

ANNEX 6.9

6.9 The WM Action Plan by Industrial Associations

6.9.1 Industry Waste Minimization Action Plan: Chemical Sector¹

I. INTRODUCTION

From November 2002 to August 2003, the Board of Investments (BOI) of the Department of Trade and Industries (DTI) implemented the EMPOWER Project with assistance from the Japan International Cooperation Agency (JICA). The general goal of the EMPOWER is to promote voluntary industrial environmental management (IEM) from all industrial sectors and disseminating the concept of IEM all over the Philippines. EMPOWER's key strategies are to raise industry awareness on EM and promote IEM thru the formation of a national IEM action plan and the implementation of IEM pilot projects.

These pilot projects are:

- Waste Minimization Pilot Project (WMPP)
- IEM Knowledge Network
- Eco-labeling Program
- Green Procurement Policy

The WMPP component, in particular, aimed to integrate productivity and waste minimization by carrying out waste reduction assessment and planning in four key industry sectors, namely Pulp and paper, chemical, foundry and food. Within each sector, WMPP worked with a partner industry association to build awareness in WM and develop an industry-level WM action plan; and with representative companies of the association to design and/or implement company-level waste minimization action plans to serve as demonstration models for each of the four sectors: the WM Implementation experience at the company level is described in a WM Guidebook which is one of the key outputs of the Project. This current document describes the industry-level WM Action Plan of one of the Industry Associations, in particular, that of the Chemical Industries Association of the Philippines (SPIK).

II. INDUSTRY SNAPSHOT: CHEMICAL SECTOR

Despite the difficulties it faced over the years, the chemical industry in the Philippines has grown into a viable and robust industry. It continues to grow steadily as the Philippine economy develops and the local market for consumer and industrial products expand.

There are now over 300 companies in the Philippines that are engaged in the manufacture of industrial chemicals and chemical product, with more than one-third of those included among the top 1,000 corporations.

The fundamental economic trend has been on track for the past two years sustained by bold and powerful reforms. 1995 GNP, which was measured at US\$75.8 Billion swelled by 6.1 in 1996.

¹ Recasted version July 21, 2003 with inputs from SPIK Action Plan and Presentation June 10 & June 18.

Of the Php44.98 Billion of new investment that went into the Philippine Economic Zone Authority (PEZA) alone, 3% were invested into chemical projects.

Evidently, the future of the Philippine Chemical Manufacturing Industry is bright and points to a leap mode that will be neatly experienced beginning 1997. One reason for this is the completion of the first two polyolefin plants that will generate new chemical tonnage of 360 kilo tons per annum. Of added significance are two new oleochemical plants that will generate 75,000 MT of new capacities this year as well.

The chemical sub-sectors are as follows:

- Basic chemicals & Intermediates;
- Agricultural Chemicals & Fertilizer;
- Oleochemicals;
- Detergents and Surfactants;
- Surface Coatings: Paints, Adhesives and Printing Inks;
- Petrochemicals and Petroleum Products;
- Plastics and Polymers;
- Industrial and Specialty Chemicals;
- Fabricated Chemical Products;
- Miscellaneous and Specialty Chemicals; and
- Chemical Traders.

The main environmental concern of the industry is the handling, treatment and disposal of toxic substances and hazardous waste, as well as compliance with the Philippine CAA.

III. INDUSTRY ASSOCIATION PROFILE: CHEMICAL INDUSTRIES ASSOCIATION OF THE PHILIPPINES/SAMAHAN SA PILIPINAS NG MGA INDUSTRIYANG KIMIKA (SPIK)

SPIK was organized in 1977 with its role to address concerns, issues and interests which affect or influence the chemical industry. SPIK has over 70 members from the 11 sectors of the chemical industry.

SPIK represents the chemicals industry in various fora with government, non-government organizations, chambers of commerce and other industry associations, both local and foreign. It articulates the Industry's concerns ranging from its competitiveness, to opportunities in trade, environmental regulations, policies enhance the development of skills among industry players.

SPIK champions Responsible Care, a global public commitment of the chemical industry to improve its health, safety and environmental performance.

SPIK is also one of the founding members of the Asean Chemical Industry Club (ACIC) whose objective is to affect the coordination efforts of the chemical industry in the ASEAN region. ACIC serves as the sole ASEAN body from the private sector to implement and deal with problems of ASEAN cooperation in the chemical industry. SPIK remains an active member of ACIC.

SPIK Vision:

SPIK serves as a force within the chemical industry to assist members achieve competitiveness in the manufacture and trading of quality products in ways that safeguard the environment; proactively addresses government and community concerns, as well as global opportunities.

SPIK Objectives:

1. Promote and develop the chemical industry in the Philippines through: improvement of standards and quality of locally manufactured chemical products; representation of industry's interest in government, international and local for promotion of Responsible Care to improve the industry's health, safety and environmental performance;
2. Foster fair and healthy competition among the members in an atmosphere of friendly association and mutual understanding;
3. Sponsor, organize and conduct seminars/workshops to enhance the skills in the various facets of chemical operations;
4. Makes representation with government agencies in behalf of its members on any matter which aid and protect the interests of the industry; and
5. Establish networks with key government agencies, foreign and local organizations to enhance free flow of information vital to the healthy growth of the industry.

IV. PREVIOUS SPIK ENVIRONMENTAL PROGRAMS

SPIK is committed to provide Responsible Care leadership in improving the health, safety and environmental performance of the industry. Responsible Care is a continuous improvement initiative built around a set of ten guiding principles and six codes of management practices and other elements. It is a global program with 42 country signatories and 41 Philippine chemical company subscribers.

SPIK created the SPIK Responsible Care Council (SRCC) to put in place the strategic and industry-wide implementation of the program. The objectives of the SRCC are to implement Responsible Care, improve responsiveness of members, expand participation and network. SPIK is also part of the Philippine Business Agenda 21, a network of industry associations with voluntary environmental programs. The SPIK BA 21 describes specific action steps to address pollution prevention (by reducing contaminants and pollutants), process safety (to prevent fires, explosions, and accidental chemical releases), product stewardship, chemical product distribution and emergency response (Philippine BA 21, pp. 108-109).

In the past, SPIK has been able to access donor assistance such as **JETRO-assisted program**.

As a key partner organization in the EMPOWER-WMPP SPIK helped mobilize chemical companies for EMPOWER, as follows:

- a. Obtained support from member companies on Waste Minimization as seen from
 - Participation in EMPOWER seminars and WM seminars
 - **Participation in JICA EMPOWER survey**
 - Submission of declarations of commitment to WM by at least eight member companies
- b. Arranged for the participation of six member companies in the WM Assessment and Planning phase of the WMPP, namely, Kemwerke, Inc., Int'l Chemical Industries, LMG Chemical Corp., Mabuhay Vinyl Corp., Philippine Resins Industries, Inc., and United Coconut Chemicals, Inc.;
- c. Arranged for the participation of Kemwerke as model company for the Chemical Industry; and

- d. Developed a WM Action Plan for the Chemical Industry via a consultative meeting they had with association officers and member representatives.

V. SPIK WM ACTION PLAN FOR THE PROCESSED FOOD SECTOR

SPIK was encouraged to develop more specific activities for the adoption of waste minimization under the EMPOWER-WMPP. A preliminary draft WM Plan was prepared by the SPIK Director for the Environment and Responsible Care, presented and discussed at the SPIK Directors Meeting and General Membership Meeting for refinement and input in June 2003, prior to its presentation at the EMPOWER-WMPP Closure Workshop. The SPIK WM Plan identifies activities under three key strategies: Advocacy, Technology Transfer and Education/Training.

Table 6.9. 1 Waste Minimization Action Plan for Chemical Sector

Strategy	Key Activities	Time Frame
Advocacy	1. Conduct dialogue with CEO of SPIK member companies to adopt Waste Minimization as an integral component of the organizations business	Next year
	2. Conduct roundtable discussion with CEOs on partnership with EMB-DENR through the Environmental Consent Agreement (ECONA)	Next year
	3. Initiate program on benchmarking with SPIK member companies and include environmental performance indicators in order to monitor improvement	Next year
Technology Transfer	Initiate technology demonstration program for companies successfully implementing CP/RR/PP	Next year
Education and Training	1. Organize training course on Proper Handling/Storage of Hazardous Waste. Request JICA for experts.	Next year
	2. Training course on MSDS preparation.	
	3. Organize seminar on New Technologies in Waste Minimization	
	4. Schedule a presentation of KEMWERKE's experiences and benefits as Model Company for Waste Minimization Project in one of SPIK's General Membership Meeting	Next year
	5. Publish success stories on SPIK website or on electronic bulletin	Next year

VI. Follow-up Recommendations

Among the recommendations from the chemical sector are the following:

- A. Training on Chemical Safety;
- B. Training on MSDS Preparation; and
- C. Educational Trip in Companies with Good Chemical Management.

6.9.2. Industry Waste Minimization Action Plan: Pulp and Paper Sector²

I. INTRODUCTION

From November 2002 to August 2003, the Board of Investments (BOI) of the Department of Trade and Industries (DTI) implemented the Environmental Management with Public and Private Sector Ownership of the Philippines (EMPOWER) Project with assistance from the Japan International Cooperation Agency (JICA). The general goals of the EMPOWER are (1) to formulate a national action plan that will clarify the actions to promote industrial environmental management (IEM) among private enterprises and investors in the Philippines; and (2) to empower government agencies and industry associations to support the practice of IEM among industries. EMPOWER's key strategies are to raise industry awareness on EM and promote IEM thru the formation of a national IEM action plan and the implementation of IEM pilot projects.

