Patient care
Class B: Special waste	Type B.1 Radioactive waste
	Type B.2 Pharmaceutical waste
	Type B.3 Hazardous chemical waste
Class C: Common waste	

d. Categorization of waste for database (3): For construction waste

- We will use our categorization for database.
- It can be classify the waste according to CONAMA Resolution 307 after information if necessary.

d. Categorization of waste for database (4): CONAMA 307 classification

Class	Description
Class A:	The reusable or recyclable waste as aggregates, such as: <ol style="list-style-type: none"> a) from construction, demolition, refitting and repair of pavement and other infrastructure constructions, including land preparation; b) from the construction, demolition refitting and repair of edifications: ceramic components (bricks, blocks, tiles, insulation planks, etc.), cement and concrete; c) from manufacturing and/or demolition process of concrete pre-modulated pieces (blocks, pipes, gutter, etc.) produced in the construction sites.
Class B	The recyclable waste for other purposes, such as: plastics, paper/carton, metals, glass, wood and others.
Class C	Waste which has no economically feasible technology or applications which may allow it to be recycled/recovered, such as the products arisen from plaster.
Class D	Hazardous waste arisen from construction process, such as paints, solvents, oils and so forth, or those contaminated or harmful to health arisen from demolitions, refitting and repairs of radiology clinics, industrial facilities and others, as well as tiles and other objects and materials containing asbestos or other products harmful to health. <i>(new text given by Resolution n. 348/02)</i>

**d. Categorization of waste for database (5):
Construction waste -Team code 44 -**

1. Excavated soil	12. Iron-bar, steel materials	23. Interior timber materials	34. Materials containing asbestos
2. Concrete debris	13. Small metal waste	24. Packing materials like cardboard for construction materials, etc.	35. Materials which asbestos sprayed
3. Asphalt debris	14. Old temporary scaffoldings and fences, etc.	25. Wall paper, etc.	36. Transformer
4. Brick debris	15. Natural rubber waste	26. Cloth and old rags	37. Condenser
5. Glass	16. Sludge, mud	27. Rope	38. Stabilizer for fluorescent light
6. Tile and ceramic materials	17. Plaster boards	28. Carpet, rug	39. Sulfuric acid (neutralizing discharged water)
7. Foam polystyrene	18. Packaging material which organic materials stick to.	29. Machine oil	40. Coolant for a freezer
8. Vinyl materials	19. Lead battery	30. Heavy oil	41. Volatile oil
9. Synthetic rubber	20. Wood debris of demolish waste	31. Asphalt	42. Kerosene
10. Used tires	21. Timber form for concreting	32. Waterproof sheet	43. Diesel oil
11. Plastic sheet, vinyl sheet	22. Scaffolding material	33. Ash of materials used for construction such as old rags, cardboards, timbers, etc.	44. Mixed waste

**d. Categorization of waste for database (6):
Industrial waste other than the above wastes**

We propose to use our waste categorization with CONAMA code.

Reasons:

1. Simple
2. Easy for summing up

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d. Categorization of waste for database (6): Non-HIW classification

Team Code	Conama Code	Team Code	Conama Code	Team Code	Conama Code
NH01	A001	NH08 NH09	A111	NH11 NH12 NH13	---
	A024		A004		A002
	A499		A005		A003
	A599		A011		A018
	A699		A012		A019
	A999		A013		A021
			A014		A022
			A015		A023
			A016		A026
			A104		A027
NH02	A009		A105	A028	
NH03	A006		A204	A029	
NH04	A007		A399	A099	
	A107		A017	A199	
	A108		A025	A308	
	A207		A117	A899	
NH05	A010	NH10			
NH06	---				
NH07	A008				
	A299				

**d. Categorization of waste for database (6):
HIW classification**

Team Code	Conama Code	Team Code	Conama Code	Team Code	Conama Code
HW01	D002	HW07	D003	HW10	D001
	D003		F105		D004
	K207		F001 F0301		D005 to D029
HW02	D002		F100		F103
	D003		P001 to P123		K203
			K001 to K209	HW11	D005 to D029
HW03	D002		K053		K081
	D003		K078		---
			K081	HW12	---
HW04	K193			HW13	---
	K194				---
	K195	HW08	D001	HW14	C001 to C009
	F103	HW09	D001		D001
	F001 F0301		K207		D004
	K001 to K209				F102
HW05	D005 to D029				F104
HW06	D005 to D029				D099
					U001 to U246

e. Categorization of WMCs for database

Proposal for classification of environmental license (EL) (1)

Environmental License	Purpose of activity	Example of waste management
Collection & Transportation	Collection, storage & transportation of wastes	Management of Non-HW C & T of HW
Treatment	Reduce of volume Make harmless (detoxification) Stabilization Resource recovery	Incineration Chemical treatment Solidification Composting WWT

C & T: Collection & Transportation, WWT: Wastewater Treatment

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Proposal for classification of environmental license (EL) (2)

Environmental License	Purpose of activity	Example of waste management
Final disposal	Final disposal of wastes	Landfill of wastes
Reuse/ Recycling	Resource recovery of wastes (Material recovery & Thermal recovery)	Recycling of recyclable materials Refining of waste oils Co-processing Utilization in furnace & boiler Intermediate scraps

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Next Weekly Meeting

Next Meeting will be 2nd November 2009 (Monday) at 3:00 PM

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3.15.2 Minutes of Meeting for Weekly Meeting (15) on September 14, 2009

Weekly Meeting (15) 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
14 September 2009
JICA Study Team Office in SUPRAMA

Agenda

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

Attendants

1. Assistant Kazuko	Representative of FILAMORUM COSEMAN
2. Marcos R. Paula	Representative of DEMLUP
3. Lindor Marques	Representative of ISAM
4. Jorge Corcor	Technical Manager of SEA Ltd.
5. Paulo Henrique Pinheiro	Technical Manager of OPCA
6. Cláudio Braga	Technical Manager of OPCA
7. Carlos Henrique Sotomaior	Fin. and Budget Exec. General Coordinator SUPRAMA
8. Adalberto Mourão	COORDINADOR
9. Carlos Gomes de Almeida	COORDINADOR
10. David Silva	COORDINADOR
11. Jon Izumi Filho	COORDINADOR
12. Rita de Cassia Viana	SADM SUPRAMA
13. Maria Ribeiro	DOGA SUPRAMA
14. Anamaria Barreto Jr.	Support to JICA in SUPRAMA
15. Monica Siqueira	Support to JICA in SUPRAMA
16. Dr. Susumu SHIMIZU	Team Leader of JICA Study Team
17. Dr. Tetsuoji SUZUKI	Member of JICA Study Team
18. Dr. Shoji TANAKAWA	Member of JICA Study Team
19. Dr. Shinya SUGIYAMA	Member of JICA Study Team
20. Dr. Kazuo ISHIGASHI	JICA Study Team Data Base Expert
21. José de Almeida Macedo Farias	Interpreter of JICA

Minutes & Agenda
Work Progress: From 09 to 13 September 2009

- Continue the factory survey and invent and analyze the obtained results.

Minutes of the Weekly Meeting (15) (09-14-2009)

- Preparation of the industrial wastes flow for each factory and category of industrial waste.
- Analysis of the waste management company survey results.
- Preparation of the Inception Report.
- 1st Workshop.

I. Schedule for this week

1. Continue the factory survey and invent and analyze the obtained results.
2. Preparation of the industrial wastes flow for each factory and category of industrial waste.
3. Invent and analyze the waste management company survey results.
4. Prepare the Inception Report.
5. Mr. Shimizu returns to Japan on 17 September.
6. Mr. Suga, Mr. Nakamura and Mr. Shinya Sugiyama return to Japan on 18 September. The consultants of JICA will return to Manaus in October.

II. Subjects to be discussed

The following subjects were discussed at the Meeting:

- a. Confirmation of the Minutes of the Weekly Meeting (15). See topics of the MWM (Minutes of the Weekly Meeting (15)).
- b. Result of the 1st Workshop.
- c. Analysis of the industrial wastes on-site management.
- d. Analysis of the municipal wastes off-site management.

A. Confirmation of the Minutes of the Weekly Meeting (15) See topics of the MWM (Minutes of the Weekly Meeting (15)).

The content of the prior meeting Minutes may be speedily updated by communicating sugiyama@kocor.com.br.

B. Result of the 1st Workshop

The 1st Workshop of JICA Study, on September 11, had invited 180 guests among representatives of the PIM (business, the academia and both governmental and non-governmental organizations). The following results of the 1st Workshop will reflect in the formulation of the Master Plan:

- Questions, concerns and recommendations of the attendees.
- Results of the group discussion.

C. Analysis of the industrial wastes on-site management

c. 1 All flows of industrial wastes in PIM (BWA facility)

Minutes of the Weekly Meeting (15) (09-14-2009)

c. 2 All flows of non-hazardous industrial wastes in PIM (S7-B facility)

c. 3 All flows of hazardous industrial wastes in PIM (S7-A facility)

Minutes of the Weekly Meeting (15) (09-14-2009)

c.4 Biomaterial wastes on-site and off-site management as per the factory survey

Figure c.4.1

Area	Waste	On-site BW	Off-site BW
PIM	HW (HW)	2.8%	97.2%
	Non-HW	2.0%	97.9%
	HW	3.2%	96.8%
Barragem	Non-HW	20.6%	79.1%
	HW	51.3%	48.7%

- PIM the on-site BW management amount is too small.
- Barragem (Barragem) the on-site BW management amount is quite appropriate.

Comments of JICA Study Team: The consultants of JICA were surprised with the current flow in PIM (only limited on-site management). In Japan we have a waste similar to the one found in Barragem, since the off-site management services are cooperative, not all the hazardous industrial wastes in Manaus. The possibility of disposing the wastes in the Municipal Landfill will be created and limited no control is an incentive for factories without any commitment towards environmental improvement to develop the current legislation and associate its points by the Public Power.

Minutes of the Weekly Meeting (15) (09-14-2009)

Comments of the interviewees in general: in PMM companies, everything was directly related to production units or its components such as security, transportation, force, personnel selection and training, not to mention other services. Each factory is responsible for the management of wastes.

c.5 On-site WMM as for the factory survey

Figure c.5.1

Area	Waste	Treatment	Reuse / Recycling	Storage	Final Disposal
PMM	W (all)	0.2%	0.7%	0.3%	1.5%
	Non-HW	0.4%	0.9%	0.4%	0.7%
	HW	0.0%	0.0%	0.2%	2.4%
Bangkok	Non-HW	0.3%	13.1%	1.0%	14.1%
	HW	10.0%	1.9%	0.4%	31.5%

- PMM: There is almost no difference between Non-HW and HW.
- Bangkok (Thailand): There is a huge difference between Non-HW and HW, mainly as for treatment and reusing/recycling.

Comments of JICA Study Team: In PMM, it was mentioned the facilities of the factories are usually small and tiny. The problem is the suburbs areas, where the industrial wastes are discharged. That is a serious public health issue, especially because some of them may become housing areas in the future.

c.5 On-site WMM as for the factory survey

Figure c.5.1

Area	Waste	Transported by the Factory		Collection by WMC	
		Fee	Tonnage	Fee	Tonnage
PMM	W (all)	10.1%	705	87.1%	306.8
	Non-HW	3.4%	10.7	94.0%	333.7
	HW	37.2%	31.0	39.0%	33.1
Bangkok	Non-HW	1.9%	35.8	90.0%	4,444.5

Source of the Survey (Bangkok): 2014-2016

HW	0.1%	1.0	43.0%	600.4
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- PMM: A considerable amount of HW is transported by the factories for off-site treatment and recycling. There is a huge difference between Non-HW and HW.
- Bangkok (Thailand): There is particularly no transportation by the factories. There is a huge difference between Non-HW and HW.

The quantity of Non-HW collected by the WMC in Bangkok is seven times the amount collected by the waste management companies in Manaus. This coincidence in a single activity is due to the fact that factories do not hold in the local transportation system. The amount of the Missing suggested information on the factories almost compensates the own transportation rate and the collection by the WMC is presented, what will be done in another phase of the Study.

Figure c.5.2

Area	Waste	Treatment		Reuse/Recycling		Final Disposal	
		Fee	Tonnage	Fee	Tonnage	Fee	Tonnage
PMM	W (all)	34.2%	277.8	19.2%	186.1	14.8%	123.4
	Non-HW	55.1%	306.9	34.1%	156.4	14.2%	76.7
	HW	30.7%	10.7	38.2%	39.3	17.9%	34.7
Bangkok	Non-HW	2.0%	139.5	64.8%	4,199.8	2.6%	35.8
	HW	28.0%	444.1	14.2%	216.1	0.0%	1.3

- PMM: There is no difference between Non-HW and HW (all processes) have a higher focus on treatment.
- Bangkok (Thailand): Huge difference between Non-HW and HW. Priority of reusing/recycling of Non-HW (Reuse) is HW (treatment). Small final disposal.

Comments of JICA Study Team: The low final disposal fees in Bangkok are similar to those seen in Japan, where it is almost 0%.

Figure c.5.3 - Factory survey carried out in Bangkok

Surveyed Companies	Total of generated wastes
200 (located out of 30,000)	Non-HW: 2,354,750 tonnes HW: 547,468,000 tonnes

Source: JICA Study Team

d. Analysis of the industrial waste (off-site management)

Source of the Survey (Bangkok): 2014-2016

d.1 Business units informed by the WMC

- WMC with Environmental Licenses: 32
- WMC without Environmental Licenses: 23
- Business of the 55 companies WMC: 115

Figure d.1.1

Business	Collection	Treatment	Reuse/Recycling	Final Disposal		Total
				Fee	Tonnage	
With EL	36	5	36	0	0	81
Without EL	7	0	18	0	0	25
Total	43	5	54	0	0	110

EL = Environmental Licenses

d.2 Business amount of the WMC

- The information presented below refers to the respondent WMC (June 2008 to May 2009).
- Almost all HW are managed by WMC with an Environmental License.

Figure d.2.1

Type of Business	Waste	With EL	Without EL	Total
Collection	HW	86	0	86
	Non-HW	3,220	8	3,228
	Sub-total	3,306	8	3,314
Treatment	HW	42	0	42
	Non-HW	360	0	360
	Sub-total	402	0	402
Reuse/Recycling	HW	11	0	11
	Non-HW	138	1	139
	Sub-total	149	1	150
Final Disposal	HW	0	0	0
	Non-HW	2,250	0	2,250
	Sub-total	2,250	0	2,250

d.3 Business units per EL

- The businesses described in the EL and those informed by the WMC are very different.

Source of the Survey (Bangkok): 2014-2016

- Some WMC may not have EL by HW.

Figure d.3.1

Businesses	Collection	Treatment	Reuse/Recycling	Final Disposal	Difference from WMC EL	Total
Businesses informed by the WMC	36	5	36	0	—	81
Businesses described in the EL	23	34	17	0	-4	80

EL = Environmental Licenses; WMC = Waste Management Company; HW = Hazardous Waste; Non-HW = Non-Hazardous Waste; Sub-total = Sub-total

d.4 Businesses of the WMC after verification of the EL

Figure d.4.1

Businesses	Waste	With EL		Without EL		Total
		Fee	Tonnage	Fee	Tonnage	
Collection	HW	51	45	0	0	96
	Non-HW	7,696	350	0	0	8,046
	Sub-total	7,747	395	0	0	8,142
Treatment	HW	42	0	0	0	42
	Non-HW	285	1	0	0	286
	Sub-total	327	1	0	0	328
Reuse/Recycling	HW	10	1	0	0	11
	Non-HW	117	22	0	0	139
	Sub-total	127	23	0	0	150
Final Disposal	HW	0	0	0	0	0
	Non-HW	0	22	0	0	22
	Sub-total	0	22	0	0	22

Observation: The amount informed in the questionnaires are from

d.5 Collection amount informed by the WMC

- There are two large local WMC with EL for the collection of municipal solid waste (MSW) in the city of Manaus. Comment: These two WMC, Tupper and Integra, control around 1.6 kg of Non-HW per person in the capital of the State of Amazonas.

Source of the Survey (Bangkok): 2014-2016

* A large scale WMC without EL, theoretically, may collect MW in PM.
 Comment: This is in fact a recurring issue, under other variables. For example, CETRAM, whose license directed by the Study Team is for treatment of MW, also carries out incineration using the license of C. T. R., company which according to some of the attendees of the Meeting, was purchased by CETRAM. Nevertheless, none of them have an environmental license, not even for collection. Anyway, this identity of licenses is a worrying matter, as a new configuration will be proposed for the Environmental Licenses, even in order to justify the Data Base with a better fundamentality.

Figure 6.8.1

Collection Amounts (ton/day)	Collection Companies	HW Collected	Non-HW Collected	Total
Without License	20 (7)	44.7	280.3	325.0
1. Less than 100 ton/day	19	4.1	245.8	249.9
2. 100 to 300 ton/day	1	40.6	201.8	242.4
With License	10 (2)	43.5	2,306.5	2,350.0
1. Less than 100 ton/day	11	28.5	190.9	219.4
2. 100 to 300 ton/day	3	17.3	471.3	488.6
3. Over 300 ton/day	2	8.0	2,263.3	2,271.3
Grand Total	30	98.2	2,236.7	2,334.9

6.8 On-site and off-site collection amount as per the WMC survey
 * Extending the amount of MW collected, the off-site and on-site Collection amounts of the survey supply companies.

Figure 6.8.1

Wastes (ton/day)	On-site Collected Amount	Off-site Collected Amount
1. Collection	NS	3,332
2. Collection of MSW by 2 WMC	NS	2,350
3. Industrial Waste	NS	10
4. Construction Waste	37	NS
5. Health Waste	0.5	NS
Total	37.5 (3 - 4 - 5)	5,692 (1 - 2)

NS = Not Assessed
 0.5 = on average

6.7 Business Waste Informant by the WMC and Informant Businesses
 (Managers of the Survey Group) (11/11/2009)

* It is very hard to clearly define the Treatment & Recycling businesses.
 * The businesses informed by the WMC and the licensed businesses verified by the Study Team are different.

Figure 6.7.1

Environmental License	Collection	Treatment	Material Recycling	Final Disposal	Total
1. Businesses informed by the WMC	45	8	50	0	118
1.1 Without EL	7	0	18	0	25
1.2 With EL	38	8	32	0	83
2. Licensed businesses of the 62 WMC with EL	23	34	17	0	74

Future challenges: How can we define and classify the companies?

6.8 Treatment businesses as informed by the WMC
 * Only one WMC - CETRAM - treats around 90 % of the MW.
 Comments of JICA Study Team: Nevertheless, two large scale WMC which treat wastes do not answer that question, since compressed the results. They are Amazon My (kayuhit, recycled asphalt mixing and mortar) and Manaus Limpa (descontamin).

Figure 6.8.1

Treated Amount (ton/day)	Treatment WMC	HW	Non-HW	Total
Without License	3	3.1	0.7	3.8
1. Less than 100 ton/day	3	0.2	1.7	2.0
With License	5	41.3	280.6	321.9
1. Less than 100 ton/day	4	1.3	70.0	71.3
2. 100 to 300 ton/day	1	40.0	210.6	250.6
Grand Total	7	44.4	281.3	325.7

Comments of the attendees: Maybe joint representation of those two companies about the 1st (Without lic) may be one of the antecedents and relevance of the Study and decide to collaborate with the results by providing as well new stored wastes amount.

6.9 On-site and off-site treatment amount as per the WMC survey
 * The on-site and off-site surveys provided similar results.

Figure 6.8.1

Final Disposal Amount (ton/day)	Final Disposal WMC	HW	Non-HW	Total
Without License	0	0.0	2,258.1	2,258.1
1. Less than 100 ton/day	4	0.0	3.0	3.0
2. Over 100 ton/day	2	6.0	2,255.1	2,261.1
Grand Total	6	6.0	2,261.1	2,267.1

Note:
 * CETRAM did not inform its discharge amount in the questionnaire of the WMC.
 * We do not have companies licensed for such activity in PM today.

6. Categorization of the wastes for the Data Base

6.1 Overview
 * Resolution 313/2002 of CONAMA demands the specific industries to build a report on waste origin - using a waste inventory - about the management conditions of IW generated by the industrial activity, including health, construction and radioactive wastes.
 * Nevertheless, in the present Study of JICA, the wastes generated in a factory are categorized as follows:
 1. Health wastes;
 2. Construction wastes;
 3. Radioactive wastes - shared with DENEM and
 4. Other industrial pollutants above.

* The entire Data Base arisen from the Study will follow the referenced categorization.

6.2 Categorization for the health wastes
 Our categorization for the health wastes to be used in the Data Base will follow the Resolution 304/2004 - ANVISA and 306/2005 - CONAMA, besides the ABNT/NBR 128-2008.

Figure 6.2.1 - Resolution 306 of CONAMA

Classes	Types
Class A: Infectious wastes	Type A.1 Etiologic
	Type A.2 Blood and derivatives
	Type A.3 Surgical, anatomical, pathological and education
	Type A.4 Plastering or casting
	Type A.5 Contaminated animal
	Type A.6 Patient care

Managers of the Survey Group (11) (11/11/2009)

6.10 Reuse/Recycling amounts informed by the WMC
 * The Reuse/Recycling amount of all WMC is small (less than 10 ton/day), except by the companies.

Figure 6.10.1

Reuse/Recycling Amount (ton/day)	Reuse/Recycling WMC	HW	Non-HW	Total
Without License	37	10.3	22.2	32.5
1. Less than 10 ton/day	33	10.3	22.2	32.5
With License	13	0.5	11.7	12.2
1. Less than 10 ton/day	11	0.5	4.4	5.2
2. 10 to 30 ton/day	1	0	16.7	16.7
3. Over 30 ton/day	1	0	15.6	15.6
Grand Total	50	10.8	33.9	44.7

6.11 On-site and off-site Reuse/Recycling amount informed by the WMC
 * The on-site and off-site Reuse/Recycling survey provided similar data. Still, it is different for the amount of HW.
 * The figures of the table below indicate the Reuse/Recycling (RW) amounts and the cost of treated industrial wastes (in us dollars).

Figure 6.11.1

Wastes	On-site RW Amounts	Off-site RW Amounts
1. HW Amounts	106.1 (57.7)	151.0 (80.4)
2. Non-HW	138.6 (403.7)	130.5 (406.2)
3. HW	26.3 (110.0)	11.7 (53.2)

Observation: The off-site inventory and inventory. Further details will be revealed along the Study.

6.12 Final Disposal amount informed by the WMC
 * Almost all Final Disposal amounts informed by the WMC correspond to the two companies which collect MSW in Manaus.
 * The data which could not be obtained in the RW on-site survey were included in the off-site survey.

Figure 6.12.1

Managers of the Survey Group (11) (11/11/2009)

6.13 On-site and off-site treatment amount as per the WMC survey
 * The on-site and off-site surveys provided similar results.

Figure 6.8.1

Final Disposal Amount (ton/day)	Final Disposal WMC	HW	Non-HW	Total
Without License	0	0.0	2,258.1	2,258.1
1. Less than 100 ton/day	4	0.0	3.0	3.0
2. Over 100 ton/day	2	6.0	2,255.1	2,261.1
Grand Total	6	6.0	2,261.1	2,267.1

Note:
 * CETRAM did not inform its discharge amount in the questionnaire of the WMC.
 * We do not have companies licensed for such activity in PM today.

6. Categorization of the wastes for the Data Base

6.1 Overview
 * Resolution 313/2002 of CONAMA demands the specific industries to build a report on waste origin - using a waste inventory - about the management conditions of IW generated by the industrial activity, including health, construction and radioactive wastes.
 * Nevertheless, in the present Study of JICA, the wastes generated in a factory are categorized as follows:
 1. Health wastes;
 2. Construction wastes;
 3. Radioactive wastes - shared with DENEM and
 4. Other industrial pollutants above.

* The entire Data Base arisen from the Study will follow the referenced categorization.

6.2 Categorization for the health wastes
 Our categorization for the health wastes to be used in the Data Base will follow the Resolution 304/2004 - ANVISA and 306/2005 - CONAMA, besides the ABNT/NBR 128-2008.

Figure 6.2.1 - Resolution 306 of CONAMA

Classes	Types
Class A: Infectious wastes	Type A.1 Etiologic
	Type A.2 Blood and derivatives
	Type A.3 Surgical, anatomical, pathological and education
	Type A.4 Plastering or casting
	Type A.5 Contaminated animal
	Type A.6 Patient care

Managers of the Survey Group (11) (11/11/2009)

Class B Special waste	Type B.1 Radiactive waste
	Type B.2 Pharmaceutical waste
	Type B.3 Hazardous chemical waste

Class C: Common waste

#3 Categorization for the construction wastes
Our categorization for the construction wastes will follow the classification of Resolution 2007/2002 - CONAMA.

Figure e.3.1 - Resolution 2007/2002 of CONAMA

Classes	Description
Class A	The residual or residue waste (if aggregated, such as): a) From construction, demolition, fitting and repair of government and other administrative constructions, including land preparation; b) From the construction, demolition, fitting and repair of infrastructure systems components (roads, streets, dikes, irrigation plants, etc.), cement and concrete; c) From manufacturing and/or demolition process of concrete pre-molded pieces (blocks, precast gables, etc.) produced in the construction sites;
Class B	The recyclable waste for other purposes, such as: paper, newspaper, metals, glass, wood and others;
Class C	Waste which has no economically feasible technology or applications which may allow it to be recycled/recovered, such as the products arisen from plastics;
Class D	Hazardous waste arisen from construction projects, such as paints, solvents, oils and fat, or those contaminated or harmful to health arisen from demolitions, fitting and repair of radiology cables, industrial facilities and others, as well as tires and other objects and materials containing asbestos or other products harmful to health (as listed in Resolution 3-18/03).

Note:
* In class B, a part of the residual waste are aggregate;
* Around 80% of the construction wastes (if the refuse of Class A, what makes the functionality of the waste become questionable. Furthermore, a single category (code) concentrates a large quantity of wastes, what makes an accurate classification of the wastes a tremendous task difficult.

Figure e.3.2 - Code 44 Group (Waste of CONAMA)

1: Explosives	12: Iron, steel, steel products	23: Spent lead material	34: Spent batteries, accumulators
7: Contaminated soils	14: Other metals (copper, aluminum)	24: Spent lead acid battery	35: Asbestos and other heat insulators

Model of the Weekly Meeting (15)-09-14-2009

1. Asbestos waste	14. Oil and petroleum residues, fuel oil	23. Spent paper and others	34. Tyre/cables
4. Dry lime	15. Solvent-based resins	24. Spill and leaks	35. Cement
5. Glass	16. Sludge, mud	25. Slips	36. Fluorescent lamps (ballasts)
9. Tire and ceramic materials	17. Plastic waste	26. Carcass, rags	37. Sulfur acid (oxidized waste-water)
11. Polymers	18. Grease packages of organic materials	27. Mechanics	40. Inorganic acids
8. Non-metals	19. Lead battery	28. Irony oil	41. Volatile oil
10. Synthetic fibers	20. Wood debris	29. Asphalt	42. Acrylics
13. Used steel	21. Concrete and mortar slabs	30. Painted sheets	43. Glass (if)
11. Plastic and vinyl sheets	22. Scaffolding material	31. Types of asbestos used for construction (GRI) OR OR CODE combination (lead and others)	44. Mixed wastes

#4 Categorization for not mentioned industrial wastes
* JICA Study Team proposes the use of its categorization (used in the works of Bangkok), with it a comprehensive review of the waste delivery in Resolution 253/2002 of CONAMA, aiming to make the identification simpler and the amounts easier to be accounted.

Figure e.4.1 - Classification of the Non-HW

JICA Code	CONAMA Code	JICA Code	CONAMA Code	JICA Code	CONAMA Code
A001	A01	001	011	A001	A01
A002	A02	002	021	A002	A02
A003	A03	003	031	A003	A03
A004	A04	004	041	A004	A04
A005	A05	005	051	A005	A05
A006	A06	006	061	A006	A06
A007	A07	007	071	A007	A07
A008	A08	008	081	A008	A08
A009	A09	009	091	A009	A09
A010	A10	010	101	A010	A10
A011	A11	011	111	A011	A11
A012	A12	012	121	A012	A12
A013	A13	013	131	A013	A13
A014	A14	014	141	A014	A14
A015	A15	015	151	A015	A15
A016	A16	016	161	A016	A16
A017	A17	017	171	A017	A17
A018	A18	018	181	A018	A18
A019	A19	019	191	A019	A19
A020	A20	020	201	A020	A20
A021	A21	021	211	A021	A21
A022	A22	022	221	A022	A22
A023	A23	023	231	A023	A23
A024	A24	024	241	A024	A24
A025	A25	025	251	A025	A25
A026	A26	026	261	A026	A26
A027	A27	027	271	A027	A27
A028	A28	028	281	A028	A28
A029	A29	029	291	A029	A29
A030	A30	030	301	A030	A30
A031	A31	031	311	A031	A31
A032	A32	032	321	A032	A32
A033	A33	033	331	A033	A33
A034	A34	034	341	A034	A34
A035	A35	035	351	A035	A35
A036	A36	036	361	A036	A36
A037	A37	037	371	A037	A37
A038	A38	038	381	A038	A38
A039	A39	039	391	A039	A39
A040	A40	040	401	A040	A40
A041	A41	041	411	A041	A41
A042	A42	042	421	A042	A42
A043	A43	043	431	A043	A43
A044	A44	044	441	A044	A44
A045	A45	045	451	A045	A45
A046	A46	046	461	A046	A46
A047	A47	047	471	A047	A47
A048	A48	048	481	A048	A48
A049	A49	049	491	A049	A49
A050	A50	050	501	A050	A50
A051	A51	051	511	A051	A51
A052	A52	052	521	A052	A52
A053	A53	053	531	A053	A53
A054	A54	054	541	A054	A54
A055	A55	055	551	A055	A55
A056	A56	056	561	A056	A56
A057	A57	057	571	A057	A57
A058	A58	058	581	A058	A58
A059	A59	059	591	A059	A59
A060	A60	060	601	A060	A60
A061	A61	061	611	A061	A61
A062	A62	062	621	A062	A62
A063	A63	063	631	A063	A63
A064	A64	064	641	A064	A64
A065	A65	065	651	A065	A65
A066	A66	066	661	A066	A66
A067	A67	067	671	A067	A67
A068	A68	068	681	A068	A68
A069	A69	069	691	A069	A69
A070	A70	070	701	A070	A70
A071	A71	071	711	A071	A71
A072	A72	072	721	A072	A72
A073	A73	073	731	A073	A73
A074	A74	074	741	A074	A74
A075	A75	075	751	A075	A75
A076	A76	076	761	A076	A76
A077	A77	077	771	A077	A77
A078	A78	078	781	A078	A78
A079	A79	079	791	A079	A79
A080	A80	080	801	A080	A80
A081	A81	081	811	A081	A81
A082	A82	082	821	A082	A82
A083	A83	083	831	A083	A83
A084	A84	084	841	A084	A84
A085	A85	085	851	A085	A85
A086	A86	086	861	A086	A86
A087	A87	087	871	A087	A87
A088	A88	088	881	A088	A88
A089	A89	089	891	A089	A89
A090	A90	090	901	A090	A90
A091	A91	091	911	A091	A91
A092	A92	092	921	A092	A92
A093	A93	093	931	A093	A93
A094	A94	094	941	A094	A94
A095	A95	095	951	A095	A95
A096	A96	096	961	A096	A96
A097	A97	097	971	A097	A97
A098	A98	098	981	A098	A98
A099	A99	099	991	A099	A99
A100	A100	100	101	A100	A100

Model of the Weekly Meeting (15)-09-14-2009

HW1	HW2	HW3	HW4	HW5
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#1: Hazardous waste
#2: Toxic or highly flammable
#3: Toxic or highly corrosive
#4: Air pollution control residue

Comment of JICA Study Team: In Brazil we can notice an inventory of waste categories based on the types as in the United States, what makes the attention of the flow and amounts difficult, while in Japan there are only 20 categories set by law (based on the components). We expect in the future there may be a categorization of wastes as listed based on the Japanese model. A list with the descriptions of all codes - JICA and CONAMA - was delivered to the attendees.

5. Categorization of the WMC for the Data Base

5.1 Classification Proposal of the Environmental License (based on Resolution 315 of CONAMA)

Figure e.4.4

Environmental License	Business	Waste Management Subtype
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Model of the Weekly Meeting (15)-09-14-2009

Collection & Transport	Collection, storage and transport of wastes	C & T of Non-HW C & T of HW
Treatment	Volume reduction Stabilization Solidification Recovery	Intermittent Chemical treatment Solidification Composting TI
Reuse/Recycling	Recovery of metals (Metallic recovery) and (Plastic recovery)	Recovery of recyclable materials Recovery of used oil Co-processing Use as furnace and boiler intermediate wastes
Final Disposal	Final disposal of wastes	Landfill

#1: Collection and transport
#2: Treatment of wastes
#3: Recovery of waste resources
#4: Reuse of a resource beyond Brazilian

Observation: In the next meetings we will discuss treatment and recycling/infrastructure.

Next Weekly Meeting

The next Meeting (16) will take place on November 3 2009 (Tuesday), at 2 pm, in a venue to be defined through SURNAME. The Meeting (16) involves all 6 pm.

Model of the Weekly Meeting (15)-09-14-2009

3.16 Weekly Meeting (16)

3.16.1 Agenda for Weekly Meeting (16) on November 3, 2009

<p style="text-align: center;">Weekly Meeting (16)</p> <p style="text-align: center;">November 3, 2009 JICA Study Team 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>Agenda</p> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed <p style="text-align: right;">2</p>
<p>1. Work Progress: From September 14 to November 2, 2009</p> <ol style="list-style-type: none"> 1. Continue the factory survey, input and analyze the results obtained 2. Review of industrial waste flows for each industry and waste category 3. Analyze the results of waste management companies (WMC) survey 4. Preparation and explanation of IT/R (Interim Report) 5. Preparation of workshop (2) <p style="text-align: right;">3</p>	<p>2. Schedule for this Week</p> <ol style="list-style-type: none"> 1. Analyze the results of the factory survey for 187 factories. 2. Review of industrial waste flows for each industry and waste category. 3. Analyze the results of waste management companies (WMC) survey for 90 companies. 4. Submission and discussion of IT/R (Interim Report) 5. Preparation of workshop (2) 6. Formulation of a concept of master plan <p style="text-align: right;">4</p>
<p>3. Subjects to be Discussed</p> <ol style="list-style-type: none"> a. Minutes of meeting (M/M) for the IT/R b. Main works and schedule of Phase 2 study c. Program of workshop (2) d. Training in Japan <p style="text-align: right;">5</p>	<p>a. Minutes of meeting (M/M) for the IT/R</p> <ul style="list-style-type: none"> <input type="checkbox"/> 10 Copies of IT/R will submit SUFRAMA on November 6, i.e. Summary and Main report of English and Portuguese. <input type="checkbox"/> JICA headquarters requests to have a M/M on the IT/R. <input type="checkbox"/> The M/M will have the following contents: <ol style="list-style-type: none"> 1. Reports received 2. Comments on the IT/R <input type="checkbox"/> When and who will sign the M/M? <p style="text-align: right;">6</p>
<p>b. Main works and schedule of Phase 2 study (1)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Main works of Phase 2 study from November to December: <ol style="list-style-type: none"> 1. Formulation of a concept of master plan 2. Formulation of a draft practical guideline for waste dischargers and administrators 3. Development of database for generation sources and waste management companies. How about waste exchange? 4. Workshop (2) <p style="text-align: right;">7</p>	<p>b. Main works and schedule of Phase 2 study (2)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Assignment schedule of the JICA Study Team members: <ol style="list-style-type: none"> 1. Mr. Kina: From October 23 to November 18 2. Mr. Shimura/ Mr. Suzuki : From October 30 to December 3 3. Mr. Sawachi (replacer of Mr. Nakamura) : From November 13 to December 3 4. Mr. Haddad: : From November 5 to November 14 and from November 25 to December 3 5. Mr. Sundstrom: : From November 10 to December 3 6. Mr. Ishibashi: From November 4 to December 3 <p style="text-align: right;">8</p>

<p>c. Program of workshop (2)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Date: From 14:00 to 18:30 PM on November 27 <input type="checkbox"/> Venue: Comfort Hotel <input type="checkbox"/> Participants: <input type="checkbox"/> Proposed program is as follows: <table border="1"> <thead> <tr> <th>Content</th> <th>Presenter</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1. Opening speech</td> <td></td> <td>15 min</td> </tr> <tr> <td>2. Workshop objectives and overview</td> <td>C/P</td> <td>15 min</td> </tr> <tr> <td>3. Industrial waste management in Japan: Eco-town concept, Zero emission, etc.</td> <td>Study Team / C/P</td> <td>1 hour</td> </tr> <tr> <td>4. Concept of Industrial Waste Management M/P</td> <td>C/P</td> <td>0.5 hrs</td> </tr> <tr> <td>5. Question & Answer</td> <td>C/P, Participants</td> <td>0.5 hrs</td> </tr> <tr> <td>Break</td> <td></td> <td>15 min</td> </tr> <tr> <td>4. Workshop: Concept of Industrial Waste Management M/P</td> <td>Participants</td> <td>1 hour</td> </tr> <tr> <td>5. Group presentations</td> <td>Participants</td> <td>15 min</td> </tr> <tr> <td>6. Summary and closing remarks</td> <td>C/P, Study Team</td> <td>30 min</td> </tr> </tbody> </table>	Content	Presenter	Time	1. Opening speech		15 min	2. Workshop objectives and overview	C/P	15 min	3. Industrial waste management in Japan: Eco-town concept, Zero emission, etc.	Study Team / C/P	1 hour	4. Concept of Industrial Waste Management M/P	C/P	0.5 hrs	5. Question & Answer	C/P, Participants	0.5 hrs	Break		15 min	4. Workshop: Concept of Industrial Waste Management M/P	Participants	1 hour	5. Group presentations	Participants	15 min	6. Summary and closing remarks	C/P, Study Team	30 min	<p>d. Training in Japan</p> <ul style="list-style-type: none"> <input type="checkbox"/> Period: From January 23 to February 11 <input type="checkbox"/> Place: Tokyo, Himeji, Osaka, Nagoya, etc. <input type="checkbox"/> Facilities: Incinerators for industrial and medical wastes, recycling system of cement factories, landfills, etc.
Content	Presenter	Time																													
1. Opening speech		15 min																													
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5. Group presentations	Participants	15 min																													
6. Summary and closing remarks	C/P, Study Team	30 min																													
<p>Next Weekly Meeting</p> <ul style="list-style-type: none"> <input type="checkbox"/> Next Meeting will be 9th November 2009 (Monday) at 3:00 PM 	<p style="text-align: right;">10</p>																														
<p>11</p>																															

3.16.2 Minutes of Meeting for Weekly Meeting (16) on November 3, 2009


<p>Weekly Meeting (16) For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</p> <p>18:00pm-18:00pm 03 November, 2009 JICA Study Team Office in SUPRAMA</p> <p>Agenda</p> <ol style="list-style-type: none"> 1. Work progress 2. Schedule for this week 3. Subjects to be discussed <p>Attendees</p> <table border="0"> <tr> <td>1. Takashi Kubota</td> <td>Representative of VILAMCO (MANCORKAN)</td> </tr> <tr> <td>2. Antonio Alamy Stouki</td> <td>Representative of IPAMA</td> </tr> <tr> <td>3. Maria da Socorro Monteiro</td> <td>Representative of SEMMAS</td> </tr> <tr> <td>4. Paulo Ricardo Farias</td> <td>Technical Manager of OFCA</td> </tr> <tr> <td>5. Jorge Goncalves</td> <td>Technical Manager of SDA LULA</td> </tr> <tr> <td>6. David Paiva</td> <td>SEA Ltda</td> </tr> <tr> <td>7. Andre Gomes</td> <td>SEA Ltda</td> </tr> <tr> <td>8. Anita Rocha</td> <td>Analyst of ERIDER</td> </tr> <tr> <td>9. Maria Guacima Balala</td> <td>Foreign Trade Control Coordinator/SUPRAMA</td> </tr> <tr> <td>10. Kelly Costa</td> <td>ODDER/SUPRAMA</td> </tr> <tr> <td>11. Arnaldo Oliveira Fiala</td> <td>ODDER/SUPRAMA</td> </tr> <tr> <td>12. Carlos Berra de Almeida</td> <td>ODDER/SUPRAMA</td> </tr> <tr> <td>13. Carlos Barbosa Farias</td> <td>ODDER/SUPRAMA</td> </tr> <tr> <td>14. David Reis</td> <td>ODDER/SUPRAMA</td> </tr> <tr> <td>15. Ton Basso Filho</td> <td>ODDER/SUPRAMA</td> </tr> <tr> <td>16. Wilson Rondon Viro</td> <td>SADDER/SUPRAMA</td> </tr> <tr> <td>17. Rita de Cassia Mendes</td> <td>SADDER/SUPRAMA</td> </tr> <tr> <td>18. Arnaldo Soares Jr</td> <td>Support to JICA in SUPRAMA</td> </tr> <tr> <td>19. Marcelo Barros</td> <td>Support to JICA in SUPRAMA</td> </tr> <tr> <td>20. Dr. Naomasa SHIMURA</td> <td>Team Leader of JICA Study Team</td> </tr> <tr> <td>21. Sr. Yumiko FUJIKI</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>22. Sr. Masaharu KISHI</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>23. Jairo de Aguiar Miguel Furtado</td> <td>Interpreter of JICA</td> </tr> </table>	1. Takashi Kubota	Representative of VILAMCO (MANCORKAN)	2. Antonio Alamy Stouki	Representative of IPAMA	3. Maria da Socorro Monteiro	Representative of SEMMAS	4. Paulo Ricardo Farias	Technical Manager of OFCA	5. Jorge Goncalves	Technical Manager of SDA LULA	6. David Paiva	SEA Ltda	7. Andre Gomes	SEA Ltda	8. Anita Rocha	Analyst of ERIDER	9. Maria Guacima Balala	Foreign Trade Control Coordinator/SUPRAMA	10. Kelly Costa	ODDER/SUPRAMA	11. Arnaldo Oliveira Fiala	ODDER/SUPRAMA	12. Carlos Berra de Almeida	ODDER/SUPRAMA	13. Carlos Barbosa Farias	ODDER/SUPRAMA	14. David Reis	ODDER/SUPRAMA	15. Ton Basso Filho	ODDER/SUPRAMA	16. Wilson Rondon Viro	SADDER/SUPRAMA	17. Rita de Cassia Mendes	SADDER/SUPRAMA	18. Arnaldo Soares Jr	Support to JICA in SUPRAMA	19. Marcelo Barros	Support to JICA in SUPRAMA	20. Dr. Naomasa SHIMURA	Team Leader of JICA Study Team	21. Sr. Yumiko FUJIKI	Member of JICA Study Team	22. Sr. Masaharu KISHI	Member of JICA Study Team	23. Jairo de Aguiar Miguel Furtado	Interpreter of JICA	<p>Minutes & Agenda</p> <p>Work Progress: From 14 September to 02 November, 2009</p> <ol style="list-style-type: none"> 1. Continue the factory survey and event and analyze the obtained results. 2. Review of the industrial wastes flow by category of industries and wastes. 3. Analysis of the waste management companies survey results. 4. Preparation of the expansion of the Interim Report (IR), and 5. Preparation of the 2nd Workshop of the Study, to be held on 11/27/2009. <p>II. Schedule for this week:</p> <ol style="list-style-type: none"> 1. Analyze the results of the factory survey of the 167 factories listed by SEA Ltda. in M^o Sersal (154994000) 2. Continue the review of the industrial wastes flow by category of industries and wastes. 3. Analyze the results of the 95 ESAC's survey (last by OFCA to Mr. David Paiva, SEA Ltda. 89 factories, 36. Kishio estimate will be in charge of IR). 4. Prepare and discuss the Interim Report (IR). 5. Continue the preparation of the 2nd Workshop of the Study, and 6. Formulation of a concept for the Master Plan. <p>III. Subjects to be discussed:</p> <p>The following subjects were discussed at the Meeting:</p> <ol style="list-style-type: none"> a. Confirmation of the Minutes of the Weekly Meeting (15). See Notice of the 15th MWM (Minutes of the Weekly Meeting (15)). b. Minutes of the Weekly Meeting (MWM) for the Interim Report (IR). c. Main activities and programs of the Phase 2 of the Study. d. Schedule for the 2nd Workshop of the Study and e. Training in Japan. <p>A. Confirmation of the Minutes of the Weekly Meeting (16). See topics of the MWM (Minutes of the Weekly Meeting (16)).</p> <p>The content of the Minutes concerning the prior meeting, made available in the attachments both by e-mail and in hard copy, handed in during the Meeting, may be disseminated via communication by e-mail to the Support of JICA in SUPRAMA up to Next Weekly Meeting (17/16).</p>
1. Takashi Kubota	Representative of VILAMCO (MANCORKAN)																																														
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3.17 Weekly Meeting (17)

