

# closing THE

# LOOP

QUARTER 1 / 2000

changing gears towards green productivity

A newsletter produced by the PRIME Project, Industrial Ecology Module under the United Nations Development Programme (UNDP) and Board of Investments, Department of Trade and Industry

## Upfront

## INDUSTRIES REVEAL BIG BUSINESS OPPORTUNITIES IN WASTE

**A**lmost half a billion pesos a year goes to waste -- industrial waste that is, which incur this much cost to be treated, disposed, or stored.

This figure also indicates that almost half a billion pesos worth a year of employed services or areas of business opportunities.

This was highlighted in a survey among four industrial estates in Laguna namely, Carmelray Industrial Park I, Light Industry and Science Park I (LISP), Laguna Technopark Inc. (LTI), Laguna International Industrial Park (LIIP) and Lima Technology Center in Batangas.

The study, conducted by the Industrial Ecology Module of the PRIME Project, surveyed the flows of materials including products and by-products (or waste), source and usage of energy and water of different companies inside an industrial estate. The information inferred from the study aims to explore possible exchange of by-products or waste between or among locator companies within the five estates mentioned.

An estimated 30% (around 80 participants) of the surveyed firms shared their data which was collected from August to September 1999.

These firms generated by-products classified according to the following: **metals** (chips, dross, trimmings, films, and scrap); **used oil** (diesel, lubricants, bunker, compressor oil, cutting oil); **waste chemicals** (liquid and solid form such as resins, solvent, ink, epoxy, paints); **cartons, wood, and paper** (mostly packaging materials); **plastics** including PET bottles, polyethylene foam, styrofoam, jute sacks, PVC; **wastewater** (treated and untreated); **sludges** mostly from wastewater treatment plant and residues from baths and reactors; **solid wastes** including foodwastes, and other non-hazardous materials; **other materials** needing further classification.

These wastes are disposed of in different methods, like exported for further re-processing as required by the clients who will re-use, recycle, or recover materials. These could also be directly sold to scrap buyers for re-use, recycle, and recovery or treated in-house or by a contracted treater. Others may be recycled or re-used within the company, collected as garbage, landfilled, or stored in-house or outside the area.

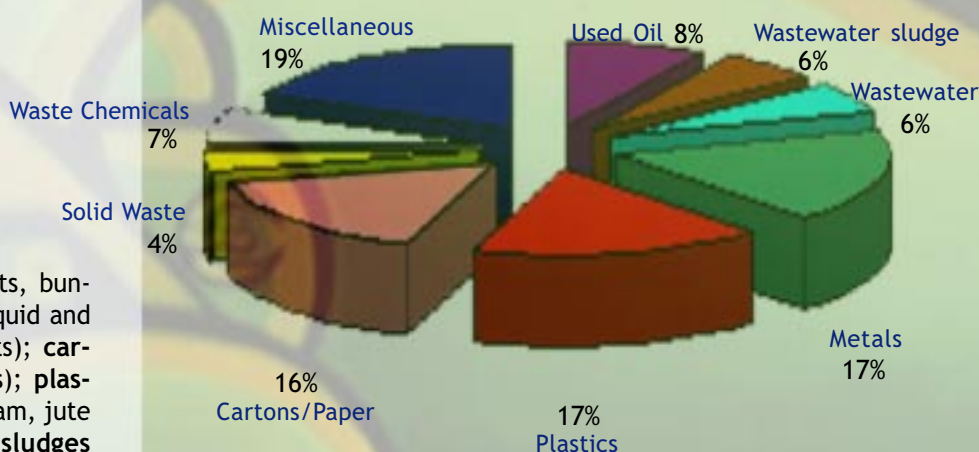
All these data are of eventual use to a planned Integrated Resource Recovery System (IRRS), a projected off-shoot of the survey that will sustain the industrial symbiosis programs under the PRIME Project. The IRRS would be a central system of shared services, information, network, resources, manpower, facilities, and to a limited extent, materials, energy, and transportation.