These pilot projects are:

- Waste Minimization Pilot Project (WMPP)
- Industrial Environmental Management (IEM) Knowledge Network
- Eco-labeling Program
- Green Procurement Policy

The WMPP component, in particular, aimed to integrate productivity and waste minimization by carrying out waste reduction assessment and planning in four key industry sectors, Pulp and paper, chemical, foundry and food. Within each sector, WMPP worked with a partner industry association to build awareness in WM and develop an industry-level WM action plan; and with representative companies of the association to design and/or implement company-level waste minimization action plans to serve as demonstration models for each of the four sectors. The WM Implementation experience at the company level is described in a WM Guidebook which is one of the key outputs of the Project. This current document describes the industry-level WM Action Plan of one of the Industry Associations, in particular, that of the Pulp & Paper Manufacturers Association, Inc. (PULPAPEL).

II. INDUSTRY SNAPSHOT: THE PULP AND PAPER SECTOR

(Source: Pulp and Paper Industry, Presentation by Victor S. Pascual, January 8, 2003, EMPOWER Waste Minimization Seminar)

There are 33 non-integrated paper mills in the Philippines which are secondary or recovered fiber materials as raw material. The various grades of products of the industry are: newsprint (23%), printing and writing paper (21%), corrugating medium/liner (44%), other kraft and board (7%), tissue and specialty paper (5%). The total production output of the industry is 1,690,000 metric ton per year.

Typical wastes generated by the sector are as follows:

- Water effluents – from pulp processing/pulping, de-inking/bleaching process, papermaking, wastewater treatment plant
- Solid waste – from raw material wastage, process waste (pulp-cleaning operations), process by products (sludge), waste in the form of sludge
- Air emissions – from boilers, scrubbers, cyclones, stacks, generators, papermaking operations

Typical WM initiatives implemented in various degrees by the industry are in source reduction,

² Recasted version July 21, 2003 with inputs from PULPAPEL Action Plan and Presentation June 10 & June 18.

recycling, and reuse (of paper sludge and heavy oil sludge, by-product exchange) and waste heat recovery. Treatment is mainly through wastewater treatment, fiber recovery, with disposal at landfill as last resort.

III. INDUSTRY ASSOCIATION PROFILE: THE PULP & PAPER MANUFACTURERS ASSOCIATION, INC. (PULPAPEL)

PULPAPEL was organized in **1959** with the objectives of identifying the capabilities and resources of all the paper mills in the Philippines to supply the Philippine market demand for paper. It currently has 14 members, each committed to “pursue the Industry’s Vision as a **vital** asset in providing the paper requirements of allied and related industries consistent with the country’s thrusts for economic development and self-sufficiency.”

PULPAPEL’S VISION

Its vision is “to ensure the adequate and stable supply of world class quality paper products for domestic and export markets.”

PULPAPEL’S MISSION

Its mission is “responding to the challenge of continuity & survival under increasing business constraint & within the sphere of a growing need to protect & preserve the environment. PULPAPEL members wish to renew their avowed pledge to stand up & fulfill their Mission.

PULPAPEL’S COMMITMENT OF SUPPORT

Members manifest their continuing support and commitment as follows: (1) Consistent with the MOA signed with DENR, they express their willingness to be a partner of the government in pursuing environmental protection and preservation. (2) They shall continue to stay in business and create jobs particularly those engaged in wastepaper collection and recycling. (3) They shall endeavor to be cost competitive and continue to be an active export participant in the regional and global market. (4) They shall support government’s program to undertake a national recycling center as a key activity for the solid waste management. (5) They shall continue to operate safely to protect the communities where our mills operate in order to enhance the quality of life and our environment.

IV. PREVIOUS PULPAPEL ENVIRONMENTAL INITIATIVES

PULPAPEL is part of the Philippine Business Agenda 21, a network of industry associations with voluntary environmental action programs. PULPAPEL’S BA 21 addresses the industry’s concerns on waste management, resource use and impact of operations. Among the EM Projects it has participated in are the following:

- A. SIDA-assisted programs for improvement of mill operations and benchmarking against **International** paper mills.
- B. Promotion of ISO certification of paper mills
- C. German CDG/InWent-assisted program for establishment of Environmental management System (EMS) in a model paper mill (i.e. Container Corporation of the Philippines)
- D. DBP-EISCP 105 for the expansion of process, acquisition of equipment for energy conservation, wastewater treatment, sludge recovery, UASB reactor project

E. Other environmental initiatives with Landbank

PULPAPEL also entered into a MOA (still for presentation/approval) with the DENR, with a commitment to set industry standards on water discharge.

As a result of its participation in the EMPOWER Project, PULPAPEL has mobilized some of its member companies to attend the Waste Minimization Seminars and submit declaration of commitment to WM. It arranged for the participation of three companies in the WM Assessment and Planning Phase of the WMPP and for inclusion of Noah's Paper Mill among the WMPP Model Companies.

V. PULPAPEL'S WM ACTION PLAN

PULPAPEL's WM Action Plan focuses on four key areas, namely: Advocacy, Technology Transfer, Information/Education, and Training.

A. Advocacy

1. Paper Sludge Project with Industrial Technology Development Institute (ITDI) of the Department of Science and Technology (DOST)

This Project deals with paper sludge utilization as hydraulic barrier in landfill covers, processing as paper by-products such as egg tray making, pots, figurines, etc. and as solid fuel substitute. Characterization study on heavy metal content and its effect on leachability, permeability and metal's mobility with organic matter present on paper sludge is still on going. Funds for this characterization study will be supported by PULPAPEL members.

B. Technology Transfer

1. Solid waste minimization/Utilization

This deals with paper sludge utilization technology for the commercial production of cement-bonded fiberboard as substitute to wood-based product. This is a Project study of the PCIERD and FPRDI of the DOST, UPLB and TIPCO. Re-use of solid waste generated from wastewater treatment, as construction material will help alleviate most of the paper industry's problem in disposing their waste materials. This is demonstrated by a constructed model house in TIPCO mill in Pampanga.

2. Reduction of process water and re-use of treated wastewater

This is a joint project of ITDI (DOST), NEDO (Japan), WRPC (Japan) and PULPAPEL.

Pilot scale wastewater facility (UASB reactor for anaerobic treatment – aeration/ sedimentation WWT system) at CCP mill demonstrate reduction of pollution load of wastewater and re-use after treatment while generating useful products such methane gas. This will help conserve the fast depleting water resources and save energy if gas will be used as Bunker fuel oil substitute for boiler use.

C. Information Education

1. Set-up Recycling Center at Ecology Center, Quezon City.

This is a joint project of EMB-DENR, NSWMC, Zero Waste Recycling Movement of the Philippines Foundation, MM Federation of Environmental Multi-purpose Cooperative of the

Philippines and PULPAPEL. This is to promote recycling to improve recovery of waste papers and minimize waste generation on paper industry. Disseminating information and providing orientations and trainings with respect to the establishment of materials recovery facilities (MRF) especially those relating to collection and sorting of waste papers/waste paperboard materials, including economic opportunities.

2. Benchmarking with PULPAPEL members

This is a joint project of EMB-DENR/ AF-IPK/DBP/ PULPAPEL based on the Industrial Restructuring Program for Paper Industry. A MOA signing was conducted on June 8, 1998 with the following terms: (1) Establishment of effluent standards for three types of paper products; (2) Establishing environmental self-monitoring system; (3) Installation of Environmental Management System (4) Evaluation and upgrading of waste treatment facilities to further improve treatment facility; (5) Optimization of energy and raw material use; and (6) Mill modernization.

3. Plant Tour

This is an observation of pilot scale environmental projects for dissemination and commercial use - TIPCO's model low cost housing made from paper sludge and CCP's UASB reactor in the promotion of water and energy conservation programs.

UASB for anaerobic process for wastewater treatment plant has low power consumption. This system promotes the use of process water and re-use of treated water thus, decreases fresh water make-up. UASB's by-product is methane gas and will be used as BFO substitute.

4. Sharing information with local communities, public and private sector and members & non-members of the Association including suppliers, contractors, customers, etc. to enhance environmental awareness.

PULPAPEL is also supported by the Technical Association of Pulp & Paper Industry – Philippines (TAPPI – Philippines) by conducting quarterly seminars.

D. Training

Trainings are conducted in cooperation with major policy and research institutions and non-governmental organizations in order to promote mutual understanding and training/dissemination of EMS and other environmental issues and parameter targets for members & non-members of the association e.g. FPRDI (DOST), FIDA (DOST), ITDI (DOST), PBE, LLDA, EMB (DENR), DBP, AF-IPK/SIDA, NSWM, Metro Manila Linis Ganda, APPRC, Recycling Movement, etc. These are in-house training on materials handling, safety & housekeeping, waste reduction/minimization, and other environmental awareness programs in compliance with applicable laws, rules and regulations.