3.17.1 Agenda for Weekly Meeting (17) on September 10, 2009

<p style="text-align: center;">Weekly Meeting (17)</p> <p style="text-align: center;">November 10, 2009 JICA Study Team 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>Agenda</p> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed <p style="text-align: right;">2</p>
<p>1. Work Progress: From November 3 to November 9, 2009</p> <ol style="list-style-type: none"> 1. Analyze the results of the factory survey for 187 factories. 2. Review of industrial waste flows for each industry and waste category. 3. Analyze the results of waste management companies (WMC) survey for 90 companies. 4. Submission and discussion of IT/R (Interim Report) 5. Preparation of workshop (2) 6. Formulation of a concept of master plan <p style="text-align: right;">3</p>	<p>2. Schedule for this Week</p> <ol style="list-style-type: none"> 1. Analyze the results of the factory survey for 187 factories. 2. Review of industrial waste flows for each industry and waste category. 3. Analyze the results of waste management companies (WMC) survey for 90 companies. 4. Submission and discussion of IT/R (Interim Report) 5. Preparation of workshop (2) 6. Formulation of a concept of master plan <p style="text-align: right;">4</p>
<p>3. Subjects to be Discussed</p> <ol style="list-style-type: none"> a. Minutes of meeting (M/M) for the IT/R b. Composition of the Master Plan (M/P) c. Needs of licensed final disposal sites d. Program of workshop (2) e. Construction of waste management database f. Proposed Schedule of Training in Japan <p style="text-align: right;">5</p>	<p>a. Minutes of meeting (M/M) for the IT/R</p> <ul style="list-style-type: none"> <input type="checkbox"/> 10 Copies of IT/R will submit SUFRAMA, i.e. Summary and Main report of English and Portuguese. <input type="checkbox"/> Most of the content of IT/R is explained, discussed and agreed in the previous weekly meetings (WMs). <input type="checkbox"/> The IT/R is not final one. So that many modifications are required. It will be made as a draft final report to be submitted in March 2010. <input type="checkbox"/> JICA headquarters requests to sign the M/M on the IT/R. <input type="checkbox"/> The M/M will have the following contents: <ol style="list-style-type: none"> 1. Reports received 2. Comments on the IT/R <p style="text-align: right;">6</p>
<p>b. Composition of the Master Plan (M/P) (1)</p> <ul style="list-style-type: none"> <input type="checkbox"/> The M/P aims to establish: <ol style="list-style-type: none"> 1. Proper "on-site" management, treatment and disposal for industrial wastes (i.e. at factories, etc.). 2. An appropriate "off-site" disposal system for industrial wastes. 3. A public administrative structure to promote, direct, oversee and regulate points 1 and 2 above. <p style="text-align: right;">7</p>	<p>b. Composition of the Master Plan (M/P) (2)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Based on discussion with Brazilian stakeholders, there is no notion that a public institution would prepare an industrial waste management (collection, treatment, recycling and disposal) facility. <input type="checkbox"/> Thus the M/P will concentrate on establishing a public administrative structure that will manage the proper treatment of wastes by generators and private management contractors. <p style="text-align: right;">8</p>

<p>b. Composition of the Master Plan (M/P) (3)</p> <p>The composition of the M/P will be:</p> <ol style="list-style-type: none"> 1. Establishment of appropriate “on-site” management, treatment and disposal of industrial waste <ul style="list-style-type: none"> <input type="checkbox"/> Understanding the actual conditions of proper waste management <input type="checkbox"/> Establishment of “on-site” waste management 2. Establishment of system for appropriate “off-site” industrial waste management (collection, treatment, recycling and disposal) <ul style="list-style-type: none"> <input type="checkbox"/> Understanding the actual conditions of proper off-site waste management <input type="checkbox"/> Implantation of off-site treatment and disposal facility <input type="checkbox"/> Adjustment of reuse and recycle system, and vitalization of reuse and recycle industry <p style="text-align: right;">9</p>	<p>b. Composition of the Master Plan (M/P) (4)</p> <p>The composition of the M/P will be:</p> <ol style="list-style-type: none"> 1. Establishment of a public administrative structure <ul style="list-style-type: none"> <input type="checkbox"/> Improvement of the data management system <input type="checkbox"/> Improvement of the licensing system <input type="checkbox"/> Improvement of the manifest system <input type="checkbox"/> Strengthening collaboration between stakeholders <input type="checkbox"/> Technical Capacity development <input type="checkbox"/> Citizen participation <p style="text-align: right;">10</p>																																	
<p>c. Needs of licensed final disposal sites (1)</p> <p>Current Issues</p> <ol style="list-style-type: none"> 1. No licensed final disposal site in MFZ. 2. A proper final disposal site necessary for IWM. 3. ISO 14000 requires a proper final destination, i.e. a final disposal site. <p>Alternatives</p> <p>Alternative 1: Construction of a new landfill with environmental license (EL)</p> <p>Alternative 2: Use of the existing landfills (Manaus City Landfill and CETRAM Landfill) with the conditions of improvement of them.</p>	<p>c. Needs of licensed final disposal sites (2)</p> <p><input type="checkbox"/> The Team recommends the Alt. 2 due to the following reasons:</p> <ol style="list-style-type: none"> 1. Construction of a new disposal site will need more than 5 years for site selection, study, EIA, public hearing, etc. 2. Officially PIM factory needs to ask a final disposal of its waste in the other states, especially ISO 14000 factory. 3. In reality two landfills will be operated without OL and IPAAM will be allowing their illegal operations. <p style="text-align: right;">12</p>																																	
<p>c. Needs of licensed final disposal sites (3): Question</p> <p>For Manaus City Landfill:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The reasons why an operation license (OL) is not given? <input type="checkbox"/> What kind of measures should be taken by Manaus City for OL? <p>For CETRAM Landfill:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The reasons why an operation license (OL) is not given? <input type="checkbox"/> What kind of measures should be taken by CETRAM for OL? <p style="text-align: right;">13</p>	<p>c. Needs of licensed final disposal sites (4): Team’s Understanding</p> <ul style="list-style-type: none"> <input type="checkbox"/> CETRAM has a knowhow and money for proper operation of its landfill <input type="checkbox"/> The reasons of insufficient investment and operation (?) of CETRAM: <ol style="list-style-type: none"> 1. Almost free disposal of City landfill, the only one competitor 2. Very low price of waste disposal including incineration due to use of insufficient facilities like almost scraped incinerators and mixing with construction materials. 3. Lack of enforcement by IPAAM 4. Current waste management business in MFZ do not allow proper IW management by WMCs due to high competition and low prices. <p style="text-align: right;">14</p>																																	
<p>c. Needs of licensed final disposal sites (5): Improving measures</p> <ul style="list-style-type: none"> <input type="checkbox"/> SUFRAMA/IPAAM should inform the generators that proper disposal is their responsibility. <input type="checkbox"/> Generator/SUFRAMA/IPAAM should instruct WMCs of proper disposal. <input type="checkbox"/> IPAAM should instruct Manaus city to charge on IW disposal for proper final disposal operation and not to accept Class I (Hazardous) waste. <input type="checkbox"/> IPAAM should strengthen its monitoring activity and enforcement to WMCs. <input type="checkbox"/> IPAAM should establish a Waste Manifest System (WMS) in order to find out what the final destination of IW is. <p style="text-align: right;">15</p>	<p>d. Program of workshop (2)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Introduction and establishment of WMS is one of the most important issues of M/P. So that Team likes to include it. <input type="checkbox"/> Proposed program is as follows: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Content</th> <th>Presenter</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1. Opening speech</td> <td></td> <td>15 min</td> </tr> <tr> <td>2. Workshop objectives and overview</td> <td>C/P</td> <td>15 min</td> </tr> <tr> <td>3. Industrial waste management in Japan: Eco-town concept, Zero emission, etc.</td> <td>Study Team / C/P</td> <td>45 min</td> </tr> <tr> <td>4. Concept of Industrial Waste Management M/P</td> <td>C/P</td> <td>0.5 hrs</td> </tr> <tr> <td>5. Establishment of WMS in Rio de Janeiro</td> <td>Officer of INEA</td> <td>0.5 hrs</td> </tr> <tr> <td>6. Question & Answer</td> <td>C/P, Participants</td> <td>0.5 hrs</td> </tr> <tr> <td>Break</td> <td></td> <td>15 min</td> </tr> <tr> <td>7. Workshop: Concept of Industrial Waste Management M/P</td> <td>Participants</td> <td>45 min</td> </tr> <tr> <td>8. Group presentations</td> <td>Participants</td> <td>15 min</td> </tr> <tr> <td>9. Summary and closing remarks</td> <td>C/P, Study Team</td> <td>30 min</td> </tr> </tbody> </table>	Content	Presenter	Time	1. Opening speech		15 min	2. Workshop objectives and overview	C/P	15 min	3. Industrial waste management in Japan: Eco-town concept, Zero emission, etc.	Study Team / C/P	45 min	4. Concept of Industrial Waste Management M/P	C/P	0.5 hrs	5. Establishment of WMS in Rio de Janeiro	Officer of INEA	0.5 hrs	6. Question & Answer	C/P, Participants	0.5 hrs	Break		15 min	7. Workshop: Concept of Industrial Waste Management M/P	Participants	45 min	8. Group presentations	Participants	15 min	9. Summary and closing remarks	C/P, Study Team	30 min
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<p>e. Development of waste management databases (1)</p> <ul style="list-style-type: none"> <input type="checkbox"/> The Team will develop the following databases: <ol style="list-style-type: none"> 1. Waste inventory (on-site waste management) database of factories in PIM. 2. WMCs (off-site waste management) database for factories in PIM. <input type="checkbox"/> However, we will not develop Waste Exchange database. <input type="checkbox"/> Both databases shall be based on the on-line management. <p style="text-align: right;">17</p>	<p>e. Development of waste management databases (2)</p> <p>For waste inventory database</p> <ol style="list-style-type: none"> 1. SUFRAMA shall manage it. 2. What section will manage it in SUFRAMA? 3. With whom we shall discuss the details of the database to be developed? <p>For WMCs database</p> <ol style="list-style-type: none"> 1. IPAAM shall manage it. 2. What section will manage it in IPAAM? 3. With whom we shall discuss the details of the database to be developed? <p style="text-align: right;">18</p>
<p>d. Proposed Schedule of Training in Japan</p>  <p style="text-align: right;">19</p>	<p>Next Weekly Meeting</p> <ul style="list-style-type: none"> <input type="checkbox"/> Next Meeting will be 16th November 2009 (Monday) at 3:00 PM <p style="text-align: right;">20</p>

3.17.2 Minutes of Meeting for Weekly Meeting (17) on September 10, 2009

<p style="text-align: center;">Weekly Meeting (17) 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;">16:00pm - 18:00pm 10 November, 2009 Training Room 4 in Annex 1 of SUFRAMA</p> <p>Agenda</p> <ol style="list-style-type: none"> 1. Work program 2. Schedule for this week 3. Subjects to be discussed <p>Attendees</p> <table border="0"> <tr> <td>1. Antonio Sabino Ziboni</td> <td>Representative of IPAAM</td> </tr> <tr> <td>2. Jairo Ganga</td> <td>Representative of UGRUP/SEAMA</td> </tr> <tr> <td>3. Mateo da Soledade Miranda</td> <td>Representative of SEMANE</td> </tr> <tr> <td>4. Diógenes R. Paula</td> <td>Representative of SEMAESP</td> </tr> <tr> <td>5. Denis Pires</td> <td>Technician of SEA Ltda.</td> </tr> <tr> <td>6. Ricardo Pinheiro</td> <td>Technician of DNCA</td> </tr> <tr> <td>7. Laila Regalado</td> <td>Technician of DNCA</td> </tr> <tr> <td>8. 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Continue the preparation of the 2nd Workshop of the Study, which will take place on 11/10/2009 and 6. Formulation of a proposal for the Master Plan. <p style="text-align: center;">II. Schedule for this week</p> <ol style="list-style-type: none"> 1. Continue the analysis of the results of the factory survey of the 187 factories. 2. Continue the 18000-0106's research results flow by category of industries and wastes. 3. Continue the analysis of the results of the 90 EMAC's survey. 4. Continue the presentation and discussion of the Interim Report (ITR). 5. Continue the preparation of the 2nd Workshop of the Study, and 6. Continue the formulation of a proposal for the Master Plan. <p style="text-align: center;">III. Subjects to be discussed</p> <p>The following subjects were discussed at the Meeting:</p> <ol style="list-style-type: none"> 4. Confirmation of the Minutes of the Weekly Meeting (16). 5. Confirmation of the Minutes of the Meeting (MM) about the interim Report (ITR). 6. 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<p>d. Needs for increased landfills in the area of the Study.</p> <p>e. Schedule of the 2nd Workshop of the Study.</p> <p>f. Construction of the wastes management Data Base and</p> <p>g. Proposal for the Training Schedule in Japan.</p> <p>3. Confirmation of the Minutes of the Weekly Meeting (16)</p> <p>The content of the report concerning the prior meeting, made available to the attendees both by e-mail and in hard copy handed in at the Meeting, may be amended/modified by e-mail to JICA Support Team at SUPRAM@amazonia.gov.br or to the next Weekly Meeting (on 11/10).</p> <p>4. Confirmation of the Minutes of the Meeting (15M) about the Interim Report (TR)</p> <ul style="list-style-type: none"> 10 copies of the TR will be submitted to SUPRAM along the Meeting Summary and Main Report, both in Portuguese and English. Most part of the content of the TR was explained, discussed and agreed during the past Weekly Meeting. The TR is not the final version. So, minor modifications will be necessary. Only its draft is being sent to be presented in March 2010. JICA will sign the Interim Report Presentation Meeting Minutes together with the representatives of the entities of the Technical Consultant Sub-Committee. The Minutes of the Meeting has the following content: <ul style="list-style-type: none"> Delivery of the Summary and Main Report. Comments on the TR. <p>Note: The attendees received by e-mail the file of Chapter 7 - "Profile of the Study Area" of the Main Report, whose amendment may be requested and/or amended up to 12/08 when the consultants of JICA will return to Japan. Any comment on that matter should be sent to the e-mail of JICA's Support Team at SUPRAM@amazonia.gov.br or manaus.ewm@chama.com.br.</p> <p>5. Composition of the Master Plan (MP)</p> <p>The MP aims for establishing:</p> <ol style="list-style-type: none"> 1. An adequate on-site management of industrial wastes (including all the treatment and disposal). 2. An adequate industrial waste off-site management. 3. Public administrative structure to promote, manage, monitor and regulate the ecosystemic efforts. <ul style="list-style-type: none"> Based on the discussions with the Courtyard, it was not informed whether a public institution would build an industrial waste management plant comprising collection, treatment, recycling and disposal. <p>Issues in the weekly meeting (17) 11/10/09</p>	<p>4. That way, the MP will focus on selecting a public-administrative structure which will provide the adequate treatment of wastes to be carried out by the generators and third private waste management companies.</p> <p>The objectives of the MP will include:</p> <ol style="list-style-type: none"> 1. Establishment of an adequate industrial waste off-site management (in the factories), concerning the treatment and disposal. <ul style="list-style-type: none"> - Understanding the current on-site management conditions. - Establishment of the adequate on-site management of wastes. 2. The establishment of an adequate industrial waste off-site system concerning the collection, treatment, recycling and disposal. <ul style="list-style-type: none"> - Understanding the current off-site management conditions. - Implementation of an off-site treatment and disposal plant. - Improvement of the reuse and recycling system and institutions of the ecosystemic recovery. 3. Creation of a public-administrative structure. <ul style="list-style-type: none"> - Improvement of the environmental data management system. - Improvement of the environmental licensing system. - Improvement of the environmental monitoring system. - Strengthening of the cooperation among the Companies. - Development of the local technical capability. - Popular participation. <p>5. Needs for increased landfills in the area of the Study.</p> <p>Current status:</p> <ol style="list-style-type: none"> 1. There are no licensed landfills in MP/AMZ area. 2. It is necessary to have a licensed landfill for the intended MW to be implemented. 3. ISO 14000 demands a final destination for wastes, i.e., a waste landfill. <p>Alternatives for MP/AMZ:</p> <ol style="list-style-type: none"> 1. Construction of a new landfill with environmental license. 2. Use the existing landfills (Municipal and CETRAM) provided their disposal permit is improved. <p>Comment: The intentions of building new landfills in MP/AMZ have been rejected so far. It is claimed they are in appropriate area and the paperwork would take some time, not to mention the high construction of that type landfill.</p> <p>JICA Study Team recommends alternative 2, for the following reasons:</p> <p>Issues in the weekly meeting (17) 11/10/09</p>
<p>4. The construction of a new landfill later than five years is to be finished (mandatory phases: selection of the area, EIA/RMA, public hearings, etc.).</p> <p>Note: Up to 2015, when the agreement between the Governments of Brazil and Japan occurs, there will not be enough time for the construction of a new landfill in Japan that would take over 10 years. Since available land for final disposal sites is very limited and having the use of landfill is extremely expensive (about 300 US\$/ton) in that country, most of the wastes were incinerated.</p> <p>5. Clarify the behavior of MP must require the final disposal of these wastes in other states, mainly those which have ISO 14000 Certification.</p> <p>Note: In general, the factories of MP worry about the final disposal of their industrial wastes. Nevertheless, many of them do not make the necessary investment for an adequate disposal under the Environmental Legislation.</p> <p>6. The fact is both landfills (Municipal and CETRAM) will be working with no Operation License - OL, and MP/AMZ has been allowing such illegal operations.</p> <p>Questions:</p> <p>About the Municipal Landfill</p> <ul style="list-style-type: none"> Why cannot it be granted an OL? What measures Manaus City had made have to take in order to gain the OL? <p>Answer: There is no concrete proposal up to now for the construction of a new municipal landfill.</p> <p>About the landfill of CETRAM</p> <ul style="list-style-type: none"> Why cannot it be granted an OL? What measures CETRAM would have to take in order to gain the OL? <p>Answer: There is an ongoing proposal for the construction of a new private landfill in highway BR-174 (not necessarily belonging to CETRAM).</p> <p>Comments of the attendees: In the whole State of Amazonas, there are 02 landfills, but none of them have got an OL. And such reality is not, and for that reason it is not fit to blame the current management of IPAM for such problem. Neither the Municipal Landfill nor the landfill of CETRAM will ever be licensed, once they do not fulfil the requirements of the Environmental Legislation; they are both considered illegal dumping sites and are located within Preservation Areas. Furthermore, the landfill of Manaus city presents other problems: it does not follow the minimum allowed distance from the airport, it is full of refuse, it is located in an archeological site and is located close to housing areas. As for the CETRAM landfill the project was granted a license to incinerate wastes in a certain area of Dique II (New/White landfill area located in the country market working as an industrial/waste landfill, completely against the law).</p> <p>Issues in the weekly meeting (17) 11/10/09</p>	<p>One can also notice a huge accumulation in relation to the Municipal Landfill, which started operating in 1986. The City MP spends money to maintain it but it is not compensated for that, once it charges fees very close to zero. Because it has no license, such situation cannot be modified just like.</p> <p>Issue raised during the Meeting:</p> <p>IPAM allows the existing landfills, where will the wastes go to around 2,500 tons of wastes a day?</p> <p>Comments of the attendees: For most of the attendees the solution would be to continue using the existing landfills but to look for other options for the final disposal of IW, provided a local landfill is built until 2015, a legal one this time. It was also mentioned the possibility of selecting an area of the illegal landfills (Manaus city landfill and CETRAM landfill) to be used by the foreigners until the problem of the operation licensing is solved. Such procedure does not solve the substantially regarding the non-licensed landfills, because not even this temporary solution is the best one, since other areas are needed for the disposal of the IW of MP/AMZ.</p> <p>Understanding of JICA Study Team:</p> <p>CETRAM has knowledge and ability to properly operate its landfill, but it did not make sufficient investments and operations due to high competition and low waste management price.</p> <p>Symptoms:</p> <ol style="list-style-type: none"> 1. Strictly against the Environmental Legislation, as already mentioned. 2. Entry fee paid for the waste disposal, including transportation, due to the use of recycled glass, and green-colored incinerators being used and the mix with construction materials. <p>Reasons:</p> <ol style="list-style-type: none"> 1. Almost free disposal in the Municipal Landfill, the city's alternative. 2. Lack of surveillance by IPAM and Manaus City Hall. <p>Conclusions:</p> <p>The waste management in MP/AMZ does not allow an adequate IW management by the WAC. The granted licenses are too general (they do not determine what can be done or not) and the market has a low level of competition and low prices, but low quality services.</p> <p>Improvement Measures Suggestive:</p> <ul style="list-style-type: none"> - SUPRAM and IPAM should make it very clear that the generators are responsible for the adequate disposal. - The generators, SUPRAM and IPAM should contact the WAC to fix the adequate disposal. - IPAM should pressure Manaus City Hall in the sense of demanding final disposal licenses for the IW and not to accept the disposal of Cincos waste (landfills). - IPAM should strengthen its monitoring and restrictive activities concerning the WAC. <p>Issues in the weekly meeting (17) 11/10/09</p>

<p>• It should consider a Waste Monitor System (WMS) to monitor the final destination of the IW.</p> <p>Comments of the attendees: Emergency situations such as the necessity of using landfills, given the illegal crisis, due to the lack of other options, tend to be solved by means of a Tender to acquire the Concessions - TAC administered by the Public Ministry, something which, in practice, means the concession of a temporary license for the operation within a definite deadline is sought, what takes time to be implemented. In this case the TAC was issued in 2006, without validity expired in August 2008. As its objectives were not reached, the mentioned entities have since then been trying to postpone the deadline for the actions foreseen by the aforementioned instrument.</p> <p>Some years ago CETRAM was granted a Provisional Permit, an Engineer and Architectural Plans and an Installation License to set up an incineration plant and auxiliary facilities. Nevertheless, as mentioned before, without the approval of the Government, the company started operating also as an illegal landfill. The problem of CETRAM is considered as a case with no solution, best is to forget about it and look for another alternative if it is not possible to determine whether it has received or not Class 1 IW (P4409964).</p> <p>According to Mr. Stovani, the environmental licensing of enterprises such as landfills requires plenty of paperwork and technical information which are hard to be gathered (SPE entry). The officials of IPAM have faced many problems, such as lack of personnel and logistic and occasional resources. However, IPAM has tried to work in the scope of emphasizing with the generators the necessity to minimize the amounts of IW to be disposed. The issue of the environmental control surveillance should be solved after the implementation of the Data Bases of the Study.</p> <p>According to Mr. Haidari, there is a revitalization and even a mobilization in the WMC market – landfills nearby, but only under an adequate management – if it is necessary to have a better integration between IPAM (as for the environmental regulation – technical aspects of the issue) and SURRAMA (as for the economic regulation – social aspect). The City Hall should follow that process from the distance.</p> <p>Note: The discussion on the issue of the landfills could not meet the representative of FIANC/REABE/COGIBAM. Because of many doubts, it was requested the representatives of JICA should present other suggestions at the next Meeting.</p> <p>iv. Schedule of the 2nd Workshop of the Study</p> <p>• On the construction and establishment of the Waste Monitor System (WMS) as one of the main ongoing areas of the MP, the Study Team of JICA desires to include the topic in the schedule of the 2nd Workshop.</p> <p>4. So, what is the new schedule of the event?</p> <table border="1"> <thead> <tr> <th>Session</th> <th>Time</th> <th>Schedule</th> <th>Lecturer</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>14:00-14:15</td> <td>Opening</td> <td>To be defined</td> </tr> <tr> <td>2</td> <td>14:15-14:30</td> <td>Checklist and overview of the Study</td> <td>Technical personnel</td> </tr> </tbody> </table> <p>Issued in the Weekly Meeting (17) 11/02/2019</p>	Session	Time	Schedule	Lecturer	1	14:00-14:15	Opening	To be defined	2	14:15-14:30	Checklist and overview of the Study	Technical personnel	<table border="1"> <thead> <tr> <th>No.</th> <th>Time</th> <th>Topic</th> <th>Participant</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>14:30-15:15</td> <td>Solid Waste Management in Japan - concept of eco-town, zero emission, etc.</td> <td>Study Team</td> </tr> <tr> <td>4</td> <td>15:15-15:45</td> <td>Industrial Waste Management Concept and Master Plan</td> <td>Technical personnel</td> </tr> <tr> <td>5</td> <td>15:45-16:15</td> <td>Establishment of the WMS in the State of Rio de Janeiro</td> <td>JICA - Environmental National Institute</td> </tr> <tr> <td>6</td> <td>16:15-16:45</td> <td>Q & A</td> <td>Technical personnel and Study Team</td> </tr> <tr> <td>7</td> <td>16:45-17:00</td> <td>Coffee break</td> <td>All</td> </tr> <tr> <td>8</td> <td>18:00-17:45</td> <td>Industrial Waste Management Concept and Master Plan (Workshop)</td> <td>Attendants</td> </tr> <tr> <td>9</td> <td>17:45-18:00</td> <td>Group Presentation (2)</td> <td>Attendants</td> </tr> <tr> <td>10</td> <td>18:00-18:30</td> <td>Summary and Closing</td> <td>Technical personnel and Study Team</td> </tr> </tbody> </table> <p>1. Construction of the Data Base for waste management. JICA Team will develop the following Data Bases: 1. Waste inventory (greater on-site management of MP factories) 2. Waste on-site management by the WMC (for MP factories)</p> <p>Both Data Bases will be based in the on-line management. The Team will develop a DB in Systems Exchange.</p> <p>Questions: About the Waste Inventory DB 1. Which department of SURRAMA will manage it? Answer: There will be a specific department in COLOGSAC, it will be managed by one of the personnel attending the training in Japan. 2. Who should be discuss the details of the DB with? Answer: With the technicians of COHAF/COGSAF who attend to the Weekly Meetings.</p> <p>About the DB of the WMC 1. Which department of IPAM will manage it? Answer: The Environmental Monitoring Management, under the responsibility of Ms. Franciska Rodrigues Pontes 2. Who should discuss the details of the DB with? Answer: To be defined.</p> <p>3. Schedule for the Training in Japan</p> <p>Issued in the Weekly Meeting (17) 11/02/2019</p>	No.	Time	Topic	Participant	3	14:30-15:15	Solid Waste Management in Japan - concept of eco-town, zero emission, etc.	Study Team	4	15:15-15:45	Industrial Waste Management Concept and Master Plan	Technical personnel	5	15:45-16:15	Establishment of the WMS in the State of Rio de Janeiro	JICA - Environmental National Institute	6	16:15-16:45	Q & A	Technical personnel and Study Team	7	16:45-17:00	Coffee break	All	8	18:00-17:45	Industrial Waste Management Concept and Master Plan (Workshop)	Attendants	9	17:45-18:00	Group Presentation (2)	Attendants	10	18:00-18:30	Summary and Closing	Technical personnel and Study Team
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<p>Copies of the schedule have been handed in to the attendees in case there are suggestions/comments, please communicate it to JICA by email.</p> <p style="text-align: center;">Next Weekly Meeting</p> <p>Next Meeting (18) will take place on 18 November, 2009 (Monday), at 3 pm, in a virtual to be confirmed, in the facilities of SURRAMA. This Meeting (17) finished at 08:30 pm.</p> <p>Issued in the Weekly Meeting (17) 11/02/2019</p>																																																	

3.18 Weekly Meeting (18)

3.18.1 Agenda for Weekly Meeting (18) on November 16, 2009

<p style="text-align: center;">Weekly Meeting (18)</p> <p style="text-align: center;">November 16, 2009</p> <p style="text-align: center;">JICA Study Team</p> <p style="text-align: center;">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;">Agenda</p> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed <p style="text-align: right;">2</p>
<p>1. Work Progress: From November 10 to November 15, 2009</p> <ol style="list-style-type: none"> 1. Analyze the results of the factory survey for 187 factories. 2. Review of industrial waste flows for each industry and waste category. 3. Analyze the results of waste management companies (WMC) survey for 90 companies. 4. Submission and discussion of IT/R (Interim Report) 5. Preparation of workshop (2) 6. Formulation of a concept of master plan 7. Meeting with the prosecutor of Public Ministry (No. 50th Justice Prosecutor of PRODEMPH: Environment and Historic Property Prosecuting Office) <p style="text-align: right;">3</p>	<p>2. Schedule for this Week</p> <ol style="list-style-type: none"> 1. Analyze the results of the factory survey for 187 factories. 2. Review of industrial waste flows for each industry and waste category. 3. Analyze the results of waste management companies (WMC) survey for 90 companies. 4. Submission and discussion of IT/R (Interim Report) 5. Preparation of workshop (2) 6. Formulation of a concept of master plan 7. Development of databases for IWM 8. Mr. Kina will back to Japan on Nov. 18. <p style="text-align: right;">4</p>
<p>3. Subjects to be Discussed</p> <ol style="list-style-type: none"> a. Needs of licensed final disposal sites b. Promotion of proper waste management industries c. Database development d. IWM in Japan (1) <p style="text-align: right;">5</p>	<p>a. Needs of licensed final disposal sites (1): Summary of discussion of WM (17) (1)</p> <ol style="list-style-type: none"> 1. Construction of a new landfill with environmental license (EL) is the critical issue of IWM (industrial waste management) in MFZ. 2. Use of the existing landfills (Manaus City Landfill and CETRAM Landfill) is not allowed. 3. Especially CETRAM landfill shall not be used due to its location in APP (Permanent Preservation Area). 4. As for Manaus City Landfill, it started operation since 1986 (? Before the establishment of EL system in Amazonas State) and does not follow the regulation of a landfill in terms of location (APP, close to settlement and highway, high voltage electric line, sensitive area for groundwater). <p>Q.1 Map of APP is available?</p> <p>Q.2 Does IPAAM have a state guideline for MW (Municipal Waste) landfill?</p> <p style="text-align: right;">6</p>
<p>a. Needs of licensed final disposal sites (2): Summary of discussion of WM (17) (2)</p> <ol style="list-style-type: none"> 5. However, it was indispensable to have a landfill for municipal solid waste management (MSWM). 6. The public ministry has accommodated IPAAM and Manaus City to make a TAC (Terms of Agreement of Procedure) in 2005, giving the city a temporary OL of the landfill with the conditions of construction of a new landfill, etc. But the TAC expired in August 2008. <p>Q.3 What the conditions are stipulated in the TAC.</p> <p>Q.4 What parts of the conditions the City did not pursue?</p> <p style="text-align: right;">7</p>	<p>a. Needs of licensed final disposal sites (3): Recommendation (1): Basic understandings (1)</p> <ul style="list-style-type: none"> <input type="checkbox"/> This study shall deal with IW including health and construction wastes from PIM but not MSWM. <input type="checkbox"/> It will take about 5 years for operation of a new licensed landfill. The Study shall propose an emergency solution of final destination of IW from PIM until the new landfill start. SUFRAMA needs the solution for promoting of foreign & local investment. <input type="checkbox"/> A considerable amount of IW are being disposed of at Manaus City Landfill (MCL) including some HIW. <input type="checkbox"/> The current control of IW at MCL is not sufficient and disposal of IW is almost free from charge. <p style="text-align: right;">8</p>

<p>a. Needs of licensed final disposal sites (4): Recommendation (2): Basic understandings (2)</p> <ul style="list-style-type: none"> <input type="checkbox"/> IW is broadly divided into the following three wastes. <ol style="list-style-type: none"> 1. Class I waste: HIW 2. Class II-A waste: Non-HIW /Non-inert 3. Class II-B waste: Non-HIW /Inert <input type="checkbox"/> Final disposal of the above wastes at a municipal waste landfill (MWL) shall be done as follows: <ol style="list-style-type: none"> 1. HIW should not be disposed of. 2. Non-HIW /Non-inert may be disposed of at MWL if it is strictly controlled. 3. Non-HIW /Inert shall be disposed of at MWL. 	<p>a. Needs of licensed final disposal sites (5): Recommendation (3): Basic understandings (3)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Current final destination of HIW : <ol style="list-style-type: none"> 1. Disposed of at CETRAM landfill without and/or with treatment by incineration, etc. 2. Used as construction materials after treatment. 3. Co-processed at Itautinga cement factory. 4. Transported to a licensed landfill in the other state (?) 5. Disposed of at the MWL. <input type="checkbox"/> Current final destination of Non-HIW /non-inert: <ol style="list-style-type: none"> 1. Disposed of at CETRAM landfill without and/or with treatment by incineration, etc. 2. Used as construction materials after treatment. 3. Co-processed at Itautinga cement factory. 4. Disposed of at the MWL. <input type="checkbox"/> Current final destination of Non-HIW /Inert: <ol style="list-style-type: none"> 1. Disposed of at the MWL.
<p>a. Needs of licensed final disposal sites (6): Recommendation (4): Team's Proposal (1)</p> <ul style="list-style-type: none"> <input type="checkbox"/> The Team proposes the following measures for HIW waste in PIM <ol style="list-style-type: none"> 1. Main part of HIW shall be co-processed at the cement kiln 2. Some of HIW (difficult for co-processing) is treated and residues of it will be sent to other state for final disposal or used as construction material with the conditions of strict monitoring by IPAAM. <input type="checkbox"/> Note: Direct disposal in landfill of HIW (Class 1.) is submitted to rigid restrictions in Rio, Sao Paulo and other states. <input type="checkbox"/> Note: Direct final disposal of HIW is not recommended in Rio and San Paulo like Japan. 	<p>a. Needs of licensed final disposal sites (7): Recommendation (5): Team's Proposal (2)</p> <ul style="list-style-type: none"> <input type="checkbox"/> The Team proposes the following measures for Class II-A (Non-HIW /Non-inert) IW in PIM for time being. <ol style="list-style-type: none"> 1. Recyclables non-HIW /non-inert shall be recycled at specialized plants existing in PIM. 2. Some of non-HIW /non-inert shall be co-processed at the cement kiln. 3. As for the final disposal of Class II-A IW, it should be separately disposed of at MW. Because co-disposal of Class II-A IW and MW may cause several problems to MW landfill, such as inclusion of HIW due to insufficient control, etc. Q.1 Will IPAAM accept Non-HIW (Class 2-A (Non-inerts)) disposal at Manaus landfill if TAC made? Q.2 Does IPAAM have a state guideline for non-HIW landfill like Rio and Sao Paulo?
<p>a. Needs of licensed final disposal sites (8): Recommendation (6): Team's Proposal (3)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Since provision of a proper destination of IW may consider as service of the SUFRAMA, the Team recommends SUFRAMA to ask the Public Ministry to make a TAC for the temporary use of MWL of the Manaus City as Class II-B IW between IPAAM, the City, SUFRAMA, others. => See details. <input type="checkbox"/> As for non-HIW /inert will be disposed of at MWL. <input type="checkbox"/> The proposed final destination of IW generated in PIM is illustrated in the next screen. 	<p>a. Needs of licensed final disposal sites (9): Recommendation (7): Proposed final destination of IW</p>
<p>b. Promotion of proper waste management industries (1): Team's Understanding</p> <ul style="list-style-type: none"> <input type="checkbox"/> Current Industrial Waste Management (IWM) Business Environment and Evaluation of off-site WM in MFZ. <ol style="list-style-type: none"> 1. Control, manage, monitoring and enforcement of IPAAM are very weak. 2. A lot of IW are disposed of at Manaus City Landfill (MCL) and almost free disposal of IW at MCL. 3. Very low price of waste treatment & disposal including incineration due to use of insufficient facilities like almost scraped incinerators and residues' disposal by mixing with construction materials. 4. Current IWM business in MFZ do not allow proper IWM by WMCs due to high competition and low prices. 5. Possible proper WMCs like cement factories as well as CETRAM have a knowhow and money for proper operation of their facilities. But they do not sufficiently invest for their facilities. 	<p>b. Promotion of proper waste management industries (2): Team's recommendation</p> <ul style="list-style-type: none"> <input type="checkbox"/> SUFRAMA/IPAAM should inform the generators that proper disposal is their responsibility. <input type="checkbox"/> Generator/SUFRAMA/IPAAM should instruct WMCs of proper disposal. <input type="checkbox"/> IPAAM should instruct Manaus city to charge on IW disposal for proper final disposal operation and not to accept Class I (Hazardous) waste. <input type="checkbox"/> IPAAM should strengthen its control & monitoring activity and conduct enforcement to WMCs. <input type="checkbox"/> IPAAM should establish control & management system of IW including a Waste Manifest System (WMS) in order to find out what the final destination of IW is.

c. Database development

- The Team will develop the following databases:
 1. Waste inventory (on-site waste management) database of factories in PIM.
 2. WMCs (off-site waste management) database for factories in PIM.
- In order to develop the above databases we need to confirm the following codes:
 1. Factory code
 2. Waste code
 3. WMC code

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C.1 Factory Code

Factory code	Description of subsector	Factory code	Description of subsector
F01	Beverage (soft drink, alcoholic) and vinegars	F12	Food products
F02	Leathers, skins and similar	F13	Chemical
F03	Printing and graphical company	F14	Plastic material products
F04	Electric, electronic and communication materials	F15	Textile
	4.1 Components	F16	Clothing, fabric and travel goods
	4.2 Products (except copy machines)	F17	Transport material
	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

Source : Location of companies settled/producing, based in Western Amazonia with "projeto piloto" (large scale projects) approved by SUFRAMA, up to August of 2009

c.2 Waste Code

- Large Category to be used
 1. Industrial waste
 2. Health waste (SSR)
 3. Construction waste

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Waste Category (1) Non-HIW (Class II A - Non-inert and Class II B - Inert)

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
Other solid waste	NH13
Liquid waste other than oil contaminated one	NH14

Waste Category (3) Relationship between Waste Code of Class II and Class III of CONAMA Resolution 313 and Proposed One

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	A015
	A016	A104	A105	A204	A399		
NH10	A017	A025	A117	A799			
NH11	--						
NH12	A002						
NH13	A003	A018	A019	A021	A022	A023	A026
	A027	A028	A029	A099	A199	A308	A899
NH14	--						

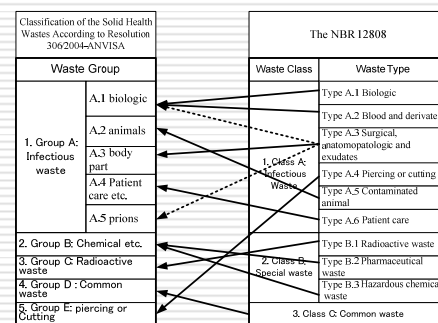
Waste Category (4) HIW (Class I waste)

Type of HIW	HIW Code	Example of HIW
Inorganic acid	HW01	Sulfuric acid (H ₂ SO ₄), Hydrochloric acid (HCl), Nitric acid (HNO ₃), Phosphoric acid (H ₃ PO ₄), Other inorganic acids
Organic acid	HW02	Acetic acid (CH ₃ COOH), Formic acid (HCOOH), Other organic acids
Alkalies	HW03	Sodium hydroxide (NaOH), Ammonia (NH ₃), Sodium carbonate (Na ₂ CO ₃), Other alkaline materials
Toxic Compounds	HW04	Including Hg, As, Cd, Pb, Cr, CN
Inorganic Compounds	HW05	Plating wastes, Picking waste, Sulphides, etc.
Other Inorganic	HW06	Asbestos, Slag, etc.
Organic Compounds	HW07	Reactive chemical wastes (Oxidizing agents, Reducing agents, etc), Solvents, etc.
Polymeric Materials	HW08	Epoxy resin, Chelate resin, Polyurethane resin, Latex rubber, etc.
Fuel, Oil and Grease	HW09	Fats, Waxes, Kerosene, Lubricating oil, Engine oil, Grease, etc.
Fine Chemicals and Bicides	HW10	Pesticides, Medicine, Cosmetic, Drugs, etc.
Treatment Sludge	HW11	Inorganic sludge, Organic sludge, Septic tank sludge, etc.
Ash from incinerator	HW12	---
Dust and Air pollution control (APC) products	HW13	Soot and dust waste from incineration facilities, treating exhaust gas
Other Hazardous substances besides HW01-HW13	HW14	HIWs other than the above
Mixed waste	HW15	---
Hazardous materials from Non-production process	HW16	Fluorescent tubes, Thermometer (use mercury), Batteries, Pesticides (Household use), etc.

Waste Category (3) Relationship between Waste Code of Class I of CONAMA Resolution 313 and Proposed One

Team Code	Conama Code	Team Code	Conama Code	Team Code	Conama Code
HW01	D002	HW07	D003	HW10	D001
	D003		F105		D004
	K207		F001 F0301		D005 to D029
HW02	D002		F100		F103
	D003		P001 to P123		K203
HW03	D002		K001 to K209	HW11	D005 to D029
	D003		K053	HW12	K081
HW04	K193		K078	HW13	---
	K194		K081	HW14	---
	K195	HW08	D001		D001
	F103	HW09	D001		C001 to C009
	F001 F0301		K207		D004
	K001 to K209				F102
HW05	D005 to D029				F104
HW06	D005 to D029				D099
					U001 to U246

Health waste



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<p>d. IWM in Japan (1)</p> <p><input type="checkbox"/> The Team find out establishment of proper administration system for IWM in PIM is the most important and urgent issue.</p> <p><input type="checkbox"/> Dispute in Teshima Island => Japan learned the following issues:</p> <ol style="list-style-type: none"> 1. Control, monitoring and enforcement by administration is the critical issues for proper IW management 2. Good administration saves not only environment but also money. <p><input type="checkbox"/> See my lecture presentation prepared in 2002 => to be modified for workshop (2)</p>	<p>Next Weekly Meeting</p> <p><input type="checkbox"/> Next Meeting will be 23th November 2009 (Monday) at 3:00 PM</p>																																																																				

3.18.2 Minutes of Meeting for Weekly Meeting (18) on November 16, 2009

Weekly Meeting (18) For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus		Minutes & Agenda																																																					
<p>15:00pm - 16:00pm 18 November, 2009 Training Room 2 in Annex 1 of SUPRAMA</p> <p>Agenda:</p> <ol style="list-style-type: none"> 1. Work program 2. Schedule for the week 3. Subjects to be discussed <p>Participants:</p> <table border="0"> <tr><td>1. Antonio Assis Soares</td><td>Representative of IBAM</td></tr> <tr><td>2. Alexandre Galvão</td><td>Representative of FICAM/CIAM/COIN</td></tr> <tr><td>3. Maria do Rosário Mendes</td><td>Representative of CEMMAE</td></tr> <tr><td>4. Antonio Martins</td><td>Planning Manager of Tupygas (SGP)</td></tr> <tr><td>5. Paulo Ricardo Farias</td><td>Technical Manager of CPCA</td></tr> <tr><td>6. José Cláudio Braga</td><td>Technical Manager of CPCA</td></tr> <tr><td>7. Ricardo Pinheiro</td><td>Technician of CPCA</td></tr> <tr><td>8. Luiz Fogaça</td><td>Technician of CPCA</td></tr> <tr><td>9. Paulo Coelho</td><td>Technician of CPCA</td></tr> <tr><td>10. Mayer Angin</td><td>Technician of CPCA</td></tr> <tr><td>11. 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Formulation of a concept for the Master Plan and 7. Meeting with the Prosecutor of the Public Ministry of the State of Amazonas - MP/AM. <p>2. Schedule for this week</p> <ol style="list-style-type: none"> 1. Continue the analysis of the results of the factory survey of the 107 factories; 2. Continue the review of the industrial wastes flow by category of industries and wastes; 3. Continue the analysis of the results of the 90 EMAC's survey; 4. Continue the presentation and discussion of the Interim Report (IR); 5. Continue the preparations of the 2nd Workshop of the Study; 6. Continue the formulation of a concept for the Master Plan; 7. Development of the Data Base for the I&M and; 8. Return of Mr. Fifei to Japan to 11/19/2009. <p>3. Subjects to be discussed</p> <p>The following subjects were discussed at the Meeting:</p> <ol style="list-style-type: none"> 1. Confirmation of the Minutes of the Weekly Meeting (17); 2. Confirmation of the Minutes of the Meeting (I&M) about the Interim Report (IR); 3. Needs for Landfill Landfill Adjustments; 4. Presentation of adequate waste management facilities. 	
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<p>6. Schedule of the 2nd Workshop of the Study;</p> <p>7. Development of the Data Base for the I&M and;</p> <p>g. I&M in Japan.</p> <p>a. Confirmation of the Minutes of the Weekly Meeting (17)</p> <p>The content of the Minutes concerning the prior meeting is still pending final revision by COPEACOPRI. The current version was made available in just copy to all participants of the Meeting. As soon as it is finally approved, it will be sent to all participants of the Study by e-mail.</p> <p>b. Confirmation of the Minutes of the Meeting (I&M) about the Interim Report (IR)</p> <p>The file containing Chapter 2 was sent to the participants by e-mail (those who have not received it may request it may request it by e-mail), "Private of the Study Area" of the IR (I&M), among information boards of view may be argued about earlier amended by the participants until 11/30. Any of the mentioned above should be sent to amarcos@supram.gov.br or supram.pam@supram.gov.br.</p> <p>c. Needs for Landfill Landfill Adjustments</p> <p>Summary/confirmation of the discussions 17th Weekly Meeting:</p> <ol style="list-style-type: none"> 1. The construction of a new landfill with environmental license (EL) is the critical point of the I&M and PMQEM. 2. The existing landfills cannot be used due to not being licensed (Municipal's and CETRAM's profiles). 3. Specially the Landfill of CETRAM should not be used due to being located within a Permanent Preservation Area. 4. As for the Municipal Landfill, it started operating in 1989 (or before establishing the Environmental Licensing system in the State of Amazonas), and does not follow the pertinent rules in terms of location (it is a Permanent Preservation Area close to a housing area, a highway and a power line transmission and in a sensitive underground water area). <p>Guidelines:</p> <ol style="list-style-type: none"> 1. Is there a map of the Permanent Preservation Area in which the Landfill of CETRAM is located? Answer: Yes, it will be made available to JICA Team by IPANMA. 2. Does IPANMA have a site guideline for the Municipal Landfill? Answer: No, apart from the fact that the Organization is part of the TAC of the local landfill by the Environmental State Court. Maybe after the end of the Municipal Contract Master Plan there may be a specific presentation in that sense. 3. Incidentally, is it indispensable to have a municipal landfill for the Management of Local Municipal Wastes? <p>Note: The correct abbreviation is OREI - Management of Municipal Wastes</p>		<p>8. The Public Ministry called (PAM) and the City Hall of Manaus to make a TAC in 2005, authorizing the operation of the existing landfills while the problems of the abandoned landfills are solved. Nevertheless, this TAC expired in August 2008.</p> <p>Note: According to Mr. Alexandre Furlan and Mr. Paulo Farias, if the effects resulting from the TAC is not insured, i.e. the time for the adoption of the MRL is still valid until construction of other licensed ones is accomplished. Actually, the Public Ministry of Amazonas State (MP/AM) receives Reports from IPANMA concerning the mentioned issue in 900 cases.</p> <p>Questions:</p> <ol style="list-style-type: none"> 1. What are the conditions stipulated by the TAC? Answer: They were not detailed at the Meeting. A copy of it is to be made available to be transmitted by JICA Study Team. 2. What part of the conditions the City Hall does not fulfil? Answer: According to Mr. Paulo Farias, from CPCA all conditions set forth by the TAC would have been fulfilled. It is very useful that the conditions of this specific TAC would be confirmed with others for the municipal waste landfill (which is also disposed without any control, according to the picture showed in the presentation). On way or the other, the Municipal Landfill and the Landfill of CETRAM are still authorized. <p>Still according to Mr. Paulo Farias, since this issue has generated polemics, it would be very important to call two representatives of the existing landfills to attend to the meeting, so it may be informed whether they would like to be licensed and what their future perspectives are.</p> <p>Understandings of the Team:</p> <ol style="list-style-type: none"> 1. This Study will deal with the IW (including the construction and medical wastes of PM, but not IBAM). 2. It will take about 5 years for a new landfill to be licensed and start operating in the Study area. An emergency solution will be proposed for the final destination of the IW of IW until the new landfill is ready. SUPRAM needs that solution in order to promote national and foreign investments. 3. A considerable amount of IW is being disposed by the Municipal Landfill, including some HWW. 4. The current control of IW in the Municipal Landfill could be confirmed and the disposal is free of charge. 5. The IW are widely disposed in the following categories: Class 1 (waste) HWW Class 2A (waste) High-HW (Petroleum) Class 3B (waste) High-HW (Iron) <p>6. Current final destination of HWW:</p> <ol style="list-style-type: none"> 1. In the past site disposed of at CETRAM landfill which is mixed with untreated industrial effluents, etc. 2. Used as construction materials after treatment. 																																																					

3. Co-processed at facilities to meet facility.
4. Transported to a licensed landfill in the other state (1)
5. Disposed of at the MCL.

