Indian Centre for Plastics in the Environment

Eco-Echoes

Vol. 7 • Issue 1 • Jan. – Mar. 2006

For private circulation only

Quarterly Publication of Indian Centre for Plastics in the Environment

I C P E N E W S L E T T E R

ICPE in
PLASTINDIA 2006

In this Issue

Indian Centre for Plastics in the Environment

Mumbai
Kushesh Mansion, 2nd Floor, 22, Cawasji Patel Street and
48/54, Janmabhoomi Marg (Ghoga Street), Fort, Mumbai - 400 001.
Tel.: +91-22-2282 0491 / 0496 • Fax: +91-22-2282 0451 • E-mail: icpe@vsnl.net
Website: www.icpenviro.org • www.envis-icpe.com • www.icpeenvis.nic.in

New Delhi
1009, Vijaya Building, 10th Floor, 17 Barakhamba Road, New Delhi - 110 001.
Tel.: 011-2332 6377 • Fax: 011-2332 6376 • E-mail: icpedelhi@sify.com

Readers are welcome to send their suggestions, contributions, articles, case studies, and new developments for publication in the Newsletter to the ICPE address.

Forthcoming Events

Plexpo INDIA 2007
PROSPERITY THROUGH PLASTICS

4th National Plastics & Packaging Exhibition

25th-28th January, 2007
Ahmedabad

Plexpo India 2007, 4th National Plastics & Packaging Exhibition to be held from 25th-28th January, 2007 follows the stupendous success of previously organized three Plexpo exhibitions.

The exhibition will showcase plastics raw materials, masterbatches, machineries, moulds, dyes, ancillary equipments, packaging materials and various plastic end products, etc.

Organized by:
Gujarat State Plastics Manufacturers Association
E-mail: plexpoindia@gspma.org
Website: www.gspma.org

National Seminar on Packaging Industry

26th July, 2006
Hotel Le Meridien, New Delhi

Organised by
Confederation of Indian Industry
E-mail: ciicocal@ciionline.org
website: www.ciionline.org

Indplas'06

International Exhibition on Plastics

24th-27th November, 2006
Science City, Kolkata

Organised by
Plastindia Foundation
and
Indian Plastics Federation
Website: www.indplas06.com

IPE 07
INDIAN PLASTICS EXPOSITION

27th-30th April, 2007
Hitex Exhibition Centre, Hyderabad

For more information on Eco-Echoes and about the contents, please contact Mr. T. K. Bandopadhyay, Technical Manager, ICPE, Mumbai.

ICPE in PLASTINDIA 2006

The world's 2nd largest plastics trade fair recently organized by Plastindia Foundation during 9th-14th February, 2006 at Pragati Maidan, New Delhi, was an insight on latest developments in the field of Plastic Raw Materials, Machinery, Accessories, Moulds & Dies, and new products, besides international conference and site beautification.

Sample of Tar Road with Plastics Waste

Recycling Pavilion

Recycling Pavilion highlighting the recycling practices in India with live demos had been a centre of attraction for most of the visitors of Plastindia 2006. Truly, a visitor commented **"Recycling Pavilion is the Heart of Plastindia 2006".** An estimated 2 to 2.5 lakh persons visited the stall which included people from industry, common citizens, Govt. officials, NGOs, school children, etc. Display of recycling products was specially focussed to create awareness and educate people of benefits and trends in recycling plastics into finished goods.

The dignitaries who visited the stall included:

Shri Kapil Sibal – Minister of Science & Technology and Minister of Ocean Development, Govt. of India, appreciated the efforts put in by the plastic industry to put "Plastics in the right perspective". He spent almost one hour at the stall.

Shri H Handique, MOS, Chemicals and Fertilizers, Govt. of India.

Mrs. Satwant Reddy, Secretary, DCPC, ***Mrs. Radha Singh,*** Secretary, Ministry of Agriculture, ***Shri K. Raghunathan,*** Chief Secretary, Delhi Government, ***Shri Jagdish Mukhi,*** Leader of Opposition, Delhi Govt., ***Shri Mukesh Kakkar***, Jt. Secretary, DCPC and many others.

- Handloom Charkha and Bitumen Road Modification were declared as the Stars of Attraction at Recycling Pavilion. These two generated maximum interest in a number of visitors.
- Outdoor products like fencing, pallets supplied by Plastoplene, Kolkata, were also appreciated by the people.
- Wood-free plastic pencils were distributed especially to school children.
- A quiz programme was organized at regular intervals covering multiple choice questions on plastics recycling and other issues. Answers for all the questions were available on display panels. Lucky draw winners amongst all the

Glimpses of Recycling Pavilion

Waste Plastic Bags being cut into long strips

ICPE President Mr. K. G. Ramanathan keenly watching waste plastic strips being fed into the Handloom

Handloom products from Plastics Waste

correct entries were awarded each a briefcase. Response was tremendous and ensured that all the panels were well read by common populace.