Summary Action Plan is provided in Table 6.9. 2:

Table 6.9. 2 Waste Minimization Action Plan for Pulp and Paper Sector

Strategy	Key Activities	Time Frame	Remarks
Advocacy	VII. Paper Sludge Project with Industrial Technology Development Institute (ITDI) of the	Ongoing	For approval of TIPCO and UPLB. Technology to be disseminated to PULPAPEL members

Strategy	Key Activities	Time Frame	Remarks
	Department of Science and Technology (DOST)		
Technology Transfer	VIII. Solid waste minimization/ Utilization	Ongoing	One to three years
	IX. Reduction of process water and re-use of treated wastewater	Ongoing	One to three years
Information/Education	X. Set-up Recycling Center at Ecology Center, Quezon City.	Ongoing	One year
	XI. Benchmarking with PULPAPEL members	Done	For EMP preparation Aug 8 presentation to Directors (PULPAPEL)
	XII. Plant Tour	Ongoing	
	XIII. Sharing information with local communities, public and private sector and members & non-members of the Association including suppliers, contractors, customers, etc. to enhance environmental awareness.	Ongoing	For presentation to DENR within six months
Training	1. In-house training on materials handling, safety & housekeeping, waste reduction/minimization, and other environmental awareness programs in compliance with applicable laws, rules and regulations.	Ongoing	One to three years

XIV FOLLOW-UP RECOMMENDATIONS

As a follow up to the initiatives made in the EMPOWER-WMPP, PULPAPEL recommends that an invitation be extended for representative of PULPAPEL or specific mill to attend technical conference/seminar relating to waste minimization – funding to be granted by host international agency.

6.9.3 Industry Waste Minimization Action Plan: Food Processing Sector³

I. INTRODUCTION

From November 2002 to August 2003, the Board of Investments (BOI) of the Department of Trade and Industries (DTI) implemented the Environmental Management with Public and Private Sector Ownership of the Philippines (EMPOWER) Project with assistance from the Japan International Cooperation Agency (JICA). The general goals of the EMPOWER are (1) to formulate a national action plan that will clarify the actions to promote industrial environmental management (IEM) among private enterprises and investors in the Philippines; and (2) to empower government agencies and industry associations to support the practice of IEM among industries. EMPOWER's key strategies are to raise industry awareness on EM and promote IEM thru the formation of a national IEM action plan and the implementation of IEM pilot projects.

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II. INDUSTRY SNAPSHOT: FOOD PROCESSING SECTOR

(Source: Food Processing Industry, Presentation by Ms. Suzita S. Oredina, January 8, 2003 EMPOWER Waste Minimization Seminar-Workshop)

The Philippine Food Processing Sector is comprised of companies that process the following: fruits and vegetables; beverage and fermentation; meat, poultry, and seafoods; dairy products; snacks foods and seasonings. (DTI statistics estimate about 42,000 food processing

³ Recasted version July 21, 2003 with inputs from PHILEXPORT Action Plan and Presentation June 10 & June 18.

establishments in the country, representing about 45% of the total manufacturing sector, of which more than 99% are small or medium).

Typical food processing wastes are process wastewater, sludge, waste oils, fruit peelings, seeds, leaves, packaging materials and off-specification materials and products. Therefore, environmental concerns are mainly in the area of organic waste, water use and high organic pollutants in wastewater.

III. INDUSTRY ASSOCIATION PROFILE: THE PHILIPPINE EXPORTERS CONFEDERATION, INC.

The Philippine Exporters Confederation, Inc. (PHILEXPORT) is the umbrella organization of Philippine exporters accredited and mandated through the Export Development Act to perform export support and development functions. PHILEXPORT is a non-stock, non-profit private organization born out of the unification of the Philippine Exporters Foundation and the Confederation of the Philippine Exporters.

PHILEXPORT is governed by its Board of Trustees with representatives from seven government agencies, namely, Department of Trade and Industry (DTI), Department of Finance (DOF), Bangko Sentral ng Pilipinas (BSP), Department of Agriculture (DA), Department of Natural Resources (DENR), and Department of Transportation and Communication (DOTC), and 17 private sector companies.

To date, there are about 3,000 members representing 15 product sectors. Members, mostly small and medium enterprises, are grouped under 19 regional and provincial chapters and 49 industry associations.

PHILEXPORT VISION

PHILEXPORT is committed to work for the continuing development of the Philippines and the prosperity of the Filipinos through exports. We are committed to be the leading and dominant export organization, which, in partnership with business and government, shall propel the country towards a dynamic and self-sustaining economy.

PHILEXPORT MISSION

PHILEXPORT shall lead the export community and work with government in the pursuit of a sustainable export-led national growth and development.

VALUES

As a major player in the country's economic development, PHILEXPORT lives by the following values: Professionalism, Service Orientation, Productivity, and Corporate Social Accountability

One of the more active industry associations affiliated with PHILEXPORT is the Philippine Food Processors and Exporters Organization, Inc. (PHILFOODEX).

PHILFOODEX is a non-stock, non-profit organization of small, medium and large-scale food manufacturers and exporters. It has more than 200 members, including those in the allied services.

As the single and recognized voice of food manufacturers and exporters, PHILFOODEX focuses on the planning, development and sourcing of raw materials; research and technology

development in producing high quality and safe food products, improvement of manufacturing efficiency and productivity and the promotion of sound trade practices to be competitive and responsive to the changing international food market trends. Specific services are: (1) Policy Research and Advocacy, (2) Market Development and Promotion, (3) Information Dissemination, (4) Training and Seminars, (5) Technical Assistance, (6) Market Matching Activities, (7) Bar-coding Services, and (8) Sugar and Rice Allocation.

About 90 percent of PHILFOODEX’s members are engaged in food processing. Among this is TSB Enterprises which is the model company for the processed fruits sector. The sector covers all establishments engaged in processing fruits, vegetables, meat products and seafood especially tuna – curing, canning, drying, freezing, picking or smoking. Processed foods are usually used as ingredients or mixed with other food such as the following:

- water, sugar and other materials in the preparation of fruit juices or fruit-based juice drinks, purees and concentrates;
- flavoring and ingredient for ice cream and bakery products and confectionery products; and
- ingredient in muesli, breakfast cereals and mixed with other fruits, vegetables and nuts as snack packs.

Most enterprises operate manual and semi-mechanized systems. Some are gearing towards a wholly automated system to minimize labor input and eliminate wastes. Others however continue to have semi-automated processes to take advantage of the country’s large and skilled labor pool as well as to address limitations in capital investment.

IV. PREVIOUS PHILEXPORT ENVIRONMENTAL PROGRAMS

As the voice of Philippine exporters, a significant contributor to Philippine economy, PHILEXPORT believes that business and sustainability can go hand-in-hand. In fact, in its vision-mission statement above, there is a pro-environment policy in its social accountability commitment.

To make sure that its environment policy is being implemented, PHILEXPORT has organized its Policy Committee on Environment. Headed by Mr. Oscar Barrera, trustee for the chemicals sector, the Committee meets every month.

Following are among the specific projects and programs of this Committee:

Table 6.9. 3. Projects and Programs of the PHILEXPORT’s Policy Committee on Environment

Policy	<ol style="list-style-type: none"> 1. Continuous dialogue with the Department of Environment and Natural Resources (DENR) and other related environment agencies on various environmental issues 2. Representations in private sector and inter-agency Committees on Environment (Philippine Chamber of Commerce and Industry/PCCI Environment Committee and the Technical Committee of the Ecolabeling Program of the Philippines) on matters related to business concerns on the environment
Legislative	<ol style="list-style-type: none"> 1. Representations at the legislative branch of government 2. Attends and participates in public consultations and technical working groups advocating for appropriate environment legislative measures

Media advocacy	Publishes news and features on environment matters thru the PHILEXPORT News and Features with local newspapers
Business Development	1. Conducts seminars on environmental rules and regulations in cooperation with the PCCI, the Department of Environment and Natural Resources, and other relevant government agencies 2. Participates in Industrial Environment Management (IEM) activities and practices waste minimization
Facilitation	Environment Desk at the Export Service Department
Corporate Social Responsibility	Tree planting project at the World Trade Center

In 2002, PHILEXPORT joined the Business Agenda 21 (BA 21) network of industry associations which are implementing a voluntary action plan on environmental concerns. In particular, their BA 21 described activities that would increase networking with environmental groups, strengthen the environmental awareness of their members (via information campaign, publications, training courses), promote Environmental Management System (EMS) and assist in setting up an industry-based certification body to help companies attain ISO 14001 certification.

V. PHILEXPORT WM ACTION PLAN FOR THE PROCESSED FOOD SECTOR

As its contribution to the objectives of the JICA EMPOWER Project, PHILEXPORT has developed a WM Action Plan over a three-year period with specific activities and targets in the areas of Advocacy, Technology Transfer, Information/Education/Training and Company-level Policies. These are described in the following detailed Action Plan.

Table 6.9. 4. Waste Minimization Action Plan for Processed Food Sector

ACTIVITIES	QUANTITATIVE OUTPUT/TARGETS	TIMETABLE	AGENCY/IES RESPONSIBLE
<p>A. ADVOCACY</p> <p>A1. Promotion of industry WM program</p> <ul style="list-style-type: none"> • Conduct of seminars for management, employees and respective suppliers/subcontractors on environment awareness and protection • Production of relevant collaterals for posting in offices and factories to heighten awareness and promote the discipline of WM <p>A2. Conduct a study and develop a framework for the development of an accreditation system for suppliers and subcontractors following the principles of WM and green label chemicals as recognized by the UN FAO</p> <p>A3. Explore the possibility of setting up a solid waste management facility</p>	<p>One seminar each for:</p> <ol style="list-style-type: none"> 1. General PHILFOODEX membership 2. Processed fruits sector 3. Employees in these firms 4. Subcontractors/suppliers <p>Common message and posters for the industry produced and posted in the factories of all PHILFOODEX members</p> <p>Study and framework completed for an accreditation system</p> <ul style="list-style-type: none"> • Solid waste management facility set-up 	<p>Four seminars completed by end of December 2003</p> <p>Production completed by end of December 2003 for posting in January 2004</p> <p>June 2005</p> <p>December 2005</p>	<p>PHILFOODEX Environment Committee (PEC) in partnership with the Philippine Business for the Environment (PBE) and the Department of Science and Technology (DOST)</p> <p><i>Funds:</i> from contribution of PHILFOODEX members</p> <p><i>Production and monitoring:</i> PEC</p> <p>PEC with assistance from the PBE (environment), Bureau of Food and Drugs (safety and health) and the Japan International Cooperation Agency (JICA)</p> <p><i>Funding:</i> Joint venture between a private company/corporation and PHILFOODEX members</p> <p><i>Technical assistance:</i> JICA, DOST, DENR, PBE</p>