This system will function as a central "clearing house" among the five industrial estates under the pilot program, where by-product exchange and waste management can be better facilitated and monitored. The IRRS can also house "business incubators" or new services that cater to untapped business opportunities that have yet to be tested.

SUMMARY OF BY-PRODUCTS IN 5 INDUSTRIAL ESTATES IN BATANGAS AND LAGUNA

BY-PRODUCTS	QTY. per month (wt. /volume/pcs)	Storage Cost (Pesos per year)	Treatment Cost (Pesos per year)	Disposal Cost (Pesos per year)
Used Oil	13,537 liters	46,800	3,248,400	812,000
Sludge	493,030 kg	1,724,400	114,960,000	INCLUDED
Metals	302,240 kg	795,600	--	--
Liquid	550 liters	--	--	--
Solid	(approx.)250,000kg	--	--	--
Plastics & Rubber	70,257 kg	4,878,000	--	1,800,000
Cartons/Paper	223,824 kg	1,022,400	--	1,136,000
Chemicals		676,800	45,120,000	INCLUDED
Solid	670 kg			
Liquid	64,795 liters			
Miscellaneous	(approx.)4,337,761 kg	4,190,400	279,552,000	INCLUDED
<b>TOTAL</b>		<b>13,334,400</b>	<b>442,880,400</b>	<b>3,784,000</b>

By-Products Generated



Can these wastes be re-used as substitutes for raw materials?

10% YES  
90% NO

Most are not confident that these by-products are re-usable and could guarantee the same quality of their desired manufactured products.

How important is environmental management in your company?

35% VERY IMPT.  
36% IMPT.  
13% PARTLY IMPT.  
3% NOT IMPT.

Given the awareness and experience, real financial and environmental benefits, industry can be highly encouraged to practice sound environmental management.

Does your company perform monthly water and energy audit?

70% YES  
15% NO  
5% NO ANSWER

Industries have already built into their systems one of the most important tools in environmental management, which is monitoring.

**In the NEWS**

## Study for programmatic ECC set forth at petrochem plant

by Aldwin Camance, PNOC-PPDC

The PNOC Petrochemical Development Corporation (PPDC) is initiating a Programmatic Environmental Impact Assessment (PEIA) of its 530 hectares Petrochem Park in Mariveles and Limay, Bataan. From the one plant - one EIA structure of DAO 98-37, DAO 2000-5 will provide for the preparation of a single EIA for several plants co-located in one area. It also progresses from the qualitative and cumulative approach to environmental management.



Wastewater treatment facility of a locator company in PNOC, Bataan

This is in line with the provisions set forth in Department Administrative Order (DAO) 2000-5, the implementing rules and regu-

lations in programmatic compliance, which was signed on January 6, 2000. DAO 2000-5 effectively supersedes DAO 94-11. The Petrochem Park shall also be the pilot site for the testing of the draft EIA Programmatic Compliance (EIAPC) guidelines.

Programmatic compliance is founded on the need of large-scale industrial developments to develop an efficient and all-encompassing environmental management plan to sustain the present state of the environment.

The study will determine the reserve carrying capacity of the environment amidst development. This will be determined by using standards on air and surface water quality, land and groundwater quality, acceptable norms in population dynamics and characteristics, and acceptable levels of safety and health. Five sectors will also be studied, namely, air, water, land, community, and the Environmental Risk Assessment (ERA).

PPDC is set to start this study by February 2000 and obtain its programmatic ECC before the end of the year.

## Hewlett-Packard starts cartridge recycling program

Now, you don't have to worry about your empty toner cartridges. Hewlett-Packard Philippines Corp. (HPPC) has tied up with courier company DHL Philippines, Corp. to collect and reuse empty HP cartridges. Called the Planet Partners 2000, the program tasks DHL to collect from HPPC clients in selected major cities, empty HP Laserjet toners which will then be shipped to Singapore. These will be disassembled to separate the plastic materials, further re-used for the production of other plastic products.

