

## **Chapter 6**

# **Waste Minimization Pilot Project**

## 6 Waste Minimization Pilot Project

### 6.1 Background and Objectives of the Pilot Project

Although waste minimization has been practiced in the Philippines, further efforts are necessary. Identification of results and issues of the former waste minimization projects and would be utilization of the findings would be effective for formulation of policies on promotion of waste minimization.

The waste minimization pilot project aims to, through waste assessment and implementation of waste minimization measures by model companies, demonstrate achieving productivity improvement and waste minimization at the same time, upgrade IEM activities of the model companies, and provide companies in the same sector as the model companies and other sectors with information about the results of model companies' waste minimization for their reference.

Food processing, chemical, pulp and paper, and foundry sectors are selected as target industries from the viewpoints of importance of the industries in the Philippines, possibility of dispatch of Japanese experts, and willingness of industry associations.

### 6.2 Structure of Pilot Project Implementation

PBE, ITDI/DOST, BOI/DTI are selected as the implementing body of the waste minimization pilot project at the 5<sup>th</sup> EMPOWER Steering Committee meeting. EMB/DENR, LLDA/PEZA and relevant industry associations are assisting PBE, ITDI, and BOI to implement the pilot project. Financial and technical assistance for the project is provided by the JICA study team.

The steering committee was established to plan and monitor activities and evaluate outputs of the waste minimization pilot project; it is composed of the members listed in 6.2.1. Since pulp and paper, chemical, foundry, and food sectors were selected as target industry, representatives of the relevant industry associations were invited to be the steering committee member.

Table 6.2.1 Member of the Waste Minimization Pilot Project Steering Committee

	Organization	Name of Representatives
1	BOI (Implementing body)	Ms. Raquel B. Echague
2	ITDI-DOST (Implementing body)	Dr. Christopher M. Silverio
3	PBE (Implementing body)	Ms. Lisa C. Antonio

	Organization	Name of Representatives
4	PBE (Implementing body)	Ms. Lloly de Jesus
5	PBE (Implementing body)	Ms. Wini Y. Villanueva
6	Philippine Metalcasting Association, Inc. (PMAI)	Mr. Hermes D. Bautista, Jr. & Mr. Napoleon J. Tanganco
7	Philippine Exporters Confederation, Inc. (PHILEXPORT)	Ms. Leonor D. Abella (representing also is Ms. Ma. Flordeliza C. Leong)
8	Pulp and Paper Manufacturers Association, Inc. (PULPAPEL)	Mr. Victor Pascual (representing also is Mr. Reynaldo A. Gomez)
9	Chemical Industries Association of the Philippines/SPIK	Ms. Teresita B. Corpuz
10	JICA Study Team Member	Mr. Tad Tanaka

### 6.3 Activities of the Pilot Project

The waste minimization pilot project has the following components:

- (1) Identification of results achieved and problems encountered during the past waste minimization projects
- (2) Policy dialogue between BOI/its institutional partners and industry associations on IEM promotion
- (3) Preparation of sector-wide/industry-wide waste minimization plan by target industry sectors
- (4) Workshop on steps to plan and implement waste minimization activities
- (5) On-site assessment and proposal preparation for waste minimization at 20 volunteer companies by experts
- (6) Implementation of measures identified as feasible and effective to minimize wastes by at least four (4) model companies
- (7) Evaluation of results of the measures at the model companies
- (8) Preparation of the guidebook on promotion of waste minimization targeting company decision-makers
- (9) IEM promotion by BOI through the dissemination of the guidebook
- (10) Workshop on the experiences of the model companies
- (11) Discussions on the award system for the companies rigorously conducting IEM

### 6.4 Outputs of the Pilot Project

- (1) Many business executives / owner – entrepreneurs from Manila and Cebu are oriented to waste minimization approaches and benefits.
- (2) At least twenty (20) additional business executives of Philippine companies strongly support waste minimization for productivity improvement.
- (3) Four industry organizations develop industry-wide waste minimization action plans and their role to sustain waste minimization program is strengthened.

- (4) Four model companies have implemented successful waste minimization programs as shown by reduction of waste volumes and economic savings in operations.
- (5) Waste minimization guidebooks based on the experiences of the pilot project are published (1,000 copies) and disseminated to owners of Philippines companies.
- (6) Establishment of the government award system for companies that conducted IEM rigorously is discussed.

## 6.5 Implementation Schedule of the Pilot Project

The waste minimization pilot project was carried out from November 2002 to August 2003 as shown in Table 6.5.1.

Table 6.5.1 Waste Minimization Pilot Project Implementation Schedule

	Waste Minimization at Volunteer and Model Companies	Awareness Raising/ Information Dissemination
Nov. 2002	<ul style="list-style-type: none"> <li>➤ Establishment of a waste minimization steering committee under PBE</li> <li>➤ Selection of potential volunteer companies</li> <li>➤ Discussion on waste minimization between model companies and experts</li> </ul>	
Dec. 2002	<ul style="list-style-type: none"> <li>➤ Pre-waste assessment for 11 potential volunteer companies</li> </ul>	<ul style="list-style-type: none"> <li>➤ Planning on preparation of a guidebook on waste minimization</li> </ul>
Jan. 2003	<ul style="list-style-type: none"> <li>➤ The First Workshop</li> <li>➤ Exchange of an agreement on confidentiality and disclosure of information among volunteer and model companies, PBE, and EMPOWER project team</li> </ul>	
Feb. 2003	<ul style="list-style-type: none"> <li>➤ Waste assessment for 20 volunteer companies</li> <li>➤ Preparation of a proposal on waste minimization for volunteer companies by experts</li> <li>➤ Selection of model companies</li> <li>➤ Preparation of a company-wide action plan on waste minimization for model companies by experts</li> </ul>	<ul style="list-style-type: none"> <li>➤ Discussion on the outline of the draft guidebook</li> <li>➤ Discussion on the award system</li> </ul>
Mar. 2003	<ul style="list-style-type: none"> <li>➤ Implementation of the action plans by model companies and its monitoring by ITDI (continue to July 2003)</li> <li>➤ Preparation of sector-wide/ industry-wide waste minimization plans (planning period: three years)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Preparation of the draft guidebook</li> </ul>
Apr. 2003	<ul style="list-style-type: none"> <li>➤ Evaluation of the action plan implementation (model companies)</li> <li>➤ Preparation of a plan for next steps for model companies</li> <li>➤ Feedback to relevant industry organizations</li> <li>➤ Review of the industry-wide waste minimization plan</li> </ul>	<ul style="list-style-type: none"> <li>➤ Discussion on the first draft guidebook</li> <li>➤ Discussion on the award system</li> </ul>
May	<ul style="list-style-type: none"> <li>➤ Continuation of waste minimization by</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revision of the draft</li> </ul>

	Waste Minimization at Volunteer and Model Companies	Awareness Raising/ Information Dissemination
2003	participating companies	guidebook
Jun. 2003	➤ The Second Workshop ➤ Exhibition/presentation of achievements of the waste minimization pilot project at the Environment Exhibit on June 9 - 10.	➤ Revision of the draft guidebook
Jul. 2003	➤ Finalization of industry-wide waste minimization action plans	
Aug. 2003	➤ Project evaluation and final report preparation	➤ Finalization of the guidebook
Sep. 2003		➤ Printing and dissemination of the guidebook

## 6.6 Details of Pilot Project Activities

### 6.6.1 Waste Minimization Assessment

#### (1) Companies Conducted for Waste Minimization Assessment

Waste minimization assessment was conducted for the following 20 companies in order to identify opportunities for waste minimization (see Table 6.6.1).

Table 6.6.1 List of Volunteer Companies for WM Pilot Project

Sector	Name of Company	Location
Chemical (6)	Kemwerke, Inc.	Metro Manila
	Int'l Chemical Industries	Metro Manila
	LMG Chemical Corp.	Metro Manila
	Mabuhay Vinyl	Metro Manila
	Phil Resins Industries, Inc.	Metro Manila
	United Coconut Chemicals, Inc.	Metro Manila
Pulp and Paper (3)	Aclem Paper Mills, Inc.	Metro Manila
	Container Corp. of the Phils.	Metro Manila
	Noah's Paper Mills, Inc.	Metro Manila
Food Processing (7)	Basic Fruits Corp.	Metro Manila
	Eldon Industrial Corp. (Bounty Foods Division)	Metro Manila
	Jo-na's International Phils., Inc.	Metro Manila
	TSB Enterprises, Inc.	Metro Manila
	FMC Marine Colloids Phils., Inc.	Cebu
	Central Seafood Inc.	Cebu
	Cebu Legacy Marketing Corp.	Cebu
Foundry (4)	Acetech Metal Industries Corp.	Metro Manila
	Metal Engineering Resources Corp.	Metro Manila
	Cebu Iron Foundry Corp.	Cebu
	San Gabriel Enterprise	Cebu

## **(2) Result of Assessment**

The following items are identified as the result of Waste Minimization Assessment.

- All have management that are strongly committed to pollution prevention and continual improvement
- Some companies have established environmental management system like Phil Resins. But most have no environmental policy and has no established system for environmental management
- Volunteer companies from the food-processing sector are basically SMEs. The productions are usually in batches – they operate only when they have enough order or when there is demand. Their wastewater effluents have relatively high BOD.
- Pulp and paper companies are large industries and manufacture a wide range of paper products – cardboard liner, office paper, newsprint, recycled wrapping paper, and tissue paper. Their basic problems are lower demand for their products due to the current dragging economy and stiff competition with China, which sells paper products at lower price.
- Volunteer companies from the Foundry sector are SMEs and have difficulty operating continuously due to the sluggish market. A common environmental issue is slag disposal.
- Except for Kemwerke, all other volunteer companies from the Chemical processing sector are large companies. Common environmental issue is the management of toxic chemicals and hazardous wastes.

Waste minimization related activities that were recommended to all volunteer companies include:

- Establishment or strengthening of WM team
- Information dissemination on waste minimization effort to all employees
- Training employees on waste minimization and environmental management
- Benchmarking
- Monitoring of effluent and emission and impacts of waste minimization

Based on the results of the assessment, waste minimization measures were proposed to the volunteer companies.

### **6.6.2 Waste Minimization Activities by Model Companies**

#### **(1) Selection of Model Companies**

##### **1) Setting Selection Criteria and Preliminary Selection of Model Companies**

The following criteria were set for selecting model companies from the 20 volunteer companies:

- Strong management commitment (e.g. environment-policy),
- Willingness to share and showcase their experience,
- Willingness to be visited by a team of WM experts from JICA and DOST,
- Preferably, but not only, Filipino-owned SMEs, and

- Manufacturing sector.

Based upon the results of the WM Assessment and identification of possible WM measures and recommendations by the DOST and Japanese experts as well as willingness of candidates, the WM pilot project Steering Committee authorized the following companies as the Model Company in each target sector.

Sector	Model Company
1. Chemical Industry	Kemwerke, Inc.
2. Pulp and Paper Industry	Noah's Paper Mills, Inc.
3. Food Processing Industry	TSB Enterprises, Inc.
4. Foundry Industry	Acetech Metal Industries Corp.

## (2) Summary of Profiles of Model Companies

Table 6.6.2 Summary of Profiles of Model Companies

	Kemwerke, Inc.	Noah's Paper Mills, Inc.	TSB Enterprise Inc.	Acetech Metal Industries Corp.
Sector	Chemical	Pulp & paper	Food processing	Foundry
Establishment	1983	1996	June 1990	July 2002
# of Employees	16	86	Full-time 33, contract base (high season) 50	16
Main products	Alkyd Resin for the paint industry Coco Methyl Ester, Coco Diethanol Amide, Coco Mono Ethanol Amide for the soap, shampoo and detergent industry No-bake Furan Resin for metal casting/foundry industry	Notebooks Printing paper Wrapping paper	Processed fruits Nuts Bakery products Processed eggs Sauces Gravies	Pump casing Brake drum Manhole cover Cramp Machine parts Pump
Input materials	Coconut oil, alcohol, acid	Recycled paper (50%domestic, 50%imported)	Mango, Wobe, Strawberry, banana, pineapple, peanuts	Scrap steel, sand, coke
Production capacity		23,000 t/y	6 - 7 t/d	18 - 20 t/m
ISO Certification	Certified ISO9002 in 2001	None	None	None
Solid Waste	Raw material containers and waste paper bags (1,000 kg/m)	Wastewater sludge (35 - 40 t/d, 50% moisture)	Jackfruit peels (52 - 300kg/d) Banana peels (75kg/d) Mango seeds and peels (4.2t/10 hrs) Wooden and plastic crates	Slag (21.6 t/y) Fly ash (10.8 t/y) Used molding sand
Wastewater	Equipment cleaning water (468m <sup>3</sup> /y)	504 m <sup>3</sup> /d, 8.26 t/product-ton	14,794m <sup>3</sup> /y	None
Emissions	Volatile organic compounds			

### (3) Waste Minimization Activities by Model Companies

Based on the steps to prepare waste minimization action plan learned at the workshop, the four model companies prepared company-wide WM action plans with assistance from experts from ITDI and PBE. Kemwerke's action plan is presented as an example in Table 6.6.3.

Table 6.6.3 Kemwerke, Inc. Waste Minimization Action Plan

ACTIVITY	ACTION TO BE TAKEN	DOERS	TIME FRAME
Obtain strong management commitment	Formulate strategies Incorporate environmental protection goal in corporate policy	Waste Minimization (WM) Team	January 2003
Establishment of waste minimization program			
Organization of planning/implementing team	Organize a planning team Assign duties and responsibilities		March 5, 2003
Development of employee awareness	Conduct information, education, communication (IEC) and training program		
Setting of program goals	Set targets (compliance, waste and cost reduction, ISO certification)	Waste Minimization (WM) Team	March 25, 2003
Writing of Waste Minimization Plan	Plan includes: Statement of support Team structure Organizational guidelines Methods for fostering participation of all employees Company's general WM goals Provisions of employee training		March 2003
Waste assessment/audit	Develop process flow diagram Develop material balance	Waste Minimization (WM) Team with the involvement of section heads/supervisors	January 2003 to June 4, 2003
Identification of waste minimization options	Screen options	Waste Minimization (WM) Team and Empower Experts	March 2003
Evaluation of Economic and Technical Feasibility and environmental impact	Identify whether option is: No cost no risk Low cost no risk Low cost low risk Low cost high risk High cost low risk	Waste Minimization (WM) Team and Empower Experts	April 2003 to June 4, 2003
Selection and implementation of options	Select options that are technically and economically feasible Implement options that are technically and economically feasible.	Waste Minimization (WM) Team and Empower Experts	April 2003 to June 4, 2003
Evaluation of waste	Measure waste reduction	Waste Minimization	June 4, 2003



ACTIVITY	ACTION TO BE TAKEN	DOERS	TIME FRAME
minimization program and projects	Measure economic results Evaluate program elements	(WM) Team and management	
Maintain program momentum	Rotate assignments of WM team Provide refresher training course on WM Publicize success stories Re-establish management support Re-evaluate goals	Waste Minimization Team in consultation with the management	Continuing activity

#### (4) Results of Implementation of WM Measures by Model Companies

The four model companies have been implementing WM measures; the DOST-ITDI staffs have conducted periodical monitoring for the past 3 months. Based on the monitoring, their achievements are summarized below (see Tables 6.4.4 through 6.4.7).

Table 6.6.4 Achievement in Waste Minimizations by Kemwerke, Inc.

Activity	Achievement
Attempt to rework or convert raw materials packaging to recyclable materials or look for potential user of waste paper.	The waste paper bags were collected and recycled by Trans-National Paper Inc.. About P1,500.00 per month hauling fee of waste was saved by the company .
Establish spill and leak control policy such as frequent scheduling of inspection and maintenance of equipment, pumps, and pipelines and provide emergency responses and cleanup procedures in the event of spills and leaks.	The In-house team conducted regular inspection and preventive maintenance of equipment, pumps and other accessories. The plant was able to prevent material losses during production and about same amount on last month savings amounting to P1,650.00 per day was realized.
Maximize the usage of the reactor to specific type of product or provide a reactor dedicated to a certain product.	The schedule of production for the month of June was forecasted based on the client regular orders. The water consumption was reduced and about P143.95 per month was saved.
Improve or reorganize existing storage area of raw materials by separating the hazardous to non-hazardous.	The company arranged the storage area and was able to prevent misbatching in the production. Approximately about P49,228 per batch was saved.
Recover and recycle carbon dioxide spray water.	Recovered water amounting to P34.50 per Batch Operation was gained.
Provide general ventilation and conservation vents in the bulk storage and filling stations.	The bulk storage was well organized providing safe workplace to the employees.
Regular monitoring of wastewater and volatile organic compounds emission such as xylene in the workplace.	Sampling and analysis of wastewater was conducted. Results were presented to the company to properly handle and take necessary actions in the operation of the waste treatment facility.

Table 6.6.5 Achievements in Waste Minimization by Noah's Paper Mills, Inc.

Activity	Achievement
Enlargement of daytank for drum sorter	Reduced water consumption and estimated savings of P30,000/yr is attained
Addition of return line along primary slot screen	No overflow thus resulting in recycling of water and estimated savings of P9,000/overflow
Repair of worn out gasket for pneumatic valve liquid cyclone	High fiber recovery is attained resulting in estimated savings of P10,000/month and P120,000/year if repair is done once a month
Installation of water meters for chemical lines	Volume of water consumption quantified ; thus resulting in water conservation measures
Recovery of adhering fibers on rejects thru efficient drum sorter operation	Higher fiber recovery is achieved resulting in estimated savings of P2000 per day at 100MT input = P40,000/month = P480,000/year
Regular equipment monitoring and maintenance	Better equipment operation and improved quality of product
Change of the motor of the sump pit pump at collecting pit to higher speed	Improved production performance of motor pump thus resulting in better product quality and estimated savings of P6,000/yr
Installation of a manhole to remove easily any material that will clog up the pump and improve further its performance.	Savings on cost for manpower services was achieved; approximately P24,000/yr savings in case clogging occurs once a month
Installation of a submersible pump at drum sorter directing to daytank	High fiber recovery achieved resulting in estimated savings of P5,000/year
Conversion of needle shower to oscillating shower	Improved performance of gravity table
Periodic inspection of all water lines/connection	Increased water pressure of shower and improved performance efficiency of machines resulting to estimated savings of P10,000/month = P120,000/year
Regular inspection and repair of all leaking pumps	Reduced water costs and improved performance of pumps

Table 6.6.6 Achievements in Waste Minimization by TSB Enterprises, Inc.

Activity	Achievement
Utilization of fruit peels as substrate for green charcoal making	About P52,400.00 yearly savings will be realized by TSB on hauling and disposal.
Washing of the floors and cleaning of the equipment using high pressure water nozzle spray.	About 5.29 m3 of water is saved daily (P18,924.00 is saved yearly by TSB)
Re-use of water with anti-bacteria from 2nd rinsing of raw materials in cleaning working areas	About 2.81 m3 of water is saved daily from this undertaking
Re-use of water from 2nd rinsing of raw material for cleaning of another batch of raw material	About 1.85 m3 of water is saved daily from this option.
Maintain cleanliness of cooling water and tub to minimize frequency of discharge by rinsing of pails before placing in	Frequency of discharged will be reduced once a week instead of 3 times a week. 0.42 m3 of water is saved every day on cleaning the cooling

Activity	Achievement
cooling tub, enclosure of the cooling section, installation of filter cloth and removal of floating material using nylon net	tub.
Implement correct pail washing procedure by: <ul style="list-style-type: none"> <li>○ Using the existing rinsing (banlaw) drum for first and second washing.</li> <li>○ The drums shall be reduced by half a size to lessen the amount of water use inside.</li> <li>○ The sanitized tub water will be used for the 1st and 2nd banlaw and water shall not be discharged but be used for the next day.</li> <li>○ Sanitized tub water shall also be used in cleaning the washing area.</li> </ul>	Implementing this option, 1.33 m <sup>3</sup> of water is saved daily.
Conduct sampling and analysis of wastewater	Samples of wastewater was determined by SGS for BOD, COD, total solids, total dissolved solids and alkalinity. The followings are the results of the analysis: <ul style="list-style-type: none"> <li>○ Alkalinity: 144 mg/l</li> <li>○ COD: 1,779 mg/l</li> <li>○ BOD: 278 mg/l</li> <li>○ TDS: 648 mg/l</li> <li>○ TSS: 272 mg/l</li> </ul>
Installation of spray gun on water hoses in the cleaning of floors and washing of equipment	About 3.24 m <sup>3</sup> of water is saved daily (P12,864.00 is saved yearly by TSB)
Implementation of the options on water consumption on the various processing sections.	A total of 15 m <sup>3</sup> of water is saved daily (P54,000.00 is saved yearly for water consumption ).

Table 6.6.7 Achievements in Waste Minimization by Acetech Metal Industries Corp.