• Current final destination of Non-HW/Non-hazardous
1. Disposal of at CETRAM landfills without prior with treatment (1) (incineration) etc.
2. Used as construction materials after treatment.
3. Co-processed at cement factories.
4. Disposed of at the MCL.

• Current final destination of Non-HW/hazardous
1. Disposed of at the MCL.

Recommendations arisen from the understanding of the Team:
The final disposal of the abstract wastes in a municipal landfill should be done the following way:
1. The HW should not be disposed in the landfills.
2. The Non-HW/Non-hazardous may be disposed if they are strictly controlled.
3. The Non-HW/hazardous may be disposed in the municipal landfills.

Comments of the attendees: It was highlighted the necessity to set up a fund for the final disposal planning, mainly while there is no licensed landfills.

Other recommendations -- HW in PME:
1. A large amount of the HW could be co-processed.

Comments of the attendees: The co-processing can be done at cement factory or in the production of metal and organic sludge, for instance. As for the neutralization of wastes like cement, such activity could be promoted as they developed in Brazil. Elementary phases of that process in Japanese factories, such as the use of sludge, are rarely used by industrial industries. It was mentioned that incineration is not final destination, but treatment for final destination. The group came to a consensus that any form of co-processing may be used, provided it is authorized by IPAM.

2. Some HW (used to be co-processed), should be treated and sent to other states for final disposal or to be used as construction materials in the region provided it is approved by IPAM.

Notes: The landfill disposal of HW in the landfills is submitted to strict restrictions in Rio de Janeiro, São Paulo and other states.
The landfill disposal of HW is not recommended in Rio de Janeiro and São Paulo, as well as in Japan.

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Comment: According to IPAM, many of the HW generated in PME are already treated and transformed in Non-HW.

Other recommendations -- Non-HW/Non-hazardous in PME:

- Recyclable non-HW (waste) shall be recycled if possible plants existing in PME.
- Some of non-HW/Non-hazardous shall be co-processed at the cement kiln.

Comment: Just like the HW, not exclusively by the cement factory.

3. As for the final disposal of Class 3-A HW, it should be separately disposed of at MCL, because co-disposal of Class 3-A HW and MW may cause several problems to MW landfills, such as inclusion of HW due to insufficient control, etc.

Questions:
1. Will IPAM accept Non-HW (Class 2-A (Non-HW)) disposal of Manaus landfill if TAC made?
Answer: No answer.
2. Does IPAM have a state guideline for non-HW/Non-hazardous like Rio and São Paulo?
Answer: No.

Notes: provision of a proper destination of HW may consider as service of the SUPRAM, the Team recommends SUPRAM to ask the Public Ministry to make a TAC for the temporary use of MCL of the Manaus City as Class 3-A HW between IPAM, the City, SUPRAM, others.

Note: A copy of TAC was required by the Team.

The HW/Non-hazardous must be disposed in the Municipal Landfill, first, we have a problem for the final destination of Non-HW generated in PME.

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4. Provision of adequate waste management systems:

Understanding of the Team:
• Current Management of HW, Business Environment and Extension of the WMS On-Site Management in PMZFM
1. Control, storage, monitoring and enforcement of IPAM are very weak.
2. A lot of HW are disposed of at Manaus City Landfill (MCL) and almost free disposal of HW at MCL.
3. Very low price of waste treatment & disposal including incineration due to use of insufficient facilities (ie almost incinerated incinerators and residues' disposal by mixing with construction materials).
4. Current WMS business in MFZ does not show proper WMS by IMCQ due to high competition and low profit.
5. Possible error WMCs like cement factories as well as CETRAM have a know-how and money for proper operation of their facilities. But they do not sufficiently invest for their facilities.

Recommendations arisen from the understanding of the Team:
1. SUPRAM/IPAM should inform the generators that proper disposal is their responsibility.
2. Generator/SUPRAM/IPAM should reduce WMCs of proper disposal.
3. IPAM should request Manaus city to change an HW disposal for proper final disposal extension and not to accept Class 1 (hazardous) waste.
4. IPAM should strengthen its control & monitoring activity and control enforcement to WMCs.
5. IPAM should establish control & management system of HW including a Waste Manifest System (WMS) in order to find out what the final destination of HW is.

Comments of the attendees: As for the recommendations of JICA Team, it was suggested they should be written in an Annex apart of the Final Report of the Master Plan. In these could characterize installations that could cause troubles for the opening of new IMCs and even industries in PMZFM.

Notes: There would also have been some problems as for the definition of the term "Master Plan" for the results of the study, because certain work recommendations, as infrastructure/extension/extension, involving the comprehensive planning of business, are

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plans to generate future social and public networks. In that sense, it was suggested a new foundation for the term São Paulo/Manaus "Plan Master". Nevertheless, such issue is left unfinished.

5. Schedule of the 2nd Workshop of the Study

• After new discussions/confirmations, the schedule for the Workshop was defined as shown below.

Session	Time	Schedule	Lecturers
1	14:00-14:15	Closing	Representatives from JICA and SUPRAM
2	14:15-14:30	Objectives and overview of the study	Mr. Steven Saitohashi
3	14:30-15:15	Solid Waste Management in Japan: concept of eco-town, zero emission, etc.	Mr. Susumu Shimizu
4	15:15-15:45	Industrial Waste Management Concept and Issues: Plan	Mr. Alexander Kadota
5	15:45-16:15	Establishment of the WMS in the State of Rio de Janeiro	Mr. Erika Watanabe
6	16:15-16:45	Q & A	Attendees and lecturers
7	16:45-17:00	Coffee-break	All
8	17:00-17:45	Industrial Waste Management Concept and Master Plan (Revisiting)	Attendees (split as in 3 groups with a leader)
9	17:45-18:15	Groups Presentation (2)	Leaders of the 3 groups
10	18:15-18:30	Summary and Closing	Mr. Alexander Kadota

6. Development of the Data Bases for the HW
JICA Team will develop the following Data Bases:
1. Waste inventory DB (on-site waste management) of the factories of PME and
2. WMCs on-site waste management database for the database of PME.

In order to develop those Data Bases the following activities need be confirmed:
a) Factory codes;
b) Waste names;
c) WMCs codes.

a) Factory Codes:

Code	Site Name	Description	Code	Site Name	Description
101	Beverage (soft drink, alcohol) and others		F12	Food products	

18/11/2016 10:00 AM

3.19 Weekly Meeting (19)

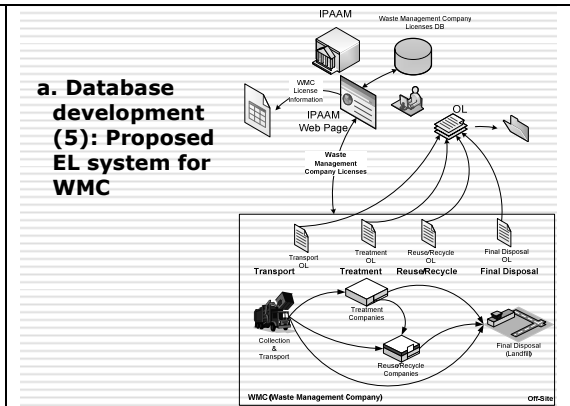
3.19.1 Agenda for Weekly Meeting (19) on November 23, 2009

<p style="text-align: center;">Weekly Meeting (19)</p> <p style="text-align: center;">November 23, 2009 JICA Study Team 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>Agenda</p> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed <p style="text-align: right;">2</p>
<p>1. Work Progress: From November 16 to November 22, 2009</p> <ol style="list-style-type: none"> 1. Analyze the results of the factory survey for 187 factories. 2. Review of industrial waste flows for each industry and waste category. 3. Analyze the results of waste management companies (WMC) survey for 90 companies. 4. Submission and discussion of IT/R (Interim Report) 5. Preparation of workshop (2) 6. Formulation of a concept of master plan 7. Development of databases for IWM 8. Mr. Kina will back to Japan on Nov. 18. <p style="text-align: right;">3</p>	<p>2. Schedule for this Week</p> <ol style="list-style-type: none"> 1. Analyze the results of the factory survey for 187 factories. 2. Review of industrial waste flows for each industry and waste category. 3. Analyze the results of waste management companies (WMC) survey for 90 companies. 4. Workshop (2) 5. Formulation of a concept of master plan 6. Development of databases for IWM <p style="text-align: right;">4</p>
<p>3. Subjects to be Discussed</p> <ol style="list-style-type: none"> a. Database development b. Concept of IWM M/P in PIM c. IWM in Japan <p style="text-align: right;">5</p>	<p>a. Database development (1): Waste Inventory (WI) (1)</p> <p><input type="checkbox"/> For well functioning Database (DB) system the following aspects shall be considered:</p> <ol style="list-style-type: none"> 1. Input data shall be unified; code of wastes, etc., unit and so on. => IT engineer of SUFRAMA => Training to IWM officers of PIM factories 2. Data sent by the IWM officers shall be checked for preparing analysis report => Inquiry to the IWM officers if unclear and doubt => At present Mr. Jory Filho of CGPRI/COPEA does it => Who will do this work? => Shall we have a meeting? <p style="text-align: right;">6</p>
<p>a. Database development (2): Waste Inventory (WI) (2)</p> <ol style="list-style-type: none"> 1. Task for IT support => CGMOI: Mr. Ivo Brasil and Mr. Wilson Rocha <ul style="list-style-type: none"> <input type="checkbox"/> Develop database (DB) system <input type="checkbox"/> Training to the factories to use the system => March 2010 <input type="checkbox"/> Maintenance of the system 2. Task for data analysis => CGLOG: Mr. David Silva and Ms. Rita de Cassia => Task is very hard and busy. => Who will be in charge? <ul style="list-style-type: none"> <input type="checkbox"/> Inquiry and contact with the factories <input type="checkbox"/> Check the data coming from factories (categories of waste, waste code, etc.) <input type="checkbox"/> Analysis and report of the WI <p style="text-align: right;">7</p>	<p>a. Database development (3): Proposed system for WI</p> <p style="text-align: right;">8</p>

a. Database development (4): Waste Management Company (WMC)

1. How is the Sigan system progressing?
2. Does IBAMA manage WI data from factories in PIM? If yes, what is the relationship between WI data submitted to SUFRAMA and Ones input in IBAMA database? => Needs of meeting with IBAMA?
3. Shall we have a meeting with IPAAM and when?

9



b. Concept of IWM M/P in PIM

11

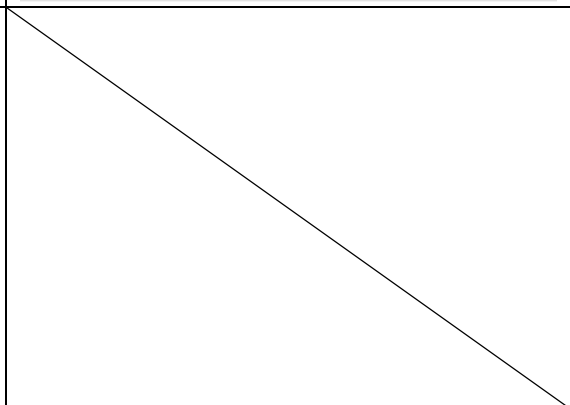
c. IWM in Japan

12

Next Weekly Meeting

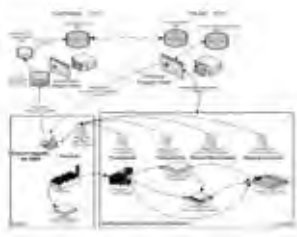
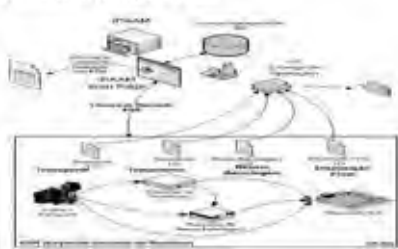
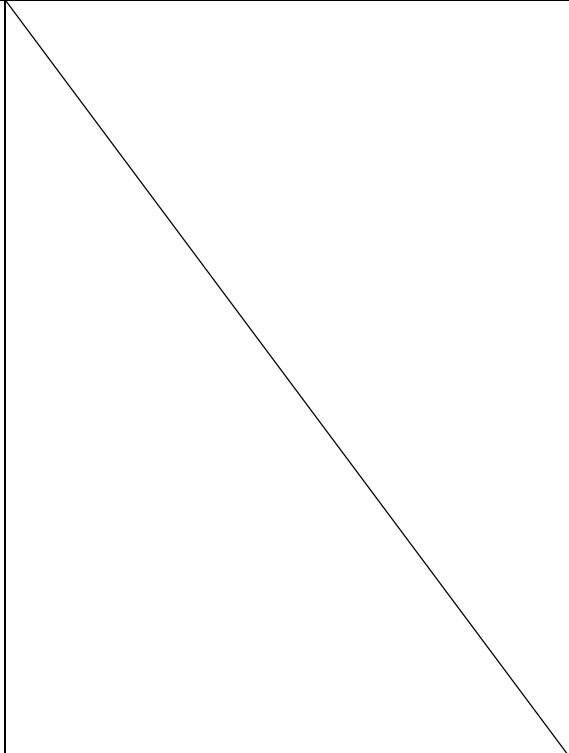
Next Meeting will be 30th November 2009 (Monday) at 3:00 PM

13



3.19.2 Minutes of Meeting for Weekly Meeting (19) on November 23, 2009

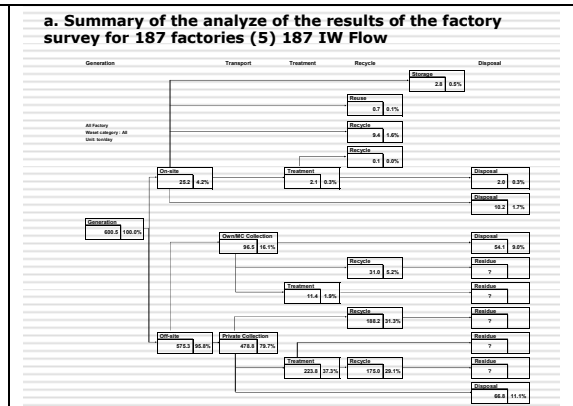
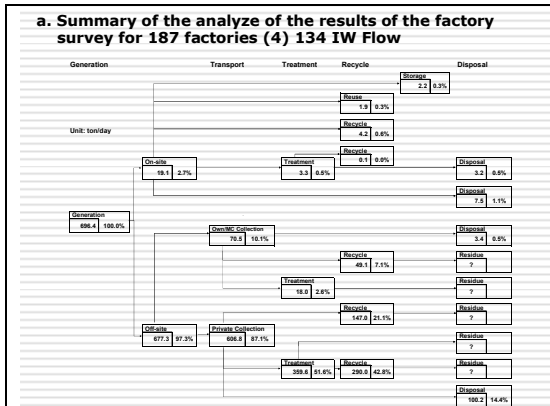
<p>Weekly Meeting (19) For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</p> <p>15:00pm-17:00pm November 23, 2009 Meeting Room 4 in Room 1 of SUPRAMA</p> <p>Agenda</p> <ol style="list-style-type: none"> 1. Work progress 2. Schedule for this week 3. Subjects to be discussed <p>Participants</p> <table border="0"> <tr><td>1. Ayubric Ademir Dantas</td><td>Representative of IPAM</td></tr> <tr><td>2. Dávides R. Paiva</td><td>Representative of SEMULSP</td></tr> <tr><td>3. Alexandre Kavalin</td><td>Representative of FIEAM/COEAM/COIB-AM</td></tr> <tr><td>4. Carlos Saes</td><td>Representative of Turmas (ICOR de ROL)</td></tr> <tr><td>5. Wilson Melo</td><td>Representative of Empresa (EGM de ROL)</td></tr> <tr><td>6. Paulo Ricardo Pinheiro</td><td>Technical Manager of OPCA</td></tr> <tr><td>7. Ricardo Pinheiro</td><td>Technician of OPCA</td></tr> <tr><td>8. 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Mr. Masahiko KNA's return to Japan on 11/19/2009 <p>II. Schedule for this week</p> <ol style="list-style-type: none"> 1. Continue the analysis of the results of the factory survey of the 167 factories. 2. Continue the review of the industrial wastes flow by category of industries and wastes. 3. Continue the analysis of the results of the 90 WMC's survey. 4. Continue the discussion of the Initial Report (TR) 5. End the preparation of the 2nd Workshop of the Study. 6. Continue the formulation of a program for the Master Plan's draft 7. Continue the development of the Data Base <p>III. Subject to be discussed</p> <p>The following subjects were discussed at the Weekly Meeting:</p> <ol style="list-style-type: none"> a. Confirmation of the Minutes of the Weekly Meeting (18) b. Development of the Data Bases. c. Draft discussion of the 2nd Workshop: Concept of MP of WMA in the PM, and d. Draft discussion of the 2nd Workshop: CR in Japan. <p>a. Confirmation of the Minutes of the Weekly Meeting (18) The content of the Minutes concerning the prior Meeting is still pending final revision by COGEX/COPEX. Nevertheless, it was made available in hard copy to all attendees of the Meeting, as well as it is freely available. It will be held in all participants at the Study by email.</p> </th>	1. Ayubric Ademir Dantas	Representative of IPAM	2. Dávides R. Paiva	Representative of SEMULSP	3. Alexandre Kavalin	Representative of FIEAM/COEAM/COIB-AM	4. Carlos Saes	Representative of Turmas (ICOR de ROL)	5. Wilson Melo	Representative of Empresa (EGM de ROL)	6. Paulo Ricardo Pinheiro	Technical Manager of OPCA	7. Ricardo Pinheiro	Technician of OPCA	8. Leilí Nogueira	Technician of OPCA	9. Paula Cavali	Technician of OPCA	10. Davis Pires	Technician of EEA LIMA	11. Luiz Flavio Mendes	Coord. of Eng. and Technical Project Analysis/SUPRAMA	12. David Saes	COLOG/SUPRAMA	13. Kathy Garcia	COGEX/SUPRAMA	14. Anselmo Oliveira Neto	COGEX/SUPRAMA	15. 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<p>Felipe, Débora de Paula, from SEMULSP, was responsible to make available copies of TAC of the projects in Manaus to <u>workshop on the Study Team using the assets</u>, so that it could be evaluated and they could make a recommendation of the conditions established in that equipment purchase agreement.</p> <p>5. Development of the Databases</p> <p>WMA DB</p> <p>The Phase 1 of DB of industrial waste on-site management (wastewater) set on under responsibility of SUPRAMA, in order to have a good development and performance of this DB, the following aspects shall be considered:</p> <ol style="list-style-type: none"> 1. The data filed shall be uniform: waste codes, units, and so on. SUPRAMA IT Engineers/Analysts deal with the system who are responsible for WMA in PM factories to use it. 2. The information sent by the factories will be checked while preparing the annual analysis report. There will be a final need of checking the information in Waste Inventory sent to SUPRAMA. 3. Presently this verification work (including the visit in loco) is done by Mr. Jory Sane Filho, from COGEX/COPEX. Through the substitution of following the WMA in the factories is directed to the IPAM, according to resolution 310/2002 of CONAMA, SUPRAMA has also taken in this activity for a recommendation of the Public Ministry, (because of approving the Environmental License for the DB) <p>Question: Who will be in charge of the DB? Answer: A meeting with the personnel involved in the subject was set to 11/24/2009 at 09:00am, at JICA (Room 01) SUPRAMA, aiming to verify doubts related to the segregation of functionalities related to the DB.</p> <p>Task Segregation:</p> <ol style="list-style-type: none"> a. The main responsibility for IT (SAD/COGEX) will be David Paiva and Mr. Wilson Nogueira Neto b. Develop the IRMs DB. c. Apply specific bearings so that the factories can use and feed the DB in March 2010; and d. Perform maintenance in the DB. <p>Note: The JICA study team will meet the DB initially.</p> <ol style="list-style-type: none"> 2. The final responsibility for data analysis (SAD/COGEX): Mr. David Paiva and Mr. Jory Sane Filho (if another personnel) and Mr. Rita Marek <ul style="list-style-type: none"> • Keep constant contact with the factories. • Verify/analyze the received data via Waste Inventory (www.cogex.com.br/interfacedb.wb) • Issue RP analysis report. 	<p>Comments of JICA Study Team: The analysis of the WMA is a hard and long task. That's why I was suggested the participation of Mr. Jory Filho in this work, at least at a first instance, in order to orientate the other technicians on how to proceed at the beginning of the activities. Probably somebody else will composed the group responsible for the data analysis.</p> <p>Question: Who really will be responsible for the data analysis? Answer: The responsible shall be confirmed in internal meeting on 11/24 and in the next Weekly Meeting of Study (20).</p> <p>Participants' Comments:</p> <p>The biggest challenge for the DB efficiency will be (or will be) acceptance that it not have been the factories' responsibility. It will be necessary to, in accordance to this target public that the DB has simplicity attributes, monitoring, and, specially, confidentiality related to all data informed - That is a great responsibility given to SUPRAMA. At this final moment this software to be used will not be that important, though it is required high confidentiality (low-factors while operating).</p> <p>Due to the IPAM function of monitoring and analyze the Waste inventory of PM factories, this middle shall cooperate in the administration of the DB through SUPRAMA. It was mentioned that there are two kinds of category WMA in the factories: the first one is related to Federal Technical File, under SEMA responsibility, and the second is done according to the Resolution 310/2002 of CONAMA.</p> <p>WMC's DB</p> <p>The development and work of this DB will be under the responsibility of IPAM, once in its website there is already the application program to receive data from WMA. From the implementation of the DB on facilities all the other objectives are intended to improve the process of emission and inspection of the Operation License - OLS of WMCs, which greatest efficiency had contributed to limit its lower parameters - Bad quality of services, price tag - the waste management market in PM factories, as a function will help in the management of the DB of WMA and the factories of PM in general.</p> <p>DB System proposed by JICA Team to the Waste Inventory</p>																																																				

 <p>Manaus_Weekly_Meeting_19_13-11-2014 (19)</p>	<p>Operational Release System Proposal for IWMCs</p>  <p>Manaus_Weekly_Meeting_19_27-11-2014 (19)</p> <p>Questions:</p> <p>1. What is the program in SUPRAM related to Control Analytical Periods to Assessors (Industrial Waste Management System) No? Answer: Priority. Its work is suspended due to the conflict with the deadline developing criteria in question. There had been a specific training for a group of (PAAU) technicians in Manaus. There is no possibility for the return of the system.</p> <p>2. Does SUPRAM administer the 20 sites of the PMA companies? If not, is the data table in the relation between ID data provided by SUPRAM and those Data Base of SUPRAM? In fact this is necessary to have meetings with SUPRAM? Answer: As it was mentioned previously, there is the ID defined in the Federal Technical File, under the responsibility of SUPRAM, and regarding the ID, the attending to the Resolution 318/2003 of SUPRAM, under the control of SUPRAM, which classification stays; the concept and names used in this present Study. Thus, it shall not have to be based on the ID of the Resolution 318, so there is no need of meetings with SUPRAM.</p> <p>3. What we need (PAAU) What? Answer: Yes, to meet the arrangements about the IWMC's DB. It was set a meeting on 11/26 at 09:00am at SUPRAM headquarters.</p> <p>4. Presentation Draft of the 2nd Workshop: Concept of IWM in PMA</p>
<p>During this present meeting it was shown a draft of the speech about the Master Plan Concept, developed by JICA Study Team, and that will be presented by Mr. Alexander Kurihara in the scope of the 2nd workshop. The contents and proposal presented were approved by the participants of the meeting, emphasizing the following points:</p> <ul style="list-style-type: none"> • Establishment of adequate IW disposal in PMA, and the distribution of the 3Ms (reduce, re-use, recycle). • The need of the existence of a waste transfer system (WTS) just like the (FEEMARU) (better communication between the generators, receivers and subscribers). • Optimization of the Waste treatment information among the inspection by SUPRAM, and the improvement of IWMC's activities (development and work of data bases). • Viability of an area apart of Manaus Municipal Landfill for the final disposition of Non-IWM Non-resid (Class 0-4), which it is being constructed a new landfill to work according to the environmental Legislation (pending with the law change), and • Creation of a coordination committee for the promotion of the adequate IWM (COOPIMA), from the TCMC of the Study, raising the strengthening of cooperation among the organs responsible for the IWM in PMA. <p>4. Presentation Draft of the 2nd Workshop: IWM in Japan</p> <p>It was also shown the speech draft relative to the theme "Industrial Waste Management in Japan: concept of eco-cities, zero emissions, etc.", as it had been done in the previous week. It was prepared by Mr. Susumu Shimizu who will present it at the Workshop. It relates some aspects of IWM in Japan in the past and in the present (with reference) and exemplifies how expensive it can be financial and environmentally, to recuperate areas degraded by the indiscriminate disposition of many several tons of waste, as it happened in Tanabe Island, Kagawa Prefecture, in Japan. The presentation also aims the need of more awareness of population, companies and authorities to control wastes, allowing the correct use of available natural resources. In Japan they are also if compared to America. Once again, it is emphasized that we shall focus in find the following actions while making decisions about IWM:</p> <ol style="list-style-type: none"> 1. Control, monitoring and evaluation are critical factors to an adequate IWM. 2. A good administration saves the environment, and saves money "wisely". <p>Note: The content of the speech "Administration of Industrial Wastes by IREARF" to be made by Mr. Eiko Chikayama (Nishimura) from the institution is partly under preparation.</p> <p>Next Weekly Meeting</p> <p>Next Meeting (20) will be held on November 30, 2004 (Monday), at 2 pm, at a venue to be confirmed, in the premises of SUPRAM. This Meeting will finish at 5:30 pm.</p> <p>Manaus_Weekly_Meeting_19_13-11-2014 (19)</p>	

3.20 Weekly Meeting (20)

3.20.1 Agenda for Weekly Meeting (20) on November 30, 2009

<p style="text-align: center;">Weekly Meeting (20)</p> <p style="text-align: center;">November 30, 2009 JICA Study Team 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;">Agenda</p> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed <p style="text-align: right;">2</p>																																																																																																																																																																																																																																																																	
<p>1. Work Progress: From November 23 to November 29, 2009</p> <ol style="list-style-type: none"> 1. Analyze the results of the factory survey for 187 factories. 2. Review of industrial waste flows for each industry and waste category. 3. Analyze the results of waste management companies (WMC) survey for 90 companies. 4. Workshop (2) 5. Formulation of a concept of master plan 6. Development of databases for IWM <p style="text-align: right;">3</p>	<p>2. Schedule for this Week</p> <ol style="list-style-type: none"> 1. Analyze the results of the factory survey for 187 factories. 2. Review of industrial waste flows for each industry and waste category. 3. Reporting of Workshop (2) 4. Formulation of a concept of master plan 5. Development of databases for IWM 6. Visit Manaus City Landfill 7. All study members will leave Manaus <p style="text-align: right;">4</p>																																																																																																																																																																																																																																																																	
<p>3. Subjects to be Discussed</p> <ol style="list-style-type: none"> a. Summary of the analyze of the results of the factory survey for 187 factories b. Summary of the analyze of the results of the waste service companies (WSC) survey for 90 companies. c. Database development d. Question and answer of the Workshop (2) e. Schedule of the next study in Manaus <p style="text-align: right;">5</p>	<p>a. Summary of the analyze of the results of the factory survey for 187 factories (1)</p> <p><input type="checkbox"/> Main differences between the analysis of 134 and 187 are:</p> <ol style="list-style-type: none"> 1. Total generation: 696.4 ton/day => 600.5 ton/day due to change of generation rates of F01 and F17 2. On-site management rate increases: 2.7 % => 4.2% 3. Own & municipal collection rate increase: 10.1 % => 16.1% 4. Direct disposal increase: 14.9% => 20.1% <p style="text-align: right;">6</p>																																																																																																																																																																																																																																																																	
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b. Summary of the analyze of the results of the waste service companies (WSC) survey for 90 companies

- For database development the term, waste management companies (WMC), is better replaced with waste service companies (WSC).
- WSCs surveyed are:

Environmental License	Environmental License					Total
	Total	Transport	Treatment	Final Disposal	Reuse/ Recycle	
Yes	67	26	24	7	21	75
No	23					
Grand Total	90	25	7	32	34	98

c. Database development

> Major categorization of MWM and IWM

> Final disposal service for Hazardous municipal waste (HMW) is provided only by HIW Final disposal service licensed company.

Code	Major Classification	Code	Sub-Classification	Class [Types of Waste Handled]
33	Municipal Waste Management (MWM)	3301	Collection and Transportation	A (HW), B (NON-HW, NON-INERT), C (NON-HW, INERT)
		3302	Intermediary Treatment	A (HW), B (NON-HW, NON-INERT), C (NON-HW, INERT)
		3303	Recycling	A (HW), B (NON-HW, NON-INERT), C (NON-HW, INERT)
		3304	Final Disposal	B (NON-HW, NON-INERT), C (NON-HW, INERT)
34	Industrial Waste Management (IWM)	3401	Collection and Transportation	A (HIW), B (NON-HIW, NON-INERT), C (NON-HIW, INERT)
		3402	Intermediary Treatment	A (HIW), B (NON-HIW, NON-INERT), C (NON-HIW, INERT)
		3403	Recycling	A (HIW), B (NON-HIW, NON-INERT), C (NON-HIW, INERT)
		3404	Final Disposal	A (HIW), B (NON-HIW, NON-INERT), C (NON-HIW, INERT)

d. Question and answer of the Workshop (2)

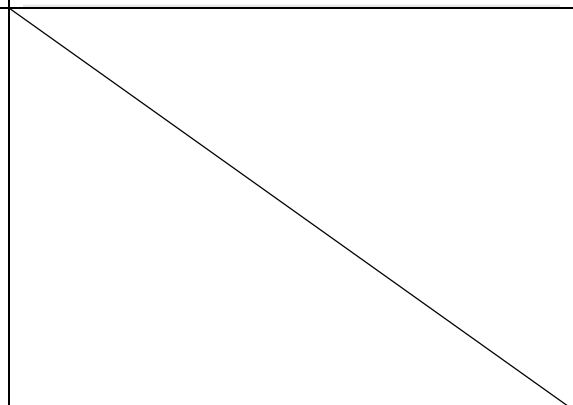
- One comment (question) which opposed our M/P concept. How we deal with this comment?
- Are there any serious comments or questions?

e. Schedule of the next study in Manaus

- Some of the Team member will come to Manaus Feb 26th, 2010.
- The 4th week of March we will submit a draft final report to SUFRAMA.
- The 5th week of March we will have the 3rd Workshop.

Next Weekly Meeting

- Next Meeting will be 1st March 2010 (Monday) at 3:00 PM



3.20.2 Minutes of Meeting for Weekly Meeting (20) on November 30, 2009

Weekly Meeting (20) For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus

16:00pm-18:00pm
 30 November, 2009
 JICA Study Room in SUPRAMA

Agenda

1. With-attendance
2. Schedule for this week
3. Subjects to be discussed

Participants

1. Débora R. Paula	Representative of SEMULSEP
2. Manoel de Góes Monteiro	Representative of SEMULSEP
3. Alexandre Kubacki	Representative of FUNDACOLANCOCHIAI
4. Carlos Sakai	Representative of Turismo
5. Wilson Mano	Representative of Enxerga
6. Deborah's Kurbatov	Representative of ENXERG
7. Laker Messias	Environmental Consultant
8. Ivo Higuma	Technician of DPCA
9. Paulo Cordeiro	Technician of DPCA
10. Luis Flavio Simões	Eng. and Arch. Projects Analysis Coord.(SUPRAMA)
11. Renato Freitas	COGEC/SUPRAMA
12. Maria Emilia Moira	COGEC/SUPRAMA
13. Joao Brazil Filho	CGARCO/SUPRAMA
14. Wilson Ramos Neto	CGARCO/SUPRAMA
15. David Silva	COLOG/SUPRAMA
16. Kelly Garcia	COGEC/SUPRAMA
17. Arnaldo Oliveira Neto	COGEC/SUPRAMA
18. Joelson Jorge Oliveira	CGARCO/SUPRAMA
19. Luis Edvaldo Neta	CGTIC/SUPRAMA
20. Manoel Heitor Huel	CGTIC/SUPRAMA
21. Rita de Cassia Maril	SAC/SUPRAMA
22. Fabiano Ramon	FLICAM
23. Armando Garcia Jr	Supplier to JICA in SUPRAMA
24. Antonio Barros	Supplier to JICA in SUPRAMA
25. Dr. Susumu Shimamura	Team Leader of JICA Study Team

Minutes of the Weekly Meeting (20) 11/30/2009

Minutes & Agenda

I. Work Progress: From 23 to 29 November, 2009

1. Analyze the results of the factory survey of the 157 factories (WMC)
2. Review of the industrial wastes flow by category of industries and wastes
3. Analyze the results of the 00 EMC's survey
4. 2nd Workshop of the Study, on 11/23/2009
5. Formulation of a proposal for the Master Plan
6. Development of the Data Base of the IWM and WMC

II. Schedule for this week

1. Continue the analysis of the results of the factory survey of the 157 factories.
2. Continue the review of the industrial wastes flow by category of industries and wastes.
3. Report of the 2nd Workshop of the Study.
4. Continue the formulation of a proposal for the Master Plan.
5. Continue the Development of the Data Base.
6. Visit to Manaus Lufthansa on 01/10/2009.
7. Return of the members of the Study Team to their cities, on 11/03/2009.

III. Subjects to be discussed

The following subjects were discussed at the Meeting:

- a. Confirmation of the Minutes of the Weekly Meeting (19)
- b. Summary of the analysis of the results of the factory survey of the 157 factories
- c. Summary of the analysis of the results of the 00 EMC's survey
- d. Development of the Data Base of the WMC
- e. Questions and Answers of the 2nd Workshop, and
- f. Schedule of the next phase of the study in Manaus

Minutes of the Weekly Meeting (20) 11/30/2009

4. Confirmation of the Minutes of the Weekly Meeting (19)
 We confirmed the discussions of the last Meeting and the other ones.

Concerning the last of the term "Master Plan" for the results of the Study, the President of SUPRAMA stated that it would not be a binding legal document, but a proposal for a master plan, which will be implemented in an adequate and suitable way for a term of five years (2011 to 2015). So, in the other phases of the Study the term "Master Plan Proposal" should be used.

As for the development of the Data Base of the factories of PM, SUPRAMA will be in charge of implementing it. As for the other aspects of the DB, we have:

1. The data input should be verified weekly, online and offline. The IT Experts of SUPRAMA, together with the ones from IPAM, will be in charge of training the people in charge of the IWM in PM. This training will take place from March 8 to April 7.
2. The referenced testing - tests, period of the DB - will include waste source companies (WSC) after that phase, the access will be disclosed to the other factories of PM. The companies will have free access to the DB by means of an individual password.
3. The companies should not have to submit the hardcopy of the Wastes Inventory to SUPRAMA, only online. Nevertheless, those who are unable to send the inventory online will be able to submit the completed form. All data sent will be checked when the annual analysis report is prepared, which will be done by the specific Unit to be created in SUPRAMA. IPAM will join the information updating work.

6. Summary of the analysis of the results of the factory survey of the 157 factories
 The main differences obtained among the analysis of the 134 (continuous) and 187 (intermittent) factories were:

1. Total amount of hazardous industrial wastes generated from 895.4 t/month to 600.5 t/month, due to considerable changes in the generation amount of the FT1 and FT2 code wastes.
2. Increase in the private wastes management amount from 2.7% to 4.2%.
3. Increase in the proper and urban collection from 15.3% to 48.1%.
4. Increase in the direct disposal by the wastes generated from 14.9% to 20.1%.

Table 6.1 - Analysis of the factory surveys: generated amounts by factory codes

Minutes of the Weekly Meeting (20) 11/30/2009

Factory Code	Generated Amount (t/month)					Total
	FT1	FT2	FT3	FT4	FT5	
001	100.0	50.0	20.0	10.0	5.0	185.0
002	150.0	75.0	30.0	15.0	7.5	277.5
003	200.0	100.0	40.0	20.0	10.0	370.0
004	250.0	125.0	50.0	25.0	12.5	462.5
005	300.0	150.0	60.0	30.0	15.0	555.0
006	350.0	175.0	70.0	35.0	17.5	647.5
007	400.0	200.0	80.0	40.0	20.0	740.0
008	450.0	225.0	90.0	45.0	22.5	832.5
009	500.0	250.0	100.0	50.0	25.0	925.0
010	550.0	275.0	110.0	55.0	27.5	1017.5
011	600.0	300.0	120.0	60.0	30.0	1110.0
012	650.0	325.0	130.0	65.0	32.5	1202.5
013	700.0	350.0	140.0	70.0	35.0	1295.0
014	750.0	375.0	150.0	75.0	37.5	1387.5
015	800.0	400.0	160.0	80.0	40.0	1480.0
016	850.0	425.0	170.0	85.0	42.5	1572.5
017	900.0	450.0	180.0	90.0	45.0	1665.0
018	950.0	475.0	190.0	95.0	47.5	1757.5
019	1000.0	500.0	200.0	100.0	50.0	1850.0
020	1050.0	525.0	210.0	105.0	52.5	1942.5
021	1100.0	550.0	220.0	110.0	55.0	2035.0
022	1150.0	575.0	230.0	115.0	57.5	2127.5
023	1200.0	600.0	240.0	120.0	60.0	2220.0
024	1250.0	625.0	250.0	125.0	62.5	2312.5
025	1300.0	650.0	260.0	130.0	65.0	2405.0
026	1350.0	675.0	270.0	135.0	67.5	2497.5
027	1400.0	700.0	280.0	140.0	70.0	2590.0
028	1450.0	725.0	290.0	145.0	72.5	2682.5
029	1500.0	750.0	300.0	150.0	75.0	2775.0
030	1550.0	775.0	310.0	155.0	77.5	2867.5
031	1600.0	800.0	320.0	160.0	80.0	2960.0
032	1650.0	825.0	330.0	165.0	82.5	3052.5
033	1700.0	850.0	340.0	170.0	85.0	3145.0
034	1750.0	875.0	350.0	175.0	87.5	3237.5
035	1800.0	900.0	360.0	180.0	90.0	3330.0
036	1850.0	925.0	370.0	185.0	92.5	3422.5
037	1900.0	950.0	380.0	190.0	95.0	3515.0
038	1950.0	975.0	390.0	195.0	97.5	3607.5
039	2000.0	1000.0	400.0	200.0	100.0	3700.0
040	2050.0	1025.0	410.0	205.0	102.5	3792.5
041	2100.0	1050.0	420.0	210.0	105.0	3885.0
042	2150.0	1075.0	430.0	215.0	107.5	3977.5
043	2200.0	1100.0	440.0	220.0	110.0	4070.0
044	2250.0	1125.0	450.0	225.0	112.5	4162.5
045	2300.0	1150.0	460.0	230.0	115.0	4255.0
046	2350.0	1175.0	470.0	235.0	117.5	4347.5
047	2400.0	1200.0	480.0	240.0	120.0	4440.0
048	2450.0	1225.0	490.0	245.0	122.5	4532.5
049	2500.0	1250.0	500.0	250.0	125.0	4625.0
050	2550.0	1275.0	510.0	255.0	127.5	4717.5
051	2600.0	1300.0	520.0	260.0	130.0	4810.0
052	2650.0	1325.0	530.0	265.0	132.5	4902.5
053	2700.0	1350.0	540.0	270.0	135.0	4995.0
054	2750.0	1375.0	550.0	275.0	137.5	5087.5
055	2800.0	1400.0	560.0	280.0	140.0	5180.0
056	2850.0	1425.0	570.0	285.0	142.5	5272.5
057	2900.0	1450.0	580.0	290.0	145.0	5365.0
058	2950.0	1475.0	590.0	295.0	147.5	5457.5
059	3000.0	1500.0	600.0	300.0	150.0	5550.0
060	3050.0	1525.0	610.0	305.0	152.5	5642.5
061	3100.0	1550.0	620.0	310.0	155.0	5735.0
062	3150.0	1575.0	630.0	315.0	157.5	5827.5
063	3200.0	1600.0	640.0	320.0	160.0	5920.0
064	3250.0	1625.0	650.0	325.0	162.5	6012.5
065	3300.0	1650.0	660.0	330.0	165.0	6105.0
066	3350.0	1675.0	670.0	335.0	167.5	6197.5
067	3400.0	1700.0	680.0	340.0	170.0	6290.0
068	3450.0	1725.0	690.0	345.0	172.5	6382.5
069	3500.0	1750.0	700.0	350.0	175.0	6475.0
070	3550.0	1775.0	710.0	355.0	177.5	6567.5
071	3600.0	1800.0	720.0	360.0	180.0	6660.0
072	3650.0	1825.0	730.0	365.0	182.5	6752.5
073	3700.0	1850.0	740.0	370.0	185.0	6845.0
074	3750.0	1875.0	750.0	375.0	187.5	6937.5
075	3800.0	1900.0	760.0	380.0	190.0	7030.0
076	3850.0	1925.0	770.0	385.0	192.5	7122.5
077	3900.0	1950.0	780.0	390.0	195.0	7215.0
078	3950.0	1975.0	790.0	395.0	197.5	7307.5
079	4000.0	2000.0	800.0	400.0	200.0	7400.0
080	4050.0	2025.0	810.0	405.0	202.5	7492.5
081	4100.0	2050.0	820.0	410.0	205.0	7585.0
082	4150.0	2075.0	830.0	415.0	207.5	7677.5
083	4200.0	2100.0	840.0	420.0	210.0	7770.0
084	4250.0	2125.0	850.0	425.0	212.5	7862.5
085	4300.0	2150.0	860.0	430.0	215.0	7955.0
086	4350.0	2175.0	870.0	435.0	217.5	8047.5
087	4400.0	2200.0	880.0	440.0	220.0	8140.0
088	4450.0	2225.0	890.0	445.0	222.5	8232.5
089	4500.0	2250.0	900.0	450.0	225.0	8325.0
090	4550.0	2275.0	910.0	455.0	227.5	8417.5
091	4600.0	2300.0	920.0	460.0	230.0	8510.0
092	4650.0	2325.0	930.0	465.0	232.5	8602.5
093	4700.0	2350.0	940.0	470.0	235.0	8695.0
094	4750.0	2375.0	950.0	475.0	237.5	8787.5
095	4800.0	2400.0	960.0	480.0	240.0	8880.0
096	4850.0	2425.0	970.0	485.0	242.5	8972.5
097	4900.0	2450.0	980.0	490.0	245.0	9065.0
098	4950.0	2475.0	990.0	495.0	247.5	9157.5
099	5000.0	2500.0	1000.0	500.0	250.0	9250.0
100	5050.0	2525.0	1010.0	505.0	252.5	9342.5
101	5100.0	2550.0	1020.0	510.0	255.0	9435.0
102	5150.0	2575.0	1030.0	515.0	257.5	9527.5
103	5200.0	2600.0	1040.0	520.0	260.0	9620.0
104	5250.0	2625.0	1050.0	525.0	262.5	9712.5
105	5300.0	2650.0	1060.0	530.0	265.0	9805.0
106	5350.0	2675.0	1070.0	535.0	267.5	9897.5
107	5400.0	2700.0	1080.0	540.0	270.0	9990.0
108	5450.0	2725.0	1090.0	545.0	272.5	10082.5
109	5500.0	2750.0	1100.0	550.0	275.0	10175.0
110	5550.0	2775.0	1110.0	555.0	277.5	10267.5
111	5600.0	2800.0	1120.0	560.0	280.0	10360.0
112	5650.0	2825.0	1130.0	565.0	282.5	10452.5
113	5700.0	2850.0	1140.0	570.0	285.0	10545.0
114	5750.0	2875.0	1150.0	575.0	287.5	10637.5
115	5800.0	2900.0	1160.0	580.0	290.0	10730.0
116	5850.0	2925.0	1170.0	585.0	292.5	10822.5
117	5900.0	2950.0	1180.0	590.0	295.0	10915.0
118	5950.0	2975.0	1190.0	595.0	297.5	11007.5
119	6000.0	3000.0	1200.0	600.0	300.0	11100.0
120	6050.0	3025.0	1210.0	605.0	302.5	11192.5
121	6100.0	3050.0	1220.0	610.0	305.0	11285.0
122	6150.0	3075.0	1230.0	615.0	307.5	11377.5
123	6200.0	3100.0	1240.0	620.0	310.0	11470.0
124	6250.0	3125.0	1250.0	625.0	312.5	11562.5
125	6300.0	3150.0	1260.0	630.0	315.0	11655.0
126	6350.0	3175.0	1270.0	635.0	317.5	11747.5
127	6400.0	3200.0	1280.0	640.0	320.0	11840.0
128	6450.0	3225.0	1290.0	645.0	322.5	11932.5
129	6500.0	3250.0	1300.0	650.0	325.0	12025.0
130						

Table 6.4 - Industrial waste flow of the 187 factories

Table 6.5 - Summary of the results of the 90 EMC's survey

For the development of the Data Base of the waste management concerns, the term Waste Management Companies (WMC), used since the beginning of the Study, should be replaced with Waste Service Companies (WSC).