Up to 95% of each HP Laserjet toner cartridge can be used to manufacture buttons, plastic spoons and forks, trays, and even waste bins. HPPC will be spending P100,000 monthly to have DHL ship out 1,000 cartridges monthly. A thousand cartridges make up only 2.5% of the 40,000 cartridges brought into the Philippines monthly. HPPC hopes to increase this to 25% eventually.

So don't throw your used cartridges. In Metro Manila, call DHL at telephone numbers 717-1284 to 85 for free pick-up.

*BusinessWorld, 16 Dec 1999*

## Waste heat to be recovered from cement manufacturing

An energy conservation model is under way to recover waste heat from cement manufacturing in the Philippines. This project is executed under the Green Aid Plan (GAP), jointly promoted by the Ministry of International Trade and Industry of Japan and the Board of Investments, Department of Trade and Industry (BOI-DTI) of the Philippines.

The technology conserves energy by recovering waste heat in the form of steam from cement manufacturing. The steam from the gas, in turn exhausted from pre-heater and air quenching heater in the cement plant, can be used to generate electricity. Not only does this process utilize previously unused energy, it also helps protect the environment. This technology is spawned

from a study in 1997 by the New Energy and Industrial Technology Development Organization or NEDO of Japan. The study revealed that the cement manufacturing industry is the largest consumer of energy in the Philippines. Further, the highest power cost is concentrated in Luzon. The energy conservation model is foreseen to support the country's efforts in sustaining economic growth and addressing issues in energy and environment.

A Memorandum of Understanding (MOU) was made to clarify agreements among concerned agencies including NEDO, BOI-DTI, Philippine Cement Manufacturers Corporation (Philcemcor) and Cement Strategic Philippines, Inc. for joint execution.

**Keep POSTED**

### Recyclers, treaters, haulers meet in upcoming convention

The Industrial Ecology Module of the PRIME Project will hold a convention that will put face to face service providers including recyclers, treaters, haulers, and scrap buyers of industrial waste with industrial companies. The convention, dubbed "Closing the Loop Through By-Product Exchange" will be held on March 15, 2000, at the Ayala Country Club, Ayala, Alabang from 8:00 a.m. to 5:00 p.m.

This event aims to set the stage for companies looking for takers of their scrap materials and in turn, facilitate an untapped market for recyclers and other service providers. Likewise, the convention hopes to increase awareness among industrial firms on what by-product materials they can re-use as input to their production by interfacing with other companies. This forum can also open doors to service providers on hidden business opportunities.

If you are interested in joining this event, please fill out the form on the right and fax to 895-8233 or 899-5688. You may also contact these numbers for more details, or email us at prime@skyinet.net or vanooti@yahoo.com.

### REPLY FORM

**YES!** Count me in.

NAME \_\_\_\_\_

COMPANY/ORG. \_\_\_\_\_

DESIGNATION \_\_\_\_\_

SERVICES OFFERED

Recycling  Treating  Hauling

Scrap buyer  Others \_\_\_\_\_

BUSINESS ADDRESS \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

TEL. NOS. \_\_\_\_\_

FAX NO. \_\_\_\_\_

E-MAIL \_\_\_\_\_

*Please fax at 895-8233 or 899-5688.*

### International exhibit on environment slated in October

ADSI Inc., an events management group, in cooperation with the PRIME Project, invites interested companies to the 1st International Environment Exhibition (ENVIRONEX Philippines) on October 2-5, 2000 at the Philippine Trade and Training Center (PTTC).

ENVIRONEX complements the government's programs in minimizing environmental impact from rapid industrialization.

This event will feature products and technologies in environmental protection, wastewater treatment, pollution prevention measures and analysis systems, air monitoring, and waste

disposal methods, among others.

The exhibit aims to boost the Pihlippines as a viable investment site for the international community. It also hopes to raise environmental awareness while providing a venue for joint ventures, trade agreements and opportunities. ENVIRONEX will also provide a forum for technological exchange.

For interested parties, please contact ADSI, Inc. at 724-2679 or 725-1441 and look for Ms. Rachel Roque.