- Fuel from Plastics Waste was a breakthrough invention. In the process of conversion of waste plastics into fuels, random de-polymerization was carried out in a specially designed reactor in the absence of oxygen and in the presence of coal and certain catalytic additives.

Winners of Quiz Competition

School students on a visit to Recycling Pavilion

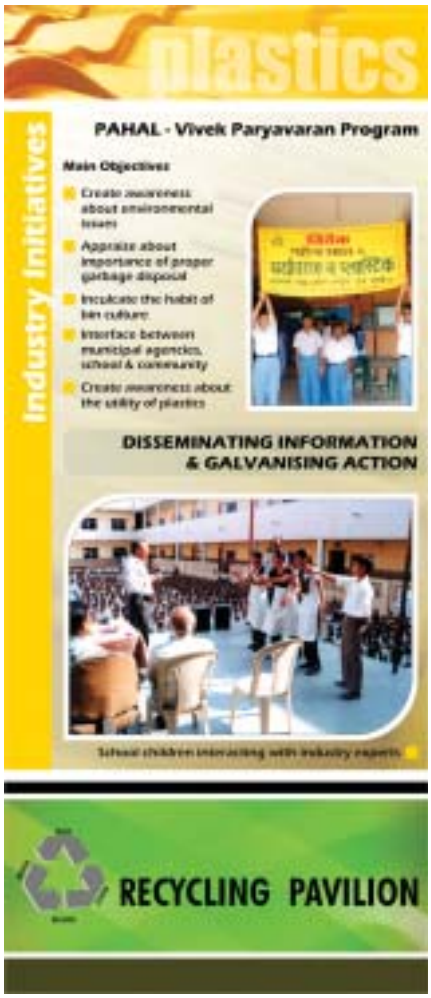
Samples of products made with Multilayer Plastics Waste

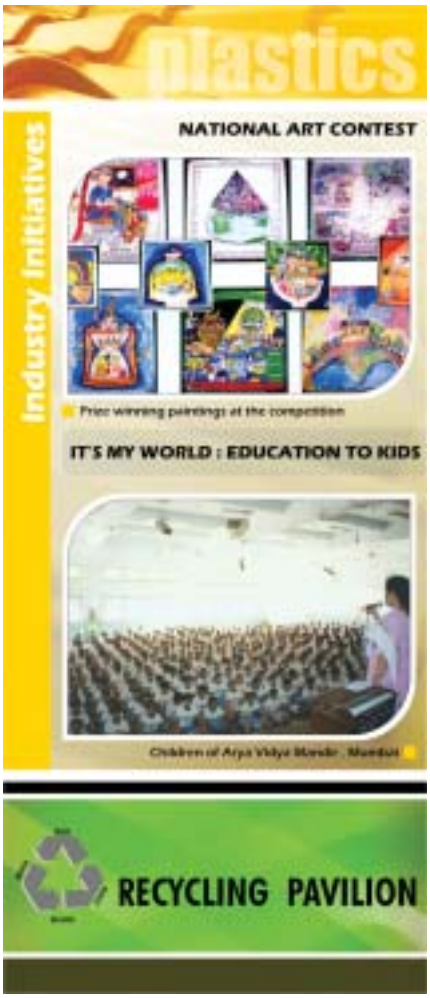
Ambassador of DPR Korea (2nd from left) in the Recycling Pavilion with ICPE and PIF officials

Representative from Kenya in discussion with ICPE and PIF Members

Representatives from Canada in discussion with ICPE official

Some of the Display Panels at the Recycling Pavilion at Plastindia 2006


plastics
Industry Initiatives
PAHAL - Vivek Paryavaran Program
Main Objectives
Create awareness about environmental issues
Appraise about importance of proper garbage disposal
Inculcate the habit of bin culture
Interface between municipal agencies, school & community
Create awareness about the utility of plastics
DISSEMINATING INFORMATION & GALVANISING ACTION
School children interacting with industry experts
RECYCLING PAVILION


plastics
Industry Initiatives
NATIONAL ART CONTEST
Prize winning paintings at the competition
IT'S MY WORLD : EDUCATION TO KIDS
Children of Arya Vidya Mandir, Mumbai
RECYCLING PAVILION


plastics
PLASTICS DO NOT LITTER WE DO!!
ADOPT THE TWIN BIN CULTURE NOW!
We need infrastructure and systems for proper waste management
Segregation of waste at source facilitates proper waste recycling
Solution lies in responsible disposal habits and proper waste management
RECYCLING PAVILION


