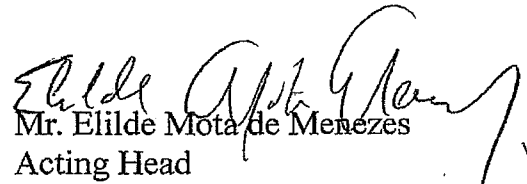


MINUTES OF MEETING
ON
THE SECOND PREPARATORY STUDY
FOR
THE STUDY FOR THE DEVELOPMENT OF AN INTEGRATED SOLUTION
RELATED TO INDUSTRIAL WASTE MANAGEMENT IN THE
INDUSTRIAL POLE OF MANAUS
AGREED UPON BETWEEN THE
SUPERINTENDENCY OF MANAUS FREE TRADE ZONE (SUFRAMA)
AND
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

Manaus, September 24, 2008

高谷英策

Mr. Hidenori Kumagai
Leader
The Second Preparatory Study Team
Japan International Cooperation
Agency (JICA)


Mr. Elilde Mota de Menezes
Acting Head
Superintendency of Manaus Free
Trade Zone
(SUFRAMA)



In response to a request from the Government of the Federative Republic of Brazil (hereinafter referred to as "GOB"), the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Second Preparatory Study Team, headed by Mr. Hidenori Kumagai (hereinafter referred to as "the Team"), to the Federative Republic of Brazil from September 21 to September 27, 2008, for the purpose of clarifying the framework of "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").

During its stay in the Federative Republic of Brazil, the Team exchanged views and had a series of discussions with the Superintendency of the Manaus Free Trade Zone (hereinafter referred to as "SUFRAMA") and other authorities concerned of the GOB, as well as representatives of the private sector involved.

As a result of the discussions, the Team and the Brazilian side have agreed on the following items.

1. TITLE OF THE STUDY

Both sides agreed that the title of the Study will be "The Study for the Development of an Integrated Solution related to Industrial Waste Management in the Industrial Pole of Manaus".

2. TARGET YEAR

Both sides agreed that the target year for the Master Plan is 2015 (5 years starting from 2011)

3. STUDY AREA

Both sides agreed that 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 the Industrial Pole of Manaus, shown as Appendix I to the draft of the Scope of Work (hereinafter referred to as "S/W").

4. TARGET WASTE

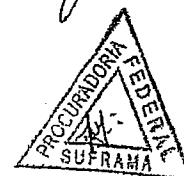
Both sides agreed that the target waste is the industrial waste generated in the Industrial Pole of Manaus (hereinafter referred to as "PIM"), shown as Appendix II to the draft of the S/W.

5. STUDY PERIOD

The Study period is approximately 18 months as from the date of the first activity of the JICA Study Team in Brazil.

6. SCOPE OF WORK

The Team explained that the S/W, the draft of which stipulates the framework of the Study, shown as Annex I of this Minute of Meeting (hereinafter referred to as "M/M"), will be prepared and signed by the representatives of JICA Brazil Office, SUFRAMA and the Brazilian Cooperation Agency (ABC) after conclusion of the Comprehensive International Agreement to be signed by the GOB and the Government of Japan (hereinafter referred to as "GOJ") and notification to the Brazilian side of approval of implementation of the Study by JICA Headquarters through JICA Brazil Office. Both sides agreed that it is desirable that the S/W, as approved by both, be signed as soon as possible after the signing of the M/M



7. COUNTERPART PERSONNEL

Both sides recognized the importance of technology transfer to the Brazilian counterpart personnel through on-the-job training in the Study. SUFRAMA and the concerned organizations will assign necessary counterpart personnel to the Japanese Study Team.

8. STEERING COMMITTEE

Both sides agreed to organize a steering committee at the commencement of the Study for the smooth implementation of the Study and effective use of the Study results. The steering committee will be chaired by the representative of SUFRAMA and composed of the representatives of the following organizations:

- Superintendency of the Manaus Free Trade Zone (SUFRAMA);
- Industries Center of Amazonas State (CIEAM);
- Industries Federation of Amazonas State (FIEAM);
- Japanese-Brazilian Chamber of Commerce and Industry of Amazonas State (CCINB-AM);
- Brazilian Cooperation Agency (ABC); and
- JICA Brazil Office.

Both sides also agreed to create a Technical Consultative Subcommittee, composed by the following organizations:

- Ministry of Development, Industry and Foreign Trade (MDIC);
- Institute of Amazonas Environmental Protection (IPAAM);
- Municipal Secretary Urban Cleaning and Public Services (SEMULSP);
- Municipal Secretary of the Environment (SEMMA); and
- Unit of Management of the Igarapés Program (UGPI).

The Brazilian side informed that SUFRAMA will renew the cooperation agreement signed on December 28, 2006 with CIEAM, FIEAM and CCINB-AM before the commencement of the Study.

9. ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

The Team explained JICA environmental and social consideration guidelines, that are to be applied to the Study. SUFRAMA expressed its understanding of the policy of JICA guidelines, and agreed in principle to the following responsibilities and requirements:

(1) Based on the guidelines, SUFRAMA shall be responsible for institutional coordination, in collaboration with the Study team, of the Initial Environmental Examination (IEE), as contained in Appendix IV to the draft of the Scope of Work. The Study team shall provide SUFRAMA with technical support in order to conduct IEE.

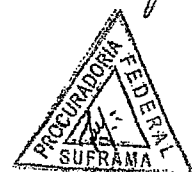
(2) The disclosure of information regarding the Study shall be made, after approval by both sides, in order to ensure the participation and dialogue with the various stakeholders, in order to achieve appropriate environmental and social considerations.

(3) In the course of implementation of the Study, public consultation with communities and stakeholders shall be included if necessary.

(4) In case resettlement is inevitable from the result of the Master Plan, SUFRAMA will be responsible for recommending that a resettlement action plan be adopted by the concerned Brazilian authorities.

10. COOPERATION WITH AUTHORITIES CONCERNED

Both sides agreed that SUFRAMA will arrange the following cooperation with the



organizations concerned for the smooth implementation of the Study.

(1) The other concerned organizations will provide necessary data and information to the Japanese Study Team, through SUFRAMA.

(2) SUFRAMA will adopt the JICA Master Plan as the principal plan to be followed, informing every concerned organizations thereof.

11. REPORT

Both sides agreed that the final report will be disclosed to the public in order to achieve maximum use of the Study results.

12. OTHER

The M/M is prepared in English and Portuguese, and both versions are signed by both sides. In case any doubt arises in interpretation, the English text shall prevail.

Annex I: Scope of Work (Draft)

Annex II: List of Attendants of the Meeting

Handwritten initials 'E' inside a circle and a signature.

SCOPE OF WORK
FOR
THE STUDY FOR THE DEVELOPMENT OF AN INTEGRATED SOLUTION
RELATED TO INDUSTRIAL WASTE MANAGEMENT IN THE INDUSTRIAL
POLE OF MANAUS
AGREED UPON AMONG
BRAZILIAN COOPERATION AGENCY (ABC),
SUPERINTENDENCY OF MANAUS FREE TRADE ZONE (SUFRAMA)
AND
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

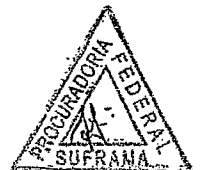
(Place, Month Date,) 2008

Mr. *****
Coordinator for Technical Cooperation
of Japan In Brazil
Japan International Cooperation Agency
(JICA)

Ambassador Luiz Henrique Pereira da
Fonseca
Director
Brazilian Cooperation Agency
Ministry of External Relations
Federative Republic of Brazil
(ABC)

Mrs. Flávia Skrobot Barbosa Grosso
Head
Superintendency of Manaus Free Trade
Zone
(SUFRAMA)





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.

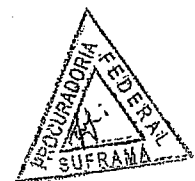
V. SCOPE OF THE STUDY

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 PRTR 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.



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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. Interim Report:

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

3. 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.

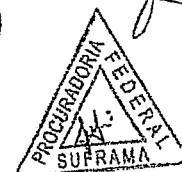
4. Final Report:

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 on Technical Cooperation between GOJ and GOB.

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.

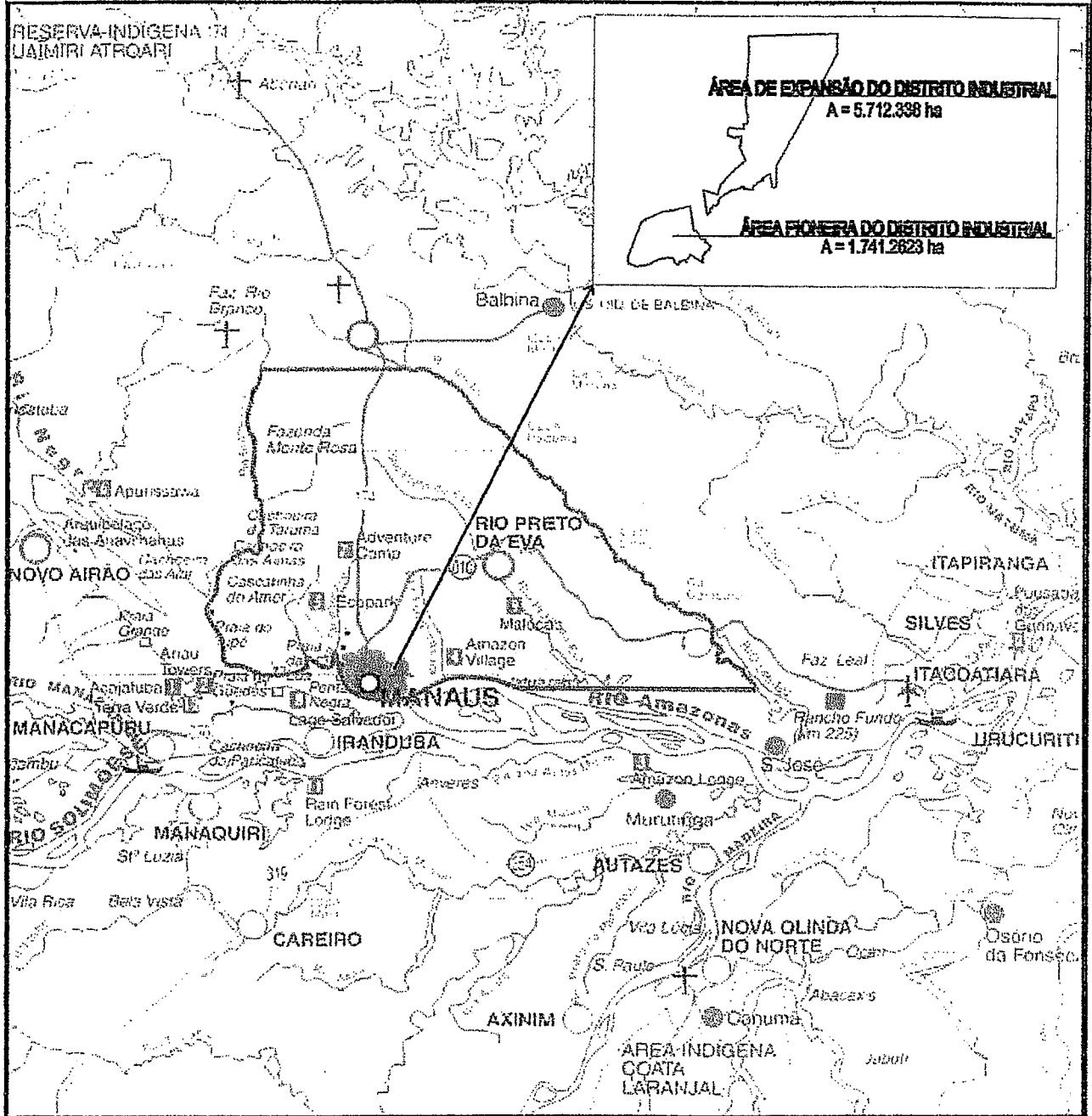
The Scope of Work is prepared in English and Portuguese, and both versions are signed by both partners. In case any doubt arises in interpretation, the English text shall prevail.

- 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)





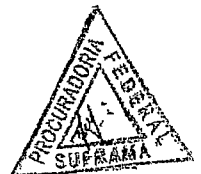
**APPENDIX I
STUDY AREA**



**ÁREA FÍSICA DA ZONA FRANCA /
POLO INDUSTRIAL DE MANAUS - PIM / 10.000,00 Km²**

RS

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Appendix II: Target Waste

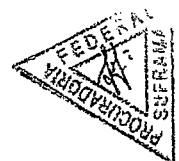
Classification of Waste expected within MFZ and PIM

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
	Office	Hazardous	Luminescence lamp, battery, etc.	X
	Office	Non-Hazardous	Paper, wood, domestic etc.	X
Hospital	Medical process	Hazardous	Medical, infection	X
	Office	Non-Hazardous		X
House hold	House, commercial	Hazardous	Luminescence lamp, battery, etc	
	House, commercial	Non-Hazardous	Kitchen waste, paper, cloth, glass, etc.	
Construction	Construction site	Hazardous	Asbest-contained demolished waste	X
	Construction site	Non-Hazardous	Demolished waste (brick, wood, etc)	X
Radioactive	Process	Hazardous	Radiation sources Radioactive tracers	(*)

* Fact Finding Only

MFZ – Manaus Free Trade Zone

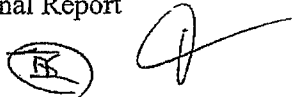
PIM – Industrial Pole of Manaus

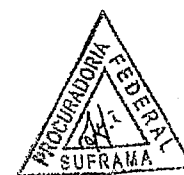


Tentative Study Schedule

JFY	2008				2009								2010											
CY	2008		2009												2010									
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8		
Work			in Brasil		in Japan			[Work Block]					[Work Block]			[Work Block]			[Work Block]					
Repor rts			IC/R▲									IT/R▲											F/R▲	
Phas e	← I						→						← II						→					

IC/R: Inception Report
 IT/R: Interim Report
 DF/R: Draft Final Report
 F/R: Final Report



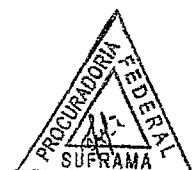


Terms of Reference for the Environmental and Social Considerations Study

Environmental and Social Considerations Study (IEE Level)

1. Scoping
2. Consideration and analysis of environmental baseline data
 - (1) Social and economic conditions
population, economy, employment, transportation, infrastructure/public facilities (road, bridge, water supply, sewerage, etc.), land use, water use, landownership, public health, local conflicts, religious groups, cultural heritage/historical site, hazards(risk), accident, protection/reserve area, etc.
 - (2) Natural conditions
Topography, geology, soil, ground water, meteorology, hydrology (water level etc.), ecology (fauna & flora), vegetation/forests, river, lake, erosion, landscape, natural disaster, etc.
 - (3) Pollution
Air pollution/quality, water pollution/quality, soil contamination, noise and vibration, land subsidence, offensive odor, waste materials, etc.
3. Environmental impacts assessment and study on mitigation measure(including study on alternatives and residual impacts)
4. Consultation with stakeholders (stakeholders meeting)



Annex II: List of Attendants of the Meetings

Brazilian Side

SUFRAMA

Elilde Mota de Menezes
Maria Gracilene R. Belota
Paulo Sérgio Benzecry Cal
Maria da Conceição Leal
Fernando Nunes da Frota
Luiz Flávio Simões
Carlos Alberto Simonetti

ABC/MRE

Wofsi Yuri G. de Souza

CIEAM

Ronaldo Mota
Alexandre Kadota

FIEAM

Gilmar de Oliveira Freitas

CCINB-AM

Teruaki Yamagishi
Alexandre Kadota

SEMMA

Marcilea Monteiro Lopes
Julieta Fonseca Pimentel

SEMULSP

Paulo Rocha Fariasn

PROSAMIN

Jane Crespo

Japanese Side

JICA/BRASIL

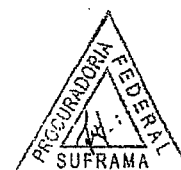
Mauro M. Ione

EQUIPE DE ESTUDO

Hidenori Kumagai
Haruno Matsumura
Eriko Tamura
Silvia Noriko Kaneyasu

(13)

9



MINUTA DE REUNIÃO
SOBRE
O SEGUNDO ESTUDO PREPARATÓRIO
DO
ESTUDO PARA O DESENVOLVIMENTO DE UMA SOLUÇÃO
INTEGRADA RELATIVA À GESTÃO DE RESÍDUOS INDUSTRIAIS NO
PÓLO INDUSTRIAL DE MANAUS
ACORDADA ENTRE A
SUPERINTENDÊNCIA DA ZONA FRANCA DE MANAUS (SUFRAMA)
E A
AGÊNCIA DE COOPERAÇÃO INTERNACIONAL DO JAPÃO (JICA)

Manaus, 24 de setembro de 2008

高谷 英範

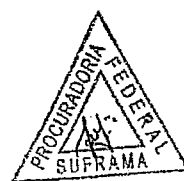
Sr. Hidenori Kumagai
Líder

Equipe do Segundo Estudo Preparatório
Agência de Cooperação Internacional
do Japão (JICA)

Elilde Mota de Menezes

Sr. Elilde Mota de Menezes
Superintendente, em exercício

Superintendência da Zona Franca
de Manaus (SUFRAMA)



Em resposta à solicitação do Governo da República Federativa do Brasil (doravante denominada "GOB"), a Agência de Cooperação Internacional do Japão (doravante denominada "JICA") enviou a Equipe do Segundo Estudo Preparatório, liderada pelo Sr. Hidenori Kumagai (doravante denominada "Equipe"), para a República Federativa do Brasil, de 21 de setembro a 27 de setembro de 2008, com o propósito de esclarecer a estrutura de enquadramento do "Estudo para o Desenvolvimento de uma Solução Integrada Relativa à Gestão de Resíduos Industriais no Pólo Industrial de Manaus" (doravante denominado "Estudo").

Durante a sua permanência na República Federativa do Brasil, a Equipe manteve intercâmbio de pontos de vista e uma série de discussões com a Superintendência da Zona Franca de Manaus (doravante denominada "SUFRAMA") e outras autoridades competentes do GOB, bem como de representante do setor privado envolvidos.

Como resultado das discussões, a Equipe e o lado brasileiro concordaram sobre os seguintes itens:

1. TÍTULO DO ESTUDO

Ambas as partes concordaram que o título do Estudo será "Estudo para o Desenvolvimento de uma Solução Integrada Relativa à Gestão de Resíduos Industriais no Pólo Industrial de Manaus".

2. ANO-META

Ambas as partes concordaram que o ano-meta para o Plano Diretor é 2015 (5 anos a partir de 2011)

3. ÁREA DO ESTUDO

Ambas as partes concordaram que a área do Estudo corresponde a uma área composta por empreendimentos aprovados pelo Conselho de Administração da SUFRAMA (CAS) dentro de um perímetro de 10.000 km², conforme definido pelo Decreto-Lei n.º 288/67 e sua regulamentação (Decreto n.º 61.244/67), no Pólo Industrial de Manaus, apresentado no Apêndice I do esboço do Escopo de Trabalho (doravante denominado "S/W").

4. RESÍDUOS-ALVO DO ESTUDO

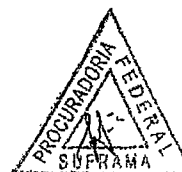
Ambas as partes concordaram que os resíduos-alvo são os resíduos industriais gerados no Pólo Industrial de Manaus (doravante denominado "PIM"), apresentados no Apêndice II do esboço do S/W.

5. PERÍODO DO ESTUDO

O período do Estudo é de aproximadamente 18 meses, a partir da data da primeira atividade da Equipe de Estudo da JICA no Brasil.

6. ESCOPO DE TRABALHO

A Equipe explicou que o S/W, cujo esboço que estipula a estrutura de enquadramento do Estudo é apresentado como Anexo I desta Minuta de Reunião (doravante denominada "M/M"), será preparado e assinado pelos representantes da JICA Brasil, SUFRAMA e Agência Brasileira de Cooperação (ABC) após a conclusão do Ato Internacional geral a ser assinado pelo GOB e o Governo do Japão (doravante denominado "GOJ") e a notificação ao lado brasileiro de aprovação da implementação do Estudo pela JICA Matriz, por intermédio da JICA Brasil. Ambas as partes concordaram que é desejável que o S/W, conforme aprovado



conjuntamente, seja assinado logo que possível após a assinatura do M/M.

7. PESSOAL DE CONTRAPARTIDA

Ambas as partes reconheceram a importância da transferência de tecnologia para o pessoal da contrapartida brasileira através de treinamento "on-the-job" no Estudo. A SUFRAMA e as organizações relacionadas designarão o pessoal de contrapartida necessário para a Equipe de Estudo japonesa.

8. COMITÊ DIRETIVO

Ambas as partes concordaram em organizar um comitê diretivo no início do Estudo para uma ágil implementação e máximo proveito dos resultados do Estudo. O comitê diretivo será presidido pelo representante da SUFRAMA e composto de representantes das seguintes organizações:

- Superintendência da Zona Franca de Manaus (SUFRAMA);
- Centro da Indústria do Estado do Amazonas (CIEAM);
- Federação das Indústrias do Estado do Amazonas (FIEAM);
- Câmara de Comércio e Indústria Nipo-Brasileira do Amazonas (CCINB-AM);
- Agência Brasileira de Cooperação (ABC); e
- Escritório da JICA Brasil.

Ambas as partes, igualmente, concordaram em criar um Subcomitê Técnico Consultivo, a ser composto pelas seguintes organizações:

- Ministério do Desenvolvimento, Indústria e Comércio (MDIC);
- Instituto de Proteção Ambiental do Estado do Amazonas (IPAAM);
- Secretaria Municipal de Limpeza Urbana (SEMULSP);
- Secretaria Municipal de Desenvolvimento e Meio Ambiente (SEMMA); e
- Unidade de Gestão do Programa Igarapé (UGPI).

O lado brasileiro informou que a SUFRAMA irá renovar o acordo de cooperação assinado em 28 de dezembro de 2006 com a CIEAM, FIEAM e CCINB-AM antes do início do Estudo.

9. CONSIDERAÇÕES SÓCIO-AMBIENTAIS

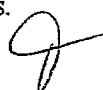
A Equipe explicou as diretrizes das considerações sócio-ambientais da JICA que serão aplicadas ao Estudo. A SUFRAMA expressou entender a política das diretrizes da JICA, e concordou em princípio com as seguintes responsabilidades e solicitações:

(1) Com base nas diretrizes, a SUFRAMA deverá ser responsável pela coordenação institucional de uma Análise Ambiental Inicial (AAI), em colaboração com a Equipe de Estudo, conforme descrito no Apêndice IV do esboço do S/W. A Equipe de Estudo fornecerá à SUFRAMA o apoio técnico necessário para a condução da AAI.

(2) A divulgação de informações relativas ao Estudo deverá ser feita, após aprovação de ambas as partes, a fim de assegurar a participação e o diálogo com várias entidades envolvidas, para que sejam obtidas as considerações sócio-ambientais apropriadas.

(3) No decorrer da implementação do Estudo, consultas públicas às comunidades e entidades envolvidas deverão ser incluídas, caso sejam necessárias.

(4) No caso de reassentamentos serem inevitáveis como resultado do Plano Diretor, a SUFRAMA será responsável por recomendar que um plano de reassentamento seja adotado pela autoridades brasileiras responsáveis.



2



10. COOPERAÇÃO DAS AUTORIDADES COMPETENTES

Ambas as partes concordaram que a SUFRAMA organizará a cooperação das autoridades relacionadas para a eficiente implementação do Estudo.

(1) As outras entidades competentes irão prover os dados e informações necessários à Equipe de Estudo japonesa, por intermédio da SUFRAMA.

(2) A SUFRAMA adotará o Plano Diretor da JICA como o principal plano a ser seguido, informando o fato a cada uma das entidades relacionadas.

11. RELATÓRIO

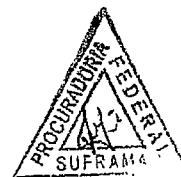
Ambas partes concordaram que o Relatório Final deverá ser divulgado ao Público para que os resultados do Estudo sejam utilizados da melhor maneira.

12. OUTROS

A Minuta de Reunião é preparada em inglês e português, e ambas as versões são assinadas por ambas as partes. Em caso de haver qualquer dúvida na sua interpretação, prevalecerá o texto em inglês.

Anexo I: Escopo de Trabalho (Esboço)

Anexo II: Lista de Participantes da Reunião.