Activity	Achievement
Organization of the WM Team of Acetech	Organized the WM Team of Acetech
Training of WM Team	Trained the WM Team through seminar and workshop
Formulation of additional options for Acetech	Formulated the following additional WM options: change of refractory lining, recycling of waste heat from furnace, testing of the slag to improve the quality of the melt, and separation of metals from waste sand by magnet.
Change the refractory brick lining of the cupola furnace	Completed the change in refractory bricks. 42 pieces @ P140.00/piece of bricks were used and costs a total of P5,880.00.  The change in refractory bricks reduced the

Activity	Achievement
	amount of waste slag generated during melting from an average of 575 kg to 475 kg (100 kg/melting) or 18% waste slag reduction.
Recovery and reuse of sand spilled from conveyors	Recovered 60 kg of sand spilled from conveyors per cycle Savings = 60 kg sand/cycle x 75 cycles/year x P1.90/kg = P 8,550.00/year
Recovery of sand from shot blast machine	Recovered 50 kg sand per week Savings = 50 kg/week x 50 weeks/year x P1.90/kg = P 4,750.00/year
Recovery of sand before sand blasting	Recovered and reused 1.5 tons sand/cycle Savings = 1,500 kg/cycle x 75 cycles/year x P1.90/kg = P 213,750.00/year
Metal recovery from sand	Cost for purchase of magnet = P4,800.00 Recovered 30 kg metal/4-day cycle Savings = 30 kg metal/cycle x 75 cycles/year x P8.00/kg metal = P 18,000.00/year
Improve melting quality	Tested the pH of the black and greenish colored slag to determine the changes in material charge. The greenish colored slag indicates a better quality melt. Results of pH tests: Black slag = pH 9.6 Greenish slag = pH 8.8 Based on the results of the pH test, the amount of limestone charge was reduced by one (1) kg/charge to shift the pH towards the greenish slag. The flow of the metal and slag improved. Savings = 1 kg/charge x 35 charges/cycle x 75 cycles/year x P 0.80/kg limestone = P 2,100.00/year
Remelting of off specification products	Saved materials by 60 kg/cycle. Savings = 60 kg/cycle x 75 cycles/year x P8.00/kg = P 36,000.00/year

Activity	Achievement
Improved the preparation of scrap materials by breaking the scrap into smaller sizes	Prepared the materials into the correct sizes. Reduced the melting time by one (1) hour/cycle. Saved on coke fuel consumption by 7 charges/hour. Savings = 7 charges/hour x 14 kg/charge x 75 cycles /year x P13.00/kg coke = P 95,550.00
Conducted stack emission test	Results of Stack emission test (numbers in parenthesis indicate DENR standards):  TSP concentration (mg/Ncm): 9.0 (150) SO <sub>2</sub> concentration (mg/Ncm): Nil (1500) NO <sub>x</sub> concentration (mg/Ncm): 96.5 (2000) CO <sub>2</sub> (%) by Orsat Analysis: 1.0 CO <sub>2</sub> (%) by Combustion Analyzer: 1.3 O <sub>2</sub> (%) by Orsat Analysis: 19.7 O <sub>2</sub> (%) by Combustion Analyzer: 19.5 CO (mg/Ncm): 11.45 (500) Emission Opacity - Shade No. 1 Ringelman Chart

### 6.6.3 Productivity Assessment

In addition to the waste minimization assessment by experts of the Philippines and Japan, productivity assessment was conducted for the four model companies in order to improve their productivity and consequently environmental performance. Recommendations on productivity improvement are summarized below.

#### (1) Kemwerke, Inc.

- Drummed Raw Materials Area is located at a quite far area from the production plant. It should be re-located closer to the production plant.
- Direction of the entrance of Finish Product Warehouse should be closer and faced on to the production area.
- The area of Empty Drum Storage occupies nearly a half of the plant area. Those empty drums should be reduced or organized to reduce the space of them.
- Drums containing any sludge from the production should be segregated from this category.
- 5 S promotion should be implemented properly.
- Change in production layout

The existing plant layout is shown in Figure 6.6.1 and the arrow shows material handling between the stockyards and the production facility. Figure 6.6.2 shows recommended production layout.



## (2) Noah's Paper Mills, Inc.

- While the waste papers are stored at the storage area, uses of pallets and /or special baggage are recommended prior to feed onto conveyer systems.
- Sludge should be covered to avoid diffusing with dusts into the air, when stored at sludge yard.
- Worker at sludge area should be reduced from currently 6 to be minimized.
- Inventory amount of cutting paper products should be minimized, which can save costs as well as space.



## (3) TSB Enterprises, Inc.

- The table sizes and spaces between those should meet various to process types of materials.
- Alignment of the working tables should be adjustable depending upon amount of production volumes and complexity of cooking processes.
- Handling of raw materials should meet changing of materials as well as the amounts.
- Material handling should be minimized by installing of gravity and/or powered conveyers if production volumes are increased
- Working and washing spaces should be kept the maximum to satisfy with sudden requirements of various amount and types of materials.
- The wastes should be properly handled in total handling process.
- Feeding of Raw Material and Finish Product Storage Area
- An inlet of the raw materials and outlet of finish products should be separated, and each handling route should not be crossed
- Sanitary Control
- A manual washing system should be equipped with a hose reel to minimize working time and keep good sanitary condition.
- The total area of the plant should be kept best sanitary condition; “5S” promotion may meet this requirement.

- Change in production layout

The existing production layout is shown in Figure 6.6.3. The recommended production layout is shown in Figure 6.6.4.

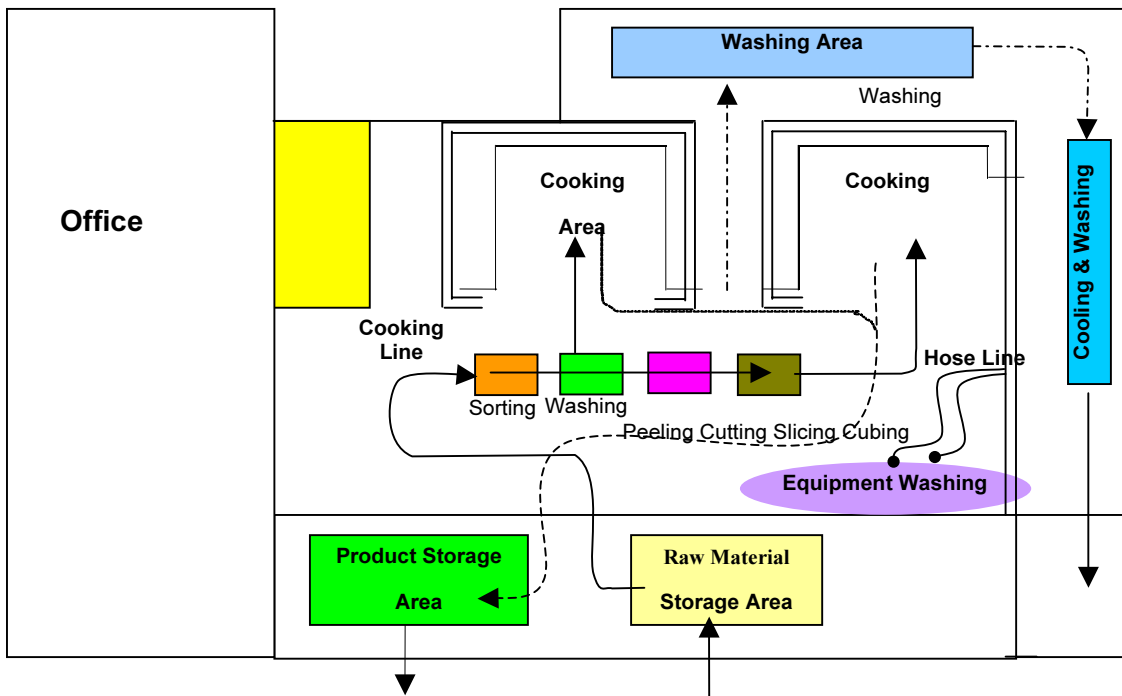


Figure 6.6.3 Existing Production Layout at TSB Enterprises

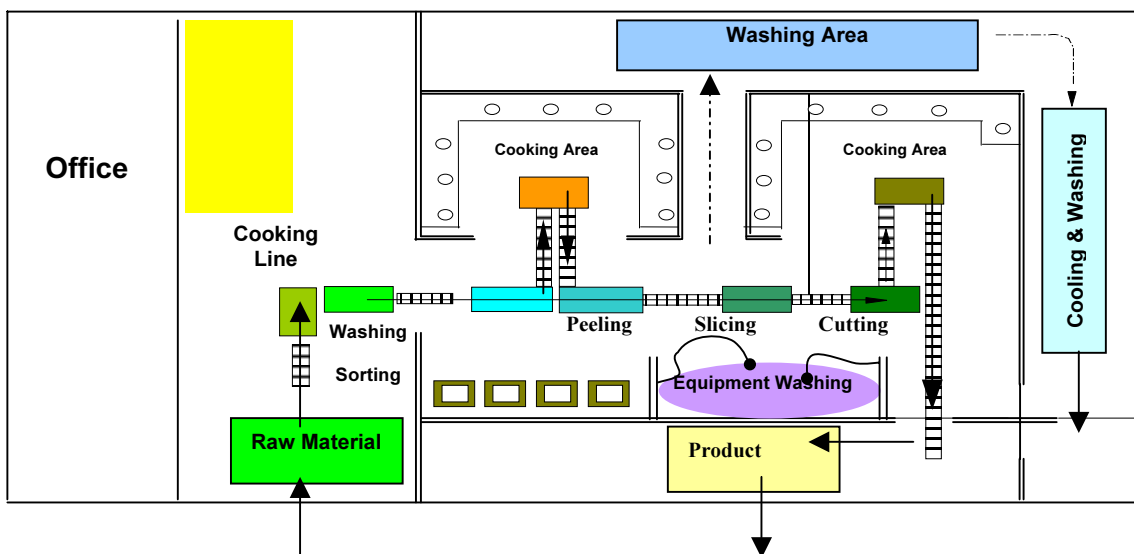


Figure 6.6.4 Recommended Production Layout at TSB Enterprises



#### **(4) Acetech Metal Casting Industries Corp.**

- A categorized scrap preparation yard should be arranged at the cupola area.
- Iron scraps should be segregated by type, grade, figure and carbon content.
- The scraps should be broken down into adequately small sizes then stocked at the categorized scrap preparation yard.
- The cupola should be relocated at outside of the existing plant facility and install along side of the facility wall.
- It should be installed as much as possible in straight position, especially outlet position of the cupola.
- The straight chimney can provide with better suction head pressure so that the flue gases are effectively and strongly aspirated.
- Consequently the cupola can provide with complete combustion, then it can reduce a load of the dust collector as well as provide with effective emission gases.
- Stop the Melting Pot to carry by hands
- Special designed melting pot, a small bogie and rails should be installed between the cupola and molding area.
- So that the casting metal (molten) can be transferred without by hands as well as avoid of spilling.
- Pouring of molten metal can be done by using of existing overhead traveling crane.
- The molding and casting area should be standardized to enable smooth molding and casting.
- Change in production layout

The existing production layout is shown in Figure 6.6.5. The recommended production layout is shown in Figure 6.6.6

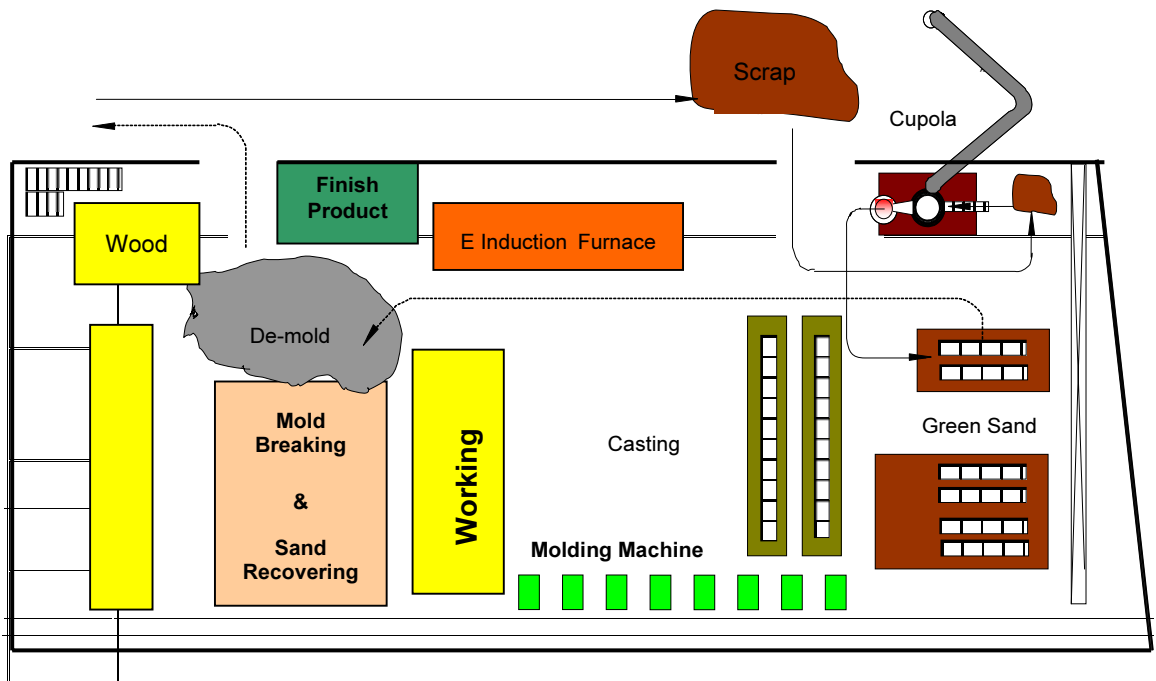


Figure 6.6.5 Existing Production Layout at Acetech Metal Casting

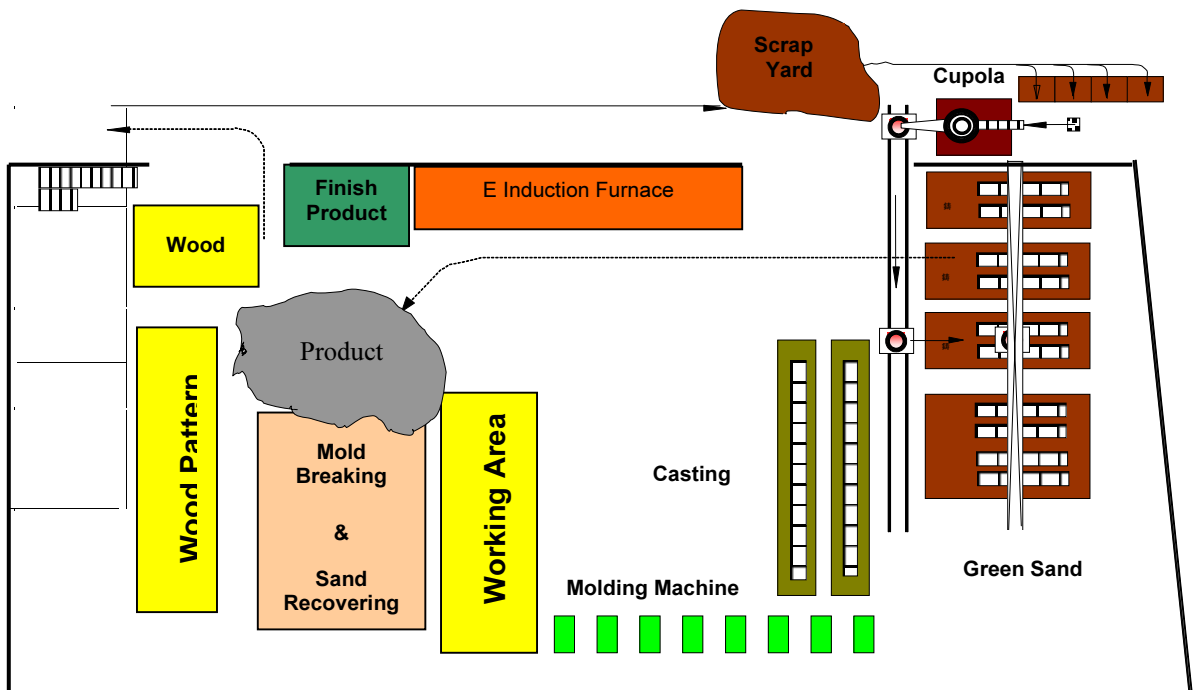


Figure 6.6.6 Recommended Production Layout at Acetech Metal Casting

#### 6.6.4 Preparation of WM Guidebook

A guidebook on waste minimization has been prepared to encourage Philippine companies to start their actions based on the experiences of the model companies. The guidebook will

have the following contents. Total 1000 copies of the guidebook are printed and distributed to owners and top management of SMEs in the four target sectors, through the corresponding industry associations, and other related industries.

1. Introduction
  - 1.1 Overview of WM History
  - 1.2 Waste Minimization and Cleaner Production
  - 1.3 Background of Guidebook
2. Waste Minimization Concept
  - 2.1 Waste minimization Hierarchy
  - 2.2 Waste minimization Program
    - 2.2.1 WM Program Elements
  - 2.3 Incentives of Waste Minimization
  - 2.4 Barriers to Waste Minimization
  - 2.5 Waste Assessment
3. Waste Minimization and Productivity Improvement Techniques
  - 3.1 WM Techniques Overview
    - 3.1.1 Source Reduction Techniques
    - 3.1.2 Recycling, Reuse and Reclamation
  - 3.2 Productivity Improvement
  - 3.3 Small Group Activity as an Effective Tool to Increase Workers' Sensitivity
    - 3.3.1 What Is the Small Group Activity?
    - 3.3.2 Organization Arrangement to Promote the Small Group Activity
    - 3.3.3 Steps to Conduct the Small Group Activity
    - 3.3.4 Types of Problems and Steps on How to Solve problems
    - 3.3.5 Measures to Vitalize the Small group Activity
    - 3.3.6 Tips to Motivate Workers/Staff Reluctant to Engage in the Small group Activity
    - 3.3.7 Other Resources
  - 3.4 WM Techniques for the Food (Fruit) Processing Sector
    - 3.4.1 Industry Profile of the Food Processing Sector
    - 3.4.2 Typical Process Description
    - 3.4.3 Environmental Concerns
    - 3.4.4 Waste Minimization Options
  - 3.5 WM Techniques for the Foundry Industry
    - 3.5.1 Industry Profile of the Foundry Sector
    - 3.5.2 Typical Process Description
    - 3.5.3 Environmental Concerns
    - 3.5.4 Waste Minimization Options

- 3.6 WM Techniques for the Chemical Processing Industry
  - 3.6.1 Industry Profile of the Chemical Processing Industry
  - 3.6.2 Typical Process Description
  - 3.6.3 Environmental Concerns
  - 3.6.4 Waste Minimization Options
- 3.7 WM Techniques for the Pulp and Paper Industry
  - 3.7.1 Industry Profile of the Pulp and Paper Sector
  - 3.7.2 Typical Process Description – Using Virgin Pulp
  - 3.7.3 Typical Process Description – Using Recycled Paper
  - 3.7.4 Waste Minimization Options
- 4. Waste Minimization Success Stories
  - 4.1 Food Processing WM Case Study – The Experience of TSB Enterprises
  - 4.2 Foundry Industry WM Case Study – The Experience of Acetech Metal Company
  - 4.3 Chemical Processing Industry WM Case Study – The Experience of Kemwerke Inc.
  - 4.4 Pulp and Paper Sector WM Case Study – The Experience of Noa’s Paper Mill
- 5. Other Environmental Management Approaches
  - 5.1 Environmental Cost Accounting (ECA)
  - 5.2 Greening the Supply Chain Management (GSCM)
  - 5.3 Environmental Management System
    - 5.3.1 Benefits of EMS
    - 5.3.2 EMS development Process
  - 5.4 Life Cycle Analysis
  - 5.5 Ecolabelling

### **6.6.5 Preparation of Industry-wide WM Action Plans**

With an aim to strengthen industry associations’ role to sustain SMEs’ WM activities, industry-wide WM action plans were prepared by the target industry sectors. The framework of the action plan is as follows:

- Association profile
- Local industry profile
- Environmental concerns of the industry
- Environmental policies of the association/sector
- Previous and ongoing environmental programs of the sector
- Waste minimization action plan (advocacy level, technology transfer, information, education and training)

### 6.6.6 Conduct of Waste Minimization Workshops

Two workshops were held in Cebu and Manila to increase the feasibility of the industry-wide action plans on waste minimization through awareness-raising of top decision makers of the companies belonging to the target industry sectors, and capacity development of in-house staff of the companies regarding organizational development and planning and implementation of the waste minimization measures. Programs, dates, venues, and number of participants are summarized below.

Table 6.6.8 Program, Schedule and Participants of Workshops on Waste Minimization

	Program Summary	Date (2003)	Venue	Participants
1	Day 1: Concept and benefits of waste minimization, current activities of target industry sectors Day 2: Steps to prepare measures and plans to reduce waste at plant level Day 3: Preparatory work for development of industry-wide waste minimization action plan (group work)	Jan. 8 – 10	Manila	62
		Jan. 22 – 24	Cebu	42
2	Japanese experience in waste minimization Results of waste minimization measures implemented by model companies	Jun. 11	Cebu	19
		Jun. 18	Manila	34

The first workshop enabled the volunteer companies ready to develop company-wide waste minimization action plans. The closing workshop promoted sharing experience in waste minimization activities of the model companies among members of the same industry sectors.



### **6.6.7 Commitment to Waste Minimization by Owners and Top Management of SMEs**

During the first workshops, 22 companies signed the declaration commitment to adopt the waste minimization strategy as an effective environmental management. After the first workshops, additional 13 companies signed the declaration; the total 35 Philippine companies strongly support waste minimization.

### **6.6.8 Discussion on Award System**

One of the waste minimization pilot project components is establishment and management of an award system to encourage companies to promote IEM. Because it takes time to change existing rules and requires financial and human resources to manage the system in order to officially establish the award system, the pilot project steering committee decided to include an activity to establish an award system in the National IEM Action Plan at the EMPOWER Steering Committee meeting held on May 20, 2003. After the meeting, however, DENR Administrative Order was issued to create the Philippine Environment Partnership Program (PEPP) to support industry self-regulation towards improved environmental performance, under which an award system for industry's environmental management is to be established. Therefore, the EMPOWER Steering Committee concluded to pursue the award system under the PEPP, which is included in the national IEM action plan.

## **6.7 Summary of the Waste Minimization Pilot Project**

### **6.7.1 Empowerment of Relevant Parties through Pilot Project Implementation**

The waste minimization pilot project aimed to enhance capacity of relevant parties through project implementation. Table 6.7.1 summarizes targeted parties and types of the empowerment through the project implementation (from November 2002 to August 2003).