Table 6.6 - Proposal for Licensing Codes for Non-HW

Code	Principal Category	Class	Sub-Category	Items (Class or previous manufacturer)
10	Waste of Industrial Processes (HW)	1001	Paints & Coatings	A (HW), B (HW), AB (HW), C (HW), D (HW)
		1002	Hydrocarbons	A (HW), B (HW), AB (HW), C (HW), D (HW)
		1003	Acidic wastes	A (HW), B (HW), AB (HW), C (HW), D (HW)
		1004	Alkaline wastes	A (HW), B (HW), AB (HW), C (HW), D (HW)
20	Waste of Chemical Processes (HW)	2001	Acids	A (HW), B (HW), AB (HW), C (HW), D (HW)
		2002	Hydrocarbons	A (HW), B (HW), AB (HW), C (HW), D (HW)
		2003	Alkaline wastes	A (HW), B (HW), AB (HW), C (HW), D (HW)
		2004	Organic wastes	A (HW), B (HW), AB (HW), C (HW), D (HW)

Table 6.2 - Treatment Proposal for Hazardous Waste

1. Crystallization by Use of A&E
2. Transference into Non-Hazardous Wastes, if
3. Dissolved in Solvents or other Media, when the Maximum Concentration is used for the Use

Table 6.1 - Summary of the 90 WSC survey

Waste Category	Subtotal	License Categories				Total
		Category 1	Category 2	Category 3	Category 4	
HW	87	28	23		21	74
Non-HW	43					43
Subtotal	130	28	23	21	21	116

One (Eight licensed WSC were not surveyed).

After it was observed that four Operators (owners of licensed WSC) are unprepared for order supply, any for shipping of materials into a Plant for its retail sales of items.

Table 6.3 - Treatment Proposal for Hazardous Waste

1. Crystallization by Use of A&E
2. Transference into Non-Hazardous Wastes, if
3. Dissolved in Solvents or other Media, when the Maximum Concentration is used for the Use

Report of Hazardous Wastes

After Today, the Municipal Landfill can be used for the Disposal of Inert Non-Hazardous Industrial Wastes (Class 5-0) But not for Combustible Wastes.

Recommendation of JICA Study Team: It was emphasized that, it is urgently necessary to restrict the use of the suggested area - ATINA - inside the Municipal Landfill to be used as a proving ground for Non-Inert Non-Hazardous Industrial Wastes (Class 5-A), which should have a wastes manifest system (WMS), to be implemented by IPAAI, and whose extended organization and operations may allow the charging of tipping fees for its use for final disposal. Such measure may be assisted by means of a TAC issued by the City Hall of Manaus, IPAAI and SUPRAMA, pending by the Public Ministry of the State of Amazonas, as proposed by JICA Study Team in prior Meetings. The main objective of such proposal is to stimulate the wastes management by the generating solutions, thus contributing to the dissemination of the environmental awareness and the use of the 3 R's (reducing, recycling and reusing).

Proposal of restriction of the area for a legal landfill inside Manaus Municipal Landfill (WMSF & SUPRAMA)

Comments of the participants: As for the Master Plan for the Management of Urban Solid Wastes of Manaus City (MSM) & Alternative Solutions for December 2008, taxes tipping fees will be charged for the disposal of health and domestic waste. It was observed that the former administration of the Municipality asked the Study for the management of industrial waste to the Planning Unit of the PIMMTC Section.

Questions and answers of the 2nd Workshop:

- All inquiries/comment/question/notes against the content of MSF (Master Plan) of the Study, nevertheless, suggestions has already been solved with the Provision of SUPRAMA, according to Min. U. of These Minutes.
- A summary of the most relevant questions and answers will soon be made available through the 30 Study of JICA in the website of SUPRAMA in the internet.

3rd - Schedule for the next phase of the Study in Manaus

- Some of the members of JICA Team will probably come to Manaus on 05 March 2010.
- In the 07th of March, a part of the Final Report of the Study must be submitted to SUPRAMA.

3rd - The 2nd Workshop of the Study will take place on 05 (in 06) April, 2010.

Next Weekly Meeting

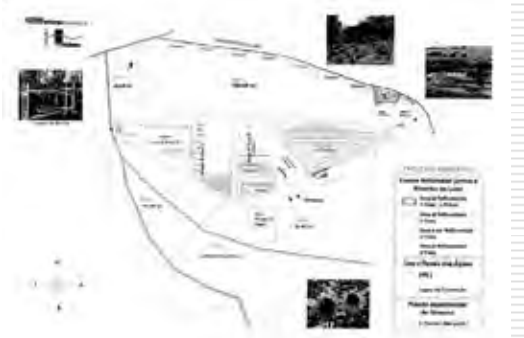












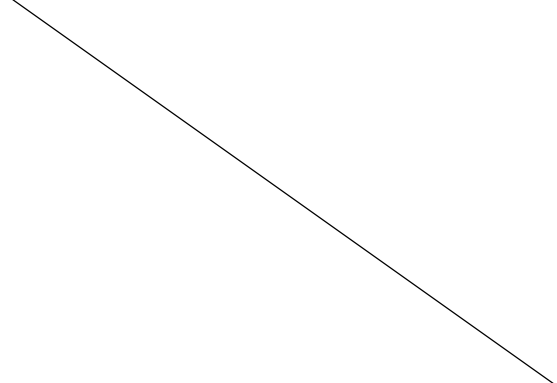
The Next Weekly Meeting (21) will take place on March 2010, when the consultants of JICA return to Manaus, which should be on the 06th of March. This Meeting (20) finished at 04:30 pm.

3.21 Weekly Meeting (21)

3.21.1 Agenda for Weekly Meeting (21) on March 15, 2010

<p style="text-align: center;">Weekly Meeting (21)</p> <p style="text-align: center;">March 15, 2010 JICA Study Team 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;">Agenda</p> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed
<p>1. Work Progress: From November 29 to March 15, 2010</p> <ol style="list-style-type: none"> 1. Preparation of counterpart (C/P) training in Japan 2. Training in Japan from January 25 to February 10, 2010 3. Preparation of the Draft Final Report (DF/R) 	<p>2. Schedule for this Week</p> <ol style="list-style-type: none"> 1. Formulation of the master plan (M/P) 2. Preparation of DF/R 3. Development of the waste inventory (WI) database and the waste service company (WSC) database 4. Preparation of the explanation meetings for the waste inventory (WI) database and the waste service company (WSC) database 5. Preparation of Workshop (3) 6. Visit of the ENTERPA Landfill for HIW and Non-HIW at Sao Jose Dos Campos in Sao Paulo
<p>3. Subjects to be Discussed</p> <ol style="list-style-type: none"> a. Assignment schedule of the experts from March 8 to April 9 b. Schedule of the work from March 8 to April 9 c. Preparation of the explanation meetings for the WI database and the Waste Service Company (WSC) database d. Preparation of Workshop (3) e. Confirmation of some issues related to M/P f. Visit to hazardous and non-hazardous IW landfill in Sao Jose dos Campos 	<p>a. Assignment schedule of the experts from March 8 to April 8</p> <ol style="list-style-type: none"> 1. Shimura, Suzuki and Ishibashi: From March 8 to April 9 2. Sawachi: From March 8 to March 25 3. Kina: From March 8 to March 19 4. Sugimoto: From March 14 to March 29 5. Steven: From March 22 to April 9 6. Haddad: From March 19 to April 7
<p>b. Schedule of the work from March 8 to April 9</p> <ul style="list-style-type: none"> <input type="checkbox"/> Explanation meeting for the WI database on April 5 or 6 <input type="checkbox"/> Explanation meeting for the WSC database on April 7 or 8 <input type="checkbox"/> Submission of the DF/R on the beginning of April <input type="checkbox"/> Workshop (3) on April 5 or 6 <input type="checkbox"/> Seminar on the end of May 	<p>c. Preparation of the explanation meetings for the WI database and the WSC database</p> <ul style="list-style-type: none"> <input type="checkbox"/> Appropriate use of waste inventory (WI) and WSC license is an essential issue for the establishment of proper IWM in PIM. <input type="checkbox"/> WI database (on-site IWM) and WSC operation license database (off-site IWM) will be developed by the C/P and the study team. <input type="checkbox"/> After the training of database managers (IPAAM/SUFRAMA) and the explanation meetings to factories/WSCs, the databases developed shall be transferred to the C/P by the beginning of April 2010. <input type="checkbox"/> Then, the databases will be maintained and operated by the C/P.

<p>Proposed Schedule of Waste Inventory (WI) Database (DB) Development</p> <table border="1"> <thead> <tr> <th>ID</th> <th>Task Name</th> <th>Start</th> <th>Finish</th> <th>Duration</th> <th>Progress</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Waste Inventory DB</td> <td>09/03/2010</td> <td>09/04/2010</td> <td>2d</td> <td>100%</td> </tr> <tr> <td>2</td> <td>Develop and testing DB System</td> <td>09/03/2010</td> <td>09/03/2010</td> <td>1d</td> <td>100%</td> </tr> <tr> <td>3</td> <td>Suframa Technicians training</td> <td>19/03/2010</td> <td>09/04/2010</td> <td>19d</td> <td>100%</td> </tr> <tr> <td>4</td> <td>Explanation Meeting</td> <td>09/03/2010</td> <td>09/04/2010</td> <td>2d</td> <td>100%</td> </tr> <tr> <td>5</td> <td>Factory's IWM officer training by SUFRAMA</td> <td>09/03/2010</td> <td>09/04/2010</td> <td>0d</td> <td>0%</td> </tr> </tbody> </table> <p>Waste Inventory DB</p> <ul style="list-style-type: none"> <input type="checkbox"/> The DB are developing by Wilson Rocha Neto, Ivo Brasil Filho and Ishibashi <input type="checkbox"/> Date and place for explanation meeting? <input type="checkbox"/> The explanation meeting of DB will be done by Wilson Rocha, Ivo Brasil Filho, David Silva, Armando Santos Jr. and Rita Marie 	ID	Task Name	Start	Finish	Duration	Progress	1	Waste Inventory DB	09/03/2010	09/04/2010	2d	100%	2	Develop and testing DB System	09/03/2010	09/03/2010	1d	100%	3	Suframa Technicians training	19/03/2010	09/04/2010	19d	100%	4	Explanation Meeting	09/03/2010	09/04/2010	2d	100%	5	Factory's IWM officer training by SUFRAMA	09/03/2010	09/04/2010	0d	0%	<p>Proposed Schedule of WSC Operation Licenses (OL) DB Development</p> <table border="1"> <thead> <tr> <th>ID</th> <th>Task Name</th> <th>Start</th> <th>Finish</th> <th>Duration</th> <th>Progress</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>WSC Operation Licenses DB</td> <td>19/03/2010</td> <td>09/04/2010</td> <td>19d</td> <td>100%</td> </tr> <tr> <td>2</td> <td>Check and Update OL of WSC</td> <td>19/03/2010</td> <td>19/03/2010</td> <td>1d</td> <td>100%</td> </tr> <tr> <td>3</td> <td>Develop and Testing DB System</td> <td>29/03/2010</td> <td>09/04/2010</td> <td>10d</td> <td>100%</td> </tr> <tr> <td>4</td> <td>IPAAM Technicians training</td> <td>19/03/2010</td> <td>09/04/2010</td> <td>19d</td> <td>100%</td> </tr> <tr> <td>5</td> <td>Explanation Meeting</td> <td>09/03/2010</td> <td>09/04/2010</td> <td>2d</td> <td>100%</td> </tr> <tr> <td>6</td> <td>Continue Updating WSC OL by IPAAM</td> <td>09/04/2010</td> <td>09/04/2010</td> <td>0d</td> <td>0%</td> </tr> </tbody> </table> <p>WSC OL DB</p> <ul style="list-style-type: none"> <input type="checkbox"/> The DB are developing by Wilson Rocha Neto (SUFRAMA), Emerson Silva (IPAAM) and Ishibashi Kunito <input type="checkbox"/> Full assistance of Rosivana C. Pereira to check and update WSC operation licenses <input type="checkbox"/> Date and place for explanation meeting? <input type="checkbox"/> The explanation meeting of DB will be done by Antonio Ademir Stroski, Emerson Silva, Rosivana C. Pereira 	ID	Task Name	Start	Finish	Duration	Progress	1	WSC Operation Licenses DB	19/03/2010	09/04/2010	19d	100%	2	Check and Update OL of WSC	19/03/2010	19/03/2010	1d	100%	3	Develop and Testing DB System	29/03/2010	09/04/2010	10d	100%	4	IPAAM Technicians training	19/03/2010	09/04/2010	19d	100%	5	Explanation Meeting	09/03/2010	09/04/2010	2d	100%	6	Continue Updating WSC OL by IPAAM	09/04/2010	09/04/2010	0d	0%
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5	Explanation Meeting	09/03/2010	09/04/2010	2d	100%																																																																										
6	Continue Updating WSC OL by IPAAM	09/04/2010	09/04/2010	0d	0%																																																																										
<p>d. Preparation of Workshop (3)</p> <p>To confirm the following aspects:</p> <ol style="list-style-type: none"> Date: April 6 (Tue), 2010 Time: 8:00 AM – 17:30 PM Place: Auditorio Floriano Pacheco, SUFRAMA Number of participants to be invited: Person in charge of workshop preparation: Who will make opening address: Lectures: C/P who received training in Japan 	<p>e. Confirmation of some issues related to M/P: Basic Policies to be discussed and confirmed here</p> <ul style="list-style-type: none"> <input type="checkbox"/> How to oblige PIM Factories to confide their IW only to WSCs with OL? <input type="checkbox"/> To Appoint a person responsible for IW in each factory <input type="checkbox"/> To Set up interactive network among those persons to select representatives from factories to a Proper IWM Promotion Committee (PIWMPC) <input type="checkbox"/> To Set up a cooperative association among WSCs to select representatives from WSCs to a Proper IWM Promotion Committee (PIWMPC) and to facilitate appropriate business activities. 																																																																														
<p>Proposed CCPIWMP and PIWMPC</p>	<p>Following theme concerning IWM and WSC to be discussed with IPAAM within this week</p> <ul style="list-style-type: none"> ■ Completion of optimum Application Form for OL ■ Optimum Check and Approval Procedures for Application ■ Details of Renewal and Abolition procedures for OL ■ Publication and Announcement method of WSC License Code ■ Current Laws and Regulations for Enforcement of proper IWM and How to execute those Laws effectively ■ How to support Promising Companies which have co-processing technologies such as cement factory? ■ Fostering good WSCs with Awarding and Good Treatment 																																																																														
<p>f. Visit to hazardous and non-hazardous IW landfill in Sao Jose dos Campos</p>	<p>Outline of the landfill (1)</p> <ul style="list-style-type: none"> <input type="checkbox"/> The first HW landfill in Brazil and established in 1985. <input type="checkbox"/> The first landfill in Brazil that got ISO 14000 <input type="checkbox"/> Area: 756,000 m² <input type="checkbox"/> HW landfill has been developed one by one and its operation area is limited => 120m x 30m x 8m. <input type="checkbox"/> Each site have to get an operation license. <input type="checkbox"/> Since the municipality of Sao Jose dos Campos restricted IW disposal of at municipal landfill, the HW landfill started to disposal of Class II-A waste of factories from 2007. 																																																																														

<p>Outline of the landfill (2)</p> 	<p>Outline of the landfill (3)</p>  <p>Current HW Landfill</p>  <p>New HW Landfill</p>  <p>Previous HW Landfill</p>
<p>Outline of the landfill (4)</p>  <p>Leachate Collection</p>  <p>Non-HW Landfill</p>  <p>Previous Non-HW Landfill</p>	<p>Outline of the landfill (5)</p> <ul style="list-style-type: none"> <input type="checkbox"/> 60 Employees are trained and educated for safety. <input type="checkbox"/> 37 monitoring wells => Deep wells under impermeable soil (- 20m) and shallow wells above it (- 8 to 10m). <input type="checkbox"/> Recycling of construction waste from PETROBRAS. <input type="checkbox"/> Laboratory for incoming wastes check and keep samples for 3 months. <input type="checkbox"/> Clients comes there two times a year and CETESB every month <input type="checkbox"/> Disposal fees: HW 250R\$/ton, Non-HW 80 - 120 R\$/ton
<p>Outline of the landfill (6)</p>  <p>Monitoring Well</p>  <p>Monitoring Well</p>  <p>Recycling of Construction Waste</p>	<p>Outline of the landfill (7)</p>  <p>Laboratory</p>  <p>Laboratory</p>  <p>Recycling of Construction Waste</p>
<p>Next Weekly Meeting</p> <ul style="list-style-type: none"> <input type="checkbox"/> Next Meeting will be 22nd March 2010 (Monday) at 3:00 PM 	

3.21.2 Minutes of Meeting for Weekly Meeting (21) on March 15, 2010

<p style="text-align: center;">Weekly Meeting (21) 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;">02:00pm to 04:30pm 15 March, 2010 JICA Study Room in SUPRAMA</p> <p>Agenda</p> <ol style="list-style-type: none"> 1. Work progress 2. Subjects for this week 3. Subjects to be discussed <p>Participants</p> <table border="0"> <tr> <td>1. Elianilover Campos</td> <td>Representative of SEBILSP</td> </tr> <tr> <td>2. Antonio Ademar (Brazil)</td> <td>Representative of IFAM</td> </tr> <tr> <td>3. Alexandre Katsuta</td> <td>Representative of FEAM/CEMCO/IBAMA</td> </tr> <tr> <td>4. Adilson Martins</td> <td>Representative of Empresa (WDC of MSW)</td> </tr> <tr> <td>5. Wilson Neri</td> <td>Representative of Empresa (WDC of MSW)</td> </tr> <tr> <td>6. Vinicius Ribeiro Filho</td> <td>Technical Manager of CB & PE</td> </tr> <tr> <td>7. Jorge Garcia</td> <td>Technical Manager of SEA IMA</td> </tr> <tr> <td>8. Luis Felipe Simões</td> <td>Eng. and Arch. Projects Analysis Coord. SUPRAMA</td> </tr> <tr> <td>9. Arty Anze</td> <td>Assessor of EMBRAPA</td> </tr> <tr> <td>10. Renato Freitas</td> <td>COORDSUPRAMA</td> </tr> <tr> <td>11. Maria Emília Moura</td> <td>COORDSUPRAMA</td> </tr> <tr> <td>12. Raul Claudio Monteiro</td> <td>COORDSUPRAMA</td> </tr> <tr> <td>13. Evandro Belmonte</td> <td>COORDSUPRAMA</td> </tr> <tr> <td>14. Jaqui Maria Barbosa Jr.</td> <td>COORDSUPRAMA</td> </tr> <tr> <td>15. Ivo Brasil Filho</td> <td>COORDSUPRAMA</td> </tr> <tr> <td>16. Wilson Neri Neto</td> <td>COORDSUPRAMA</td> </tr> <tr> <td>17. Kathy Galina</td> <td>COORDSUPRAMA</td> </tr> <tr> <td>18. Alencar Oliveira Neto</td> <td>COORDSUPRAMA</td> </tr> <tr> <td>19. Sander Jorge Oliveira</td> <td>COORDSUPRAMA</td> </tr> <tr> <td>20. Luis Eduardo Pinheiro</td> <td>COORDSUPRAMA</td> </tr> </table>	1. Elianilover Campos	Representative of SEBILSP	2. Antonio Ademar (Brazil)	Representative of IFAM	3. Alexandre Katsuta	Representative of FEAM/CEMCO/IBAMA	4. Adilson Martins	Representative of Empresa (WDC of MSW)	5. Wilson Neri	Representative of Empresa (WDC of MSW)	6. Vinicius Ribeiro Filho	Technical Manager of CB & PE	7. Jorge Garcia	Technical Manager of SEA IMA	8. Luis Felipe Simões	Eng. and Arch. Projects Analysis Coord. SUPRAMA	9. Arty Anze	Assessor of EMBRAPA	10. Renato Freitas	COORDSUPRAMA	11. Maria Emília Moura	COORDSUPRAMA	12. Raul Claudio Monteiro	COORDSUPRAMA	13. Evandro Belmonte	COORDSUPRAMA	14. Jaqui Maria Barbosa Jr.	COORDSUPRAMA	15. Ivo Brasil Filho	COORDSUPRAMA	16. Wilson Neri Neto	COORDSUPRAMA	17. Kathy Galina	COORDSUPRAMA	18. Alencar Oliveira Neto	COORDSUPRAMA	19. Sander Jorge Oliveira	COORDSUPRAMA	20. Luis Eduardo Pinheiro	COORDSUPRAMA	<table border="0"> <tr> <td>21. David Ghis</td> <td>COORDSUPRAMA</td> </tr> <tr> <td>22. Rita de Cássia Moura</td> <td>SAGSUPRAMA</td> </tr> <tr> <td>23. Arminio Simões Jr.</td> <td>Support to JICA in SUPRAMA</td> </tr> <tr> <td>24. Mariana Barros</td> <td>Support to JICA in SUPRAMA</td> </tr> <tr> <td>25. Dr. Gustavo BEMURA</td> <td>Team Leader of JICA Study Team</td> </tr> <tr> <td>26. Dr. Tarciso BUZATI</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>27. Dr. Maurício FERR</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>28. Dr. Marcelo SAWACH</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>29. Dr. Kubo SHIMASHI</td> <td>Data Base Expert of JICA Study Team</td> </tr> <tr> <td>30. José de Almeida Marçal Ferreira</td> <td>Interpreter of JICA</td> </tr> </table>	21. David Ghis	COORDSUPRAMA	22. Rita de Cássia Moura	SAGSUPRAMA	23. Arminio Simões Jr.	Support to JICA in SUPRAMA	24. Mariana Barros	Support to JICA in SUPRAMA	25. Dr. Gustavo BEMURA	Team Leader of JICA Study Team	26. Dr. Tarciso BUZATI	Member of JICA Study Team	27. Dr. Maurício FERR	Member of JICA Study Team	28. Dr. Marcelo SAWACH	Member of JICA Study Team	29. Dr. Kubo SHIMASHI	Data Base Expert of JICA Study Team	30. José de Almeida Marçal Ferreira	Interpreter of JICA
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<p style="text-align: center;">Minutes & Agenda</p> <p style="text-align: center;">I. Work Progress: From 29 November 2009 to 15 March 2010</p> <ol style="list-style-type: none"> 1. Preparation of the meeting for the counterpart in Japan 2. Taking of the counterpart in Japan from 25 January to 09 February 2010 3. Preparation of the Draft of the First Report (DFF) of the Study 4. Site visit to the Landfill of Empresa - for Hazardous Industrial Wastes (HIW) and Non-Hazardous Industrial Wastes (NIW) - in São José dos Campos/SP <p style="text-align: center;">II. Schedule for this week</p> <ol style="list-style-type: none"> 1. Finalization of the Master Plan proposal 2. Continue the preparation of the Draft of the First Report (DFF) of the Study 3. Development of the Waste Inventory and the Waste Service Company Data Base 4. Preparation of the explanation meetings about the Data Base 5. Presentation of the 2nd Workshop, to take place on 08 April, 2010 <p style="text-align: center;">III. Subjects to be discussed</p> <p>The following subjects were discussed at the Meeting:</p> <ol style="list-style-type: none"> 1. Confirmation of the Minutes of the Weekly Meeting (20) 2. Schedule of the Study Team from 08 March to 09 de April 2010 3. Schedule of the works from 08 March to 09 de April 2010 4. Preparation of the explanation meetings of the Waste Inventory and the Waste Service Company Data Base 5. Preparation of the 2nd Workshop of the Study 6. Confirmation of some issues concerning the Master Plan 7. Site visit to the Landfill of Empresa for HIW and NIW, in São José dos Campos/SP 8. Confirmation of the Minutes of the Weekly Meeting (21) <p>The content of the next Meeting will be available in next copies of the press-release of this Meeting. Along the week it will be sent by e-mail to all stakeholders.</p>	<ol style="list-style-type: none"> 5. Schedule of the Study Team from 08 March to 09 de April 2010 <ol style="list-style-type: none"> 1. Simões, Suzane and Imbassai: 08 March to 08 April 2. Sawach: 08 to 29 March 3. Ferr: 08 to 19 March 4. Buzatti: 14 to 28 March 5. Barros: 22 March to 09 April and 6. José Felício: 16 March to 17 April. 6. Schedule of the works from 08 March to 09 de April 2010 <ul style="list-style-type: none"> - Explanation meeting about the Waste Inventory DB, data and venue to be confirmed in early April. - Explanation meeting about the ESIS DB, data and venue to be confirmed in early April - Presentation of the Draft of the First Report in early April. - 3rd Workshop on 08 April - Thermal Survey in late May Note: Schedule subject to changes. 4. Preparation of the explanation meetings of the Waste Inventory and the Waste Service Company Data Base <ul style="list-style-type: none"> - The inventory site of the HIW and the Licenses of the WDC is a key issue to establish the Industrial Waste Management (IWM) in IFAM/SP. - The HIW DB (on site HIW) and the WDC Licenses DB (off site HIW) are being developed by JICA Team and CGMCO of SUPRAMA. - After the meeting of the Data Base managers (BY - SUPRAMA, WDC - IFAM) and the explanation meetings of the Empresa and WDC, the Brazilian counterpart will have the respective DB to operate and maintain. <p style="text-align: center;">Waste Inventory Data Base:</p> <ul style="list-style-type: none"> - The HIW DB is being developed by Mr. Imbassai and the analysis of SUPRAMA, by Brazil - Filipe Wilson Neri Neto. - The explanation meeting will be held by the Brazilian and Mr. David Nishi Silva, Mr. Rita Moura and Mr. Arminio Simões Jr., who attended to be setting for waste management in São José dos Campos. 																																																												

Note: Draw the form for the on-line WQ DB data reporting for the factories, although it may be fully based on Resolution 313/2002 of CONAMA, it still to be approved by SUPRAMA. Its date and access for the expansion meeting is still to be set. It is intended to take place in the Auditorium of SUPRAMA and all factories which submitted the RW to IPAM and SUPRAMA in 2007 will be invited.

Waste Service Companies Data Base

- The DB of the WSC is being developed by Mr. Luisbato, Roche Neto and Mr. Emerson Silva from IPAM.
- Mrs. Rosivaldo Pereira, also from IPAM, is working hard in the issues of verifying and updating the licenses of the WSC.
- The expansion meeting will be held by the employees of IPAM Antonio Adenir Diniz, Emerson Silva and Rosivaldo Pereira.

Note: IPAM should approve the WSC DB form this week. It would be just dead if that meeting was also held in SUPRAMA. All WQ WSC should be invited.

A User's manual of the DB will be made available to all in both hard copies and on-line. The main purpose of the DB is to standardize the analysis of the RW control in Manaus Industrial Pole.

8. Preparation of the 2nd Workshop of the Study
The following issues were confirmed:

- Date: 06 April, 2010 (Tuesday)
- Time: 08:00am to 05:00pm
- Venue: Auditorium Flacares Pichaco, of SUPRAMA
- Number of people to be invited: 200
- Person in charge: JICA, Exim (Mr. Junkenjiro) Support to JICA and COOEX, COEVE/OSCOM, CCRPAJ and CGMO
- The opening remarks: Mr. Superintendent of SUPRAMA e the Representative of JICA's Central Office in Brazil
- The lecture will be held by the Brazilian counterparts who attended to the training in Japan. The topics are to be finalized upon intensity.

WQdb_week2_meeting_21_10032010-6

Comment: The 3rd Workshop aims for discussing the Master Plan.

E. Continuation of some issues concerning the Master Plan:
Certain issue policies are still to be discussed and confirmed in the 3rd of the Master Plan may be concluded.

- Involve the factories to entrust their RW only to WSC holding valid OL.
- Comment: The licensing of the industries should include such sufficient.
- Suggest the factories assign a person in charge for the RW generated onsite.
- Set an interactive network among the factories of the proposed Committee may be created.
- Details and associated for the WSC to send representatives for the said Committee but they may improve their abilities.
- Comment: Although that was kind in the past, so for the WSC to continue capacity to represent them at the PM area.

Proposed Committee

COOEX/PA - Committee for the Coordination of Process the Proper Management of the RW

WQdb_week2_meeting_21_10032010-7

Training about HW and WSC to be discussed with IPAM along the week.

- Finalize the OL control form (via Data Base).
- Details of the OL verification and approval procedures.
- Details of the OL renewal and termination procedures.
- Identification of the publication method and the WSC License Code.
- Identification of the current laws and regulations of the proper management of the RW and the means to execute them.
- Survey of the actions to assist the companies holding deteriorating technologies such as the cement factory, and
- Create incentives for the sound WSC with awards and a different treatment.

Comment: These issues will be discussed upon at a meeting on 15 March, at 08:00am, at IPAM.

g. Site Visit to the Landfill of Entrepes for HW and Non-HW in São José dos Campos-SP

The landfill is owned by Entrepes Engenharia Ltda. Its expansion was decided before the opening of the operations and each cell was gradually developed. There was also other features:

- First HW landfill in Brazil, starting in 1980.
- Final to have 150,000.
- Total area of 706,000 m². With a limited capacity of 1,200m x 300m x 8m.
- As mentioned above, it was developed in parts, each of which required a particular license.
- Since the city of São José dos Campos prohibited the disposal of HW in the municipal landfills, the landfill of Entrepes started following (Class I, A, Non-HW) from around November until 2007 on.

Upper view of the Landfill

WQdb_week2_meeting_21_10032010-8

Structure of the Landfill

- Some sections are already closed. They have valid OL and they have been well managed.
- The JICA had a considerable financial support as already written in the WQ. It was supported as a pilot project (initially, through the expansion with the JICA support on the "landfilling job").
- The cost of a modern landfill expansion job is about 100 million up to 200 million.
- Construction and maintenance cost for 10 Percent has already approved by Resolution 127/002-01/0344444.

WQdb_week2_meeting_21_10032010-9

<p>Comments: It was mentioned (PRA) is given more attention to the management of the CW from the large sites for the World Cup.</p> <ul style="list-style-type: none">• Due to having clients such as General Motors and Volkswagen the landfill is always increasing. The statistics show the landfill is more than ISO 14000 is being followed. The Environmental Agency of the State of São Paulo - CETESB does it on monthly basis.• The tipping fees are: HW - R\$ 250,00/m³; Non-HW - R\$ 80,00 to R\$ 120,00/m³. It receives around 1.000 HW a month. <p>JICA Team thinks Manaus should develop actions and mechanisms to create a proper environment for the (HW).</p> <p style="text-align: center;">Next Weekly Meeting</p> <p>The first Weekly Meeting (22) will take place on 22 March 2010 (Monday) at 10am, in JICA's Room in SUFRAMA. This Meeting (2/1) finished at 04:30 pm.</p>	
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3.22 Weekly Meeting (22)

3.22.1 Agenda for Weekly Meeting (22) on March 22, 2010

<p style="text-align: center;">Weekly Meeting (22)</p> <hr/> <p style="text-align: center;">March 22, 2010 JICA Study Team 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;">Agenda</p> <hr/> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed <hr/>
<p>1. Work Progress: From March 16 to March 22, 2010</p> <hr/> <ol style="list-style-type: none"> 1. Formulation of the master plan (M/P) 2. Preparation of DF/R 3. Development of the waste inventory (WI) database and the waste service company (WSC) database 4. Preparation of the explanation meetings for the waste inventory (WI) database and the waste service company (WSC) database 5. Preparation of Workshop (3) <hr/>	<p>2. Schedule for this Week</p> <hr/> <ol style="list-style-type: none"> 1. Formulation of the master plan (M/P) 2. Preparation of DF/R 3. Development of the waste inventory database (WI_DB) and the waste service company database (WSC_DB) 4. Preparation of the explanation meetings for the waste inventory database (WI_DB) and the waste service company database (WSC_DB) 5. Preparation of Workshop (3) <hr/>
<p>3. Subjects to be Discussed</p> <hr/> <ol style="list-style-type: none"> a. Explanation meeting for the WI database (WI_DB) b. Explanation meeting for the Waste Service Company database (WSC_DB) c. Current and future industrial waste (IW) generation d. Current IWM issues <hr/>	<p>a. Explanation meeting for the Waste Service Company database (WSC_DB)</p> <hr/> <p><input type="checkbox"/> Purpose: See a draft invitation letter</p> <ol style="list-style-type: none"> 1. Identification of licensed WSCs to eliminate non-licensed ones 2. Regulation of the licensed WSCs not to conduct non-licensed activities <p><input type="checkbox"/> Date: April 5 or 7 in the morning</p> <p><input type="checkbox"/> WSCs to be invited: 67 licensed ones How do we deal with 23 non-licensed WSCs?</p> <hr/>
<p>b. Explanation meeting for the Waste Inventory database (WI_DB)</p> <hr/> <p><input type="checkbox"/> Purpose: See a draft invitation letter</p> <ol style="list-style-type: none"> 1. To use WI_DB for identification of IWM in PIM as requested by CONAMA Resolution 313 2. To properly prepare a WI by factories <p><input type="checkbox"/> Date: April 5 or 7 in the afternoon</p> <p><input type="checkbox"/> Factories to be invited: 110 factories which submitted WI in 2008?</p> <hr/>	<p>c. Current and future industrial waste (IW) generation</p> <hr/> <div style="text-align: center; background-color: black; color: white; padding: 10px;"> <p>CURRENT AND FUTURE GENERAL INDUSTRIAL WASTE GENERATION</p> </div> <p style="text-align: right;">Methodology and Estimation Results 22 March 2010 JICA Study Team</p> <p>Industrial Waste</p> <ul style="list-style-type: none"> — General Industrial Waste — Health Waste — Construction Waste <hr/>

CONTENTS																									
<p>1. Current general industrial waste generation (2009)</p> <p>2. Methodology for estimating the future general industrial waste generation</p> <p>3. Future general industrial waste generation (2015)</p>	<p>1. Current General IW Generation (PIM Area in 2009) by Type of Industry</p> <p>Total Generation → 591.5ton/day</p> <p>Large generation sources →</p> <table border="1"> <thead> <tr> <th>Type of Industry</th> <th>Waste Gen (ton/day)</th> </tr> </thead> <tbody> <tr> <td>F04 Electric, electronic, and communication appliances industry</td> <td>174.1</td> </tr> <tr> <td>F17 Transport Machinery</td> <td>118.8</td> </tr> <tr> <td>F10 Paper industry</td> <td>83.3</td> </tr> <tr> <td>F07 Metallurgy</td> <td>67.0</td> </tr> <tr> <td>F14 Plastic Industry</td> <td>42.4</td> </tr> <tr> <td>F06 Mechanical</td> <td>40.9</td> </tr> <tr> <td>Sub-total</td> <td>526.5</td> </tr> </tbody> </table> <p>90% of the total industrial waste comes from 6 types of industries.</p>	Type of Industry	Waste Gen (ton/day)	F04 Electric, electronic, and communication appliances industry	174.1	F17 Transport Machinery	118.8	F10 Paper industry	83.3	F07 Metallurgy	67.0	F14 Plastic Industry	42.4	F06 Mechanical	40.9	Sub-total	526.5								
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<p>2. Methodology for estimating the future general IW generation (1)</p> <p>STEP 1 Estimating waste generation intensity by types of industry</p>	<p>2. Methodology for estimating the future general IW generation (2)</p> <p>STEP 2 Projection of the future industrial activities in PIM area</p> <p>Business-as-Usual Scenario</p> <p>Assuming that the past trend of industrial growth will be maintained and reflected to the future trend,</p> <p>Based on the production output data during 2004-2008 for each type of industry, future growth trend is estimated through approximate function analysis (statistical analysis method).</p> <p>Future growth trend is converted into the future number of employees for each type of industry to estimate the future general industrial waste generation</p>																								
<p>2. Methodology for estimating the future general IW generation (3)</p> <p>STEP 2 Projection of the future industrial output in PIM area</p> <p>(Example) Past Trend → Future Projection</p>	<p>2. Methodology for estimating the future general IW generation (4)</p> <p>STEP 3 Projection of Future Industrial Waste Generation</p> $IWG = \sum_{i=1}^n \sum_{j=1}^m (M_i * G_{ij})$ <table border="1"> <tbody> <tr> <td>IWG</td> <td>Industrial waste generation (ton/year)</td> </tr> <tr> <td>i</td> <td>Factory type</td> </tr> <tr> <td>j</td> <td>Type of industrial waste</td> </tr> <tr> <td>M</td> <td>Number of Employees</td> </tr> <tr> <td>G</td> <td>Waste Generation Rate (ton/employee/year)</td> </tr> </tbody> </table>	IWG	Industrial waste generation (ton/year)	i	Factory type	j	Type of industrial waste	M	Number of Employees	G	Waste Generation Rate (ton/employee/year)														
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<p>3. Future General IW Generation (PIM Area in 2015) by Type of Industry</p> <p>Total Generation \Rightarrow 737.7ton/day</p> <p>Large generation sources \Rightarrow</p> <table border="1"> <thead> <tr> <th>Type of Industry</th> <th>Waste Gen (ton/day)</th> </tr> </thead> <tbody> <tr> <td>F04 Electric, electronic, and communication appliances industry</td> <td>176.0</td> </tr> <tr> <td>F17 Transport Machinery</td> <td>186.6</td> </tr> <tr> <td>F10 Paper industry</td> <td>99.4</td> </tr> <tr> <td>F07 Metallurgy</td> <td>117.5</td> </tr> <tr> <td>F14 Plastic Industry</td> <td>52.6</td> </tr> <tr> <td>F06 Mechanical</td> <td>52.9</td> </tr> <tr> <td>Sub-total</td> <td>685.0</td> </tr> </tbody> </table> <p>93% of the total industrial waste comes from the same 6 types of industries as in 2009.</p>	Type of Industry	Waste Gen (ton/day)	F04 Electric, electronic, and communication appliances industry	176.0	F17 Transport Machinery	186.6	F10 Paper industry	99.4	F07 Metallurgy	117.5	F14 Plastic Industry	52.6	F06 Mechanical	52.9	Sub-total	685.0	<p>3. Future General IW Generation (PIM Area in 2015) by Type of Waste</p> <p>Composition of General Industrial Waste</p> <table border="1"> <thead> <tr> <th>Type of Waste</th> <th>Waste Gen (ton/day)</th> </tr> </thead> <tbody> <tr> <td>Non-Hazardous Industrial Waste</td> <td>580.5</td> </tr> <tr> <td>Metal scrap</td> <td>218.0</td> </tr> <tr> <td>Waste Paper</td> <td>137.2</td> </tr> <tr> <td>Waste/scrap plastic</td> <td>62.8</td> </tr> <tr> <td>Others</td> <td>162.5</td> </tr> <tr> <td>Hazardous Industrial Waste</td> <td>157.2</td> </tr> <tr> <td>Waste Oil</td> <td>27.0</td> </tr> <tr> <td>Sludge (Organic/Inorganic)</td> <td>24.9</td> </tr> <tr> <td>Organic Compounds</td> <td>22.5</td> </tr> <tr> <td>Others</td> <td>82.8</td> </tr> <tr> <td>Total</td> <td>737.7</td> </tr> </tbody> </table> <p>Total industrial waste generation will increase by 3.7%/year during 2009-2015</p> <p>No significant change in composition of industrial waste during 2009-2015</p> <p>Approximately 21% of the total industrial waste is hazardous.</p>	Type of Waste	Waste Gen (ton/day)	Non-Hazardous Industrial Waste	580.5	Metal scrap	218.0	Waste Paper	137.2	Waste/scrap plastic	62.8	Others	162.5	Hazardous Industrial Waste	157.2	Waste Oil	27.0	Sludge (Organic/Inorganic)	24.9	Organic Compounds	22.5	Others	82.8	Total	737.7																							
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<p>Next Weekly Meeting</p> <p><input type="checkbox"/> Next Meeting will be 29th March 2010 (Monday) at 3:00 PM</p>																																							