ESCOPO DE TRABALHO
DO
SEGUNDO ESTUDO PARA O DESENVOLVIMENTO DE
UMA SOLUÇÃO INTEGRADA RELATIVA À GESTÃO DE RESÍDUOS
INDUSTRIAIS NO PÓLO INDUSTRIAL DE MANAUS
ACORDADO ENTRE
A AGÊNCIA BRASILEIRA DE COOPERAÇÃO (ABC),
A SUPERINTENDÊNCIA DA ZONA FRANCA DE MANAUS (SUFRAMA)
E
A AGÊNCIA DE COOPERAÇÃO INTERNACIONAL DO JAPÃO (JICA)

Manaus, 24 de setembro de 2008

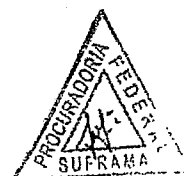
Sr. Masahiro Kobayashi
Coordenador de Cooperação Técnica do
Japão no Brasil
Agência de Cooperação Internacional do
Japão
(JICA)

Embaixador Luiz Henrique Pereira da
Fonseca
Diretor
Agência Brasileira de Cooperação
Ministério das Relações Exteriores
República Federativa do Brasil
(ABC)

Sra. Flávia Skrobot Barbosa Grosso
Superintendente
Superintendência da Zona Franca de
Manaus
(SUFRAMA)

(RS)

9



I. INTRODUÇÃO

Em resposta à solicitação do Governo da República Federativa do Brasil (doravante denominado "GOB"), o Governo do Japão (doravante denominado "GOJ"), decidiu conduzir o "Estudo para o Desenvolvimento de uma Solução Integrada Relativa à Gestão de Resíduos Industriais no Pólo Industrial de Manaus" (doravante denominado "Estudo") no âmbito do Ajuste Complementar ao Acordo Básico de Cooperação Técnica entre o GOB e o GOJ assinado em 01 de agosto de 2008 (doravante referido como "Acordo").

Por conseguinte, a Agência de Cooperação Internacional do Japão (doravante referida como "JICA"), agência oficial responsável pela implementação dos programas de cooperação técnica do GOJ, se encarregará do Estudo em estreita cooperação com as autoridades relevantes pertinentes do GOB.

II. OBJETIVOS DO ESTUDO

Os objetivos do Estudo são:

1. revisar as condições atuais da gestão dos resíduos industriais no Pólo Industrial de Manaus (doravante denominado "PIM") e compilar os resultados na forma de um relatório.
2. formular um Plano Diretor para 5 (cinco) anos, com relação à gestão dos resíduos industriais no PIM.

III. ÁREA DO ESTUDO

A área do Estudo corresponde a uma área composta por empreendimentos aprovados pelo Conselho de Administração da SUFRAMA (CAS) dentro de um perímetro de 10.000 km², conforme definido pelo Decreto-Lei n.º 288/67 e sua regulamentação (Decreto n.º 61.244/67), no Pólo Industrial de Manaus, apresentado no Apêndice I.

IV. RESÍDUOS-ALVO

Os resíduos-alvo do Estudo são os resíduos industriais gerados no PIM, cuja classificação é apresentada no Apêndice II.

V. ESCOPO DO TRABALHO

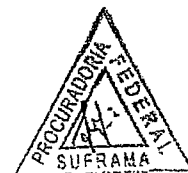
A fim de atingir os objetivos acima, o Estudo cobrirá os itens a seguir:

Fase I: Revisão da atual gestão de resíduos industriais

(1) Situação atual da área do Estudo e seu entorno (PIM, Cidade de Manaus e Estado do Amazonas):

- 1) Condições naturais (incluindo topografia, geologia, meteorologia, uso da terra, hidrologia, qualidade da água, cobertura vegetal e recursos naturais),
- 2) Condições sociais (incluindo população, estruturas administrativas, infra-estrutura [eletricidade, fornecimento de água, sistema de rede de esgoto e sistema de drenagem, estrada etc.], planos de desenvolvimento regional [Cidade de Manaus e Estado do Amazonas], grupos étnicos e conflitos regionais),

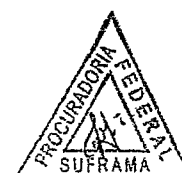
 



- 3) Situações econômicas (incluindo estrutura industrial), e
 - 4) Linhas gerais do PIM (incluindo o inventário de fábricas).
- (2) Condição atual da gestão ambiental:
- 1) Leis, regulações, instituições e diretrizes relacionadas aos temas ambientais (AAI, EIA, norma ambiental, norma para emissão, sistema de remediação para poluição ambiental etc.),
 - 2) Organizações e sistemas para proteção ambiental atuais,
 - 3) Sistema de tratamento de resíduos industriais e regulações,
 - 4) Impacto ambiental (contaminação do solo, contaminação de águas subterrâneas, pós e impacto de odor),
 - 5) Planos de conservação ambiental nacionais e regionais,
 - 6) Estruturas, papéis, responsabilidades, situações financeiras das organizações nacionais e regionais pertinentes (públicas, privadas e ONGs),
 - 7) Conscientização pública, educação ambiental e comunicação com o setor industrial,
 - 8) Sistema atual para o monitoramento ambiental (incluindo reunião das partes envolvidas, comunicação dos riscos), e
 - 9) Apoio por outras agências doadoras.
- (3) Condição atual na gestão dos resíduos industriais:
- 1) Leis, regulações e diretrizes relacionadas,
 - 2) Planos de desenvolvimento nacionais e regionais,
 - 3) Estruturas, papéis, responsabilidades, situações financeiras das organizações nacionais e regionais relacionadas (públicas, privadas e ONGs),
 - 4) Armazenamento, descarga, coleta, transporte, tratamento, disposição final, reciclagem, use da terra para a gestão dos resíduos industriais,
 - 5) Medidas tomadas pelas fontes poluidoras (incluindo produção mais limpa, emissão zero, reúso, utilização do sistema de cascata),
 - 6) Operação e manutenção das instalações e equipamentos relacionados (equipamentos para coleta e instalações para coleta e tratamento, locais para disposição final etc.),
 - 7) Conscientização pública, educação ambiental e comunicação com o setor industrial,
 - 8) Composição e quantidade dos resíduos industriais (incluindo dados detalhados de fábricas e mapas),
 - 9) Fluxo atual da gestão dos resíduos industriais,
 - 10) Sistema de gestão de resíduos perigosos e substâncias químicas como PRTR (Registros de Emissão e Transferência de Poluentes) e sistema de Manifesto .
 - 11) Situação atual da disposição ilegal,
 - 12) Apoio por outras agências doadoras,
 - 13) Coleta de dados relacionados.
- (4) Considerações Sócio-Ambientais:
- 1) Situação real das considerações sócio-ambientais no Brasil,
 - 2) Leis, regulações, diretrizes relacionadas a considerações sociais (sistema de compensação e procedimentos para residentes e reassentados involuntários, conservação da herança cultural, conservação de áreas protegidas etc.),
 - 3) Organizações e sistemas atuais para considerações sócio-ambientais,
 - 4) Experiências de compensação real para residentes e reassentados,

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J



Fase II: Formulação do Plano Diretor e de uma proposta de diretrizes * para gestão de resíduos industriais

- (1) Previsão da quantidade e qualidade dos resíduos industriais
- (2) Plano Diretor para a gestão dos resíduos industriais, incluindo:
 - 1) Sistema de gestão dos resíduos industriais e estrutura,
 - 2) Reciclagem e reúso dos resíduos industriais,
 - 3) Tratamento e disposição dos resíduos industriais,
 - 4) Desenvolvimento de instalações,
 - 5) Plano e avaliação financeiros,
 - 6) Promoção dos setores privados,
 - 7) Projetos prioritários,
 - 8) Estudo de Considerações Sócio-Ambientais na Análise Ambiental Inicial (nível "AAI"), se necessário.

VI. CRONOGRAMA PROVISÓRIO DO ESTUDO

O Estudo será conduzido de acordo com o cronograma provisório no Apêndice III. O cronograma é provisório e sujeito às modificações sempre que ambas as partes concordarem ou sob quaisquer necessidades que venham a surgir durante o curso do Estudo.

VII. RELATÓRIOS

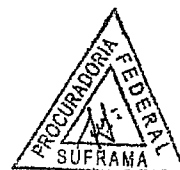
A JICA deverá preparar e apresentar os seguintes relatórios, impressos e em versão digital, ao GOB. Em caso de qualquer dúvida em sua interpretação, prevalecerá o texto em inglês.

1. Relatório Inicial
10 (dez) cópias em português e 10 (dez) cópias em inglês, no início do Estudo.
2. Relatório Intermediário
10 (dez) cópias em português e 10 (dez) cópias em inglês, ao final da Fase I.
3. Esboço do Relatório Final
10 (dez) cópias em português e 10 (dez) cópias em inglês, ao final da Fase II. O GOB deverá apresentar seus comentários num prazo de 1 (um) mês após o recebimento do Esboço do Relatório Final.
4. Relatório Final
40 (quarenta) cópias em português e 20 (vinte) cópias em inglês, num prazo de 1 (um) mês após o recebimento dos comentários do Esboço do Relatório Final do GOB.

VIII. INCUMBÊNCIA DO GOB

O GOB concederá privilégios, isenções e outros benefícios à Equipe de Estudo Japonesa (doravante denominada "Equipe de Estudo"), no âmbito do Acordo Básico de Cooperação Técnica entre o GOJ e o GOB.

1. Para facilitar e agilizar a implementação do Estudo, o GOB tomará as medidas necessárias a seguir:



- (1) Conceder, mediante pedido, visto temporário (VITEM I) aos membros da Equipe de Estudo, com isenção de taxas consulares.
 - (2) Permitir a entrada, saída e permanência dos membros da Equipe de Estudo na República Federativa do Brasil durante o período de sua missão.
 - (3) Providenciar facilidades necessárias para que a Equipe de Estudo receba e utilize fundos remetidos do Japão à República Federativa do Brasil relacionados com a implementação do Estudo.
2. O GOB deverá se encarregar de quaisquer queixas, caso venham a surgir contra os membros da Equipe de Estudo, resultado de, ou que ocorram durante a execução do Estudo, ou relacionados com o desempenho de seus deveres durante a implementação do Estudo, salvo quando tais queixas provenham da negligência ou má conduta da parte dos membros da Equipe de Estudo.
 3. A SUFRAMA deverá atuar, em nome do GOB, como uma agência de contrapartida da Equipe de Estudo e também como um agente coordenador diante das demais organizações relevantes para agilizar a implementação do Estudo.
 4. A SUFRAMA deverá, às suas próprias custas, fornecer à Equipe de Estudo os itens a seguir, em cooperação com as demais entidades pertinentes:
 - (1) Informações sobre segurança assim como medidas para garantir a segurança da Equipe de Estudo,
 - (2) Informações e assistência para obter serviços médicos,
 - (3) Dados e informações disponíveis relacionados com o Estudo,
 - (4) Pessoal de contrapartida,
 - (5) Espaço conveniente para escritório com os equipamentos e instalações necessárias
 - (6) Credenciais ou documentos de identificação
 - (7) Quantidade adequada de veículos providos de motoristas.

IX. OUTROS

A JICA e a SUFRAMA deverão consultar-se uma à outra com respeito a quaisquer eventualidades que venham a surgir em relação ao Estudo.

O Escopo de Trabalho está preparado em inglês e português, e ambas as versões estão assinadas por ambas as partes. Em caso de qualquer dúvida na sua interpretação, prevalecerá o texto em inglês.

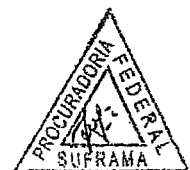
Apêndice I: Legislação da Área do Estudo/SUFRAMA

Apêndice II: Resíduos-Alvo do Estudo

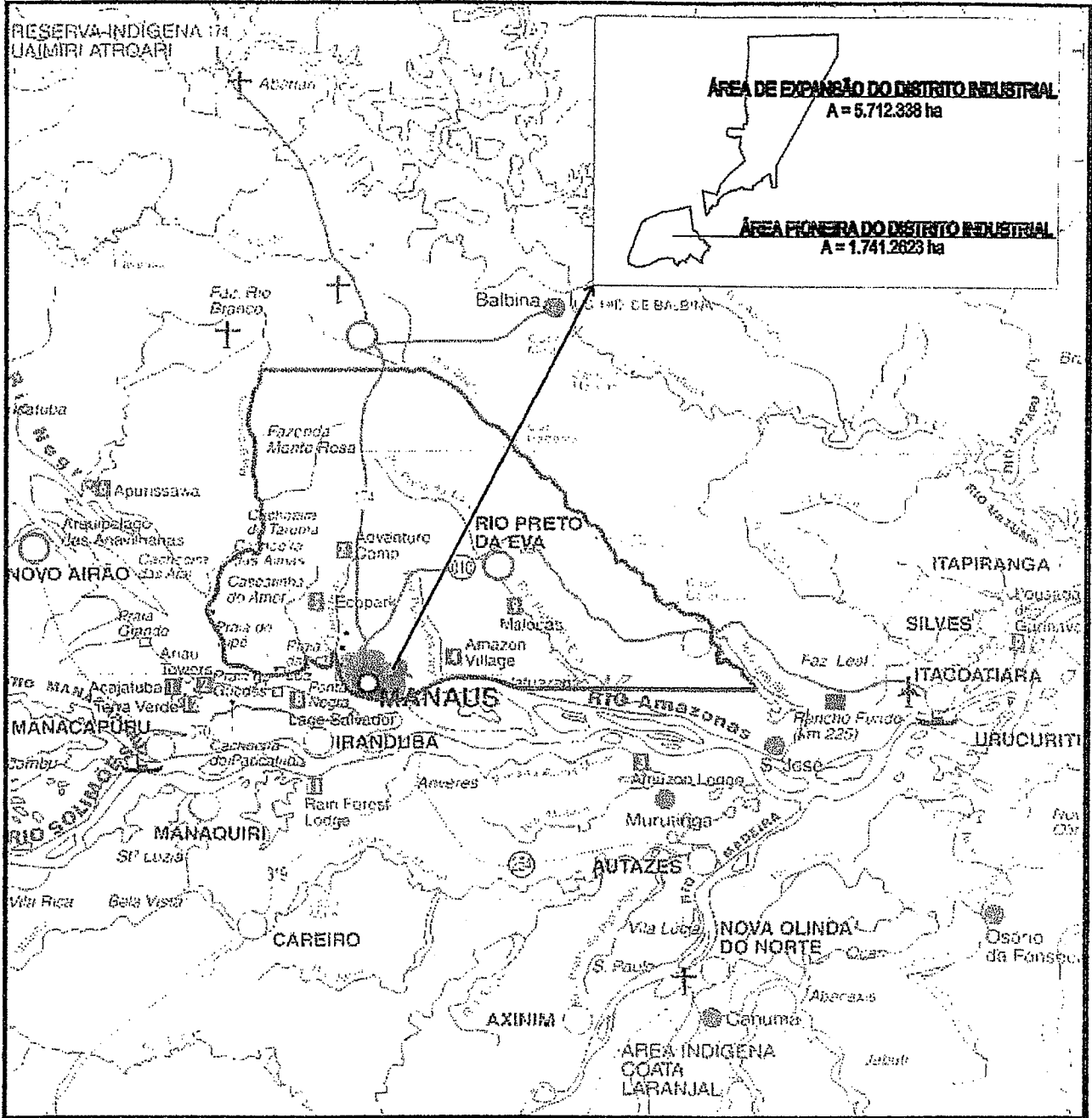
Apêndice III: Cronograma Provisório do Estudo

Apêndice IV: Termo de Referência para o Estudo das Considerações Sócio-Ambientais (nível AAI)

(153) 



APÊNDICE I
ÁREA DO ESTUDO

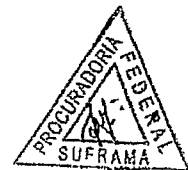


ÁREA DE EXPANSÃO DO DISTRITO INDUSTRIAL
A = 5.712.338 ha

ÁREA FÍSICA DO DISTRITO INDUSTRIAL
A = 1.741.2623 ha

ÁREA FÍSICA DA ZONA FRANCA /
POLO INDUSTRIAL DE MANAUS - PIM / 10.000,00 Km²

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Classificação de Resíduos identificados na ZFM e no PIM

Fonte	Forma de geração	Tipo	Exemplo	Alvo do Estudo
Indústria	Processo	Perigoso	Ácido, básico, borra de petróleo, solvente, lodo, cinzas, etc.	X
	Processo	Perigoso	Biológico, farmacêutico	X
	Processo	Não-perigoso	Papel, madeira, etc.	X
	Escritório	Perigoso	Lâmpadas fluorescentes, baterias, etc.	X
	Escritório	Não-perigoso	Papel, madeira, doméstico, etc.	X
Hospital	Processo hospitalar	Perigoso	Resíduo médico, infeccioso.	X
	Escritório	Não-perigoso		X
Lares	Casa, comércio	Perigoso	Lâmpadas fluorescentes, baterias, etc.	
	Casa, comércio	Não-perigoso	Resíduos de cozinha, papel, tecidos, vidro, etc.	
Construção	Canteiro de obras	Perigoso	Amianto, Resíduos construtivos	X
	Canteiro de obras	Não-perigoso	Resíduos construtivos (tijolos, madeiras, etc)	X
Radioativa	Processo	Perigoso	Fontes radioativas Elementos radioativos	(*)

* Apenas verificação de origem

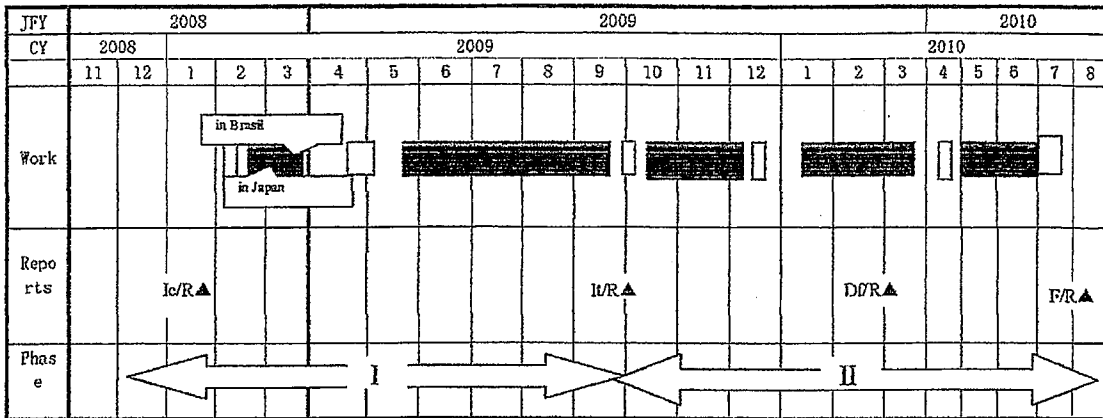
ZFM - Zona Franca de Manaus

PIM - Pólo Industrial de Manaus

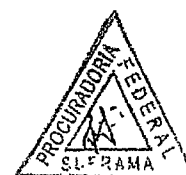




Cronograma Provisório do Estudo



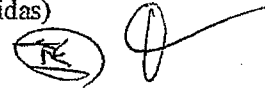
- Ic/R: Relatório Inicial
- Ii/R: Relatório Intermediário
- Df/R: Esboço do Relatório Final
- F/R: Relatório Final

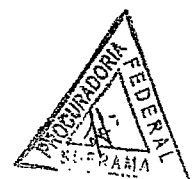


Termos de Referência para o Estudo das Considerações Sócio-Ambientais

Estudo das Considerações Sócio-Ambientais (Nível de Estudo AAI)

1. Escopo
2. Coleta e análise dos dados básicos ambientais
 - (1) Condições sócio-econômicas
População, economia, emprego, transporte, infraestrutura/instalações públicas (rodovias, pontes, abastecimento de água, redes de esgoto etc.), utilização do solo, consumo de água, posse da terra, saúde pública, conflitos locais, grupos religiosos, patrimônio cultural/sítios históricos, perigos (risco), acidente, área protegida/de reserva etc.
 - (2) Condições naturais
Topografia, geologia, solo, águas subterrâneas, meteorologia, hidrologia (nível de água, correntes de marés, ondas etc.), ecologia (fauna e flora), vegetação/florestas, recursos hídricos (mar, rios, canais, lagos, reservatórios, lagoas etc.), erosão, paisagem, desastres naturais etc.
 - (3) Poluição
Poluição/qualidade do ar, poluição/qualidade da água, contaminação do solo, ruídos e vibrações, assentamento do solo, odores desagradáveis, resíduos etc.
3. Avaliação do impacto ambiental e estudo das medidas de mitigação (incluindo o estudo das alternativas e impactos residuais)
4. Consulta das partes envolvidas (reunião das partes envolvidas)





Anexo II: Lista de Participantes da Reunião

Parte Brasileira

SUFRAMA

Elilde Mota de Menezes
Maria Gracilene R. Belota
Paulo Sérgio Benzecry Cal
Maria da Conceição Leal
Fernando Nunes da Frota
Luiz Flávio Simões
Carlos Alberto Simonetti

ABC/MRE

Wofsi Yuri G. de Souza

CIEAM

Ronaldo Mota
Alexandre Kadota

FILEAM

Gilmar de Oliveira Freitas

CCINB-AM

Teruaki Yamagishi
Alexandre Kadota

SEMMA

Marcilea Monteiro Lopes
Julieta Fonseca Pimentel

SEMULSP

Paulo Rocha Fariasn

PROSAMIN

Jane Crespo

Parte Japonesa

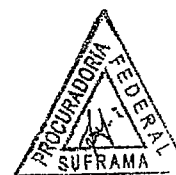
JICA/BRASIL

Mauro M. Ione

EQUIPE DE ESTUDO

Hidenori Kumagai
Haruno Matsumura
Eriko Tamura
Silvia Noriko Kaneyasu

[Handwritten signature]



5. 主要面談者リスト

主要面談者リスト

(第1次詳細設計調査)

在ブラジル日本国大使館

大竹茂公使、酒井了二等書記官

在ブラジلمانナウス日本国総領事館

瀬川進総領事

国際協力銀行 (JBIC)

リオデジャネイロ駐在員 尾頭寛氏

JICA ブラジル事務所

小林正博所長、柴田信二次長、坂口幸太所員、柴田義則所員

ブラジル国際協力庁 (ABC)

Mr. Wofsi Yuri G. de Souza (Bilateral Technical Cooperation - CTRB/ABC)

Ms. Juliana Fronzaglia (Technician of International Cooperation)

ブラジル連邦開発商工省 (MDIC)

Mr. Eudaldo Andre de Brito Celino (Deputy Head of International Advisory Board)

Ms. Marcela Carvalho (Foreign Trade Analyst)

Mr. Rildo Costa Farias (Lic. Chemist)

ブラジル連邦環境省 (MMA)、ブラジル連邦天然資源環境保護院 (IBAMA)、ブラジル連邦環境審議会 (CONAMA)

MMA Mr. Geraldo Siqueira (環境品質局チーフ)

Ms. Maria Gricia Grossi (有害廃棄物マネジャー)

Ms. Miran Oliveira (一般廃棄物担当)

IBAMA Ms. Zilda Veloso (コーディネーター)

Ms. Rosclan CB Jemes (国際局)

CONAMA Ms. Ruth R. Tabaczynski (テクニカルアシスタント)

ブラジル連邦都市省 (MCIDADES)

Ms. Nadja Limeira Araujo (Manager of Project, Solid Residue)

Mr. Rodolfo C. Castro (Economist/International)

マナウスフリーズン監督庁 (SUFRAMA)

Ms. Eliilde Mota de Menezes (計画・地域開発担当副長官)

Ms. Marcia Fernandes R. Silva (技術アドバイザー)

アマゾナス州環境管理局 (IPAAM)

Ms. Iracema Alencar de Queiroz (局長)

Ms. Artemisia Souza do Valle (技術部長)

マナウス市環境管理局 (SEMMA)

Ms. Luciana Montenegro Valente (局長)

Mr. Jose Rogerio de Sousa Mendes (環境品質管理部)

マナウス市都市清掃・社会サービス局 (SEMULSP)

Mr. Paulo Ricardo Rocha Farias (局長)

Ms. Suely D' Araújo (次長)

アマゾナス日系商工会議所 (CCINB-AM)

Mr. Teruaki Yamagishi (会頭)

Mr. Takahiro Komorita (Executive Director)

Mr. Roberto Teisuke Maruoka (Executive Director)

Mr. Alexandre Kadota

アマゾナス州工業センター (CIEAM)、アマゾナス州工業連盟 (FIEAM)

Mr. Mauricio Loureiro (President CEO CIEAM)

Mr. Jorge Luis Garcez Teixeira (Consultant CIEAM)

Mr. Flávio José A. Dutra (President FIEAM)

米州開発銀行 (IDB)、イガラペ社会環境改善プロジェクト (PROSAMIN) 管理ユニット

Mr. Tabajara Ferreira (Coordinator)

Mr. Jose Lucio do Nascimento Rabelo (Sub-coordinator)

(その他民間企業等多数)

(第2次詳細設計調査)

在ブラジル日本国大使館

宮下匡之参事官

在ブラジルのマナウス日本国総領事館

柴崎二郎総領事、石倉秀美副領事

JICA ブラジル事務所

小林正博所長、吉田憲次長、井上マウロ所員、坂口幸太所員

ブラジル国際協力庁 (ABC)

Mr. Marco Farani (次期長官)

Mr. Paulo Wangner de Milanda, Ministro/Coordenador-Geral

Mr. Wofsi Yuri G. de Souza Bilateral Technical Cooperation - CTRB/ABC

ブラジル連邦環境省 (MMA)

Mr. Marcos Pellegrini Bandini, Gerente de Projeto, Secretaria de Recursos Hídricos e Ambiente Urbano, Departamento de Ambiente Urbano (水資源都市環境局都市環境部プロジェクト課長)

マナウスフリーゾーン監督庁 (SUFRAMA)

Mr. Eliilde Mota de Menezes, Assistant Superintendent of Planning and Regional Development

Ms. Maria Gracilene Roberto Belota, Coordenadora Geral de Comercio Exterior

Mr. Carlos Alberto Simonetti, Analista de Comercio Exterior

Mr. Paulo Selgio Benzecry Cal, Coordenador Geral da CGPAG

Ms. Maria da Conceição Leal

Mr. Fernando Nunes da Frota

Mr.Luiz Flávio Simões
Mr.Carlos Alberto Simonetti

アマゾナス州環境管理局 (IPAAM)

Neliton Marques da Silva, Director-Presidente do IPAAM

マナウス市環境管理局 (SEMMA)

Ms.Marcilea Monteiro Lopes
Ms.Julieta Fonseca Pimentel

マナウス市都市清掃・社会サービス局 (SEMULSP)

Mr. Paulo Ricardo Rocha Farias (局長)

アマゾナス州工業センター (CIEAM)

Mr.Ronaldo Mota

アマゾナス州工業連盟 (FIEAM)

Mr.Gilmar de Oliveira Freitas

アマゾナス日系商工会議所 (CCINB-AM)

Mr. Teruaki Yamagishi (元会頭)
Mr. Alexandre Kadota

米州開発銀行 (IDB) イガラベ社会環境改善プロジェクト (PROSAMIN) 管理ユニット

Ms.Jane Crespo

Rio Limpo

Mr. Francisco Lucio P. de Lima (人事管理部)

CETRAM (Central de Energia e Tratamiento de Resduos da Amazonia)

Mr. Jose Augusto Cardoso Filho (社長)
Mr. Luiz Augusto Cardoso (事業部長)
Ms. Ana Julia de Campos Cardoso (経理部長)

COPLAST (Industria e Comercio de Residuos Plasticos Ltda.)