Table 6.7.1 Empowerment of Relevant Parties through the Waste Minimization Pilot Project

Target	Type of Empowerment	Method
Four model companies	In-house staff have learned steps to plan and implement waste minimization measures.	Participation in the workshops, consultation with the experts, recommendations from the experts
	Leaders of the waste minimization teams have recognized necessary items for productivity improvement.	Consultation on the results of productivity assessment
	Top management identified cost reduction benefits from implementing waste minimization measures.	Reporting on monitoring results of implementation of waste minimization measures
Twenty participating companies	In-house staff have learned steps to plan waste minimization measures.	Participation in the workshops
	Top management have recognized general benefits of waste minimization and identified waste minimization measures at their companies.	Participation in the workshops, consultation on the results of waste assessment
Four industry associations	Established a framework to promote waste minimization efforts by their member companies	Preparation of industry-wide waste minimization action plans, establishment of an institutional structure to monitor the plan implementation
ITDI staff	Have increased understanding of production processes of the target industries and experiences in identifying problems in wastewater, exhaust gas, and solid waste management and formulating measures.	On-site factory visits, comments from JICA Study Team
PBE	Have learned how to promote waste minimization efforts of individual companies through industry associations being at the center of activities.	Project implementation

## 6.7.2 Evaluation of the Pilot Project

### (1) Results of the Pilot Project

The Waste Minimization Pilot Project was managed using PDM. In August 2003, when the pilot project was almost completed, achievement level of the pilot project was identified using the indicators listed in the PDM at the Waste Minimization Pilot Project Steering Committee meeting. Although the waste minimization guidebook is finalized and published in September 2003, almost all the planned outputs have been realized (see Table 6.7.2).

Table 6.7.2 Results of Waste Minimization Pilot Project

Narrative Summary	Objective Verifiable Indicators	Results	Important Assumption	Status of Assumption
<p><b>Overall Goal</b></p> <ul style="list-style-type: none"> <li>Philippine companies that conduct waste minimization and consequently improve productivity are increased in the target sectors.</li> </ul>	<ul style="list-style-type: none"> <li>Productivity (energy consumption, water consumption, raw material inputs per output) is increased in the target industry sectors.</li> </ul>	<p>Impossible to identify at this point</p>	<p>World economy does not plunge into recession</p>	<p>Not world-wide severe recession</p>
<p><b>Project Purpose</b></p> <ol style="list-style-type: none"> <li>Company CEOs / senior managers' recognition of value of waste minimization is increased.</li> <li>Waste minimization activities are institutionalized through active involvement of industry associations.</li> </ol>	<ol style="list-style-type: none"> <li>More than 50% of the company CEOs / senior managers who attended the workshops committed and/or recognized value of waste minimization in their companies is increased.</li> <li>Implementation of the industry-wide waste minimization action plans is monitored by the industry associations by January 2004.</li> </ol>	<ol style="list-style-type: none"> <li>1.35 companies declared their commitment on waste minimization.</li> <li>2. Monitoring plan has been developed by August 2003.</li> </ol>	<p>There exist measures that can reduce waste and production costs.</p>	<p>Measures exist for the target sectors.</p>
<p><b>Outputs</b></p> <ol style="list-style-type: none"> <li>Sixty (60) to eighty (80) business executives / owner – entrepreneurs from Manila and Cebu are oriented to waste minimization approaches and benefits.</li> <li>At least twenty (20) additional business executives of Philippine companies strongly supports waste minimization for productivity improvement.</li> <li>At least two business association / organization's role to sustain waste minimization program is strengthened.</li> <li>At least four model companies have implemented successful waste minimization programs as shown by reduction of waste volumes and economic savings in operations.</li> <li>Waste minimization guidebooks based on the experiences of the pilot project are published (1,000 copies) and disseminated to owners of Philippines</li> </ol>	<ol style="list-style-type: none"> <li>Sixty (60) to eighty (80) business executives / owner – entrepreneurs from Manila and Cebu recognized WM approaches and benefits at the waste minimization workshops.</li> <li>At least twenty (20) additional Philippine companies establish company wide waste minimization teams by June 2003.</li> <li>At least two industry associations prepare an industry wide waste minimization action plan by June 2003.</li> <li>At least four model companies have implemented successful waste minimization programs as shown by reduction of waste volumes and economic savings in operations by June 2003.</li> <li>One thousand copies of the guidebooks are published by July 2003, and 500 copies are disseminated to owners of Philippines companies by Aug. 2003.</li> <li>Establishment of the award system is integrated into the national IEM Action</li> </ol>	<ol style="list-style-type: none"> <li>Fourteen CEOs participated in the closing workshop.</li> <li>Four model companies and four participating companies established company wide waste minimization teams.</li> <li>Four industry associations developed industry-wide WM Action Plans.</li> <li>Four model companies implemented WM measures and reduced production costs.</li> <li>The guidebooks are to be printed and distributed in September 2003.</li> </ol>	<p>Top management of Philippine companies read the WM guidebook.</p>	<p>The guidebook has not been distributed as of August 2003.</p>



Narrative Summary	Objective Verifiable Indicators	Results	Important Assumption	Status of Assumption
companies. 6. Establishment of the government award system for companies that conducted IEM rigorously is included in the national IEM Action Plan.	Plan.	6. It will be incorporated into an award system under PEPP.		

## (2) Summary of Project Evaluation

Based on the PDM prepared during the pilot project, the JICA Study Team evaluated the pilot project as follows. (see Annex 5 for PDM) .

Table 6.7.3 Evaluation of Waste Minimization Pilot Project

Evaluation Item	Evaluation Results	Basis for Evaluation
Efficiency	Slightly low	<ul style="list-style-type: none"> <li>Input of human resources for technical support in the field of production management and productivity improvement was not sufficient.</li> <li>The study team members assigned for waste minimization dispatched to the Philippines do not necessarily have knowledge suitable to the Philippines companies.</li> <li>Top management participation in the workshops was not sufficient.</li> <li>Only four model companies and four participating companies established company-wide waste minimizations teams.</li> <li>Target industry associations prepared industry-wide waste minimization action plans.</li> <li>Four model companies showed actual reduction in waste volume and production costs.</li> <li>Although the WM guidebook has not been published, it will be distributed to business owners in September 2003.</li> </ul>
Effectiveness	Most achieved	<ul style="list-style-type: none"> <li>Thirty-five Philippine companies showed their commitment for waste minimization.</li> <li>Industry-wide organizational structure has been established for tackling waste minimization.</li> </ul>
Impact	Positive impact	<ul style="list-style-type: none"> <li>Four participating companies (FMC Marine Collids Phils. Basic Fruit Corp., Inc., International Chemicals, LMG Chemical Corp.) other than the model companies have implemented part of the waste minimization measures proposed during the waste minimization assessment.</li> <li>PMAI (Philippine Metalcasting Association, Inc.) is discussing establishment of an industry-wide waste minimization team.</li> </ul>
Relevance	High	<ul style="list-style-type: none"> <li>Waste minimization at companies leads to productivity improvement, which in conformity with basic government policy of development of SMEs.</li> </ul>

Evaluation Item	Evaluation Results	Basis for Evaluation
Sustainability	Slightly low	<ul style="list-style-type: none"> <li>• Institutional set-up has not been established for providing technical assistance in waste minimization and productivity improvement to companies in the sectors other than targeted ones only by ITDI staff (number of the ITDI staff with sufficient knowledge and experience is small).</li> <li>• Factory workers have not fully understood objective of waste minimization and importance of their full participation in tackling the waste minimization.</li> <li>• The system to financially support individual companies to have technical assistance has not been established.</li> <li>• The framework to disseminate model company's experience to other members of the industry association has been established through the development of industry-wide waste minimization action plans.</li> <li>• The coordination among PBE coordinating the industry, ITDI providing technical support, and BOI taking policy initiative has been developed.</li> </ul>

### (3) Conclusion

Although the model companies implemented waste minimization measures and achieved reduction in waste generation and production costs, the JICA study team evaluated efficiency of the pilot project as slightly low because achievement level of other outputs was not sufficient. The insufficient achievement of the other outputs is attributed to several factors; 1) input of human resources in the field of production management was not sufficient because the timing that the JICA study team came to recognize importance of production improvement was late, 2) the JICA study team could not dispatch Japanese experts with techniques and knowledge suitable to characteristics of the Philippine industry because the time to look for experts was very limited, and 3) waste minimization activities of the participating companies other than the model companies were not promoted because the JICA study team could not fully follow up their activities after the waste assessment due to time limitation. In addition, the JICA study team also evaluated sustainability of the pilot project as slightly low; it was physically impossible to enhance capacity of ITDI to be able to provide technical support for waste minimization due to limited time. Enhancement of ITDI capacity should be implemented under the training listed in the national IEM Action Plan.

“Top management read the waste minimization guidebook” was listed as important assumption to achieve project purpose with the outputs of the pilot project, but it revealed inappropriate because top management deepened their understanding of waste minimization through presentations at the workshops and declared their commitment for waste minimization.

### **6.7.3 Recommendations**

#### **(1) Establishment of Coordination Network with Experts in Production Management**

Waste minimization should have been promoted from the viewpoints of not only reduction in environmental load but also productivity improvement, but the timing that JICA study team came to recognize importance of production improvement. This resulted in insufficient input of experts in that field, which consequently led to insufficient guidance in production management at the model companies and contents of production management in the WM guidebook. Especially, although all the staff (top management and floor workers)'s understanding objective of waste minimization and tackling with its activities is more important than adopting individual waste minimization techniques, importance of establishing an institutional structure for tackling waste minimization within a company was not shared within all the participating companies. As mentioned in Chapter 3, it is important to integrate production management component into a waste minimization project because strengthening management basis through improvement of resource productivity is effective to increase top management commitment on waste minimization at SMEs and because production management is the basis of environmental management. It is desirable for future waste minimization projects to introduce basic policy of production management, steps to establish an internal structure for waste minimization, and ways to promote small group activity at workshops so that the participants understand the basis of environmental management. The future waste minimization projects are expected to be implemented by PBE, ITDI and BOI, the implementing body of this pilot project in coordination with production management experts groups such as organizations in charge of productivity improvement (Development Academy of the Philippines: DAP).

#### **(2) Acquisition of practical experiences**

The environment section of ITDI has been mainly conducting research on wastewater treatment; they are expected to acquire knowledge and practical experiences in the field of solid waste treatment, air pollutants management, and productivity improvement. Since there is a limited number of ITDI staff with rich experience in providing advices at factories, their active participation in trainings on CP held by JICA and other organizations is expected. In addition, it is important for ITDI to keep the staff who has acquired practical experiences.

#### **(3) Presentation on costs and benefits of waste minimization measures to top management**

Under the waste minimization pilot project, waste minimization measures were proposed as a part of waste assessment, but the JICA study team could not present estimated costs of

implementation of the measures and reduction in production costs due to limited time. Although four participating companies other than the model companies implemented some of the proposed waste minimization measures, the more measures would have been implemented if estimated costs of implementation of the measures and reduction in production costs had been presented. It would be effective to provide information directly related to business management such as reduction in production costs in order to have commitment of top management.

#### **(4) Introduction of fee contingent on success in technical support for waste minimization**

In the Philippines, opportunities for SMEs to have technical support for waste minimization are limited to projects funded by aid organizations and dispatch of experts from private consulting firms and ITDI with fee payment. The former opportunities do not always exist and limited to specific industry sectors or companies. In the latter opportunities, there exist a lack of financial resources to implement the technical advise and ambiguity of expected reduction in production costs. To encourage SMEs to actively tackle waste minimization as an opportunity to reduce production costs, introduction of a payment scheme for technical service that the amount of payment is determined according to actual reduction in production costs (waste minimization version of ESCO<sup>1</sup> project). That is, a certain portion of production costs reduced by implementation of waste minimization measures proposed by private consultants or experts dispatched from ITDI is paid to those who provide technical service as fee contingent on success. It is expected to consider expansion of ESCO project to the field of waste minimization.

#### **(5) Firm implementation of industry-wide waste minimization action plans**

Implementation of the industry-wide waste minimization action plans prepared during this pilot project depends on participation of member companies. Member companies' participation in the process of the action plan preparation was not intensive because waste minimization was listed as planned action in the BA 21 and because preparation time was short (representatives of industry associations prepared draft action plans and presented to their member companies). The industry associations are expected to fully discuss contents of the action plans with their member companies and implement the plans.

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<sup>1</sup> ESCO: Energy Saving Company

## **(6) Sharing experience in project implementation**

Experience in waste minimization acquired through implementation of this pilot project is integrated into the WM guidebook, which is to be distributed to top management of Philippine companies. It is desirable to disseminate the contents of the WM guidebook by uploading them on the IEM information website (see Chapter 7). The model companies shared their experience in waste minimization with participants of the closing workshop held under this pilot project; they are expected to disseminate their experience to companies in other industry sectors as resource persons at future seminars and workshops.

### **6.7.4 Lessons Learned**

The waste minimization pilot project was implemented mainly by PBE, BOI, and ITDI, and the JICA study team provided technical support. Since the JICA study team's duration of stay in the Philippines was fixed, it had no other choice than communicating with the implementing body of the pilot project by email and telephone while the study team was not in the Philippines. Therefore, opportunities in which the implementing body of the pilot project and the JICA study team discuss waste minimization measures proposed by ITDI and conduct monitoring of waste minimization activities at the model companies were very limited; technical support from the JICA study team was not sufficient. Such situation was partly caused by the fact that the pilot project could not be implemented as scheduled (preparation took time, and schedule coordination was difficult among the relevant parties). It is desirable that experts who can stay in a longer term conduct technical transfer so that they can easily adjust to schedule change and provide proper advices through comprehensive monitoring of the project activities.

## **Chapter 7**

# **IEM Information System Pilot Project**

## **7 IEM Information System Pilot Project**

### **7.1 Background and Objectives of the Pilot Project**

#### **7.1.1 Background and Objectives of the Pilot Project**

There exist in various forms (report, manual, CD-ROM, etc.) information useful to promote IEM such as technologies/methods identified or developed to minimize wastes, and IEM promotion tools such as environmental accounting, environmental reporting, and LCA. In addition, several sources are providing information about low interest loans and seminars and trainings related to IEM. There also exist lists of names and contact addresses of laboratories certified by DENR, environmental equipment manufactures, and environmental experts/consulting firms although they are not available from one source. The information can be found in hard copies stored in libraries and on various Internet sites. If the information is consolidated and arranged in a manner that one can easily search and obtain specific information, and if the information matches users needs and is credible, it would be helpful for Philippine companies to promote IEM.

The integrated IEM information system pilot project aims to 1) create opportunities for those who are suppliers and users of information useful to promote IEM to assess and improve quality and accessibility of information, and 2) increase accessibility to information through establishment of an integrated IEM information system such as an IEM information clearinghouse.

### **7.2 Structure of Pilot Project Implementation**

PBE and BOI/DTI are selected as the implementing body of the IEM Information pilot project at the 5<sup>th</sup> EMPOWER Steering Committee meeting. BOI's institutional partners such as EMB/DENR, ITDI/DOST, LLDA, and PEZA are assisting PBE and BOI for implementation of the pilot project. Financial and technical assistance for the project is provided by EMPOWER.

### **7.3 Components of the Pilot Project**

The IEM information system pilot project has the following components:

- (1) Establishment of an IEM information steering committee to manage the project
- (2) Preparation of framework of an integrated IEM information system (coordination and improvement of information on technologies/methods and tools to promote IEM, seminars/workshops and trainings on IEM, and environmental service providers)

- (3) Mobilization of available resources to secure personnel and financial resources for the maintenance as well as continuous improvement and updating of the IEM information system
- (4) Information collection and creation of IEM information database
- (5) Development and commencement of the service of an integrated IEM information website
- (6) Policy dialogues between BOI and IEM information providers through the working group

## 7.4 Outputs of the Pilot Project

### 7.4.1 Framework of an Integrated IEM Information System

Based on comments and concerns solicited from stakeholders from industry, private sector / professionals, government, academe, and others who work with industry, the Steering Committee prepared the framework (referred 7.6.2) in order to improve information quality and facilitate access to information.

Potential service areas of the *Integrated IEM Knowledge Network* are:

- **IEM Information Clearinghouse**
- **IEM Outreach Program**
- **IEM Matching Programs**
- **IEM Advisory and Technical Services**

The framework of the IEM Information system was integrated to the IEM Action Plan shown in Chap.4.

### 7.4.2 Establishment of the IEM Information Website (IEM Knowledge Network)

The address “www.iem.net.ph” has been obtained for the IEM information website, and partial launching of the website was announced as one of the opening events of the Environment Exhibit in June 2003. The IEM information website became fully operational in August 2003.

The structure of the website is following below:

- IEM Knowledge Network Homepage
- Business and Environment Magazine
- Environmental Resource Materials
- IEM Projects
- Environmental Consultants



- Environmental Legislation
- Environmental Financing
- Business Agenda 21
- Productivity Improvement
- Training/Seminars
- Industrial Waste Exchange Program
- Environmental Technology Referral Scheme
- One-on One Assistance
- Major links to other databases
- More about IEM

## 7.5 Pilot Project Implementation Schedule

The IEM information system pilot project was carried out from November 2002 to August 2003 as shown in Table 7.5.1.

Table 7.5.1 IEM Pilot Project Implementation Schedule

Month	Project Activity
Nov. 2002	<ul style="list-style-type: none"> <li>➤ Establishment of the IEM information steering committee and discussion on useful integrated IEM information system (Nov. 28, 2003)</li> <li>➤ Establishment of a working group to discuss coordination and improvement of IEM information (Nov. 28, 2003)</li> <li>➤ Identification of IEM information users and providers' needs and issues</li> <li>➤ Discussion on the structure and contents of the IEM information website</li> </ul>
Dec. 2002	<ul style="list-style-type: none"> <li>➤ Survey on IEM information users and providers' issues and needs</li> <li>➤ Selection of database service provider</li> <li>➤ Collection of information to be included in the integrated databases</li> </ul>
Jan. 2003	<ul style="list-style-type: none"> <li>➤ Consolidation of the databases from different agencies</li> </ul>
Feb. 2003	<ul style="list-style-type: none"> <li>➤ Identification of IEM information users and providers' needs and issues</li> <li>➤ Discussion on the draft structure and contents of the IEM information website</li> <li>➤ Development of website structure and contents</li> </ul>
Mar. 2003	<ul style="list-style-type: none"> <li>➤ Development of the draft IEM information website</li> <li>➤ Discussion on the integrated IEM information system</li> </ul>
Apr. 2003	<ul style="list-style-type: none"> <li>➤ Upload of the draft IEM information website contents and internal commenting</li> <li>➤ Discussion on the integrated IEM information system</li> </ul>
May 2003	<ul style="list-style-type: none"> <li>➤ Revision and development of the draft IEM information website contents</li> <li>➤ Acquisition of the domain name (www.iem.net.ph)</li> <li>➤ Finalization of the framework of the integrated IEM information system</li> </ul>
Jun. 2003	<ul style="list-style-type: none"> <li>➤ Announcement of the IEM information website at the EMPOWER seminar (partial launching of the IEM information website)</li> <li>➤ Revision and development of the IEM information website contents</li> </ul>
Jul. 2003	<ul style="list-style-type: none"> <li>➤ Full launching of the IEM information website</li> <li>➤ Finalization of the institutional and financial arrangement for the integrated IEM information system</li> <li>➤ Maintenance and updating of the IEM information website (continues hereafter)</li> </ul>

Month	Project Activity
Aug. 2003	<ul style="list-style-type: none"> <li>➤ IEM information seminar</li> <li>➤ Evaluation of the pilot project</li> </ul>

## 7.6 Activities of the Pilot Project

### 7.6.1 Establishment of Steering Committee

The steering committee was established to plan and monitor activities and evaluate outputs of the IEM information system pilot project; it is composed of the members listed in Table 7.6.1. Since UNDP has been implementing a project to promote IEM through information campaign, representatives of the project management organization (PMO) were invited to the steering committee for coordinating both activities.

Table 7.6.1 Member of the IEM Information System Pilot Project Steering Committee

	Organization	Name of Representatives
1	BOI-DTI (Implementing body)	Raquel Echague
2	PBE (Implementing body)	Lisa Antonio
3	PBE (Implementing body)	Mila Antofina
4	Clean & Green Foundation	Imelda Sarmiento
5	ITDI-DOST (Assisting organization)	Christopher Silverio
6.	DOST-ITDI/IPCT	Reynaldo Esguerra
7	PCAPI (ESP)	Jeffrey Mijares
8	PSDN	Zeny Ugat
9	PAEAP (ESP)	Francisco Arellano
10	EPIC (UNDP project)-PMO	Georgina Sison
11	EPIC-PMO	Aloisa Santos
12	EMB-DENR	Leah Texson
13	JICA Study Team	Kaoru Oka
14	JICA Study Team	Precy Rubio

Besides the steering committee, a working group was established to discuss coordination and improvement of information on technologies/methods and tools to promote IEM, seminars/workshops and trainings on IEM, and environmental service providers; it is composed of the members listed in Table 7.6.2. The steering committee members are also the members of the working group.

Table 7.6.2 Member of the IEM Information System Pilot Project Working Group

	Organization	Name of Representatives
1	EMB-DENR (Assisting organization)	Elen Basug
2	LLDA (Assisting organization)	Dolora Nepomuceno
3	PEZA (Assisting organization)	Tonylyn Lim
4	PICPA (ESP)	Fatima Reyes

	<b>Organization</b>	<b>Name of Representatives</b>
5	Land Bank of the Philippines (ESP)	Rey Peñalba
6	Development Bank of the Philippines (ESP)	Mar Enecio
7	Philippine Exporters' Confederation, Inc (Information user)	Leonor Abella

## **7.6.2 Establishment of Framework of the IEM Information System**

### **(1) Identification of Current Status of IEM Information**

As the first step to develop comprehensive design of an integrated IEM information system, source, content, type, and form of information were identified. Sources of the IEM information include DENR (library, Undersecretary for Policy and technical Services, EMB), BOI (PRIME-UNDP), DOST-IPCT, TLRC, University of the Philippines, De la Salle University, Development Bank of the Philippines, Land Bank of the Philippines, and USAID, ADB, World Bank, Asia Pacific Roundtable for Cleaner Production, PBE, management Association of the Philippines, UNEP, USEPA, Global Environmental Initiative, GreenBiz.com, and World Resources Institute (see Annex for details). The information is mainly in hard copies, but some are in electronic files.