DO YOU know?
India recycles 60% of its plastics, compared to world average of 22%


plastics
Research and Technology
USE OF WASTE PLASTIC BAGS IN CONSTRUCTION OF PLASTIC - TAR ROAD
Waste plastic bags
Mixing plastics waste with stone
Tar road being laid
Tar road six months after laying
Tar road a week after laying
Road laying work in progress
RECYCLING PAVILION


Plastics
Waste Management
SOLID WASTE MANAGEMENT
Dry Waste
Wet Waste
Recycled Plastic Products
Segregation
Agriculture
Dump Yard
Recycling of Plastic Waste
Composting
Sale of Dry Waste
Segregated Dry Waste


RECYCLING PAVILION


plastics
Recycle Luggage
PLASTIC BATTERY BOXES RECYCLED INTO AFFORDABLE LUGGAGE
Old plastic battery boxes recycled
Plastic Dana generated from the discarded boxes
Dana processed to produce luggage components
Casing trimmer
Casing produced
Injection Moulding Machine processing Dana


RECYCLING PAVILION

Welcome Address at the International Conference

Sujit Banerji
Chairman, ASCENT Committee, Plastindia 2006 and Executive Secretary / Member, Executive Committee of ICPE

Globalization has become the key word in today's virtually borderless world. Free flow of information, skills and materials are the attributes of globalization that are crucial to strategic initiatives of the organizations.

India has been performing exceptionally well and over the years has emerged the 2nd fastest growing economy. India accounted for ~20% of Asian and ~10% of Global growth in last two years.

Galloping per capita income, demographics with bulging working age group, superior intellectual capital and competitive labour force has transformed India into an 'Outsourcing Heaven'. Global competitiveness in terms of effective productivity and intellectual capabilities has transformed India into a strong manufacturing base and a Global service and knowledge hub. Strong leaps in Business / Knowledge / Engineering Process Outsourcing has transformed India into best offshoring location in the world.

Today, we are expecting Indian economy to grow at around 8% and at the same time Indian plastics industry would be growing at around 14-15%.

Plastics are used for high touch to hi-tech applications and have moulded the modern world and transformed the quality of life. Plastics play an important role in all walks of life and are established as a creative, cost-effective, performance-oriented alternative to many conventional materials.

All these inherent advantages of India led to the theme of 'Access Opportunities' for this 6th International Plastics Exhibition and Conference.

I am pleased to say that over a period of two days we have tried to cover all the major issues concerned with the sustainable development of the Plastics industry. Right from strategic perspective by leading global consultants and industry stalwarts to trade related issues like globalization and commodity futures, best practices like six sigma to technological developments in various fields. Thus the Conference will focus on **3 "I"s** : **Information, Ideation and Innovation,** which are key growth pillars in the knowledge millennium**.**

I hope that the Conference will facilitate to strengthen dynamic partnership between the creators of wealth and people engaged in generation of ideas through **power of networking** , which will enable all of us to transform **India from "Ideas Incubator" to "Ideas – Superpower".**

This abstracts volume will cover salient points from all the contributors and I am sure this will certainly serve as a reference handbook for everyone.

I would like to take this opportunity to thank all the contributors for their valuable papers and also my colleagues on the Conference Committee for bringing out such an outstanding reference volume.