Mr. Antony Wagner Bandeira (技術部長)

6 . 質問票

ATTN: JBIC officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion:

- Regarding the proposed JICA study ·
 - Do you have any loan project related to waste treatment and disposal ?
If so, what is the lesson learnt from such project(s)?
 - Any comment or advise on the proposed JICA study ?
- Possibility of follow up finance
 - What is the possibility to provide JBIC loan to treatment/disposal facility of industrial waste in Manaus city.

ATTN: JICA officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion:

- Regarding the proposed JICA study
 - Any comment or advise on the proposed JICA study ?
 - Any points need to be considered for the project.
 - Opinion about inclusion of F/S component in the project.
 - Any information for candidate site of waste final disposal construction in/around MFZ?
- Regarding waste business entity and/or local consultant
 - List of local consultant available ?

ATTN: Embassy of Japan Officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion:

- Regarding the proposed JICA study
 - Any comment or advise on the proposed JICA study ?
 - Any points need to be considered for the project.
- Others
 - Status of negotiation on international agreement.
 - Information on international cooperation related.

ATTN: ABC officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion:

- Regarding the proposed JICA study
 - Any comment or advise on the proposed JICA study ?
 - Possibility to develop loan project for treatment/disposal facility of industrial waste in Manaus city.
 - If so, any specific consideration for this arrangement.
- Status of negotiation on international cooperation

ATTN: MDIC officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion:

- Organization and Institution
 - Please provide organization chart, number of staff and budget for last 5 years.
 - What is the mandate and authority of MDIC in area of industrial waste management?
 - How do you provide guidance to the company/factory ?
 - What is the relationship between SUFRAMA, including budget allocation?
- Regarding study area
 - Please explain development plan of MFZ.
- Status and issue on waste management
 - What is the current practice of domestic and industrial waste collection, transport, treatment and disposal?
 - Do you have data on quantity of industrial waste based on its type/classification?
 - What is the issue on industrial waste management in your opinion?

ATTN: MMA officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion:

■ Organization and Institution

- Please provide number of staff and budget for last 5 years
- What is the mandate and authority of MMA in area of industrial waste management?
- What is the current status of National Solid Waste Policy Bill (PL 203/91 or “ Omnibus Waste Bill ”) ? Document available ?
- What is the legal status and power of CONAMA resolution (without corresponded law or decree) ?
- Is there any laws corresponded to CONAMA resolution 06/1988 on industrial waste management? What is the implementing status? Document available?
- What is the implementing status of CONAMA resolution 313/2002 on industrial waste inventory ? Document available?
- What is relationship of MMA and IBAMA ?
- Does IMABA develop national plan for industrial waste management ?
- Any local office in Manaus or Amazonas state ? If so, their activity ?

■ Status and issue on waste management

- What is the current practice of domestic and industrial waste collection, transport, treatment and disposal?
- Do you have data on quantity of industrial waste based on its

type/classification?

➤ What is the issue on industrial waste management?

■ Law and/or Regulations

➤ Do you have penal regulations to throw away wastes to public area?

➤ Please explain tariff system for disposal of waste, tariff collection system.

➤ Please inform us penalty regulation and/or control system for squatters.

➤ Are there any law and/or regulations for execution of IEE (Initial Environmental Evaluation) and EIA (Environmental Impact Assessment)?

➤ Please provide environmental protection law and regulations for landscape, soil contamination, quality of surface water and underground water.

➤ Please provide law and regulations for control waste solid, waste water, emission gas, smell, noise and toxic materials.

➤ Do you have law and regulations according to Stakeholders Rights related?

ATTN: IBAMA officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion:

- Organization and Institution
 - Please provide organization chart, number of staff and budget for last 5 years.
 - What is the mandate and authority of IBAMA in area of industrial waste management?
 - What is the current status of National Solid Waste Policy Bill (PL 203/91 or “ Omnibus Waste Bill ”) ? Document available ?
 - What is the legal status and power of CONAMA resolution (without corresponded law or decree) ?
 - Is there any laws corresponded to CONAMA resolution 06/1988 on industrial waste management? What is the implementing status? Document available?
 - What is the implementing status of CONAMA resolution 313/2002 on industrial waste inventory ? Document available?
 - What is relationship of MMA and IBAMA ?
 - Does IMABA develop national plan for industrial waste management ? Any document available ?
 - Any local office in Manus or Amazonas state ? If so, their activity ?
- Status and issue on waste management

- What is the current practice of domestic and industrial waste collection, transport, treatment and disposal?
- Do you have data on quantity of industrial waste based on its type/classification?
- What is the issue on industrial waste management?
- Additional Law and/or Regulations
 - Do you have penalty regulations to throw away wastes to public area?
 - Please explain tariff system for disposal of waste, tariff collection system.
 - Please inform us penal regulation and/or control system for squatters.
 - Are there any law and/or regulations for execution of IEE (Initial Environmental Evaluation) and EIA (Environmental Impact Assessment)?
 - Please provide environmental protection law and regulations for landscape, soil contamination, quality of surface water and underground water.
 - Please provide law and regulations for control waste solid, waste water, emission gas, smell, noise and toxic materials.

ATTN: MPOG officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and Institution
 - What is the mandate and authority of MPOG in area of waste management?
 - Any local office in Manaus or Amazonas state ? If so, their activity ?
- Others
 - Please explain PMSS project under World Bank finance. Is there any component related to waste management.
- Socio-economic Index
 - Where we can obtain economic index (revenue and expenditure, Debt Balance, Unemployment Rate etc.) of Manaus?
 - Please provide us information of population related (Population, Population Growth Rate, Constitution of Population include minority and poverty rate) in Manaus.
 - Do you have data for age distribution and average income of family in Manaus?
 - Law and regulations for compensation system and/or control system for involuntary resettlement
 - Please explain about law and regulations for compensation system for involuntary resettlement.

- Please explain law and regulations for control system for involuntary resettlement.

ATTN: World Bank officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Other Project
 - Please explain PMSS project with MPOG. Is there any component related to waste management.
 - Please explain sanitation and environment improvement project with COSAMA in Amazonas state. Is there any component related to waste management.
 - Is there any other projects in Amazon related to the environment, especially in waste management, soil contamination mitigation and/or underground water contamination improvement?
- Regarding the proposed JICA study
 - Any comment or advise on the proposed JICA study ?
- Regarding follow up finance
 - Possibility to develop loan project for treatment/disposal facility of industrial waste in Manaus city?. If so, any specific consideration for this arrangement

ATTN: IDB officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Regarding PROSAMIN project
 - What is current status of the project?
 - Any output & report document from the project available ?
 - Scope and TOR for the Master plan study of Manaus domestic waste management? Consulting firm selected and contracted ? Who are they?
 - After MP formulation, IDB is going to finance the implementation?
- Other projects
 - Is there any other projects in Amazon related to the environment, especially in waste management, soil contamination mitigation and/or underground water contamination improvement?
- Regarding proposed JICA study
 - Any comment or advise on the proposed JICA study ?
- Regarding follow up finance
 - Possibility to develop loan project for treatment/disposal facility of industrial waste in Manaus city ?. If so, any specific consideration for this arrangement.

ATTN: BNDS officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Other project
 - Is there any other project in Amazon related to the environment, especially in waste management, soil contamination mitigation and/or underground water contamination improvement?
- Regarding the proposed JICA study
 - Any comment or advise on the proposed JICA study ?
- Regarding follow up finance
 - Possibility to develop loan project for treatment/disposal facility of industrial waste in Manaus city ? If so, any specific consideration for this arrangement ?
 - Possibility to JBIC (Japan Bank of International Cooperation)'s two step loan project development for treatment/disposal facility of industrial waste in Manaus city ? If so, any specific consideration for this arrangement ?

ATTN: CNI officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Other project
 - Is there any other project in Amazon related to the environment, especially in waste management, soil contamination mitigation and/or underground water contamination improvement?
- Regarding the proposed JICA study
 - Any comment or advise on the proposed JICA study ?
- Regarding follow up finance
 - Possibility to develop loan project for treatment/disposal facility of industrial waste in Manaus city ? If so, any specific consideration for this arrangement ?
 - Possibility to JBIC (Japan Bank of International Cooperation)'s two step loan project development for treatment/disposal facility of industrial waste in Manaus city ? If so, any specific consideration for this arrangement ?

ATTN: BASA officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Other project
 - Is there any other project in Amazon related to the environment, especially in waste management, soil contamination mitigation and/or underground water contamination improvement?
- Regarding the proposed JICA study
 - Any comment or advise on the proposed JICA study ?
- Regarding follow up finance
 - Possibility to develop loan project for treatment/disposal facility of industrial waste in Manaus city ? If so, any specific consideration for this arrangement ?
 - Possibility to JBIC (Japan Bank of International Cooperation)'s two step loan project development for treatment/disposal facility of industrial waste in Manaus city ? If so, any specific consideration for this arrangement ?

ATTN: SUFRAMA officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

■ Organization and Institution

- Please provide number of staff and budget for last 5 years.
- In general, SUFRAMA's mandate and activity were well understood. However we are particularly interested in task and mandate demarcation with other state, municipal agency. Please allow us to ask again, with special emphasis in relation to other agencies such as IPAAM, SENIF, SEDEMA and SEMLUSP.
 - ◇ Please explain mandate and responsibility in the field of industrial, domestic waste management.
 - ◇ What is your power and authority in MFZ ?
 - ◇ What is your relationship with the state government and Industrial and Environmental ministry? How do you coordinate the activity (especially in view of your power and authority in MFZ) ?
- What is future plan of SUFRAMA? Does law defining SUFRAMA have end date?

■ Regarding study area

- Please provide map showing clear boundary of MFZ, PIM and Manaus municipality.
- We knew there are approx. 450 factories. How many factories are in MFZ, in PIM and in all Manaus area respectively?
- What is area (m²) of MFZ and PIM respectively?
- Who provide and/or manage any utility service (water supply and sewage) to the factory in MFZ?
- What is source of industrial water?
- Do you have any control and/or monitoring data on raw material and

- chemical imported by the factory?
- The land in MFZ is owned by the factory or rented?
- What is the future plan for expansion of MFZ and PIM? Do you expect increase of investment for new factory? If so, what is most likely type of industry?
- Status and issue waste management
 - Do you have sub-contractor as an operator for waste management.
 - What is the current practice of domestic and industrial waste collection, transport, treatment and disposal?
 - Do you have data on quantity of industrial waste based on its type/classification?
 - What is the issue on industrial waste management?
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project. The question was already discussed before, but please confirm based on the waste category in attached sheet.
 - Who draft the request form to JICA ?
 - Please explain the background of PROSAMIN project and the proposed JICA study (how it related?).
 - In the request form, second goal noted is about CDM utilization. Please explain in detail.
 - Study for final disposal site requested? If so, any candidate

ATTN: SEINF officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organizational chart, number of staff and budget for last 5 years.
 - Please explain mandate and responsibility in the field of industrial, domestic waste management.
 - What is your relationship with the federal government and city office?
 - How do you coordinate the activity?
 - Do you control water and power supply and/or sewage service for MFZ/PIM?
 - Are you in charge of control, arrange and maintain access road conditions around MFZ/PIM?
- Status and issue on waste management
 - What is the current practice of domestic and industrial waste collection, transport, treatment and disposal?
 - Do you have data on quantity of industrial waste based on its type/classification?
 - What is the issue on industrial waste management?
- Relation with IDB project
 - What is your involvement of PROSAMIN project ?
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: IPAAM officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organizational chart, number of staff and budget for last 5 years.
 - Please explain mandate and responsibility in the field of environmental management, especially in industrial, domestic waste management..
 - What is your enforcement power and authority to the factory in general area and in MFZ and in PIM? Any difference?
 - What is your relationship with the federal and state government, environmental ministry, IBAMA and city office? How do you coordinate the activity ?
 - What is additional or specific regulation for waste management in Amazonas state over Federal regulation ?
 - How do you control waste management companies, in particular, illegal issues? (punishment etc.)
- Status and issue on waste management
 - What is the current practice of domestic and industrial waste collection, transport, treatment and disposal?
 - Do you have data on quantity of industrial waste based on its type/classification?
 - What is the issue on industrial waste management?
 - Do you have a voucher transfer system (Waste Management Manifest) ?
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: SEDEMA(SEMMA) officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organizational chart, number of staff and budget for last 5 years. Do you have analytical laboratory for waste testing?
 - Please explain mandate and responsibility in the field of environmental management, especially in industrial, domestic waste management.
 - What is your enforcement power and authority to the factory in general area and in MFZ and in PIM? Any difference?
 - What is additional or specific regulation for waste management in Manaus city over Amazonus state and Federal regulation ?
- Status and issue on waste management
 - What is the current practice of domestic and industrial waste collection, transport, treatment and disposal?
 - Do you have data on quantity of industrial waste based on its type/classification?
 - What is the issue on industrial waste management?
 - Do you use waste fractionation system?
 - Please explain treatment system of fractionated waste.
 - Please provide location map, drawings of layout, structure of current waste treatment system.
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet..
- Construction plan for Terminal Waste Treatment System
 - Please explain construction plan for location map, scale and specification of the system, transportation plan, and involuntary resettlement plan.
 - Is there any bio-diversity problem?
 - Is there any cultural heritage transformation problem?
 - How will you do compensation for involuntary resettlement?

ATTN: SEMULSP officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organizational chart, number of staff and budget for last 5 years. Do you have analytical laboratory for waste testing?
 - Please explain mandate and responsibility in the field of environmental management, especially in industrial, domestic waste management.
 - What is your enforcement power and authority to the factory in general area and in MFZ and in PIM? Any difference?
 - What is additional or specific regulation for waste management in Manaus city over Amazonus state and Federal regulation ?
- Status and issue on waste management
 - What is the current practice of domestic and industrial waste collection, transport, treatment and disposal?
 - Do you have data on quantity of industrial waste based on its type/classification?
 - What is the issue on industrial waste management?
- Waste management equipments
 - Please provide equipment list for waste management (collecting, transportation, storage, cleaning).
 - Please explain repair and maintenance system of waste management equipments.
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: FIEAM officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organizational chart, number of staff and budget for last 5 years.
 - Please explain mandate and responsibility of the organization.
 - Number of company/factory belong to FIEAM and their industry type. How they are located?
- Status and issue on waste management
 - What is the current practice of domestic and industrial waste collection, transport, treatment and disposal?
 - Do you have data on quantity of industrial waste based on its type/classification?
 - What is the issue on industrial waste management?
 - Do you know any company in industrial waste business/service?
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: CIEAM officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organizational chart, number of staff and budget for last 5 years.
 - Please explain mandate and responsibility of the organization.
 - Number of company/factory belong to CIEAM and their industry type. How they are located?
- Status and issue on waste management
 - What is the current practice of domestic and industrial waste collection, transport, treatment and disposal?
 - Do you have data on quantity of industrial waste based on its type/classification?
 - What is the issue on industrial waste management?
 - Do you have any analytical laboratory for control waste management?
 - Do you know any company in industrial waste business/service?
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: CCINB-AM officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organizational chart, number of staff and budget for last 5 years.
 - Please explain mandate and responsibility of the organization.
 - Number of company/factory belong to CCINB-AM and their industry type. How they are located?
 - What is the activity of Environmental committee (?) ?
- Status and issue on waste management
 - What is the current practice of domestic and industrial waste collection, transport, treatment and disposal?
 - Do you have data on quantity of industrial waste based on its type/classification?
 - What is the issue on industrial waste management?
 - Do you know any company in industrial waste business/service?
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.
 - What extend Japanese industry involved in the request preparation on the proposed study?

ATTN: Consulate of Japan officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Regarding proposed JICA study
 - Any comment or advise on the proposed JICA study ?

ATTN: COSAMA officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Please explain sanitation and environment improvement project with World Bank finance.
- Is there any component related to waste management?

ATTN: Agua de Amazonas officer

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organizational chart, number of staff and budget for last 5 years.
 - Please explain mandate and responsibility of the organization.
 - Do you have any related activity to waste management.
 - What is your contract for the service in Manaus, MFZ and in PIM ?
 - Do you have system for waste management and monitoring?
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: Denso

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
- Solid waste
 - Please explain kind and amount of waste.
 - Do you have system to categorize waste into industrial, domestic, hazardous, toxic etc?
 - Do you have waste recycling system?
 - Do you have stock yards for waste?
 - Please explain treatment method and the cost.
- Environmental management system
 - Do you have certification of environmental management system ((ISO 14000 series)
 - When did you get the system and how do you manage?
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.
- Others
 - If you have any problem according to the waste treatment and/or environmental issues, please explain.

ATTN: Panasonic

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
- Solid waste
 - Please explain kind and amount of waste.
 - Do you have system to categorize waste into industrial, domestic, hazardous, toxic etc?
 - Do you have waste recycling system?
 - Do you have stock yards for waste?
 - Please explain treatment method and the cost.
- Environmental management system
 - Do you have certification of environmental management system ((ISO 14000 series)
 - When did you get the system and how do you manage?
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.
- Others

If you have any problem according to the waste treatment and/or environmental issues, please explain.

ATTN: FUJI Film

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
- Solid waste
 - Please explain kind and amount of waste.
 - Do you have system to categorize waste into industrial, domestic, hazardous, toxic etc?
 - Do you have waste recycling system?
 - Do you have stock yards for waste?
 - Please explain treatment method and the cost.
- Environmental management system
 - Do you have certification of environmental management system ((ISO 14000 series)
 - When did you get the system and how do you manage?
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.
- Others

If you have any problem according to the waste treatment and/or environmental issues, please explain.

ATTN: ZEROX

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
- Solid waste
 - Please explain kind and amount of waste.
 - Do you have system to categorize waste into industrial, domestic, hazardous, toxic etc?
 - Do you have waste recycling system?
 - Do you have stock yards for waste?
 - Please explain treatment method and the cost.
- Environmental management system
 - Do you have certification of environmental management system ((ISO 14000 series)
 - When did you get the system and how do you manage?
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: Cia Auxiliar Viacao Obras S.A.-CAVO (Manaus)

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
 - Please explain mandate and responsibility in the field of environmental management, especially in industrial, domestic waste management.
 - What is your enforcement power and authority to the factory in general area and in MFZ and in PIM? Any difference?
- Experiences of waste treatment
 - Please explain experiences on the practice of domestic and industrial waste (include hazardous and toxic) collection, transport treatment and disposal.
 - Do you have data on quantity of industrial waste baste on its type/classification you treated?
 - Do you have waste recycling system?
 - Do you proceed a voucher transfer system (Waste Management Manifest) ?
- Environmental monitoring and management
 - Do you have any analytical laboratory?
 - What is your issue on industrial waste management?
 - Do you have environmental management department in your

organization?

- How do you execute monitoring of waste treatment?
- Do you have certification of environmental management system ((ISO 14000 series)
- When did you get the system and how do you manage?
- Others
 - Please explain waste treatment cost.
- Regarding proposed JICA study
 - Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: Cia Riogrand. de Saneamento (CORSAN)

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
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 - Do you have environmental management department in your

organization?

- How do you execute monitoring of waste treatment?
- Do you have certification of environmental management system ((ISO 14000 series)
- When did you get the system and how do you manage?

■ Others

- Please explain waste treatment cost.

■ Regarding proposed JICA study

- Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: CETESB (Manaus)

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
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- Environmental monitoring and management
 - Do you have any analytical laboratory?
 - What is your issue on industrial waste management?
 - Do you have environmental management department in your

organization?

- How do you execute monitoring of waste treatment?
- Do you have certification of environmental management system ((ISO 14000 series)
- When did you get the system and how do you manage?

■ Others

- Please explain waste treatment cost.

■ Regarding proposed JICA study

- Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: Industrial Waste Treatment Company A (Manaus)

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
 - Please explain mandate and responsibility in the field of environmental management, especially in industrial, domestic waste management.
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- Environmental monitoring and management
 - Do you have any analytical laboratory?
 - What is your issue on industrial waste management?
 - Do you have environmental management department in your

organization?

- How do you execute monitoring of waste treatment?
- Do you have certification of environmental management system ((ISO 14000 series)
- When did you get the system and how do you manage?

■ Others

- Please explain waste treatment cost.

■ Regarding proposed JICA study

- Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: ESSENCIS (Sao Paulo)

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
 - Please explain mandate and responsibility in the field of environmental management, especially in industrial, domestic waste management.
 - What is your enforcement power and authority to the factory in general area and in MFZ and in PIM? Any difference?
- Experiences of waste treatment
 - Please explain experiences on the practice of domestic and industrial waste (include hazardous and toxic) collection, transport treatment and disposal.
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- Environmental monitoring and management
 - Do you have any analytical laboratory?
 - What is your issue on industrial waste management?
 - Do you have environmental management department in your

organization?

- How do you execute monitoring of waste treatment?
- Do you have certification of environmental management system ((ISO 14000 series)
- When did you get the system and how do you manage?

■ Others

- Please explain waste treatment cost.

■ Regarding proposed JICA study

- Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: Industrial Waste Treatment Company A (Sao Paulo)

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
 - Please explain mandate and responsibility in the field of environmental management, especially in industrial, domestic waste management.
 - What is your enforcement power and authority to the factory in general area and in MFZ and in PIM? Any difference?
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 - Please explain experiences on the practice of domestic and industrial waste (include hazardous and toxic) collection, transport treatment and disposal.
 - Do you have data on quantity of industrial waste baste on its type/classification you treated?
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- Environmental monitoring and management
 - Do you have any analytical laboratory?
 - What is your issue on industrial waste management?
 - Do you have environmental management department in your

organization?

- How do you execute monitoring of waste treatment?
- Do you have certification of environmental management system ((ISO 14000 series)
- When did you get the system and how do you manage?

■ Others

- Please explain waste treatment cost.