ACTIVITIES	QUANTITATIVE OUTPUT/TARGETS	TIMETABLE	AGENCY/IES RESPONSIBLE
<p>B.TECHNOLOGY TRANSFER</p> <p>B1. Network with the Department of Science and Technology, particularly the Packaging and Research Development Center (PRDC), on appropriate technology and packaging materials that are not only cost-effective but also environment-friendly.</p> <p>B2. Implement the recommendation in a study on the possible uses of industry wastes/scraps with matching identification of technology for this purpose</p> <p>B3. Plant tour/observation in companies practicing waste minimization</p> <p>C.INFORMATION/ EDUCATION/TRAINING</p> <p>C1. Benchmarking with other companies that are practicing waste minimization</p> <p>C2. Conduct of training/seminars for workers and subcontractors on ways to minimize/maximize the use of energy, water and other company and natural resources.</p>	<ul style="list-style-type: none"> • Institutionalized a network with the PRDC • Development of a list of food-grade and environment-friendly packaging materials and suppliers • List of industry wastes/scraps, their possible use and technology requirement • Commercialization of these “experiments” • List of companies practicing waste minimization <p>Big-brother, small-brother approach adopted in the advocacy, adoption of these practices</p> <p>Compilation of best practices of these practitioners</p> <p>One seminar each for:</p> <ol style="list-style-type: none"> 1. Processed fruits sector 2. Employees in these firms 3. Subcontractors/suppliers 	<p>December 2003</p> <p>August 2003</p> <p>August 2005</p> <p>August 2003</p> <p>July 2004</p> <p>Seminars completed by the end of the first quarter, 2004</p>	<p>PEC, PRDC</p> <p>PEC, DOST</p> <p>PEC, DOST, private sector joint venture partners</p> <p>PEC</p> <p>PEC</p> <p><i>Technical assistance:</i> PBE, DOST PEC</p> <p><i>Resource persons from:</i> PBE, WM model companies</p>

ACTIVITIES	QUANTITATIVE OUTPUT/TARGETS	TIMETABLE	AGENCY/IES RESPONSIBLE
D. COMPANY POLICIES			
D1. Adoption, promotion and implementation of an environment policy that adheres to global standards	<ul style="list-style-type: none"> • 10 companies implementing their environment policy • 20 new companies implementing their environment policy • 20 new companies implementing their environment policy 	End December 2003	PEC
	Same targets	End December 2004	PEC
D2. Implementation of WM	Sector wastes minimized by 90 percent	End December 2005	PEC
D3. Periodic review and documentation of production processes and supply chain to identify areas where waste minimization can be applied	Sector wastes minimized by 90 percent	Same targets	PEC with technical assistance from DOST, PBE
		End December 2004	PEC
D4. Proper maintenance of equipment and facilities		End December 2004	PEC
E. MONITORING	Annual monitoring/project report shared with other partners	December 2003, December 2004, December 2005	PEC to make report and share it with PHILEXPORT, PBE and DOST
Follow-up and follow through activities to make sure that items A to D are implemented and sustained as appropriate			

VI. FOLLOW-UP RECOMMENDATIONS

The following recommendations are identified to sustain momentum generated by the WMPP-EMPOWER:

- A. Training Seminars on WM with support from PBE and JICA for resource persons and/or training funds targeting general PHILFOODEX membership and employees/subcontractors/suppliers of processed fruit sector companies (Item A1 in the Action Plan)
- B. Experts assistance in the conduct of a study and development of accreditation system for suppliers and subcontractors following the principles of WM and Green Labeling of chemicals (Item A2 in Action Plan)
- C. Technical Assistance and Funding for set up of a solid waste management facility (Item A3 in Action Plan)

- D. Possible Replication of Model Company WM Implementation Experience with more SME Companies in the food processing and other sectors
- E. Plant tour/observation on company WM practices in Japan/ASEAN

6.9.4. Industry Waste Minimization Action Plan: Metalcasting Sector⁴

I. INTRODUCTION

From November 2002 to August 2003, the Board of Investments (BOI) of the Department of Trade and Industries (DTI) implemented the Environmental Management with Public and Private Sector Ownership of the Philippines (EMPOWER) Project with assistance from the Japan International Cooperation Agency (JICA). The general goals of the EMPOWER are (1) to formulate a national action plan that will clarify the actions to promote industrial environmental management (IEM) among private enterprises and investors in the Philippines; and (2) to empower government agencies and industry associations to support the practice of IEM among industries. EMPOWER's key strategies are to raise industry awareness on EM and promote IEM thru the formation of a national IEM action plan and the implementation of IEM pilot projects.

These pilot projects are:

- Waste Minimization Pilot Project (WMPP)
- Industrial Environmental Management (IEM) Knowledge Network
- Eco-labeling Program
- Green Procurement Policy

The WMPP component, in particular, aimed to integrate productivity and waste minimization by carrying out waste reduction assessment and planning in four key industry sectors, namely Pulp and paper, chemical, foundry and food. Within each sector, WMPP worked with a partner industry association to build awareness in WM and develop an industry-level WM action plan; and with representative companies of the association to design and/or implement company-level waste minimization action plans to serve as demonstration models for each of the four sectors. The WM Implementation experience at the company level is described in a WM Guidebook which is one of the key outputs of the Project. This current document describes the industry-level WM Action Plan of one of the Industry Associations, in particular, that of the Philippine Metalcasting Association, Inc. (PMAI).

II. INDUSTRY SNAPSHOT: PHILIPPINE METALCASTING INDUSTRY

The following gives a general profile of the Metalcasting Industry in the Philippines:

Geographical Distribution.

In 1995, there were 298 foundries in 202 companies, up from 148 in 1987, which is a modest increase of 36.5% over a period of eight years for a compounded growth rate of 3.96% per year. Based on the alloys they produce metalcasting companies can be classified as gray cast iron (which comprise the biggest share), ductile cast iron, malleable cast iron, cast steel, cast bronze, and cast aluminum. Majority of the companies are classified as corporations (i.e. 62.5) or single proprietorships (29.8). They are mostly small (38.4%) or medium (21.2%) in size each employing an average of 85 persons.

⁴ Recasted version July 21, 2003 with inputs from PMAI Action Plan and Presentation June 10 & June 18.

Note that the total employment of 17,129 people in the industry is not very impressive, probably due to the reluctance of industrialists/capitalists to engage in the metalcasting industry, which, despite its strategic and vital importance to the country's industrialization, is unfortunately considered a marginal industry. No industrialist in his right mind, except probably a diehard foundryman, would risk venture capital under the prevailing conditions in the industry -- where production inputs are high, product requirements are demanding, quality control is difficult, and market prices are low. See Table 1 to 5 in **Annex I** in this section for details on the above.

Table 6 in **Annex I** summarizes the production of each subsector during the period 1987 to 1995.

The data also shows that ductile iron is picking up; while cast steel is declining. Also that gray cast iron and aluminum both registered a good growth of about 25% during the period.

III. INDUSTRY ASSOCIATION PROFILE: THE PHILIPPINE METALCASTING ASSOCIATION, INC.

The Association was originally organized and inaugurated as the Philippine Foundrymen's Society in 1965. The regular members were "Foundrymen," while companies were included as "Company or Corporate Members." The Society of Foundrymen faced financial difficulties because of its composition and it became dormant till MIRDC's Dr. Arizabal helped resuscitate it in 1972 as the Philippine Foundry Society, now a society of Foundry Companies, with foundrymen as Associate Members.

In 1990, the association's name was changed to the Philippine Metalcasting Association, Inc. to faithfully reflect its real nature, because companies should not make up a "society," only individuals should.

PMAI has 110 members, which includes 91 metalcasting and/or supplier companies and 19 individual members. The Association Secretariat is based in a building owned by its sister organization, Philippine Metalcasting Foundation, Inc., that is located at the Quezon City Polytechnic University, 673, Quirino Highway, San Bartolome, Novaliches, Quezon City.

1) PMAI VISION

PMAI envisions a well-developed Philippine Metalcasting Industry that is at par with the best in the world, engineered, molded, and shaped by PMAI and skillfully steered into and through the present millennium, with PMAI at the helm as a widely recognized and highly regarded institution for improving productivity and industrial prosperity. It will always be entrepreneurial in spirit and truly Filipino in heart and mind.

2) PMAI MISSION

PMAI, imploring the aid of Divine Providence, shall build itself into a powerful force that cannot be ignored and shall strive to make a difference through the judicious use of all resources available to the Metalcasting Industry in developing its manpower skills, enhancing its industrial capability, and improving the manufacturing economy with proper regard for the natural environment, thereby ensuring viability, profitability and lasting stability in the industry under any economic environment.

3) PMAI GOALS

The goals of PMAI are manpower development, capability enhancement thru product development and

process improvement, and economy improvement (for a more conducive business climate in partnership with government and other organizations). Among its objectives are:

- Establish a Philippine Metalcasting Center
- Set up Advanced Education in the Center
- Establish a Metalcasting Industry Data-base System
- Organize a Technical Group,

IV. PREVIOUS PMAI ENVIRONMENTAL MANAGEMENT (EM) INITIATIVES

In 1999, PMAI was among the industry associations which joined the Philippine Business Agenda 21, a network of industry associations with voluntary environmental action plans which aimed to contribute to national efforts for achieving sustainable development.