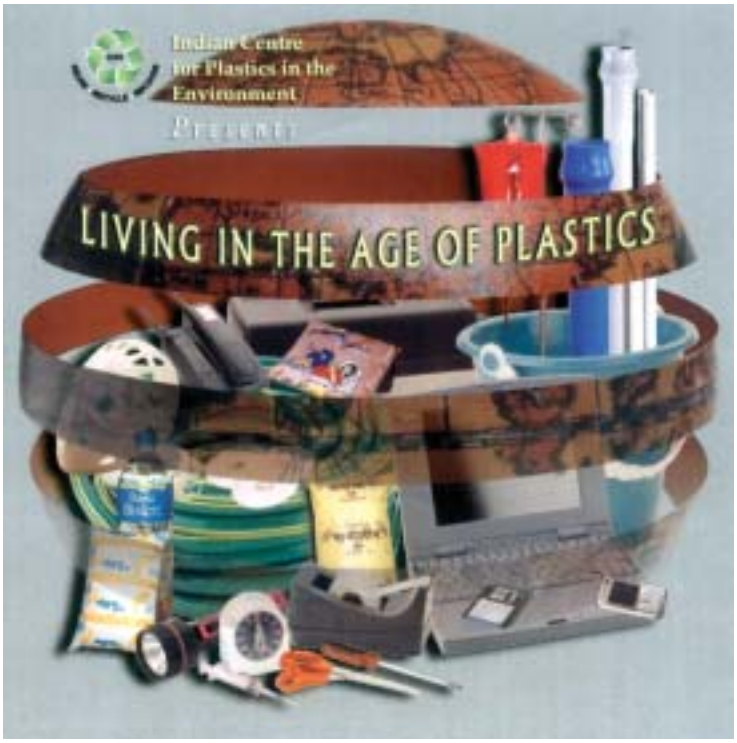
I wish everyone a successful and informative Conference.

Plastindia 2006 – International Conference

The aim of this Conference is to bring together eminent scholars, consultants, professionals and industry experts for a fruitful engagement on various issues concerning the plastics industry. As Plastics constitute a burgeoning sector, this Conference will go a long way in charting a path for its growth. The Conference is expected to go a long way in providing directional solutions for many of the important issues facing the industry today.

Prof. Anup K. Ghosh
Co-Chairman – Technical Committee, and Invitee Member of ICPE Executive Committee

ICPE Film – Living in the Age of Plastics



ICPE has produced an audio-visual educational film on the various benefits of plastics for the mankind. The film also highlights and analyses various issues relating to plastics and environment.

Brief abstract of the film:

Historians have named different periods in history as the Stone Age, the Bronze Age, the Copper, Iron, and Steel Ages, according to the material most used in those particular periods of human history, to manufacture various items of utility. Today, we come across plastics at every phase of life, be it packaging or agriculture, healthcare or high technology. The rich and the poor, the young and the old, the urban and the rural … all depend upon plastics for a variety of their necessities. Considering this evolution, and looking to the popularity and usefulness of plastics today, our Age could rightly be called the Age of Plastics.

Plastics are: • Lightweight • Flexible • Nontoxic • Convenient • Adaptable • Economical • Safe • Reusable • Hygienic • Recyclable.

Packaging is one of the most visible use of plastics. In India, about 50% of the consumption of plastics goes for packaging. Apart from conserving natural resources, use of plastics in packaging saves transportation fuel as plastics are substantially lighter than conventional packaging materials like tin, glass or steel. PET bottles and PE pouches for drinking water reduce the risk of waterborne diseases and provide improvement in the health sector.

The versatility of plastics has allowed creating an efficient, pilfer-proof hygienic and cost-effective packaging of commodities, required by common man in day-to-day life.

We all are fortunate to be living in this Plastics Age. It is our responsibility to ensure its proper use and disposal.

Every single individual across the globe will only stand to gain from this wonder material.

ICPE Combined EC-GC Meeting

News Item

The last ICPE combined EC-GC Meeting of the Year 2005-06 was held on 25th March, 2006 at ICPE's new office premises at Kushesh Mansion, 2nd Floor, 22, Cawasji Patel Street and 48/54, Janmabhoomi Marg, Fort, Mumbai. The members were happy with the spacious Conference Room in the new office and opined to hold future meetings of ICPE in the new Conference Room.

New Office Premises of ICPE

From February 2006, ICPE Head Office at Mumbai has shifted to a new premises having a larger space in the Fort area of Mumbai. The change of address was communicated to all concerned and the same was indicated in the last issue of Eco-Echoes.

Lecture Meeting on "Recycling of Plastics"

Mr. T. K. Bandopadhyay, Technical Manager, ICPE, had presented technical paper on Recycling of Plastics at the Lecture Meeting organized by Indian Plastics Institute at AIPMA Auditorium, Andheri, Mumbai, on 17th March, 2006.

DIOXIN

Dioxin refers to a group of chemical compounds which have similar chemical structures and biological characteristics. Several hundred of these compounds have been identified. Some of these are highly toxic in nature. These groups of chemical compounds mainly belong to three closely related families:

1. The Chlorinated dibenzo-p-dioxin (CDD's)
2. Chlorinated dibenzo furans (CDF's) and certain
3. Polychlorinated biphenyls (PCB's)

CDD's and CDF's are produced inadvertently by some human activities and are also produced by natural processes. PCB's are man made. Many countries have already stopped production of PCB's. Most toxic and common forms of Dioxins are:

- 2,3,7,8- tetrachlorodibenzo-p-dioxin (TCDD)
- 2,3,7,8- tetrachlorodibenzofuran (TCDF)
- 3,3',4,4', 5,5' Hexachlorobiphenyl

Scientists use a method for comparing the toxicity of different types of Dioxins to the toxicity of 2,3,7,8- tetrachlorodibenzo-p-dioxin (TCDD) and 1,2,3,7,8-PeCCD. This method of indicating the toxicity level is known as Toxicity Equivalent Quotient (TEQ).