■ Regarding proposed JICA study

- Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: Industrial Waste Treatment Company B (Sao Paulo)

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
 - Please explain mandate and responsibility in the field of environmental management, especially in industrial, domestic waste management.
 - What is your enforcement power and authority to the factory in general area and in MFZ and in PIM? Any difference?
- Experiences of waste treatment
 - Please explain experiences on the practice of domestic and industrial waste (include hazardous and toxic) collection, transport treatment and disposal.
 - Do you have data on quantity of industrial waste baste on its type/classification you treated?
 - Do you have waste recycling system?
 - Do you proceed a voucher transfer system (Waste Management Manifest) ?
- Environmental monitoring and management
 - Do you have any analytical laboratory?
 - What is your issue on industrial waste management?
 - Do you have environmental management department in your

organization?

- How do you execute monitoring of waste treatment?
- Do you have certification of environmental management system ((ISO 14000 series)
- When did you get the system and how do you manage?

■ Others

- Please explain waste treatment cost.

■ Regarding proposed JICA study

- Please indicate your opinion on the target waste type in the proposed project, based on the waste category in attached sheet.

ATTN: APEDEMA

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
 - Please explain mandate and responsibility in the field of environmental management, especially in industrial, domestic waste management.
- Experiences of waste treatment
 - Please explain experiences on the execution of IEE/EIA on the domestic and industrial waste collection, transport, treatment and disposal.
 - Do you have experiences on Environmental Monitoring and Management?
 - Do you have experiences of holding/participate the stake-holder meeting?
 - Please explain your environmental monitoring.
 - Please explain experiences of the study on the domestic and industrial waste (include hazardous and toxic) collection, transport treatment and disposal.
 - Experiences of waste treatment / environmental consideration
- Regarding proposed JICA project
 - Please indicate your opinion on the target waste type in the proposed development study, based on the waste category in attached sheet.

ATTN: Bicuda Ecológica

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
 - Please explain mandate and responsibility in the field of environmental management, especially in industrial, domestic waste management.
- Experiences of waste treatment
 - Please explain experiences on the execution of IEE/EIA on the domestic and industrial waste collection, transport, treatment and disposal.
 - Do you have experiences on Environmental Monitoring and Management?
 - Do you have experiences of holding/participate the stake-holder meeting?
 - Please explain your environmental monitoring.
 - Please explain experiences of the study on the domestic and industrial waste (include hazardous and toxic) collection, transport treatment and disposal.
 - Experiences of waste treatment / environmental consideration
- Regarding proposed JICA project
 - Please indicate your opinion on the target waste type in the proposed development study, based on the waste category in attached sheet.

ATTN: NGO A

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
 - Please explain mandate and responsibility in the field of environmental management, especially in industrial, domestic waste management.
- Experiences of waste treatment
 - Please explain experiences on the execution of IEE/EIA on the domestic and industrial waste collection, transport, treatment and disposal.
 - Do you have experiences on Environmental Monitoring and Management?
 - Do you have experiences of holding/participate the stake-holder meeting?
 - Please explain your environmental monitoring.
 - Please explain experiences of the study on the domestic and industrial waste (include hazardous and toxic) collection, transport treatment and disposal.
 - Experiences of waste treatment / environmental consideration
- Regarding proposed JICA project
 - Please indicate your opinion on the target waste type in the proposed development study, based on the waste category in attached sheet.

ATTN: NGO B

Dear Sirs,

Re: Preparatory mission for Industrial Waste Management study
in MFZ, Manaus

We highly appreciate if you kindly spare your time for us to discuss regarding the above noted subject. We thank you in advance for your kind cooperation.

JICA study mission

Proposed visit date: Nov. , 2006

Topics for question and discussion

- Organization and institution
 - Please provide organization chart, number of staff and budget for 5 years.
 - Please explain mandate and responsibility in the field of environmental management, especially in industrial, domestic waste management.
- Experiences of waste treatment
 - Please explain experiences on the execution of IEE/EIA on the domestic and industrial waste collection, transport, treatment and disposal.
 - Do you have experiences on Environmental Monitoring and Management?
 - Do you have experiences of holding/participate the stake-holder meeting?
 - Please explain your environmental monitoring.
 - Please explain experiences of the study on the domestic and industrial waste (include hazardous and toxic) collection, transport treatment and disposal.
 - Experiences of waste treatment / environmental consideration
- Regarding proposed JICA project
 - Please indicate your opinion on the target waste type in the proposed development study, based on the waste category in attached sheet.

収集資料リスト (収集資料/ 専門家作成資料)

主管部長	文書管理課長	主管課長	情報管理課長	技術情報課長	図書館受入日

		プロジェクトID		調査団番号			
地域	南米	調査団名又は専門家氏名	マナウス工業団地産業廃棄物管理改善計画調査詳細設計調査	調査の種類又は指導科目	開発調査 (詳細設計調査)	担当部課	地球環境部
国名	ブラジル	配属機関名	マナウスフリーゾーン監督庁 (SUFRAMA)	現地調査期間又は派遣期間	18年11月11日 ~ 18年12月7日、 20年9月20日 ~ 9月30日	担当者氏名	田村えり子

番号	資料の名称	形態(図書、ビデオ、地図、写真等)	収集資料	専門家作成資料	JICA作成資料	テキスト	発行機関	取扱区分	図書館記入欄
A	法令・基準・統計資料								
A-1	CONAMA Resolution	図書	*				CONAMA	JR CR()・SC	
A-2	ABNT (ブラジルテクニカルスタンダード協会) 10004 固体廃棄物分類 (日本語訳分)	WORDファイル	*				ABNT (JICA事務所にて翻訳)	JR CR()・SC	
A-3	LEI N.º 1532 DE 06 DE JULHO DE 1982 O GOVERNO DO ESTADO DO AMAZONAS (アマゾン州環境法)	PDFファイル	*				アマゾン州	JR CR()・SC	
A-4	LEI N.º 605, DE 24 DE JULHO DE 2001 INSTITUI o Código Ambiental do Município de Manaus e dá outras (マナウス市環境法)	PDFファイル	*				マナウス市	JR CR()・SC	
A-5	Lei Orgânica do Município de Manaus (マナウス市組織法)	図書					マナウス市	JR CR()・SC	
A-6	LISTAGEM DE AUTORIZAÇÕES DADAS ANO 2006	Excel File					IPAAM	JR CR()・SC	
A-7	Inventário_2004 - JICA	Excel File					IPAAM	JR CR()・SC	
A-8	Inventário_2005 - JICA	Excel File					IPAAM	JR CR()・SC	
A-9	RESÍDUOS_2003	Excel File					マナウス市	JR CR()・SC	
A-10	Martha Falcão 21 ago	Excel File					マナウス市	JR CR()・SC	
A-11	IPAAM法・規準	WORD File					IPAAM	JR CR()・SC	
A-12	PROJETO DE LEI (廃棄物国家政策法案)	資料	*				MMA	JR CR()・SC	
A-13	PODER LEGISTIVO ASSEMBLEIA DO ESTADO DO AMAZONAS GABINETE DA DEPUTADA CONCEIÇÃO SAMPAIO (立法権アマゾン州立法議会 CONCEIÇÃO SAMPAIO 議員官房室 : 廃棄物国家政策法案をうけたアマゾン州法の改正案)	資料	*				IPAAM	JR CR()・SC	
A-14	TERMO DE AJUSTAMENTO DE CONDUCTA N.º 006/07/50a PRODEMAPH (行動調整協定書)	資料	*				IPAAM	JR CR()・SC	

収集資料リスト (収集資料/ 専門家作成資料)

主幹部長	文書管理課長	主管課長	情報管理課長	技術情報課長	図書館受入日

		プロジェクトID		調査団番号			
地域	南米	調査団名又は専門家氏名	マナウス工業団地産業廃棄物管理改善計画調査詳細設計調査	調査の種類又は指導科目	開発調査 (詳細設計調査)	担当部課	地球環境部
国名	ブラジル	配属機関名	マナウスフリーゾーン監督庁 (SUFRAMA)	現地調査期間又は派遣期間	18年11月11日 ~ 18年12月7日、 20年9月20日 ~ 9月30日	担当者氏名	田村えり子

番号	資料の名称	形態(図書、ビデオ、地図、写真等)	収集資料	専門家作成資料	JICA作成資料	テキスト	発行機関	取扱区分	図書館記入欄
B	開発計画関連資料								
B-1	Programa Nacional Do Meio Ambinete PNMA II Relatorio de Atividades 2000-2004	図書	*				MMA	Ⓜ CR()・ SC	
B-2	PROSAMIN Proyecto	CD	*				SUHAB/ IDB	Ⓜ CR()・ SC	
C	報告書・技術資料								
C-1	PLANODIRECTOR / CÂMARA MUNICIPAL DE MANAUS	図書	*				MANAUS市商工会	Ⓜ CR()・ SC	
C-2	LEGISLAÇÃO DO MODELO ZONA FRANCA DE MANAUS	CD	*				商工省	Ⓜ CR()・ SC	
C-3	SUFRAM, PIM紹介資料	パンフレット					SUFRAMA	Ⓜ CR()・ SC	
D	廃棄物処理/環境社会配慮関係資料								
D-1	Apresentação PROSAMIM Missão JICA 14.11.06	ppt	*				SUHAB	Ⓜ CR()・ SC	
D-2	Igarape_40	ppt	*				SUHAB	Ⓜ CR()・ SC	
D-3	PROJETO PROSAMIM 11-07-06	図書	*				AMAZONIA VIVA	Ⓜ CR()・ SC	
D-4	apresentacao JICA	図書	*					Ⓜ CR()・ SC	
E	地図								
E-1	Guia Turístico de MANAUS	図書	*					Ⓜ CR()・ SC	
E-2	Mapa Distrito Industrial	図書	*					Ⓜ CR()・ SC	
F	質問票回答		*				主として口述のため回答資料なし		

収集資料リスト (収集資料/ 専門家作成資料)

主管部長	文書管理課長	主管課長	情報管理課長	技術情報課長	図書館受入日

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地域	南米	調査団名又は専門家氏名	マナウス工業団地産業廃棄物管理改善計画調査詳細設計調査	調査の種類又は指導科目	開発調査 (詳細設計調査)	担当部課	地球環境部
国名	ブラジル	配属機関名	マナウスフリーゾーン監督庁 (SUFRAMA)	現地調査期間又は派遣期間	18年11月11日 ~ 18年12月7日、 20年9月20日 ~ 9月30日	担当者氏名	田村えり子

番号	資料の名称	形態 (図書、ビデオ、地図、写真等)	収集資料	専門家作成資料	JICA作成資料	テキスト	発行機関	取扱区分	図書館記入欄
G	ローカルコンサルタント資料		*						
G-1	ECOENOB	見積図書、CD	*				ECOENOB	④ CR ()・SC	
G-2	SGS	図書	*				SGS	④ CR ()・SC	
G-3	AMAZON VIVA	図書、CD	*				AMAZON VIVA	④ CR ()・SC	
G-4	FDB	図書	*				FDB	④ CR ()・SC	
G-5	AVINA	図書	*				AVINA	④ CR ()・SC	
G-6	CETRAM	図書	*				CETRAM	④ CR ()・SC	

8. ローカルコンサルタントリスト

コンサルタントリスト (2006年11月～12月の調査によるもの)

1. インベントリー調査関係

(1) FUCAPI (Foundation-Center for Analysis Research and Technological Innovation) (マナウス)

- 住所・連絡先：Av Danilo Areosa, 381 Distrito Industrial CEP 69075-351
Manaus-AM
Tel (92) 2127 3184、 Fax: (92) 3613 2688、 e-mail : abtrindade@fucapi.br
- 担当者：Mr. Alessandro Bezerra Trindade
- 概要：1982年に設立された非営利の財団で科学技術の振興活動を行っている。1200人のスタッフを擁し、年間の事業規模は7000万リアル以上である。活動内容は教育(高校、技術工専、大学、大学院レベル)、ソフトウェア開発、環境、品質のコンサルティング、機械設計など非常に幅広い。PIMの工場15社についてSUFRAMAと共同でインベントリー調査などを行なった経験も有する。ラボについては機械、電気、騒音などの測定に加えて、化学分析も行っている。

(2) ECOENOB (サンパウロ)

- 住所・連絡先：Avenida Luis Carlos Berrini 1461-8° andar 04571-011, São Paulo
Tel (11) 5505-0288、 Fax (11) 5505-3906
- 担当者：Mr. César Seara (取締役)
- 概要：廃棄物処理・処分に関するコンサルティング・エンジニアリングおよびEIAを含む環境調査。

2. 環境・社会配慮関係

2-1. 環境関係 (IEE・EIA調査)

(1) Garcez Environmental. Ltda. (仮称)(マナウス)

- FIEAMのGarcez氏が会社を設立しIEE調査を行う予定とのこと。
- 住所・連絡先：- Av. Joaquin Nabuco, 1919 – Centro, Tel (92) 3633-3411
E-mail jorge.garcez@internext.com.br
- 担当者：Mr. Jorge Luis Garcez Teixeira
- 概要：環境関連コンサルティング

(2) ECOENOB (サンパウロ)

前述

(3) SGS (サンパウロ)

- 住所・連絡先：-Av. Ver. Alfredo des Neves, 480 Alemoa
Tel (13) 3295 9556、Fax (13) 3296 2921
E-mai joao.brandao@sgs.com、HP：<http://www.br.sgs.com>
- 担当者：João Paulo Brandão（取締役、分析部長）
- 概要：エネルギー、環境調査、に関する設備・配管・構造の清掃整備、油・ガス・化学物質の国際貿易の検査、鉱物貿易の検査、環境・農業・消費者試験に関する評価、副次的な管理業務、システム認証（ISO、OHSAS、SA等）検査、評価、試験、認証

2-2. 社会配慮関係

(1) AMAZON VIVA (NGO) (マナウス)

- 住所・連絡先：- Av. Ayrao, 344 Barrio-Centro, Manaus
Tel (92) 3248 3595 / 3799、Fax (92) 3248 3650
E-mail Sergio.dias@eln.gov.br
- 担当者：Mr. Sérgio Roberto Dias（代表） Ms. Vera Ceminha（総務）
- 概要：州政府や市のプロジェクト実施、講座開講（特に環境教育）住民意識調査、住民移転に関する調査（PROSAMINの調査の経験あり、また Vera Ceminha 女史は JICA 事業経験あり）環境グループで 5 分野の活動（社会配慮、バイオテック、動物エコロジー、森林保護、社会福祉）を実施（環境モニタリングや廃棄物に関する調査経験は無い）。

(2) FUNDACAO DJALMA BATISTA (FDB : NGO) (マナウス)

- 住所・連絡先：- Rua dos Crisantemos n ° 70 – Conj. Tiradentes Barrio Aleixo
Tel (92) 3248 8722 / 3638 3702、Fax (92) 3638 1764
E-mail fdb_shirley@vuvax.com.br
- 担当者：Mr. Jose da Silva Serafico de Assis Carvalho（代表）
Ms. Shirley Mauro Teixeira（総務・経理部長）
- 概要：環境調査や住民意識調査、JICA 業務実施の経験あり（アマゾン川魚類への水銀の影響調査等）

(3) AVINA (NGO) (マナウス)

- 住所・連絡先：- Rua Fortaleza, 201 – Sala 12 – Bloco 1 Adrianopolis
Tel (92) 3232 9041 / 3635 4012
E-mail carlos.miller@avina.net
- 担当者：Mr. Carlos Miller（代表）
- 概要：要請に応じてグループを編成し或いは編成されたグループの支援。環境教育、貧困対策、各種調査・研究（例：生活用水としての雨水の効率的回収活動、糞尿の天

日加温コンポスト化施設の導入活動、食用植物油の燃料化)、住民意識調査や環境調査は実施した経験が無いが実施能力はあると思われる。

(4) SGS (サンパウロ)

前述

3. 調査分析サンプリング関係

3-1. 調査・サンプリング関係

(1) SGS (サンパウロ)

前述

3-2. 分析関係

(1) FUCAPI (Foundation-Center for Analysis Research and Technological Innovation)
(マナウス)

前述

(2)UFAM (アマゾナス連邦大学) (マナウス)

- 住所・連絡先: Av. Gen. Rodrigo Octávio Jordão Ramos, 3000, Campus Universitário, Reitoria, Bairro Coroado I. CEP 69077-000. Manaus/AM
- 担当者: Prof. GENILSON PEREIRA SANTANA
e-mail: genilsonasantana@uol.com.br
- 概要: 化学部のグループがイガラペ 40 の環境研究を続けている。マナウスでは信頼できる分析として認知されている。主たる保有機材は原子吸光。分析単価を受領。

(3) INPA (国立アマゾン研究所) (マナウス)

- 住所・連絡先: Av. André Araújo, 2936, Aleixo, CEP 69060-001, Manaus - AM,
Tel (92)3643 3377, e-mail: ssilva@inpa.gov.br
- 担当者: Ms. Maria do Socorro R. Silva (気候・水資源研究部)
Dr. Hillandia Brandao da Dunha (気候・水資源研究部)
Dr. Sergio Roberto Bulcao Bringel (気候・水資源研究部)
- 概要: 同研究所内の気候・水資源研究部はマナウスで最も信頼できるラボとして認識されており、IPAAM の委託で各種分析を行っている。

(4) SGS (サンパウロ)

前述。日本にも分析所所有

(5) RENOVA

- 住所・連絡先：Av. Renova, 420, Jd. Fazenda Rincão, Aruja – São Paulo,
Tel (11) 4654-2740, www.renovalaboratorios.com.br.
- 概要：ECOENOB 社推薦のラボ

G. Director	T. Director	Officer

Preparatory Study for Development Study

Date: December 5, 2006

1. Title of the Cooperation Project and Name of the Project Proponent

- (1) Title of the Cooperation Project
The Study for the Development of an Integrated Solution Related to Industrial Waste Management in the Industrial Pole of Manaus
- (2) Name of the Project Proponent
Brazilian Cooperation Agency / Ministry of External Relations Federative Republic of Brazil
- (3) Implementing Agency
Superintendency of Manaus Free Zone (SUFRAMA)

2. Categorization and its Reason

Category: B

In the scoping conducted in this preliminary study, 19 environmental and social items are evaluated as B or C accordingly.

There is a possibility to be proposed the construction of final disposal site as analytical result of the master plan study. As this reason, the environmental and social consideration should be carried out appropriately. While the feasibility study on the proposed project would not be carried in JICA study.

3. Outline of the Project and the Location (Population, Ethnicity, Economics, Education, Land use, the Environment, Other socioeconomic situation)

3-1 Outline of the Project

(1) Study Area

Study area is the Industrial Pole of Manaus (hereinafter referred to as "PIM").

Implementing organizations of the Project are as follows;

- 1) SUFRAMA
- 2) Industries Center of Amazonas State (CIEAM)
- 3) Industries Federation of Amazonas State (FIEAM)
- 4) Japanese-Brazilian Chamber of Commerce and Industry of Amazonas State (CCINB-AM)
- 5) Brazilian Cooperation Agency (ABC)

(2) Project Description

The Study will cover the following items:

Phase : Review of the current industrial waste management

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

- 1) Natural conditions (including topography, geology, meteorology, land use, hydrology , water quality , vegetal coveragé and natural resources)
- 2) Social conditions (including population, administrative structures, infrastructure [electricity, water supply, sewerage and drainage system, road, etc.], social 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
 - 4) Environmental impact (soil contamination, groundwater contamination, dust and odor 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(including stake-holder meeting, risk communication)
 - 8) Current system for environmental monitoring
 - 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 and land use for industrial waste management
 - 5) Measures taken for pollution sources (including cleaner production, zero emission, reuse, application of cascade system)
 - 6) Operation and maintenance of related facilities and equipment (collection and transportation equipment, treatment facilities, final disposal sites, etc.)
 - 7) Composition and quantity of the industrial waste (including detail data of factories and maps)
 - 8) Current waste stream of industrial waste management
 - 9) Current situation on illegal dumping
 - 10) Support by other donor agencies
 - 11) Data collection related
 - (4) Environmental and Social Considerations
 - 1) Actual situation of 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) Compensation experiences to the residents and resettlers
 - 5) Management system of hazardous waste and chemical substances such as PRTR and Manifest system

Phase Formulation of Master Plan

- (1) Forecast of future quantity and quality of industrial wastes
- (2) Master Plan for industrial waste management in PIM 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)

(3) Target year

The target year for the Master Plan is 2013 (for 5 years).

3-2 Outline of the Location

Manaus is located around 2,300km northwest of Brasília and 3,400km northwest of São Paulo.

1) Population growth

Population Growth Prospects according to UN statistics is shown in table below. Population Growth of Amazonas State is forecasted as +13% for each year comparing to that of the Brazilian Federation as +7%. This shows that population growth which was concentrated in to southern area will able to shift to northern area such as Amazonas State.

This means that amount of waste will also increase proportionally.

Population Size 1995-2015 (thousands), according to the UN 2000

Year	2000	2005	2010	2015
Amazonas	16,320	18,389	20,781	23,206
Brazil	189,974	203,931	218,987	234,477

UN-HDR Table PopGrowth_9515/1998,

From Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects*

2) Ethnicity

Inhabitants are classified generally into 4 groups: ethnic groups who live in the North and the West, descendants of Portuguese who have immigrated in the 16th century, descendants of Africans who have been taken from Africa as slaves and Europeans and Asians who have immigrated in the 19th century (55% of European-origin, 39% of Murata and Mestizo, 6% of African-origin, 1% of Asian, 0.2% of indigenous ethnic group).

3) Land Use

The Amazon River basin which occupies 1/3 of the country is covered by tropical forest. Campo Serrado is in the Savanna with strong acid soil called marginal land. On the other hand, fertile land called 'Terra Rolla' consists of weathered basalt in the Sao Paulo State area.

4) Land Ownership

Land Ownership in the Amazon area are mainly focused on a few and limited riches and as for PIM/MFZ, state owned as SUFRAMA and companies related without protected area and/or national park. There are huge amount of illegal inhabitants, in particular along with igarapés.

5) Natural condition

Brazil locates at the center of the South American Continent occupying half of the area, 8,547,404km². The central and southern area consist mainly of the Pantanar wet lands and plains, while northern part is covered by tropical forest of the Amazon river basin and Amazon Plato.

Politically, Brazil is divided into 26 states and one federal district.

- The coastal region, which extends from the North to the south along the Atlantic Ocean showing simple coastal line with Rio de Janeiro port, Salvadore port, Recife port, etc.
- Northern area is mainly consists of Pre-Cambrian with ferric rich acidic soil covered with thick forest which conserves abundant natural resources, bio-diversities, flora and fauna, peculiar in Amazon.

SUFRAMA is planning to expand industrial zone as called "district industrial" (DI) to northern area naming as "DI 2". There is possibility that the final disposal site would be constructed around the boundary of DI and DI 2, where it might conflict with the '20km regulation from the airport' according to the result of preparatory study.

In case of final disposal site would be constructed on the area, environmental impacts will be provoked

such as land erosion, underground water & water pollution, soil contamination, waste dumping and odor emission.

4. Legal Framework of Environmental and Social Considerations (Laws, Competent Agency, Project subjected to EIA, Procedures, Information Disclosure and Stakeholders participation)

1) Laws and guidelines on EIA

- a) about the preparation of standards and measured criteria for the environment elements and applying the required basis and instructions to make Environmental Impact Assessment.
- b) about setting the necessary instructions and environmental conditions and specification for agricultural, commercial, industrial, residential and development projects, and the relevant pre-conditions for licensing or re-licensing any of items.

2) Laws related Environment

1) Brazilian Laws related to the Environment (effective date)

- Brazilian Law on Cultural Heritage (November 1937)
- Brazilian Law on Forest (September 1965)
- Brazilian Law on Fauna and Flora (January 1967)
- Brazilian Law on Public Health (September 1967)
- Brazilian Law on Cultural Heritage Area (December 1977)
- Brazilian Law on Urban Land Use (December 1979)
- Brazilian Law on Forest specifically for Industrial Contamination Area (July 1980)
- Brazilian Law on Environmental Conservation Policy (January 1981)
- Brazilian Law on Environmental Conservation Area (April 1981)
- Brazilian Law on Public Prosecution on the Environmental Destruction (July 1985)
- Brazilian Law on National Environmental Fund (July 1989)
- Brazilian Law on Reduction of Air Pollution (October 1993)
- Brazilian Law on Water Resources (January 1997)
- Brazilian Law on Environmental Crime (February 1998)
- Brazilian Law on Environmental Education (April 1999)

2) Amazonas State Laws and Decrees

3) Manus City Regulations

4) Laws and Regulations on EIA

- CONAMA Resolution 001/86 and 237/97
- CONAMA Resolution 006/88
- CONAMA Resolution 19/94 and 20/89
- CONAMA Resolution 305/02 and 308/02
- CONAMA Resolution 313/02
- CONAMA Resolution 330/03
- COSEMA Resolution 19/94
- COSEMA Resolution 20/89

- Brazilian Law on Environmental Impact Assessment (established in 1998 and revised in November 2001)

5) Law related to EIA

The institutional framework for EIA in Brazil reveals a system that is highly centralized and without the local basis that could improve its effectiveness. The key EIA legislation is CONAMA Resolution 001/86.