PMAI's BA 21 identified air pollution as the main environmental aspect of the industry with general strategies for: environmental education (via symposia, for managers, supervisors, engineers, and workers, and via the PMAI newsletters); production facilities upgrade; and networking among association members "to stimulate interest in Environmental Management, establish shared facilities, and recognize environment friendly foundries." (Source: Philippine Business Agenda 21, pp. 203-204).

As a result of its participation in the EMPOWER Project, PMAI has accomplished the following:

- a. Obtained support from member companies on Waste Minimization as seen from
 - Participation in EMPOWER seminars and WM seminars
 - Participation in JICA EMPOWER survey
 - Submission of declarations of commitment to WM by at least four foundries
- b. Arranged for the participation of four member companies in the WM Assessment and Planning phase of the WMPP, namely, Metals Engineering Resources Corporation (METERCOR), Cebu Iron Foundry Corp., San Gabriel Enterprises, and Acetech Metal Industries Corporation (AMIC)
- c. Arranged for the participation of AMIC as model company for the Metalcasting Industry
- d. Developed a WM Action Plan for the Metalcating Industry via a consultative meeting they had with association officers and member representatives.

V. PMAI ACTION PLAN

Objectives and Strategies

The PMAI WM Action Plan aims to strengthen awareness and adoption of members on Environmental Management and Waste Minimization through Advocacy, Information/Education, Technology Transfer, and Training. Key activities and targets are presented in Table 6.9. 5:

Table 6.9. 5. Key activities and Targets of the PMAI WM Action Plan

Strategy	Key Activities	Time Frame
Advocacy	• Presentation/Validation of PMAI WM Action Plan	July 3, 2003
	• Presentation of Model Company WM Experience and Benefits at PMAI Convention	July 3, 2003
	• Advocate EM/WM thru PMAI website	July 3, 2003
	• Continue EM info dissemination thru PMAI newsletter	Continuing
	• Establish industry database/info system	Mid 2004
Technology Transfer	• Assist PBE with preparation of the WM Guidebook (with input on Foundries)	May – August 2003

	<ul style="list-style-type: none"> Seek foreign training grants to upgrade local resource persons on new technologies 	Continuing
Education and Training	<ul style="list-style-type: none"> Conduct information seminars/WM trainings for members (depending on availability of resource persons) 	
	<ul style="list-style-type: none"> Collaborate with Pamantasan ng Lungsod ng Maynila for emphasis on WM in educational masteral courses on Metal Engineering and Vocational Training in Foundry and Patternmaking 	Long-term
	<ul style="list-style-type: none"> Develop Metalcasting Center into modern facility (with WM training) in collaboration with Quezon City Polytechnic University; source grants 	Long-term

1. Advocacy Level

Due to the intercession of EMPOWER on the minimization of waste, the level of awareness in the association has risen tremendously. Where before environmental concerns through the minimization of waste were hardly discussed, let alone practiced; today, more and more members of the association are aware of the vital importance of the waste management. It is gradually being realized that good waste management is as important as quality in improving productivity. It is planned to further increase this awareness level to 100 percent by holding more information seminars. An information presentation is included in the Paper Presentations of the forthcoming PMAI Metalcasters' Convention in July 2003. This is also expected to raise the advocacy level to the level of company owners and officers, besides all the government agencies involved in the Metalcasting Industry's business.

2. Technology Transfer

Technology transfer is being realized through seminars and videos made available through generous organizations of other countries, notably Japan, the United States, and Germany. Foreign training would probably make technology transfer much faster. The Association will seek available training grants that it can avail of.

3. Information Education

This is intimately related with Technology Transfer as it is the first stage of Technology Transfer. More and more companies are getting educated through information. The Technical Committee of the Philippine Metalcasting Association holds information seminars every now and then. The frequency of such seminars depends upon the availability of Resource Persons, which is not too often. The Technical Committee will try to identify available Resource Persons, preferably those well versed or have been involved in the foundry industry. Only such persons would appreciate the types of controls needed in a foundry which share very little in common with other industries.

4. Training

This is the second stage towards Technology Transfer. More intensive training on waste minimization would go a very long way towards the transfer of technology and the actual realization of improved productivity through the minimization, or proper management, of waste. As mentioned above, the Association would like to identify available training grants, provided these are not in the Middle East or in any of the SARS countries.

There shall be three levels to the Action Plan:

Short-term: Conduct a waste minimization presentation at the Convention while inaugurating a website: www.pmai.org in the Internet. These should be completed by the end of July 2003.

Medium-term: Produce a “Guidebook on Waste Minimization for Foundries” in collaboration with the JICA-PBE and DOST. Also, establish a Data-Base on the industry bolster our Information System. These two should be available to industry by mid-2004, at the latest.

Long-term: Set up educational masteral courses in Metal Engineering and vocational-training courses in Foundry and Patternmaking Technologies, all of these with proper emphasis on waste minimization.

VI. FOLLOW-UP RECOMMENDATIONS

Among the continuing concerns and recommendations of the metalcasting industry sector are the following:

1. Policy Dialogue with DTI on the exportation of scrap metal and scrap iron;
2. Extended on-site assistance on WM by JICA expert (for 2-4 weeks);
3. Technology Information/Technology Transfer Request; and
4. Resource Persons/Seminars.

PMAI Annex I

Table 6.9. 6 GEOGRAPHICAL DISTRIBUTION OF FOUNDRIES, 1995

Region	No	%	Region	No	%	Region	No	%
NCR	117(93)	57.9	IV	11(5)	5.4	IX	4(3)	2.0
CAR	2(2)	1.0	V	0(0)	0.0	X	3(0)	1.5
I	12(4)	5.9	VI	18(13)	8.9	XI	6(4)	3.0
II	0(0)	0.0	VII	24(17)	11.9	XII	1(1)	0.5
II	2(4)	1.0	VIII	0(0)	0.0	ARMM	2(2)	1.0
						TOTAL	202 (148)	100.0
NOTE: Numbers in parentheses are 1987 figures for number of foundries.								

Table 6.9. 7 CLASSIFICATION OF COMPANIES, as of 1995

	Numbers	%
Gray Cast Iron	106	35.6
Ductile Cast Iron	13	4.4
Malleable Cast Iron	4	1.3
Cast Steel	33	11.1
Cast Bronze	66	22.1
Cast Aluminum	70	23.5
Unknown	6	2.0
TOTAL	298	100.0

Table 6.9. 8 OWNERSHIP STRUCTURE

	1995	1987
Corporation	62.5	58.3
Partnership	6.7	4.2
Single proprietorship	29.8	37.5
Joint-venture	1.0	1.4

Table 6.9. 9 SIZE CLASSIFICATION

	1995	1987
Micro*	9.6%	---
Cottage	21.2%	42.6%
Small	38.4%	41.2%
Medium	21.2%	5.4%
Large	9.6%	10.8%

*There was no "Micro" category in 1987.

Table 6.9. 10 EMPLOYMENT AND MANPOWER DISTRIBUTION, 1995

	Average	%	No.
Administration	10	11.8	2,138
Indirect workers	11	12.9	2,133
Direct workers	64	75.3	12,858
TOTAL	85		17,129

NOTE: Numbers in parentheses represent average figures for a typical foundry.

Table 6.9. 11 SUMMARY OF ANNUAL PRODUCTION OF METAL CASTINGS*

(In ton per annum)

Alloys	1987	1988-89	1990	1991	1992	1993	1994	1995	%CGR
Gray Cast Iron	63,012	na	85,012	336,550	225,568	252,174	208,714	261,310	25.2
Ductile cast iron	na	na	1,1131	832	683	1,612	1,560	1,691	8.4
Mall. cast iron	na	na	na	na	na	516	184	55	-64.3
Cast Steel	60,412	na	11,616	12,276	13,002	10,956	9,273	8,763	-5.5
Cast Bronze	5,846	na	30,162	12,804	6,468	14,388	8,382	6,085	-27.4
Cast Aluminum	13,167	na	16,380	16,450	8,540	17,500	38,780	48,087	24.0

*Based on the results of the industry survey made by MIRDC in 1995.

6.9.5. Industry Waste Minimization Action Plan: PHILIPPINE CONFEDERATION OF EXPORTERS (PHILEXPORT) CEBU WASTE MINIMIZATION ADVOCACY PLAN

I. INTRODUCTION

From November 2002 to August 2003, the Board of Investments (BOI) of the Department of Trade and Industries (DTI) implemented the Environmental Management with Public and Private Sector Ownership of the Philippines (EMPOWER) Project with assistance from the Japan International Cooperation Agency (JICA). The general goals of the EMPOWER are (1) to formulate a national action plan that will clarify the actions to promote industrial environmental management (IEM) among private enterprises and investors in the Philippines; and (2) to empower government agencies and industry associations to support the practice of IEM among industries. EMPOWER's key strategies are to raise industry awareness on EM and promote IEM thru the formation of a national IEM action plan and the implementation of IEM pilot projects.

These pilot projects are:

- Waste Minimization Pilot Project (WMPP)
- Industrial Environmental Management (IEM) Knowledge Network
- Eco-labeling Program
- Green Procurement Policy

The WMPP component, in particular, aimed to integrate productivity and waste minimization by carrying out waste reduction assessment and planning in four key industry sectors, namely Pulp and paper, chemical, foundry and food. Within each sector, WMPP worked with a partner industry association to build awareness in WM and develop an industry-level WM action plan; and with representative companies of the association to design and/or implement company-level waste minimization action plans to serve as demonstration models for each of the four sectors. The WM Implementation experience at the company level is described in a WM Guidebook which is one of the key outputs of the Project. This current document describes the industry-level WM Action Plan of one of the Industry Associations, in particular, that of the PHILIPPINE CONFEDERATION OF EXPORTERS (PHILEXPORT) CEBU.