3.22.2 Minutes of Meeting for Weekly Meeting (22) on March 22, 2010

<p style="text-align: center;">Weekly Meeting (22) 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;">08:00pm to 04:00pm 22 March, 2010 JICA Study Room in SUFRAMA</p> <p>Agenda</p> <ol style="list-style-type: none"> 1. Work progress 2. Schedule for this week 3. Subjects to be discussed <p>Participants</p> <table border="0"> <tr> <td>1. Antonio Alberti (Brazil)</td> <td>Representative of IPAM</td> </tr> <tr> <td>2. Alexandre Padista</td> <td>Representative of FIEAM/CEM/CETIS-AM</td> </tr> <tr> <td>3. Carlos Eder</td> <td>Representative of Turpo (ESR de RSL)</td> </tr> <tr> <td>4. Wensley Meir</td> <td>Representative of Entropia (ESR na RSL)</td> </tr> <tr> <td>5. Paulo Ricardo Faria</td> <td>Technical Manager of OB RPE</td> </tr> <tr> <td>6. André Araújo</td> <td>Attorney of ERENCH</td> </tr> <tr> <td>7. Jan-Sim Filler</td> <td>CGPRE/SUFRAMA</td> </tr> <tr> <td>8. Renato Freitas</td> <td>COGEC/SUFRAMA</td> </tr> <tr> <td>9. Evandro Barbosa</td> <td>COGEC/SUFRAMA</td> </tr> <tr> <td>10. Ivo Brasil Filho</td> <td>COGEC/SUFRAMA</td> </tr> <tr> <td>11. Wilson Soares Neto</td> <td>COGEC/SUFRAMA</td> </tr> <tr> <td>12. David Sáez</td> <td>COGEC/SUFRAMA</td> </tr> <tr> <td>13. Rita de Cassia Mente</td> <td>SAC/SUFRAMA</td> </tr> <tr> <td>14. Fátima Carolina de</td> <td>Support to JICA in SUFRAMA</td> </tr> <tr> <td>15. Miriam Bloom</td> <td>Support to JICA in SUFRAMA</td> </tr> <tr> <td>16. N. Gomoji (JICA)</td> <td>Team Leader of JICA Study Team</td> </tr> <tr> <td>17. Dr. Tamara (JICA)</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>18. Dr. Sakurai (JICA)</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>19. Dr. Miriam Sawachi</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>20. Dr. Steven Schwartzman</td> <td>Member of JICA Study Team</td> </tr> </table> <p>Manaus_Meeting_Minutes_22.doc</p>	1. Antonio Alberti (Brazil)	Representative of IPAM	2. Alexandre Padista	Representative of FIEAM/CEM/CETIS-AM	3. Carlos Eder	Representative of Turpo (ESR de RSL)	4. Wensley Meir	Representative of Entropia (ESR na RSL)	5. Paulo Ricardo Faria	Technical Manager of OB RPE	6. André Araújo	Attorney of ERENCH	7. Jan-Sim Filler	CGPRE/SUFRAMA	8. Renato Freitas	COGEC/SUFRAMA	9. Evandro Barbosa	COGEC/SUFRAMA	10. Ivo Brasil Filho	COGEC/SUFRAMA	11. Wilson Soares Neto	COGEC/SUFRAMA	12. David Sáez	COGEC/SUFRAMA	13. Rita de Cassia Mente	SAC/SUFRAMA	14. Fátima Carolina de	Support to JICA in SUFRAMA	15. Miriam Bloom	Support to JICA in SUFRAMA	16. N. Gomoji (JICA)	Team Leader of JICA Study Team	17. Dr. Tamara (JICA)	Member of JICA Study Team	18. Dr. Sakurai (JICA)	Member of JICA Study Team	19. Dr. Miriam Sawachi	Member of JICA Study Team	20. Dr. Steven Schwartzman	Member of JICA Study Team	<table border="0"> <tr> <td>21. Dr. José Felício HADDAD</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>22. Dr. Eunice Ghislaia</td> <td>Class Room Expert of JICA Study Team</td> </tr> <tr> <td>23. João de Amorim Maciel Ferreira</td> <td>Interpreter of JICA</td> </tr> </table> <p>Manaus_Meeting_Minutes_22.doc</p>	21. Dr. José Felício HADDAD	Member of JICA Study Team	22. Dr. Eunice Ghislaia	Class Room Expert of JICA Study Team	23. João de Amorim Maciel Ferreira	Interpreter of JICA
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<p style="text-align: center;">Minutes & Agenda</p> <p style="text-align: center;">I. Work Progress: From 16 to 22 March, 2010</p> <ol style="list-style-type: none"> 1. Finalization of the proposal of the Master Plan (MP) 2. Preparation of the Draft Final Report (DFR) 3. Development of the Waste Inventory Data Base (WI_DB) and the Waste Service Companies Data Base (WSC_DB) 4. Preparation of the explanation meetings of the WI Data Base and the WSC Data Base 5. Preparation of the 3rd Workshop, to take place on (06 April 2010) <p style="text-align: center;">II. Schedule for this week</p> <ol style="list-style-type: none"> 1. Finalization of the Master Plan proposal 2. Continue the preparation of the Draft of the Final Report (DFR) of the Study 3. Development of the Waste Inventory and the Waste Service Companies Data Bases 4. Preparation of the explanation meetings about the Data Bases 5. Preparation of the 3rd Workshop <p style="text-align: center;">III. Subjects to be discussed</p> <p>The following subjects were discussed at the Meeting:</p> <ol style="list-style-type: none"> a. Confirmation of the Minutes of the Weekly Meeting (21) b. Explanation meeting of the WSC Data Base (DB_WSC) c. Explanation meeting of the WI Data Base (DB_WI) d. Current and future generation of the industrial wastes (IWI) in PM e. Current issues of the industrial-waste management (IWM) in PM <p>a. Confirmation of the Minutes of the Weekly Meeting (21) The content of the prior Meeting was made available in hard copies to the participants of the Meeting. Along the week it will be sent by e-mail to all stakeholders.</p> <p>Manaus_Meeting_Minutes_22.doc</p>	<p>b. Explanation meeting of the WSC Data Base (DB_WSC) The DB_WSC intends to control the explanation of the WSC of IPAM, being for emphasizing the irregular companies, and that only the licensed activities are being carried-out, upon the accurate number of WSC is unknown and that they many times carry out activities they are not licensed to.</p> <ul style="list-style-type: none"> • A model of the invitation letter for the DB_WSC explanation meeting was made available. Suggested date: 07 April 2010, in the morning. Invited audience: All SC, EBC identified in the study (87 licensed ones and 73 non-licensed ones) <p>c. Explanation meeting of the WI Data Base (DB_WI)</p> <ul style="list-style-type: none"> • A model of the invitation letter for the DB_WI explanation meeting was made available. Suggested date: 07 April 2010, in the afternoon. Invited audience: The 110 industries from Districts 1 and 4 which presented the WI to SUFRAMA in 2008. <p>DB_WI: The DB_WI explanation meeting depends on a final decision from SUFRAMA to take place.</p> <p>d. Current and future generation of the industrial wastes (IWI) in PM The study of JICA considers the industrial wastes under the following sub-division:</p> <ul style="list-style-type: none"> • General Industrial Wastes (Resolution 55/2002 of CONAMA) • Health Wastes (Resolution 258/2003 of CONAMA) • Construction Wastes (Resolution 307/2002 of CONAMA) <p style="text-align: center;">Current Generation of Industrial Wastes in PM (2008) 187 surveyed factories (total capacity = 891.8 ton/day)</p> <table border="1"> <thead> <tr> <th colspan="3">Main generation sources</th> <th></th> </tr> <tr> <th colspan="3">Types of industry</th> <th>(ton/day)</th> </tr> </thead> <tbody> <tr> <td>R54</td> <td>Electro-communication</td> <td>492</td> <td>174.1</td> </tr> <tr> <td>F17</td> <td>Treatment of wastes</td> <td>118.9</td> <td></td> </tr> <tr> <td>F12</td> <td>Paper</td> <td>83.2</td> <td></td> </tr> <tr> <td>E27</td> <td>Metalurgy</td> <td>67.2</td> <td></td> </tr> <tr> <td>F14</td> <td>Plastic</td> <td>42.4</td> <td></td> </tr> </tbody> </table> <p>Manaus_Meeting_Minutes_22.doc</p>	Main generation sources				Types of industry			(ton/day)	R54	Electro-communication	492	174.1	F17	Treatment of wastes	118.9		F12	Paper	83.2		E27	Metalurgy	67.2		F14	Plastic	42.4																			
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Composition of the general industrial wastes

Types of Waste	(ton/day)
Non-Hazardous Industrial Wastes (Non-HIW)	471.9
Metal slag	143.0
Paper	118.0
Plastic	54.0
Others	155.9

Types of Waste	(ton/day)
Hazardous Industrial Wastes (HIW)	119.7
Oil	35.0
Sludge (Organic/Inorganic)	35.0
Organic solvents	19.0
Others	35.7
Total	591.6

Comments:

- The optimization of the information on wastes generated in PIM leads to make the recycling industrial activities feasible which use wastes as raw-materials (plastic, cement, others) intended in it.
- It was suggested for OI_WI should identify the existing sources of waste. For instance, the several types of plastic (high and low density polyethylene, polypropylene, others).
- A considerable amount of Non-HIW can be recycled such as metal slag, paper and plastic. But in Manaus, most of these are disposed of in the Manaus Landfill.

Current flow of the IW generated in PIM (2005)

Manaus_Weekly_Meeting_22(22)

Methodology of the future estimates of IW in general in PIM area

Step 1 - Estimative of the wastes generated by the types of industry variables considered

Comments:

- The systematic search for consistent indicators of productivity, revenues, total number of employees...

Step 2 - Projection of the future industrial activities in PIM

Manaus_Weekly_Meeting_22(22)

CENÁRIO DE NEGÓCIOS

Presumindo que a tendência passada de crescimento industrial será mantida e que a mesma se refletirá na tendência futura.

Com base nos dados produtivos de 2004 a 2006 para cada tipo de indústria, estima-se que o crescimento futuro é estimado por meio de uma análise funcional aproximada limitado analítico estatístico.

A tendência de crescimento futuro é convertida no número futuro de funcionários para cada tipo de indústria, a fim de se estimar quanto de resíduos industriais será gerado futuramente.

Exemplos, wood and plastic industries

Manaus_Weekly_Meeting_22(22)

Phase 2 - Projection of the future generation of industrial wastes

$$GRI = \sum_{i=1}^n \sum_{j=1}^m (M_i^* G_{ij})$$

GRI	Annual generation (ton/year)
i	Type of firm
j	Type of industrial waste
M	Number of employees
G	Generation coefficient (ton/employee/year)

Future Generation of General Industrial Wastes in PIM (2015)
Total amount = 737.7 ton/day

Main generation sources

Types of Industry	(ton/day)
FOR (Electric, electronics and communication)	179.0
F17 (Transport (2 wheel))	158.0
F10 (Paper)	96.4
F01 (Metalurgy)	117.5
F14 (Plastic)	82.0
F16 (Metallurgy)	82.8

Comments: In order to verify whether COGIC holds reports with information on the reports resulting from the activities of PIM industries, which may be made available to the Study Team, we also suggested the access to the Annual Industrial Register of IBGE to corroborate the information, such as the category of wastes generated by the manufacturing industries.

Composition of the general industrial wastes

Types of Wastes	(ton/day)
Non-Hazardous Industrial Wastes (Non-HIW)	580.0
Metal slag	118.0
Paper	137.2
Plastic	82.8

Manaus_Weekly_Meeting_22(22)

Type of Waste	Amount
Residuals (Industrial) Wastes (Resíduo)	157.2
Oil	27.0
Sludge (Resíduo Sólido)	34.6
Organic compounds	23.0
Others	127.9
Total	389.7

Current Generation of the Health and Construction Wastes

- The site is occupied by a clinic and a factory which carried out a construction work in the previous year (approximately 400 kg/day/shift).
- The main source of health and construction wastes in PIM is occupied by MT a National of Manaus (124 factories with almost 1.03 factories with jobs/activities in previous year in MT - Health and Construction Wastes Total Amount).
- The site controlled by the employers is estimated by PQ / 119.182 (total number of employees of the factories in 2009).

PG por Enfermaria & Fábrica → PG Atual de RSS & Construção → PG por Funcionário → PG Futuro de RSS & Construção

Generation of Health and Construction Wastes in 2015

Class	Class A	Class B	Class C	Class D	Total
Construction Wastes in 2009	28.79	0.12	0.00	0.00	28.90
Construction Wastes in 2015	47.25	0.26	0.00	0.00	47.51

Forecast of the current amount of health wastes to be generated in 2015

Category	Rate (g/employee/day)	Amount	
		2009 (kg/day)	2015 (kg/day)
Group A	A.1	0.20	26.1
	A.2	0.00	0.0
	A.3	0.14	16.3
	A.4	0.36	42.4
	A.5	—	0.0
Group B	0.28	34.0	
Group C	0.00	0.0	
Group E	0.00	21.7	
Group D	1.04	120.7	
Total	3.58	291.2	

Forecast of the current amount of construction wastes to be generated in 2015

Class	Class A	Class B	Class C	Class D	Total
Construction Wastes in 2009	28.79	0.12	0.00	0.00	28.90
Construction Wastes in 2015	47.25	0.26	0.00	0.00	47.51

Comparison of the final destination of IW in similar studies

Study Area	On-site disposal (%)	Off-site disposal (%)
1. Industrial Wastes in PIM	4.2	95.8
General Industrial Wastes	4.5	95.5

Health Wastes

Waste Type	On-site	Off-site
Health Wastes	0.0	100.0
Construction Wastes	0.0	100.0
2. Metropolitan Area of Bangkok, Thailand (2007)	33.0	67.0
3. Prefecture of Mie, Japan (2000)	53.9	46.1

Comments: The Brazilian counterpart which underwent the training in Japan, visited hospitals, construction sites (many out-stalls) managers of industrial wastes in large scale, such as Yokoyama Manufacturing Co. in the Industrial Pole of Kitakyu in Kyoto, Prefecture of Yamaguchi. It was also seen the expansion of a to disposal of wastes, the Prefecture of Chiba charges around US\$ 300.00 per ton of IW disposed of in the landfill.

1. There is a lack of incentive to create a proper IW on-site waste management system. Possible immediate actions:

- Rebuild the final disposal of Manaus Landfill, charging for the disposal.
- Douglasize campaigns and incentive to disseminate the 3Rs in the economy.

2. There is an insufficient understanding of the current IW on-site disposal. Priority of the Team:

- Lack of interest in a better on-site disposal (by licensed WTC (charging money) by the factories).
- Existence of non-licensed WTC.
- Lack of a wastes manifest system well set by IPAAM.
- Low rate of IW submitted to IPAAM and SLP/AMMA.
- Insufficient management of the IW by the controlling organizations.
- Incapacity to locate the Landfill of Manaus.
- Poor business environment of the IW disposal.

Comments: There should be more subsidies/facilities for the purposes of the income of wastes generating in PIM.

- Low promotion of co-processing in cement factories.

Comments: In Manaus, only Buildings (commercial, less in 2006, over 80 % of the education) industrial wastes are co-processed.

4. Use of generation control plans

Comments: The pollution control plants are the disposal areas. Something positive about the Industrial District is 54 % of its industries have wastewater treatment stations. Nevertheless, it is necessary to have a better control of the illegal dumping in PIM. A similar work was done recently by the Government of the State of Paraíba, whose the objective is much lower than Amazonas.

Other issues about the administration of the IW in PIM

- Organizational structure
 - Legal system
 - Consolidated organizational structure
- Comments: IPAAM holds the ultimate responsibility, but still has to take actions such as increasing the number of experts and the implementation of the WTC and IW Data Base.
- Improvement and updating of the administrative tools
 - Improvement of the Data Base with projects approved by SLP/AMMA.
 - Operation of the IW Data Base.
 - Improvement of the Waste Manifest System of IPAAM.
 - Operation of the Registration and Management WTC Data Base.
 - Improvements of the information related to the generation of wastes as a whole.
- Strengthening of the existing legislation

Comments: The House of Commons approved on 10 March 2010, the Law 845, 200/2010 which establishes the Solid Wastes National Policy. It will be used by the Federal States before being approved by the President.
- Cooperation between private and public sectors
 - Cooperation between governmental environmental organizations.
 - Cooperation between the government and the generators.
 - Cooperation between the government and the WTC.

<p>• Discussion centered the final activities involved with waste management. Government, Communities and WSC.</p> <p>Next Weekly Meeting</p> <p>The Next Weekly Meeting (22), the last on the Final Draft Report, will take place on 20 March 2010 (Monday), at 9:00 am at JICA's Board in SLFRAMA. This Meeting (22) finished at 04:30 pm.</p> <p>London_Manus_Weekly_22.doc</p>	
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3.23 Weekly Meeting (23)


3.23.1 Agenda for Weekly Meeting (23) on March 29, 2010

<p style="text-align: center;">Weekly Meeting (23)</p> <p style="text-align: center;">March 29, 2010 JICA Study Team 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;">Agenda</p> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed
<p>1. Work Progress: From March 23 to March 29, 2010</p> <ol style="list-style-type: none"> 1. Formulation of the master plan (M/P) 2. Preparation of DF/R 3. Development of the waste inventory database (WI_DB) and the waste service company database (WSC_DB) 4. Preparation of the explanation meetings for the waste inventory database (WI_DB) and the waste service company database (WSC_DB) 5. Preparation of Workshop (3) 	<p>2. Schedule for this Week</p> <ol style="list-style-type: none"> 1. Preparation of DF/R 2. Preparation of the explanation meetings for the waste inventory database (WI_DB) and the waste service company database (WSC_DB) 3. Preparation of Workshop (3)
<p>3. Subjects to be Discussed</p> <ol style="list-style-type: none"> a. Confirmation of the explanation meeting for the WI database (WI_DB) and the Waste Service Company database (WSC_DB) b. Recommendations of the Draft Final Report c. Presentations of the Workshop (3) 	<p>a. Confirmation of the explanation meeting for the Waste Service Company database (WSC_DB) and the WI database (WI_DB)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Date: April 7 <input type="checkbox"/> WSCs to be invited: 67 licensed ones How do we deal with 23 non-licensed WSCs? <input type="checkbox"/> Factories to be invited: 110 factories which submitted WI in 2008? <input type="checkbox"/> Who is going to send invitation letters?
<p>b. Recommendations of the Draft Final Report (1)</p> <ul style="list-style-type: none"> <input type="checkbox"/> The purpose of the Master Plan (MP) is to “establish an appropriate industrial waste management system in PIM” <input type="checkbox"/> Target year of the M/P is in 5 years, 2015 <input type="checkbox"/> The top priority is “<i>improving the administrative management system for IWM</i>”. 	<p>b. Recommendations (2)</p> <p>The flowchart is divided into two main vertical sections. The left section, titled 'Improving the Administrative System for IWM', lists several actions: 'Develop a Waste Service Company Database (WSC_DB)', 'Encourage registration in the WSC_DB', 'Construct a WSC registration management system', 'Develop a Waste Inventory Database (WI_DB)', 'Disseminate Waste Inventory Guidelines', 'Understand actual conditions of waste management at generation sources (factories)', 'Step up Waste Manifest System (WMS)', 'Disseminate Waste Manifest System (WMS)', 'Understand actual waste disposal after discharge', 'Reinforce IPAAM's managing organization (GMAM)', 'Reinforce SUPRAMA's managing organization (CGPR)', and 'Strengthen the organization for industrial waste management'. The right section, titled 'Legal Enforcement', lists: 'Eliminate non-licensed companies', 'Control inappropriate disposal', 'Encourage submission of waste inventory', 'Confirm Final Destination', 'Establish System of Appropriate Industrial Waste Management', 'Promote Appropriate Treatment and Disposal and the SRs', 'Instruction and Public Promotion of Generators and Waste Service Companies', 'Improve the business environment for waste service companies', and 'Cooperation between administration, generators and waste service companies'. Arrows indicate that the administrative actions on the left lead to the legal enforcement and management systems on the right.</p>

<p>b. Recommendations of the Draft Final Report (3)</p> <ul style="list-style-type: none"> <input type="checkbox"/> A list of administrative management system improvements; 1. Construct a system to manage registration of WSCs by developing a waste service company database (WSC_DB). 2. Understand actual waste management at generation sources (i.e. factories) by developing a waste inventory database (WI_DB). 3. Understand actual waste disposal after it is discharged by stepping up the Waste Manifest System (WMS). 4. In order to carry out the above, reinforce the managing organizations, IPAAM and SUFRAMA. 	<p>b. Recommendations of the DF/R (4): Legal Enforcement (1)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Elimination of Non-Licensed Companies <input type="checkbox"/> Non-Licensed Companies are: <ol style="list-style-type: none"> 1. Those carrying out waste related services without having obtained an environmental license 2. Those which have obtained an environmental license, but are carrying out activities other than those for which they are licensed.
<p>b. Recommendations of the DF/R (5): Legal Enforcement (2)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Immediately make the WSC registration management system a legal requirement and require companies to obtain an operation license for waste services as a condition to engaging in waste related services. <input type="checkbox"/> Then, instruct the WSC with an environmental license to acquire an operation license according to their activities, for collection and transportation, intermediate treatment, recycling or final disposal, respectively. <input type="checkbox"/> When approving the operation licenses, any discrepancy between the activities applied for and actual activities are confirmed. Approved companies are registered in the WSC_DB according to the WSC_DB guidelines, and publicize information about registered WSCs. 	<p>b. Recommendations of the DF/R (6): Legal Enforcement (3)</p> <ul style="list-style-type: none"> <input type="checkbox"/> By WSC_DB waste generators will get the basic information on which companies have a license and what activities licensed. IPAAM shall remind the waste generators that the main responsibility of proper IWM lies with the Generator and the Generator, as well as the Environmental Authority, must audit IW disposal activities of the receptor. <input type="checkbox"/> Waste generators with information about sound operators they can hire will push out both non-licensed companies and those conducting non-licensed activities. At the same time, non-licensed companies will be instructed to acquire the appropriate license. <input type="checkbox"/> By eliminating non-licensed companies and non-licensed activities, IPAAM can control improper treatment and disposal done by WSCs with licenses.
<p>b. Recommendations (7): Encourage Submission of Waste Inventory (WI) (1)</p> <ul style="list-style-type: none"> <input type="checkbox"/> IPAAM shall submit the analysis report of the WI to IBAMA. <input type="checkbox"/> SUFRAMA needs the analysis report of the WI for the acquisition of an environmental license for PIM. <input type="checkbox"/> IPAAM/SUFRAMA take: <ol style="list-style-type: none"> 1. The first step is to put a system in place to aggregate and analyze the WI in order to gauge the current conditions of IWM and formulate an improvement plan, as required by CONAMA Resolution 313. 2. Guidelines were written to instruct how data will be entered in a uniform fashion into a WI_DB, developed in this study. 	<p>b. Encourage Submission of WI (2)</p>
<p>b. Recommendations (9): Encourage Submission of WI (3)</p> <ul style="list-style-type: none"> <input type="checkbox"/> To analyze the aggregated data in the WI_DB to understand current conditions on IWM in PIM, it is essential to standardize the data entry methods. To do so, the person at each factory in charge of writing the WI understands how to fill out the forms. <input type="checkbox"/> Improvements will need to be made to the WI_DB and the guidelines to sufficiently comply with the requirements of the Resolution 313. IPAAM/SUFRAMA will first focus on the factories that submitted waste inventories in 2009, provide them with guidance concerning how to write the WI, and then analyze them. This process will clarify any issues related to factories properly making the WI so that the WI_DB and guidelines can be improved. <input type="checkbox"/> After the improvement of them, public information and guidance will be provided for all PIM factories. 	<p>b. Recommendations (10): Confirm Final Destination</p> <ul style="list-style-type: none"> <input type="checkbox"/> IPAAM conduct: <ol style="list-style-type: none"> 1. Improve the current waste manifest system (WMS) up to the On-line WMS with collaboration of the other state. 2. By the on-line WMS, confirm that proper treatment and disposal is carried out from generator to final destination by matching it with the flow of IW disposal in PIM as clarified in the WI_DB. 3. Until the on-line WMS is developed, ask the factories which discharge waste to confirm final destination. <input type="checkbox"/> It should be noted that the WMS must include both private and public entities that generate, transport or receive waste, except municipal waste.

<p>b. Recommendations (11): Application of Guidelines</p> <ul style="list-style-type: none"> □ To ensure the full use of WSC_DB and WI_DB, guidelines were made for “Making the Waste Inventory” and “Applying for Operational License for Waste Service Companies” □ In order to make the two databases functional and achieve their objectives, “Understanding the Current Conditions of IWM in PIM” and “Clarifying Conditions of WSCs with Licenses”, it is necessary to resolve issues pertaining to data input and analysis. SUFRAMA and IPAAM will need to collaborate to improve and disseminate each of these databases and their guidelines. 	<p>b. Recommendations (12): Promote Appropriate Treatment and Disposal and the 3Rs</p> <pre> graph TD A[Step-up Control of Improper Treatment and Disposal] --> B[Raise Disposal Fee] C[Provide Information, Training and Guidance on Proper Treatment and Disposal and 3R] --> D[Promotion of Appropriate Disposal and 3R] B --> D D --> E[Promote 3Rs at factories (generation sources)] D --> F[Promote off-site use of 3R] </pre>
<p>b. Recommendations (13): Improve Business Environment for WSCs (1)</p> <ul style="list-style-type: none"> □ The first step is to prepare an industrial waste management system, eliminating non-licensed companies, and controlling improper treatment and disposal. To do so, they will need to proactively publicize information about the WSCs registered in the WSC_DB and make factories aware the information. □ Establish an exclusive area at the Manaus City landfill for fee-based disposal of Class II-A/ Non-inert IW, and promote separate disposal. 	<p>b. Recommendations (14): Improve Business Environment for WSCs (2)</p> <ul style="list-style-type: none"> □ Instruct waste generators to contract WSCs registered in the WSC_DB for disposal, and provide technical information to promote on-site 3R, including training and guidance. □ Hold training seminars for WSCs to instruct and guide them with information an appropriate treatment and disposal techniques. □ Furthermore, adopt the good examples from other advanced states. In Japan, many prefectures have recently introduced a “reward system for preferred WSCs” which has been effective.
<p>b. Recommendations (15): Cooperation between Administration, Generators and Waste Service Companies (1)</p> <ul style="list-style-type: none"> □ Establishing a Coordination Committee for Proper Industrial Waste Management Promotion (CCPIWMP). The CCPIWMP will discuss about duplicity of licensing, inspecting, surveillance and punishment by IPAAM and SEMMA. □ The CCPIWMP would be central to encouraging cooperation between administration, waste generators, and WSCs. The administrative side would hold a (tentatively named) Proper Industrial Waste Management Promotion Committee (PIWMPC) meeting of these entities for them to come to an understanding on various issues and strengthen ties. □ The administrative side would publicize, educate and train waste generators and WSCs on appropriate disposal. 	<p>b. Recommendations (16): Cooperation between Administration, Generators and Waste Service Companies (2)</p> <pre> graph TD A[CCPIWMP] --> B[PIWMPC] C[GENERATOR] --> B D[WMC] --> B </pre> <p>Member of Committee -SUFRAMA -IPAAM -SEMMA -SEMULSP -UGPPROSAMIM -FIEAM -CIEAM -CCINBAM</p>
<p>c. Presentation of the Workshop (3)</p> <p>Session 1: On-site IWM in Japan Session 2: Off-site IWM in Japan Session 3: IWM Administration in Japan Session 4: IWM Master Plan for PIM</p>	<p>Next Weekly Meeting</p> <ul style="list-style-type: none"> □ Next Meeting will be 5th April 2010 (Monday) at 3:00 PM

3.23.2 Minutes of Meeting for Weekly Meeting (23) on March 29, 2010

<p style="text-align: center;">Weekly Meeting (23) 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;">03:00pm to 04:30pm 29 March, 2010 JICA Study Room in SUPRAMA</p> <p>Agenda</p> <ol style="list-style-type: none"> 1. Work progress 2. Schedule for this week! 3. Subjects to be discussed! <p>Participants</p> <table border="0"> <tr> <td>1. Alexandre Fialho</td> <td>Representative of FINEANCIAM/CCP/BLAM</td> </tr> <tr> <td>2. Wandir Melo</td> <td>Representative of Empresa (NSC of MSW)</td> </tr> <tr> <td>3. Karla Acuña</td> <td>Assessor of EMBICOR</td> </tr> <tr> <td>4. José Paulo Sotoca</td> <td>Eng. and Arch. Projects Analysis Coord. SUPRAMA</td> </tr> <tr> <td>5. José Elvaz Filho</td> <td>CGPRG/SUPRAMA</td> </tr> <tr> <td>6. Renato Freitas</td> <td>COGEG/SUPRAMA</td> </tr> <tr> <td>7. Ana Cibulka Muelken</td> <td>COGEG/SUPRAMA</td> </tr> <tr> <td>8. João Paulo Filho</td> <td>COGEG/SUPRAMA</td> </tr> <tr> <td>9. Wilson Rodrigo Fialto</td> <td>COGEG/SUPRAMA</td> </tr> <tr> <td>10. Maria Guedes Bastin</td> <td>Foreign Trade Services Coord./SUPRAMA</td> </tr> <tr> <td>11. André Gama</td> <td>COGEG/SUPRAMA</td> </tr> <tr> <td>12. Rogério Oliveira Neto</td> <td>COGEG/SUPRAMA</td> </tr> <tr> <td>13. Jeanmar Jorge Oliveira</td> <td>COGEG/SUPRAMA</td> </tr> <tr> <td>14. Lize Salazar Haddad</td> <td>COGEG/SUPRAMA</td> </tr> <tr> <td>15. David Gray</td> <td>Support to JICA in SUPRAMA</td> </tr> <tr> <td>16. Paulo da Costa Mello</td> <td>Support to JICA in SUPRAMA</td> </tr> <tr> <td>17. Alexandre Santos Jr.</td> <td>Support to JICA in SUPRAMA</td> </tr> <tr> <td>18. Márcia Gomes</td> <td>Support to JICA in SUPRAMA</td> </tr> <tr> <td>19. Dr. Davison D'HARPA</td> <td>Team Leader of JICA Study Team</td> </tr> <tr> <td>20. Dr. Takanori SUGIHI</td> <td>Member of JICA Study Team</td> </tr> </table>	1. Alexandre Fialho	Representative of FINEANCIAM/CCP/BLAM	2. Wandir Melo	Representative of Empresa (NSC of MSW)	3. Karla Acuña	Assessor of EMBICOR	4. José Paulo Sotoca	Eng. and Arch. Projects Analysis Coord. SUPRAMA	5. José Elvaz Filho	CGPRG/SUPRAMA	6. Renato Freitas	COGEG/SUPRAMA	7. Ana Cibulka Muelken	COGEG/SUPRAMA	8. João Paulo Filho	COGEG/SUPRAMA	9. Wilson Rodrigo Fialto	COGEG/SUPRAMA	10. Maria Guedes Bastin	Foreign Trade Services Coord./SUPRAMA	11. André Gama	COGEG/SUPRAMA	12. Rogério Oliveira Neto	COGEG/SUPRAMA	13. Jeanmar Jorge Oliveira	COGEG/SUPRAMA	14. Lize Salazar Haddad	COGEG/SUPRAMA	15. David Gray	Support to JICA in SUPRAMA	16. Paulo da Costa Mello	Support to JICA in SUPRAMA	17. Alexandre Santos Jr.	Support to JICA in SUPRAMA	18. Márcia Gomes	Support to JICA in SUPRAMA	19. Dr. Davison D'HARPA	Team Leader of JICA Study Team	20. Dr. Takanori SUGIHI	Member of JICA Study Team	<table border="0"> <tr> <td>21. Dr. Steven SUNGSTRÖM</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>22. Dr. José Pablo VACCARO</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>23. Sr. Kento UHIBASHI</td> <td>Data Base Expert of JICA Study Team</td> </tr> <tr> <td>24. José de Almeida Macedo Feres</td> <td>Inspector of JICA</td> </tr> </table>	21. Dr. Steven SUNGSTRÖM	Member of JICA Study Team	22. Dr. José Pablo VACCARO	Member of JICA Study Team	23. Sr. Kento UHIBASHI	Data Base Expert of JICA Study Team	24. José de Almeida Macedo Feres	Inspector of JICA
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<p style="text-align: center;">Minutes & Agenda</p> <p style="text-align: center;">I. Work Progress: From 23 to 29 March 2010</p> <ol style="list-style-type: none"> 1. Finalization of the content of the Master Plan (MP) 2. Preparation of the Draft Final Report (DFR) 3. Development of the Waste Inventory Data Base (WI_DB) and the Waste Services Companies Data Base (WSC) 4. Preparation of the explanation meetings of the WI Data Base and the WSC Data Base 5. Preparation of the 3rd Workshop, to take place on 06 April 2010 <p style="text-align: center;">II. Schedule for this week</p> <ol style="list-style-type: none"> 1. Preparation of the preliminary version of the Final Report 2. Preparation of the explanation meetings of the WI Data Base and the WSC Data Base 3. Organization of the 3rd Workshop of the study <p style="text-align: center;">III. Subjects to be discussed</p> <p>The following subjects were discussed at the Meeting:</p> <ol style="list-style-type: none"> a. Confirmation of the Minutes of the Weekly Meeting (22) b. Confirmation of the explanation meetings of the WI Data Base and the WSC Data Base c. Recommendations of the preliminary version of the Final Report d. Hold the 3rd Workshop of the Study e. Confirmation of the Minutes of the Weekly Meeting (23) <p>The content of the prior Meeting was made available in hard copies to the participants of the Meeting. Along the hour it will be sent by e-mail to all stakeholders of the Study.</p> <ol style="list-style-type: none"> f. Confirmation of the explanation meetings of the WI Data Base and the WSC Data Base <ul style="list-style-type: none"> - Date: 07 April 2010 - Venue: Auditório of Farajá 	<p>Time: WI_DB - 09 to 10hs WSC_DB - 15 to 16hs</p> <ul style="list-style-type: none"> Factories to be visited: the 110 which submitted the Waste Inventory to SUPRAMA in 2009 WSC to be invited: the 67 licensed ones according to the survey of the WSC (as for the 23 non-licensed ones, there was no consent due to the lack of representatives of IPAAM at the Meeting) SUPRAMA will send the invitation letters (related to the explanation meeting of the WI_DB and IPAAM will invite the WSC for the meeting of the WSC_DB) Recommendations of the preliminary version of the Final Report <ul style="list-style-type: none"> The objective of the Master Plan (MP), whose implementation period is from 2011 to 2015, is to "set a proper system for the management of industrial wastes in PM" Comment: The deadline is considered as short The main priority of the Master Plan (MP) is to "improve the administrative management system of the industrial waste management (IWM) in PM" <p style="text-align: center;">Generic Recommendations: WSC and SUPRAMA</p>  <p style="text-align: center;">Improvements proposed in the preliminary version of the Final Report for the Administrative System of the WSC (1) of IPAAM and SUPRAMA</p>																																																

<p>1. Evaluation a system to manage the registration of the WSC, developing a data base of the wastes service companies (WSC_DB).</p> <p>2. Understand the current wastes management of the generator sources (factories), developing a data base for the wastes inventory (WI_DB).</p> <p>3. In the future (by means of another study, once it year not possible in this one), understand the current wastes disposal after treatment, verifying the flow of the wastes in a Waste Manifest System (WMS) similar to the one used by (IBR-RJ).</p> <p>4. To carry the item above on, strengthen the managing capabilities of the IWM in Manaus: (IPAM) (also as a survey) and SUPRAMA.</p> <p>Actions proposed in the preliminary system of the Final Report for Legal Application (2) by IPAM</p> <ul style="list-style-type: none"> Eliminate the non-licensed WSC. <p>Comments: IPAM needs to endeavor efforts in the sense of accomplishing a complete mapping of the WSC. The WSC_DB will also be used to update the register of WSC in order to solve the problem of the wastes producers which carry out activities different from those contained in the Operation License - OL - (CETRAM, for instance, holds an authorization for the collection and transport and, however, it disposes of wastes in a private landfill), as well as the great number of WSC that carry out their activities without holding an Operation License.</p> <p>It was mentioned that one of the factors that would be hindering the spirit of the WSC could be the fact that they are dispersed in several codes of the National Classification of Economic Activities - CNAE. Due to that, the Study Team created a simplified classification to aid IPAM in monitoring the activities of the WSC or PM.</p> <ul style="list-style-type: none"> Make the administration of the WSC register system a legal demand and demand from the companies that they may obtain an OL, in waste services as a condition to obtain the register. Instruct the WSC already holding an environmental license to obtain an OL, for each of their activities. In other words, a specific license for collection and transport, installation treatment, storage/holding and/or final disposal, respectively. Verify, before the approval of OL, any discrepancy between the current job activities and the licensed ones. (Regulated WSC should be registered in the WSC_DB, and their case <p>1/10/2006_Weekly_Meeting_23.doc 3</p>	<p>should be made available for consultation by the factories involved in industrial waste services.</p> <ul style="list-style-type: none"> Clarify the generators of industrial wastes that the main responsibility for the appropriate IWM is the generator, and that it, as well as the environmental authority, ought to audit the IW disposal activities of the final recipient. <p>Comment: With the WSC_DB, the generators of wastes will have information on the companies holding a license and which activities are licensed, they having better conditions to know who they should negotiate with. That needs to bring consciousness both for the companies without license and the ones, retaining non-licensed activities, which will then be forced to be regularized with IPAM.</p> <p>Regarding the ways to motivate the submission of the Wastes Inventory (WI), IPAM and SUPRAMA should consider the following alternatives:</p> <ul style="list-style-type: none"> IPAM has to present the analysis report of the WI to IBAMA, something that, although foreseen by law, has never been done. SUPRAMA should collaborate with IPAM concerning the previous action, because it needs the WI analysis report to obtain the environmental licensing of the Industrial District, according to a recommendation of MPE-AM. IPAM and SUPRAMA should, together, take the first step to create a DB system to coordinate and analyze the WI so that one can understand the current conditions of the IWM or PM and formulate an improvement plan. As it requests by Resolution CONAMA 319/2002 Guidelines were written to extract raw materials will be equal in an uniform way in the WI_DB. <p>Recommended Flow of the WI_DB</p> <p>1/10/2006_Weekly_Meeting_23.doc 4</p>
 <p>Comments:</p> <ul style="list-style-type: none"> SUPRAMA has been receiving copies of the WI from the factories since 2003 (year of the validity of the protocol contained in Resolution 313). However, since late 2004 the Authority already intended to know the quantitative and qualitative volumes of the wastes generated in PM, aiming at attracting a large WSC to its area and this way making a fruitful business environment feasible. The participants of the meeting were favorable to the creation of a specific unit in SUPRAMA to manage the WI_DB. It was pointed out that as there is input of information for the factories in the pattern form of the WI_DB, the people involved in the mobilization and analysis of the WI should receive the available needs of improvement of the system and communicate them to the administrative/responsibility of the application. SUPRAMA should, together with IPAM, hold other explanatory meetings and/or trainings to popularize the use of the WI_DB in all factories, aiming to present the WI annually. Starting from the applicatory meeting on April 07, the factories that still have not submitted the WI related to the year 2006 will be stimulated to do so. When the system is in the phase of testing by the factories, they will already be able to use the online form to request the data of the 2006. <p>Other recommendations to IPAM and SUPRAMA</p> <p>1/10/2006_Weekly_Meeting_23.doc 5</p>	<ul style="list-style-type: none"> Analyze the data within the WI_DB and understand the current conditions of the IWM. IPAM and PM are essential to unify the data input methods in the WI_DB. For that, the person in charge of the WI in each factory should be taught on how to fill out the forms. Improvements will be necessary for the WI_DB, as well as the guidelines to follow the demands of Resolution 313. IPAM and SUPRAMA should focus on the factories, which submit their WI in 2006, guide them on how to fill out the WI_DB and their analysis form. This process will explain any subject related to the factories, when already submit the WI in the WI_DB and the guidelines may be optimized and improved. In the improvements, in the WI_DB data plots, these will be made available to all PM factories. <p>Confirmation of the Final Destination</p> <p>IPAM should:</p> <ol style="list-style-type: none"> Change the current waste manifest system for the use of the, with the collaboration of other States (such as Rio de Janeiro). With the private WMS, perform of treatment and appropriate disposal any thing made by the generator to the final destination, relating that with the IW Disposal law in PM, as shown in the WI_DB. Until the PMO is developed, ask the factories, which dispose of wastes to inform the final destination of their generated wastes. The WMS should include the public and private entities which generate, transport or receive mixed wastes, except the municipal ones. <p>Application of the Guidelines</p> <p>To realize the full use of the WI_DB and the WSC_DB, guidelines were made to "Make the Wastes Inventory" and "Request the Operational License of the Wastes Service Companies". It needs the WI_DB functional and clear their activities. "Understand the Current Conditions of the IWM of PM" and "Explain the Conditions of the WSC with Licenses". It is necessary to solve, pertinent issues concerning the input and analysis of the data. SUPRAMA and IPAM will need to collaborate amongst themselves in order to improve and disseminate each one of the DB and their guidelines.</p> <p>Formulation of the treatment and appropriate destination and the 3 R's</p> <p>1/10/2006_Weekly_Meeting_23.doc 6</p>

Controlar Tratamento e Descarte Inadequados

Dar informações, Treinamento e Orientação sobre Tratamento e Descarte Adequados e os 3Rs

Aumentar o preço do Descarte

Promoção do Descarte Adequado e dos 3R

Promover os 3Rs nas fábricas (fontes geradoras)

Promover o uso externo dos 3Rs

Comment: If there is no charge for the disposal in the area of PIM, nobody will start to practice the 3R systematically.

Actions proposed for the improvement of the business environment of the WDC:

- Repair an administrative system of the industrial wastes, eliminating the low-budget companies and controlling the treatment and the adequate disposal. For that, it will be necessary to find the information on the companies WDC, in the WDC, do you need the information available to the factories.
- Create an exclusive area in the Municipal (AMPA) for the company of Class A / B non-hazardous and promote the economic approach.
- Induct the generators to the WDC (regiment) of the WDC, as well as provide technical information (manually) promote the 3R and an appropriate treatment and disposal (alternatives, through seminars, meetings and orientations).

Selected list, it is recommended to adopt the good examples from other more advanced States in PIM of Brazil, as collaborative activities in the WDC in Japan, a lot of previous capacity evaluation a public recognition system for the best WDC, what could then get a better visibility from the company factories. The bonus given from the Ministry of the Environment, usually through several incentives given for the WDC.

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Cooperation Recommendations between the Government, Generators and WDC

- Creation of a Coordinating Committee to Promote the Appropriate Administration of Industrial Wastes: This Committee will discuss about the dignity of licenses, inspections, monitoring and prosecutions by IFAMA and SEMMAS.
- The Committee may be important to improve the cooperation among the government, the generators and WDC through the meetings of the Committee of Promoters of the Appropriate Administration of Industrial Wastes - CPAGAR (suggested name), several government entities may get to an understanding on several subjects and strengthen the relationship with generators and WDC.

Proposed Committee

COPASA

CPAGAR

GERADORES **WDC's**

Next Weekly Meeting

The Next Weekly Meeting (14) will take place on 25 April 2012 (Monday), at 03 pm, at Training Room 4 of Annex 1 of SUPRAMA. The Meeting (22) (closed) at 05 pm.