(List of the criteria, specifications, conditions and regulations available and required to be approved by the Council of Environment Protection)

- 1- Hazardous wastes management system.

- 2- The preliminary list of the prohibited and restricted hazardous chemical materials.
- 3- Hazardous chemical materials management system.
- 4- The manual for hazardous wastes incineration.
- 5- The manual for hazardous wastes burial.
- 6- The standard for safe reuse of sludge resulted from treatment station /2665/.
- 7- The manual for engineering and environmental conditions for industries.
- 8- The general manual for EIA.
- 9- The national plan for emergency, concerning oil pollution.

(2) Reviewing Agency (Authority) for Environmental acceptability

- Ministry of Environment (Ministerio de Meio Ambiente: MMA)
- Environmental Protection Institute of Amazon State (Instituição da Proteção Meio Ambiente do Amazonia: IPAAM)

(3) Procedure of EIA (in General)

- Obtaining a sectoral permit from the relevant Ministry,
- Obtaining an administrative permission from the relevant Government organizations (can only be obtained after an environmental permission has been issued from MMA),
- Scoping stage (alternatives do not need to be considered by proponent),
- Implementation of IEE programme – includes preparation and submission of an IEE (description of project, a baseline description, and prediction of likely impacts),
- Review of IEE Directorate; and
- Decision statement produced by IEE Directorate.

(There is no provision for public participation in the current procedural practices.)

Despite these procedures, where IEE's have been carried out, they have generally been a requirement of donor assisted aid and are therefore carried out to the relevant standards, i.e. World Bank, USAID, EU and JICA etc.

There is no Strategic Environmental Assessment (SEA) statement in the laws of related organizations as MMA, IBAMA, CONAMA etc. However, chief staff of MMA mentioned an idea like SEA concept. SUFRAMA will form a 5 (five) years master plan from industrial waste management with cooperation of the JICA study team in the center of the Amazonas State where the environmental and social consideration should be applied carefully. And, the 'The national plan for emergency, concerning oil pollution' etc. were already established. Therefore, concept of SEA is recommended to be applied on the master plan study.

(4) Information Disclosure and Stakeholders Participation

The information disclosure and stakeholders participation in accordance with JICA guidelines for Environmental and Social Considerations is agreed.

5. Provisional Scoping (Adverse Impacts and Envisioned Mitigation Measures, Alternatives)

(1) Adverse Impact

Table 1 Checklist for Scoping

No	Impacts	Rating	Brief Description
Social Environment			
1	Involuntary Resettlement	C	Construction of waste treatment / disposal facilities
2	Economic Activities	B	Waste pickers will be affected
3	Equipment of Traffic/Public Facilities	B	Some impact by waste transportation
4	Area Isolation	D	No impact
5	Cultural Heritage / Asset	D	No impact
6	Water Right	D	No impact
7	Sanitary	B	Some impact by waste
8	Waste	B	Industrial waste will be transported and disposed.

9	Disaster	C	Final disposal site
Natural Environment			
10	Flora and Fauna	C	Deforestation around final disposal site
11	Topography and Geographical features	B	around final disposal site
12	Land Erosion	B	around final disposal site
13	Underground water	B	around final disposal site
14	Lake and River	C	Some impact by waste and waste water
15	Coastal Area	C	Less impact for Negro river. Scale of facilities is small.
16	Meteorology	D	No impact. Scale of facilities is small.
17	Landscape	B	Scale of the facilities is small and flat. However, waste treatment may be constructed at campestral area.
Pollution			
18	Air Pollution	B	waste treatment (incineration)
19	Water Pollution	B	Around the waste treatment and disposal sites
20	Soil Contamination	B	Around the waste treatment and disposal sites
21	Waste	B	From the waste transportation and disposal
22	Noise and Vibration	C	During construction stage, Noise and Vibration will be occurred.
23	Land Subsidence	D	No impact
24	Odor (Bad Smell)	B	Odor from waste treatment will be considered

Note 1: Evaluation categories

A: Serious impact is expected

B: Some impact is expected

C: Extent of impact is unknown

(Examination is needed. Impacts may become clear as study progress)

D: No impact is predicted. IEE/EIA is not necessary.

Note 2: The evaluation should be made with reference to the “explanation of item”

(2) Overall Evaluation and Study Plan

Table 2 Overall Evaluation Form

Impacts	Evaluation	Study Plan
Involuntary Resettlement	C	Areal survey of settler in the Project area
Economic Activities	B	Activities of waste pickers
Equipment of Traffic/Public Facilities	B	Areal survey of traffic route, public facilities and infrastructure
Sanitary	B	Areal survey in and around the Project site
Waste	B	Areal survey in and around the Project site
Disaster	C	Areal survey in and around the Project site
Flora and Fauna	C	Areal survey and traffic route survey around the Project site
Water Pollution	B	Areal survey of water pollution in and around the Project site
Topography and Geographical features	B	Areal survey of topography and geographical features in the Project area
Land Erosion	B	Areal survey of land erosion in the Project area
Underground water	B	Areal survey of underground water in and around the Project site
Lake and River	C	Areal survey of lake and the Negro river in and around the Project site
Coastal Area	C	Areal survey of the Project site along the Negro river
Landscape	B	Areal survey of landscape in and around the Project site
Air Pollution	B	Areal survey of air pollution in and around the Project site
Water Pollution	B	Areal survey of water pollution in and around the Project site
Waste	B	Areal survey of waste at collecting system, transportation,

Noise and Vibration	C	transfer system and disposal site. Areal survey of noise and vibration at collecting system, transportation, transfer system and disposal site.
Odor (bad smell)	B	Areal survey of odor in and around the Project site
Items classified to D in this provisional study	D	Should be re-examined in the later stage of the study based on the further information and interview.

Note: Evaluation categories

A: Serious impact is expected

B: Some impact is expected

C: Extent of impact is unknown (Examination is needed. Impacts may become clear as study progress)

D: No impact is expected. IEE/EIA is not necessary.

(3) Alternatives

1) Without Project Alternative

If the project will not be commenced, the situation of each environmental item can be supposed as follows.

In case of no project, non hazardous waste as paper, wood, plastics etc. is mostly recycled as it is, and hazardous or toxic waste and sludge which includes heavy metals are sent to Sao Paulo to be treated. Therefore, there is a possibility that the waste is still thrown away illegally on the way of transportation.

There is space to plan two alternatives as follows,

1. to select industrial waste final disposal site at around boundary of the distrito industrial (DI) 2.
2. to send industrial waste to newly built domestic waste final disposal site.

Those alternatives should be evaluated carefully comparing to current system and existing plan.

Table 3 Supposed Environmental Situation without Project

	Environmental Item	Supposed situation without Project
1	Involuntary Resettlement	Nothing happen
2	Economic Activities	No change
3	Equipment of Traffic/Public Facilities	No change
4	Area Isolation	No change
5	Cultural Heritage / Asset	No change
6	Water Right	No change
7	Sanitary	No change
8	Waste	No change
9	Disaster	No change
10	Flora and Fauna	Same as it is
11	Topography and Geographical features	May be worsen by the uncontrolled / untreated sewage water of PIM.
12	Land Erosion	May be worsen by the uncontrolled / untreated sewage water of PIM.
13	Underground water	No change
14	Lake and River	No change
15	Coastal Area	May be worsen by the uncontrolled / untreated sewage water of PIM.
16	Meteorology	Nothing happen
17	Landscape	May be worsen by the uncontrolled / untreated disposal of PIM.
18	Air Pollution	No change
19	Water Pollution	May be worsen by the uncontrolled / untreated disposal of PIM.
20	Soil Contamination	May be worsen by the uncontrolled / untreated disposal of PIM.
21	Waste	No change
22	Noise and Vibration	No change
23	Land Subsidence	May be worsen by the uncontrolled / untreated sewage water of

		PIM.
24	Odor (Bad Smell)	May be worsen by the uncontrolled / untreated disposal of PIM.

6. Examination of Environmental and Social Considerations (budget, organization, personnel and experience of project proponent, framework and operating procedures regarding information disclosure and public participation)

The Team explained JICA environmental and social consideration guidelines, and that it will be applied to the Master Plan Study. SUFRAMA understood the policy of JICA guidelines, and agreed in principle to the following responsibilities and requirements.

- (1) Based on the guidelines, SUFRAMA shall be responsible for conducting Initial Environmental Examination (IEE) for the high priority project(s) in collaboration with the Study Team. The Study Team shall provide SUFRAMA with technical support in order to conduct IEE.
- (2) The information disclosure such as study reports shall be made in order to ensure the public participation and dialogues with various stakeholders, and to achieve appropriate understanding on environmental and social considerations.
- (3) The above-mentioned responsibilities and requirements will also be applied when environmental impact assessment (EIA) is necessary.
- (4) In the course of implementation of the Study, public consultation with communities and stakeholders shall be implemented.

In case resettlement is inevitable in the Master Plan study, SUFRAMA shall be responsible for recommends a resettlement action plan to relevant authority.

2006年12月5日

1. 事業名および事業提案者

- (1) 事業名
マナウス工業団地産業廃棄物管理改善計画調査事前調査
- (2) 事業提案者
ブラジル国際協力庁/ ブラジル連邦外務省
- (3) 実施機関
マナウスフリーゾーン監督庁 (SUFRAMA)

2. 類別化 (カテゴリー化) とその理由

カテゴリー : B

本事前調査におけるスコーピングにおいて、19の環境社会配慮項目がBまたはCに評価された。M/P 調査結果として最終処分場建設が提案される可能性がある。そのため、環境社会配慮が適切に行われる必要がある。なお、本格調査の中では提案事業に関する F/S は実施しない予定である。

3. 事業概要および位置 (人口、民族、経済、教育、土地利用、環境、その他社会経済状況)

3-1 事業概要

(1) 調査地域

調査地域はマナウス工業団地 (以後 “PIM” と称す) 。

事業の実施組織は以下の通り。

- 1) SUFRAMA
- 2) アマゾナス州工業センター (CIEAM)
- 3) アマゾナス州工業連盟 (FIEAM)
- 4) アマゾナス日系商工会議所 (CCINB-AM)
- 5) ブラジル国際協力庁 (ABC)

(2) 事業の詳細

調査は以下の項目について実施する。

(1) フェーズ 1 : 現況把握調査

PIM 及び PIM 周辺の下請業者を対象とした廃棄物管理に関する現状をレビューし、産業廃棄物管理現況調査報告書としてとりまとめる。

1) 調査対象地域 (PIM、マナウス市、アマゾナス州) の現状

- a. 自然状況 (地形、地理、気象、土地利用、水脈及び水質、植生と自然資源等を含む)
- b. 社会状況 (人口、行政機構、インフラ (電気、上下水道、道路等)、地域開発計画 (アマゾナス州、マナウス市)、先住民問題、地域紛争事例等を含む)
- c. 経済状況 (調査対象地域の産業構造等を含む)
- d. PIM の概況 (操業中の各工場の事業概要や製造工程概要を含む)

2) 環境管理の現況

- a. 環境関連の法律・制度 (IEE、EIA、環境基準、排出基準、公害に対する軽減措置を含む)
- b. 環境関連の組織
- c. 産業廃棄物管理・制度

- d.環境負荷の現状（土壌汚染、地下水汚染、大気汚染を含む）
- e.国家、地域環境保全計画の現状
- f.環境意識、環境教育、工場 住民間コミュニケーションの現状
- g.環境モニタリングとエンフォースメントの現状
- h.他ドナーの支援状況

3) 廃棄物管理の現状と課題

- a.廃棄物関連の法律・制度
- b.廃棄物に関する国家・地域計画
- c.廃棄物関連の政府、民間組織と役割
- d.産業廃棄物の排出、保管、収集、運搬、中間処理、最終処分、リサイクル、土地利用の現状
- e.排出源事業者における対応の現状(廃棄物削減など)
- f.廃棄物関連施設・機材の運営状況
- g.廃棄物についての環境意識、環境教育、工場 住民間コミュニケーションの現状
- h.PIM で発生する産業廃棄物の組成と量（各工場の産業廃棄物インベントリーを含む）
- i.PIM における産業廃棄物のフロー(waste stream)
- j.不法投棄の現状
- k.他ドナーの支援状況
- l.その他関連情報の収集

4) 環境・社会配慮

- a.ブラジルにおける環境社会配慮についての概況
- b.環境社会配慮に関する法制度、ガイドライン等
- c.環境社会配慮に関するシステムと関連組織
- d.住民移転における補償の実例
- e.有害廃棄物、有害物質の管理システム（PRTR やマニフェストなど）

(2) フェーズ 2：産業廃棄物管理マスタープラン及びガイドライン案の策定

PIM を対象とした産業廃棄物管理マスタープラン(5 年間)及び産業廃棄物管理改善計画策定の参考となるガイドライン案を策定する。

- 1) PIM において発生する産業廃棄物の組成と量についての推定
- 2) 廃棄物管理のマスタープラン策定
 - a.産業廃棄物管理の枠組み
 - b.産業廃棄物の 3R
 - c.産業廃棄物の処理と処分
 - d.施設整備
 - e.経済・財務分析、評価
 - f.民間セクター活用
 - g.優先プロジェクト
 - h.環境社会配慮

(3) 目標年

マスタープランの目標年は 2013 年 (5 年間)。

3-2 調査位置の概要

マナウスはブラジリアの北西約 2,300km 、サンパウロの北西約 3,400km に位置する。

- 1) 人口増加

UN 統計によるブラジルおよびアマゾナス州の人口増加見込みを次表に示す。ブラジル全土平均の増加率+7%に比較して、アマゾナス州は+13%が見込まれており、従来の南部に集中していた人口増加が今後は北部のアマゾナス州に移動する可能性を示している。

このことは、とりもなおさず廃棄物も比例して増加することを示唆している。

(単位：千人)

年次	2000	2005	2010	2015
Amazonas	16,320	18,389	20,781	23,206
Brazil	189,974	203,931	218,987	234,477

出典：UN-HDR Table PopGrowth_9515/1998 (国連本部 HP 人口統計 PopGrowth_9515/1998)
Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects* より

2) 民族

住民は総体に、北部及び西部に住む民族、16世紀に移住したポルトガル人の子孫、アフリカから奴隷として連れてこられた黒人および19世紀に移住した欧州人およびアジア人の4グループに分けられる(欧州由来 55%、黒人あるいは先住民との混血 39%、アフリカ由来 6%、アジア由来 1%、先住民 0.2%)。

3) 土地利用

全土の1/3を占めるアマゾン川水系は、サンパウロ州の風化花崗岩よりなる「豊かな台地」と呼ばれる肥沃な土地に比して、熱帯森林で覆われているカンポセラードは辺境の地と呼ばれる強酸性のサバンナにあり、広大に広がる濃密な熱帯雨林とアマゾン川の増水期と乾季の水位差の影響により農業は限定される。

4) 土地所有

アマゾン地域の土地所有状況は、国有の熱帯雨林保護地帯および国立公園地域を除くとわずかな富裕層および SUFRAMA 所有の PIM/MFZ に関連する会社が所有している。そこには極めて多くの不法居住者が特にイガラペに沿って住んでいる。

5) 自然条件

ブラジルは南米大陸のほぼ半分、8,547,404km²を占める中央位置に有る。中央部と南部は主としてパンタナール湿地帯および平野からなる。一方、北部はアマゾン川水系の熱帯雨林とアマゾン平原に覆われている。

政治的にブラジルは26の州およびひとつの連邦地区に分割されている。

- ・ 大西洋に沿ってきたから南にのびる沿岸部は、リオデジャネイロ、サルバドール港、レシフェ港等を伴う単純な海岸線を示す。
- ・ 北部は、アマゾン特有の豊かな天然資源、生物多様性、動植物を保全する濃密な森林で覆われた鉄に富む酸性土壌の前カンブリアン紀からなる。

SUFRAMA は、工業地区(“distrit industrial”[DI])と呼ばれる工業地域を北部に「DI2」と名づけて広げる計画を行っている。DI と DI2 との境界あたりに最終処分場を建設する可能性がある。そこは、事前調査の結果、「空港から20km規制」に抵触する可能性がある。

最終処分場がその位置に建設される場合は、土地浸食、地下水および水質汚濁、土壌汚染、廃棄物投棄および悪臭のような環境影響がおこる。

4. 環境社会配慮の枠組み(法、有能な機関、EIAに基づく事業、手順、情報公開および利害関係者の参加)

1) 法およびEIAガイドライン

- a) EIAを行うための環境項目、要求事項および指針の適用基準と測定基準の準備に関すること。

- b) 必要な指針および環境条件および農業、商業、工業、住居ならびに開発事業、さらにはいかなる項目に対する許認可のための事前条件の設定に関すること。

2) 環境関連法（発効年）

- 文化遺産に関するブラジル国法（1937年11月）
- 森林関連ブラジル法（1965年9月）
- 動植物関係ブラジル国法（1967年1月）
- 国民健康に関するブラジル国法（1967年9月）
- 文化遺産地域に関するブラジル国法（1977年12月）
- 都市部土地利用に関するブラジル国法（1979年12月）
- 特に工業汚染地域における森林に関するブラジル国法（1980年7月）
- 環境保全政策に関するブラジル国法（1981年1月）
- 環境保全地域に関するブラジル国法（1981年4月）
- 環境紛争に対する公共訴訟に関するブラジル国法（1985年7月）
- 国家環境基金に関するブラジル国法（1989年7月）
- 大気汚染削減に関するブラジル国法（1993年10月）
- 水資源に関するブラジル国法（1997年1月）
- 環境罪に関するブラジル国法（1998年2月）
- 環境教育に関するブラジル国法（1999年4月）

2) アマゾナス州法及び法令

3) マナウス市規準

4) EIA関連法及び規準

- CONAMA決議書001/86 及び 237/97
- CONAMA決議書006/88
- CONAMA決議書19/94 及び 20/89
- CONAMA決議書305/02 及び 308/02
- CONAMA決議書313/02
- CONAMA決議書330/03
- CONAMA決議書19/94
- CONAMA決議書20/89

- 環境影響評価に関するブラジル法（1998年立法、2001年見直し）

5) EIA 関連法

ブラジルにおける制度上の枠組みは高度に中央集権化し、効果を発揮できる地方分権への基盤がない制度である。EIA 立法の鍵は CONAMA 決議書 001/86 である。

（環境保護議会によって承認されるべく有効で要求された規格、仕様、条件および規準表）

- 有害廃棄物管理制度
- 禁止され制限された有害化学物質の予備表
- 有害化学物質管理制度
- 有害廃棄物焼却マニュアル
- 有害廃棄物埋設マニュアル
- 処理場で発生するスラッジの安全再利用/2665/に関する標準
- 工業に対する工学および環境条件に関するマニュアル
- EIA のための総括マニュアル
- エネルギー、油汚染に関する国家計画

(2) 環境受容可能な（権限）機関の再検討

- ・環境省 (Ministerio de Meio Ambiente: MMA)
- ・アマゾン州環境管理局 (Instituição da Proteção Meio Ambiente do Amazonia: IPAAM)

(3) EIA 手順（一般に）

- ・関連する省からの（関連）分野の許可の入手
- ・関連する政府機関からの行政上の許可（MMAの環境許可発行後に限り入手可能な）の入手
- ・IEEの準備と提出を含む IEE 計画の実施（事業の説明、基盤（背景）の説明および起こりうる影響の予想）
- ・IEE理事会の再確認
- ・EE理事会によって作られる採決書類
（現時点での実施手続き上は、公衆の参加は予定されていない）

上記手順にもかかわらず、IEEが実施されている場所においては一般にドナーの支援が必要で、そのため、世銀、米国援助機関、EUおよびJICA等の関連機関の基準に基づいて実施される。

MMA、IBAMA、CONAMA 等の関連機関の法には戦略的環境評価(SEA)に関する記述は無い。しかしながら、MMAのチーフはSEAの概念に似た考えを調査団に述べた。SUFRAMA は、JICA 調査団の協力の下に、環境社会配慮が慎重に適用されるべきアマゾナス州の中心部における産業廃棄物に関する5年間のマスタープランを策定する。また、油汚染に関する非常事態のための国家計画等が立てられている等から、SEAの概念がマスタープラン調査において適用されることを提案する。

(4) 情報公開及び利害関係者の参加

環境社会配慮のためのJICAガイドラインに関する情報公開及び利害関係者の参加が同意された。

5. 予備的スコーピング（負の影響と予想される削減法、代替案）

(1) 負の影響

Table1 1 スコーピングのためのチェックリスト

No	影響	評価	概要
社会環境			
1	非自発的住民移転	C	廃棄物処理/処分場建設。
2	経済活動	B	廃棄物回収業が影響を受ける。
3	交通/公共施設	B	廃棄物運搬によるある程度の影響。
4	地域分断	D	影響なし。
5	文化遺産	D	影響なし。
6	水利権	D	影響なし。
7	健康	B	廃棄物によるある程度の影響。
8	廃棄物	B	産業廃棄物が運搬廃棄される。
9	災害	C	最終処分場。
自然環境			
10	動植物	C	最終処分場周辺の森林伐採。
11	地形及び地質上の特徴	B	最終処分場近辺。
12	土地浸食	B	最終処分場近辺。
13	地下水	B	最終処分場近辺。
14	湖及び河川	C	廃棄物及び浸出水によるある種の影響
15	沿岸部	C	ネグロ川への多少の影響、若干の設備への影響。
16	気象	D	影響なし、設備の影響は小さい。

17	景観	B	設備は小規模であるが、田園地域に建設される。
公害			
18	大気質汚染	B	廃棄物処理（焼却）。
19	水質汚濁	B	廃棄物処理および処分場周辺。
20	土壌汚染	B	廃棄物処理および処分場周辺。
21	廃棄物	B	廃棄物運搬および廃棄から。
22	騒音・振動	C	建設時に、騒音・振動が発生。
23	地盤沈下	D	影響なし。
24	悪臭	B	廃棄物処理で発生する悪臭が考えられる。

注1：評価カテゴリー

A: 深刻な影響が予想される。

B: 若干のある種の影響が予想される。

C: 影響の広がり未知。(調査が必要、影響は、調査が進むにつれ明確になる)

D: 影響無しが予想される。IEE/EIA は必要なし。

注2: 評価は、「項目の説明」を参照することで行われる。

(2) 評価の概要及び調査計画

Table 2 評価概要表

影響	評価	調査計画
非自発的住民移転	C	事業地域における移転住民調査
経済活動	B	廃棄物回収者の活動
交通/公共施設	B	輸送経路、公共設備及びインフラの地域調査
健康	B	事業地域内外の地域調査
廃棄物	B	事業地域内外の地域調査
災害	C	事業地域内外の地域調査
動植物	C	事業地域の調査及び運搬経路の調査
水質汚濁	B	事業地域内外の水質汚濁調査
地形および地質的特長	B	事業地域の地形及び地質的特長調査
土地浸食	B	議場地域の土地浸食調査
地下水	B	事業地域内外の地下水汚濁調査
湖及び河川	C	湖沼およびネグロ川周辺調査
沿岸地域	C	ネグロ川沿いの事業地域調査
景観	B	事業地域内外の景観調査
大気汚染	B	事業地域内外の大気質汚染調査
水質汚濁	B	事業地域内外の水質汚濁調査
廃棄物	B	廃棄物収集、輸送、中継および処分場における調査
騒音及び振動	C	廃棄物収集、輸送、中継および処分場における騒音及び振動調査
悪臭	B	事業地域内外の悪臭調査
本事前調査での D 評価項目	D	その後の段階における追加情報および聞き取り調査に基づいた再評価が必要

注：評価カテゴリー

A: 深刻な影響が予想される。

B: 若干のある種の影響が予想される。

C: 影響の広がり未知。

(調査が必要、影響は、調査が進むにつれ明確になる)

D: 影響無しが予想される。IEE/EIA は必要なし。

(3) 代替案

1) 事業を実施しない場合

もし事業を実施しない場合は、各環境項目の状況は以下のように推定される。

事業を実施しない場合は、紙、木材、プラスチック等の非有害廃棄物は現状どおりリサイクルされ、重金属を含む有害あるいは有毒廃棄物およびスラッジは処理のためにサンパウロへ送られる。したがって、廃棄物は依然として輸送途中で不法に投棄される可能性がある。

下記の二つの代替案の余地がある、

1. 産業廃棄物最終処分場が DI2 の境界周辺に選定される。
 2. 産業廃棄物が新しく建設される一般廃棄物処分場へ送られる。
- これらの代替案は、現状の制度および現有の計画と注意深く比較の上評価されるべきである。