II. PHILIPPINE CONFEDERATION OF EXPORTERS (PHILEXPORT) CEBU

The Confederation of Philippine Exporters Foundation (Cebu), Incorporated or PHIEXPORT Cebu is mandated by the Export Development Act of 1994. It became the primary umbrella organization of exporters in Central Visayas, serving the purpose of protecting the export industry and sustaining its growth.

Being the largest multi-sectoral export group in the region, it represents the voice of the exporters and concerns itself with matters of common interest among member industries and sectors.

The following are the essential roles of Philexport Cebu: (1) providing leadership and direction to the exporting community; (2) fielding of a common vision for Cebu's export industry through which the various export sectors are unified; (3) the facilitation of strategic agreements on issues vital to the exporting community; (4) the upkeep of productivity and professionalism, and (5) the advocacy for legislation that sustains a favorable export climate in Cebu.

Organizations under the umbrella of PHILEXPORT Cebu are: (1) The Fashion Accessories Manufacturers and Exporters Foundation Philippines (FAME) with a total membership of 62 companies producing quality costume jewelry and fashion accessories; (2) The Cebu Furniture Industries Foundation (CFIF) composed of 123 established furniture manufacturing and exporting firms; (3) Cebu Gifts, Toys and Houseware Manufacturers and Exporters Association, Inc. (Cebu GTH) comprised of 30 small exporters.

III. PHILEXPORT CEBU ENVIRONMENTAL INITIATIVES AND WASTE MINIMIZATION PLAN

PHILEXPORT Cebu recently joined the Philippine Business Agenda 21 (BA 21), a network of industry associations with voluntary environmental programs which it commits to implement through its members. PHILEXPORT's BA 21 Vision is to become one of the key exponents for sustainable development and assist in enhancing the competitiveness of the export industry by involving the stakeholders particularly the industry associations under its umbrella, to be active players in the advocacy towards social accountability. The Confederation believes and commits itself to new paradigms in production systems that support the sustainability of the environment and shall continuously and consistently endeavor to advocate for clean and green polices and technologies." It has eight key strategies, one of which is to promote firm-level waste minimization initiatives. (Item 3 PHILEXPORT Cebu BA 21). It hopes to do this by

- conducting WM seminars to members (Item 3.1, BA 21)
- sourcing assistance to pilot test export firms on WM efforts (Item 3.2, BA 21).

Thus far, it has successfully accomplished the following:

- a. As one of the key partner organizations for the EMPOWER-WMPP, mobilized the participation of five Cebu-based companies for Waste Assessment and Planning with assistance from the WM Project experts from DOST-ITDI and PBE
- b. Co-organized Waste Minimization Seminars in January, 2003 and June 2003 with a total of 63 industry participants
- c. Obtained written declarations of commitment to waste minimization from CEOs/senior managers of 11 Cebu-based firms
- c. As key partner organization for the ongoing UNDP-assited Environmental Management Programme for Industry Competitiveness (EPIC) Project, co-organized training and technical assistance on Environmental Management System (EMS) for nine member companies and six EMS Mentor trainees from the fashion accessories, furniture, food and hotel sectors. Inherent in the EMS plans being developed by the companies are strategies to reduce/recycle waste and pollution. (See attached PHILEXPORT-CEBU BA 21).

Table 6.9. 12. PHILEXPORT- CEBU Business Agenda 21

Environmental Aspect	Strategies	Specific Steps	Goals	Completion Date
1.Policy advocacy support for clean and green technologies.	1.1 ..Strengthening its current alliances with environment regulatory agencies.	1.1.Complement in the implementation of sound environmental regulations and policies of the government.	To encourage and assist exporters in complying with environment regulations.	On-going and Continuing
	1.2 Build alliances and/or partnerships with environment/business groups.	1.2.Among co-signors to environment manifestos and position papers relative to the environment.	To concretize Cebu exporters' participation to environment	

Environmental Aspect	Strategies	Specific Steps	Goals	Completion Date
2. Empowerment of the Philexport secretariat as an effective vehicle for a proenvironment advocacy;	1.3 Participation to discussions and group interactions.		advocacy	
	2.1 Provide a venue for Philexport staff to learn and internalize environmental issues;	2.1..Attendance and sending of representative(s) to environment-related fora, conferences and meetings	To make Philexport Cebu as a first line of inquiry for environment-related concerns of Cebu exporters	Middle of 2003
3. Firm-level waste minimization initiatives	3.1. Waste minimization seminar to members	3.1a. Conduct seminar through the assistance of JICA, PBE. 3.1b Seek for the expertise of JICA to conduct on-site visit to implement waste minimization programs to selected companies	To encourage export companies to adopt concrete waste minimization programs	January-May 2003
	3.2 Sourcing of assistance to pilot test export firms on waste minimization efforts.		To allow export companies to learn the benefits waste minimization and adopt them in their companies and to provide model companies for Cebu exporters to follow	March 2003-December
4. Environmental Management Systems	4.1. Advocate for the setting up of a local certifying body for ISO 14000	4.1. Support to Philexport Nationals whatever initiatives to be taken towards this end	To encourage and assist Cebu exporters in their ISO 14000 certification requirements	January – Onwards
	4.2. Partnership with the PBE on various EMS programs for Cebu exporters	4.2. Implementation of various EMS activities such as: EMS Seminars, Training of Mentors and Mentoring Activities and Pilot-testing of companies from the different export industries	To increase the number of ISO 14000 certified exporters and motivate other export companies to adopt EMS. Also to establish Philexport Cebu's continuing EMS program thru the mentoring system.	March 2003
5. Environment Education and Campaign	5.1. Seminars and briefings to export companies	5.1. Greening the Supply Chain Briefing with the Phil. Business for	To enable companies to institutionalize policies and mechanisms to adopt	2003 – Onwards

Environmental Aspect	Strategies	Specific Steps	Goals	Completion Date
	5.2 Training and mentoring program on Social Management System (SMS) with reference to Social Accountability 8000 standards	Social Progress 5.2.Partnering and/or cooperating with Social Standards Exchange of Experience in Southeast Asia and Practical Learning (Seal Project), activities to include as CEOs briefing and selection of companies for mentoring.	supply chain environmental management To assist and motivate export companies to adopt ethically sound code of conduct in terms of labor and the environment.	2003 – Onwards
	5.3 Promotion of EMS via the Internet	5.3.Provision for a section related to environment thru Philexport Cebu’s website or thru emails. Setting-up of important links to environment-related websites	To promote EMS to the widest sector as possible.	2003-Onwards
	5.4.Media relations activities	5.4.Invitation of local media to cover environment-related activities of Philexport Cebu and its industry associations	To contribute in the general promotion of the Philippine Business Agenda 21	
6.Networking and Anchoring Activities	6.1.Networking with environmental groups, EMS consultants and practitioners.	6.1.Sourcing of publication and/or literature on EMS.	To enhance and strengthen the environment advocacy of Philexport Cebu	Ongoing
7.EMS Financing Information	7.1.Sourcing of information on financing programs for exporters related to pollution control, waste minimization or EMS programs.	7.1 a Seek assistance with Development Bank of the Philippines (DBP) to provide information thru briefings or literature on such kind of financing.	To assist exporters in fund sourcing specifically on acquiring technologies or adoption of cleaner systems.	2003 – Onwards
8. Linkages with foreign intermediaries	8.1.Information exchange to provide updates non-tariff barriers especially on environment issues	8.1.Continuous linkage with Center for the Promotion of Imports from developing	To position exporters in relation to markets by understanding the significance of	Continuing – Onwards

Environmental Aspect	Strategies	Specific Steps	Goals	Completion Date
		Countries (CBI) to provide Philexport Cebu recent market information and regulations pertinent to environment-related and/or sanitation issues such as eco-labeling, standards certification – SA 8000, Hazard Analysis and Critical Control Point (HACCP), ISO 14000 and etc.,	environment compliance certifications and to be able to use these standards certifications as a marketing tool.	

IV. FOLLOW-UP RECOMMENDATIONS

The main recommendation is for possible replication of the EMPOWER-WMPP in Cebu with extended assistance on-site technical assistance by JICA experts to PHILEXPORT Cebu member companies in priority sectors. Other recommendations are for:

- Policy Dialogue with DTI on the exportation of scrap metal and scrap iron;
- Extended on-site assistance on WM by JICA expert (for 2-4 weeks);
- Technology Information/Technology Transfer Request in line with WM; and
- Resource Persons/Seminars on WM.