### **(2) Identification of IEM Information - related Issues**

Issues and concerns of IEM information in the Philippines were discussed at the IEM information system pilot project steering committee and the working group. Priority IEM information concerns of the stakeholders are the following:

- More sector – specific information and interventions
- More specialized information related to the management of toxic substances and hazardous waste,
- Better archiving of IEM project outcomes and reports,
- Trainings on emergency preparedness.

In addition, IEM information - related issues identified in the EMPOWER study and roundtables are:

- Limited dissemination of IEM experience and knowledge (with limited transfer of successful IEM model projects)
- Awareness gap among industries (particularly for domestic – oriented industries)
- Limited capacity of Environmental Service Providers (and limited demand for their services)

### (3) Objectives of an Integrated IEM Information System

Taking the current status and issues of the IEM information into account, the steering committee adopted the objectives of an Integrated IEM Information System as shown in Table 7.6.3. The first two (information and matching) are the main objectives.

Table 7.6.3 Objectives of an Integrated IEM Information System

Objective	Description
➤ To <i>inform</i> (Information Objective)	i.e., make general IEM information available and accessible to industry, and regularly provide and disseminate updates on environment – related developments, trends, studies and reports relevant to industry  Desired result: IEM information clearinghouse contributing to increased levels of industry environmental awareness
➤ To <i>link</i> (Matching Objective)	i.e., encourage more intra / inter – industry collaboration, match partnership opportunities with resources, initiate partnerships along common / mutual lines of interest (such as between government and business / investors, donor organizations and industry associations); strengthen industry demand of ESPs and environmental financing  Desired result: More consummated partnerships on IEM, whether one – shot or strategic / public – private sector; increased industry use of ESPs
➤ To <i>promote</i> (Advocacy/Promotions Objective)	i.e., campaign for and influence industry to adopt CP and environmental concepts, principles, tools (e.g. EMA), technologies, practices and codes of conduct  Desired result: Increased levels of industry compliance, environmental commitment and best practices
➤ To <i>empower</i> (Capacitating Objective)	i.e., extend assistance to firms for achieving compliance and eco – efficiency via advisory, consulting, technical assistance services (e.g. technology packaging)  Desired result: Successful, documented IEM models

### (4) Organizational Set-up for Integrated IEM Knowledge Network

The Integrated IEM Knowledge Network will have a single coordinating entity which is non – government and with the internal technical grasp and capability as well as networking and marketing skills to shepherd each program area. It will be a joint effort of several organizations / agencies with a common vision for IEM adoption and who are already involved in IEM information dissemination and assistance with the respective Heads /

representatives of the organizations serving as members of the IEM information system steering committee.

#### **(5) Financial Arrangement for Integrated IEM Knowledge Network**

Financial requirements for the Integrated IEM Knowledge Network are estimated as PHP 1,176,00 per year for manpower and direct costs that are necessary for providing services in the main areas (information and matching objectives) of an integrated IEM information system. Additional PHP 503,000 per year would enable the Network to provide services in the remaining areas (advocacy/promotion and capacitating objectives). Funding for the Network has been discussed at the steering committee and the working group of the pilot project but not concluded. It can initially be donor – sourced and subsequently come from the contributions of its members and revenues for its services.

### **7.6.3 Establishment of the IEM Information Website (IEM Knowledge Network)**

#### **(1) Objectives of the IEM Information Website**

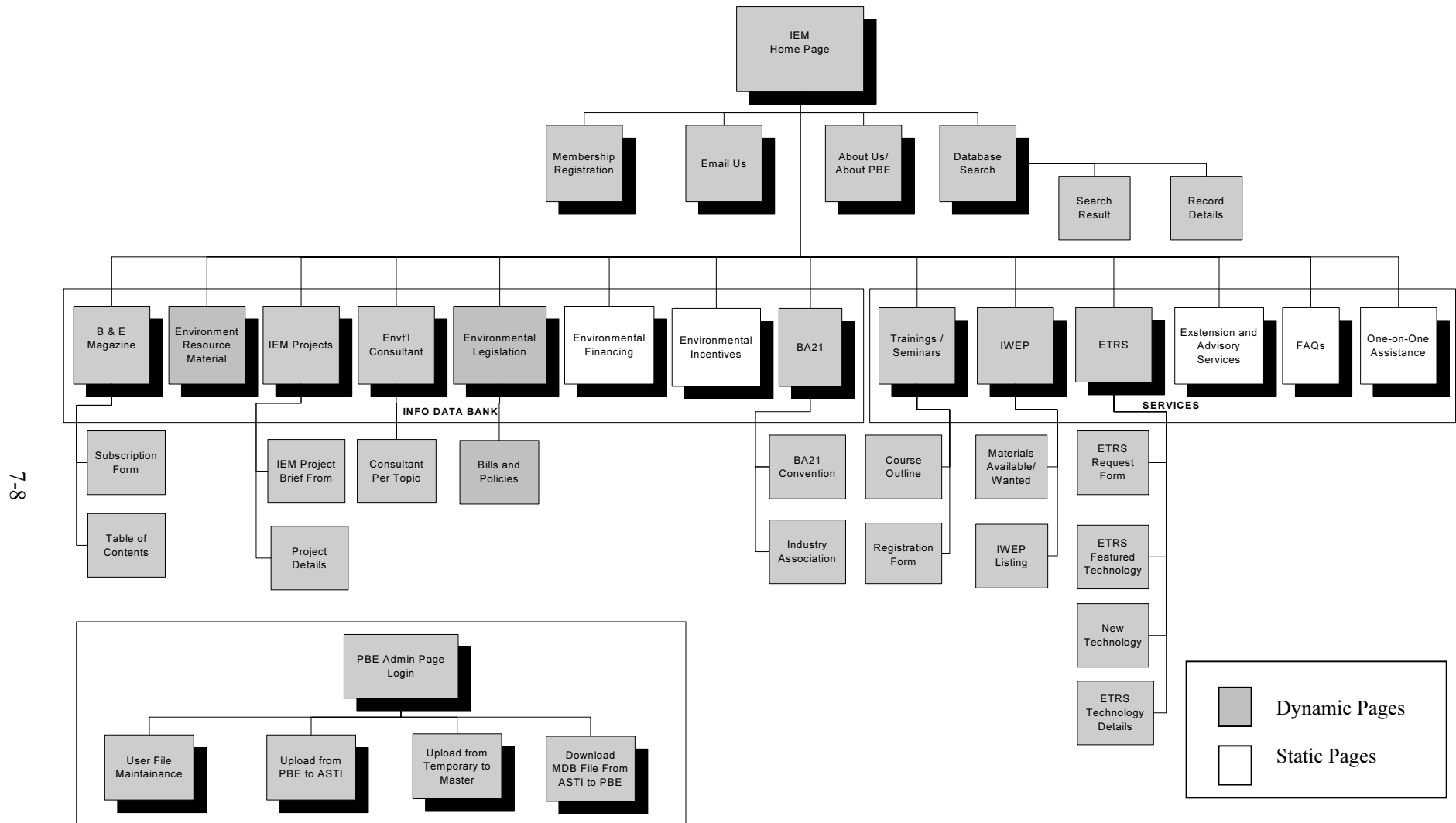
The IEM information website (IEM Knowledge Network) has been developed with the following objectives:

- To facilitate access to industrial environmental information in response to the needs of Philippine companies particularly SMEs.
- To develop an IEM information clearinghouse which consolidates the databases from PBE, EMPOWER, DOST, DENR and other sources useful to IEM promotion
- To develop a mechanism that will make the IEM information website self-sustaining

#### **(2) Structure of the IEM Information Website**

The structure of the website is shown in Figure 7.6.1.

# PBE SITE MAP



Note IWEP: Industrial Waste Exchange Program  
 ETRS: Environmental Technology Referral Scheme

Figure 7.6.1 Structure of the IEM Information Website

### **(3) Contents of the IEM Information Website**

#### **1) IEM Knowledge Network Homepage**

This stands as window into the information, description and features contained in the IEM Knowledge Network. Text and images are clickable to get to the website's specific pages (see Figure 7.6.1).

#### **2) Business and Environment Magazine**

The Business and Environment Magazine page introduces the cover page and table of contents of the latest issue of the magazine. It also shows titles and prices of the back issues.

#### **3) Environmental Resource Materials**

This lists all hardcopy information, books, resources and technologies available in the PBE library.

#### **4) IEM Projects**

The IEM projects page lists previous and on-going IEM-related projects. When one clicks the title of a project, year of implementation, funding agency, implementing agency, major accomplishment, and relevant website appear in a pop-up window.

#### **5) Environmental Consultants**

This provides a free information referral service for industry request for resource persons on topics related to business and environment. A list of available topics can be viewed and a form shall be provided for interested parties to request from PBE the speakers for specific environmental topics that they need. It links to the list of environmental laboratories recognized by DENR.

#### **6) Environmental Legislation**

This page contains list of Philippine legislations under certain categories such as environmental laws, general laws, etc. Retrieval of the details of the laws links the surfer to the EMB-DENR website.

#### **7) Environmental Financing**

This static page provides the interested organizations with information on the available financing programs from the banking sector, for their environment-related projects. This contains a short description on the list of requirements to avail of the assistance of the financing institutions that provide lower interest loans for environmental projects of the interested SME.

JICA Study on Environmental Management  
 with Public and Private Sector Ownership  
 in the Republic of the Philippines



About IEM | About PBE | Email Us

- Business and Environment Magazine
- Environmental Resource Materials
- IEM Projects
- IEM Environmental Consultants
- Environmental Legislation
- Environmental Financing
- Business Agenda 21
- Other Services**
- Trainings / Seminars
- Industrial Waste Exchange Program (IWEP)
- Environmental Technology Referral Scheme (ETRS)
- One-on-One Assistance
- Extension&nbsppand Advisory Services
- FAQs

### The Industrial Environmental Management (IEM) Knowledge Network

The (IEM) Knowledge Network provides you with comprehensive IEM information assistance available through several resource centers and organizations in the Philippines who work with industry. The Network partners share a common vision for improving productivity and increasing industry competitiveness through environmental performance . << click here for more>>

*The IEM Knowledge Network is managed by the Philippine Business for the Environment (PBE) and was established with assistance from the Japan International Cooperation Agency (JICA) through the Environmental Management with Public and Private Sector Ownership (EMPOWER) Project.*

**BRIEFS**

- **EMPOWERING INDUSTRIES THROUGH WASTE MINIMIZATION.**  
 June 11, Cebu Business Park June 18, Astoria Plaza, Pasig Hazardous waste management policies and legislation; Hazardous waste assessment and identification ; Applicable levels, standards and requirements; Hazardous waste planning and chemical waste management Registration fee: P3, 750.00Philippine Business for the Environment (PBE) Tels: 635-3670, 635-2650 to 51 Fax: 631-5714 E-mail: ctem@csi.com.ph
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 August 13 -14, Astoria Plaza Guidelines & applications for in-house emergency awareness and planning, plus orientation to the UNEP-APELL (Awareness and Preparedness for Emergencies at the Local Level) for companies & industrial estates Registration fee: P3, 750.00Philippine Business for the Environment (PBE) Tels: 635-3670, 635-2650 to 51 Fax: 631-5714 E-mail: ctem@csi.com.ph
- **MANAGING WASTEWATER AS A RESOURCE.**  
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- **CLEANER PRODUCTION THROUGH ENVIRONMENTAL MANAGEMENT SYSTEMS.**  
 June 16-19, Cebu Business Park Sponsored by the UNDP-assisted Environmental Management for Industry Competitiveness (EPIC) Project; Seminar/workshop on EMS for SMEsPhilippine Business for the Environment (PBE) Tels: 635-3670, 635-2650 to 51 Fax: 631-5714 E-mail: ctem@csi.com.ph or PhilExport Cebu, (032)254-4333 E-mail: philexport@skynet.net
- **INDUSTRIAL ENVIRONMENTAL MANAGEMENT INFORMATION SYSTEM SEMINAR.**  
 June 9, Manila Peninsula, Makati June 11, Cebu Business Park Sponsored by the JICA - assisted Environmental Management through Public & Private Sector Ownership (EMPOWER) Project Launching and website demonstration of the features and services of the www.iem.net.phPhilippine Business for the Environment (PBE) Tels: 635-3670, 635-2650 to 51 Fax: 631-5714 E-mail: ctem@csi.com.ph or PhilExport Cebu, (032)254-4333 E-mail: philexport@skynet.net
- **EMPOWERING INDUSTRIES THROUGH WASTE MINIMIZATION.**  
 June 11, Cebu Business Park June 18, Astoria Plaza, Pasig Sponsored by the JICA—assisted Environmental Management through Public & Private Sector Ownership (EMPOWER) Project; special focus on the Food, Chemical, Foundry and Pulp & Paper sectorsPhilippine Business for the Environment (PBE) Tels: 635-3670, 635-2650 to 51 Fax: 631-5714 E-mail: ctem@csi.com.ph


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Business and Environment magazine

Figure 7.6.2 IEM Information Website Homepage



### **8) Business Agenda 21 (BA 21)**

The Business Agenda 21 page explains the objective and features of the BA 21. When one clicks the icon, BA 21 Associations, names and contact numbers of the industry associations participated in BA 21 appear in the pop-up window.

### **9) Productivity Improvement**

The Productivity Improvement page was specially developed for this website to introduce philosophy of productivity management, which contributes to environmental performance improvement. Practical steps to improve resource productivity through small group activity are presented, and useful tools for conducting small group activity are introduced. Relevant links are also listed.

### **10) Training/Seminars**

The Training/Seminars page announces venue and schedule of upcoming trainings and seminars on IEM related issues. When one clicks the title of a training/seminar, topics covered in the program appear in the pop-up window. This site enables visitors to see a list of planned trainings/seminars and to register through the website by inputting necessary information.

### **11) Industrial Waste Exchange Program (IWEP)**

The IWEP page presents on-going waste information exchange service that matches companies who are looking to buy, sell, trade, and recycle by-product materials. List of available and wanted materials can be seen in a pop-up window by clicking the icon, Available/wanted materials. Viewers can search listed materials using the search engine on the IEM Knowledge Network homepage. Those who have available materials or want to list their needs for materials can register by sending the listing form through the website.

### **12) Environmental Technology Referral Scheme (ETRS)**

The ETRS page introduces the service of referring environmental technology in response to requests from those who want to identify helpful technologies. There are several environmental technologies listed on the page; when one clicks the name of a technology, description, application, benefits, manufacturer/supplier, and information source appear in a pop-up window. Those who want to use the referral service can send their request for information about environmental technologies meeting their needs through the website; they will be contacted by the site manager, PBE, for the information. Those who want to list their technologies on the website can send their registration through the website. Viewers can search environmental technologies using the search engine on the IEM Knowledge Network homepage.

### **13) One-on-One Assistance**

This contains the list of services that the network agencies can offer with SMEs. Unlike the MAJOR LINKS, this webpage contains the contact details of the experts that can assist the SMEs. These people have close coordination with the IEM Knowledge Network and can render services to the SME.

### **14) Major links to other databases**

For viewers to get additional information, links are made on the Extension and Advisory Services page.

### **15) About IEM**

The About IEM page lists network members of the IEM Knowledge Network that promote sustainable development through the promotion of environmental information; both hard and soft technologies .

### **16) About PBE**

PBE's history, board of Trustees, staff, and members companies are presented on "About PBE" page. Viewers can send email to PBE by clicking the icon of "Email us."

## **(4) Institutional Arrangement for Susutaining the IEM Information Website**

The IEM information website (IEM Knowledge Network) is supervised by a multi-sectoral organization, Editorial Committee. The Editorial Committee is composed of representatives from the following organizations to ensure that ensure that the website is professionally maintained and is regularly updated and remains relevant its targeted audience.

- Board of Investments – Department of Trade and Industry (BOI-DTI)
- Environmental Management Bureau – Department of Environment and Natural Resource (EMB-DENR)
- Laguna Lake Development Authority (LLDA)
- Industrial Technology Development Institute – Department of Science and Technology (ITDI-DOST)
- Industry Association (Philexport)
- Philippine Business for the Environment
- Clean & Green Foundation, Inc.
- Financial Institution (Land Bank of the Philippines, Development Bank of the Philippines)
- Information Technology Agency (Ayala Systems Technology, Inc<sup>1</sup>)
- Media (Environmental Broadcasting Corp.)

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<sup>1</sup> Developer of the IEM information website.

## 7.7 Summary of the IEM Information System Pilot Project

### 7.7.1 Empowerment of Relevant Parties through Pilot Project Implementation

The IEM information system pilot project aimed to enhance capacity of relevant parties through project implementation. Table 7.7.1 summarizes targeted parties and types of the empowerment through the project implementation (from November 2002 to August 2003).

Table 7.7.1 Capacity Building of Relevant Parties through the IEM Information System Pilot Project

Target	Type of Empowerment	Method
PBE	Organized IEM information providers and established an institutional framework to provide IEM information	Project implementation
	Internalized the IT skill to maintain the IEM information website	Training on maintenance of website
Companies with Internet access	Became able to obtain IEM information through Internet	Launching of IEM information website, Seminar on the use of IEM information website
ESPs	Obtained another channel to provide information to potential customers	Launching of IEM information website
	Increased opportunities to reflect their needs and concerns to government policy	Policy dialogue with BOI
IEM information providers	Obtained another channel to provide IEM information	Launching of IEM information website
	Established a structure of cooperation for improvement of IEM information	Design of INDENET

### 7.7.2 Evaluation of the Pilot Project

#### (1) Results of the Pilot Project

The IEM information system pilot project steering committee evaluated the project using the PDM in August 2003, when the project was almost completed. The members of the committee confirmed that most of the results that were planned at the beginning have been realized although it is necessary to change contents of the website (see Table 7.7.2).

Table 7.7.2 Results of the IEM Information System Pilot Project

Project Summary	Objective Verifiable Indicators	Results	Important Assumption	Status of Assumption
<b>Overall Goal</b>				
1. More companies obtain useful IEM information from the integrated IEM information system to promote IEM.	1. Average 100 visits of the IEM Knowledge Network per month are counted by June 2004.	Unable to obtain information	The IEM Knowledge Network is continuously updated and improved.	The IEM Knowledge Network is updated every two weeks.
2. Environmental service providers (ESPs)	2. More than 30 % of ESPs that put advertisement on the IEM Knowledge Network expand their			

Project Summary	Objective Verifiable Indicators	Results	Important Assumption	Status of Assumption
<p>expand their business chances through the integrated IEM information system.</p> <p>3. Industries can participate in the seminars relevant to IEM in a more planned manner through utilizing the integrated IEM information system.</p>	<p>business chances by June 2004.</p> <p>3. More than 30 % of the participants to seminars relevant to IEM evaluate that the integrated IEM information system is helpful to plan attending the seminars by June 2004.</p>			
<p><b>Project Purpose</b></p> <p>1. Activities to coordinate and improve information useful to promote IEM are initiated.</p> <p>2. Information useful to promote IEM is provided in more understandable and applicable manner to Philippine companies with low technical expertise.</p>	<p>1. The Editorial Committee of the IEM Knowledge Network is established and starts its activities by August 2003.</p> <p>2. More than 30% of the users of the IEM Knowledge Network evaluates that IEM information provided through the network is more understandable and applicable than before by June 2004.</p>	<p>1. The first Editorial Committee meeting was held on Aug. 7, 2003.</p> <p>2. A survey will be carried out for seminar participants in Jun. 2004.</p>	<p>The Editorial Board of the IEM Knowledge Network fulfills its responsibility.</p>	<p>Impossible to judge at this point</p>
<p><b>Outputs</b></p> <p>1. Framework of an integrated IEM information system (institutional and financial arrangement to support the maintenance as well as continuous improvement and updating of the information useful to promote IEM) is prepared for an input to the national IEM Action Plan.</p> <p>2. An integrated IEM information web site is developed and its service is commenced.</p> <p>3. Partnership between BOI and ESPs is initiated.</p>	<p>1. Framework of an integrated IEM information system is prepared and integrated into the national IEM Action Plan by July 2003.</p> <p>2. An integrated IEM information web site is developed and its service is commenced by June 2003.</p> <p>3. Needs and concerns to promote ESPs are identified by BOI by July 2003.</p>	<p>1. The framework has been integrated into the IEM Action Plan.</p> <p>2. The website was launched partially in Jun., and fully in Aug. 2003.</p> <p>3. BOI identified ESPs' needs through the policy dialogue.</p>	<p>1. Resources necessary for the realization of the framework are secured.</p> <p>2. Enough number of IEM information users and providers are utilizing the IEM information web site</p>	<p>1. Resources have not been secured.</p> <p>2. Impossible to judge at this point</p>

## (2) Summary of Project Evaluation

Based on the PDM prepared during the pilot project, the JICA Study Team evaluated the project as follows:

表 7.7.1 The outline of Project Evaluation

Evaluation Item	Evaluation Results	Basis for Evaluation
Efficiency	Slightly high	<ul style="list-style-type: none"> <li>• Equipment necessary to develop the IEM information website was supplied without any delay.</li> <li>• A framework of an integrated IEM information system was designed.</li> <li>• The IEM information website became fully operational with two-month delay.</li> <li>• The IEM information website has not fully utilized the existing IEM information whose contents, forms, and sources are identified.</li> </ul>
Effectiveness	One purpose was achieved as of Aug. 2003	<ul style="list-style-type: none"> <li>• The activity to improve and coordinate IEM information was started (the meeting of the Editorial Committee for the IEM information website was held in Aug. 2003).</li> <li>• It is impossible to judge whether information useful to promote IEM is provided to the Philippine companies without knowledge of high technology in more understandable manner before feedback from users of the IEM information website is obtained.</li> </ul>
Impact	Positive impact	<ul style="list-style-type: none"> <li>• For industries, means to obtain IEM information are increased.</li> <li>• For ESPs, means to provide information to their potential customers are increased.</li> <li>• Companies became able to obtain comprehensive information about seminars related to IEM if they have an access to Internet.</li> </ul>
Relevance	Slightly high	<ul style="list-style-type: none"> <li>• Provision of IEM information meets the needs of the industry.</li> <li>• There is no major improvement in providing IEM information to those who do not have an access to Internet.</li> </ul>
Sustainability	Slightly high	<ul style="list-style-type: none"> <li>• Although necessary funds for maintaining and updating the IEM information website have not been secured, financial independence, for example by collecting advertisement fees, has been pursued.</li> <li>• PBE staff is now capable to update/develop web pages and manage the database through the training.</li> <li>• The structure of cooperation among relevant government organizations, private companies, PBE, and donor agencies to promote environmental services to the industry (INDENET: Industrial Environmental Extension Program) has been developed and integrated into the IEM Action Plan. Donors who would support the INDENET are being sought.</li> </ul>

### (3) Conclusion

The IEM information system pilot project was highly evaluated in the items other than effectiveness. The evaluation results are attributed to high capability of the implementing body and easiness of the project to be managed due to simple combination of project activities.