Table 3 Supposed Environmental Situation without Project

	環境項目	事業が行われない場合の考えられる状況
1	非自発的住民移転	発生しない
2	経済活動	変化なし
3	交通/公共施設	変化なし
4	地域分断	変化なし
5	文化遺産	変化なし
6	水利権	変化なし
7	健康	変化なし
8	廃棄物	変化なし
9	災害	変化なし
10	動植物	現状維持
11	地形及び地質上の特徴	未処理の下水によって悪化する。
12	土地浸食	未処理の下水によって悪化する。
13	地下水	変化なし
14	湖及び河川	変化なし
15	沿岸部	未処理の下水によって悪化する。
16	気象	変化なし
17	景観	未処理の廃棄物によって悪化する。
18	大気質汚染	変化なし
19	水質汚濁	未処理の廃棄物によって悪化する。
20	土壌汚染	未処理の廃棄物によって悪化する。
21	廃棄物	変化なし
22	騒音・振動	変化なし
23	地盤沈下	未処理の下水によって悪化する。
24	悪臭	未処理の廃棄物によって悪化する。

6. 環境社会配慮調査（予算、組織、事業提案者の人員および経験、情報公開および公衆参加に関する枠組み及び手順）

調査団は JICA の環境社会配慮ガイドラインを説明し、マスタープラン調査に適用されることを説明した。SUFRAMA は JICA のガイドラインの政策を理解し、下記の責任と要求に関する原則に同意した。

- (1) SUFRAMA は、ガイドラインに基づき、調査団に協力して事業の最優先度のために初期環境調査（IEE）が行われることについて責任を持つ。調査団は SUFRAMA に IEE を実施するための技術支援を提供する。

- (2) 環境社会配慮の適切な理解を得るために住民参加を確実にし、種々の利害関係者との対話ならびに調査報告書のような情報の公開が行われる。
- (3) 上記の責任と要求は、環境影響評価（EIA）が必要な場合にも適用される。
- (4) 調査が実行される中で、地域共同体と利害関係者との公聴会が行われる。

マスタープラン調査で、住民移転が排除できない場合は、SUFRAMA は住民移転行動計画を所管官庁に提言する責任を持つ。

2002年10月29日付き、決議書 № 313

全国産業固体廃棄物インベントリー調査を規定する

CONAMA (国家自然環境審議会) は 1981 年 8 月 31 日付き法令 6938 号及び 1990 年 6 月 6 日付き政令 99274 号によって与えられた権限の行使並びに 1994 年 12 月 15 日付き省令アネックスの内規に基づき、

産業固体廃棄物管理国家計画及び州レベルプログラム策定の必要性に鑑み、

工業団地で全国的に発生している固体廃棄物の量、種類及び最終処置に関する正確な情報の欠乏に鑑み、

同廃棄物が人体及び自然環境に有害な特徴を有する可能性を持っている事実に鑑み、

産業廃棄物の管理を目的とした国家方針の策定には、既存の、又発生しつつある産業廃棄物のインベントリー調査を行うことが重要である事実に鑑み、

産業固体廃棄物全国インベントリー調査が廃棄物管理政策の一手段であることを考慮し、

以下の事柄を規定する：

1 条 - 産業活動から発生されつつある廃棄物、又既存の廃棄物は、環境ライセンス取得プロセスの一環して特殊管理の対象となる。

2 条 - 本決議書では以下の表現を用いる：

I - 産業固体廃棄物：工業活動から発生する全ての固体、半固体、閉じ込められた状態でのガス状及び液状廃棄物で、その特殊性により、下水道や川湖海に直接流すことができないか、既存の最良の技術を踏まえても、流せるようにするための経済・技術的解決策が不可能な物。本定義に上水浄化システム並びに公害管理施設及び機材から発生する汚泥も含まれる。

II - 全国産業固体廃棄物インベントリー調査：国の産業が発生する固体廃棄物の発生、特徴、保管、運搬、処理、再利用、リサイクル、回復及び最終廃棄に関する総合的な情報である。

3 条 - Polychlorinated biphenyl - PCBs を含有する道具及び機材を所有する企業及び電力会社は IBAMA - ブラジル再生可能天然資源・自然環境院が定める期限及び形式に従い、同物質のストック・インベントリーを州環境機関に通知する。

4 条 - IBGE (ブラジル地理統計院) の全国経済活動分類表 (Classificação Nacional de Atividades Econômicas) で規定されている次のタイプの製造業は、州自然環境機関の定める期間又は本決議書公布日より 1 年以内に、同機関に、固体廃棄物の発生、特徴、保管、運搬及び最終処置に関する情報を、アネックス I 及び III に従って提出する。

- I - 皮処理及び皮製品、旅行道具及び履物製造 (19 部)
- II - coke 製造、石油精製、核燃料製造及びアルコール生産 (23 部)
- III - 化学製品製造 (24 部)
- IV - 基礎製鉄 (27 部)
- V - 金属製品製造。 機械・機材は除く (28 部)
- VI - 機械・機材製造 (29 部)
- VII - 事務製品及び情報処理機材製造 (30 部)
- VIII - 自動車、牽引車、荷台製造及び組み立て (34 部)
- IX - その他の輸送機材製造 (35 部)

1 項 - 本条で規定されている情報を州環境機関に提出し、その後、24 ヶ月毎或いは同機関が定める期間毎に更新する。

2 項 - 州環境機関は、本条がリストアップする製造業の外、各州の特徴及び特殊性に基づき他の製造業を対象リストに含めることができる。 その場合、本条の定めに従い、新たに含めた製造業のタイプに関する情報を IBAMA に通知する。

3 項 - 州環境機関は、本条が定める製造業のリストの中で、各州の特徴及び特殊性に基づき、廃棄物の発生量を基準に、インベントリーを行う工業タイプの範囲を狭めることができる。

5 条 - 工場は秘密と見なす情報を特定する。

6 条 - 州環境機関は、本決議書公布日より 2 年以内に 2 条で規定しているインベントリー調査に関するデータを IBAMA に、同機関が定める形式で提出する。

1 項 - 本条が規定する情報は、IBAMA の定める形式に従い、24 ヶ月毎に更新される。

2 項 - 本決議書のアネックスは、IBAMA と州自然環境機関との共同決定に基づき、2 年に一回見直すことができる。

7 条 - IBAMA と各州自然環境機関は、各自の権限の範囲内で、調整し合いながら、本決議書公布日より 3 年以内に“ 州産業廃棄物管理プログラム ” を策定し、4 年以内に“ 産業廃棄物国家計画 ” を策定する。

8 条 - 全国産業廃棄物インベントリー調査のためのデータ収集を目的として、各工場は、本決議書公布日より 60 日以内に廃棄物の発生及び最終処置に関するデータを記録し工場に保管する。

9 条 - 本決議書の規定を厳守しない場合、違反者は 1998 年 2 月 12 日公布の法令 9605 号並びに 1999 年 9 月 21 日公布の政令 3179 号で規定されている刑罰の対象となる。

10 条 - 1988 年 6 月 15 日公布の CONAMA 決議書 006 号は撤回される。

11 条 - 本決議書はその公布日より施行される。

MÔNICA MARIA LIBÓRIO

(署名)

アネックス I

全国産業固体廃棄物インベントリー調査 総合的説明及び情報

本書き込み用紙は、貴下の工業活動より発生する固体廃棄物に関する情報収集のために作成された。

この問題に関する正確な情報を得ることは、国が廃棄物の現況を把握し、産業廃棄物管理方針策定を行う上で重用である。

本書き込み用紙記入説明：

1. 各質問の基準に応じて解答欄を記入する。
2. “ その他 ” というオプションを選んだ場合には、説明を加える。
3. 解答欄のスペースが不十分な場合は別紙添付する。 コンピュータを使って回答する場合は行量を増やす。
4. 記入に必要なコード番号は、本書き込み用紙のアネックスにある。
5. 記入に必要な正確な知識を持たない人は、資格のある工業専門家の協力を求めて記入する。

本書き込み用紙を記入する適任者は工業プロセスの責任者である。

6. 工業活動の廃棄物は、再利用・再生されるか否かに拘らず、全て記入の対象となる。工業プロセスより発生する全ての廃棄物は、副産物をも含めて、記入の対象となる。

7. 情報の対象期間は1年間遡及する。

8. 貴下の活動が工業活動で無い場合には、そこで展開している活動に関する表明書を環境機関に郵送する。

9. 活動が停止している場合には、停止期日を含めた停止証明書を環境機関に郵送する。

10. 貴下の工場から発生する廃棄物をアネックス II を参照しながら確認し、廃棄物のコード及びタイプを選択する。廃棄物コードの記入は本決議書と“ ABNT NBR 10.004 - 固体廃棄物 - 分類 ”を参考にしながら行う。アネックス II の記述が貴下の工場の廃棄物の特徴を表現するのに不十分な場合には、発生源別に詳述用表“ 廃棄物詳述 ”欄を使用するか又は ABNT NBR 10004 を使用すべし。コード A011, A099, D001, D002, D003, D004, D099 及び D199 を使用する場合には、廃棄物がどのような物質で構成されているかも併せて記述せよ。

11. 保管タイプを表示するコードはアネックス III (システムー保管)にある。現在発生中の廃棄物には“ S ”を使用し、現在発生していない廃棄物には“ Z ”を使用する。

12. 廃棄物の最終廃置を表示するコードはアネックス III にある。記入の際疑問が生じた場合は“ 廃棄物インベントリ－調査対応センター ”まで問い合わせる。

工場に関する総合的情報。

I - 工場の正式社名

税務署登録の正式社名を正確に記入する。

II - 工場の住所

工場の道の名(通り、大通り、公園、その他) 番号、区域・団地名、CEP(郵便住所コード)番号及び市名、州納税登録番号及び CNPJ(国家法人納税登録番号)

III - 郵便用住所

市名及び工場の電話を含めた郵便宛先住所を記入する。

IV - 技術者名

記入したデータに疑問が残る場合に詳しい説明ができる者のデータ。名前、役職、メール・アドレス、電話・ファックス番号を記入する。

V - 工業活動の特徴

項目 1 :

工場主活動の記述。表面加工段階(phosphatezation, galvanoplast, etc.)又はペンキ塗りの有無等の基本的な特徴を記述せよ。例えば：ペンキ塗り及び galvanoplast を行う金属製品製造。

CNAE (全国経済活動コード)欄は環境機関が記入する。

項目 2 :

工場の稼働状況。1年に何ヶ月、1ヶ月に何日及び1日に何時間稼働するかを記入する。

項目 3 :

工場の生産部門、事務部門及び他の部門別に従事している従業員数を記入する。

項目 4 :

工業活動に使用している全面積を含めた工場有効総面積を平米単位で記入する。

項目 5 :

GPS の使用又は Mercator Universal Projection (これは地図に表記されている) 地図を使用して特定した工場プラントの地理的位置を記入する。

会社責任者名。

会社の責任者名を役職と共に記入する。

最後に、日付を書き込み、記入した情報が事実であることを表明するために判子を押し、署名する。

工場の総合的情報		
I- 工場の正式社名:	対象期間	
	開始	終了

II - 工場の住所:

道名/番号:	
区域・団地名 :	CEP (郵便住所コード):
市名:	連絡用電話番号:
州納税署登録番号:	CNPJ (国家法人納税登録番号):

III - 郵便宛先住所:

道名/番号:	
区域・団地名 :	CEP (郵便住所コード):
市名:	電話番号:

IV – 技術者名:

氏名:	役職:
メールアドレス:	
連絡用電話番号:	ファックス番号:

V – 工業活動の特徴:

1. 工場の主活動:	CNAE コード:		
2. 稼働期間:			
1日に稼働時間:	1ヶ月の稼働日量:	1年の稼働月量:	
3. 工場の次の部門の従業員量:			
生産部門:	事務部門:	他の部門:	
4. 有効建築総面積(平米):			
5. 工場プラントの地理的位置:	緯度	経度	
	度:	分:	度: 分:

VI – 会社の責任者名:

氏名:	役職名:
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本書き込み用紙に記入した情報は事実に基づくことを、法律の刑罰に懸け、表明します。

___年___月___日

署名:

工場の生産プロセスに関する情報

原料とは、一定の製品の主要及び不可欠物質で、精製又は加工プロセスを経てその製品を形成するもの。 例えば製鉄、サトウキビ、皮等。

資材とは、原料を加工又は精製する生産プロセスの一環となる物質である。 例えば化学製品、洗剤。

項目 VII

貴下の工場で使用した原料及び資材をリストアップし、最終年に使用した総量並びに工場の最高使用量を単位 (t , m³ , Kg , L , 個量 , その他) で示して記載する。 化学物質は、商業ネームでは無く、化学的名称で表示する。

項目 VIII:

工場で最近の 12 ヶ月間生産した製品量及び工場の最高生産量を単位を明示して示す。

工場の生産プロセスに関する情報

VII 使用する原料及び資材をリストアップする。

原料及び資材	現在量 (年間)	最高生産量 (年間)	単位
(以下、表は省略)			

VIII 工場の年間生産量を示す。

製品	現在の生産量 (年間)	最高生産量 (年間)	単位
(以下、表は省略)			

産業固体廃棄物は工業活動から発生する全ての固体、半固体、閉じ込められた状態でのガス状及び液状廃棄物で、その特殊性により、下水道や川湖海に直接流すことができないか、既存の最良の技術を踏まえても、流せるようにするための経済・技術的解決策が不可能な物。 本定義に上水浄化システム並びに公害管理施設・機材から発生する汚泥も含まれる。

固体廃棄物は危険性、不活性及び非不活性廃棄物に分類される。

IX 工場の生産プロセスを段階ごとに示し、各段階の横にプロセスを詳述し、どの時点で固体廃棄物が発生するかを明確化した表を提出する。(必要なだけの紙を使用する)

工場が 1 つ以上の生産ラインを持つ場合には必要なだけの表を提出する。

工場の生産プロセスの段階

IX . 生産プロセスの全段階をリストアップせよ。

段階	記述
1.	

(以下、表は省略)

最近の 12 ヶ月間に発生した固体廃棄物に関する情報

項目 X:

最初にアネックス II に基づいて廃棄物を記述する。 後、最近の 12 ヶ月間に発生した廃棄物の各タイプに関する次の情報を記入せよ。

1. 保管法
2. 工場での処理法
3. 以下の記述のように工場/処置外の処理法

注：工場が販売又はただで供与する廃棄物も含める。最近の 12 ヶ月間に工場が発生した各タイプの廃棄物に対し 1 枚のカードを用いる。 必要なだけ、何回でも記入せよ。

1. 保管法に関する欄

- 1.1 保管の記述。 アネックス III (保管システム) の表に基づいた保管の記述
- 1.2 最終廃置。 廃棄物の特定した最終廃置があるのか、最終廃置がないのかを記入せよ。
- 1.3 工場の敷地。 保管は工場の敷地内でされているのかを記入せよ。工場の敷地外で保管されている場合は、以下の適切な欄に廃棄物が保管されている地理的位置を記入せよ。
- 1.4 量/年。 工場が最近の 12 ヶ月間発生した廃棄物量をトン数で記入せよ。
- 1.5 物理的状态。 廃棄物が固体なら “S”、閉じ込められたガス状なら “G”、半固体及び粘着性なら “P”、液状なら “L” と記入する。 液状の場合は、その特殊性により、下水道や川湖海に直接流すことができないか、既存の最良の技術を踏まえても、流せるようにするための経済・技術的解決策が不可能な物。
- 1.6 位置。 廃棄物の保管が工場敷地外で行われている場合は、記入した量の廃棄物が保管されている地理的位置を示せ。

注: 保管タイプを示すコードはアネックス III (システム - 保管) に記載されている。

発生した固体廃棄物に関する情報

保管の仕方

X. アネックス II に基づいた廃棄物の記述。 その後、アネックス III に基づいた保管の仕方に関する記述。

廃棄物コード:	廃棄物の詳述:

1.保管の仕方	保管タイプ:	工場の敷地内に?			
		イエス		ノー	
量(トン/年) 量/年 (トン)	物理的状态	保管地の地理的位置			
		緯度		経度	
		度:	分:	度:	分:

(以下表は省略)

発生した廃棄物に関する情報

工場内処理、再利用、リサイクル又は最終廃置

2. 工場内処理に関する欄は:

2.1 アネックス III に基づく廃棄物の処理、再利用、リサイクル又は回復に関する記述

2.2 量/年、工場が最近の 12 ヶ月間に発生した廃棄物量を、トン数で記入する。

注: 廃棄物の処理、再利用、リサイクル、回復又は処置に関するコードタイプを選定するにはアネックス III を参照する。

発生した固体廃棄物に関する情報 - 処置: 処理、再利用、リサイクル又は工場内での最終廃置。

2. 項目 X で記入した廃棄物が何らかの形で処理、再利用、リサイクル又は最終廃置を受ける場合には、次の情報を提供せよ。その場合、必要なだけのカードを記入すべし。

1. 工場内での処理、再利用、リサイクル又は最終廃置		
コード	記述	量(ton/年)
2. 工場内での処理、再利用、リサイクル又は最終廃置		
コード	記述	量(ton/年)

(以下表は省略)

発生した固体廃棄物に関する情報

処置: 工場外での処理、再利用、リサイクル又は最終廃置

3. 工場外での廃棄物の処置/処理に関する欄は次である。

3.1. 工場外での廃棄物の処理、再利用、リサイクル又は最終廃置のコードはアネックス III の表

に記載している。

3.3. 工場外での廃棄物の処理、再利用、リサイクル又は最終廃置の記述はアネックス III の表に記載している。

3.3. コード及び記述でアイデンティフィケーションされている廃棄物の次の情報を提出する：

a) 受け入れ会社の正式会社名/名前、州納税局登録番号、連邦納税署登録番号、環境ライセンス番号、住所、他。この欄には廃棄物を受け入れる側のデータを記入せよ。

b) 物理的状态。廃棄物が固体なら“S”、閉じ込められたガス状なら“G”、半固体及び粘着性なら“P”、液状なら“L”と記入する。液状の場合は、その特殊性により、下水道や川湖海に直接流すことができないか、既存の最良の技術を踏まえても、流せるようにするための経済・技術的解決策が不可能な物。

c) 量/年。最近の12ヶ月、受け入れ先へ出した廃棄物量をトン数で記入する。

3.4. 受け入れ先の地理的位置：廃棄物受け入れ先の地理的位置（緯度：度及び分、経度：度及び分）を記入する。

発生した廃棄物に関する情報

処置：工場外での廃棄物の処理、再利用、リサイクル又は最終廃置

3. 項目 10 において提供した情報の対象となった廃棄物の一部が工場外へ出されている場合には次の図の欄を記入せよ。

1.工場外での廃棄物の処理、再利用、リサイクル又は最終廃置			
処置コード		処置の記述	
処置 1:			
処置 1 の正式会社名/名前	州納税局登録番号	連邦納税署登録番号	環境ライセンス番号
処置 1 の住所			
道路名/番号	市名	郵便住所コード	

メールアドレス	電話	ファックス
	()	()
量(ton/年) 量/年	物理的状态:	場所の地理的位置
		緯度 経度
		度: 分: 度: 分:

(以下表は省略)

前年に発生した廃棄物

項目 XI

保管場所とは関係なしに、前年発生し現在貴会社の責任下にある廃棄物。

1. 前年発生し、現在貴会社の管理下にある廃棄物。

1.1. 廃棄物の記述。 アネックス II に基づく記述。 廃棄物のタイプ毎に以下のカードを記入する。

1.2. 保管の記述。 アネックス III (保管システム) の保管表に基づいて記入。

1.3. 工場の敷地欄には廃棄物の保管が工場の敷地内で行われているか否かを記入する。 敷地外の場合には以下の適切な欄に廃棄物保管場所の地理的位置を記入する。

1.4. 量/年。 工場が最近の 12 ヶ月に発生した廃棄物量をトンで記入する。

1.5. 物理的状态。 廃棄物が固体なら“S”、閉じ込められたガス状なら“G”、半固体及び粘着性なら“P”、液状なら“L”と記入する。 液状の場合は、その特殊性により、下水道や川湖海に直接流すことができないか、既存の最良の技術を踏まえても、流せるようにするための経済・技術的解決策が不可能な物。

1.6. 保管場所の地理的位置。 廃棄物保管が工場の敷地外で行われている場合には、提供した情報の対象となった廃棄物の保管場所の地理的位置(緯度:度及び分、経度:度及び分)を記入する。

前年発生した廃棄物のタイプ毎に新たなカードを使って記入せよ。

前年発生した廃棄物

XI. アネックス II に基づき廃棄物を記述せよ。その後、アネックス III に基づき保管の仕方に関するデータを記入せよ。

前年発生し、工場の管理下にある廃棄物。			
廃棄物コード:		廃棄物の記述	
1.保管の記述		工場の敷地内で?	
		イエス ノー	
量(ton/年)	量/年 (ton)	物理的状態:	場所の地理的位置
			緯度
			経度
		度: 分:	度: 分:

アネックス II

産業固体廃棄物

廃棄物コード	廃棄物の記述
	II クラス又は III クラス
A001	レストランの廃棄物 (残飯)
A002	工業プロセス外の廃棄物 (事務所、包装、その他)
A003	工場の掃除から発生する廃棄物
A004	鉄金属スクラップ
A104	金属缶 (空き缶)
A204	金属ドラム缶
A005	非鉄金属スクラップ (ブリキ缶、その他)
A105	非鉄金属缶 (空き缶)

A006	紙・ボール紙廃棄物
A007	ポリマー・プラスチック廃棄物
A107	汚染されていないプラスチック製圧縮ガス入れ
A207	プラスチック製のフィルム及び小さな包装袋
A008	ゴム廃棄物
A108	Vinyl ethyl acetate 廃棄物 (EVA)
A208	Poliuretane 廃棄物(PU)
A308	泡
A009	非毒性物質を含んだ材木廃棄物
A010	繊維性廃棄物
A011	非金属鉱物廃棄物
A111	ボイラー灰
A012	アルミニウム溶融スコリア
A013	鉄及び鋼鉄生産スコリア
A014	真鍮溶融スコリア
A015	亜鉛溶融スコリア
A016	鑄造砂
A017	セラミック製品及び耐火材廃棄物
A117	ガラス廃棄物
A018	非毒性金属で構成された個体廃棄物
A019	非毒性生物物質を含有した排水処理施設からの固体廃棄物
A021	非毒性物質を含有した排水処理施設からの固体廃棄物
A022	非毒性生物物質を含有した排水処理施設からの粘着性廃棄物
A023	石灰を含有した粘着性廃棄物
A024	サトウキビかす
A025	ガラスファイバー
A099	その他の非危険性廃棄物
A199	塩気のある屑
A299	石灰でなめした皮の屑

A399	樹皮でなめした皮の切れ端、屑
A499	carosity
A599	プロセスの有機廃棄物(脂、血清、骨、血液、食料加工業のその他、他)
A699	米の籾殻
A799	樹皮でなめした皮の粉、おがくず
A899	石灰性汚泥
A999	果実の廃棄物 (かす、皮、果汁、その他)
A026	非毒性物質を含んだ jateamento スコリア
A027	非毒性物質を含んだ使用済みの catalyser
A028	ガス発散管理システムからの非毒性物質 (沈殿物質、filtering bag、その他) を含んだ廃棄物
A029	非危険性物質を含んだ有効期限切れ製品又はスペック外の製品

注：

1. 上記コードは廃棄物が事前的に危険性廃棄物と分類されなかった場合にのみ使用する。
例：Parathion 包装所の清掃から出る廃棄物には D099 又は D089 のコードを使用し、A 003 は使用しない。

2. NBR 10004 のリスト 5 番、6 番に記載されている物質で汚染されているからの梱包は危険性物質と分類される。

I クラス	
C001 か C009	リスト 10 番 - NBR 10004 規則リスト 10 番が示す以上の濃度をもち、溶解試験及び /又は浸出試験を行わない揮発性物質を含有しているため危険とみなされる廃棄物。
D001	可燃性を示すため危険とみなされる廃棄物
D002	侵食性を示すため危険とみなされる廃棄物
D003	反応性を示すため危険とみなされる廃棄物
D004	病原性を示すため危険とみなされる廃棄物
D005 a D029	NBR 10004 規則のリスト 7 番: 浸出試験によって特徴付けられる危険性廃棄物
K193	クロムでなめした皮屑