3.24 Weekly Meeting (24)

3.24.1 Agenda for Weekly Meeting (24) on April 5, 2010

<p style="text-align: center;">Weekly Meeting (24)</p> <p style="text-align: center;">April 5, 2010 JICA Study Team For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</p>	<p>Agenda</p> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed
<p>1. Work Progress: From March 30 to April 5, 2010</p> <ol style="list-style-type: none"> 1. Preparation of DF/R 2. Preparation of the explanation meetings for the waste inventory database (WI_DB) and the waste service company database (WSC_DB) 3. Preparation of Workshop (3) 	<p>2. Schedule for this Week</p> <ol style="list-style-type: none"> 1. Submission of DF/R 2. Hold the explanation meetings for the waste inventory database (WI_DB) and the waste service company database (WSC_DB) on April 7 3. Hold of Workshop (3) on April 6 4. Report to Japanese-Brazilian Chamber of Commerce and Industry of Amazonas (CCINB-AM) on April 5 5. Report to ABC, MMA, MDIC, JICA, EoJ in Brasilia on April 9
<p>3. Subjects to be Discussed</p> <p>a. Schedule of the Study</p> <p>b. Presentations of the Workshop (3)</p> <ul style="list-style-type: none"> <input type="checkbox"/> On-site IWM in Japan <input type="checkbox"/> Off-site IWM in Japan <input type="checkbox"/> IWM Administration in Japan <input type="checkbox"/> IWM M/P in PIM 	<p>a. Schedule of the Study</p> <ul style="list-style-type: none"> <input type="checkbox"/> Submission of DF/R on April 7. <input type="checkbox"/> Discussion of DF/R in May from 24 to 28. When shall we have a steering committee (St/C) meeting? <input type="checkbox"/> Hold a seminar to publicize the contents (especially M/P) of DF/R. When shall we hold it and where? <input type="checkbox"/> If C/P need to modify or amend the DF/R submitted for the seminar, please let us know before May 15.
<p>Next Weekly Meeting</p> <ul style="list-style-type: none"> <input type="checkbox"/> Next Meeting will be 25th May 2010 (Monday) at 3:00 PM 	

3.24.2 Minutes of Meeting for Weekly Meeting (24) on April 05, 2010

<p style="text-align: center;">Weekly Meeting (24) 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;">03:00pm to 04:30pm 22 March, 2010 JICA Study Room in SUPRAMA</p> <p>Agenda</p> <ol style="list-style-type: none"> 1. Work progress 2. Schedule for this week 3. Subjects to be discussed <p>Participants</p> <table border="0"> <tr> <td>1. Alexandre Augusto Simões</td> <td>Representative of IPAM</td> </tr> <tr> <td>2. Alexandre Kuroki</td> <td>Representative of FICAM/CEAM/COMSAM</td> </tr> <tr> <td>3. Paulo Ricardo Farias</td> <td>Consultant of OR & PF</td> </tr> <tr> <td>4. Chuan Singh</td> <td>Consultant of OR & PF</td> </tr> <tr> <td>5. André Araújo</td> <td>Assessor of ERM/CPA</td> </tr> <tr> <td>6. Jay Elira Filho</td> <td>CGMOSUPRAMA</td> </tr> <tr> <td>7. Henrique Freitas</td> <td>DOECSUPRAMA</td> </tr> <tr> <td>8. Maria Elisete Moura</td> <td>DOECSUPRAMA</td> </tr> <tr> <td>9. Ana Cláudia Moreira</td> <td>DOECSUPRAMA</td> </tr> <tr> <td>10. João David Filho</td> <td>CGMOSUPRAMA</td> </tr> <tr> <td>11. Nelson Roque Neto</td> <td>CGMOSUPRAMA</td> </tr> <tr> <td>12. Wilton Gomes</td> <td>DOGOSUPRAMA</td> </tr> <tr> <td>13. Arivaldo Silveira Filho</td> <td>DOGOSUPRAMA</td> </tr> <tr> <td>14. Josevan Jorge Oliveira</td> <td>DGARSUPRAMA</td> </tr> <tr> <td>15. Márcio José</td> <td>DOGOSUPRAMA</td> </tr> <tr> <td>16. David Sakai</td> <td>Support to JICA in SUPRAMA</td> </tr> <tr> <td>17. Rita de Cássia Mello</td> <td>Support to JICA in SUPRAMA</td> </tr> <tr> <td>18. Araceli Santos de A.</td> <td>Support to JICA in SUPRAMA</td> </tr> <tr> <td>19. Maria Elvira</td> <td>Support to JICA in SUPRAMA</td> </tr> </table>	1. Alexandre Augusto Simões	Representative of IPAM	2. Alexandre Kuroki	Representative of FICAM/CEAM/COMSAM	3. Paulo Ricardo Farias	Consultant of OR & PF	4. Chuan Singh	Consultant of OR & PF	5. André Araújo	Assessor of ERM/CPA	6. Jay Elira Filho	CGMOSUPRAMA	7. Henrique Freitas	DOECSUPRAMA	8. Maria Elisete Moura	DOECSUPRAMA	9. Ana Cláudia Moreira	DOECSUPRAMA	10. João David Filho	CGMOSUPRAMA	11. Nelson Roque Neto	CGMOSUPRAMA	12. Wilton Gomes	DOGOSUPRAMA	13. Arivaldo Silveira Filho	DOGOSUPRAMA	14. Josevan Jorge Oliveira	DGARSUPRAMA	15. Márcio José	DOGOSUPRAMA	16. David Sakai	Support to JICA in SUPRAMA	17. Rita de Cássia Mello	Support to JICA in SUPRAMA	18. Araceli Santos de A.	Support to JICA in SUPRAMA	19. Maria Elvira	Support to JICA in SUPRAMA	<table border="0"> <tr> <td>20. Sr. Yusaku SHIMURA</td> <td>Team Leader of JICA Study Team</td> </tr> <tr> <td>21. Sr. Terumasa SUZUKI</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>22. Sr. José Pedro HADDAD</td> <td>Member of JICA Study Team</td> </tr> <tr> <td>23. Sr. Kuniaki SHIBAHARA</td> <td>Data Base Expert of JICA Study Team</td> </tr> <tr> <td>24. José de Almeida Macedo Ferreira</td> <td>Interpreter of JICA</td> </tr> </table>	20. Sr. Yusaku SHIMURA	Team Leader of JICA Study Team	21. Sr. Terumasa SUZUKI	Member of JICA Study Team	22. Sr. José Pedro HADDAD	Member of JICA Study Team	23. Sr. Kuniaki SHIBAHARA	Data Base Expert of JICA Study Team	24. José de Almeida Macedo Ferreira	Interpreter of JICA
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24. José de Almeida Macedo Ferreira	Interpreter of JICA																																																
<p style="text-align: center;">Minutes & Agenda</p> <p style="text-align: center;">I. Work Progress: From 30 March to 03 April 2010</p> <ol style="list-style-type: none"> 1. Preparation of the preliminary version of the Final Report 2. Preparation of the explanation meetings of the W Data Base and the EDC Data Base 3. Organization of the 3rd Workshop: to take place on 06 April, 2010 <p style="text-align: center;">(i). Schedule for this week</p> <ol style="list-style-type: none"> 1. Presentation of the preliminary version of the Final Report 2. Presentation of the explanation meetings of the W Data Base and the EDC Data Base, on 02 April 2010 3. Held the 3rd Workshop 4. Meeting with the Japanese-Brazilian Commerce and Industry Chamber of Amazonas, on 02 April 2010 5. Meetings with the Brazilian Cooperation Agency - AEC, the Environment Secretary - MMA, the Ministry of Development, Industry and Foreign Trade - MEC and the Main Office of JICA in Brasília, DF, on 02 April 2010 <p style="text-align: center;">(ii). Subjects to be discussed</p> <p>The following subjects were discussed at the Meeting:</p> <ol style="list-style-type: none"> a. Confirmation of the Minutes of the Weekly Meeting (23). b. Schedule of the rest of the Study. c. Preparations of the 3rd Workshop of the Study. <p>a. Confirmation of the Minutes of the Weekly Meeting (23) The content of the prior Meeting was made available in hard copies to the participants of the Meeting. Along the week it will be sent by e-mail to all participants.</p> <p>b. Realistic schedule of the Study</p>	<ul style="list-style-type: none"> • Presentation of the preliminary version of the Final Report - on 02 April 2010 • The consultants will leave Manaus on 03 and 04 April, and should return on the second quarter of May 2010 • The discussion on the preliminary version of the Final Report will take place from 24 to 28 May 2010 • Date of the Opening Committee Meeting of the Study - to be confirmed with Mrs. Grazielle Batista (by Armando Santos, Jr.) • Date and venue of the Seminar to make public the contents of the preliminary version of the Final Report - to be confirmed with Mrs. Grazielle Batista (by Armando Santos, Jr.) <p>According to the agreement signed between the Brazilian and Japanese parties of the Study, there will be 10 printed copies and 05 digital copies available - CD-ROM - of the preliminary version of the Final Report in Portuguese for review and confirmation. It was suggested the submission of comments on the Draft Report up to 15 May 2010.</p> <p>(i) Preparations of the 3rd Workshop of the Study With a previous on the 3rd Workshop for final agreements, issues were presented with topics related to the training of the counterpart in Japan. It had as follows:</p> <ul style="list-style-type: none"> • Details Industrial Waste Management in Japan • Details Industrial Waste Management in Amazon • Administration of the Industrial Waste Management in Japan • Master Plan of the Industrial Waste Management in Manaus (Industrial Pole) <p style="text-align: center;">Next Weekly Meeting</p> <p>The Next Weekly Meeting (25) will only take place on 04 May 2010 (Monday), at 03:00 pm, in a virtual to be confirmed in SUPRAMA. This Meeting will finish at 05:00 pm.</p>																																																

3.25 Weekly Meeting (25)

3.25.1 Agenda for Weekly Meeting (25) on May 24, 2010

<p style="text-align: center;">Weekly Meeting (25)</p> <p style="text-align: center;">May 24, 2010 JICA Study Team For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus</p>	<p>Agenda</p> <ol style="list-style-type: none"> 1. Work Progress 2. Schedule for this Week 3. Subjects to be Discussed
<p>1. Work Progress: From April 6 to May 23, 2010</p> <ol style="list-style-type: none"> 1. Checking of the DF/R 2. Check and input of the 2010 waste inventories data submitted by factories 3. Preparation of the steering committee (St/C) meeting for discussion of the draft final report (DF/R) 4. Preparation of Seminar in Manaus 5. Preparation of Seminar in Brasilia 6. Visit a blender (Processa Tecnologia Ambiental Ltda) for a cement factory (Rio Blanco Factory of Votorantim) 7. Arrive in Manaus 	<p>2. Schedule for this Week</p> <ol style="list-style-type: none"> 1. Discussion of the DF/R 2. Check and input of the 2010 waste inventories data submitted by factories 3. Preparation of the waste stream 4. Hold the St/C meeting for discussion of the DF/R on May 24. 5. Hold the Seminar in Manaus on May 27 6. Hold the Seminar in Brasilia on May 28 7. Leave for Japan on May 29
<p>3. Subjects to be Discussed</p> <ol style="list-style-type: none"> a. Schedule of the Study b. Presentations of the Seminar in Manaus c. Presentations of the Seminar in Brasilia d. Visit the blender, Processa Tecnologia Ambiental Ltda, for the cement factory, Rio Blanco Factory of Votorantim 	<p>a. Schedule of the Study</p> <ul style="list-style-type: none"> <input type="checkbox"/> Steering Committee Meeting (St/C) on May 24. <input type="checkbox"/> Weekly meeting (25) <input type="checkbox"/> the Seminar in Manaus on May 27 <input type="checkbox"/> Hold the Seminar in Brasilia on May 28 <input type="checkbox"/> Deadline of comments on the DF/R: June 30, 2010 <input type="checkbox"/> Submission of the Final Report by August 2nd, 2010
<p>b. Presentations of the Seminar in Manaus (1)</p> <p>To confirm the following aspects:</p> <ol style="list-style-type: none"> 1. Date: May 27 (Thr), 2010 2. Time: 8:30 AM – 16:30 PM 3. Place: Auditorio Floriano Pacheco, SUFRAMA 4. Number of participants to be invited? 5. Person in charge of the seminar preparation? 6. Who will make opening address? 	<p>b. Presentations of the Seminar in Manaus (2)</p> <p>7. Who will make the following lectures?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Lecture 1: Seminar objectives and procedure <input type="checkbox"/> Lecture 2: Current Issues of IWM in PIM <input type="checkbox"/> Lecture 3: IWM M/P in PIM <input type="checkbox"/> Lecture 4: Good practices of IWM in Brazil and Japan <input type="checkbox"/> Lecture 5: WI_DB <input type="checkbox"/> Lecture 6: WSC_DB

c. Presentations of the Seminar in Brasilia (1)

To confirm the following aspects:

1. Date: May 28 (Thr), 2010
2. Time: 14:00 PM – 16:30 PM
3. Place?
4. Number of participants to be invited?
5. Person in charge of the seminar preparation?
6. Who will make opening address?

c. Presentations of the Seminar in Brasilia (2)

7. Who will make the following lectures?
 - Lecture 1: Introduction of the Study for the Development of an Integrated Solution related to Industrial Waste Management in the Industrial Pole of Manaus
 - Lecture 2: Explanation of the WI_DB system, and use of the WI in 2010 to make a "waste stream"
 - Lecture 3: Obstacles to making a WI report using the current system + SUFRAMA's management system for the industrial district WI_DB
 - Lecture 4: Explanation of the Waste Service Company Database (WSC_DB) for IW Off-site Management.

- d. Visit the blender, Processa Tecnologia Ambiental Ltda, for the cement factory, Rio Blanco Factory of Votorantim in Curitiba on May 21

Outline of the Blender (1)

1. The Processa Tecnologia Ambiental Ltda had a license for blending waste in 2003 from SEMA (State Environmental Agency of Parana).
2. Area: 16,800 m²
3. The factory receives the Class I waste except PCB, etc.
4. The blending factory locates 38km from the Rio Blanco Factory.
5. The Rio Blanco Factory produces 10,000ton/day of clinker and 15,000 ton/day of cement.

Outline of the Blender (2)

6. There are 5 to 7 blenders for the cement factory and 3 are in the cement factory.
7. The cement factory receives 200 ton/day of the Class I waste in total. 50 ton/day from the Blender.
8. The blender outsources laboratory analysis.
9. Price for treatment:
 - Sludge: 350 R\$/ton without transportation. Then 90 – 100 R\$/ton to be paid for the cement factory
 - Solid wastes to be shredded: 700 R\$/ton without transportation

Outline of the Blender (3): Liquid Waste Management




Outline of the Blender (4): Sludge Management



Outline of the Blender (5): Solid Waste Management



Outline of the Blender (6): Similar Blender in Japan



Next Weekly Meeting

- Today is the final weekly meeting
- Thank you very much for a long time cooperation

3.25.2 Minutes of Meeting for Weekly Meeting (25) on May 24, 2010

Weekly Meeting (25) for the Study for the Development of an Integrated Solution Related to the Industrial Wastes Management in Manaus industrial Pole

03:00pm to 04:00pm
24 May 2010
JICA Study Room in SUPRAMA

Agenda

1. Work Progress
2. Schedule for next week
3. Subjects to be discussed

Participants

<ol style="list-style-type: none"> 1. Aldemir Oliveira 2. Alexandre Kallitsis 3. Paulo Ricardo Farias 4. Luis Felipe Simões 5. José Silva Filho 6. Kelly Gama 7. Anacleto Oliveira Neto 8. David Silva 9. Wê de Cassia Maia 10. Rosalvo Santos Jr. 11. Mitsuo Iizumi 12. Sh. Susumu (SHIMURA) 13. Dr. Takanori (TAKANORI) 14. Dr. Kiyomi (KIYOMI) 15. Dr. Yasuhiro (YASUHIRO) 16. Dr. Kazuo (KAZUO) 17. Absence: President 	<p>Representative of IPAM</p> <p>Representative of FICAM/CLAM/CCIB-AM</p> <p>Consultant of CE & PE</p> <p>Eng. and Archt. Proj. Assesst. Consultant/SUPRAMA</p> <p>DOPR/SUPRAMA</p> <p>DOCEX/SUPRAMA</p> <p>Support to JICA in SUPRAMA</p> <p>Support to JICA in SUPRAMA</p> <p>Support to JICA in SUPRAMA</p> <p>JICA Study Team Leader</p> <p>Member of JICA Study Team</p> <p>Member of JICA Study Team</p> <p>Member of JICA Study Team</p> <p>Data Base Expert of JICA Team</p> <p>Inspector of JICA Team</p>
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Minutes & Agenda

I. Work Progress: From 04 April to 23 May 2010

1. Verification of the Preliminary Draft Version of the Study Final Report
2. Verification and input of the data of the Wastes Inventories submitted by the factories (pending to 2009)
3. Preparation of the Steering Committee Meeting to discuss the Preliminary Draft Version of the Study Final Report, on 06/04/2010
4. Preparation of the Thematic Workshop in Manaus, on 05/27/2010
5. Preparation of the Thematic Workshop in Brasília, on 05/28/2010
6. Visit to a blender of the company Processo Tecnológico Ambiental Ltda., used by the cement factory Rio Branco S/A, from Votorantim Group, in the State of Paraíba
7. Arrival of Mrs. Dilmara, Suzuki, Susuotom, Haruhiko and Mitsuo in Manaus.

II. Schedule for this week

1. Discussion of the Preliminary Draft Version of the Study Final Report
2. Verification and input of the data of the Wastes Inventories submitted by the factories (pending to 2009)
3. Preparation of the PM Waste Plan/Chart
4. Opening of the Steering Committee, Meeting to discuss the Preliminary Draft Version of the Study Final Report, on 06/04/2010
5. Opening of the Thematic Workshop in Manaus, on 05/27/2010
6. Opening of the Thematic Workshop in Brasília, on 05/28/2010
7. Departure of the Study Team to Japan and Rio de Janeiro (Mr. Haruhiko) on 05/25/2010, except by Mr. Haruhiko, who will stay in Manaus up to 06/04/2010.

III. Subjects to be discussed

The following issues were discussed at the leading meeting:

- a. Schedule for the End of the Study.

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i. Presentation of the Seminar in Manaus;

ii. Presentation of the Seminar in Brasília, etc.

iii. Visit to a Blender of the company Processa Tecnologia Ambiental Ltda., used by the cement factory Rio Branco S/A, from Companhia Saneamento do Estado do Pará.

iv. Schedule for the End of the Study

The activities of the last week of the consultants of JICA in Manaus were as follows:

- Steering Committee Meeting on 24 May 2010
- Weekly Meeting (25) of the Study, on 24 May
- Thematic Seminar in Manaus, on 27 May
- Thematic Seminar in Brasília, on 28 May
- Deadline to receive the comments on the Final Draft Report: 30 June
- Submission of the Final Report to the Brazilian counterpart: 02 August 2010 (Brazilian)

Besides the above-mentioned activities, the Extra Meeting was scheduled for 05/28/2010, at 03 pm, at the floor of JICA in SUPRAMA. That was due to the need of solving pending issues from the Steering Committee Meeting with the representatives of PRAM (who are not attend to it) and to discuss points of view which arose during the event, such as the role risk played by SUPRAMA in relation to the Waste Inventory Data Base.

v. Presentation of the Seminar in Brasília

The following aspects of the above-mentioned seminar were confirmed:

Organization

- Date: 27 May 2010 (Thursday)
- Time: 8:00 am to 04:30 pm
- Venue: Auditorium "Ninawa Plutonio", at SUPRAMA
- Participants to be invited: The team in Workshop 7, 2 and 3 (around 200 people)
- People in charge of the preparation of the Seminar: Mr. Steven Sundstrom (JICA Study Team), Report to JICA in SUPRAMA, COGEX and COEVC
- People responsible for the opening/closing of the Seminar: Mr. Aro Maia Sousa (Business and Economic Studies General Coordinator of SUPRAMA) and M. Simone Oliveira (JICA Study Team Leader)

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vi. Objectives and Procedures of the Seminar: Mr. Susumu Shimizu

1. Current Situation of the Industrial Waste Management in PM: Mr. Alexandre Kozicki
2. Industrial Waste Management Master Plan (MPP) of URM of PM: Mr. José F. Pinheiro
3. Good Practices of IWM in Japan and Brazil: Mrs. Rita Marli / Mr. Armando Santos Jr.
4. Waste Inventory Data Base: Mr. David Silva
5. Waste Service Companies Data Base: Mr. Antonio Simão

vii. Presentation of the Seminar in Brasília

The following details of the above-mentioned Seminar were discussed:

Organization

- Date: 28 May 2010 (Friday)
- Time: 02 pm to 04:30 pm
- Venue: Brazilian Cooperation Agency (Foreign Affairs Ministry)
- Participants to be invited: To be confirmed
- People in charge of the preparation of the Seminar: Mr. Frederico Paula (ASBR/STC) and Main Office of JICA in Brasília/CP
- People responsible for the opening/closing of the Seminar: To be confirmed

Presentations

1. Presentation of the "Study for the Development of an Integrated Solution Related to the Industrial Waste Management in Manaus Industrial Pole": Mr. Susumu Shimizu
2. The System of the Waste Inventory Data Base and the Use of the PM for the Establishment of a Waste Treatment: Mr. Kazuki Ishikawa
3. Database Found in the Execution of the Waste Inventory for the Current Management of the (Waste) of Wastes: Mr. David Silva
4. Waste Service Companies Data Base for the Current Management of the Industrial Wastes: Mr. Antonio Simão


viii. Visit to a Blender of the company Processa Tecnologia Ambiental Ltda., used by the cement factory Rio Branco S/A, from Companhia Saneamento do Estado do Pará.

The visit took place on 05/22/2010. Following below is a brief profile of the wastes produced. (Manaus)


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- The company Processa Tecnologia Ambiental Ltda., which occupies an area of 18,600 m², has been licensed to process wastes since 2000, according to SEMA (State Environment Agency of the State of Pará).
- Processa Ltda. received several Hazardous Class I Industrial Wastes, except PCB.
- Processa Ltda. is located in the municipality of Colméia, 35 kilometers from the cement factory Rio Branco S/A, located in Branco do Sul.
- Rio Branco S/A produces 12,000 tons/day of cement and 15,000 tons/day of cement.
- There are about seven wastes blenders used by Rio Branco S/A. Among those, three work in the very facilities of the cement factory.
- The cement factory receives 200 blenders of Class I HW, 50 blenders from Processa Ltda., which has an analysis laboratory.
- Price per single treatment: R\$ 250/ton, without the transportation (in case R\$ 30 to R\$ 100/ton are paid by Processa Ltda. to the cement factory).
- Price per single waste to be shredded: R\$ 700/ton, without the transportation.

Overview of the Blender Used Oil Management



Overview of the Blender - Sludge Management



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Overview of the Blender - Solid Waste Management



Digital Blender in Japan - Anika Co.



Comment from JICA Study Team: As well as the Waste Inventory Data Base and the Transportation Market System are implemented, the waste service market in Manaus will surely be provided with information/instruments of that size.

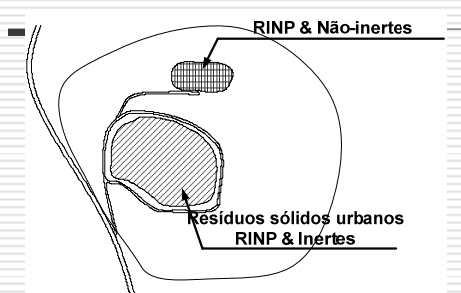
The Weekly Meeting (25) of the last week of the Study finished at 04 pm.

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
3.26 Weekly Meeting (26)

3.26.1 Agenda for Weekly Meeting (26) on May 26, 2010

<p style="text-align: center;">Weekly Meeting (26)</p> <p style="text-align: center;">May 26, 2010 JICA Study Team 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;">Agenda</p> <ol style="list-style-type: none"> 1. Team's Recommendation for Use of WI_DB System 2. Team's Recommendation for Construction of a System to Manage the Licenses of Waste Service Companies 3. Clarifications on the implementation of the M/P: IPAAM 4. Implementation of Approach B of the M/P
<p>1. Team's Recommendation for Use of WI_DB System (1)</p> <p>a. Benefit of WI</p> <ul style="list-style-type: none"> <input type="checkbox"/> For Generators: To identify its on-site and off-site IWM <input type="checkbox"/> For IPAAM: To identify on-site and off-site IWM of PIM and Amazonas State by aggregation and analysis of the WIs <input type="checkbox"/> For SUFRAMA: To identify IWM of PIM/DI which is requested by the State Public Ministry 	<p>1. WI_DB System (2)</p> <p>b. Aim of the System</p> <ul style="list-style-type: none"> <input type="checkbox"/> To easily process the report content as data and eliminate differences in reporting methods and content by standardizing the measurement units, coding, etc. <input type="checkbox"/> 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 <input type="checkbox"/> To easily aggregate and analyze the waste inventories submitted by each factory
<p>1. WI_DB System (3)</p> <p>c. Roles of IPAAM and SUFRAMA for the Effective Use of the WI_DB System</p> <ul style="list-style-type: none"> <input type="checkbox"/> IPAAM has the legal right to instruct factories on the submission of the WI, and the legal obligation to aggregate, analyze and report the submitted WI to the federal government (IBAMA). SUFRAMA has neither the right nor the obligation to engage on dealing with WI. Therefore, the Team proposes the following measures: <ol style="list-style-type: none"> 1. Until IPAAM is competent to carry out instruction and management of the WI, it will enter into an agreement with SUFRAMA in which IPAAM will entrust the following parts of their right and obligation concerning the WI: 	<p>1. WI_DB System (4)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Instruct factories on how to accurately prepare the data and report the results according to WI_DB system user's guide <input type="checkbox"/> Responding to factories that have questions on preparation of the WI <input type="checkbox"/> Distribute the file for the WI_DB system to factories <input type="checkbox"/> Aggregate and analyze WI submitted <input type="checkbox"/> Analyze any issues concerning the current WI_DB system and user's guide revealed, and make the necessary improvements. <ol style="list-style-type: none"> 2. IPAAM will cooperate with SUFRAMA using the improved WI_DB system and user's guide to instruct and assist all PIM factories to submit their WIs. 3. IPAAM and SUFRAMA will work together to analyze the aggregated WI, and then IPAAM will prepare the report to submit to IBAMA.
<p>1. WI_DB System (5)</p> <p>d. Disseminating the WI_DB System to other States and Industrial Parks</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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. <input type="checkbox"/> When holding the seminars, seek cooperation with SUFRAMA and IPAAM which are experienced in using the WI_DB system. <input type="checkbox"/> SUFRAMA and IPAAM, in response to a request by the MMA will actively dispatch technicians with experience in using the WI_DB system. 	<p>2. Team's Recommendation for Construction of a System to Manage the Licenses of WSCs (1)</p> <p>a. Aim of WSC License Management System</p> <ul style="list-style-type: none"> <input type="checkbox"/> Currently, operation licenses for waste service companies (WSCs) are registered under various licensing codes. Because of that, it is not possible for IPAAM, which manages the licenses to know the exact number of entities with licenses or what activities licensed entities are permitted to undertake. <input type="checkbox"/> The recommended system to manage the licenses of WSCs would use a new environmental license code specifically for WSCs (33**, for municipal waste, and 34**, for industrial waste), integrating WSCs with two environmental license codes.

<p>2. Construction of a System to Manage the Licenses of WSCs (2)</p> <p>a. Issues for the Use of a WSC License Management System and Strategy for Resolutions</p> <ul style="list-style-type: none"> <input type="checkbox"/> IPAAM will quickly carry out the required steps to deliberate the recommended license management system in the State Legislature (such as formulating a proposed revision of the law). <input type="checkbox"/> IPAAM will cooperate with SUFRAMA to move ahead with activities to promote the necessity of the license system to stakeholders. <input type="checkbox"/> Once the recommended license management system has become enacted, IPAAM will immediately proceed with registration, and construct the WSC_DB. <input type="checkbox"/> Once the WSC_DB is constructed, IPAAM will make certain information about the newly licensed WSCs, such as contact information and what licenses they hold, available on its website. 	<p>3. Esclarecimentos sobre a implementação do P/D: IPAAM</p> <ol style="list-style-type: none"> 1. Quando o novo sistema de licenciamento para as ESRs estará legalizado? 2. Quando o novo sistema de licenciamento para as ESRs provavelmente iniciará? 3. Quando os dados das ESRs recém-licenciadas serão postados no site do IPAAM? 4. Quando o sistema de manifesto de resíduos será estabelecido? 5. Como o IPAAM instruirá a destinação final de RI do PIM? 6. O IPAAM pedirá a SEMULSP para construir a ATRINI no atual aterro sanitário?
<p>4. Implementation of Approach B of the M/P</p> <ul style="list-style-type: none"> <input type="checkbox"/> JICA headquarter made a comment on the implementation of B2.1. Use of Manaus Municipal Landfill B2. Provisional Measures as follows: <ol style="list-style-type: none"> 1. Will SEMULSP of Manaus Municipality construct the ATRINI? 2. Will SEMULSP be able to charge the disposal fee on the ATRINI? 	<p>ABORDAGEM B. Destinação Final satisfatória dos Resíduos Industriais</p> <p>B. Garantir Destinação Final satisfatória dos Resíduos Industriais</p> <p>B1. Construir novos Aterros de Resíduos Industriais;</p> <p>B.2 Implementar medidas provisórias;</p> <p>B2.1 Usar sítio do Aterro Municipal de Manaus;</p> <p>B2.2 Promover tratamento de Resíduos Perigosos, tornando-os não-perigosos;</p>
<p>Medida B2. Medidas Provisórias Medida B2.1. Uso do Aterro Municipal de Manaus (1)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Objetivo: Usar sítio desse aterro para disposição final de RI até que o novo aterro esteja construído e licenciado. <input type="checkbox"/> Conteúdo: <ol style="list-style-type: none"> 1. Construir um local exclusivo para RINP & resíduos industriais não-inertes em uma área do sítio (ATRINI: RINP & Local de Disposição Temporária de Resíduos Não-inertes); 2. Os geradores pagarão o preço da disposição no ATRINI; 3. IW shall be disposed of at ATRINI, which is strictly separate from the disposal site for municipal waste. <p style="text-align: right;">13</p>	<p>Medida B2.1. Uso do Aterro de Manaus (2)</p>  <p style="text-align: right;">14</p>
<p>Next Weekly Meeting</p> <ul style="list-style-type: none"> <input type="checkbox"/> Today is the final weekly meeting <input type="checkbox"/> Thank you very much for a long time cooperation 	<p style="text-align: center;">/</p>

3.26.2 Minutes of Meeting for Weekly Meeting (26) on May 26, 2010


<p style="text-align: center;">Meeting Memo of May 26</p> <p style="text-align: right;">Manaus, 26 May 2010</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  Mr. Antonio Azevedo Assistant of Environmental Protection (EPAM) </div> <div style="text-align: center;">  Mr. Susumu SUGIMURA Leader of the JICA Study Team </div> </div> <p>Participants:</p> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> EPAM: Mr. David Silva Mr. Rita de Cassia Mendes Mr. Armando Soares Jr. Mr. Adilly Garcia </td> <td style="width: 50%; vertical-align: top;"> EPAM: Mr. Antonio Azevedo Mr. Alexandre Queiroz JICA Study Team: Mr. Susumu SUGIMURA Mr. Yoshifumi HADANO </td> </tr> </table> <p>1. Team's Recommendation for Use of WLD System EPAM and SUPRAMA will study the possibility of signing a Technical Cooperation Agreement for the implementation of WLD system, according to the Team's recommendation, in order to make it possible for SUPRAMA to access the data, give support to operators and manage WLD, preserving the legal competence of EPAM.</p> <p>2. Team's Recommendation for Construction of a System to Manage the Absence of Waste Service Companies Both EPAM and SUPRAMA agreed the recommendation of the Team.</p> <p>3. Clarification on the Implementation of the MIP EPAM The Team asked EPAM to clarify the following points concerning implementation of the MIP Plan:</p> <ol style="list-style-type: none"> 1. When will the new WQC financing system be approved? 2. How exactly will the new WQC financing system work? <p style="text-align: left;">Meeting Memo of May 26 to do</p>	EPAM: Mr. David Silva Mr. Rita de Cassia Mendes Mr. Armando Soares Jr. Mr. Adilly Garcia	EPAM: Mr. Antonio Azevedo Mr. Alexandre Queiroz JICA Study Team: Mr. Susumu SUGIMURA Mr. Yoshifumi HADANO	<ol style="list-style-type: none"> 3. When will the date of the newly formed WQC be open to the EPAM system? 4. Why will the waste transfer system be established? 5. How will EPAM achieve the final destination of DW from PMT? 6. Will EPAM ask EMULSIP to construct the ATRIS in the current layout? <p>EPAM replied as follows:</p> <ol style="list-style-type: none"> 1. It will take at least six months for legislative procedures. 2. When there will be the waste absence in Manaus (MA), the new WQC financing system will start in 2011 at the earliest possibility. 3. EPAM will be able to start to the website the services provided by WQC in the List of Environmental Service Companies, upon request from the WQC. 4. Although it is not on-line system, the waste transfer system will be legally established by the end of 2010. 5. After the establishment of the waste transfer system (WMS), EPAM will be able to receive the final destination of DW from PMT by the WMS. 6. EPAM will make an impression in the landfill to make to verify the ATRIS installation possibility. They will define the Public Waste Ministry (MPP) which will be able to include it in the existing DAC. <p>4. Implementation of Appendix B of the MIP The Team asked the EPAM the following points:</p> <p>Question 1: Will EMULSIP of Manaus Municipality construct the ATRIS?</p> <p>Question 2: Will EMULSIP be able to charge the disposal fee on the ATRIS?</p> <p>EPAM replied as follows:</p> <p>For Question 1 Part of the cost of the current municipal landfill of Manaus Municipality (located in a permanently preserved area) is in the main grounds why EPAM and JICA are given the responsibility because of the landfill. The general intention is use the landfill was given by the DAC, through the State Public Ministry. The DAC may make because of the temporary absence of the landfill in Manaus. As for cost of the construction in the DAC, the ATRIS may be requested after the impression to study this possibility. If so, EPAM will request the ATRIS after the construction.</p> <p>For Question 2 Yes, because the ATRIS would not be a public disposal site for municipal waste.</p> <div style="text-align: right;">  Meeting Memo of May 26 to do </div>
EPAM: Mr. David Silva Mr. Rita de Cassia Mendes Mr. Armando Soares Jr. Mr. Adilly Garcia	EPAM: Mr. Antonio Azevedo Mr. Alexandre Queiroz JICA Study Team: Mr. Susumu SUGIMURA Mr. Yoshifumi HADANO		

4. Public Relations

4 Public Relations

4.1 Newsletters

4.1.1 Newsletter Volume 1



News Letter Vol.1
The Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus

CONTENTS

1. Introduction
2. Outline of the JICA Study
3. Issues of the Study
4. Holding Weekly Meetings
5. Organizational Structure of the Study
6. How to contact us

1. Introduction

Manaus Free Trade Zone (MFTZ) is an economic development model implemented by Brazilian government aiming for making an economic base outside in a sustainable way in Oculista Antikon. Manaus Industrial Pole (MIP), main foundation of MFTZ, is one of the most modern industrial parks of Latin America. It gathers approximately 500 national and multinational industrial sectors such as Electro-electronic, Tele-visual, Thermoelectric, Chemical, among others. Today, MIP generates around 150 thousand direct jobs and other 500 thousand indirect ones.

The concern towards the environmental impact reduction generated by the activities of the manufacturing and commerce of MIP, motivated AEC / SUFRAMA and JICA to sign a Technical Cooperation Agreement aiming for evaluating the current handling and management conditions of industrial waste in MIP.

The project named "Study for the Development of an Integrated Solution related to the industrial waste management in Manaus industrial Free Trade Zone" is followed by the year 2011 and will last for 18 months with a variety of the partnership of TICRAM, COGAM and Commerce and Industry Manaus Economic Council. The Japanese government will provide the project with around US\$ 2 million for the execution of the project and SUFRAMA will provide the technicians and technical support.

The results of the study will serve as basis for the formulation of the Master Plan, containing detailed proposals for the use and reduction of wastes in

the employment in Manaus industrial park from 2011 to 2013.

Concretely, the treatment of a large part of the wastes generated by the industries of MIP is done in Manaus through contracting by the generating factories, the collection, transportation and final disposal services is completed through by Amazonia state environmental organizations. In the case of wastes classified as hazardous part of those are treated in other States, when there are not local companies specialized in the adequate finalization of some sort of those wastes.

In order to set the study, issues about the performance of the activities relating to the study, this Newsletter will be published periodically with information about the study.

2. Outline of the JICA Study

The outline of the JICA study is as follows:

Objective

The objective of this study are:

- To study the current conditions of industrial waste management in the MFTZ, MIP and the surrounding area and compile the results into a report.
- To formulate a master plan for industrial waste management (the-year plan from 2011 to 2013) in MIP appropriate to the requirements of industrial waste management in MIP.

Next, by carrying forward study activities, the following 2011 goals are planned:

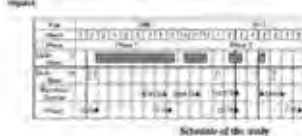
To establish appropriate industrial waste disposal and the SRS (Reclaim, Reuse, Recycle) based on the master plan for industrial waste management in the target study area.

With the implementation of appropriate industrial waste disposal and SRS, reduce illegal dumping of industrial wastes and minimize environmental impact.

Study Area

The study area comprises to an area comprising three plants adjacent by the Operating Council of SUFRAMA (CAD) with a perimeter of 10,000 km².


As defined by Decree Law 2286/72 and its regulation (Decree 8) 2447/72 in MIP, shown in the figure below.



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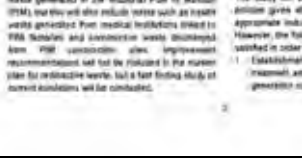
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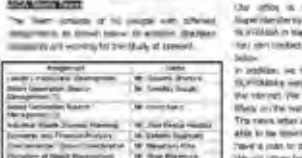
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Study Area

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As defined by Decree Law 2286/72 and its regulation (Decree 8) 2447/72 in MIP, shown in the figure below.



3. Empowerment of an appropriate disposal system for the industrial waste discharged from generation sources.

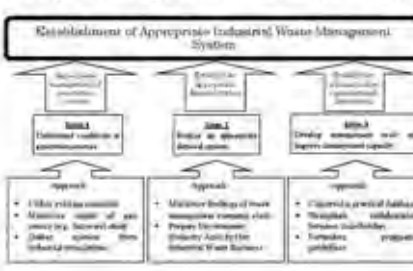
4. Establishment of an administrative organizational framework to handle, guide, monitor and regulate laws 1 and 2 above.

Furthermore, it is necessary to address the following issues in order to achieve these items during the study:

1. How to gain an understanding of actual conditions of industrial waste generation-sources (factories, etc)?
2. How to realize the establishment of an appropriate disposal system concerning industrial waste management?
3. How to assemble tools to manage industrial waste and increase management capability?

The issues given above have been considered in a comprehensive chart, below. How to realize these issues will be presented in News Letter No. 2.


Reinforcement of Appropriate Industrial Waste Management System



3. Holding Weekly Meetings

The JICA Study Team explained about the policy of the Study, in which the industrial waste management master plan (MIP) is formulated by information from the Brazilian counterpart (ICP). Then, the team requested the ICP personnel to participate in the study activities, such as much as possible for a good implementation of the results.

The Brazilian side agreed the request and embarked to hold the meetings periodically on Mondays between from 2 PM on.



5. Organization Structure of the Study

The team consists of 10 people with different backgrounds as shown below. In addition, Brazilian counterparts are working for the Study as follows:

Position	Name
Chief of the Study	Mr. Masahiro Yamamoto
Chief of the Study (Deputy)	Mr. Shiroki Takahashi
Chief of the Study (Deputy)	Mr. Shiroki Takahashi
Chief of the Study (Deputy)	Mr. Shiroki Takahashi
Chief of the Study (Deputy)	Mr. Shiroki Takahashi
Chief of the Study (Deputy)	Mr. Shiroki Takahashi
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Chief of the Study (Deputy)	Mr. Shiroki Takahashi
Chief of the Study (Deputy)	Mr. Shiroki Takahashi
Chief of the Study (Deputy)	Mr. Shiroki Takahashi

6. How to contact us

Our office is located in the building of the Superintendency of Manaus Free Trade Zone - SUFRAMA in Manaus City, Amazonas State (Brazil), characterized by phone and fax, number shown below:

In addition, we have a plan to open a web site in SUFRAMA website as soon as you consider us by the internet. We will also attend the progress of the Study in the newspaper, all sorts of the same journal. The news letter will serve of the documents will be able to be downloaded from the web site. We also have a plan to distribute the news letter by e-mail. We will return how to be available in the news letter by a mail later after we discuss the details.

On the other hand, it's very important for us to know the working conditions of the industry and organizations about the current industrial waste management systems. We hope that we could achieve exchange activities and comments with you through the news letter and web site.

JICA Study Team

The Study for the Development of an Integrated Solution related to Industrial Waste Management in the Industrial Pole of Manaus

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JICA Study Team (2011030004)
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4.1.2 Newsletter Volume 2

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(ii) Survey of Waste Management Companies	4
Contact us	4

Industrial Waste: Seeing the Big picture

What are the actual conditions of the generation sources of industrial waste? Although industrial waste is eventually generated through the various manufacturing processes of industries, there is currently no clear understanding of the characteristics and amount of that waste. The JICA study team (JICA team) and other institutions are addressing that issue through the activities outlined below.

In order to grasp the actual conditions of industrial waste disposal, the most basic and essential task is creating a Roadmap for the development of the factory survey. The key to it should be how to identify the large categories of generation sources, what we call "City", and (ii) waste discharged from generation sources which we call "Off-site". The inventory currently used in Brazil tells us "what" is shown and "how much" a factory has discharged, but does not reveal the process of off-site disposal. This is why it is necessary to grasp the conditions of waste management, as shown in the chart, and survey the On-site flow of generation sources and see for Off-site flow, while also grasping the actual conditions of waste management companies to get a clear picture of the entire Off-site flow.

The JICA study team is now in the process of carrying out a number of field surveys to clarify the entire flow, in this newsletter we outline how that has been studied thus far.

Objective of Field Surveys

In the first phase, the JICA study team carried out surveys in order to clarify the entire flow from the generation source to waste management companies. In this phase, we will clarify the current flow with respect to the end of the first phase in November.

Surveys conducted in the field phase:

- Survey of factories
- Survey of waste management companies
- Survey of radioactive waste management facilities (a facility recently initiated in June)
- Survey of solid waste management
- Survey of radioactive waste management

Field Surveys of the Study

(i) Factory Survey

Objective

The objectives of this survey are:

- To understand the generation amount of industrial (factory) waste in FM approved by SUPRAMA.
- To understand the waste management practices of the factories in FM in terms of storage, maintenance, recycling, collection, information, monitoring and final disposal.
- To understand the need of recognizing and setting standards of FM-FM (from macroscopic, industrial, chemical and civil) (macroscopic, industrial waste) according to the category of industry sector (chemical wastes, etc.)
- To understand the actual facilities (generation amount, recycling facilities and waste management and environmental practices).

Contents of the Survey

The factories targeted in the survey

The target factories will be those approved by SUPRAMA within the (FM) and (FM) (see Table 14, the FM sites under JPA conditions of SUPRAMA).

There are 407 of these factories in Manaus (36 plants of which 274 are large-scale and 243 are small-scale factories in the sites of Part 1 and Part 2 respectively) (Note: see Appendix 1 on Project Approvals from SUPRAMA, SUPRAMA).

Furthermore, the number of these factories according to industrial sector and the waste hours are shown in Table 1 in the following items.

Table 1: Number and Type of Factory

Factory Code	Business Sector	Number of Factories
001	Aluminum (all items combined)	16
002	Aluminum (steel and other)	2
003	Printing and other factories	16
004	Food, chemicals and chemical products	61
005	Food	1
006	Chemical	26
007	Chemical	48
008	Aluminum (metal)	2
009	Aluminum	0
010	Food (beverage business)	11
011	Aluminum	2
012	Food (beverage)	14
013	Chemical	32
014	Food (beverage)	12
015	Food	1
016	Printing (text and non-text)	11
017	Printing (metal)	13
018	Chemical	1
019	Other	25
	Total	407

(ii) Waste targeted in the survey

The target waste in the survey is that generated from the industrial waste in the FM zone at production process and non-production process, unless we refer to as industrial waste (IW).

We are targeting as radioactive industrial waste (RIW) and FM (radioactive industrial waste (RIW)).

These specific categories were defined based on the JICA study team for the survey activities.

Table 2: Two-Phase Two-Phase Industrial Waste

Waste Code	Type of Industry
0001	Aluminum (all items combined)
0002	Aluminum (steel and other)
0003	Food
0004	Food (beverage)
0005	Food (beverage)
0006	Food (beverage)

Table 3: Industrial Waste

Waste Code	Type of Waste
0001	Aluminum and
0002	Organic acid
0003	Aluminum
0004	Food (beverage)
0005	Aluminum (metal)
0006	Aluminum
0007	Aluminum (metal)
0008	Food (beverage)
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0100	Food (beverage)

Survey Method

The following flowchart shows the method used for the factory survey, from identifying a "Waste" generated by production of semiconductor and electronic products, and how data analysis and response.

Conduct the JICA study team and a subcontractor are carrying the field survey plans to all 407 factories and FM sites and interview all these 200 factories.

Schedule

The survey completion in April will be recorded in August.

(ii) Survey of Waste Management Companies

Objective

The objectives of this survey are:

- To understand the waste management practices of companies that deal with those wastes discharged from plants in the FM zone (waste management companies) through the waste management (waste management) for the collection, transportation, treatment (e.g. the reuse, recycle and destruction) and final disposal of industrial waste from the FM.

Contents of the Survey

The waste management companies (WMCs) targeted in the survey are those which have FM (FM) issued environmental license (a specific license) by the FM (FM) waste management, including:

The survey will be conducted as follows:

- Question, storage and transportation
- Treatment and recycle
- Final disposal

However, some waste management companies, especially waste recycling, are not managed by the above-mentioned FM (FM) waste management. Thus, for the purposes of the study, the companies were initially intended to include in the waste management companies in the survey for them as a result. 50 companies were targeted in total.

(iii) Radioactive Waste Survey

Objective

The objectives of this survey are:

- To understand the management of radioactive waste in the facilities and related facilities in FM (radioactive waste of Manaus).
- To understand the radioactive waste disposal after discharge from the generation sources in terms of collection, storage, treatment and final disposal.

Contents of the Survey

In order to pursue the above-mentioned objectives, the JICA study team and a subcontractor are now conducting the following tasks:

- Facility survey
- An interview survey with the target organizations responsible for radioactive waste management in accordance with the questionnaire sheet made by the JICA study team.
- An interview survey with the 5 three identified generation sources according to the questionnaire sheet made by the JICA study team.

Schedule

- FM (FM) Completion of the work
- FM (FM) Completion of the field work and interview survey in the field with the target organizations responsible for radioactive waste management
- Mid-July Completion of interview survey to the 3 (FM) generation sources

Contact us

This newsletter has been published by the JICA Study Team.

JICA Study Team (SUPRAMA)
At: JICA, KOGYO CO., LTD.
Dante Municipal (217-6071-166)
Manaus, Amazonas, Brazil
TEL: (51) 3628-1231 FAX: (51) 3628-1232

3) Survey Method

The survey is also being conducted by a newly subcontracted firm which will carry out direct interview with the generation companies to those factories who know the type and amount of waste they are generating, recycling, treating and land filling. The subcontractor has used questionnaire sheets to interview and their through interviews at the companies will confirm and fill in the required data.

Objective

The survey conducted in May will be concluded in August.

(ii) Radioactive Waste Survey

Objective

The objectives of this survey are:

- To understand the management of radioactive waste in the facilities and related facilities in FM (radioactive waste of Manaus).
- To understand the radioactive waste disposal after discharge from the generation sources in terms of collection, storage, treatment and final disposal.

Contents of the Survey

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4.1.3 Newsletter Volume 3




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Report on the Study Findings

As the study team is aware (and we have mentioned in the last newsletter) we have completed the third survey of current conditions and issues. Based on these findings we established waste management number plans for the Industrial Pole of Manaus in the Manaus Free Trade Zone will be started. The number (Vol. 2) contains a summary of our findings through the site of PFM which were presented in the second report (September 11) - please keep an eye out for issues that should be rechecked and its results in the next volume of the newsletter.

The findings presented here are the result of the surveys which were conducted. There can be no other but more integrated. On-Site Waste Management and Off-Site Waste Management. An analysis for JICA Study Team becomes you to be used as well as any questions, comments or suggestions concerning these findings or other matters is most appreciated. We will be glad to discuss matters with you.