The output 3 was originally set as “Partnership between BOI and ESPs is established,” and the project aimed to develop BOI policies to promote ESPs. Since the number of the BOI staff who could be involved in EMPOWER is limited, a wide range of activities such as attending steering committee meetings of the other pilot projects and preparing BOI’s green

procurement policy, EMS, and IEM Action Plan left little time for the BOI staff to prepare BOI's policy to promote ESPs.

Considering this situation, the output 3 was changed to "Partnership between BOI and ESP is initiated," and the project targeted identifying needs and concerns of ESPs. Because establishment of BOI-ESP partnership was not considered as must-to do during the pilot project period and not crucial for achieving the project purpose, this change was appropriate.

### **7.7.3 Recommendations**

#### **(1) Continuation of Policy Dialogue between BOI and ESP**

Under this pilot project, due to time limitation, only the first step for establishment of partnership between BOI and ESPs (identification of needs and concerns of ESPs) was taken. During the policy dialogue held between the BOI and ESPs, the latter expressed their requests such as asking BOI to be a mediator to match a ESP and SMEs in the same sector for cost reduction in acquisition of ECC and their willingness to continue the policy dialogue with BOI. It is desirable that BOI will continue the dialogue with ESPs and develop and implement adequate measures to promote ESPs.

#### **(2) Higher Utilization of Existing IEM Information**

Under this pilot project, contents, forms, and sources of existing IEM information were most identified (see Annex 7.2). It is recommended that the Editorial Committee of the IEM information website select from the existing IEM information those still useful to promote IEM and upload them in a downloadable format at the IEM information website.

### **7.7.4 Lessons Learned**

Because PBE, the implementing body of this project, has experiences in functioning as IEM information center, the project activities were smoothly carried out. Information about experiences in the related field is very useful to evaluate capability of an implementing body of a project.

## **Chapter 8**

# **Ecolabeling Program and Green Procurement Policy Pilot Project**

## **8 Ecolabeling program and Green Procurement Policy Pilot Project**

### **8.1 Background and Objectives of the Pilot Project**

#### **8.1.1 Background of the Pilot Project**

When Republic Act No.9003 known as the “Ecological Solid Waste Management Act of 2000”, was approved on 26 January 2001, the Ecolabeling Program (ELP) of the Philippines was given a legal basis. But prior to this, the Department of Trade and Industry (DTI), through its Bureau of Products Standards (BPS) and the Private Sector Participation in Managing the Environment – Environmental Management System Module (Prime Module 3), already adopted a plan for the development of the National Products Ecolabeling Program.

Clean and Green Foundation Inc. (C&GF) was designated as secretariat of the ELP through a Memorandum of Agreement signed by the members of the ELP Board, headed by BPS-DTI and Environmental Management Bureau of the Department of Environment and Natural Resources (EMB-DENR), last 7 March 2001. The Ecolabeling Program in the Philippines intends to guide consumers to choose products that are environmentally sound; to encourage manufacturers to adopt processes and supply products that have less adverse environmental impacts; and to use the label as a “market based instrument” to complement the government’s environmental policy.

Meanwhile, the government being the largest single buyer and property manager can have a significant impact on the economy. Being under constant public scrutiny, especially on its purchases, the government should lead green purchasing. With its considerable influence on corporate decisions and public perception, the government can act as the driver for environmentally preferable products and services.

Rule XII, Section 2 “Environmentally Preferable Purchasing” of the Implementing Rules and Regulations of R.A. 9003 specifically states that “all government personnel shall seek to reduce the environmental damages associated with their purchases by increasing their acquisition of environmentally preferable products and services to the extent feasible, consistent with price, performance, availability and safety considerations. Responsibility for environmentally preferable purchasing shall be shared among the program, acquisition and procurement personnel of government agencies.” As stipulated by R.A 9003, BOI decided to adopt greening of the procurement as part of integrating environmental concerns in policy and encourage to expand environmental labeling, e.g. ecolabeling.



### 8.1.2 Objectives of the Pilot Project

The project aims to empower the secretariat of the ELP and relevant organizations to accredit the first ecolabeled products, establish organizational and methodological framework and details for ecolabeling program, and increase consumers' awareness towards ecolabeled products, and to empower BOI to promote green procurement policies through BOI's ISO 14001 certification and green procurement policy development.

### 8.1.3 Project Components

The ecolabing program pilot project has the following components

- (1) Ecolabeling program
- (2) Green procurement
- (3) ISO14001 acquisition

## 8.2 Ecolabeling Program

### 8.2.1 Structure of Pilot Project Implementation

To implement smoothly the ecolabeling program pilot project, a structure of implementation was established as following a table, which identified each role of relevant parties.

Table 8.2.1 Structure of Implementation

Party	Role
<b>C&amp;GF</b>	<ul style="list-style-type: none"> <li>➤ Overall coordination and management</li> <li>➤ Preparation of the workshop (logistics)</li> <li>➤ Establishment of institutional procedure for the ecolabeling program</li> <li>➤ Preparation of product criteria</li> <li>➤ Accreditation of the first ecolabeled product</li> <li>➤ Information campaign on ecolabeling program (one seminar and leaflet dissemination)</li> <li>➤ Preparation of the resource center</li> </ul>
<b>BPS/DTI</b>	<ul style="list-style-type: none"> <li>➤ Attending technical committees on product criteria for ecolabeled products</li> </ul>
<b>EMB/DENR</b>	<ul style="list-style-type: none"> <li>➤ Support to awareness campaigns on the ecolabeling program</li> </ul>
<b>LLDA</b>	<ul style="list-style-type: none"> <li>➤ Support to awareness campaign on the ecolabeling program</li> <li>➤ Discussion on green procurement policy</li> </ul>
<b>PEZA</b>	<ul style="list-style-type: none"> <li>➤ Support to awareness campaign on the ecolabeling</li> </ul>
<b>EMPOWER</b>	<ul style="list-style-type: none"> <li>➤ Preparation of the workshop (program)</li> <li>➤ Financial and technical support for collection of information about ecolabeled product criteria, awareness campaign, and resource center</li> <li>➤ Dispatch of Japanese experts on training and advice on guidelines for operation of ecolabeling program, product criteria, application review</li> <li>➤ Coordination with Japan Environment Foundation (secretariat for Japanese Ecolabeling Program and Global Ecolabeling Network)</li> </ul>
<b>EPIC</b>	<ul style="list-style-type: none"> <li>➤ Financial and technical support for activities not covered by EMPOWER</li> </ul>

Party	Role
Steering Committee	<ul style="list-style-type: none"> <li>➤ Confirmation of overall planning of the pilot project</li> <li>➤ Monitoring and evaluation</li> </ul>

### 8.2.2 Outputs of the Pilot Project

The ecolabeling program pilot project aimed to develop and disseminate the ecolabeling program in the Philippines by supporting the secretariat. The Study Team and C&GF expected following results under the EMPOWER Project in order to secure necessary mechanism and/or system for keeping the sustainability of the ecolabeling program in the Philippines.

- (1) A master plan on the establishment of the ecolabeling program is adopted;
- (2) Product criteria are developed for two product categories;
- (3) System for accept applicants for ecolabeled products is established;
- (4) The first ecolabeled product is accredited; and
- (5) Awareness of consumers and industries toward ecolabel is increased

### 8.2.3 Summary of Pilot Project Activities

The ecolabeling program pilot project has the following components:

- a. Establishment of the steering committee
- b. A workshop on ecolabeling program and green procurement policy targeting ELP body
- c. Preparation of a strategic plan on the establishment of the ecolabeling program
- d. Preparation of guidelines for ecolabeling program operation
- e. Development of product criteria for two product categories
- f. Promotion of application and accreditation of the first ecolabeled product
- g. Awareness campaign on the ecolabeling program
- h. A seminar on ecolabeling program and green procurement policy targeting government organizations and product suppliers

### 8.2.4 Pilot Project Implementation Schedule

The ecolabeling program pilot project was carried out from December 2002 to August 2003 as shown in Table 8.2.2.

Table 8.2.2 Implementation Schedule

Date	Project Activities
Dec 2002	<ul style="list-style-type: none"> <li>• Adopted the product criteria for tissue paper and detergents</li> <li>• 2 day workshop for ELP body</li> <li>• Preparation of guidelines for operation of the ecolabeling program</li> </ul>
Jan. 2003	<ul style="list-style-type: none"> <li>• Commencement of accepting applications for ecolabeled products</li> <li>• Examination of the application</li> </ul>

Feb 2003	<ul style="list-style-type: none"> <li>• Announcement of accredited products</li> <li>• Preparation of awareness campaign for ecolabeling program</li> <li>• Discussion on product criteria for household batteries and plastic packaging</li> </ul>
March 2003	<ul style="list-style-type: none"> <li>• Launching event</li> </ul>
June 2003	<ul style="list-style-type: none"> <li>• Exhibition of the ecolabeling program at the event held around the World Environment Day</li> </ul>
July 2002	<ul style="list-style-type: none"> <li>• Finalization of product criteria for household batteries and plastic packaging</li> </ul>
Aug 2003	<ul style="list-style-type: none"> <li>• Adoption of the product criteria for household batteries and plastic packaging</li> <li>• Announcement of the above product criteria</li> </ul>

### 8.2.5 Establishment of the Ecolabeling and Green Procurement Steering Committee

C&GF and BOI organized an ecolabeling and green procurement steering committee comprised of about 10 relevant parties. The steering committee meetings were held three times. The discussion and approval in the meetings are represented in Table 8.2.3.

Table 8.2.3 Summary of the Steering Committee Meetings

Date	Topics
1 <sup>st</sup> steering committee 17 January 2003	<ul style="list-style-type: none"> <li>• Background on the ecolabeling program</li> <li>• The Technical Specification (project components, expected results, etc) for the ecolabeling program under the EMPOWER Project</li> <li>• Role of the Steering Committee</li> <li>• Report on the criteria for synthetic laundry detergents and tissue paper products already established and next product categories for criteria development (household batteries, and paper packaging)</li> <li>• Report on the workshop last 13 December 2002</li> </ul>
2 <sup>nd</sup> steering committee 10 February 2003	<ul style="list-style-type: none"> <li>• Review and approval of the 1<sup>st</sup> steering committee meeting minutes</li> <li>• Discussion of Green Choice Guidelines for Application for Green Choice Certification</li> <li>• Development of product criteria for household batteries and packaging materials</li> <li>• Green Choice Philippines Launching</li> <li>• Update on Green Procurement Policy of BOI</li> </ul>
3 <sup>rd</sup> steering committee 3 March 2003	<ul style="list-style-type: none"> <li>• Review and approval of 2<sup>nd</sup> steering committee meeting minutes</li> <li>• Presentation of Draft Guidelines, Application Form and Contracts</li> <li>• Result of Audits conducted with Two applicants to Green Choice Philippines</li> <li>• Green Choice Philippines Launching on 10 March 2003</li> </ul>

The steering committee has already complied with the requirement mentioned in the Technical Specification under the EMPOWER Project and the meeting will just be organized by EPIC if it is necessary.

### **8.2.6 Workshop on Ecolabeling Program and Green Procurement Policy**

The workshops on the ecolabeling program and green procurement, conducted by Mr. Seiji Taguchi, the Director General of Japan Environmental Association (JEA), was held at Asian Institute of Management on 13 and 14 December 2002.

First workshop aimed to enhance capacity of ELP body to set product and establish a mechanism to promote development and marketing of ecolabeled products through providing useful information on these issues. Likewise, it aims to increase understanding of power of green procurement policy by both public and private sectors and encourage the public and private sectors to adopt the green procurement policy, and stimulate product suppliers to develop and market products with less environmental impact such as ecolabeled products.

The second day of the workshop targeted the members of the secretariat of ELP and the topics focused on managing the ecolabeling program such as application procedures, rules and regulations of using the logo and fee structures, etc.

### **8.2.7 Preparation of Master (Strategic) Plan on the Ecolabeling Program**

The ELP secretariat has conducted several workshops in order to determine the appropriate components of the Strategic Plan.

Initially, the activities were listed, projected to satisfy the goal of attaining sustainability by the end of 2004, including the timeframe foreseen that each activities would required, the linkages and/or network each can tap, the resources each can use, and the cost that will entail. More importantly, the secretariat identified a strategy or approach that will hopefully meet the objectives set forth. Through this workshop, the secretariat could determine the strengths, weaknesses, opportunities and threats (SWOT) of the program. Also the study by United Nations Development Program-assisted Private Sector Participation in Managing the Environment on the concept of Ecolabeling in the Philippines was adopted. The draft plan prepared by the secretariat was discussed in TC and later approved by the ELP Board in Aug. 19, 2002.

#### **(1) Structure for implementing the strategic plan**

The Green Choice Strategic Plan, once approved by the ELP Board, will be implemented. It may involve re-structuring the Technical Committee to include the responsibility of assisting

the secretariat in the promotions and marketing aspect or the creation of a Steering Committee especially for such task.

The limited budget of the program, as it is dependent on grants by financial institutions, shall entail the secretariat to focus foremost in the sourcing of funds to finance the operations until such time that sustainability is achieved through the applications and awarding of the ecolabel. Program development, product criteria development and marketing shall greatly depend on the availability of funds.

As the program is already operating, the necessary changes as stated in the Strategic Plan shall immediately be adopted.

### **8.2.8 Guidelines for the Philippine Ecolabeling Program**

C&GF and the JICA Study Team discussed outline of Green Choice Operation Guideline, basically based on the existing Guidelines of Japan's Eco Mark program.

#### **(1) Guidelines for Product Category Selection and Criteria Development**

National Solid Waste Management Commission, as the executing arm of the Philippine Office of the President on RA 9003, has been authorized to select the product category it may deem appropriate for the successful implementation of the law. Category is selected based on:

- The volume of the particular product in the market place
- The degree of environmental impact
- The potential for environmental improvement
- Nature and degree of industry interest

Each stage is described as the following:

**Preparatory work:** Based on the selection of new product category conducted by the National Solid Waste Commission, approved project shall be endorsed by the secretariat to the Technical Committee (TC) for the development of Philippine Ecolabeling Criteria (PEC). The TC will create a Technical Working Group for the specific Product Category.

**Drafting of PEC:** The Technical Working Group (TWG) is the basic group responsible for deliberation of draft product criteria. Some Technical Working Groups are concerned with a single product or a product category; others may be responsible for a wide range of product criteria in a given product category.

**Preliminary draft:** This may be any foreign product criterion, a draft submitted by an interested organization or individual, a draft prepared by the ELP Administrator, on the basis

of researches and in consultation with the interests concerned, or a skeleton outline containing suggested clause headings. The preliminary draft is submitted to the relevant TWG for deliberation and consideration. The TWG may find it necessary to alter the draft with specific directives for consideration and action.

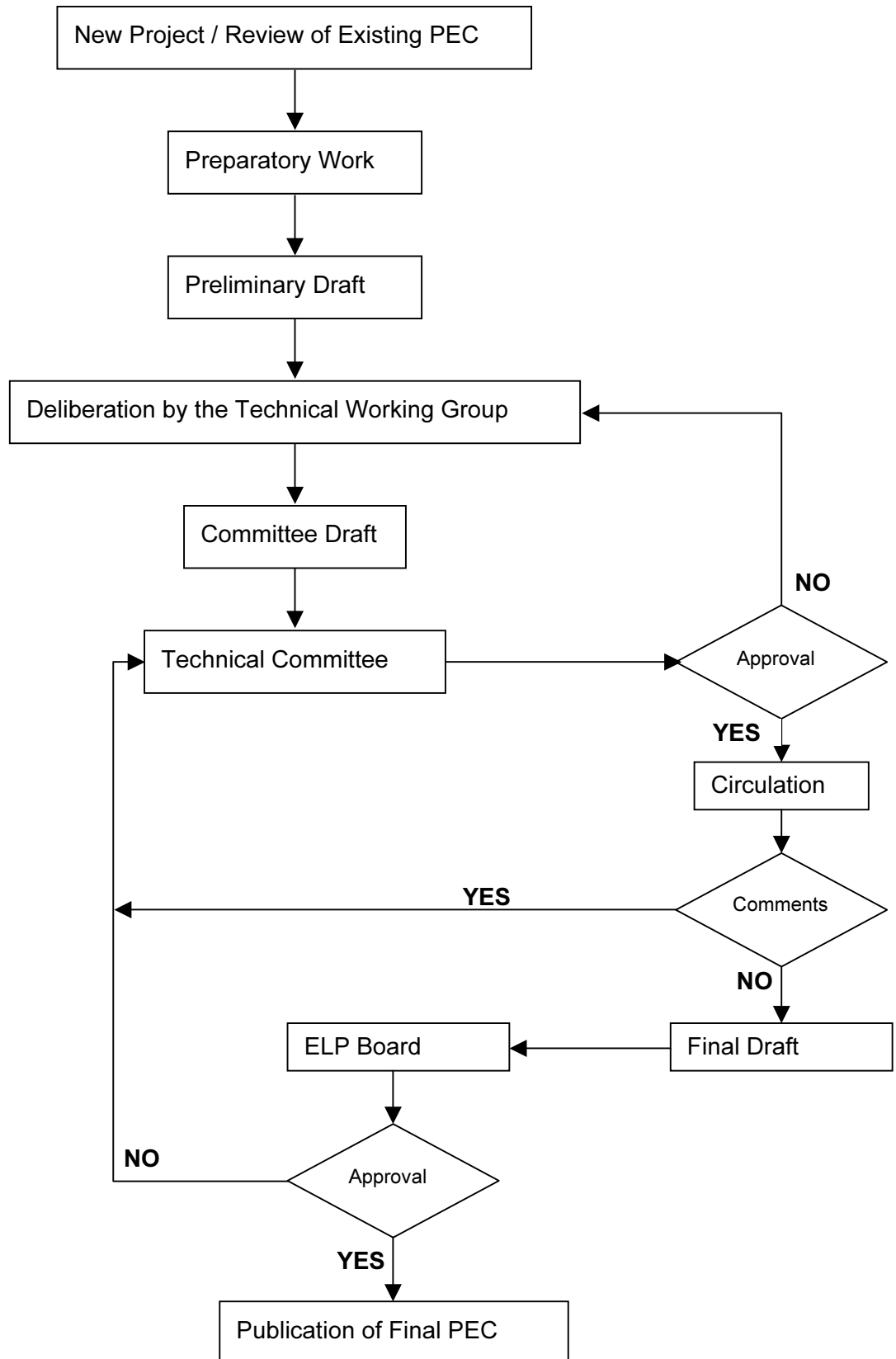
**Committee draft:** It is a draft incorporating the decisions of the TWG arising from its deliberations of the preliminary draft. It is the first formal statements of a genuine consensus of opinion of the members on a particular subject.

**Draft for public review:** This is the most significant stage in the preparation of a product criterion. It expresses the Technical Committee's considered views as to the recommended contents of the product criteria. This draft which was approved by the TC is forwarded to the Program Director of the ELP Administrator and is circulated for two months to all interests concerned or presented in a public hearing for comments. When the period of two months has elapsed, all comments received are evaluated, consolidated and presented to the TC for consideration.

**Final draft:** This is a draft incorporating all modifications of the draft for public review, as a result of the technical committee's study of the comments received. The TC recommends for approval to the ELP Board the final draft.

The ELP Body shall voluntarily adopt the existing PNS / ISO Standards on Ecolabeling, including all revisions and developments undertaken by the Bureau of Product Standards.

**Approval and publication of Philippine Ecolabeling Criteria:** All Philippine Ecolabeling Criteria requires approval by the ELP Board Chairman and Co-Chairman. An approved Philippine Ecolabeling Criterion is assigned a number designation and year of issue by the ELP Administrator. A copy is given to the PDC-DAP for marketing and promotion. The ELP Administrator publishes the Philippine Ecolabelling Criteria as voluntary criteria.



PEC: Philippine Ecolabeling Criteria  
TC: Technical Committee

Figure 8.2.1 Flow of Product Criteria Development

**Revision / Amendments of Philippine Ecolabeling Criteria:** The PEC shall be reviewed, as policy, every 3 years. However, PEC may be reviewed as the need arises due to technological, alignment with other criteria, and other acceptable reasons.

**Mutual Recognition / Cooperative Arrangements:** The Technical Committee as approved by the Ecolabeling Board shall follow an internationally recognized framework for mutual recognition / arrangement between ecolabeling programs on both bilateral and multi-lateral basis.