K194		クロムを含有する皮粉
K195		クロムでなめすプロセスから出る排水の処理所からの発生する汚泥
F102		NBR 10.004 規則で特定されていない catalyser からの廃棄物
F103		NBR 10.004 規則で特定されていない工業ラボ（化学製品）から出る廃棄物
F104		NBR 10.004 規則で特定されていない汚染された空の梱包
F105		汚染された溶剤(溶剤及び主な汚染物質を特定すべし)
D099		その他の危険性廃棄物 特定すべし
F001 F030 ¹	a	NBR 10004 規則のリスト 1 番- 発生源が特定されていない危険性が認知済みの廃棄物 - クラス I
F100		Polichlorinated biphenyl – PCBs. capacitor and transformer も含めて PCBs で汚染された梱包
P001 P123	a	NBR 10004 規則のリスト 5 番 - 高毒性物質（リスト 5 番の物質で汚染されている梱包、汚染土壌及び流出廃棄物、スペック外の製品又は NBR 10.004 規則リスト 5 番の物質を含むため販売禁止となっている製品）を含有しているため危険とみなされる廃棄物
K001 K209	a	NBR 10004 規則のリスト 2 番 - 発生源が特定されている認知済みの危険性廃棄物
K053		ペンキ及び色素のかす及び残り
K078		ペンキ生産で溶剤を使った掃除から発生する廃棄物
K081		ペンキ生産所の排水処理施設から出る汚泥
K203		病気研究ラボから発生する廃棄物
K207		使用済み油（酸性かす）の再精製から出るかす
U001 U246	a	NBR 10004 規則のリスト 6 番 - 毒性物質(汚染土壌又は流出からの廃棄物、スペック外の製品又は NBR 10.004 規則リスト 6 番の物質を含むため販売禁止となっている製品）を含有しているため危険とみなされる廃棄物。

注：廃棄物が F030 と分類されたら、以下のコードを使用すべし：

使用済みの潤滑油には F130

油圧系液体には F230

カット・加工業からの油には F330；

絶縁又は冷蔵で汚染された使用済みの油には F430；

水と油の分離システムの油状廃棄物には F530

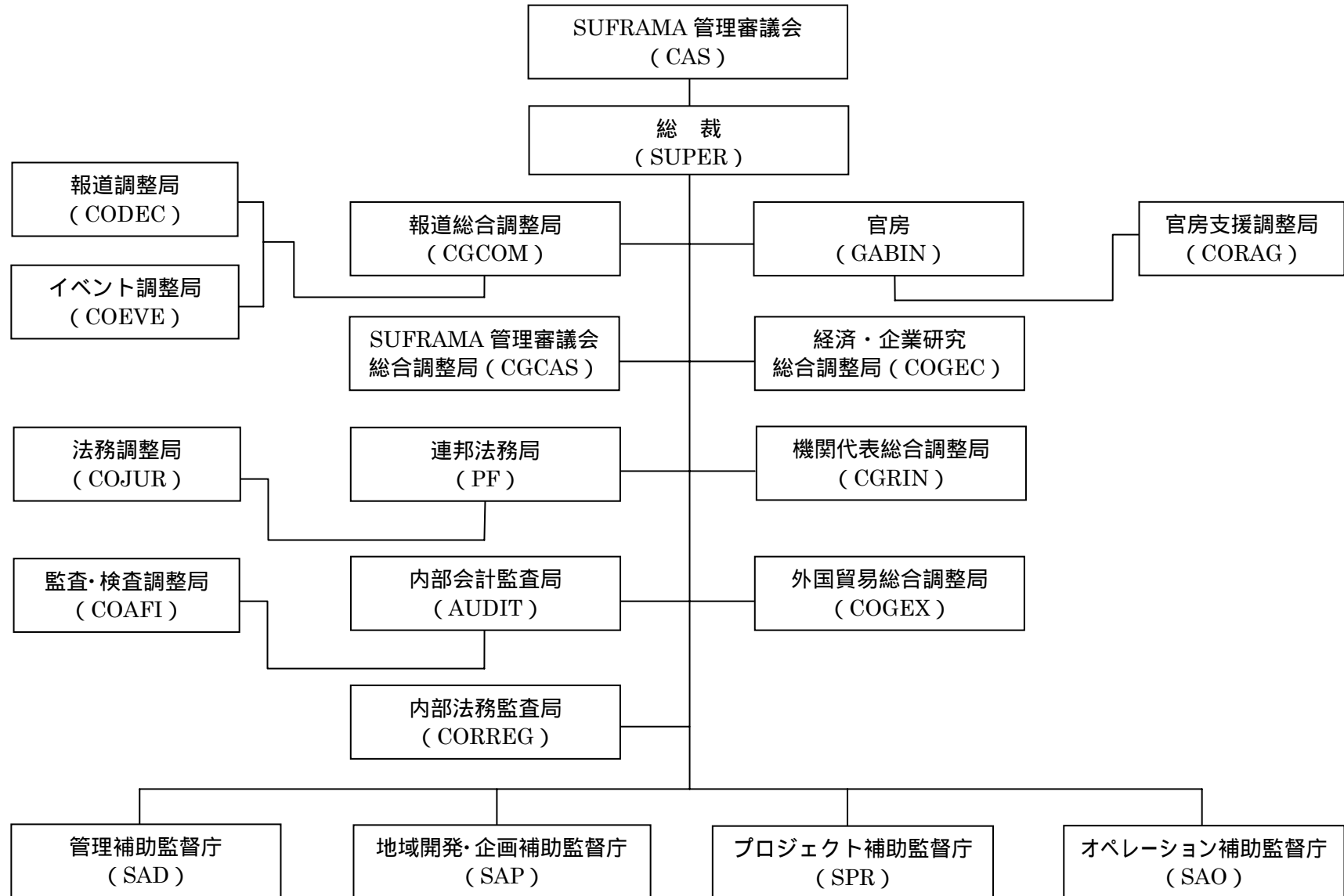
アネックス III

保管、処理、再利用、リサイクル及び最終廃置のコード

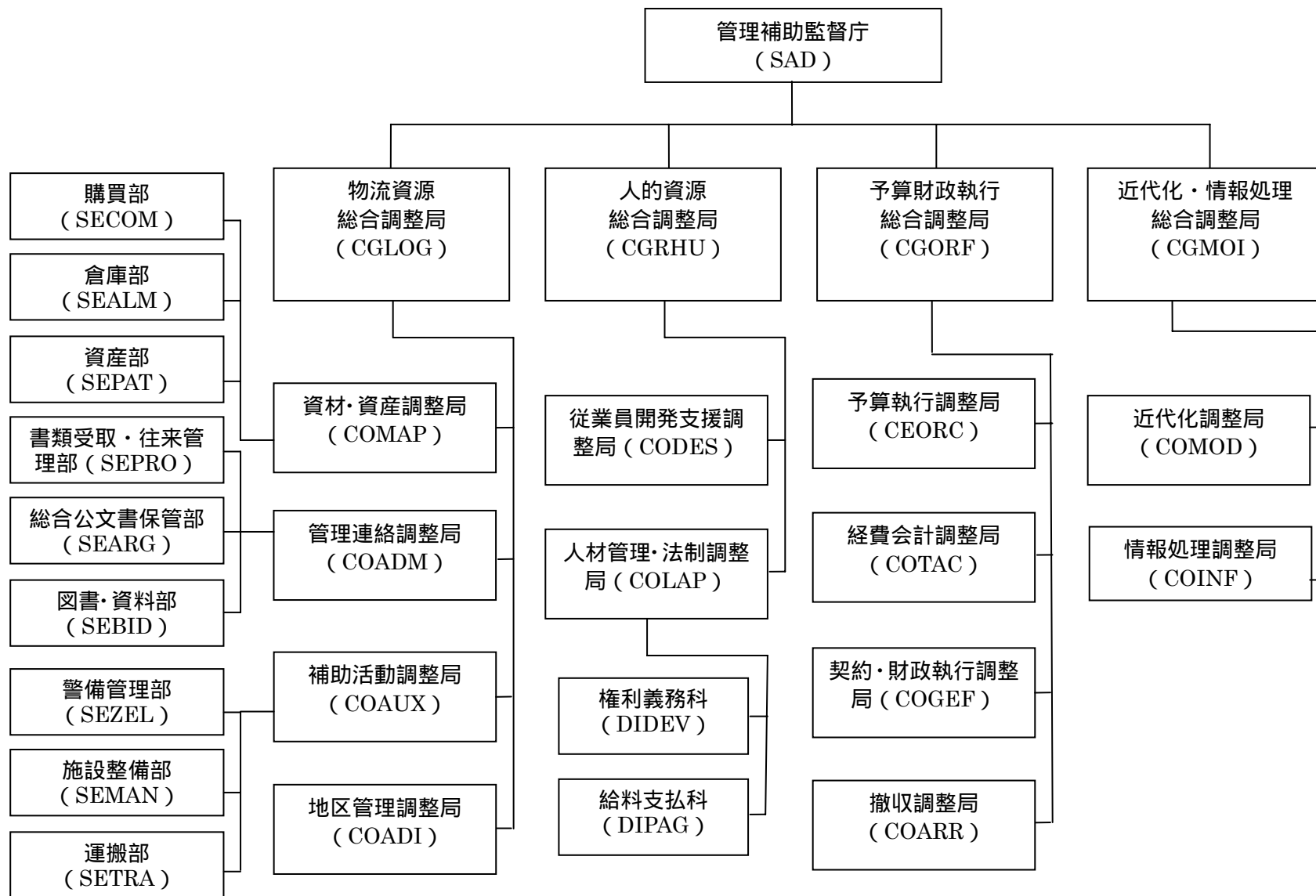
コード	保管	コード	保管		
Z01	S01	天井付き、不浸透床でドラム缶で	Z04	S04	沈殿槽付きタンク
Z11	S11	天井無し、不浸透床でドラム缶で	Z14	S14	沈殿槽付きタンク
Z21	S21	天井付き、土壌で、ドラム缶で	Z05	S05	天井付き、不浸透床で、圧縮ガス用鉄製容器
Z31	S31	天井無し、土壌で、ドラム缶で	Z15	S15	天井無し、不浸透床で、圧縮ガス用鉄製容器
Z02	S02	天井付き、不浸透床で、ばらで	Z25	S25	天井付き、土壌で、圧縮ガス用鉄製容器
Z12	S12	天井無し、不浸透床で、	Z35	S35	天井無し、土壌で、圧縮ガス用鉄製容器
Z22	S22	天井付き、土壌で、ばらで、	Z09	S09	不浸透池
Z32	S32	天井無し、土壌で、ばらで	Z19	S19	浸透地
Z03	S03	天井付き大型鉄製容器 (caçamba)	Z08	S08	その他の方法(説明すべし)
Z13	S13	天井無し、鉄製大型容器			

コード	処理	コード	処理
T01	焼却炉	T12	中和
T02	室付き焼却炉	T13	吸着
T05	露天での焼却	T15	生物的処理
T06	爆発	T16	Compostage
T07	青酸塩の酸化	T17	乾燥
T08	化学固定/カプセル化又は凝固化	T18	"Landfarming"
T09	化学的酸化	T19	熱プラズマ
T10	沈殿	T34	その他処理(特定すべし)
T11	非毒性化		
CÓDIGO	再利用/ リサイクル/回復	コード	最終廃置
R01	産業オープンでの使用(セメント・オープンを除く)	B01	土壌浸透
R02	ボイラーでの使用	B02	市営埋め立て
R03	セメント・オープンでの加工処理	B03	独自の工場埋立地
R04	廃棄物"blend" の策定	B04	第3者の埋立地
R05	微量養素での化学式化で使用	B05	市営ゴミ捨て場
R06	農業土壌への組み込み	B06	民間ゴミ捨て場
R07	施肥・灌漑	B20	下水道
R08	家畜飼料	B30	その他(特定する)
R09	溶剤の再加工		
R10	油の再精製		
R11	油の再加工		
R12	中間スクラップ業者		
R13	内部での再利用/リサイクル/回復		
R99	他の形の再利用/リサイクル/回復(特定する)		

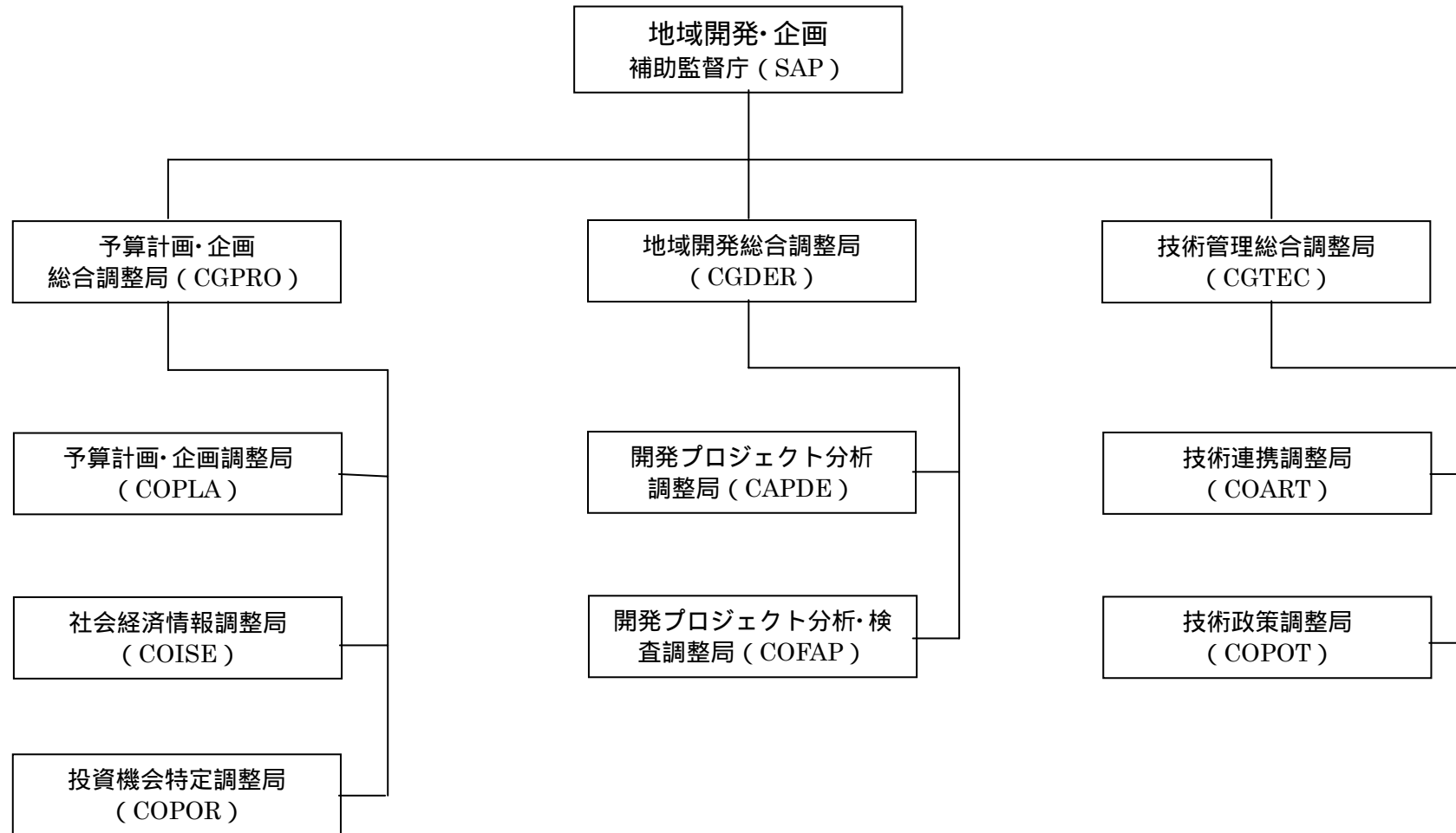
マナウスフリーゾーン監督庁 (SUFRAMA)
総合組織図



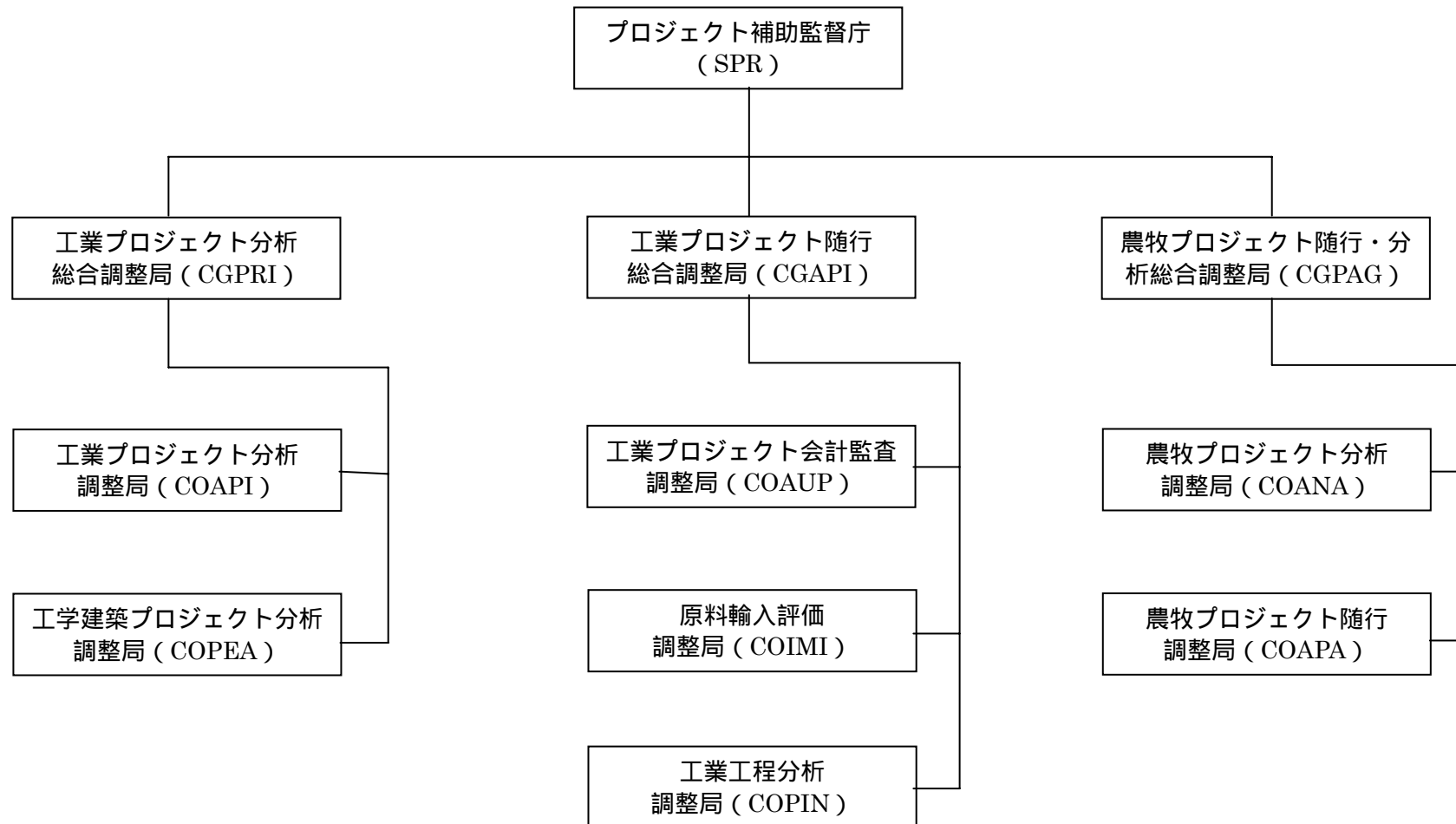
SUFRAMA 内
管理補助監督庁 (SAD) 組織図



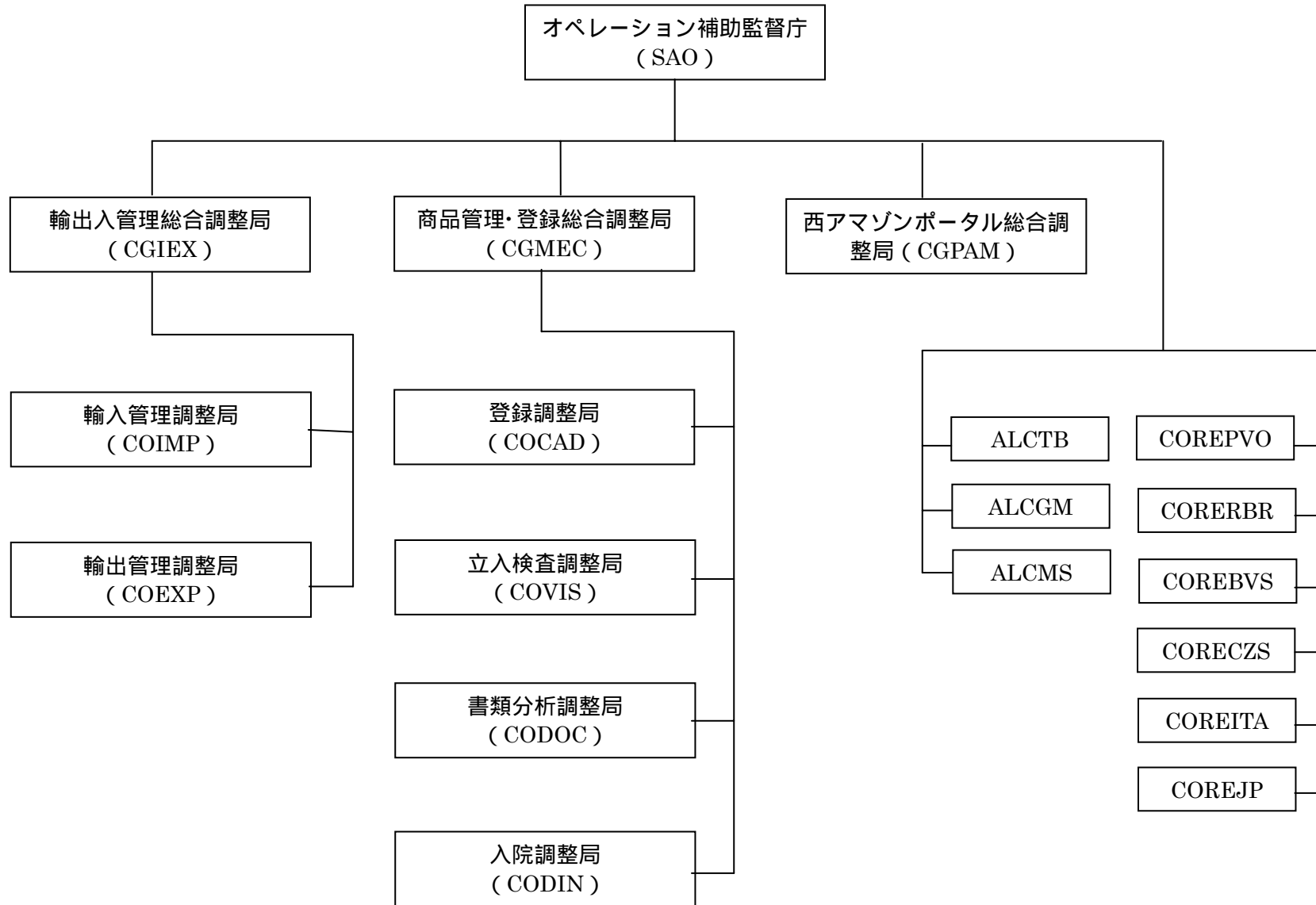
SUFRAMA 内
地域開発・企画補助監督庁 (SAP) 組織図



SUFRAMA 内
プロジェクト補助監督庁 (SPR) 組織図



SUFRAMA 内
オペレーション補助監督庁 (SAO) 組織図



立法権
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CONCEIÇÃO SAMPAIO 議員官房室

マナウス市 2007 年 8 月 21 日

法案 / 2007

汚染抑制、細菌・有害物質による汚染¹抑制とそれらの環境インパクトの削減を目的とし、アマゾナス州における固形廃棄物の発生、包装、保管、収集、運搬と最終処分に関する原理、手法、規範と基準を定め、その他の措置を講ずる。

第1条 - この法律は、汚染抑制、細菌・有害物質による汚染抑制とそれらの環境インパクトの削減を目的とし、アマゾナス州における固形廃棄物の発生、包装、保管、収集、運搬、処理と最終処分に関する方針、手法、規範と基準を定める。

第2条 - この法律において「固形廃棄物」とは、環境の汚染または細菌・有害物質による汚染を引き起こすことのできる、工業、家庭、医療、商業、農業、サービス業、箒による清掃業やその他コミュニティの活動による、固形状または準固形状のあらゆる形態の物体または物質を言う。

単一パラグラフ - 本条の主要部に定義された固形廃棄物に、次のものが含まれる：水の処理システムと汚染抑制のための機械や施設から排出されるスラッジ、及び、下水または河川等への排出を実現不可能とする特質を有する液体、または、アマゾナス州環境保護院（IPAAM）の規定により、最良の技術に対し、その排出が技術的かつ経済的に実現不可能な対策を要する液体。