ANNEX 6.10

6.10 The First Waste Minimization Workshop

6.10.1 Metro Manila District

- 1) Date
Three days from January 8 to 10, 2003
- 2) Venue

Metro Manila District
Astoria Hotel, Pasig City
- 3) Program

Day 1:

Time	Events	
8:30-9:00	Registration	
9:00-9:15	Opening Ceremonies Introduction	Ms. Lisa C. Antonio, Executive Director, PBE
	Welcome Remarks	Mr. Tad Tanaka, JICA Study Team
9:15-9:45	Waste Management Hierarchy	Ms. Suzita S. Oredin, DOS-ITDI
9:45-10:30	Waste Minimization Concepts and Good Manufacturing Practices	Dr. Christopher M. Silverio, DOST-ITDI
10:30-10:45	Coffee break	
10:45-11:30	Improving Environmental Performance and Business Strategy	Dr. Christopher M. Silverio
11:30-12:00	Open Forum	
12:00-1:00	Lunch	
1:00-3:00	Overview of Industry Waste Minimization Efforts	Mr. Victor S. Pascual, Vice President, PULPAPEL Ms. Teresita B. Corpuz, Director, SPIK Mr. J. Hermes D. Bautista, Technical Consultant, PMAI Ms. Suzita S. Oredina, DOST-ITDI
	* Pulp & Paper	
	* Chemicals	
	* Foundry	
	* Food	
3:00-3:15	Coffee break	
3:15-4:15	Environmental Management System	Ms. Lloly Y. Jesus, PBE Consultant
4:15-4:45	Open Forum	
4:45-5:00	End of Day 1	

Day 2:

Time	Events	
8:30-9:00	Registration	
9:00-9:15	Orientation for the Day 2	Dr. Christopher M. Silverio, DOST-ITDI
9:15-10:15	Setting up a Waste Minimization Program	Dr. Christopher M. Silverio,

Time	Events	
		DOST-ITDI
10:15-10:45	Coffee break	
10:45-11:30	Waset Assessment	Ms. Suzita S. Oredina, DOST-ITDI
11:30-12:00	Open Forum	
12:00-1:00	Lunch	
1:00-3:00	Formulating Waste Minimization Options & Waste Minimization Benefits	Ms. Sizita S. Oredina, DOST-ITDI
3:00-3:30	Coffee break	
3:30-4:30	Case Studies	Dr. Christopher M. Silverio, DOST-ITDI
4:30-5:00	Open Forum	

Day 3:

Time	Events	
8:30-9:00	Registration	
9:00-9:30	Orientation & Grouping	Mr. Tad Tanaka, JICA Study Team
9:30-9:45	Coffee break	
9:45-12:00	Workshop on Preparing Sectoral Waste Minimization Action Plan	
12:00-1:00	Lunch	
1:00-3:00	Action Plan Presentation	
3:00-3:15	Coffee break	
3:15-4:30	Continuation of Action Plan Presentation	
4:30-4:45	Seminar Wrap-up	
4:45-5:00	Awarding of Certificates	

4) Participants

#	Name	Company
1	Rodolfo Angeles, Jr.	Aclem Paper Mills, Inc
2	Romani Garcia	Ditto
3	Robert Lim	Ditto
4	Jose Amendi	Armendi Trading & Services
5	Bienvenida Cruz	Asahi Glass Phils
6	Melandro Mapili	Ditto
7	Albert Asprec	Aventis
8	Philbert Carmona	Bayer Cropscience, Inc.
9	Marietta Santos	BFC Worldwide Inc.
10	Ronald Ramirez	Ditto
11	Mildred Baylon	Castillejos Agri-Farms, Inc.
12	Nilo Franco	Ditto
13	Joseph Bernal	Ditto
14	Reynaldo Gomez	CCP
15	Jim D. Cagaoan	Ditto
16	Ernesto Panerio	Eldon
17	E.P. Panerio	Ditto
18	Danilo Caraballe	Eugenio Lopez Center
19	Ethel Bondoc	Ditto
20	Roehl Gonzales	Filipino Pipe & Foundry
21	Herminiano Gutierrez	Ditto
22	John Teofilo Silva	Ditto
23	Ed Francisco	FPI
24	Rizza Zulueta	Goldwin Mfg. Lab Corp.

#	Name	Company
25	Suzette S. Remoso	Ditto
26	Moreno Peñalba	Head, Envi. Unit
27	Evangeline Villanueva	Int'l Chemical Ind, Inc
28	Alfred Reyes Jr.	Ditto
29	Apolinario Santiago	Ditto
30	Jazmin Paguergan	Ditto
31	Angelita Gabuna	Kemwerke, Inc.
32	Jonathan Saloma	Ditto
33	Alexander Yao	Lamoiyan Corporation
34	Archie Romero	Ditto
35	Edgardo Salvacion	Liwayway Mktg. Corp.
36	Leo Vinci Bravo	LMG
37	Erwin Sta. Maria	Lopez Center Inc.
38	Ramon Lapena	Mabuhay Vinyl
39	Edwin Umali	Ditto
40	Manuel Palermo	Ditto
41	Evelyn Francisco	Ditto
42	Geronima Domingo	Noah's Paper Mill, Inc
43	Edgar Borja	Ditto
44	Samuel Rivedenicra	Ditto
45	Darlene Aberroja	PhilExport
46	Donna May Sarabia	PHILPHOS
47	Arnold Pabillore	Pilipinas Shell Petroleum
48	Jude Montejo	PRII
49	Manuel Morales	Printwell, Inc.
50	Wilfrido Santeco	Prochem Technology
51	Arnold Pabillore	PSPC
52	Benjamin Gregorio	San Miguel Corp.
53	Kenji Millan	SMC
54	Maricel Santos	SPIK
55	Ariel Angeles	Stayfast Phils. Inc.
56	Tito D. Fortes	TLRC
57	James Lee Dumaog	Trigon Mgt. & Ind'l Corp
58	Jeanette Tiu	Tropicana Food Products
59	Elvira Lomadilla	TRP, Inc
60	Jocelyn Timpug	Trust Int'l Paper Corporation
61	Eladio Ebreo	United Coconut Chem, Inc
62	Antonio Tan	URC

5) Photograph

Waste Minimization Seminar/Workshop

Sarrosa International Hotel, Cebu City(Opening)

22 – 24 January 2003



Presentation from the Food Industry Sector



The Organizers together with Representatives from the Concerned Industries



Participants and Organizers of the Seminar/Workshop



Presentation on EMS by
Ms. Loly De Jesus of PBE.



Presentation of a Representative
from one of the Industry Sectors



Presentation of Dr. Christopher
Silverio of ITDI - DOST



Dr. Christopher Silverio distributing
Certificates of Participation



Organizers Entertaining Comments
from Participants



Workshop Proper



Workshop Proper

6.10.2 Cebu City District

- 1) Date
Date: January 22-24, 2003
- 2) Venue
Venues: Sarrosa Hotel in Cebu City January ,2003
- 3) Program

Day 1:

Time	Events	
8:30-9:00	Registration	
9:00-9:15	Welcome	Mr. Allan G. Suarez, President, Philexport Cebu
	Orientation of Workshop	Ms. Lisa C. Antonio, Executive Director, PBE Philexport Cebu
	Acknowledgement of Participants, Sponsors and of Partner Organization	
9:15-10:30	Waste Management Hierarchy & Strategies for Waste Minimization Waste Management Concepts and Good Manufacturing Practices	Ms. Suzila s. Oredina Dr. Christopher M. Silverio
10:30-10:45	Coffee Break	
10:45-12:00	Open Forum	
12:00-1:00	Lunch	
1:00-3:00	Overview of Industry Waste Minimization Efforts Export Industry: * Food and Carageenan * Jewelry and Gifts and Homes * Furniture and Others Foundry	Mr. Pele T. Echavez Mr. Alfred Relucio
3:00-3:15	Coffee break	
3:15-4:15	Environmental Management System	Ms. Lloly De Jesus,
4:15-4:45	Open Forum	
4:45-5:00	End of Day I	

Day 2

Time	Events	
8:30-9:00	Registration	
9:00-9:15	Orientation for Day 2	Dr. Christopher M. Silverio
9:15-10:15	Setting up the Waste Minimization Program	Dr. Christopher M. Silverio
10:15-10:45	Coffee break	
10:45-11:30	Waste Assessment	Ms. Suzita S. Oredina
11:30-12:00	Open Forum	
12:00-1:00	Lunch	
1:00-3:00	Formulating Waste Minimization Options & Waste Minimization Benefits	Ms. Suzita S. Oredina
3:00-3:30	Coffee break	
3:30-4:30	Case Study	Dr. Christopher M. Silverio
4:30-5:00	Open Forum	

Day 3:

Time	Events	
8:30-9:00	Registration	

Time	Events	
9:00-9:30	Orientation and Grouping	Dr. Christopher M. Silverio
9:30-9:45	Coffee break	
9:45-12:00	Workshop on Preparing Sectoral Waste Minimization Action Plan	Ms. Suzita S. Oredina
12:00-1:00	Lunch	
1:00-3:00	Action Plan Presentation	
3:00-3:15	Coffee break	
3:15-4:30	Continuation of Action Plan Presentation	
4:30-4:45	Workshop Wrap-up	

4) Participants

#	Name	Company
1	Herminigildo Nemil	A. Suarez Sterling Corp.
2	Jakomohom Angelo	Ditto
3	Judelyn S. Antoni	Alenter Food, Inc.
4	Leonora Jaralba	Asahi Optical / PENTAX
5	Alfredo D. Pelucio	Cebu Iron Foundry Corp.
6	Bess Chua Gaw	Cebu Legacy Marketing Corp.
7	Aurora Go	Cenapo Chemical Corp.
8	Rynner Montelibano	Ditto
9	James Capacite	Central Seafoods, Inc.
10	Salvador dela Fuente	Ditto
11	Jill John Lagusay	Dedon Manufacturing Corp.
12	Reynaldo Montemayor	Ditto
13	Allan Gozon	Dedon Manufacturing Corp.
14	Joseph Emboy	Ethnic Ventures
15	Ofelia J. Amante	Fashion Conspiracy, Inc.
16	Praxedes G. Mira	FMC Marine Colloids Corp.
17	Jonathan Bordon	Ditto
18	Eugene K. Co	Jojo's Food Products
19	Dante P. Perilla	MCPI Corporation
20	Pedro D. Padillo	Ditto
21	Teodulo Suarez	Molave Industries, Inc.
22	Joseph Colina	Ditto
23	Jorge Guimbal	Muramoto Audio-Visual
24	Venus Fe Magalong	Nature's Legacy ExImport
25	Romeo T. Oplado	Ditto
26	Carl Steven R. Reyes	NEC Technologies
27	Rembrandt G. Bautista	Ditto
28	Elmer Beleta	PhilExport - Cebu
29	Donna Lumayag	Ditto
30	Amy Encontro	Ditto
31	Aileen Soon	Ditto
32	Chris Malazarte	Ditto
33	Carlos Rosales	Quest International
34	Ronalyn Villafuerte	Ditto
35	Lester Losenara	San Gabriel Enterprises
36	Katherine V. Dasmariñas	San Gabriel Enterprises
37	Maximo Lim	Shemberg Marketing
38	Andres Talaid Jr.	TEC Industries, Inc.
39	Joyce Jeen Garcia	Ditto
40	Connie F. Yap	Universal Sugar Milling Corp.
41	Grace Larcena-Yomo	University of San Carlos
42	Justiano de Lira	Ditto

5) Photograph

Waste Minimization Seminar/Workshop

Astoria Plaza, Pasig City(Opening)
08 – 10 January 2003



Presentation of Dr. Christopher Silverio of ITDI – DOST.