## (2) Guidelines for Application for Green Choice Certification

The ELP administrator established the guidelines for application for Green Choice Certification through discussion in the Technical working group and ELP Board and published a manual on the procedures of acquiring the Green Choice Seal of Approval. Flowchart of application/certification procedure is shown in Figure 8.2.2.

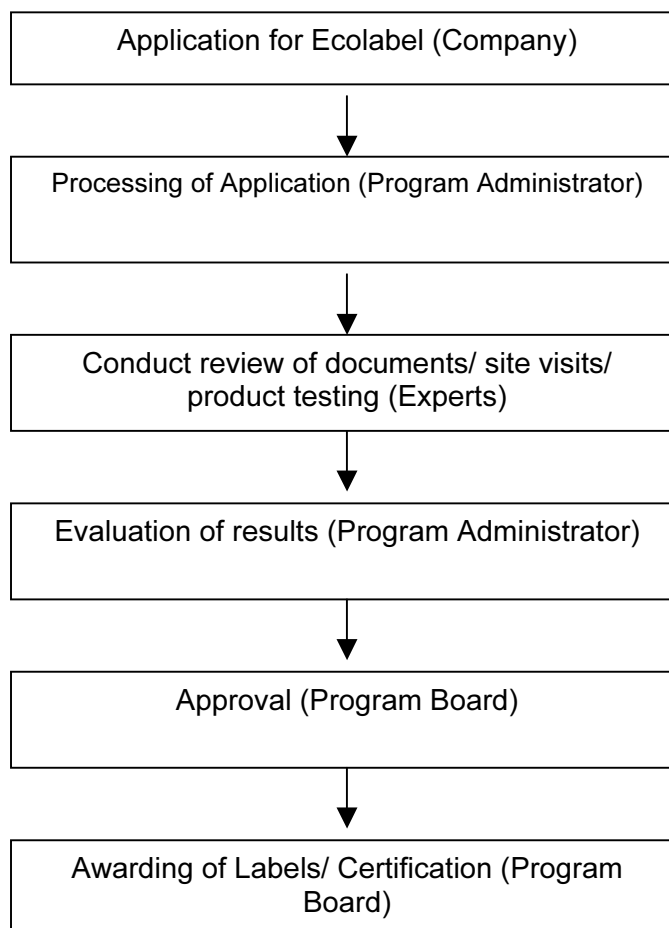


Figure 8.2.2 Flowchart of Application/Certification Procedure



### (3) Fee Schedule

Table 8.2.4 shows Fee Schedule.

Table 8.2.4 Schedule of Fees

Item	Amount (PhP)	Payable to	Remarks
Processing Fee	10,000.00	C&GFI	To cover processing, desk review of application papers, and two pre-certification audits
Laboratory Testing			As billed by testing laboratory Testing Laboratory
Transportation	As per arrangement	Transport company	Only if necessary
Food and lodging	As per arrangement	Hotel	Only if necessary
License Fee	Minimum – 20,000.00 Maximum – 200,000.00	C&GFI	To be paid prior to awarding of contract to the use of the logo. See formula used.
Annual Fee	5,000.00		To cover the annual surveillance audit and continued use of the logo

Notes:

- 1) Formula for the computation of the license fee  
 $P = 20,000 + .018(N)$ , with P not exceeding 200,000.00.  
 Where P is the license fee in Pesos and N is the amount of annual sales in pesos of the product.
- 2) Reference value to be used for N is the latest reported annual sales report.
- 3) C&GFI stands for Clean and Green Foundation, Inc.

### 8.2.9 Development of New Product Criteria

According to the selection by the National Solid Waste Management Commission, tissue paper and detergents were designated the product categories for which the first product criteria are established in the Philippines.

#### (1) Tissue Paper and Detergents

The product criteria for both categories were approved unanimously by the ELP Board on 05 December 2002. The secretariat is now accepting applicants for labeling for these two categories. Establishment of product criteria for these categories as well as promotional activities were conducted under the EMPOWER pilot project.

Pride Detergent produced by ACS Manufacturing Corporation was first to apply and was successful to be certified as an environmentally sound product during the Green Choice Launching held last 10 March 2003, with Philippine President Gloria M. Arroyo awarding

them of the License to Use the Green Choice Logo for their product, Pride Detergent Powder and Bar.

On the other hand, SCA Hygiene Products Corporation also applied for their product, Softee Value, a toilet tissue. Their application was hindered because of the projected implications on the sales of their other products. Negotiations with the corporation are still underway.

**(2) Household Batteries (PC-0003) and Plastic Packaging (PC-0004)**

The Technical Committee already approved the development of the product criteria for Household Batteries and Packaging Materials during its 8<sup>th</sup> Meeting last 19 November 2002. The development of these criteria is being undertaken in partnership with the National Solid Waste Management Commission as a need for the implementation of RA 9003, the Ecological Solid Waste Management Act.

1) Activities of the Technical Working Group for Household Batteries (TWEG-0003)

Table 8.2.5 Summary of the Technical Working Group for Household Batteries (TWG-0003)

	<b>Date</b>	<b>Activity</b>
1	Feb.11, 2003	<ul style="list-style-type: none"> <li>• Establishment of TWG for household batteries</li> <li>• Selection of TWG members</li> <li>• Confirmation of pilot project activities</li> <li>• Decision on developing the criteria for carbon-zinc cells</li> </ul>
2	Mar.4, 2003	<ul style="list-style-type: none"> <li>• Review and approval of minutes of previous meeting</li> <li>• Identification on the components of carbon-zinc cells</li> <li>• Presentation of the first draft of product criteria</li> </ul>
3	Mar.25, 2003	<ul style="list-style-type: none"> <li>• Presentation of The American National Standard for batteries</li> <li>• Discussion on Green Choice Requirements and Evaluation</li> <li>• Discussion on the draft product criteria</li> </ul>
4	May 7, 2003	<p><u>Site Visit:</u> Matsushita Electric Philippines Corporation (MEPCO)</p> <ul style="list-style-type: none"> <li>• Overview of the operations of MEPCO</li> <li>• Plant Visit</li> </ul>

2) Activities of the Technical Working Group for Plastic Packaging (PC-0004)

The activities of the Technical Working Group for Plastic Packaging are summarized in Table 8.2.6.

Table 8.2.6 Summary of the Technical Working Group for Plastic Packaging (TWG-0004)

	<b>Date</b>	<b>Activity</b>
1	Feb.11, 2003	<ul style="list-style-type: none"> <li>• Establishment of TWG for Plastic Packaging</li> <li>• Selection of TWG members</li> </ul>
2	Mar.5, 2003	<ul style="list-style-type: none"> <li>• Confirmation of pilot project activities and clarification of the process of establishment of the secretariat and updates of the program</li> <li>• Presentation of the process of manufacturing plastic packaging</li> </ul>
3	April 3, 2003	<ul style="list-style-type: none"> <li>• Presentation and Discussion on the draft product criteria for polyethylene packaging</li> <li>• Decision on group categorized products of polyethylene and generic criteria</li> </ul>
4	April 30, 2003	<ul style="list-style-type: none"> <li>• Discussion on the product criteria for polyethylene packaging</li> </ul>
5	May 23, 2003	Site Visit: United Polyresins, Inc., Plastmann Industrial Corporation, H&E Manufacturing Corporation <ul style="list-style-type: none"> <li>• Overview of the operations</li> <li>• Plan Visit</li> </ul>

### 8.2.10 Awareness Activities

#### (1) Launching Event

##### 1) Objectives

Launching of Green Choice Philippines was held in order to disseminate the commencement of the National Ecolabeling Program called as Green Choice Philippines and award the Green Choice Logo to the first products found to be environmentally preferable – Pride Detergent Bar and Pride Detergent Powder, produced by ACS Manufacturing Corporation.

##### 2) Date and Venue

Venue: Grand Ballroom at Hotel Inter-Continental Manila, Makati City  
 Date: March 10, 2003

##### 3) Program

Table 8.2.7 shows the program of launching.

Table 8.2.7 Official Program

<b>Time</b>	<b>Activity</b>
1630	Registration
1700	Arrival of Her Excellency President Gloria Macapagal Arroyo
	ISO 14024 Type I Environmental Labelling and the Ecolabelling Program of the Philippines (ELP) Jesus L. Motoomull, Director Bureau of Product Standards-DTI, Chairman ELP Board on behalf of Co-Chair Julian D. Amador, Director, Environmental Management Bureau-DENR & the members of the ELP body
	The presentation of the Philippine Ecolabelling Program Seal of Approval
	Accepting the Challenge Amelita M.Ramaos, Chairperson, Clean & Green Foundation, Inc.
	Special Presentation

A total of 225 people from the industry, government, non-government organizations and media participated in the Launching. Upon the arrival of Her Excellency President Gloria Macapagal Arroyo, Director Jesus L. Motoomull of the Bureau of Product Standards of the Department of Trade and Industry presented an overview of the Ecolabeling Programme of the Philippines and presented of the Programme’s Seal-of-Approval, the Green Choice Logo. After speech of Mrs. Amelita Ramos, Chairperson of the Clean & Green Foundation, the highlight of the event was the awarding of the Green Choice Logo to the first products found to be environmentally preferable – Pride Detergent Bar and Pride Detergent Powder. ACS Manufacturing Corporation of Pride Detergent, accepted the award from President Arroyo.

4) Press Conference

Before the formal event started, one-on-one interviews were conducted in the Hotel Inter-Continental. Director Jesus L. Motoomull; Chairman of the Ecolabelling Programme Board, Mr. Motofumi Kohara and Mr. Jun Godornes, Deputy Resident Representative and Project Officer, respectively, of JICA; and Ms. Imelda P. Sarmiento of the Clean & Green Foundation were the main speakers for the programme. Two media representatives conducted the interviews, highlighting the support being given by JICA-EMPOWER.

5) Press Release

By the participation of President Arroyo in the Lunching, the objective and activities of Green Choice Philippines was released in many newspapers, main TV and Radio networks. The launching aiming at introducing the program of Green Choice Philippines and raising awareness of public and private sectors to the Green Choice Logo was closed with a success.

Press Release information, and TV and Radio Interview are summarized in Table 8.2.8.

Table 8.2.8 Press Releases published on the GCP Launching

Press	Date	Topics
The Philippine Star	09 March 2003	Gov't to Launch National Ecolabelling Program
Business World	10 March 2003	Ecolabelling Program to be Introduced
Manila Bulletin	13 March 2003	Ecolabelling now in Effect
Manila Bulletin	16 March 2003	Photo Release (Ecolabelling Program)
Malaya	20 March 2003	Ecolabelling of Products Seeks Consumer Support
Business World	21 March 2003	New Labelling Logo to Watch
Business World	24 March 2003	Industry Players' Support for Ecolabelling Program Urged



Mr. Nakagaki with Usec. Adrian Cristobal of DTI, Mr. Terence Jones of UNDP, President Gloria Macapagal Arroyo and Former First Lady Amelita Ramos



President Arroyo awards Green Choice Logo to ACS Manufacturing (Pride Detergent) assisted by Amelita Ramos, Mr. Nakagaki, Usec. Cristobal, Mr. Terence Jones and DENR Secretary Elisea Gozun



Awarding of Green Choice Logo to ACS Manufacturing

## (2) Lobby Activity

The ELP secretariat prepared the draft of Executive Order for establishing a green procurement program for all departments and executive branches of the national government since the adoption of green procurement policy by the government shall support the ecolabeling program and stimulate product suppliers to apply for the Green Choice Philippines. The draft shown in Annex 6.15 already was submitted to Malacanang.

## 8.3 Green Procurement Policy Pilot Project

### 8.3.1 Structure of Green Procurement Policy Pilot Project Implementation

To prepare a green procurement policy of BOI, a structure of implementation was established as following a table.

Table 8.3.1 Structure of Implementation

Party	Role
<b>C&amp;GF</b>	➤ Preparation of the workshop (logistics)
<b>BOI/DTI</b>	<ul style="list-style-type: none"> <li>➤ Preparation and adoption of green procurement policy</li> <li>➤ Coordination of government agencies about green procurement policy</li> <li>➤ Awareness campaign on green procurement policy (one seminar)</li> <li>➤ Preparation for the attainment of ISO14001 certification</li> </ul>
<b>BPS/DTI</b>	➤ Discussion on green procurement policy
<b>EMB/DENR</b>	<ul style="list-style-type: none"> <li>➤ Support to awareness campaigns on green procurement policy</li> <li>➤ Coordination of government agencies about green procurement policy</li> </ul>
<b>LLDA</b>	<ul style="list-style-type: none"> <li>➤ Support to awareness campaign on green procurement policy</li> <li>➤ Discussion on green procurement policy</li> </ul>
<b>PEZA</b>	<ul style="list-style-type: none"> <li>➤ Support to green procurement policy</li> <li>➤ Discussion on green procurement policy</li> </ul>
<b>EMPOWER</b>	<ul style="list-style-type: none"> <li>➤ Preparation of the workshop (program)</li> <li>➤ Financial and technical support for collection of information about green procurement policies in other countries and their implementation mechanism and BOI's ISO 14001 certification</li> </ul>
<b>EMPOWER Steering Committee</b>	<ul style="list-style-type: none"> <li>➤ Confirmation of overall planning of the pilot project</li> <li>➤ Monitoring and evaluation</li> </ul>

### 8.3.2 Project Components

#### (1) Target of Pilot Project

The Green Procurement Pilot Project (GPP) aimed to develop the green procurement policy of BOI and promote the significance of GPP to other government agencies and relevant bodies. The Study Team expected BOI adopts the GPP under the EMPOWER Project through following support and activities.

- 1) Collection and analysis of information about green procurement policies in other countries
- 2) Workshop on green procurement policy targeting ELP body
- 3) Preparation and adoption of BOI's green procurement policy
- 4) Seminar on green procurement policy targeting government organizations and product suppliers

Table 8.3.2 Implementation Schedule

Date	Green Procurement Policy
Dec. 2002	<ul style="list-style-type: none"> <li>➤ Establishment of a working group on development of green procurement policy within BOI</li> <li>➤ Collection and analysis of information on green procurement policies and their implementation mechanisms in other countries</li> <li>➤ Workshop on Ecolabeling program and Green procurement policy</li> <li>➤ Preparation of draft green procurement policy</li> </ul>
Jan. 2003	<ul style="list-style-type: none"> <li>➤ Discussion on the draft green procurement policy</li> <li>➤ Planning on awareness activities (seminar, announcement etc)</li> </ul>
Feb. 2003	<ul style="list-style-type: none"> <li>➤ Discussion on the draft green procurement policy</li> <li>➤ Adoption and public announcement of the green procurement policy by BOI</li> </ul>
Mar. 2003	<ul style="list-style-type: none"> <li>➤ Discussion on the Action Plan for implementing BOI's GPP</li> </ul>
June 2003	<ul style="list-style-type: none"> <li>➤ Seminar on Ecolabeling program and Green procurement policy</li> <li>➤ Exhibition of the green procurement policy at the event held around the World Environment Day</li> <li>➤ Implementation of the green procurement policy by BOI</li> <li>➤ Finalization of the draft Action Plan</li> </ul>
July-Aug 2003	<ul style="list-style-type: none"> <li>➤ Ratification of Action Plan by BOI Board</li> </ul>



## (2) Summary of Technical Working Group Activities

The Technical Working Group had meetings to discuss and prepare BOI's green procurement policy and its action plan. The activities of the TWG are summarized in Table 8.3.3.

Table 8.3.3 Summary of the Technical Working Group Meetings

Date	Topics
1 <sup>st</sup> meeting 9 December 2002	<ul style="list-style-type: none"> <li>• Briefing on the EMPOWER Project</li> <li>• Formation of the TWG</li> <li>• The Technical Specification (project components, expected results, etc) for the ecolabeling program under the EMPOWER Project</li> <li>• Role of the TWG</li> </ul>
2 <sup>nd</sup> meeting 27 January 2003	<ul style="list-style-type: none"> <li>• Introduction and briefing on Green Procurement Policy</li> <li>• Approval of the creation of the TWG by the Management Committee</li> <li>• Green Procurement Policy in other countries (see Annex 6.18)</li> </ul>
3 <sup>rd</sup> meeting 10 February 2003	<ul style="list-style-type: none"> <li>• Discussion on the first Draft of the BOI Green Procurement Policy (GPP)</li> </ul>
4 <sup>th</sup> meeting 24 February 2003	<ul style="list-style-type: none"> <li>• Guide steps for establishing the GOI GPP</li> <li>• Discussion on the second Draft</li> <li>• Discussion on the possible target area</li> </ul>
5 <sup>th</sup> Meeting 31 March 2003	<ul style="list-style-type: none"> <li>• Discussion on the Action Plan for implementing BOI's GPP</li> </ul>
6 <sup>th</sup> Meeting 28 April 2003	<ul style="list-style-type: none"> <li>• Finalization of the Draft Action Plan</li> </ul>

### 8.3.3 BOI Green Procurement Policy

The BOI Green Procurement Policy following was approved by the Management Committee on March 11 as Office Order No.04 Series of 2003. The key points of the Green Procurement Policy of BOI are following:

#### Statement of Policy

1. Agency personnel should seek to reduce the environmental damages associated with the BOI's purchases by increasing the acquisition of environmentally preferable products and services to the extent feasible, consistent with price, performance, availability, and safety considerations.
2. Environmental factors should be taken into account as early as possible in the acquisition planning and decision-making process.
3. Responsibility for environmentally preferable purchasing should be shared among BOI personnel especially those involved in the procurement process.
4. Environmentally preferable purchasing represents one important component of BOI's commitment to support the government's programs on waste minimization, pollution prevention and recycling as well as recognize the efforts of industries that produce environmentally sound products.

### **Objective and Targets**

1. To increase the acquisition of environmentally preferable products and services.
2. To identify and implement pilot products to test the best ways to incorporate environmental preference into acquisition or procurement.
3. To give due preference, whenever possible and applicable, to products or brands proven to be environmentally preferable or sound, e.g., ecolabeled products.
4. To establish an incentive and award program to recognize efforts of each BOI department or unit that are most successful in promoting the purchase and use of environmentally preferable products or services as well as recognize efforts of suppliers to produce environmentally sound products.
5. To replicate the same principle of green procurement to other units and attached agencies of DTI in recognition of the government's role in protecting the environment and preserving the country's natural resources.

#### **8.3.4 Action Plan for Implementation of BOI GPP**

The BOI Green Procurement Policy states that the technical working group shall formulate the action plans including the mechanism for implementation within 60 days from Board ratification. The action plan was ratified by the Board of BOI on May 30 2003. Key points of the Action Plan is presented below.

#### **Objectives of the Action Plan**

1. To provide the necessary mechanism and minimum requirement for the environmentally preferable purchase and use of various products and services through the identification of selection standards and priority products for implementation, taking into consideration the applicable laws and regulations governing the agency's regular procurement process.
2. To promote wise use of resources through energy and resource conservation and recycling.
3. To recognize the efforts of local industries that produce and provide environmentally sound products and services
4. To support the government's cost-cutting efforts.

#### **Scope**

As an initial step, specific guidelines are set for the following products that are commonly purchased and used by the agency:

1. Paper and paper products
  - a. Bond paper;
  - b. Tissue and toilet paper;
  - c. Folders and envelopes;
2. Pens; and,
3. Electronic office equipment, e.g., computers, copiers, fax machines.

On a yearly basis, more products or services may be added to the list upon review and recommendation by the BOI Green Procurement Policy Technical Working Group (GPP-TWG).

### **Selection Standards**

The BOI shall base its procurement decisions on the principle of “value of money” over the life cycle of products and shall give preference to environmentally friendly products and services based on the following applicable environmental aspects:

- Highest possible recycled material content
- Waste avoidance
- Elimination of virgin material requirements
- Product re-useability or recyclability
- Energy efficiency
- Low maintenance requirement
- Use of environmentally preferred inputs and
- Ultimate disposal.

## **8.3.5 Implementation of the BOI Green Procurement Policy and the Dissemination**

### **(1) Implementation of the BOI Green Procurement Policy**

After the ratification by the Board of BOI, according to the regular system, BOI disseminates the Green Procurement Policy to product suppliers. I has the regular process for procuring products/items as following:

Step1: the Logistic Department prepares the technical specification of product for the procurement.

Step2: Dissemination of bidding according to the regular system

Step3: Competitive bidding based on the list of product suppliers prepared by Department of Budget and Management.

Step4: Bids and Award Committee evaluates and decides products taking into account the green procurement policy (BOI-Environmental Matters Division, which is in charge of the secretariat for establishing the green procurement policy and the action plan, is a member of the committee.)

### **(2) Incentives and Award Program**

The Policy states that BOI shall establish the award program to accelerate the green procurement. The Technical Working Group will still draft a plan for the implementation of the award program based on the agency’s existing budget allocation.

### **(3) Monitoring and Information Dissemination**

The Logistic Department has responsibility of monitoring and evaluating all BOI divisions on the green procurement, and the result of the implementation of green procurement by each division will be presented in BOI Web-site.

## **8.4 ISO14001 Certification of BOI**

BOI considered they should adopt their green procurement policy into their purchasing process and acquire ISO 14001 because it resolved to have an initiative in the field of industrial environmental management in the Philippines and promote the adoption of IEM by the private sector. By the request of BOI, the JICA Study Team supported BOI to prepare necessary documents to apply for ISO14001 Certification.

### **8.4.1 Environmental Management Systems at BOI**

#### **(1) Efforts Made Prior to the Pilot Project**

The Board of Investments (BOI) is a bureau of the Department of Trade & Industry. It was created under Republic Act 5186, to provide a comprehensive investment thrust for the country.