On-Site Waste Management

The study integrated industrial waste into a category of domestic waste and separate facility, as well as general industrial waste that do not fit into this category. These categories were made based on the fact that there are management responsibilities for each according to various laws and regulations by CONAMA, ANITA, ABNT, MAPA and so on.

Construction Sites

In the case of construction sites, the results of the survey that had conducted for projects in the past year from June 2008 to May 2009 which covered 124 of the 534 completed. Construction waste is categorized into four items under CONAMA Resolution 017 and the study used it to identify the waste in further detail. It was found that 90% are mixed construction waste generated at a rate of 194 kg/employee, including 23 kg of concrete in PFM on average. The total amount of construction waste generated is 30,977 tons/day (see flow chart for construction waste on page 3). Of this amount, in terms of the CONAMA classes, 36.8 tons are reusable or recyclable as aggregate (Class 4) and 0.2 ton are classified as non-hazardous (Class 5) with 26,597 tons being negatively recycled.

There were a number of positive issues identified through the responses received in the survey, such as the fact that only 52% make a construction waste management plan according to CONAMA Resolution 002. Furthermore, less than 20% of responses indicated the use of a method for waste discharge. Another issue is the frequency of recycling rate at 0.1%, which is against the high percentage of mixed waste, nearly 61% of which are reusable or the Manaus City Goals.

Reductive Waste

According to the National Department of Industrial Energy (DENRE), 14 PFM companies are allowed to use reductive materials. Of these, 8 units have been authorized and are under regular audit by DENRE to ensure the generation of any reductive waste. However, the responses indicated that none was generated. The reason from the survey findings revealed that the output is a waste production company, such as PVC, which measurements are produced such as granular output. Furthermore, responses indicated approval industrial material management is being carried out in such manner as other through the waste companies as reported in a previous issue in this newsletter's newsletter.

Off-Site Waste Management

To conduct the survey for off-site waste management, 76 units (industrial waste management companies) were surveyed.

Health and Environmental Issues in PFM

Of the 400,000 people living in the study area, this amount was not surprising. However, some problems were apparent in the responses to the study survey such as the use of non-standard containers to store what is not meant to be used (1200 L metal drums) and the mixed collection of waste. A solid hazardous waste clear the identification will be revised according to CONAMA Resolution 008 of waste locations. There were also some issues identified for off-site management of health waste, which included a need for improvements in the waste transfer system and more clearly defined discharge responsibilities due to the fact that many could not identify the disposal methods used by waste management companies. This PFM and that waste PFM are proposed to be a waste of all the health waste which are available, although appropriate measures appear to get to be confirmed.

Management Companies and Hazardous Waste

As the study team is aware (and we have mentioned in the last newsletter) we have completed the third survey of current conditions and issues. Based on these findings we established waste management number plans for the Industrial Pole of Manaus in the Manaus Free Trade Zone will be started. The number (Vol. 2) contains a summary of our findings through the site of PFM which were presented in the second report (September 11) - please keep an eye out for issues that should be rechecked and its results in the next volume of the newsletter.

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Other issues that were identified according to waste management companies surveyed are the need to strengthen the capacity for monitoring and enforcing compliance with industrial waste management and health and safety that will reduce to safety risks. And, improve the business environment. Also, according to various interviews, the PFM companies in environmental issues, such as waste management (not waste transfer) factor, increasing taxes, and more detailed codes and classification (another issue to be addressed is the fact that not all companies use waste manifests) in industrial waste management issues, and those which do rely on consultants should received from waste management companies.

Waste Flow Diagrams

As mentioned above, the study also created flow diagrams showing waste flow (Figure 1) and construction waste (Figure 2), which show the amount generated per day and per destination. The study also produced a waste flow diagram showing the waste flow by the category of all industrial waste in PFM (Figure 3). The study also integrated industrial waste into the large category hazardous waste in PFM (Figure 4) and non-hazardous waste in PFM (Figure 5).




Figure 1: General waste flow diagram showing sources (Manufacturing, Construction, etc.) and destinations (Landfill, Recycling, etc.).

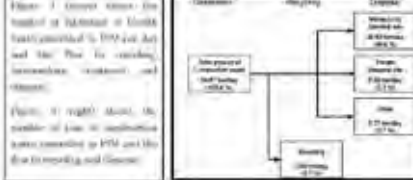


Figure 2: Construction waste flow diagram showing sources (Construction sites) and destinations (Recycling, Landfill, etc.).

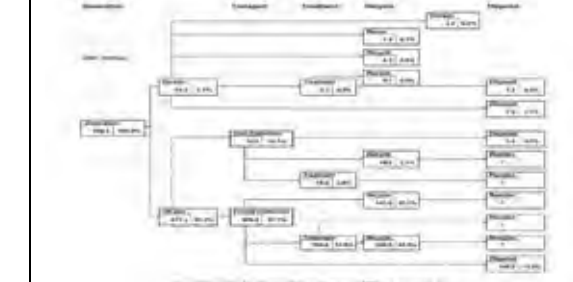


Figure 3: Industrial waste flow diagram showing sources (Manufacturing, etc.) and destinations (Landfill, Recycling, etc.).


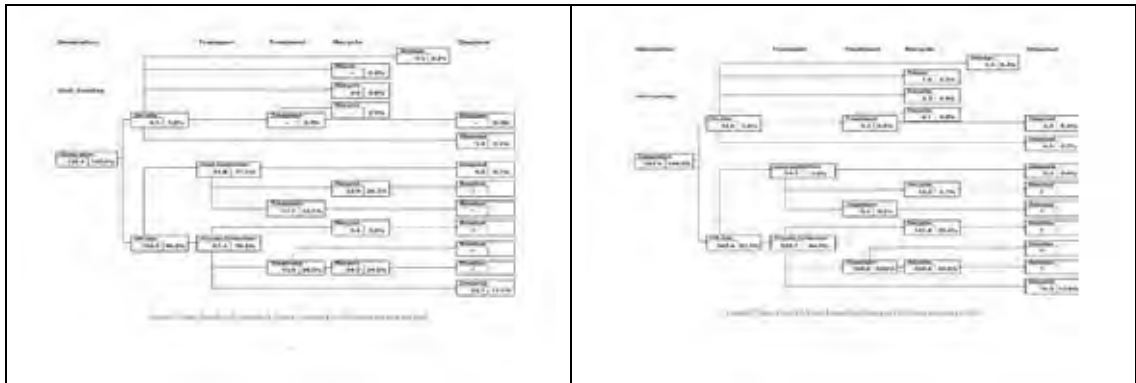


Figure 4: Hazardous waste flow diagram showing sources (Manufacturing, etc.) and destinations (Landfill, Recycling, etc.).



4.1.4 Newsletter Volume 4

Report on the First Workshop

In order to achieve the goals of the Study, SUPRAMA and the JICA Study Team are working in collaboration with the Amazonas State Industries Federation (FEAM), the Amazonas State Industry Center (CEAM) and the Japanese-Brazilian Commerce Chamber of the State of Amazonas (CCB-AM) to formulate an Industrial Waste Management (IWM) Master Plan to be implemented from 2011 to 2015. For the Master Plan to be practical and effective, it will be formulated based on valid first-hand data collected in the greatest degree possible. The Study has already benefited from the participation of IWM facilities and their management companies in baseline surveys as well as reports from their organizations such as IPAM, PROCAMM, SEMULSP and others in order to bring together a wide variety of stakeholders. SUPRAMA hosted the first workshop in a series on September 11, 2009, at the SUPRAMA auditorium in Manaus, which focused on consensus building to proceed the study of the

Workshop Preparations

In preparation for the workshop, a planning committee made up of highly DP personnel from various departments at SUPRAMA met once or twice a week to put together an itinerary list, plan the workshop schedule and compile a comprehensive handbook package for participants including a short summary of the Study, the overall objectives of the workshop,

the day's schedule and list of all first morning presentations. The planning committee sent out over 200 invitations to a wide variety of stakeholders, such as organizations from industrial, trade and municipal institutions, as well as stakeholders in the private sector, including IWM facility owners, local consultants and academia. The invites were also distributed for individuals to be contacted with stakeholder representatives prior to the workshop (Picture 1). A high degree of interest in the topic was immediately apparent when over 100 stakeholders in the private sector and 50 public institution representatives confirmed their attendance within a short time of sending the invitations. On the day of the workshop, when instead of opening the registration desk (Photo Gallery, Picture 2), many guests had arrived and eager to take their seats in the auditorium, and in the end, 150 attendees signed in as registered for the evening presentations (Picture 3).

Morning Presentations

After the opening ceremony, there were four presentations which provided the audience with the latest results of the Study. The speakers were assisted by SUPRAMA technical support staff, displaying the presentations on three large screens visible to all audience members (Picture 4). Please refer to Volume 3 of the Newsletter for a summary of today's presentations. can be viewed online or by contacting the JICA study team to request a copy in Portuguese or English.

The first presentation concerning Overall Management of Industrial Waste was conducted by Mr. Hiroyuki Kazuo, representing FEAM, CEAM and CCB to give a detailed overview of the Study results through the end of August. The next presentation, also containing Study results, on Overall Industrial Waste Management was given by Mr. Arthur Azevêdo Souza of IPAM. This was followed by an informative presentation titled "Status of the Elaboration of Manaus State's Industrial Waste Management Plan" by Mr. José Claudio de PROCAMM. Finally, a thought-provoking presentation on domestic and health waste management was given by Professor João Paulo Ladeira de Andrade, PhD, from the Federal University of Amazonas (UFAM).

Most of the presentations were presented in one hour given for a Question and Answer session (Picture 5). In total 20 questions were collected from the audience and ample time was given for each of the speakers to respond with additional input provided by Mr. Maria Grazielle Baltes, SUPRAMA's Foreign Trade General Coordinator. At the end of the morning, all attendees within the auditorium for lunch, they were given the opportunity to sign up for one of three small group discussions pertaining to the information presented in the morning.

Afternoon Workshop Groups

Participants were free to join any of the workshop groups in the afternoon. There were three groups formed in different rooms with SUPRAMA, with signs posted clearly to guide participants to the correct room (Picture 6). The groups were as follows:

- 1) Overall waste management: waste identification and volume (Picture 7)
- 2) Overall waste management: waste treatment and reuse (Picture 8)

3) Improvement of policy for industrial waste management (Picture 8)

On average, each group has attended by about 20 participants, led by an expert in the field. The groups were provided the focus to engage in discussion on actual problems, current conditions and important issues that would assist in formulating the IWM Master Plan. Each group was provided a room with desks and chairs configured to facilitate roundtable discussion involving all participants and a member of SUPRAMA was present to facilitate and take notes, using a moderator to direct the topics discussed on a screen. Following a short break (Picture 10), these notes also served to summarize the discussion and were used to a representative from each group who was selected to present the results of their discussion in the afternoon for all the participants.

Closing Remarks

The workshop ended with comments by SUPRAMA on the benefits of the workshop, thanking the sponsors for their participation and positive feedback during the afternoon session. Mr. Saitou Shimizu, commented that the workshop provided a valuable opportunity for participants to establish relationships and build trust. His positive comments and he commented the guests for their staying participation Mr. Shimizu stated that in his 30 years as a consultant for international cooperation projects, the workshop was the largest and most engaging that he had seen and he thanked the Brazilian counterpart for their steadfast efforts before and during the event. He was particularly impressed with the proactive role played by members of SUPRAMA and other partner organizations who stepped forward to present material to the audience, answer audience questions, logistics and appear for interviews with the media and expertly execute such a large event.

Announcement of Workshop at FIAM

The next event will be the second workshop held at the Amazonas International Fair (FIAM) on November 27, 2006 from 2:00pm. The objective of the seminar will be to formulate the Concept of an Industrial Waste Management Master Plan (IWM) for the Industrial Pole of Manaus within the Manaus Free Trade Zone and exchange with stakeholders. Please contact SUPRAMA at the JICA Study Team for more information.

Contact Us

As always, the JICA Study Team welcomes you to contact us with any questions concerning the organization.

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Photo Gallery of 1st Workshop, Theme: Consensus Building

Picture 1: The workshop moderator, Kazuo Shimizu (JICA)

Picture 2: Guests introduced by Shimizu

Picture 3: SUPRAMA representatives introducing the 2nd Workshop

Picture 4: Detailed report and workshop All participants tables were made for each speaker

Picture 5: A part of second speaker took stage after discussion questions from the audience

Picture 6: Room showing the starting of the next workshop groups were clearly placed around the hallways

Picture 7: Workshop Group 1 discussion (topic: waste management, 120 participants)

Picture 8: Workshop Group 2 discussion (topic: waste management, 120 participants)

Picture 9: Workshop Group 3 discussion (topic: waste management, 120 participants)

Picture 10: Workshop Group 4 discussion (topic: waste management, 120 participants)

Picture 11: A short break in the afternoon allowed for participants to talk and network (break group performance)

4.1.5 Newsletter Volume 5

In this issue...

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Workshop Groups	19 - 24
Announcement of the 2 nd Workshop	25

Background of the Study

The title study is being carried out under a Cooperation Agreement signed by the Superintendence of the Manaus Free Trade Zone (SUPRAMA), the Brazilian Cooperation Agency (ABC-BR), the International Cooperation Agency of Japan (JICA), and the Cooperation Agency of Japan (JICA) and is collaborative with a wide range of organizations such as the Amazonas State Industries Federation (FIEAM), the Amazonas State Industry Center (CIEAM), the Japanese-Brazilian Commercial Chamber of the State of Amazonas (CCB-AM) and other state and municipal environmental organizations such as the Institute of Amazonas State Environmental Protection (IPAM), Socio-Environmental Program of Manaus Agency (PROSAMV), Municipal Secretariat of Urban Cleaning and Public Services (SEMULSP), and Municipal Secretariat of the Environment (SEMAM).

Report on the Second Workshop

Overview

Aiming to involve stakeholders in the process of establishing an industrial waste management system as part of a five-year master plan to be implemented between 2011 and 2015, the second workshop was held on November 27, from 2:00 - 6:00 pm as an event of the highly anticipated Amazonas International Fair (FIAM 2006). The planning committee decided to hold the workshop at a large venue at the Convention Hall Manaus to accommodate as many participants as possible. The event was considered a great success bringing together 137 stakeholders from waste service companies, central government, state agencies, and others, to exchange opinions and work out answers as the study enters its second phase.

In the first phase the study benefited from the participation of IWM factories and waste service companies, a number of business surveys which culminated in the first workshop on September 11, 2006 at the SUPRAMA auditorium in Manaus. The focus of the first workshop was to build consensus among stakeholders present the status of the baseline surveys up to that point and give an opportunity for stakeholders to voice their concerns, ask questions and provide feedback.

The objective of the second workshop was to present the concept of industrial waste management Master Plan (IWM) and exchange with stakeholders. After the opening ceremony, there were three speakers which covered the themes of (1) industrial waste management (IWM) in Japan, (2) the concept of IWM master plan and (3) the administration of industrial waste in Rio de Janeiro, respectively. This was followed by a workshop session where participants were divided into small groups to discuss the topics and provide feedback.

Closing Ceremony

The workshop opened with a greeting by Mrs. Neza Graciele Batista, SUPRAMA's Foreign Trade General Coordinator, on behalf of Mr. Mônica Gomes, Superintendent of SUPRAMA, followed by a brief address given by Mr. Kazuhiko Inaga, Resident Representative of the JICA Brazil Office. Other representatives and friends seated at the front of the room, many of whom gave presentations or answered audience questions during the event, were Mr. Saitou Shimizu, Team Leader of the JICA Study Team, Mr. Antonio Flores of IPAM, Mr. Alexandre Kuroki of PSAMODGAMCOB-AM, Dr. Marko Oliveira of the Public Ministry, Mr. Paulo Cesar Cavalcanti of SEMULSP, and Mrs. Enli Catarina Willebrandt of the State Environmental Institute of Rio de Janeiro (INEAM).

Speaker Presentations

Mr. Inaga introduced the workshop objectives, these presentations were given to orientate the audience with the concept of an IWM Master Plan and introduce proposals by the JICA Study Team. To accommodate both English and Portuguese audience members, all presentations were accompanied by simultaneous translation. All of the presentation materials are currently available in English and Portuguese on the SUPRAMA website.

Speaker Presentations at the 2nd Workshop

The first presentation, concerning industrial waste management, was conducted by the Team Leader of the JICA Study Team, Mr. Saitou Shimizu. He presented the industrial waste law in Japan and current conditions, introduced a real example of IWM in Toyama Island and what was learned from that experience, and then spoke about current IWM policy in Japan, providing examples such as Kawasaki, Eastman and the concept of zero-emission.

The next presentation, titled 'Concept of Industrial Waste Management Master Plan' was given by Mr. Alexandre Batista representing FIEAM, CIEAM and CCB-AM. He gave an overview of the objective of the IWM Master Plan in PM and then his initial about the current issues of IWM in PM before presenting his proposals for multi-faceted measures recommended to solve such issues. The four proposals are given below, in detail.

Announcement of Workshop at FIAM

The next event will be the second workshop held at the Amazonas International Fair (FIAM) on November 27, 2006 from 2:00pm. The objective of the seminar will be to formulate the Concept of an Industrial Waste Management Master Plan (IWM) for the Industrial Pole of Manaus within the Manaus Free Trade Zone and exchange with stakeholders. Please contact SUPRAMA at the JICA Study Team for more information.

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all other presentations discuss their the SUPRAMA website or contact the JICA Study Team.

- 1 Identify a clear PM flow in PM.
- 2 Identify the destination of IM in PM.
- 3 Strengthen administrative capacity and
- 4 Improve the business environment for waste service companies.

Finally, a final presentation on PM in Rio de Janeiro was given by Mr. Erika Catherine Williams of the State Institute of Environment for Rio de Janeiro. She gave an in-depth overview of industrial waste in the state starting from local municipalities and administrative and penal sanctions, and then showing examples of her control mechanisms such as a waste inventory, waste manifest including an on-line database, and authorization-see exhibit.

Once all the presentations were completed, there was given for a Question and Answer session using questions submitted during the presentations. The experts answered some challenging questions and gave clarifications where needed and left some issues to be discussed during the workshop process where there was a need for further consensus.

Workshop Groups

After a short break, participants were asked to join small working groups. Although some participants could not move on to other events at the headquarters, they were retained for the entire event. Thus, five groups were formed of the remaining 50-plus people. Their work was facilitated by Mr. Masaki (JPFAMA) and Mr. Kazuo (JPFAMC/ENAC/ISAM) for the next 45 minutes. Participants were free to ask about the topics that were important to them.

where they they have had questions or opinions. Staff was also present to record the opinions and discussion and summarize those which were later presented to the entire group by the facilitators.



GROUP 1, which had about 20 participants, led by Mr. Kazuo, discussed various topics, starting with a question about the rate of composting in Japan of various materials. Mr. Shimada answered that plastics and wood were increasing because of more efficient incineration processes and new biological processes which use the resulting soil instead of composting of lime, is decreasing because of higher durability. The group also discussed whether the Agricultural Ministry would be involved in evaluation of industrial wastes, but IM is not an attribute of the Agricultural Ministry. The final topic discussed was the difficulty in recycling plastics in PM in which Mr. Kazuo explained that soft type plastics can be recycled if it is clean whereas hard types require an expensive recycling process, which becomes unfeasible after the second step in the process. Following this was a valuable comment concerning current legislation that only allows wood to be processed by companies involved with wood

issues. It was suggested that interested parties should get in touch with the State Government Development Investment (SDI). Finally, the group expressed optimism about the 2014-2015 deadline established for the implementation of actions being proposed by the JICA study. This provided an opportunity to further explore the justification for the use of certain time-consuming actions, such as the construction of a new legal entity.

GROUP 2, which had about 20 participants, was led by Mr. Masaki. In this group, many participants shared opinions and provided feedback and suggestions concerning the study. One suggestion was that, since some factories may have declined to answer some questions out of a perceived need for privacy, the companies who cooperated should be published on the SUPRAMA website in order to create a reverse incentive for those who refused. Another participant commented on the fact that a number of similar reports had already been submitted to different organizations (SUPRAMA, ISAM and ISAM) and that each one has a different taxonomy. It was therefore suggested that the information included be unified and that it is better to send requests electronically to avoid confusion and including the files. On the topic of tax incentives, one participant suggested that measures be used to attract recycling companies, however, another participant stressed that there are already various incentives granted to facilities and the need for them is the creation of a massive regulatory and regulatory system of 20 projects. The next subject by others, saying that the waste manifest system presented by the Erika Catherine Williams of the IECA in Rio de Janeiro is ideal and that it is important to review


the files that are changed by SUPRAMA and others. Agreeing on the issue of environmental accounting, one participant raised the fact that waste reduction will only take place only once there is a change in disposal of waste at the final destination. In which Mr. Masaki clarified that any waste disposal here would not be linked to the environmental licensing the part in SUPRAMA. Lastly, it was suggested that material suppliers from different processes be included in the integrated management of PM entities.

Thanks to the active participation of the small group members, the workshop sessions proved to be very valuable, and although the tight schedule did not allow time for the groups to discuss the issues at great length, many expressed their interest in joining closely involved in this study as it progressed and were looking forward to the next workshop.

Announcement of 2nd Workshop

The next event will be the 2nd workshop held at the SUPRAMA on Tuesday, April 8, 2015. It will be a full-day workshop from evening until early evening with time for lunch and short breaks. The objective of the workshop will be to present the draft economic base management plan and discuss with participants. Please check the SUPRAMA website for the final details or contact SUPRAMA or the JICA Study Team for more information.

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Consensus Building Workshop

SUPRAMA led the 2nd Workshop of the study on April 6, 2015. A total of 122 participants attended to learn presentation and provide feedback on proposals. The discussion, a preliminary version of the Master Plan for Industrial Waste Management (MIPM) in the Industrial Pole of Manaus (IPM), is in implementation since 2013 to 2015. The meeting consisted of 4 presentations and a Q&A session on the following subjects:

1. Identify industrial waste management (IWM) in Manaus in April.
2. IWM in Brazil (IWM) by waste service companies in Japan.
3. IWM administration as practiced in Japan.
4. The appropriate responsibilities in the Draft Master Plan.

Participants were returned back to the afternoon in particular in group discussions (see below). At the end of the day, a summary of these discussions was presented by the entire audience and time was given for public clarification questions and to add to the final consensus.

Database Construction Meetings

In order to inform stakeholders about the necessary database construction, the meeting was held on April 7, 2015. Participants from the JICA Study Team together with companies from SUPRAMA and ISAM for industrial and water service companies. A meeting agenda aimed to review factors with a database to effectively manage waste management. An afternoon meeting was held for companies related with waste services. Meeting with some interesting presentations from proposal and a database to promote business waste service companies.

Industry representatives were invited to a meeting organized jointly with a database construction development for waste management, which will be held in PM next month to request by Adilson. This meeting will show facilities to prepare the waste inventory not only on a paper form, but also online. This will clarify

Workshop 3 Discussion Groups

Many Workshop 3 participants remained for the small group discussions which took place in the afternoon. Participants were divided to join one of three discussion groups:

1. Current Industrial Waste Management (IWM)
2. IWM Administration (IWM)
3. IWM Administration (IWM)

A number of suggestions were generated by the participants in each group, which helps in strategies on between industrial establishments.

The 3rd group discussed issues (IWM) of industrial establishments were written regarding the need to consider all clients, workers in a more practical manner related to make use not only of raw materials but also energy. Participants also suggested that industrial waste manifest system and recycling waste management should address these needs.

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Workshop Continued from page 6

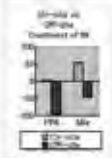

The evening presentation was all events by study consultant presented into performed in a 2-week training program on industrial waste management in Japan.

The 2nd presentation (Mr. David Sato, SDFM) covered present industrial waste management in Japan. Mr. Sato presented to Japan, for example, management more than 90% of the industrial waste in Japan, whereas the waste rate in PM is less than 3% - nearly all PM is treated within the city of Manaus. The specific waste management examples from Japan, including Industrial Park and Osaka's Osaka Plant, both involving the concept of "zero-waste", were given (see page 6).

Examples of efficient industrial waste management in Japan were given (Mr. Sato Sato, SDFM), presenting 13 facilities (total which conduct treatment) for PM innovative PCB treatment, health waste incineration, and air cooling recycling of connection waste, electronic waste, and waste oil/water as well as energy-recovered waste, composting (of sludge) and compostable waste, and a compost plant - see page below). Meeting, landfill, and incineration, and an overall IWM center. With a total of over 1,000 such facilities in Japan, as well as a high recycling rate to encourage waste reduction, only 8% of Japan's total waste management was land disposal in 2008.

The 3rd presentation on PM administration in Japan (Mr. Sato Sato, SDFM) focused on the role and responsibilities of public and private parties regarding industrial waste. Following an overview of the legal framework based on developing a "total environmental security", examples from the Tokyo Municipal Government plant waste, glass, such as large to reduce natural resource consumption and waste generation, and minimizing environmental risks in the process of waste treatment. Lastly, suggestions generated from the meeting were given (see SUPRAMA website for the details).

All presentation materials are available on the SUPRAMA website to consult.

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Draft Master Plan

The Draft Master Plan was presented to stakeholders at the final meeting in September 3, before making group discussions. The presentation, given by Mr. Akihiro Amano (Chief of SUPRAMA), informed participants of current industrial waste management issues in PMA, as well as the objectives and contents of the Industrial Waste Management Master Plan (IWMMP) to PMA.

The Master Plan is essentially a 14-year action plan (long-term: 2012 to 2026) which aims to establish appropriate treatment, use, and final disposal, reuse, recycle and land-use/management practices in order to minimize negative environmental impacts.

The final action priority being PMA are that of: (a) the need to clarify guidelines for both of an adequate financial health, i.e. economic sector, an administrative, and (b) a proper business environment in which waste service companies operate. The objective of the Master Plan is to establish an appropriate industrial waste management system in PMA by making three steps:

However, the need to be done first, as currently proposed, is to establish an effective system for waste transfer and waste inventory requirements, setting clear objectives for industrial waste through provincial and long-term plans, strengthening administration of PMA through capacity building, regulation and cooperation between stakeholders, and also creating a business environment that will stimulate enterprises engaged in waste-related practices.

As the presentation materials are SUPRAMA's website for details: [http://www.supramanewsletter.com](#)

Discussion (Continued from page 1)

The second of issues that are being studied regarding a. at the factory and a. b. at the municipal waste service companies. With the information at hand, it will be possible to conduct a flow of all the wastes in PMA. Some studies are ongoing, contributing to visual environmental conditions and improving the business environment. Many of representatives from factories in PMA (which had identified their waste streams) for the previous year) attended, and their feedback will be valuable in establishing the new materials.

For the afternoon session, SUPRAMA also organized the cooperation of the business survey was carried for an extensive starting on a new (linear) category for waste management which SUPRAMA plans to introduce in the near future, as well as a Waste Service Company (WSC) Charter being developed that will assist in generating and assisting companies in the PMA marketplace. Representatives from nearly 30 of these WSC's participated. Study members explained the proposed categories for municipal (solid) and industrial (solid) waste management. What companies desire in industrial waste management, hazardous materials, recycling, and final disposal activities apply for an expansion license, they will be considered next by WSC. Delegates of SUPRAMA explained that previous final preferred companies list for available by PMA officials who would coordinate them that waste for off-site treatment and disposal.

The use of these facilities will not only contribute to meeting requirements by CONAMA Resolution 113, but also create a business environment that will improve collaboration between stakeholders, leading waste service and officials and establish appropriate IWM in PMA. [http://www.supramanewsletter.com](#)



Discussion (Continued from page 1)

As Kokusai Kogyo Co., Ltd. (KCC) Industrial Park in Yamamoto, Prefecture (Japan), has over 20 companies working together to reduce and recycle their waste as much as possible. The park established a "zero-emission" policy in 1995, and since has been able to jointly recycle paper and printing materials and coordinate the products. KCC (Industrial Park) and company recycle waste for facilities. As a result, the facilities are engaged in activities by various.

Advancement of Seminar in Manaus

On 27 May 2010, SUPRAMA will hold a seminar to announce the findings of the study, and present the draft master plan prepared by the ICA Study Team to stakeholders in the study community. The seminar aims to stress a wide range of stakeholders and participants in the urban marketplace will be presented largely. Other who would like to attend are encouraged to contact SUPRAMA (Information at 2010).

Discussion (Continued from page 1)

need to improve the waste inventory and essential systems. In addition, they set a goal to set up better service administration of industrial waste, better collaboration between companies and inclusion of higher levels of government. Lastly, they were suggested "improvements" such as strengthening financing and other factors to encourage the WSC's activities.

The second group discussed IWMMP and the need for a more effective treatment system. Various views were expressed for how to strengthen the market, particularly

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"Zero-emission" Facilities in Japan Eliminate Waste for Final Disposal

On-site cooperation to the study visited Japan for learning on industrial waste management. During the process, visits were made to Kokusai Industrial Park and Honda's Honda Plant to provide good examples and introduce the concept of "zero-emission". These examples were presented at the 3rd meeting.

At Kokusai Industrial Park in Yamamoto Prefecture (Japan), there are 20 companies working together to reduce and recycle their waste as much as possible. The park established a "zero-emission" policy in 1995, and since has been able to jointly recycle paper and printing materials and coordinate the products. KCC (Industrial Park) and company recycle waste for facilities. As a result, the facilities are engaged in activities by various.

Honda's Honda Plant created three factories Project in 1997, which included a target for reducing zero-emission. Defined as "0% WEM" (Zero-emission for final disposal discharged outside the factory)". The plant achieved their zero-emission target in 1998, becoming the first automotive manufacturing company to do so in Japan.

For more information on visiting for on-site management of industrial waste in Japan, please visit the SUPRAMA website to contact the presentation materials: [http://www.supramanewsletter.com](#)

The main treatment. Participants agreed that maintaining a "zero-emission" goal is not realistic and in addition, could be an important lead to manage them. However, they would like to see the degree of autonomy of autonomy for each business to be different.

The third group discussed the proposed Master Plan of the study. A number of issues and suggestions were raised by a large number of participants. Concern with high energy costs and focus on self-sufficiency (ability) issues were discussed, including the need to establish appropriate to all business, such as water, and also other resources. However, the need to establish final destination for industrial waste, including hazardous waste, was noted as a priority. Furthermore, cooperation between companies and waste service companies, including and industry, and the government and service companies were noted as a priority to build relationships to improve the situation in PMA. Lastly, activities both at the household level and for business activities were expected as an important factor.

Discussion (Continued from page 1)

In the second presentation, an entire team of IWM in PMA, Mr. Mitsuru Kubota (CEO-GM/CEO-SUPRAMA). Mr. Kubota presented the results of the study, showing the respective waste stream diagrams. The final proposed master plan with IWM which had been noted by the study the study (a. at factories, b. at municipal waste service companies) and administrative issues.

Discussion (Continued from page 1)

Extremely low rate of on-site treatment and disposal.

Lack of motivation to construct a system for appropriate waste management.

Lack of understanding of industrial waste management.

Lack of information on industrial waste management.

Off-site issues:

Need for a more effective treatment system.

Need for a more effective treatment system.

Need for a more effective treatment system.

Administrative issues:

Organization structure.

Regulation and application of management.

Financing mechanism.

Information cooperation among stakeholders.

The final presentation by Mr. Kenji Takano (Chief of SUPRAMA Study Team) stressed issues related to the Industrial Waste Management Master Plan in PMA. He introduced everyone that the objective of the Master Plan is to establish an appropriate IWM system in PMA. He also outlined the multi-faceted work to establish final destination for industrial waste in PMA and stressed the importance that final industrial waste management would increase by 1.7% per year during 2010 to 2012 and reach 7.1% level of industrial waste per day at 2017. Furthermore, 10% of that amount would come from the final disposal type of activities. Also, although no significant change is expected in the composition of IWM during that time, in 2012 approximately 71% of the IWM would be

4.1.7 Newsletter Volume 7

JICA NEWSLETTER VOLUME 7

For the Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus

JICA Study Team (SUPRAMA), JICA/Manaus, Amazonas, PMA, Brazil, September 2010

1) Seminar: Study Results & Master Plan

SUPRAMA held a seminar on May 27, 2010 to inform the study. A total of 112 participants attended to hear the results of the study and provide feedback on proposals to establish a preliminary version of the Master Plan for industrial waste management (IWM) in the Industrial Pole of Manaus (PMA) to be implemented from 2011 to 2026. There were 3 presentations at the seminar, and 7 in the afternoon, each followed by a Q&A session. The seminar covered the following topics:

1. Seminar: Objectives and Findings
2. Current Issues of Industrial Waste Management in PMA
3. Industrial Waste Management Master Plan in PMA
4. Draft Findings of IWM in Brazil and Japan
5. Waste Inventory Database
6. Waste Service Company Database

The seminar began with Mr. Mitsuru Kubota (JICA Study Team Leader), who introduced the background and objectives of the study, and encouraged participants to discuss and submit questions to the speakers.

2) Why the Database?

There are two databases that have been developed in the study to assist in improving waste and effluent waste management, and ultimately, to establish an appropriate industrial waste management system in the Industrial Pole of Manaus (PMA). In order to explain these databases to a wide audience, they were held for presentations in the afternoon portion of the seminar. The first presentation introduced a database that will assist factories to efficiently manage waste inventory. This was held by Mr. Kenji Takano, Team Leader. Mr. Kenji Takano, along with Mr. David Silva and Mr. Tetsuhiro Fujita from SUPRAMA.

CONAMA Resolution 113 (2002) requires that each factory submit waste generation data to SUPRAMA compiled by the waste management companies. However, due to the lack of information regarding industrial waste, it is difficult to establish an inventory of their waste which contains information about the generation, characteristics, storage, transport, treatment, reuse, recycling, recovery and final disposal of the waste generated. The presentation introduced the general overview of the Waste Inventory Database and how it would be implemented. They also identified a need to

3) Definition Q & A

The session was all the better thanks to the many participants who actively submitted questions during the morning and afternoon sessions. A summary of the answers given to questions and proposals are given below.

Waste Service

After the morning presentation, questions were collected from the audience. To begin, Mr. Akihiro Amano (Chief of SUPRAMA) responded to a question from a representative of SUPRAMA that had been submitted regarding by KCC for the final conditions that industry (KCC) the requirements of the Master Plan. She stated that it is a data-based system to assist the waste management, and that the waste management should be based on a combination of a variety of measures.

Following that, Mr. Akihiro Amano (Chief of SUPRAMA) Study Team responded to a question about the difficulty to identify final disposal site for hazardous waste. He stated that the final disposal site for hazardous waste is not yet established in PMA.

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"Seminar" Continued from page 1

In the second presentation, an entire team of IWM in PMA, Mr. Mitsuru Kubota (CEO-GM/CEO-SUPRAMA). Mr. Kubota presented the results of the study, showing the respective waste stream diagrams. The final proposed master plan with IWM which had been noted by the study the study (a. at factories, b. at municipal waste service companies) and administrative issues.

Discussion (Continued from page 1)

Extremely low rate of on-site treatment and disposal.

Lack of motivation to construct a system for appropriate waste management.

Lack of understanding of industrial waste management.

Lack of information on industrial waste management.

Off-site issues:

Need for a more effective treatment system.

Need for a more effective treatment system.

Need for a more effective treatment system.

Administrative issues:

Organization structure.

Regulation and application of management.

Financing mechanism.

Information cooperation among stakeholders.

The final presentation by Mr. Kenji Takano (Chief of SUPRAMA Study Team) stressed issues related to the Industrial Waste Management Master Plan in PMA. He introduced everyone that the objective of the Master Plan is to establish an appropriate IWM system in PMA. He also outlined the multi-faceted work to establish final destination for industrial waste in PMA and stressed the importance that final industrial waste management would increase by 1.7% per year during 2010 to 2012 and reach 7.1% level of industrial waste per day at 2017. Furthermore, 10% of that amount would come from the final disposal type of activities. Also, although no significant change is expected in the composition of IWM during that time, in 2012 approximately 71% of the IWM would be

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JICA-SUFYAMA Newsletter Page 3

4) Interview in Brasília

A small meeting was held in Brasília on Friday, May 28, 2010 with representatives from the Ministry of Environment (MMA), Brazilian Cooperation Agency (ABC) and the JICA Division Office. The representatives from Amazonas State, Mr. Antônio Bezerra of IFAMM and Mr. David Silva of SUFAMA gave presentations to explain how the waste recovery database and waste service company database plan to be used in Amazonas. Participants agreed that only the system is first to place in Amazonas and consider its extension if will be valuable to consider adding this system in other Brazilian states first.

Database (Continued from page 1)

complete the system in the recovery of generated waste. These are: (1) list all waste generated, (2) apply the appropriate code to the wastes using the CODICMA waste code and corresponding JICA waste code, (3) register the quantity of all types of wastes generated that year (company), and finally (4) verify if the wastes will be sent to landfills or not, making it possible to create a "waste stream" diagram.

In the second database presentation, Mr. Antônio Bezerra and Mr. Eduardo Bezerra, both of IFAMM talked about the development of a Waste Service Company Database that would consist in registering and producing companies in the IFAMM municipality. First, they established two problems, one is that, in the current system, registration codes for waste management in municipal waste services companies is not a difficult for IFAMM to register waste service companies (WSCs) in their database, and the second problem is that waste generators are unable to identify appropriate WSCs to deposit their waste without a correct and digital registration list. As a result, IFAMM is now exploring the possibility to establish a new category for waste management, divided under municipal code for industrial waste (R1) waste management. Under the proposed system, AMMs companies should be authorized to generate, identify, transport, generate, and final disposal activities apply for an operation license, they would be registered into the WSC Database at IFAMM. Then, a webpage that presents these authorized companies would be accessible by factory IFAMM officers who send companies to permit their wastes for collection, transport and disposal. At present, they plan to register the large companies through the end of the year, and if approved in the state legislature, introduce it only in 2011.

The use of these databases will not only contribute to enhance transparency to SUFAMA regarding WSCs, but also serve to stimulate new financial resources, possibly services offered to the state, improve relations between administrative bodies, waste generators, and WSCs and lead to the establishment of appropriate IFAMM in the Industrial Pole of Manaus. ☐

4.4.4) Environment from page 1)

measures are used for the waste transfer and the destination certificate. Otherwise, strict surveillance and monitoring will continue by IFAMM until there is another waste form. Also, it is important to have an indicator program for factories in the benefit of municipal (R) codes, treat and recycle (R) generated properly.

Mr. Haddad also clarified that the purpose of cooperative among administrative entities waste generators and waste service companies is to improve legal rules and standards so that they may be issued in the prefecture, instead of something else to be repeated by the industry.

In response to a question that SUFAMA should raise from management plan into account when a new industry under a proposal, Mr. Haddad agreed, saying that SUFAMA will probably look for more complex and reasonable management plans which waste generators have impact on average the SUFAMA will be able to better evaluate these plans based on the information obtained in the database.

☐ 4.4 is continued on page 4



A television cameraman focuses on participants at the Seminar on May 27, 2010 in the SCREAMA Auditorium.

JICA-SUFYAMA Newsletter Page 4

4.4.4) (Continued from page 1)

prepared by the JICA Study Team.

The next question was whether the Waste Landfill System is intended only for domestic wastes, to which Mr. Haddad responded that national regulation applies to it by all waste. However, the state network IFAMM is able to formulate different regulations based on local conditions, and Mr. Haddad provided his personal communication in that regard.

The next question was whether IFAMM would improve environmental policies since it was pointed out that there are companies which are polluting the streams and rivers in the vicinity. Mr. Antônio Bezerra of IFAMM responded saying that the legal is the applicable municipal law in Manaus, and it requires companies with 50 or more employees to have an effluent treatment station. For smaller companies, they are allowed to have a tank, although whether that is the best solution is still doubtful. She confirmed that the role of IFAMM is to monitor and that "violators, and if yes, for example, it will not force a company of 50 employees if they do not have the station."

The last question of the meeting session was from JICA Professor Antônio Bezerra, who inquired if there are any responsibilities in IFAMM being in charge of the registration of collection companies when the municipal government is responsible for the destination of municipal wastes. Mr. Bezerra confirmed that the responsibility is responsible for "destination of wastes", although it may continue the activity. She then explained that IFAMM's involvement in licensing all waste service companies. However, she reminded the audience that, while the question focused municipal wastes, the study is focused on the issue of industrial wastes.

Amazon Service

The question and answer session continued in the afternoon, after presentation concerning the database. The first question asked if companies would send in their waste generating reports as a statement of their own waste to the State Office of Environmental Regulation (SREMA) which is the state environmental regulatory committee that will monitor and audit the IFAMM. Mr. Bezerra of IFAMM added, however, that companies would use the database (after almost every day, so that data would not only give the accountability and transparency about the amount of waste generated, but serve as a management tool at the factory.

Mr. Antônio Bezerra of IFAMM answered a question about the possibility to adjust the existing licensing system, and other documents online, and if we believe that could be expected. Mr. Bezerra explained that a unified hand operation would be made available first, although work is being done to implement an online system. However, he added that it would require necessary to obtain local opinion of documents entered by the licensing process. To do so, he requires partnering to waste generators, a unified system, as presented in the Seminar, would be made available by 2010.

The final question was raised in the audience as to how to input the inventory data into the system. Mr. Bezerra of IFAMM answered that some companies would involve a local version of the database in the coming week and begin preparing the data online as the companies would proceed with waste management tasks. The online version, on the other hand, is deemed to be ready to launch 2011, giving the remaining number of the job to standardize and test the version. ☐

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As of the end of May, since after the Seminar, the completed the majority of the JICA Study Team database IFAMM in other forms. After only a year (2010) Manaus, the JICA Study Team would like to express its gratitude to all those who contributed to the database survey and who were involved in the study, especially those in SUFAMA who made their best very welcome during their stay. ☐

4.2 JICA Study Team Website

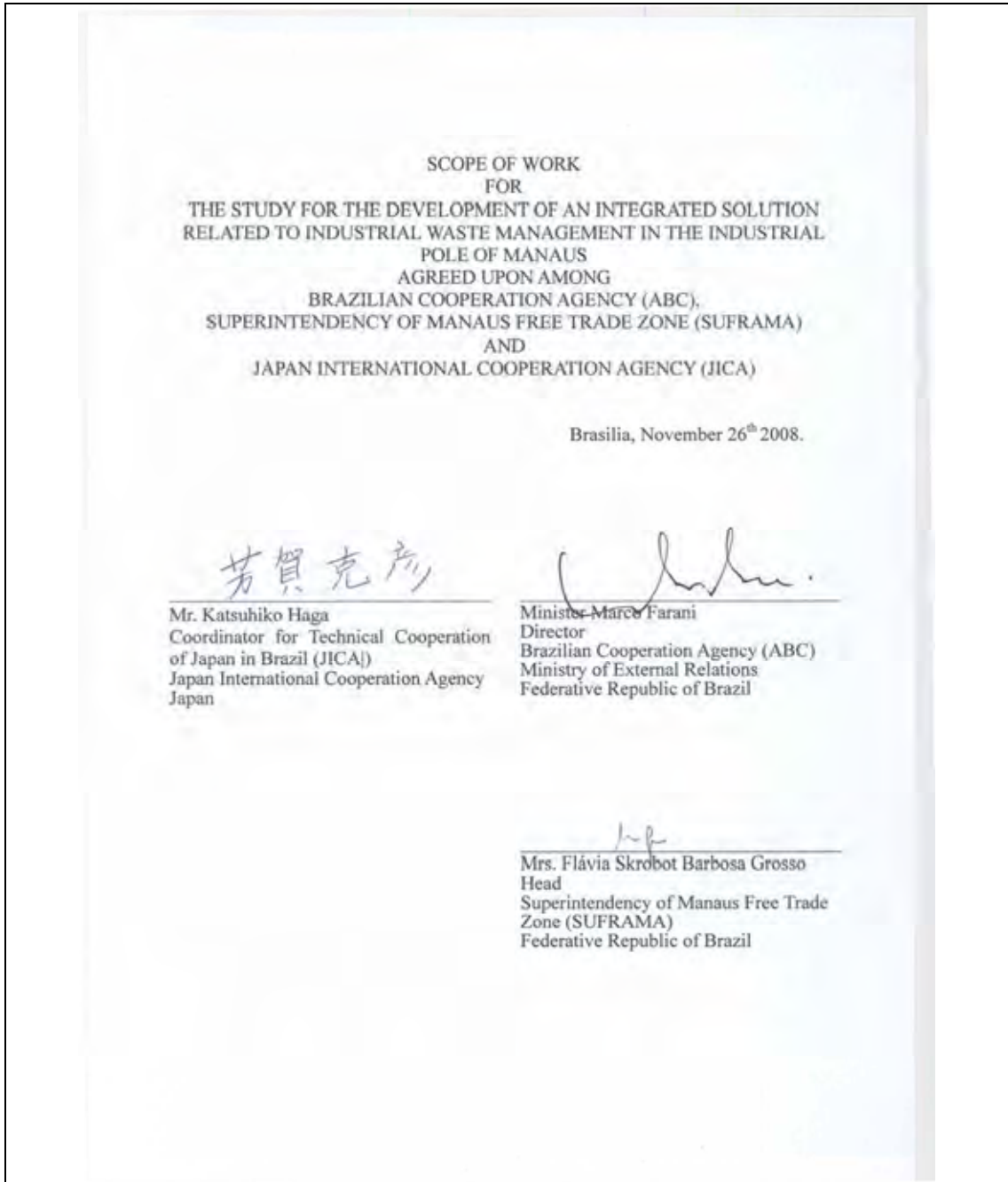
The JICA study team website is integrated into the SUFRAMA website and updated frequently as necessary with newsletters and materials from the workshops. Below, as an example, is a partial screenshot of the site. Visitors are able to scroll down further to download materials from the workshops and seminars.