第3条 - 固形廃棄物の発生、輸入と輸出事業に関し、次の原則を定める：

- I - アマゾナス州領域内における固形廃棄物の発生を、廃棄物の少量発生プロセスの導入と固形廃棄物の再利用 and/or リサイクルにより、最低限に抑えるものとする。実現可能な技術が存在しない場合を除き、処理や最終処分の他の方法よりも、再利用 and/or リサイクルを優先すべきである。
- II - アマゾナス州領域内において発生した固形廃棄物の連邦の他の州への運搬は、受取先の州における権限のある環境当局発行の許可書または引受書がある場合に限り、許可される。

¹ 日本語の「汚染」という言葉は、ポルトガル語で「poluição」または「contaminação」として訳され、多くの場合は類語として使われることが多いが、厳密には、前者が「住民の健康・安全・福祉、社会経済活動、生物相、環境の美的・衛生的状況と環境資源の質に直接または間接的に影響を及ぼし得る、人間の活動によって発生するあらゆる形態の物体またはエネルギーが原因で、環境に起きる物理的、化学的または生物学的な特性へのあらゆる変化【「環境法用語集」、IBAMA（ブラジル環境・再生可能天然資源院）、オンライン：<http://www.ibama.gov.br/siucweb/guiadechefe/glossario/>】であるように、広義の意味の「汚染」であるのに対し、後者は、「病原性微生物、有害物質や放射性物質など、人間の健康に害を及ぼすほどの要素が環境に混入されること【「環境辞典」、Ecol News、オンライン：<http://www.ecolnews.com.br/dicionarioambiental/index.htm>】であり、より狭義の意味をもつ他、人間への害に焦点を当てている。ここでは、両者が続けて並んでいるとき、または、その区別が意味上に重要である場合には、前者を単なる「汚染」と訳し、後者を「細菌・有害物質による汚染」と訳すことにする。（翻訳者脚注）

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- III - 連邦の他の州で発生した固形廃棄物は、アマゾナス州環境保護院（IPAAM）の意見を求めた上で州環境審議会（CEMA）が事前に承認した場合に限り、アマゾナス州で引き受ける。
- IV - 他の国で発生した固形廃棄物は、ブラジル環境・再生可能天然資源院（IBAMA）やその他の連邦法で定める基準、かつ本条第 Ⅰ項の規定に従った場合に限り、アマゾナス州で引き受ける。

単一パラグラフ - 本条第 Ⅰ項の場合、アマゾナス州環境保護院（IPAAM）の意見を求めた上で州環境審議会（CEMA）は、その性質及びリサイクルと再利用の状況により、アマゾナス州環境保護院（IPAAM）の各組の許可だけに従う固形廃棄物のグループまたはカテゴリーを承認することができる。

第4条 - いかなる性質の固形廃棄物が発生する事業は、その包装、保管、収集、運搬、処理、最終処分、並びにその発生源の運転停止による環境ダメージ、更に劣化された環境の原状回復の責任を負う。

第5条 - 固形廃棄物は、現行の他の法規則を遵守しながら、ブラジルテクニカルスタンダード協会（ABNT）の関連基準とアマゾナス州環境保護院（IPAAM）の定めた条件に従い、適切に包装、運搬、処理と最終処分を受けなければならない。

第6条 - 包装、運搬、処理と最終処分につき、固形廃棄物は、ブラジルテクニカルスタンダード協会（ABNT）とアマゾナス州環境保護院（IPAAM）の基準に定めてある通り、次のように分類される：

- クラス 1：危険物、
- クラス 2：非不活性廃棄物と
- クラス 3：不活性廃棄物。

第7条 - 港、空港、バスターミナルと駅から出る固形廃棄物は、現行の他の法規則を遵守しながら、ブラジルテクニカルスタンダード協会（ABNT）の関連基準とアマゾナス州環境保護院（IPAAM）の定めた条件に従わなければならない。

第8条 - 病原性要因を含む医療施設から出る固形廃棄物は、現行の他の法規則を遵守しながら、ブラジルテクニカルスタンダード協会（ABNT）の関連基準とアマゾナス州環境保護院（IPAAM）の定めた条件に従い、適切に包装され、特別な運搬方法で運ばれ、かつ、適切な処理と最終処分を受けなければならない。

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第9条 - 家庭、店舗とサービス業、並びに都市清掃業から出る都市固形廃棄物は、現行の他の法規則を遵守しながら、ブラジルテクニカルスタンダード協会（ABNT）の関連基準とアマゾナス州環境保護院（IPAAM）の定めた条件に従い、市のエリア及び集合都市のエリアにおいて、適切な包装、収集、運搬、保管、処理及び最終処分を受けなければならない。

第10条 - 産業固形廃棄物は、ブラジルテクニカルスタンダード協会（ABNT）の関連基準とアマゾナス州環境保護院（IPAAM）の定めた条件に従い、適切な包装、運搬、処理及び最終処分を受けなければならない。

第11条 - タイヤを生産 and/or 輸入する業者は、アマゾナス州環境保護院（IPAAM）が定めた条件と基準を遵守し、不要となった商品の適切な回収と最終処分の責任を負う。

第12条 - アマゾナス州全土において、農薬、その成分と同類品を生産 and/or 販売する業者は、アマゾナス州環境保護院（IPAAM）が定めた条件と基準を遵守し、自ら生産 and/or 販売した商品の空容器の回収と受取メカニズムの設立と最終処分、並びに監査活動によって没収された商品と利用上不適切とされた商品に対する責任を負う。

第13条 - 放射性物質は、管轄当局の決定と CENEN が定めた基準に従った包装、収集、運搬、保管、処理と最終処分を受けなければならない。

第14条 - アマゾナス州全土において、廃タイヤを含む固形廃棄物の次の方法による最終処分は禁止である：

- I - 都市及び郊外の両エリアにおいて、「ありのままの姿」による野外での放出、
- II - 野外での焼却、
- III - 河川・湖等、マングローブ、空き地、公共網と、仮に放置されていても井戸と集水穴への放出、及び
- IV - 雨水排水、下水道、電気と電話網への放出。

パラグラフ 1 - いかなる性質の固形廃棄物の保管、蓄積または最終処分のために地面と地下を利用できるのは、その処分がアマゾナス州環境保護院（IPAAM）の定めた条件と基準を遵守し、特定のプロジェクトに規定された、技術的に適切な形で処分される場合に限る。

パラグラフ 2 - 野外での固形廃棄物の焼却は、州保健局または州農業供給局によって認められた衛生面での緊急時に限り、アマゾナス州環境保護院（IPAAM）によって許可され得る。

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パラグラフ 3 - 利用されていない井戸への固形廃棄物の放出は、アマゾナス州環境保護院 (IPAAM) の定めた条件と基準により許可され得る。

第15条 - 既存の野外固形廃棄物処分場は、この法律の公布から 1 年以内に、ここに定めてある内容と、ブラジルテクニカルスタンダード協会 (ABNT) の関連基準、並びにアマゾナス州環境保護院 (IPAAM) の定めた条件に適合する義務を負う。

第16条 - 固形廃棄物の運搬、処理と最終処分 of 事業は、現行の法令に従い、アマゾナス州環境保護院 (IPAAM) による事前分析と環境ライセンスを必要とする。

第17条 - いかなる種類の固形廃棄物が発生する事業は、アマゾナス州において発生する固形廃棄物の管理とインベントリーを目的に、アマゾナス州環境保護院 (IPAAM) に対して登録を行う義務を負う。

単一パラグラフ - 固形廃棄物の管理とインベントリーのために提供されたデータの更新は、アマゾナス州環境保護院 (IPAAM) が定める期限に従う。

第18条 - 固形廃棄物の散布、漏泄、放出 and/or 不適切な処分に起因する環境汚染 and/or 有害物質による環境汚染の予防 and/or 修正対策の実施責務は、次のものにある：

- I - 汚染が自らの施設から始まりまたは起きた場合は、廃棄物を発生させた事業；
- II - 汚染が運搬中に始まりまたは起きた場合は、連带的に廃棄物を発生させた事業と運搬事業；
- III - 汚染が包装、処理 and/or 最終処分場で起きた場合は、連带的に廃棄物を発生させた事業並びに廃棄物の包装、運搬 and/or 最終処分を実施した事業。

単一パラグラフ - 本条の主要部でいう責任追求につき、家庭、店舗とサービス業、並びに都市清掃業から出る都市固形廃棄物の場合は、市が廃棄物を発生させた事業として見なされる。

第19条 - アマゾナス州において、固形廃棄物を発生させ、運搬し、包装・処理 and/or 最終処分を実施する事業で、この法律の規定に反するものは、民刑事法の処罰とは別に、アマゾナス州環境保護院 (IPAAM) によって科せられる以下の行政的処罰を負う：

- I - 特定再犯の場合に重くなる、最低 R\$500.00、最高 R\$50,000.00 に相当する単一または 1 日当たりの罰金、
- II - 官庁によって与えられた税法上の恩典と特権の損失または制限、

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- III - 公的な信用機関における融資への参加資格の損失または中止、
- IV - 活動中止、
- V - 工事差し止め、
- VI - 環境ライセンスの剥奪。

第20条 - アマゾナス州の全市は、この法律が遵守されるよう、アマゾナス州環境保護院（IPAAM）の事前分析により、都市固形廃棄物の最終処分を実施するための場所を提供 and/or 将来のために確保しなければならない。

第21条 - この法律は、公布から 90 日間以内に規制される。

第22条 - 行政当局は、この法律の公布から 120 日間以内に、アマゾナス州環境保護院（IPAAM）によるこの法律に定めてある目的の達成に向けて、同機関の技術的、行政的かつ財政的な能力付与に必要な措置を講ずるべきである。

第23条 - この法律で決めた金額は、6 ヶ月毎に、州の行政府が採用する指標に基づき、見直されることとする。

単一パラグラフ - アマゾナス州環境保護院（IPAAM）の院長は、州の官報に刊行される辞令により、R\$1.00 未満を切り捨て、新しい額を決める。

第24条 - この法律は公布の日から施行し、これに反する規定を廃止する。

ルイ・アラウージョ総会、マナウス市、2007 年 8 月 21 日

Conceição Sampaio
州議員 / 進歩党（PP）

理由

人間の活動のすべてのステージで発生する固形廃棄物は、その構成と量のいずれの観点からも、消費の慣行や生産方法によって異なる。主たる懸念は、人間の健康と環境（土壌、水、大気と景色）への波及効果に向けられている。主に工場で発生する有害廃棄物は、不適切に管理されれば環境に重大なリスクをもたらすため、特に心配である。

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廃棄物の問題への理解とその解決策の追求は、技術の導入以上のことを前提とする。問題の起源における対策には、廃棄物そのものの物質的側面に関する熟考が要求されるのみならず、廃棄物の象徴的な意味、その役割と文化的背景、更には社会との歴史的関係について熟考する必要がある。

ブラジルの工業団地の汚染源としての潜在能力削減の変革は、特に廃棄物を最も多く排出し、環境事故のリスクが最も高い古い工業において、まだ遅い。従って、汚染物の排出、排出液の放出と有害廃棄物の不法投棄を抑制するために環境抑制と汚染除去に高額な投資が必要である。

廃棄物は、発生源における工業、家庭、医療、商業、農業、サービス業、更には箒による公共清掃業といったコミュニティの様々な活動プロセスの結果である。廃棄物は、固体、気体、液体の状態で現れる。

2004年5月31日、ブラジルテクニカルスタンダード協会（ABNT）は、自らの基準「NBR 10,004・固形廃棄物」の新しいバージョンを発効した。その基準は、廃棄物の適正管理を目的とし、廃棄物の環境と公衆衛生への潜在的リスクの観点から固形廃棄物を分類する。

農業及び工業活動から発生するゴミは、専門的に廃棄物として知られ、排出事業者は、その管理、運搬、処理と最終処分を行う義務を負い、その責任は一生続くものである。家庭ゴミは、発生するすべての廃棄物の一部に過ぎない。工業が廃棄物の大部分を排出する 石炭の残物、冶金工場の廃棄物、化学廃棄物、かつ、工場と煙突から出るガスと煙。

産業廃棄物は、環境を致命的に攻撃する最も大きな原因である。そこには、排出先における自然のサイクルを危険にさらす化学製品（シアヌル酸塩、殺虫剤、溶液）、金属（水銀、カドミウム、鉛）と化学溶液が含まれる。固形廃棄物は山積みされ埋められ、液状廃棄物は河川や海に流出され、気体状廃棄物は大気に排出される。それにより、環境の健康と、結果的にはそこに生存する生き物の健康も危険にさらされ、重大な被害につながる可能性がある。

重金属で汚染されている水や食料 淡水魚や海水魚など の習慣的な摂取は、健康を危険にさらす。手工業的電池工場、水銀を用いる塩素・ソーダ工場、造船業工場、冶金や製鉄工場の周辺に住む住民は、汚染による被害を受ける可能性がある。

重金属は、工場によく使われ、様々な製品に含まれている。工場は、様々なプロセスで廃棄物を排出する。いくつかの製品、特に固形状のものはゴミ捨て場に山積みされ、液状廃棄物は、普段、最終的に河川や海に流出される。

いくつかの有害廃棄物は、正に有害であるが故に、環境に排出される。安全な扱い方が知らないた

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め、環境がそれらの有毒物質を吸収してくれることを期待しての行動である。しかし、それは問題への安全な解決策ではない。多くの金属と化学製品は、天然でもなく、生物分解性でもない。その結果、廃棄物を埋めると埋めるほど、自然のサイクルは犯され、環境は汚染される。1950年代から、化学廃棄物と有毒廃棄物による被害が年々頻繁になり、深刻化している。

現在、7百万以上の化学製品が知られており、年々新たなものが百万単位で発見される。そのため、廃棄物の実質的な処理はますます困難になる。

廃棄物の行き先、処理と最終処分は、土壤に置かれたときの反応により、次のように廃棄物を分類するブラジルテクニカルスタンダード協会（ABNT）の基準第 10.004 号に従わなければならない：

- ・ 有害廃棄物（クラス 1：汚染物及び有害物）
- ・ 非不活性廃棄物（クラス 2：おそらく汚染物）
- ・ 不活性廃棄物（クラス 3：非汚染物）

クラス 1 とクラス 2 の廃棄物は、それ用の適切な施設で処理を受け、処分されなければならない。例えば、工業埋立地は、土壤と水質の汚染を防ぐために、防水性のシートと複数の保護用のレイヤーの他、「排出事業者 / 責任者」の概念に従い、通常民間企業によって運営される、産業及び医療廃棄物を受け取る準備の整った施設を必要とする。

伝統的に最も多くの有害廃棄物を排出するのは、冶金工場、電気エレクトロニクス工場、熔解工場、化学工場、かつ、皮とゴム工場である。マナウスを含む多くの都市では、例えばゴミ捨て場、道路沿いや空き地、イガラペ²や川などに有害産業廃棄物が捨てられるなど、環境と住民の生活の質を危うくする、産業廃棄物の不適切な投棄が目立つ。

産業廃棄物の問題に対処するために、ブラジルには特定の法律や基準が存在する。環境保全について規定するブラジル国憲法第 255 条、国家環境政策を定める法律第 6938/81、汚染の危機にある地域における工業区域化の基本方針を定める法律第 6803/80、それぞれ乾電池、電池とタイヤについて規定する国家環境審議会（CONAMA）の決議書第 257/263 と 258 が例として挙げられる他、このテーマは「アジェンダ 2 1」（リオ 92）の第 19、第 20 と第 21 課で広く取り上げられている。

要するに、連邦政府は、環境省（MMA）とブラジル環境・再生可能天然資源院（IBAMA）を通し、有害廃棄物の不適切な投棄と発生を削減することを目的とする活動政策を計画・実施するよう、国家レベルのインベントリーにより産業廃棄物を特徴付けるためのプロジェクトを展開している。

² イガラペ（igarapé）とは、小型船で航行可能な天然の狭い水路のこといい、2つの中州の間または1つの中州と陸の間を流れる。（翻訳者脚注）

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1998年初期に、廃棄物を不適切に処分する責任者に対する重い罰則を定める環境犯罪法の可決に伴い、廃棄物の分野でサービスを提供する業者は、市場の活性化を感じたが その法律が発布された直後にサービスの需要が20%増えた企業もある その動きは、企業が新しい法律に適合する期限を延ばした暫定措置令により、ある意味冷めた。

しかし、州レベルでは、固形廃棄物の排出に関する特有の法規制が欠けている。それが、今回の法案の目指すところである。発生、扱い、運搬、処理と最終処分を含む抑制活動の集合は、次の主な恩恵をもたらす：

- 有害廃棄物の扱いに伴う事故へのリスクの削減
- 適切なシステムにおける廃棄物の処分
- 有害廃棄物の運搬システムの有効的な抑制の促進
- 廃棄物の扱い、処理及び不適切な最終処分に起因する潜在的リスクに対する住民の健康の保護
- 産業廃棄物の再活用の強化
- 再生不可能な資源の保全と原料の枯渇の延期
- 廃棄物の量的削減とその最終処分のため的高額かつ増大傾向にある経費の縮小
- 土壌、大気と表面及び地下水系を汚染から守り、廃棄物による環境負荷の削減

多くの場合、企業側は廃棄物を処理する意欲があり、排出事業者としてその趣旨の意識をもっているが、廃棄物のすべての処理、あるいはその大部分の処理には経費がかかる。リサイクルでも経費がかかり、それは、特定の企業が処理をし、隣または競争相手の企業がしなければ、前者が市場においてより低い競争力の立場に置かれることを意味する。

その意味で、グローバルな範囲で競争し、例えばヨーロッパで売られる商品をここで生産するため、環境に対する明白な政策を示さなければならない企業だけが廃棄物の管理または処分のサービスを求めることになる。その業者がここで生産した商品は、他の国で生産された商品と競争し、競争相手は常にここで作られた商品の生産方法を監視するわけである。

比較的無害の廃棄物でも、未経験者の手に渡るとより重大な環境リスクに変わる可能性があるため、廃棄物を適正に扱うことは、それがもたらすリスクを管理する上で大きな意味を持つ。

多くの企業家は、倫理上の理由のみならず、実用的な理由により、本当は汚染除去に実質的に協力したいと思っている。捨てられてしまうものは場所を取り、再利用できたかも知れない多くの原料を無駄にしてしまう。資源のリサイクルと頻繁に言われるが、大胆さと忍耐が要求される課題において、我々はまだ初期の段階にいるのが実状である。そしてそれには必ずしも膨大な経費がかかるわけではない。

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環境が、無駄にされているかうまく活用されていない資源の潜在的産地であることから、環境をビジネスの視野に入れることは、利益を与えるか、少なくとも節約されたエネルギーやその他の自然資源で補える活動に導く可能性がある。

その意味で、住民の福祉を推進するために、企業は次のことに努める必要がある：従業員とその家族のために健全な労働、安全、研修及びレジャー条件の維持；一般的に環境が破壊されないよう、生産過程またはその商品の利用もしくは消費から出る有毒廃棄物の度合いの削減または廃止；消費者の希望に添った、品質と安全基準に従った商品やサービスの計画と提供。

Conceição Sampaio

州議員 / 進歩党 (PP)

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2006年の一覧

廃棄物のインベントリの提出	企業数
提出した	94
提出しなかった	90

コード	内容	単位	1月当たりの量	年間合計
	非産業廃棄物		495.87	5,950.40
A001	有機性廃棄物	トン/月	123.05	1,476.64
A002	一般ゴミ(事務所)	トン/月	128.59	1,543.04
A003	清掃作業廃棄物	トン/月	244.23	2,930.73

	別種物		2,935.53	35,226.36
A599	プロセスの有機性廃棄物	トン/月	3.58	43.00
A308	スポンジ	トン/月	14.99	179.87
A207	フィルムとプラスチック製容器	トン/月	58.29	699.48
D099	バッテリー	トン/月	3.94	47.28
A107	プラスチック製ポンプ	トン/月	13.57	162.81
A006	紙・ボール紙	トン/月	1,217.48	14,609.75
	壊れた標識	トン/月	0.17	2.00
A007	発泡スチロール	トン/月	135.53	1,626.35
A007	プラスチック	トン/月	517.27	6,207.27
A117	撮像管	トン/月	2.72	32.70
A008	ゴム部品	トン/月	3.15	37.77
A007	重合プラスチック	トン/月	2.32	27.82
	バッグ	トン/月	0.05	0.65
	エポキシ樹脂	トン/月	0.01	0.07
A009	パレット用木材	トン/月	578.73	6,944.78
A025	ファイバーグラス	トン/月	0.58	6.91
A111	窯の灰	トン/月	0.17	2.01
F104	使用済みの個人保護器具	トン/月	9.07	108.87
A117	ガラス	トン/月	112.74	1,352.89
A099	仕様外または使用期限切れの商品(非有害物)	トン/月	245.58	2,946.93
	配線	トン/月	0.70	8.41
A108	酢酸ビニルエチル(EVA)	トン/月	4.93	59.16
A010	繊維製品の廃棄物	トン/月	8.39	100.67
A208	ポリウレタン廃棄物(PU)	トン/月	1.14	13.66
A017	耐熱容器と陶磁製品	トン/月	0.44	5.24

	スラグとスラッジ		728.54	8,742.42
A099	アルミのスラグ/溶接	トン/月	397.38	4,768.57
K062	研磨スラグ	トン/月	1.67	20.00
	プラスチックのスラグ	トン/月	59.22	710.69
	カルシウムスラグ	トン/月	7.00	84.00
D005	リン酸塩スラグ	トン/月	6.21	74.53

K053	塗料と色素のスラグ	トン/月	77.32	927.90
K078	シンナーのスラグ	トン/月	28.55	342.65
A021	下水処理施設からの非有毒性の固形廃棄物	トン/月	122.10	1,465.18
A022	下水処理施設からの非有毒性のペースト状廃棄物	トン/月	1.59	19.08
D099	産業排液処理スラッジ	トン/月	14.14	169.71
	油水スラッジ	トン/月	13.33	160.01
	ワックス	トン/月	0.01	0.12

	汚染廃棄物		24.27	291.26
	溶液	トン/月	2.03	24.39
A204	金属製ドラム缶	トン/月	4.02	48.25
	塗料	トン/月	0.02	0.29
D004	応急処置室	トン/月	5.15	61.78
D099	汚染布/手袋/ぼろ布	トン/月	9.37	112.48
	プリンターのカットリッジ	トン/月	0.42	5.09
	汚染容器	トン/月	0.13	1.55
	トナー	トン/月	3.12	37.43

	有害廃棄物		215.29	2,583.52
D001	可燃物	トン/月	11.08	132.99
F003	アセトン	トン/月	1.08	12.98
D002	腐食性	トン/月	19.18	230.14
D004	病原性	トン/月	6.74	80.89
D099	その他	トン/月	176.30	2,115.57
D099	蛍光灯	トン/月	0.91	10.95
D005	焼却灰	トン/月	4.52	54.26

	金属製廃棄物		3,647.42	43,769.09
A004	鉄金属	トン/月	2,896.62	34,759.48
A005	非鉄金属	トン/月	355.93	4,271.22
A104	金属製容器	トン/月	22.38	268.52
A013	製鉄・製鋼スラッジ	トン/月	44.45	533.34
	アルミ溶解スラッジ	トン/月	86.90	1,042.85
	プリキ溶解スラッジ	トン/月	3.49	41.90
A005	アルミくず	トン/月	220.74	2,648.91
	鋳物砂	トン/月	0.18	2.12
A005	銅	トン/月	6.72	80.69
A099	フェノール樹脂加工紙	トン/月	10.00	120.05

	液体廃棄物		571.37	6,856.47
F030	廃油	トン/月	1.42	17.05
F105	油水	トン/月	45.39	544.73
	排液	トン/月	37.53	450.36

F130	潤滑油	トン/月	248.70	2,984.40
F230	加圧液	トン/月	110.45	1,325.37
F330	金属加工・切断油	トン/月	120.38	1,444.54
F430	汚染廃油	トン/月	6.67	80.09
F530	油水分離残渣	トン/月	0.54	6.47
	液状	トン/月	0.29	3.46
	合計		8,618.29	103,419.53

概要			
内容	単位	月の平均	年間平均
非産業廃棄物	トン/月	495.87	5,950.40
別種物	トン/月	2,935.53	35,226.36
スラグとスラッジ	トン/月	728.54	8,742.42
汚染された廃棄物	トン/月	24.27	291.26
有害廃棄物	トン/月	215.29	2,583.52
金属製廃棄物	トン/月	3,647.42	43,769.09
液体廃棄物	トン/月	571.37	6,856.47
合計		8,618.29	103,419.53

非産業廃棄物	5,950.40
別種物	35,226.36
スラグとスラッジ	8,742.42
汚染された廃棄物	291.26
有害廃棄物	2,583.52
金属製廃棄物	43,769.09
液体廃棄物	6,856.47

本一覧ではすべての廃棄物はトン単位で示されている。

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