In 2000 the UNDP - Industrial Initiatives for Sustainable Environment (IISE) Program gave monetary assistance to prepare BOI for the conduct of EMS and document awareness seminar. Unfortunately, the EMS implementation at BOI was stopped because there was no adequate time to undergo the project because IISE was terminated one year earlier. However, the initial BOI-EMS was able to come up with a draft EMS Elemental Procedures Manual and Operations Control Procedures Manual for the EMP Programs. An EMS Core committee was also formed with Mr. Guillermo Laquindanum, former head of the BOI's Environmental Unit under the Office of the Executive Director of the then Industry Planning Group as the Environmental Management Representative (EMR) for the BOI-EMS under UNDP-IISE (see Figure 8.4.1 BOI-EMS Organizational Structure).

#### **(2) Efforts in the Pilot Project**

After the JICA-EMPOWER selected as a pilot study and a sub-component to the Green Procurement Policy Project, on January 9, 2003 a BOI board resolution was made that reactivated the previous members of the EMS Core committee to continue the preparation of BOI for ISO certification. The EMR who is now the Director of the Administration Department still heads the EMS Technical Committee and the EMS Core Committee designated OIC-Division Chief of the Environmental Matters Division as the EMS Core Team Leader.

The JICA Study Team contracted out to a private consultant in order to support BOI in preparing documents for ISO14001 Certification.

The specific activities and proposed schedule for BOI-ISO are as follows:

Table 8.4.1 Activities and Schedule

Activities	Date Accomplished
1. Workshop/ Introductory Sessions	Feb, 2003
2. Review and Corrective Measures of EMS Manual	Feb, 2003
3. Corrective Measures for Elemental Procedures Manual	Feb, 2003
4. Preparation of Operational Control Procedures	Mar, 2003
5. Document Control and Recordkeeping Control	Feb, 2003
6. Gather proof of EMS Implementation	Feb, 2003
7. Corrective measures of gaps on EMS Implementation	April, 2003
8. Preparation for the ISO 14001 certification process	April, 2003

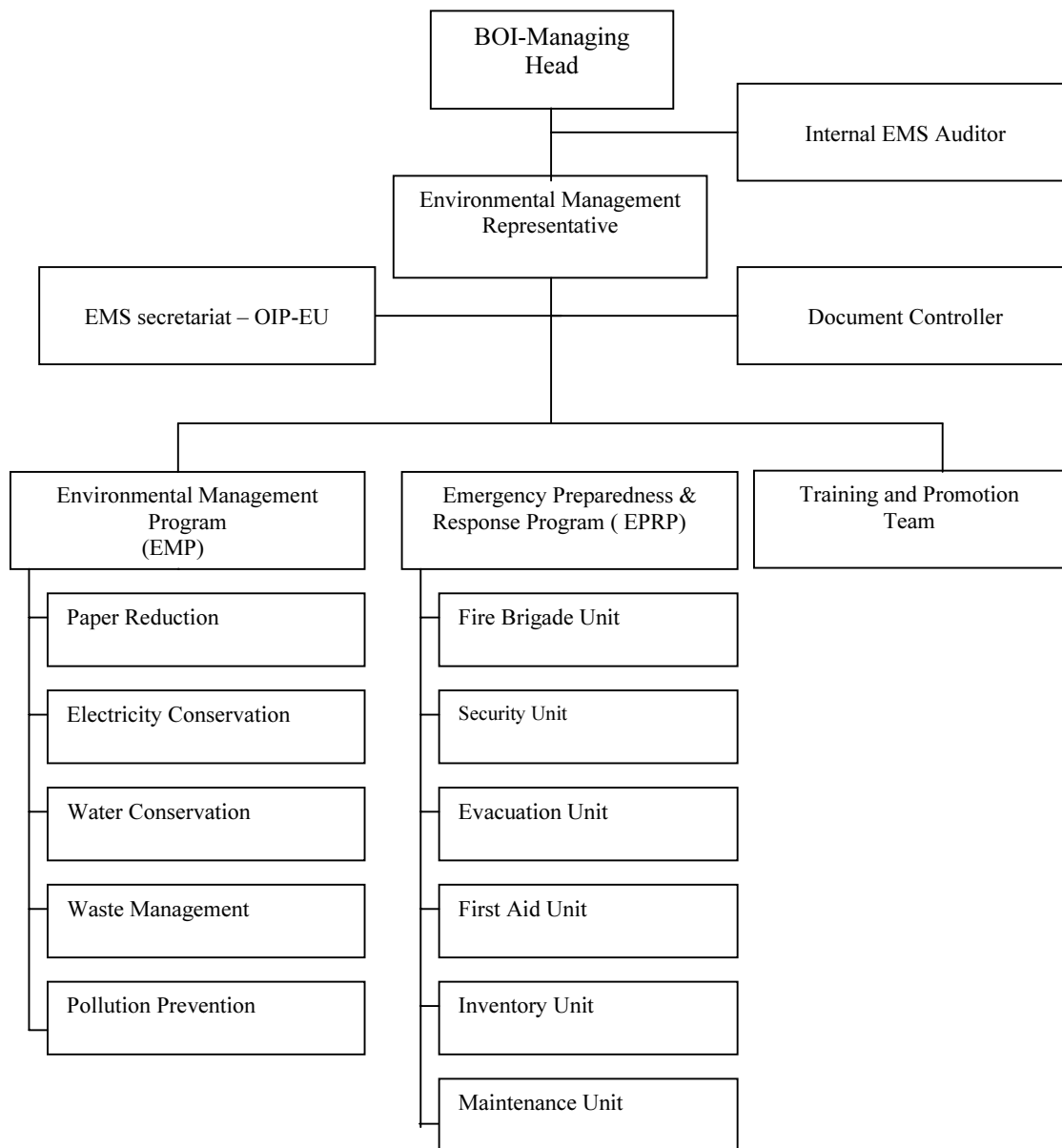


Figure 8.4.1 BOI-EMS Organizational Structure

### 8.4.2 Summary of BOI Technical Working Group

The BOI Technical Working Group meetings were held 5 times, and the discussion and concerns raised in the meetings are summarized below.

Table 8.4.2 Summary of the Activities of the BOI-ISO TWG

	Date	Activities
1	Feb.14, 2003	<ul style="list-style-type: none"> <li>➤ Overview of the BOI ISO Certification pilot project</li> <li>➤ Formation of the Technical Working Group(TWG)</li> <li>➤ Orientation of the Gap Analysis for BOI ISO 14001 Certification</li> </ul>
2	Feb.21, 2003	<ul style="list-style-type: none"> <li>➤ Discussion on the current EMS Documents prepared by the previous BOI EMS Committee</li> </ul>
3	Mar.5, 2003	<ul style="list-style-type: none"> <li>➤ Discussion on Operational Control Procedures</li> </ul>
4	Mar.17, 2003	<ul style="list-style-type: none"> <li>➤ Discussion and Correction on the EMS Manual prepared by the previous EMS Core committee</li> </ul>
5	May 5, 2003	<ul style="list-style-type: none"> <li>➤ Review of Document Control and Recordkeeping Control Procedure</li> </ul>

### 8.4.3 Updates and Challenges of BOI-ISO

The implementation of the activities of the pilot project was behind by about 2 months (see Table 8.4.3) due to unforeseen events. Proof of EMS implementation and corrective measure of gaps on implementation will depend on how soon the Operational Control Procedures (OCP) Manual would be finalized and approved. On the other hand, the preparation for the ISO 14001 Certification will depend on the available budget of the agency.

Table 8.4.3 Activities, Proposed Schedule and Actual Date Accomplished

Activities	Schedule	Date Accomplished
1. Workshop/ Introductory Sessions	4 <sup>th</sup> wk of Jan – 1 <sup>st</sup> wk of Feb	Feb 14, 2003
2. Review of EMS Manual	2 <sup>nd</sup> wk of Feb	
3. Corrective Measures for EMS Manual	3 <sup>rd</sup> wk of Feb	Mar 17, 2003
4. Corrective Measures for Elemental Procedures Manual	3 <sup>rd</sup> – 4 <sup>th</sup> wk of Feb	Feb 21, 2003
5. Preparation of Operational Control Procedures	1 <sup>st</sup> wk of Mar	Mar 5, 2003
6. Document Control and Recordkeeping Control	2 <sup>nd</sup> – 3 <sup>rd</sup> wk of Mar	May 5, 2003
7. Gather proof of EMS Implementation	4 <sup>th</sup> wk of March – 1 <sup>st</sup> wk of Apr	
8. Corrective measures of gaps on EMS Implementation	1 <sup>st</sup> – 2 <sup>nd</sup> wk of Apr	
9. Preparation for the ISO 14001 certification process	2 <sup>nd</sup> wk of Apr	

Due to the current budgetary constraint, the BOI cannot commit to apply for ISO 14001 Certification immediately after the completion of the pilot project. However, the BOI can be ready to implement the EMS if members of the Technical Committees would start doing their assigned task based on the OCP for the EMP.

## 8.5 Summary of the Ecolabeling Program and Green Procurement Policy Pilot Project

### 8.5.1 Empowerment of Relevant Parties through Pilot Project Implementation

The Ecolabeling program and green procurement pilot project aimed to enhance capacity of relevant parties through project implementation. Table 8.5.1 summarizes targeted parties and types of the empowerment from November 2002 to August 2003.

Table 8.5.1 Capacity Building of Relevant Parties Through the Ecolabeling Program and Green Procurement Policy Pilot Project

Target	Type of Empowerment	Method
C&GF (ELP Secretariat)	Established organizational and methodological framework (finalized operation manual, application form, guideline)	Training and advice by Japan Environment Foundation (secretariat for Japanese Ecolabeling Program)
	Increased the awareness of consumers and industries toward the program and ecolabeled products	Launching event, IEM exhibition, seminar, press release
ELP Working group	Developed product criteria (detergent and tissue paper) and accredited the first ecolabeled product	Advice by Japan Environment Foundation
Industries	Obtained ecolabeling Program (Green Choice Philippine) and disseminate their environmentally preferable product toward consumers	Launching of Green Choice Philippine
BOI	Accredited the green procurement policy Prepared the action plan	Collection and analysis of information about green procurement policies, seminar
	Promoted the significance of GPP to other government agencies and product suppliers	Seminar, exhibition
EMS Core Committee	Recognized necessary documents for ISO Acquisition and EMS implementation	Workshop for BOI staff, training

## 8.5.2 Evaluation of the Pilot Project

### (1) Results of the Pilot Project

The Ecolabeling program and green procurement pilot project steering committee evaluated the project using the PDM in August 2003, when the project was almost completed.

Table 8.5.2 Results of the Ecolabeling Program and Green Procurement Policy Pilot Project

Project Summary	Objective Verifiable Indicators	Results	Important Assumptions	Status Assumption
<b>Overall Goal</b> <ul style="list-style-type: none"> <li>Development and marketing of ecoproducts (less environmental impact) are promoted.</li> </ul>	Share of ecolabeled products within the same product category is increased by 10% by July 2005.	Unable to obtain information	Ecolabeling program is self-sustained.	Not self-sustained at the point
<b>Project Purpose</b> <ol style="list-style-type: none"> <li>Ecolabeling program is established.</li> <li>Development and adoption of green procurement policy is promoted.</li> </ol>	<ol style="list-style-type: none"> <li>Establishment of the ecolabeling program is publicly announced by June 2003.</li> <li>At least one government agency other than BOI adopts green procurement policy by June 2004.</li> </ol>	<ol style="list-style-type: none"> <li>Launching event was held on March 2003.</li> <li>Impossible to judge at the point</li> </ol>	Consumers' environmental consciousness is high enough to prefer ecolabeled products rather than non-ecolabeled products.	Impossible to judge at the point
<b>Outputs</b> <ol style="list-style-type: none"> <li>A master plan (strategic plan) on the establishment of the ecolabeling program is adopted.</li> <li>Product criteria are developed for two product categories.</li> <li>System to accept applicants for ecolabeled products is established.</li> <li>The first ecolabeled product is accredited.</li> <li>Awareness of consumers and industries toward ecolabel is increased.</li> <li>BOI adopts green procurement policy and action plan.</li> <li>BOI is ready to apply for ISO14001 certification.</li> </ol>	<ol style="list-style-type: none"> <li>A strategic plan on the establishment of the ecolabeling program is adopted by the ELP Board by July 2003.</li> <li>Product criteria for two product criteria are adopted by the ELP Board by August 2003.</li> <li>Operation guideline is developed by June 2003.</li> <li>At least one product is accredited for ecolabel by March 2003.</li> <li>Green Choice Philippine is launched by July 2003. Participants to seminars and recipients of leaflet are more than 1,000 by July 2003.</li> <li>Green procurement policy and action plan including targets are adopted by BOI by July 2003.</li> <li>Necessary documents for BOI's ISO 14001 application are complied by July 2003.</li> </ol>	<ol style="list-style-type: none"> <li>Strategic plan was adopted by ELP Board on 19 August 2003.</li> <li>ELP Board accredited 4 product criteria by August 2003.</li> <li>Operation guideline and manual were established on Aug. 19, 2003.</li> <li>A Detergent product was accredited as the first ecolabeled product in March 2003.</li> <li>1,500 persons participated to seminars and/or received leaflets of Green Choice Philippines.</li> <li>GPP and the Action Plan were adopted.</li> <li>EMS Documents were prepared by July 2003. Necessary documents for ISO Certification was not prepared as EMS implementation is unexecuted.</li> </ol>	BOI and other government agencies commit to adopt green procurement policy.	BOI adopted GPP and NEDA has willingness to adopt GPP.



## (2) Summary of Project Evaluation

Based on the PDM prepared during the project, the JICA Study Team evaluated the project as follows:

Table 8.5.3 Summary of Ecolabeling Program Evaluation

Evaluation Item	Evaluation Results	Basis for Evaluation
Efficiency	High	<ul style="list-style-type: none"> <li>Japanese expert dispatched to the pilot project gave adequate advice to staffs of C&amp;GF.</li> <li>Documents necessary for program management (strategic plan, operation manual, certification guideline, application documents) were prepared, and adopted by the ELP Board.</li> <li>4 product criteria were approved by the Board.</li> <li>Awareness of consumers and industries toward ecolabeling program was increased through launching event, exhibition, seminar and distributed leaflet.</li> </ul>
Effectiveness	Achieved	<ul style="list-style-type: none"> <li>Ecolabeling program (Green Choice Philippines) was established.</li> </ul>
Impact	Positive impact	<ul style="list-style-type: none"> <li>Green Choice Philippines was publicized since President Arroyo attended the launching event and it was reported by many mass media.</li> <li>ELP secretariat has initiative in preparing the draft of Executive Order for establishing GPP for all departments.</li> </ul>
Relevance	High	<ul style="list-style-type: none"> <li>Ecolabeling program was started with consensus among government ministries.</li> </ul>
Sustainability	Slightly high	<ul style="list-style-type: none"> <li>ELP secretariat prepared necessary documents for the program management and established 4 product criteria.</li> <li>Network with JEN was established.</li> <li>Financial independence has been pursued since there are few ecolabeled products.</li> </ul>

Table 8.5.4 Summary of BOI's Green Procurement Policy and ISO Acquisition Pilot Project Evaluation

Evaluation Item	Evaluation Results	Basis for Evaluation
Efficiency	GPP: High  ISO: Low	<ul style="list-style-type: none"> <li>Information of GPP adopted by other countries were collected as the schedule.</li> <li>BOI adopted GPP and the action plan and commenced the green procurement.</li> <li>Few staffs attended workshop.</li> <li>Necessary documents were prepared, but EMS was not implemented.</li> </ul>
Effectiveness	Impossible to judge at the point	<ul style="list-style-type: none"> <li>GPP adoption by government agency but BOI should be evaluated long before.</li> </ul>
Impact	Both positive and negative impact	<ul style="list-style-type: none"> <li>NEDA has willingness to adopt GPP.</li> <li>Additional budget is required for ISO acquisition.</li> </ul>
Relevance	High	<ul style="list-style-type: none"> <li>The Government is promoting GPP in RA9003.</li> </ul>
Sustainability	GPP: High ISO: Low	<ul style="list-style-type: none"> <li>BOI's GPP and action plan were approved by the Board and executive members recognizes the significance.</li> </ul>

Evaluation Item	Evaluation Results	Basis for Evaluation
		<ul style="list-style-type: none"> <li>• Staffs do not have strong incentive to implement EMS.</li> <li>• EMS is not implemented and relevant activities are not started.</li> <li>• Necessary budget for ISO acquisition is not secured.</li> </ul>

### (3) Conclusion

Establishment of Ecolabeling program and the GPP adoption were highly evaluated. The evaluation results are attributed to strong engagement of staffs since roles of C&GF as the secretariat of ecolabeling program and logistic division in charge of GPP were defined. As for ISO acquisition, BOI staffs were not assigned to activities such as attending meeting for preparing necessary documents, and EMS Core Committee members consisted of each sections were not fixed, furthermore few members attended the committee. Consequently the preparation for applying ISO was not completed as scheduled. Consideration this situation, the JICA Study Team identified concerns of directors of other sections about ISO, and added “Directors of other sections of BOI are supportive for their staff involving the preparation of ISO 14001 application” to pre-condition in PDM. This point should be endorsed by BOI before commencement of the pilot project.

### 8.5.3 Recommendations

#### (1) Increase of ecolabeled products

Ecolabeling program must be financially covered by use fee of Logo in order to be self-sustained, by preparing new product criteria and doing information activity. ELP secretariat is expected to promote Green Choice Philippine, encourage industries to apply for ecolabeled product, and have strong initiative of lobbying in the adoption of Executive Order for establishing GPP for all government agencies. And it is desirable that the secretariat will establish network to promote green procurement of companies.

#### (2) Rearrangement of BOI’s Organizational structure for ISO14001 acquisition

BOI should start to implement EMS as early as possible to apply for ISO14001 certification. For implementing EMS, it is recommended that BOI will establish incentive such as award system to increase motivation of the BOI staff, and officially assign EMS Core Committee members with support of directors so that the members lead necessary activities for ISO acquisition.

#### **8.5.4 Lessons Learned**

If activities, which is not involved in daily task/usual work such as environmental management, are conducted across department/division, it is important to establish organizational structure for the implementation, for example, staff acknowledge the significance and every section provide necessary manpower.

## **Chapter 9**

### **EMPOWER Seminars**

## 9 EMPOWER Seminars

### 9.1 Overview of the EMPOWER Seminars

To reach various industries and increase their awareness of IEM and EMPOWER activities, the BOI and the Study Team held four one-day seminars.

Table 9.1.1 Summary of the EMPOWER Seminars

Seminar	Date	Objectives	No. of participants*
1	August 1, 2002	Reach various industries and identify the needs of the sector	67 (60% industries, 18% government, 9% ESPs, 13% other)
2	October 16, 2002	Present the following: *framework of the IEM Action Plan and the role of the government, industrial association, industries and NGOs *current efforts and trends in IEM promotion *pilot projects on waste minimization, integrated information system, & ecolabeling *status of information on the technologies/methods to reduce waste and improve productivity	86 (58% industries, 24% government, 7% ESPs, 11% other)
3	February 5, 2003	*Inform various industries and stakeholders on the progress of the pilot projects and the proposed National IEM Action Plan *Provide an opportunity to share experiences, insights and feedback to improve on the implementation of the projects and the design of the Action Plan	86 (95% industries, 2.5% government, 2.5% ESPs)
4	June 9, 2003	*Inform target industries and stakeholders on the results of the pilot projects and final draft National IEM Action Plan	70 (52% industries, 44% government, 4% ESPs)

\*No. of participants excluding BOI counterpart and JICA Study Team members

### 9.2 Results of EMPOWER Seminar

#### 9.2.1 The 1<sup>st</sup> EMPOWER Seminar Seminar Objective

The directors from BOI, JICA, and EMPOWER Study Team discussed the importance of industrial environmental management (IEM) in environmental conservation, and the objectives and activities of EMPOWER. The accomplishments of projects that promoted IEM such as PRIME and IISE were also presented. The JICA Study Team summarized the lessons learned from IEM projects in the past and areas to be targeted under the EMPOWER project.

Based on the feedback forms and discussions in Open Forum, it was clarified that information on about research and regulations, financial resources, banks providing environmental loans and capacity building for SMEs is most needed for industries to implement EMS.

### **9.2.2 The 2<sup>nd</sup> EMPOWER Seminar**

The 2<sup>nd</sup> EMPOWER seminar was held to introduce a framework of the IEM Action Plan and pilot projects on waste minimization, integrated IEM information system, and ecolabeling and present the current efforts and trends in IEM promotion and status of information on waste reduction technologies. Also topics about IEM technologies and environmental loans, requested by participants of the 1<sup>st</sup> seminar, were presented. Many questions were asked on the banking requirements and loan usage. There was comment that business associations could be good liaison for SME environmental concerns, e.g. PHILEXPORT signed an agreement with DENR to develop a checklist of non-covered industries for ECCs.

### **9.2.3 The 3<sup>rd</sup> EMPOWER Seminar**

The 3<sup>rd</sup> seminar was held to inform various industries and stakeholders on the progress of the pilot projects and the proposed National IEM Action Plan. Participants raised comments about recycling policy, IEM technology promotion, fiscal and financial incentives and legal and regulatory measures that will improve the design of the Action Plan.

### **9.2.4 The 4<sup>th</sup> EMPOWER Seminar**

The morning session was targeted for top executives of companies, and results of Waste Minimization Pilot Project and the IEM Action Plan were presented. The afternoon session presented the Green Procurement Policy (GPP), Green Choice Philippines, the IEM Knowledge Network, and the IEM Action Plan mainly for government staffs and environmental service providers; the presentations of Green Choice Philippines and the IEM Action Plan were the same as in the morning session. Hearing the presentations, the participants raised the following issues:

- It is necessary to run a massive information campaign because consumer education is important for promoting the ecolabeling program.
- Information on the IEM information website should be timely and credible.
- Piggery and poultry should be targets in the IEM Action Plan.
- Activities in the IEM Action Plan should be continued after the EMPOWER project.