Participants from the Pulp & Paper Industry



Participants and Organizers of the Seminar/Workshop



Organizers of the Seminar/Workshop



Participants from the Food Industry



Participants from the Chemical Industry



Participants from the Foundry Industry



Mr. Tad Tanaka during his Presentation



JICA Study Team Member Mr.
Tad Tanaka distributing
Certificates of Participation



Workshop Proper
Pulp & Paper Industry Sector



Workshop Proper
Chemical Industry Sector



Presentation by the Chemical
Industry Sector

ANNEX 6.11

6.11 Final Workshop

6.11.1 Cebu City District

- 1) Date
June 11, 2003
- 2) Venue
Sorrosa Hotel, Cebu City
- 3) Program

Time	Events	
8:00-8:30	Registration	
8:30-9:00	Welcome	Mr. Allan G. Suarez, President, Philexort Cebu
	Orientation	Ms. Lisa C. Antonio, Executive Director, PBE
9:00-9:30	Japanese Experience in WM	Mr. Tad Tanaka, JICA Study Team
9:30-10:15	WM Project Accomplishments (General benefits, Financial issues)	Ms. Lloly Y. de Jesus, Project Manager, WMPP
10:15-10:30	Coffee break	
10:30-12:30	Specific MW Experiences of Companies	
12:30-1:30	Lunch	
1:30-2:30	Philexort's Business Agenda 21 and Future Environmental Management/Waste Minimization Advocacy Plan	Mr. Allan G. Suarez, President, Philexort Cebu
2:30-3:00	Coffee break	
3:00-3:30	Workshop Evaluation & Closing	

4) Participants

June 11, 2003: Sarosa Hotel, Cebe City

#	Name	Company
1	Hermingild Nemil	A. Suarez Sterling Corp.
2	Apolinar G. Suarez Jr	Ditto
3	Anggelo Jaromohom	Ditto
4	Judelyn Antoni	Alenter Food, Inc.
5	Leonora Jaralba	Asahi Potical/Pentax
6	Philip T. Torres	Board of Investments
7	Reynaldo Montemayor	Dedon Manuf. Inc.
8	Joseph Emboy	Enthnic Ventures
9	Praxedes Mira	FMC Biopolymer
10	Eugene Co	Jojo's Food Products
11	Jorge A. Guimbal	Muramoto Audio Visual
12	Romeo Oplado	Natre's Legacy Eximport
13	Carl Steven Reyes	NEC Technologies Phil. Corp.
14	Rembrandt Bautista	Ditto

#	Name	Company
15	Carlos Rosales	Quest Int'l Phils.
16	MaMaximo Lim	Shemberg Marketing Corp.
17	Pepiteto T. Echavez	Univ. of San Carlos
18	Tedulo M. Suares	Molave Industries
19	Ernesto C. Abines Jr	Philexport
20	Amy G. Encontro	Ditto
21	Elmer E. Eleta	Ditto

5) Photographs

Waste Minimization Seminar

Sarrosa International Hotel, Cebu City(Closing)
11 June 2003



Opening Remarks from the
President of
PHILEXPORT Cebu



Ms. Lisa Antonio of PBE



Presentation by Ms. Lisa Antonio of PBE



Participants of the Closing Seminar



PHILEXPORT Cebu President entertaining comments from the Participants



Participants and Organizers of the Seminar



Mr. Tad Tanaka Receiving Comments and Questions from the Participants



Ms. Lloly De Jesus of PBE



Presentation from the Food Industry Sector

6.11.2 Metro Manila District

- 1) Date
June 18, 2003
- 2) Venue
Astoria Hotel, Pasig City
- 3) Program

Time	Events	
8:00	Registration	
8:30	Welcome address	Ms. Lisa C. Antonio, PBE Executive Director
	Orientation of EMPOWER Project	Ms. Raquel B. Echangué, BOI-OIP Officer-in-Charge
9:00	Japanese Experience in Waste Minimization	Mr. Tad Tanaka, JICA StudyTeam
9:30	WM Project Accomplishments & General Benefits to Companies: technical/organization, financial issues	Ms. Lloly Y. De Jesus, WMPP Project Manager
10:00	Coffee Break	
10:30-12:00	Presentation from Chemical Sector & Paper Sector Sector WM Action Plan: *Chemical Industries Association of Philippines *WM Experience of Model Company: Kemwerke, Inc. (Chemicals) Sector WM Action Plan: Pulp & Paper Manufacturing Association, Inc *WM Experience of Model Company Noah's Paper Mills, Inc.	Ms. Teresita B. Corpuz, SPIK Mr. Luis G. Fernando, Kemwerke President & Ms. Eme Ongo, ITDI Mr. Victor Pascuel, PULPAEL Mr. David Y. Hwang, Noah's Vice President &

Time	Events	
		Ms. Bel Villanueva, ITDI
12:00-1:00	Lunch	
1:00-2:30	Presentation from Food Sector & Foundry Sector Sector WM Action Plan: *Philippine Exports Confederation, Inc. WM Experience of Model Company: *TSB Enterprises (Food) Sector Action Plan: Philippine Metalcasting Association, Inc. WM Experience of Model Company *Acetech Metal Industries Corp. (Foundry)	Mr. Roberto C. Amores, President of Philexport Ms. Ma. Bemardita De Guzman,,TSB Marketing Manager & Dr. Chrisopher M. Silverio, DOST-ITDI Mr. Hermes Bautista, PMAI Technical Consultant Mr. Napoleon J. Tanganco, Acetech, Vice President & Ms. Suzette Oredina, DOST-ITDI
2:30-3:00	IEM Knowledge Network	Ms. Mila S. Antofina, IEM/ISP Project Manager
3:00-3:15	Coffee break	
3:15-3:30	Workshop Evaluation & Closing	

4) Participants

June 18, 2003: Astoria Plaza, Pasig City, Metro Manila

#	Name	Company
1	Geronine T. Domingo	Noah's Paper Mills, Inc.
2	DavidHuanes	Ditto
3	Ledrietto P. Santos	BFC Worldwide
4	Ronmdo T. Ramilec	Ditto
5	Leonila S. Nunag	Inchem Industry, Inc.
6	Cyetha Royet	Ditto
7	Angelita Gabuna	Kemwerke Inc.
8	LG Fernando	Ditto
9	Reynaldo Gomez	CCP
10	Vetrex Pesqual	Ditto
11	Eladic V. Ebrec	Cocochem
12	Nap Tanganco	Acetech
13	Tresie Corynz	SPIK
14	B Pe Guzman	TSB
15	Peres	Philexport
16	J.A. Bautista	PMAI
17	Charles E. Sobrwinas	Enkei Phils. Inc.
18	Richardo W. Eblasin	Sieara Metre Plastic Inc.
19	Carrina B. Banting	Antiques Ts Accents
20	Meinrad P. Crez	Asian Transmission Corp.
21	Clarissa A. Cavero	Guarandoo Mfg.
22	Anastad E. Parasatte	Soul Mills Inc.
23	Teresa T. Bien	Small Precision Tools
24	Pete Daradal	Ditto
25	Muniesa Alvarez	Giron Food, Inc.

26	Ernest Z. Orebe	Chin Su (Phil) Co. Inc.
27	Nestor G. Jarin	Ditto
28	Jame R. Fernandez	Farmers Food
29	Rie Els	Resondo F. Ramos Corp.
30	Edy Tadd	PSMA
31	Benjrann A. Alianza	Packaging Institute of Phils.
32	Tio Jns	PRC

5) Photographs

Waste Minimization Seminar

Astoria Plaza, Pasig City(Closing)
18 June 2003



Mr. Tad Tanaka of the JICA Study Team during his Presentation



Presentation by the Representative of the Model Company for the Chemical Industry



Representative of the Model Company for Pulp & Paper Receiving a Token of Appreciation from Mr. Norio Sambyakugari of the JICA Study Team



Representatives of the Model Companies together with the Organizers of the Closing Seminar



JICA Study Team Leader, Mr. Masato Ohno, handing out a Token of Appreciation to a Representative from one of the Model Companies



Representative of the Model
Company for the Food Industry
receiving a Token of
Appreciation from Mr. Masanao
Hirai of the JICA Study Team



Participants and Organizers of
the Closing Seminar