The screenshot shows the SUFRAMA website interface. At the top, there are three navigation tabs: SUFRAMA, MODELO JICA, and SERVIÇOS. Below the tabs is a main menu with three columns of links. The first column includes 'Principal', 'O que é Suframa?', 'Suframa', 'Planej. Estratégico', 'Direções', 'Organograma', and 'Descentralizadas'. The second column includes 'Ligações', 'Linhas Estratégicas', 'Regimento Interno', 'DAT', 'Relatório de Gestão', 'Ex-Superintendentes', and 'SAE'. The third column includes 'Publicações', 'Notícias', 'Eventos', 'Polít. de Recur. Hum', 'Gestão da Ética', 'Cumprimento', and 'Form. Cursos'. Below the menu is a section titled 'SUFRAMA - Publicações' with a search bar and a 'COGEC' contact box. The COGEC box includes the email 'cogec@suframa.gov.br' and the phone number '92 3321-7051'. Below this is a banner for a study titled 'Estudo para o Desenvolvimento de uma Solução Integrada relativa à Gestão dos Resíduos Industriais no Pólo Industrial de Manaus'. The banner features the JICA logo and a photograph of an industrial facility. Below the banner is a 'NEWSLETTER' section with five entries, each with a PDF icon and links for 'Português' and 'English'. The entries are: 'Vol. 5 (pdf)', 'Vol. 4 (pdf)', 'Vol. 3 (pdf)', 'Vol. 2 (pdf)', and 'Vol. 1 (pdf)'. Below the newsletter is a section titled '1º Workshop do Estudo da JICA na Suframa' with a sub-section 'Arquivos:' containing five items with PDF icons: 'Objetivos do workshop', 'Atuais Condições e Questões da Gestão On-Site de Resíduos Industriais', 'Atuais Condições e Questões da Gestão Off-Site de Resíduos Industriais', 'Estudos para Elaboração do Plano Diretor de Resíduos Sólidos de Manaus', and 'Gestão de Resíduos Domiciliares e de Serviços de Saúde'.

5. Minutes of Meeting (M/M) for Steering Committees Meeting

5 Minutes of Meeting (M/M) for Steering Committee Meeting

5.1 Scope of Work



I. INTRODUCTION

In response to the request from the Government of the Federative Republic of Brazil (hereinafter referred to as "GOB"), the Government of Japan (hereinafter referred to as "GOJ"), has decided to conduct "The Study for the Development of an Integrated Solution related to Industrial Waste Management in The Industrial Pole of Manaus" (hereinafter referred to as "the Study") in accordance with the Supplementary Agreement to the Basic Agreement on Technical Cooperation between the GOJ and GOB signed on August 1, 2008 (hereinafter referred to as "the Agreement").

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the GOJ, will undertake the Study in close cooperation with the relevant authorities concerned of the GOB.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are:

1. to review the current condition on the industrial waste management in the Industrial Pole of Manaus (hereinafter referred to as "PIM") and compile the result as the report.
2. to formulate a Master Plan for five (5) years regarding industrial waste management in PIM.

III. STUDY AREA

The Study area corresponds to an area comprising those plants approved by the Governing Council of SUFRAMA (CAS) within a perimeter of 10,000 km² as defined by Decree Law 288/67 and its regulation (Decree 61.244/67), in PIM, shown in Appendix I.

IV. TARGET WASTE

The target waste of the Study is the industrial waste generated in PIM, whose classification is shown in Appendix II.

V. SCOPE OF THE STUDY

To achieve the above objectives, the Study will cover the following items:

Phase I: Review of the current industrial waste management

(1) Current situation of the study area and its surroundings (PIM, the City of Manaus, and Amazonas State):

- 1) Natural conditions (including topography, geology, meteorology, land use, hydrology, water quality, vegetal coverage and natural resources).
- 2) Social conditions (including population, administrative structures, infrastructure [electricity, water supply, sewerage system and drainage system, road, etc.], regional development plans [the City of Manaus and Amazonas State], ethnic groups, and regional conflicts).

- 3) Economic situations (including industrial structure).
- 4) Outline of PIM (including inventory of factories).
- (2) Current condition on the environmental management:
 - 1) Laws, regulations, institutions and guide lines related to environmental issues (IEE, EIA, environmental standard, emission standard, remediation system for environmental pollution, etc.).
 - 2) Current organizations and systems for environmental protection.
 - 3) Industrial waste treatment system and regulations.
 - 4) Environmental impact (soil contamination, underground-water contamination, dust and smell impact).
 - 5) National and regional environmental conservation plans.
 - 6) Structures, roles, responsibilities, financial situations of the national and regional organizations concerned (public, private, and NGOs).
 - 7) Public awareness, environmental educations and communication with industrial sector.
 - 8) Current system for environmental monitoring (including stake-holder meeting, risk communication).
 - 9) Support by other donor agencies.
- (3) Current condition on the industrial waste management:
 - 1) Related laws, regulations, guidelines.
 - 2) National and regional development plans.
 - 3) Structures, roles, responsibilities, financial situations of the national and regional organizations concerned (public, private, and NGOs).
 - 4) Storage, discharge, collection, transportation, treatment, final disposal, recycle, land use for industrial waste management.
 - 5) Measures taken by pollution sources (including cleaner production, zero emission, reuse, utilization of cascade system).
 - 6) Operation and maintenance of related facilities and equipment (collection equipment, collection and treatment facilities, final disposal sites, etc.).
 - 7) Public awareness, environmental educations and communication with industrial sector.
 - 8) Composition and quantity of the industrial waste (including detail data of factories and maps).
 - 9) Current flow of industrial waste management.
 - 10) Management system of hazardous waste and chemical substances such as PRTK and Manifest system.
 - 11) Current situation on illegal dumping.
 - 12) Support by other donor agencies.
 - 13) Data collection related.
- (4) Environmental and Social Considerations:
 - 1) Actual situation of in environmental and social considerations in Brazil.
 - 2) Laws, regulations, guidelines related to the social considerations (compensation system and procedure for residents and involuntary resettlers, conservation of cultural heritage, conservation of protected area etc).
 - 3) Current organizations and systems for environmental and social considerations.
 - 4) Actual compensation experiences to the residents, and resettlers.

Phase II: Formulation of Master Plan and guideline for appropriate waste management

(1) Forecast of future quantity and quality of industrial wastes

(2) Master Plan for industrial waste management including:

1) Industrial waste management system and framework.

2) Recycle and reuse of industrial waste.

3) Treatment and disposal of industrial waste.

4) Development of facilities.

5) Financial plan and assessment.

6) Promotion of private sectors.

7) Priority projects.

8) Environmental and Social Considerations Study at Initial Environmental Examination (IEE level).

VI. TENTATIVE STUDY SCHEDULE

The Study will be carried out in accordance with attached tentative schedule shown in the Appendix III. The schedule is tentative and subject to be modified whenever both parties agree and in the event any necessity arises during the course of the Study.

VII. REPORTS

JICA shall prepare and submit the following writing reports and a digital data to the GOB. In case any contradiction arises in writing, the English text shall prevail.

1. Inception Report:

Ten (10) copies in Portuguese and ten (10) copies in English, at the commencement of the Study.

2. Progress Report:

Ten (10) copies in Portuguese and ten (10) copies in English, in the middle of the first field study.

3. Interim Report:

Ten (10) copies in Portuguese and ten (10) copies in English, at the end of Phase I.

4. Draft Final Report:

Ten (10) copies in Portuguese and ten (10) copies in English, at the end of Phase II. GOB shall submit its comments within one (1) month after receipt of the Draft Final Report.

5. Final Report:

Forty (40) copies in Portuguese and twenty (20) copies in English, within one (1) month after receipt of the comments on the Draft Final Report from the GOB.

VIII. UNDERTAKING OF THE GOB

GOB shall accord privileges, exemptions, and other benefits to the Japanese Study Team (hereinafter referred to as "the Study Team"), in accordance with "the Agreement".

1. To facilitate smooth implementation of the Study, GOB shall take the following necessary measures:
 - (1) To grant, as per request, temporary visa (VITEM I) to the members of the Study Team, exempt from Consular fees.
 - (2) To permit the members of the Study Team to enter, leave and sojourn in the Federative Republic of Brazil for the duration of their assignments therein.
 - (3) To exempt the members of the Study Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the team for their services in connection with the implementation of the Study.
 - (4) To provide necessary facilities to the Study Team for the remittance as well as utilization of the funds introduced into the Federative Republic of Brazil from Japan in connection with the implementation of the Study.
2. GOB shall bear claims, if any arises, against the members of the Study Team resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Study Team.
3. SUFRAMA shall act as counterpart agency to the Study Team and also as a coordinating body with other relevant organizations for the smooth implementation of the Study, on behalf of GOB.
4. SUFRAMA shall, at its own expense, provide the Study Team with the following in cooperation with other organizations concerned:
 - (1) Security-related information on as well as measures to ensure the safety of the Study Team,
 - (2) Information on as well as support in obtaining medical service,
 - (3) Available data and information related to the Study,
 - (4) Counterpart personnel,
 - (5) Suitable office space with necessary office equipment and facilities,
 - (6) Credentials or identification cards, and
 - (7) Appropriate number of vehicles with drivers.

IX. OTHERS

JICA and SUFRAMA shall consult with each other in respect of any matter that may arise from or in connection with the Study.

The Scope of Work is prepared in English and Portuguese, and both versions are signed by both partners. In case any doubt arises in interpretation, the English text shall prevail.

- Appendix I: Study Area
Appendix II: Target Waste
Appendix III: Tentative Study Schedule
Appendix IV: Terms of Reference for the Environmental and Social Considerations Study (IEE Level)

APPENDIX I
 STUDY AREA



Appendix II. Origin Waste

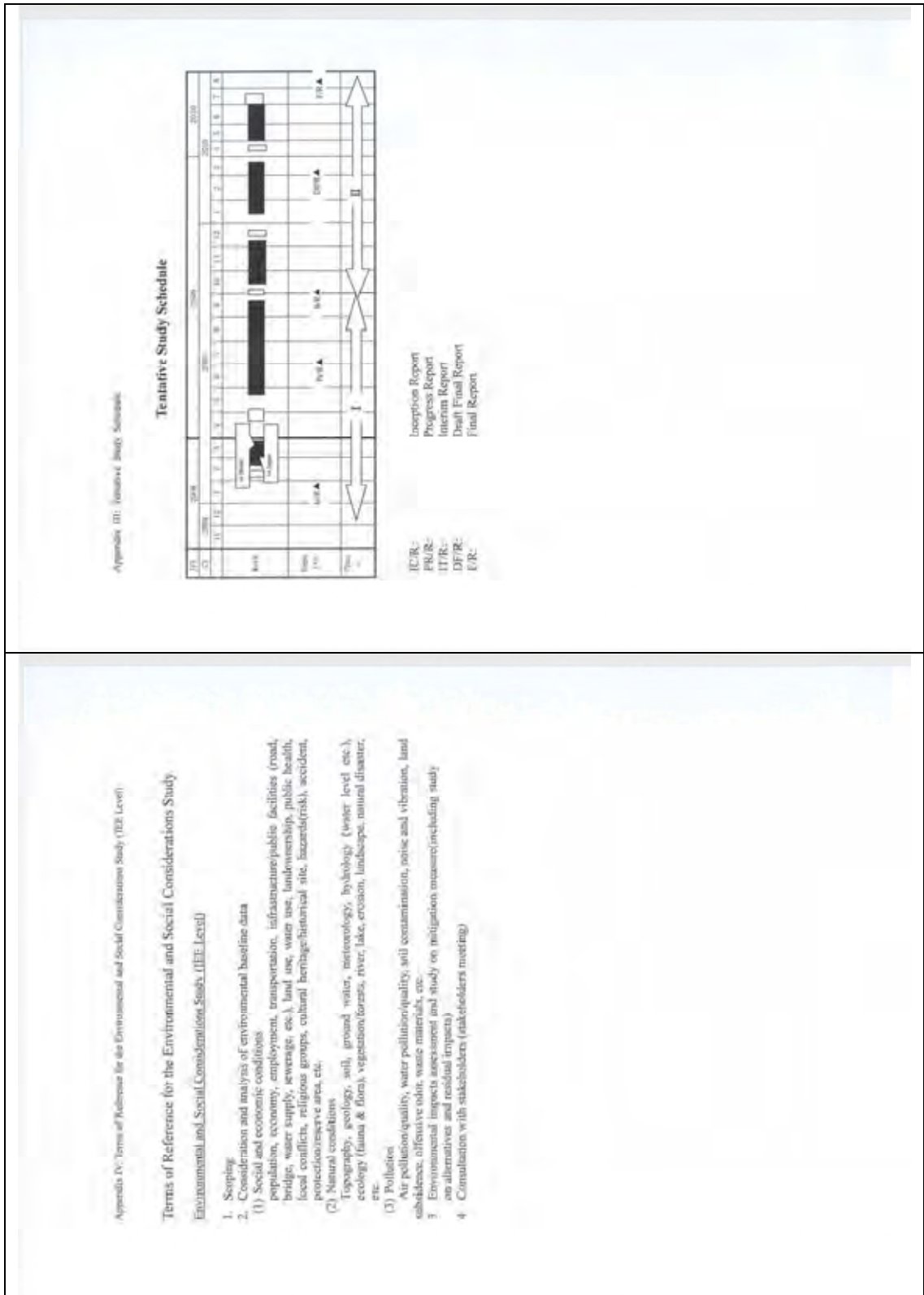
Classification of Waste expected within MFZ and PIM

Source	Discharged form	Type	Example	Target in the study
Industry	Process	Hazardous	Acid, base, Waste oil, solvent, sludge, ash, etc.	X
	Process	Hazardous	Biological pharmaceutical	X
	Process	Non-Hazardous	Paper, wood, etc.	X
	Process	Hazardous	Luminescence lamp, battery, etc.	X
	Office	Non-Hazardous	Paper, wood, domestic etc.	X
Hospital	Medical process	Hazardous	Medical, infection	X
	Office	Non-Hazardous	Luminescence lamp, battery, etc.	X
Home hold	House, commercial	Hazardous	Kitchen waste, paper, cloth, glass, etc.	
	House, commercial	Non-Hazardous	Asbest-contaminated demolished waste (brick, wood, etc)	X
Construction	Construction site	Hazardous	Demolished waste (brick, wood, etc)	X
	Construction site	Non-Hazardous	Radiation sources	X
Radiactive	Process	Hazardous	Radiation sources	(*)

* Fact Finding Only



MFZ - Manaus Free Trade Zone

PIM - Industrial Pole of Manaus



5.2 Minutes of Meeting by JICA Study Team

5.2.1 Inception Report (IC/R)

<p style="text-align: center;">MINUTES OF MEETINGS ON THE INCEPTION REPORT OF 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;">AGREED UPON BETWEEN:</p> <p style="text-align: center;">SUPERINTENDENCY OF MANAUS FREE TRADE ZONE (SUPERAMAZ) AND JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)</p> <p style="text-align: center;">ACCORDING TO THE SUPPLEMENTARY AGREEMENT, BY EXCHANGE OF NOTES, FOR THE BASIC AGREEMENT ON TECHNICAL COOPERATION, SIGNED ON 01st AUGUST 1986, BETWEEN THE GOVERNMENT OF THE FEDERAL REPUBLIC OF BRAZIL AND THE GOVERNMENT OF JAPAN</p> <p style="text-align: right;">Manaus, Brazil, 06. 08. 2014</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="text-align: center;">  Mr. IMAI Superintendent of Superamaz Superintendency of Manaus Free Trade Zone (SUPERAMAZ) </div> <div style="text-align: center;">  Mr. YOSHIDA Leader of the JICA Study Team </div> </div>	<p style="text-align: center;">MINUTES OF MEETINGS ON THE INCEPTION REPORT OF THE STUDY FOR THE DEVELOPMENT OF AN INTEGRATED SOLUTION RELATED TO INDUSTRIAL WASTE MANAGEMENT IN THE INDUSTRIAL POLE OF MANAUS.</p> <p>1. INTRODUCTION</p> <p>On 27th March 2014, during a meeting with the Steering Committee and the Technical Consulting Subcommittee for JICA Study Team (hereinafter referred to as "the Team") has selected the following members of the Inception Report Subcommittee (referred as "SUC") as the Superintendency of Manaus Free Trade Zone (hereinafter referred as "SUPERAMAZ"), an organization under the Ministry of Development, Industry and Foreign Trade (hereinafter referred to "MDIC"), which has had plan to be the affiliate of the actual Commissioned Subcommittee.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Item</th> <th>Language</th> <th>Number of Copies</th> </tr> </thead> <tbody> <tr> <td>1. Inception Report</td> <td>English</td> <td>10</td> </tr> <tr> <td>2. Inception Report</td> <td>Portuguese</td> <td>10</td> </tr> <tr> <td>3. IC/R-DMC</td> <td>English, Portuguese</td> <td>01</td> </tr> </tbody> </table> <p>Proceeding with the meeting, a decision shall be issued on the proposed report format, issued at the official meeting as the annex to given in Appendix 1.</p> <p>2. ISSUES AND DECISIONS</p> <p>2.1 Various issues about the IC/R were submitted, discussed and made clear. Afterward, an agreement was made on the major items of the IC/R was made, as follows.</p> <p>2.2 Members of Counterpart JICA Team</p> <p>SUPERAMAZ would acknowledge the consent of the personnel who are part of the Counterpart Team (hereinafter referred to "CPT") for the technical consultation concerning the cooperation items is as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>Name</th> <th>Position</th> <th>Organization</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>Kelly Garcia</td> <td>Technical Advisor</td> <td>SUPERAMAZ</td> </tr> <tr> <td>02</td> <td>Mônica E. C. Barros</td> <td>Advisor</td> <td>SUPERAMAZ</td> </tr> <tr> <td>03</td> <td>Almeida Rodrigues Jr.</td> <td>Technician</td> <td>SUPERAMAZ</td> </tr> <tr> <td>04</td> <td>Augusto Roberto Lima</td> <td>Technician</td> <td>SUPERAMAZ</td> </tr> <tr> <td>05</td> <td>Samy Batista</td> <td>Fishing Engineer</td> <td>SUPERAMAZ</td> </tr> <tr> <td>06</td> <td>Ademilson Moura</td> <td>Administrative Assistant</td> <td>SUPERAMAZ</td> </tr> <tr> <td>07</td> <td>Marina Helena P. Nova</td> <td>Engineer</td> <td>SUPERAMAZ</td> </tr> </tbody> </table>	Item	Language	Number of Copies	1. Inception Report	English	10	2. Inception Report	Portuguese	10	3. IC/R-DMC	English, Portuguese	01	No.	Name	Position	Organization	01	Kelly Garcia	Technical Advisor	SUPERAMAZ	02	Mônica E. C. Barros	Advisor	SUPERAMAZ	03	Almeida Rodrigues Jr.	Technician	SUPERAMAZ	04	Augusto Roberto Lima	Technician	SUPERAMAZ	05	Samy Batista	Fishing Engineer	SUPERAMAZ	06	Ademilson Moura	Administrative Assistant	SUPERAMAZ	07	Marina Helena P. Nova	Engineer	SUPERAMAZ								
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<p>08. Diego Alves Amorim: Electronic Engineer SUPERAMAZ</p> <p>09. Maria Ribeiro: Administrator SUPERAMAZ</p> <p>10. Mateo Jaca: Technician SUPERAMAZ</p> <p>11. Emma Lora: Secretary SUPERAMAZ</p> <p>12. Anita Zamboni Aquila: Assistant ENGEMOP</p> <p>The Team acknowledged the nomination.</p> <p>2.3 Member of Steering Committee (SUC)</p> <p>The Team reported the Brazilian side to request the members of the Steering Committee (hereinafter referred to "SUC").</p> <p>The Brazilian side replied that the following members were approved as the members of the SUC:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>Name</th> <th>Position</th> <th>Organization</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>Maria Cristina Ribeiro Feltes</td> <td>General Coordinator</td> <td>SUPERAMAZ</td> </tr> <tr> <td>02</td> <td>Luiz Filipe Simões</td> <td>Project Coordinator</td> <td>SUPERAMAZ</td> </tr> <tr> <td>03</td> <td>Carlos Itoizawa</td> <td>Coordinator</td> <td>SUPERAMAZ</td> </tr> <tr> <td>04</td> <td>Franco José Dutra</td> <td>Executive Director</td> <td>FRAM</td> </tr> <tr> <td>05</td> <td>Alexandre Kadija</td> <td>Adjunct Director</td> <td>FRAM</td> </tr> <tr> <td>06</td> <td>Romário Maia</td> <td>Executive Director</td> <td>CRAM</td> </tr> <tr> <td>07</td> <td>Mário Sauer de Azevedo</td> <td>Vice-President</td> <td>CCONS-AM</td> </tr> <tr> <td>08</td> <td>Vigário Amador</td> <td>Vice-President</td> <td>CCONS-AM</td> </tr> <tr> <td>09</td> <td>Guilherme Resende Biondini</td> <td>Cooperation Technician</td> <td>ABCAM</td> </tr> <tr> <td>10</td> <td>Walter Luiz G. de Souza</td> <td>Cooperation Technician</td> <td>ABCAM</td> </tr> <tr> <td>11</td> <td>Wagner Juliano</td> <td>Chief</td> <td>ERENOP</td> </tr> <tr> <td>12</td> <td>Márcio Novaes</td> <td>Project Coordinator</td> <td>JICA Brazil Office</td> </tr> </tbody> </table> <p>The Team approved the appointment.</p> <p>2.4 Members of Technical Consultative Subcommittee (TCSC)</p> <p>The Team proposed the Brazilian side to nominate the members of the Technical Consultative Subcommittee (TCSC).</p> <p>The Brazilian side replied that the following members were approved as the members of the TCSC:</p>	No.	Name	Position	Organization	01	Maria Cristina Ribeiro Feltes	General Coordinator	SUPERAMAZ	02	Luiz Filipe Simões	Project Coordinator	SUPERAMAZ	03	Carlos Itoizawa	Coordinator	SUPERAMAZ	04	Franco José Dutra	Executive Director	FRAM	05	Alexandre Kadija	Adjunct Director	FRAM	06	Romário Maia	Executive Director	CRAM	07	Mário Sauer de Azevedo	Vice-President	CCONS-AM	08	Vigário Amador	Vice-President	CCONS-AM	09	Guilherme Resende Biondini	Cooperation Technician	ABCAM	10	Walter Luiz G. de Souza	Cooperation Technician	ABCAM	11	Wagner Juliano	Chief	ERENOP	12	Márcio Novaes	Project Coordinator	JICA Brazil Office	<p>13. Maria Cristina Ribeiro Feltes: General Coordinator SUPERAMAZ</p> <p>14. Luiz Filipe Simões: Project Coordinator SUPERAMAZ</p> <p>15. Carlos de Holanda Itoizawa: Coordinator SUPERAMAZ</p> <p>16. Nelson Marques de Trive: President/Director FRAM</p> <p>17. Antonio Ademar Stevan: Advisor FRAM</p> <p>18. Marcelo Dulce: Secretary SEMAR SEMAROP</p> <p>19. Ofício Flávio do Nascimento: Assistant SEMAR OP</p> <p>20. João Carlos: Economicist USPI-PROSAMIN</p> <p>21. José Luiz de Moraes: Sector Coordinator/Environmental Technical Coordinator USPI-PROSAMIN</p> <p>The Team acknowledged the nomination.</p> <p>2.5 Holding Weekly Meetings</p> <p>The Team explained about the policy of the study in which the industrial waste management master plan (hereinafter referred as "MP") is formulated by integration from the Brazilian counterpart (CPT). Thus, the Team requested the CPT personnel to participate in the study elaboration work as much as possible for a period implementation of the study.</p> <p>The Brazilian side agreed the request and proposed to hold the meeting periodically on Thursday afternoon from 1 PM to 3 PM.</p> <p>The Team approved the proposal.</p> <p>2.6 Needs of the Database</p> <p>The Team assumed that the necessary database will be able to be formulated based on the results of the questionnaire survey and the waste management commission and make them available to the Brazilian side to use it as much as possible and necessary items.</p> <ol style="list-style-type: none"> Database for waste management in factories. Database of joint discharge waste management and Database for waste recycling. <p>The Brazilian side expressed the interest and requested the JICAAM as the administrative and financial responsibility for the database preparation and maintenance of data.</p> <p>The Team acknowledged the reply.</p> <p>2.7 Progress Report</p>
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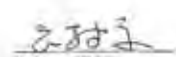
<p>The Team indicated the direction side to send the Program System, which was specified in the Scope of Work signed on 28th November 2008. Because the schedule of the study will not have enough time to guarantee the results before the end of August 2009.</p> <p>The Directorate also accepted the message.</p> <p>2.8 Number of Samples for Generation Source Survey</p> <p>The Team informed that the maximum number of samples by generation source survey will be as follows:</p> <ul style="list-style-type: none"> For factory survey: 100 houses For medical institution survey: 10 institutions For residential area survey: 10 sites <p>The Directorate side acknowledged the information.</p> <p>2.9 Publication of Final Report</p> <p>The Team requested the Directorate side that in order to open the study results to the public (through SUDEMA) and to obtain consensus in the MP, the following actions will be taken in the study:</p> <ul style="list-style-type: none"> Holding seminars and workshops Depositing the study information on SUDEMA's web-site <p>The Directorate side accepted the request.</p> <p>3. CONCLUSION</p> <p>3.1 Due to the limited time and financial resources of the project, both parties agreed the objective would be continued and carried out during the whole study of the work's activities.</p> <p>3.2 The ECTC was approved and both parties gave both the English and Portuguese versions.</p>	<p style="text-align: center;">ATTACHMENT LIST</p> <table border="1"> <thead> <tr> <th>Serial No.</th> <th>Name</th> <th>Position</th> <th>Organization</th> </tr> </thead> <tbody> <tr><td>01</td><td>Luis Paulo Soares</td><td>Project Coordinator</td><td>SUPRAMA</td></tr> <tr><td>02</td><td>Antonio Espinosa Jr.</td><td>Technician</td><td>SUPRAMA</td></tr> <tr><td>03</td><td>Anderson Pereira Lima</td><td>Technician</td><td>SUPRAMA</td></tr> <tr><td>04</td><td>Carla de Fátima (Mestre)</td><td>Technician</td><td>SUPRAMA</td></tr> <tr><td>05</td><td>Maria D. 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5.2.2 Interim Report (IT/R)

<p style="text-align: center;">MINUTES OF MEETINGS ON THE INTERIM REPORT OF 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;">AGREED UPON BETWEEN</p> <p style="text-align: center;">SUPREINTENDENCY OF MANAUS FREE TRADE ZONE (SUPRAMA) AND JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)</p> <p style="text-align: right;">Manaus, September 28th, 2009</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  Mrs. Maria Cristina Botelho Foreign Trade General Coordinator Superintendence of Manaus Free Trade Zone (SUPRAMA) </div> <div style="text-align: center;">  Mr. Junichi KATO Leader of the JICA Study Team </div> </div>	<p style="text-align: center;">MINUTES OF MEETINGS ON THE INTERIM REPORT OF THE STUDY FOR THE DEVELOPMENT OF AN INTEGRATED SOLUTION RELATED TO INDUSTRIAL WASTE MANAGEMENT IN THE INDUSTRIAL POLE OF MANAUS</p> <p>1. INTRODUCTION</p> <p>On November 10th 2009, during a meeting with the Steering Committee (Co-ordinator referred to as "CTC") and the Technical Consulting Subcommittee, the JICA Study Team (hereinafter referred to as "the Team") has submitted the following content of copies of the Interim Report (hereinafter referred to as "IT/R") to the Superintendency of Manaus Free Trade Zone (hereinafter referred to as "SUPRAMA")'s commission under the Ministry of Development, Industry and Foreign Trade (hereinafter referred to as "MIDT"), which included them in the agenda of the 03rd Subcommittee's sub-meeting.</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Language</th> <th>Number of Copies</th> </tr> </thead> <tbody> <tr><td>1. Summary Report</td><td>English</td><td>10</td></tr> <tr><td>2. Main Report</td><td>English</td><td>10</td></tr> <tr><td>3. Summary Report</td><td>Portuguese</td><td>10</td></tr> <tr><td>4. Main Report</td><td>Portuguese</td><td>10</td></tr> <tr><td>5. CD-ROM</td><td>English / Portuguese</td><td>1</td></tr> </tbody> </table> <p>Proceeding with the meeting, it was pointed out by SUPRAMA the need for assessing the content of the IT/R, regarding the structure of the facility, mentioned in Annex 1, to make their comments on the study's content according to their respective area.</p> <p>2. ISSUES AND DECISIONS</p> <p>2.1 Various issues about the IT/R were presented and an agreement was reached on an appropriate document and modified in the following items:</p> <p>2.2 Contents of the IT/R</p> <p>The Team explained the MAU the main of the contents of the IT/R as presented (document and agreed in the meeting) which were held 13 times in the "Phase 1" study, from the end of February to middle of September 2009.</p> <p>THE CTC side acknowledged the presentation.</p> <p>2.3 Comments on the IT/R</p> <p>The Team informed the CTC that all comments by the Directorate side to the IT/R</p>	Item	Language	Number of Copies	1. Summary Report	English	10	2. Main Report	English	10	3. Summary Report	Portuguese	10	4. Main Report	Portuguese	10	5. CD-ROM	English / Portuguese	1
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<p>should be sent to the Team by November 30, 2010 so that could be taken into account for the preparation of the Draft Final Report.</p> <p>The JIC approved the program.</p> <p>3. CONCLUSION</p> <p>3.1 The JIC, the JICA Study Team and the industrial sector of the subject, both parties agreed the activities would be continued and carried out during the whole study, at the weekly meetings.</p> <p>3.2 The DF/R was received and both parties agreed with the findings and Portuguese comments/observations contained in it, after the approval.</p>	<p style="text-align: center;">ATTENDANT LIST</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Name</th> <th>Position</th> <th>Organization</th> </tr> </thead> <tbody> <tr> <td colspan="4">Brazilian Side</td> </tr> <tr> <td>01</td> <td>Walter Gregorio de Brito</td> <td>General Coordinator - COGEX</td> <td>SUPRAMA</td> </tr> <tr> <td>02</td> <td>Walter Gregorio de Brito</td> <td>Assessor - COGEX</td> <td>SUPRAMA</td> </tr> <tr> <td>03</td> <td>Renato Oliveira Aguiar</td> <td>Technician - COGEX</td> <td>SUPRAMA</td> </tr> <tr> <td>04</td> <td>Armando Cavalcanti Jr.</td> <td>Technician - Support 6 JICA</td> <td>SUPRAMA</td> </tr> <tr> <td>05</td> <td>Edson de Brito</td> <td>Technician - 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5.2.3 Draft Final Report (DF/R)

<p style="text-align: center;">MINUTES OF MEETINGS ON THE DRAFT FINAL REPORT OF 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;">AGREED UPON BETWEEN</p> <p style="text-align: center;">SUPERINTENDENCY OF MANAUS FREE TRADE ZONE (SUPRAMA) AND JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)</p> <p style="text-align: center;">ACCORDING TO THE SUPPLEMENTARY AGREEMENT, BY EXCHANGING NOTES, FOR THE BASIC AGREEMENT ON TECHNICAL COOPERATION, SIGNED ON 11th AUGUST 2006 BETWEEN THE GOVERNMENT OF THE FEDERATIVE REPUBLIC OF BRAZIL AND THE GOVERNMENT OF JAPAN</p> <p style="text-align: right;">Manaus, May 26th, 2010.</p> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  Mr. Manoel Gregorio de Brito Foreign Trade General Coordinator/COGEX Superintendency of Manaus Free Zone (SUPRAMA) </div> <div style="text-align: center;">  Mr. Shinya Shimizu Leader of the JICA Study Team </div> </div>	<p style="text-align: center;">MINUTES OF MEETINGS ON THE DRAFT FINAL REPORT OF THE STUDY FOR THE DEVELOPMENT OF AN INTEGRATED SOLUTION RELATED TO INDUSTRIAL WASTE MANAGEMENT IN THE INDUSTRIAL POLE OF MANAUS</p> <p>1. INTRODUCTION</p> <p>On 4th April 2010, the JICA Study Team (hereinafter referred to as "the Team") has submitted the following number of copies of the Draft Final Report (hereinafter referred to as "DF/R") to the Superintendency of Manaus Free Trade Zone (hereinafter referred to as "SUPRAMA"), organization under the Ministry of Development, Industry and Foreign Trade (hereinafter referred to as "MIDEX"), which issued them in its official capacity of the Lead Coordinator and Institutional.</p> <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Report Title</th> <th>Date</th> <th>Language</th> <th>Number of Copies</th> </tr> </thead> <tbody> <tr> <td>1. DF/R Main</td> <td>04/04/2010</td> <td>Portuguese</td> <td>10</td> </tr> <tr> <td>2. DF/R Annex</td> <td>04/04/2010</td> <td>English</td> <td>10</td> </tr> <tr> <td>3. DF/R Supporting</td> <td>04/04/2010</td> <td>Portuguese</td> <td>10</td> </tr> <tr> <td>4. DF/R Supporting</td> <td>04/04/2010</td> <td>English</td> <td>10</td> </tr> <tr> <td>5. DF/R Summary</td> <td>04/04/2010</td> <td>Portuguese</td> <td>10</td> </tr> <tr> <td>6. DF/R Summary</td> <td>04/04/2010</td> <td>English</td> <td>10</td> </tr> <tr> <td>7. DF/R Checklist</td> <td>04/04/2010</td> <td>English</td> <td>10</td> </tr> <tr> <td>8. CD-DF/R</td> <td>04/04/2010</td> <td>English / Portuguese</td> <td>01</td> </tr> </tbody> </table> <p>Consequently a series of meetings were held from 24th to 26th May 2010 in Manaus to discuss the report submitted. In the meetings, a debate about the content of the general report was initiated. A list of officials attending the meetings is given in Appendix 1.</p> <p>2. ISSUES AND DECISIONS</p> <p>2.1 Various issues about the DF/R were subsequently discussed and made clear. Although, no agreement was reached on the major issues of the DF/R, not resolved, as follows:</p> <p>2.2 Comments on the DF/R</p> <p>The Team informed the JIC that the comments on the DF/R will be examined and reflected into the Final Report (FR) to be submitted in August 2010 and the schedule of the preparation of the FR will be as follows:</p> <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Comments Period</th> <th>Comments from the JIC</th> <th>Due by June 16, 2010</th> </tr> </thead> <tbody> <tr> <td>Revision of Report</td> <td>Based on comments received</td> <td>June 16, 2010</td> </tr> <tr> <td>Submission of Final Report</td> <td>Submitted to JICA HQ</td> <td>Early August 2010</td> </tr> </tbody> </table> <p>The JIC accepted the schedule.</p> <p>2.3 Comments on DF/R from JICA</p> <p>The Team informed the JIC that the comments from JICA were made as follows:</p>	Report Title	Date	Language	Number of Copies	1. DF/R Main	04/04/2010	Portuguese	10	2. DF/R Annex	04/04/2010	English	10	3. DF/R Supporting	04/04/2010	Portuguese	10	4. DF/R Supporting	04/04/2010	English	10	5. DF/R Summary	04/04/2010	Portuguese	10	6. DF/R Summary	04/04/2010	English	10	7. DF/R Checklist	04/04/2010	English	10	8. CD-DF/R	04/04/2010	English / Portuguese	01	Comments Period	Comments from the JIC	Due by June 16, 2010	Revision of Report	Based on comments received	June 16, 2010	Submission of Final Report	Submitted to JICA HQ	Early August 2010
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Submission of Final Report	Submitted to JICA HQ	Early August 2010																																												

<p>1. Most of the recommendations of the DPE shall be integrated into the Master Plan (MP). Thus, the Team shall make new recommendations such as:</p> <ul style="list-style-type: none"> • Amendment of the regulation by waste service company (WSC) licensing system; • Delivery and dissemination of the guideline for the waste inventory (WI) and licensing WSC for proper industrial waste management (IWM); • Delivery the waste inventory database (WI_DB) system site made by Mitsubishi Astoria; • Construction of a dedicated site for the IWM & Non-haz TW (ATE200) by EDU,LLP, and • Other issues, as necessary. <p>The implementation plan, such as specification of the existing organizations, shall be included.</p> <p>2. The "Guidelines to Improve Industrial Waste Management in PDM" shall be revised and compiled as an independent part of the report, including instructions so that factories can make a waste inventory, use the waste inventory database and waste service company facilities.</p> <p>The SVC committee acknowledged the comments. As for the dissemination of the WI_DB, SUPRAMA agreed to the request for CP. Mr. David Silva is almost a contact in Brazil for that purpose.</p> <p>2.4 Clarification on the MP</p> <p>The Team asked SUPRAMA to clarify the following points concerning implementation of the Master Plan:</p> <ol style="list-style-type: none"> 1. When will the new IWM rule be officially established? 2. Will the unit conduct the following tasks related to the WI? <ul style="list-style-type: none"> • Aggregate and analysis of the WI submitted; • Consultation with inquiry of the factories on preparation of WI; • Modification and dissemination of the WI_DB and its guideline. 3. Will SUPRAMA collect all factories in PDM to conduct their WI when modification and dissemination of the WI_DB and its guideline will be made? <p>SUPRAMA replied as follows:</p> <ol style="list-style-type: none"> 1. It has not yet been decided to which department the unit will be attached, but the unit has already been formed. It will be officially established this year. 2. Although all of the related tasks are the responsibility of SUPRAM, SUPRAMA will support the tasks for SUPRAM. 3. The unit shall be established by SUPRAM since it is legally responsible for it. <p>The Team asked SUPRAM to clarify the following points concerning implementation of the Master Plan:</p> <ol style="list-style-type: none"> 1. When will the new WSC licensing system be legislated? 2. When probably when will the new WSC licensing system start? 3. When will the task of the newly formed WSC be open to the SUPRAM website? 4. When will the waste certified system be established? 5. How will SUPRAM instruct the final destination of TW from PDM? 6. Will SUPRAM ask EDU,LLP to instruct the ATRINT action system facility? <p>SUPRAM replied as follows:</p>	<ol style="list-style-type: none"> 1. It will take at least six months for legislation procedure. 2. Since there will be the waste election in October, 2019, the new WSC licensing system will start middle of 2021 at the earliest possibility. 3. SUPRAM will be able to insert in their website the services provided by the WSC in its List of Environmental Service Companies, upon request from the WSC. 4. Although it is not on-line system, the waste transfer system will be legally established by the end of 2019. 5. After the establishment of the waste certified system (WMS), SUPRAM will be able to manage the final destination of TW from PDM by the WMS. 6. SUPRAM will make an application to the ANMMA in order to verify the ATRINT installation possibility. They will inform the Public State Ministry (MPS) which will be able to include it in the current TAC. <p>4. CONCLUSIONS</p> <p>4.1 The DPE was approved and both parties agreed with the English and Portuguese version.</p>																																																																																				
<p style="text-align: center;">Appendix I</p> <p style="text-align: center;">ATTENDANT LIST</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Organization</th> <th>Position</th> </tr> </thead> <tbody> <tr> <td colspan="3">Brazilian Side</td> </tr> <tr> <td>1. Cibeleir Lencz</td> <td>EPH/Sulzema</td> <td>Adjunct Superintendent</td> </tr> <tr> <td>2. Maria Dirceane Ribeiro</td> <td>COGEX/Sulzema</td> <td>General Coordinator</td> </tr> <tr> <td>3. Aracelis Oliveira Neto</td> <td>COGEX/Sulzema</td> <td>Technical Advisor</td> </tr> <tr> <td>4. Alexandre Beraldo Jr.</td> <td>JICA Support at Sulzema</td> <td>Technical Advisor</td> </tr> <tr> <td>5. Milton Gomes</td> <td>JICA Support at Sulzema</td> <td>Technical Advisor</td> </tr> <tr> <td>6. David Netto Silva</td> <td>JICA Support at Sulzema</td> <td>Electrical Engineer</td> </tr> <tr> <td>7. Rita de Cassia Mend</td> <td>JICA Support at Sulzema</td> <td>Technical Advisor</td> </tr> <tr> <td>8. Alexandre Katsira</td> <td>FEAM/CEMADOC/IB-AM</td> <td>Adjunct Director</td> </tr> <tr> <td>9. Luqiao Achêde</td> <td>DEAN/CONSAM</td> <td>Vice-President</td> </tr> <tr> <td>10. Gertie Inesma Soares</td> <td>COOPESAD/Guaramá</td> <td>General Coordinator</td> </tr> <tr> <td>11. Emilia Assari</td> <td>COGEX/Sulzema</td> <td>General Coordinator</td> </tr> <tr> <td>12. Ana Maria Souza</td> <td>COGEX/Sulzema</td> <td>General Coordinator</td> </tr> <tr> <td>13. Luis Flávio Brites</td> <td>COPEACOPIN/Sulzema</td> <td>Coordinator</td> </tr> <tr> <td>14. Alamyri Ribeiro</td> <td>COPLA/COPIPO/Sulzema</td> <td>Coordinator</td> </tr> <tr> <td>15. Gully Gomes</td> <td>COGEX/Sulzema</td> <td>Technical Advisor</td> </tr> <tr> <td>16. Anna Aquino</td> <td>ENEMOR/ACMRE</td> <td>Analyst</td> </tr> <tr> <td>17. Alexandre Quadroz</td> <td>IBRAM</td> <td>Technical Advisor</td> </tr> <tr> <td>18. Andréia Simão</td> <td>IBRAM</td> <td>Analyst</td> </tr> <tr> <td colspan="3">Japanese Side</td> </tr> <tr> <td>19. Masaru M. Yoshii</td> <td>Project Coordinator</td> <td>JICA (Manaus)</td> </tr> <tr> <td>20. Shotaichi Satohira</td> <td>Lesson/Instructional Designer</td> <td>JICA Study Team</td> </tr> <tr> <td>21. Yumiko Suzuki</td> <td>Waste Services Sector Manager of J1</td> <td>JICA Study Team</td> </tr> <tr> <td>22. Jota Falcão Heitland</td> <td>Industrial Waste Expert (Research)</td> <td>JICA Study Team</td> </tr> <tr> <td>23. Steven Sudozawa</td> <td>Administrative Coordinator (J2)</td> <td>JICA Study Team</td> </tr> <tr> <td>24. Kazuo Ishikawa</td> <td>Industrial Engineer</td> <td>JICA Study Team</td> </tr> <tr> <td>25. Adriana Pereira</td> <td>Interpreter</td> <td>JICA Study Team</td> </tr> </tbody> </table>	Name	Organization	Position	Brazilian Side			1. Cibeleir Lencz	EPH/Sulzema	Adjunct Superintendent	2. Maria Dirceane Ribeiro	COGEX/Sulzema	General Coordinator	3. Aracelis Oliveira Neto	COGEX/Sulzema	Technical Advisor	4. Alexandre Beraldo Jr.	JICA Support at Sulzema	Technical Advisor	5. Milton Gomes	JICA Support at Sulzema	Technical Advisor	6. David Netto Silva	JICA Support at Sulzema	Electrical Engineer	7. Rita de Cassia Mend	JICA Support at Sulzema	Technical Advisor	8. Alexandre Katsira	FEAM/CEMADOC/IB-AM	Adjunct Director	9. Luqiao Achêde	DEAN/CONSAM	Vice-President	10. Gertie Inesma Soares	COOPESAD/Guaramá	General Coordinator	11. Emilia Assari	COGEX/Sulzema	General Coordinator	12. Ana Maria Souza	COGEX/Sulzema	General Coordinator	13. Luis Flávio Brites	COPEACOPIN/Sulzema	Coordinator	14. Alamyri Ribeiro	COPLA/COPIPO/Sulzema	Coordinator	15. Gully Gomes	COGEX/Sulzema	Technical Advisor	16. Anna Aquino	ENEMOR/ACMRE	Analyst	17. Alexandre Quadroz	IBRAM	Technical Advisor	18. Andréia Simão	IBRAM	Analyst	Japanese Side			19. Masaru M. Yoshii	Project Coordinator	JICA (Manaus)	20. Shotaichi Satohira	Lesson/Instructional Designer	JICA Study Team	21. Yumiko Suzuki	Waste Services Sector Manager of J1	JICA Study Team	22. Jota Falcão Heitland	Industrial Waste Expert (Research)	JICA Study Team	23. Steven Sudozawa	Administrative Coordinator (J2)	JICA Study Team	24. Kazuo Ishikawa	Industrial Engineer	JICA Study Team	25. Adriana Pereira	Interpreter	JICA Study Team	
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