## **Chapter 10**

# **Industrial Environment Management Trade Exhibit**

## **10 Industrial Environmental Management Trade Exhibit**

### **10.1 Objectives of the Exhibit**

An exhibit aims to promote IEM to all industrial sectors, targeting CEOs of small and medium enterprises through dissemination of the objectives and activities of the EMPOWER Project, and raise public awareness. The main objectives of the exhibit approved by the EMPOWER Steering Committee on 31 January 2003 are the following:

- To provide useful and effective information relevant to IEM to the parties and persons concerned
- To increase the recognition of benefit of IEM, specially that of business executives of the Philippine companies
- To encourage self-reliant of IEM activities by industrial sector
- To raise public awareness toward IEM

#### **10.1.1 Activities of the Exhibit**

##### **(1) First Day Exhibit**

The exhibit targeting CEOs was held at the Manila Peninsula on 9 June 2003. BOI and the JICA Study Team could receive a kind cooperation for venue arrangement from Environment Committee of Management Association of the Philippines(MAP), comprised of more than 700 private companies, specially local companies. MAP provided BOI and the JICA Study Team with space for the booth presentation in the Foyer of Ballroom since MAP had general membership meeting in the Manila Peninsula in the afternoon on 9 June 2003.

Taking into account the tied up with MAP, BOI and the JICA Study Team decided to have the 4<sup>th</sup> EMPOWER seminar at the same date as more attendees to the seminar were expected(please refer details on the 4<sup>th</sup> seminar presented in the Chapter 11).

The morning seminar aimed to present briefly the Waste Minimization pilot project and Ecolabeling program pilot project and IEM Action Plan, targeting business executives. Philippine Business for the Environment as the implementor of the Waste Minimization Pilot Project showed the overview of the pilot project, and after that, four companies selected as model companies from the fields of pulp and paper, chemical, food and foundry presented each activities for minimizing waste generated from their manufacturing process. The next presentation was about Ecolabeling Program known as Green Choice Philippines, which



is managed by Green & Green Foundation Inc. And BOI and the JICA Study Team presented Industrial Environmental Management Action Plan.

After the brief presentation on the pilot projects, opening of the exhibit was taken place in the Foyer of the Ball Room, and Undersecretary Domingo of DTI, Mr.Nakagaki, resident representative of JICA Philippine Office and Mr.Fereira, President of MAP had welcome remarks and cut ribbon.

The Afternoon seminar aimed to advocate BOI's Green Procurement Policy and Ecolabeling Program, targeting government agencies. The seminar for government agencies is also shown in the Chapter 11.

## **(2) Second Day Exhibit at SM Megamall**

The exhibit targeting general consumers was held in SM Megamall on the following day, 10 June 2003. Poster making contest and music bands were performed in order to attract customers to the presentation booths. The venue of the second day exhibit was located in the front of main entrance of SM Megamall. The booth presentation was started at 10:00 when the mall was opened.

### **10.1.2 Exhibitors**

The Exhibitors was composed of the following:

1. BOI: presentation of Green Procurement
2. C&GF: presentation of Eco-labeling program
3. PBE: overview of WM pilot project and IEM information system pilot project
4. Acetech and PMAI: Local companies as model companies of WM pilot project
5. Kemwerke, Inc, and SPIK: Chemical model company of WM pilot project: presentation of the company and Industry Association Profiles and results of waste minimization program adapted in the factory
6. TSB Enterprises, Food model company of WM pilot project: presentation of company profile and result of waste minimization program adapted in their factories
7. Noah's Paper Mills Inc., Pulp and Paper model company WM pilot project: presentation of the company profile and result of waste minimization program adapted in their factories
8. DENR-EMB: Presentation of the role of EMB in the field of environmental protection and the relevant rules and regulations
9. PEZA: Presentation of incentives of world-class and environment-friendly economic zones
10. LLDA: Presentation of the conservation, protection and rehabilitation of Laguna de Bay and its environment
11. DOST: Promotion of the role of ITDI-DOST in providing tests and analytical services, and research and development studies in waste treatment and utilization, environmental impact assessment and industrial pollution prevention
12. Philexport: Promotion of Philexport members, specially exporters relevant to the environmental management

13. O.M. Manufacturing Phils.,Inc. (Japanese recycle company) as payable exhibitor:  
business promotion on management of scrap materials specifically non-ferrous metals
14. JICA: role of JICA and ODA

Basically the JICA Study Team financially supported exhibitors who are members of the Steering Committee of the EMPOWER Project in expenses for venue and booth rental.

## **10.2 Promotional activities**

### **10.2.1 Implementation Schedule**

The local event company and the JICA Study Team conducted the promotional activities of the exhibit according to the following schedule:

Table 10.2.1 Schedule of Activities

	Marketing	Logistic/Physical Arrangements Administrative	Publicity Activity
May15- 16	Final confirmation of all exhibitors and sponsors	<ul style="list-style-type: none"> <li>✓ Confirmation of speakers</li> <li>✓ Discussion of contents of directory</li> <li>✓ Submission of Final Stage Design to JICA and BOI for Approval</li> <li>✓ Submission of the final Stage Design to SM Megamall</li> </ul>	<ul style="list-style-type: none"> <li>✓ Preparation and implementation of announcement in the web-site of BOI, PBE Web-site</li> <li>✓ Preparation of design of event flyer (poster and handbill)</li> <li>✓ Finalization of all design of Banners, posters and exhibit directory</li> <li>✓ Continuation of the implementation of Media publicity</li> <li>✓ Printing of the Posters</li> </ul>
May17-18	✓ Weekend		
May 19-23		Preparation of the Exhibitors Manual Preparation of ID Card	Distribution of the Posters
May 26-30	Reporting the progress to sponsors	<ul style="list-style-type: none"> <li>✓ Exhibitors briefing – <u>May 30</u></li> <li>✓ Final meeting with contractors of panel and booth etc</li> <li>✓ Final confirmation of speakers</li> </ul>	<ul style="list-style-type: none"> <li>✓ Submission of Banners to SM Megamall</li> <li>✓ Event announcement to major media</li> <li>✓ Sending of Media Invites – Print and TV</li> </ul>
June 2-6			<ul style="list-style-type: none"> <li>✓ Print Ad. in newspapers</li> <li>✓ Final meeting with music band</li> </ul>
June 7(sat)	holiday		
June 8(sun)		✓ Ingress / Set-up of Exhibit	
June 9		<ul style="list-style-type: none"> <li>✓ Opening ceremony</li> <li>✓ Exhibit proper</li> <li>✓ Seminar</li> </ul>	✓ Press Conference during the opening ceremonies
June 10		<ul style="list-style-type: none"> <li>✓ Exhibit proper</li> <li>✓ Music event and awarding of the contests</li> <li>✓ Poster event</li> <li>✓ closing remarks</li> </ul>	Post-event publicity efforts

Printed matters such as flyer, souvenir program/event directory, banners and posters were prepared for promoting the exhibit.

### **10.2.2 Press Release**

Press release memo was prepared by the JICA Study Team in order to secure co-sponsors from the press, and by aggressive marketing activities, The Manila Times and K91KM radio became the sponsors of the exhibit and published/radio-broadcasted event announcement. Aside from the Manila Times, the announcements were published in Philippine Daily Inquirer and Business World. Moreover major press were invited to the exhibit and they published news clipping.

## **10.3 Result of the Exhibit**

The two-day exhibit was closed in success since many people visited the event. More than two hundred business executives visited the first day exhibit at the Manila Peninsula Hotel, and as for the second day the local event management company as the Secretariat of the exhibit could not count the numbers because attendees of the second day were customers who came to SM Megamall for shopping.

Many press and TV station also visited and broadcasted the objective of the EMPOWER Project and the benefit of the adoption of Industrial Environmental Management. The Objective of the exhibit, i.e., the dissemination of the objectives and activities and raising public awareness toward IEM, was accomplished.

# **Chapter 11**

## **EMPOWER Homepage**

# 11 EMPOWER Homepage

## 11.1 Objectives of EMPOWER Homepage

The EMPOWER homepage was developed to disseminate information on objectives, items, and progress of the Project and seminars and workshops to be held during the Project period. After the Project, the EMPOWER homepage will be transformed into IEM homepage which would include BOI's Green Procurement Policy, progress of the IEM Action Plan implementation.

## 11.2 EMPOWER Homepage during the Project Period

### 11.2.1 Structure of EMPOWER Homepage

The EMPOWER homepage during the project period has the following structure (see Figure 11.2.1).

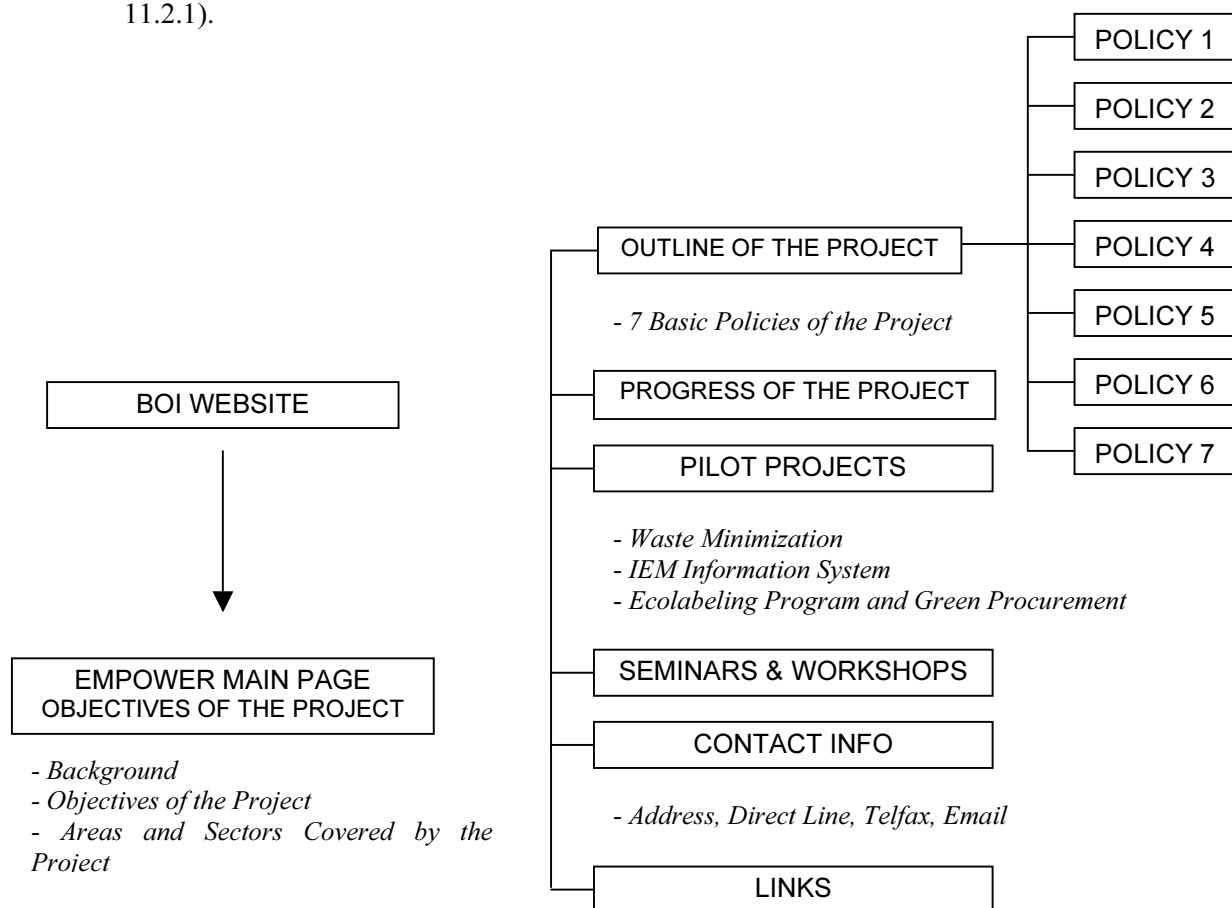


Figure 11.2.1 Structure of EMPOWER Homepage

The EMPOWER homepage ([www.boi.go.ph/empower\\_home.htm](http://www.boi.go.ph/empower_home.htm)) is hosted by BOI and follows the BOI's homepage protocol as shown in Figure 11.2.2.

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**EMPOWER - JICA Study on Environmental Management with Public and Private Sector Ownership in the Republic of the Philippines**

- Objectives of the Study**
  - Formulate the action plan on industrial environmental management (IEM) that will clarify actions on its promotion by private enterprises and investors in the Philippines.
  - Strengthen capacities on IEM of government agencies and private industrial associations.
- Background**

The Medium-Term Philippine Development Plan (1999-2004) emphasizes the importance of proper environmental consideration in every economic and industrial activity for sustainable development. On the contrary, the load to the environment has been increasing year by year due to the rising emissions of pollutants. In March 1999, the GOP and the Government of Japan agreed to include environmental conservation as one of the 4 priority sectors of the overseas development assistance (ODA). Based on this agreement, the Japan International Cooperation Agency (JICA), has been providing various technical cooperation projects in the environment sector.

Environmental management in the Philippines has been conducted mainly under a command-and-control structure by the Environmental Management Bureau, Department of Environment and Natural Resources (EMB/DENR). A new environmental governance is being established through the use of market-based instruments (MBIs) and policy measures for promoting voluntary environmental management programs by the private sector. Desired results are beginning to take shape though they are still limited in the industrial sectors and environmental media covered. In the current trend of environmental management in the Philippines, the Board of Investments/ Department of Trade and Industry (BOI/DTI) is expected to have a bigger role in promoting private sector voluntary efforts in industrial environment management (IEM). EMPOWER Project aims at expanding the current efforts of IEM to all industrial sectors and environmental media and disseminating the concept of IEM all over the Philippines. EMPOWER Project is being carried out based on the official request of GOP and Implementing Agreement (IA) agreed and signed between BOI and JICA in December 2001.
- Areas and Sectors Covered by the Study**

The Study covers all the manufacturing industries including the agri-business sub-sector that are located in Luzon and Visayas.

EMPOWER Homepage | Outline of the Study | Progress of the Study | Seminars and Workshops | Contact Info | Feedback | Links

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Figure 11.2.2 EMPOWER Main Page

## 11.3 IEM Homepage

### 11.3.1 Structure of IEM Homepage

After the project is completed, EMPOWER homepage would be changed to the IEM homepage presenting BOI's policy and programs to promote IEM. A proposed structure is shown in Figure 11.3.1.

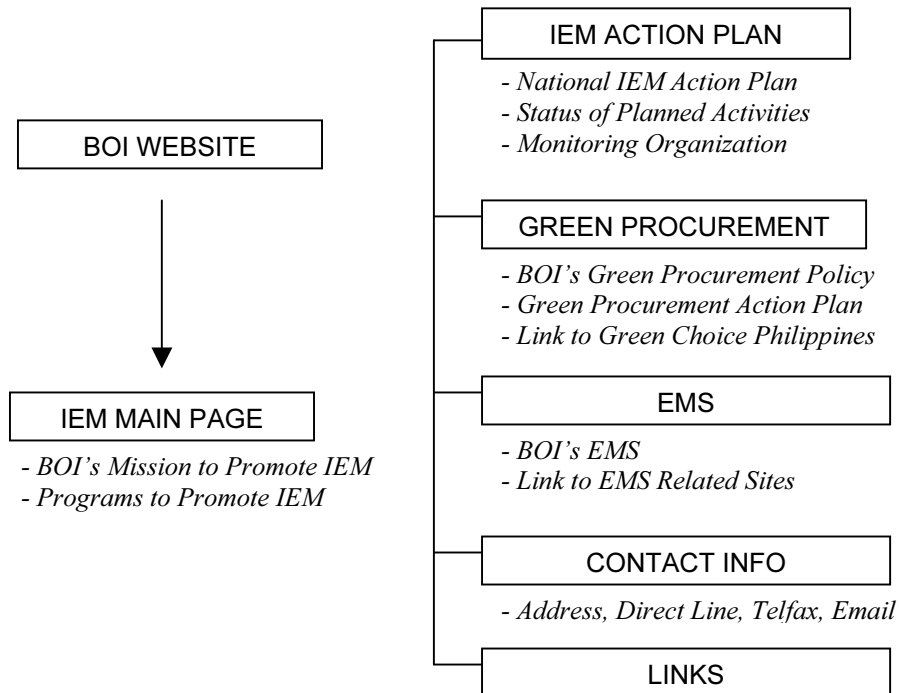


Figure 11.3.1 Structure of IEM Homepage



# **Chapter 12**

## **Recommendation**

## 12 Recommendation

BOI and JICA Study Team jointly implemented the EMPOWER project for strengthening BOI policy on Industrial Environment Management (IEM). The EMPOWER project is mainly composed of formulation of the National IEM Action Plan and implementation of pilot projects.

The National IEM Action Plan clarified a framework and programs of IEM promotion activities by both the public and the private sectors and their roles based on the results of the previous and present IEM initiatives undertaken by BOI, DENR, DOST, LLDA, DBP, and LBP as well as the private sectors (industry associations and individual firms), and the EMPOWER pilot projects. The National IEM Action Plan takes approaches of public-private partnership, provision of integrated and customized IEM information, technical assistance and organizational development to industrial firms, especially SMEs, policy support and incentives. Series of roundtable discussions were held with various stakeholders, including government organizations, industries, environmental NGOs, and donor organizations. The final draft of the Action Plan is now ready of BOI adoption through approval by the Governing Board.

Through implementation of the pilot projects, a basis for the IEM development has been built with the coordination among the government organizations, private organizations and individual firms. Although limited in scope and duration, the Waste Minimization pilot project clearly showed that IEM brings benefits and is easy to implement. In addition, it was also confirmed that IEM is promoted wherein stakeholders' roles are clearly defined and appreciated. In the IEM Information Pilot Project, system to provide IEM related information was developed, and provision of information began through website. In the Ecolabeling Program and Green Procurement Policy Pilot Project, management system of the ecolabeling program was established, which encourages development of products with less environmental load.

Although these actions are just one step to develop IEM, the key to successful IEM development is to sustain abovementioned initiatives and accumulate the experiences of the actions. The Study Team recommends the following actions to be taken by BOI for *empowering* all relevant organizations and individuals, the stakeholders of IEM development in Philippines.

## **12.1 Implementation of National IEM Action Plan**

### **12.1.1 Formal Approval of the Action Plan by BOI**

The National IEM Action plan has to be officially approved by BOI and incorporated into BOI's mid-term plan. The draft Action Plan was discussed for the Governing Board of BOI. Official approval of the National IEM Action Plan should be realized while the Environmental Matters Division should be strengthened through additional staff, capacity building activities and budgetary support.

### **12.1.2 Establishment of Management System for Implementation of the Action Plan**

While the Action Plan identifies relevant bodies and their roles for each activity, close coordination among those stakeholders and establishment of organizational set-up that manages overall progress, assessment, review of the Action Plan are crucial for successful implementation. A supervising committee composed of not only the EMPOWER project steering committee members but also representatives from industry associations, environmental service providers, and donors should be established. The supervising committee should be able to urge relevant bodies to begin and continue the implementation, prioritizes sectors for distributing limited resources – funds and resources, and also encourage donors for their financial support accordingly. In addition, the committee is expected to review the Action Plan three years from now.

### **12.1.3 Funds Necessary for Implementing the Action Plan**

Implementing the Action Plan requires funds, but most of them have not been secured. Roundtable discussions with donor agencies were organized and to package project proposals attuned to the thrusts and priorities of interested donor partners. The supervising committee should follow through those initiatives to advocate the financial support from prospective bodies even after the EMPOWER project.

## **12.2 Development and Dissemination of Outputs of the Pilot Projects**

### **12.2.1 Waste Minimization**

The model companies realized benefits such as reduction in production costs and improvement of environmental performance and are enthusiastic to pursue further IEM promotion. The industry associations that developed industry-wise action plans for their respective industry also requested technical assistance. BOI should identify further needs of

the companies and the industry associations for technical assistance and coordinate with supporting organizations in order to promote their IEM activities.

The National IEM Action Plan has adopted the steps taken in the pilot project such as selection of target industry sectors, implementation of measures by model companies, and dissemination of model companies' experience to other members in the same sectors; the target industry sectors will be expanded through implementation of the Action Plan. It is important for BOI, ITDI, and PBE to disseminate the results of the pilot projects to the industry through information medias such as Waste Minimization Guidebook and IEM Knowledge Network.

### **12.2.2 IEM Information System**

Information website has been developed as part of IEM Knowledge Network, and there are much rooms for improvement, including database search function within the website, and link page with sufficient number of links to which user will be redirected to relevant organization websites. An editorial committee should be established to maintenance and updating the web site. The committee should continuously improve the web page through comments and opinions from the web user. The survey can be conducted mainly to member of PEB.

### **12.2.3 Ecolabeling and Green Procurement**

Establishment of operating system for the Ecolabeling program has been nearly completed in the pilot project. It will be vital to expand categories applicable to ecolabels, promote application for approval by the manufactures, recognition of ecolabeling program by the public. One of the solutions to this issue is that the government actively purchase the products with the ecolabels – this is called “Green Procurement.” BOI has already developed a basic policy and an action plan. Since formal adoption by Executive Order that require government agencies to follow the Green Procurement will strongly push the diffusion of the program, C&GF who coordinate the Ecolabeling Program should persuade to the adoption of the Executive Order.

## **12.3 Information Dissemination by BOI**

Through EMPOWER project, BOI has formulated the National IEM Action Plan, developed policy on Green Procurement and its action plan, prepared for acquisition of ISO14001. BOI should disseminate these information and experiences to the public through, for instance, its web pages. It will be useful to prepare and distribute brochures on the National IEM Action Plan, calling for further cooperation from the relevant bodies, and to provide update

on progress of the action plan on its web site. Regards to Green Procurement, BOI should publishes its basic policy on Green procurement with contact information on web page so that other government agencies will have good reference as well as where to ask if any question arises. Lastly but not least, the operational manual can be posted on BOI's web as well. This will help other agencies when seeking ISO14001 acquisition.