Major sources of Dioxins are:

- Commercial or municipal waste incineration
- Burning of fuels like wood, coal or oil
- Burning of household trash
- Accidental fires at landfills
- Forest fire
- Chlorine bleaching of pulp and paper
- Manufacturing of certain types of herbicides
- Some other industrial processes

Studies have shown that exposure to Dioxins may cause a number of adverse health effects. The health effects associated with Dioxins depend on many factors including the level and duration and frequency of exposure. Because natural processes also form Dioxins and these are extremely persistent compounds, levels of Dioxins remain in the environment for a very long time. The most known health effect in human for exposure to large amount of Dioxin is Chloracne – a severe type of skin disease. Other effects of long-term exposure to Dioxin include cancer in adults. Though scientists had knowledge of the presence of Dioxins in the environment since 1920's, it was only in the 1970's that these groups of chemical compounds were recognized as toxic. Thereafter efforts were intensified to reduce the generation of Dioxins by human activities and different industrial activities. As a result, the level of Dioxins in the USA environment drastically reduced over a period of about 20 years.

An analysis by the US EPA showed that the level of Dioxin in the USA environment in 2000 had come down to about 1/3rd of the level that prevailed in 1970's.

(Summerised from article by Food Safety and Inspection Service, US Department of Agriculture).

ICPE observation:

During the period from 1970 to 2000 production and use of plastics in the USA had almost trippled.

From this observation it may be concluded that Plastics and Dioxins are not directly correlated.

More information on Dioxins will be carried in the future issues of Envis.

Questions & Answers in the Lok Sabha of Indian Parliament on Plastics and the Environment

Plastic Innovation Parks

Unstarred Question No. 2602
Shri Subodh Mohite :

(a) Whether the Government proposes to set up a Plastic Innovation Park in the country; and

(b) If so, the details thereof along with its locations, State-wise?

Answer: Shri Kapil Sibal, Minister of Science and Technology and Minister of Ocean Development:

(a) No Sir.

(b) Question does not arise.

Environment Commission

Unstarred Question No. 2361
Shri Tukaram Ganpatrao Renge Patil :

(a) Whether the government has put up any proposal for setting up Environment Commission for early disposal of cases related to the environment;

(b) If so, the details thereof; and

(c) The time by which the final decision is likely to be taken in this regard?

Answer: Shri Namo Narain Meena, Minister of State in the Ministry of Environment & Forests

(a) to (c):
There is no proposal for setting up of Environment Commission for early disposal of the cases related to the Environment. However, The Law Commission, in its 186th Report, has inter alia recommended establishment of separate 'Environment Courts' in each State, consisting of judicial and scientific experts in the field of environment, for dealing with environmental disputes besides having appellate jurisdiction in respect of appeals under the various Pollution Control Laws. These recommendations are under consideration in consultation with the M/o Law & Justice.

Bio-Medical Waste

Unstarred Question No. 2407
Shri Eknath M. Gaikwad:
Shrimati Nivedita Mane:
Shri Kirti Vardhan Singh:
Shri Ravi Prakash Verma:

(a) Whether injection needles and syringes as also used cotton of hospitals are being recycled/reused causing health hazards:

(b) If so, whether the Government has taken any action to check such recycling/reuse of hospital wastes;

(c) If so the details thereof; and

(d) If not, the reasons therefor?

Answer: Shri Namo Narain Meena, Minister of State in the Ministry of Environment & Forests

(a) The Ministry of Environment & Forests had notified the Bio-Medical Waste (Management & Handling) Rules, 1998, according to which Bio-Medical Waste has been classified into 10 (ten) categories. The treatment and disposal methods for each category have been indicated in Schedules I & II of the Rules.

The used injection needles, syringes, etc., are classified as Category No.4 in the Rules and the same are required to be disinfected by chemical treatment/autoclaving/microwaving and mutilation/shredding. The purpose of chemical treatment is to disinfect the used needles, syringes, etc., and the purpose of mutilation/shredding is to prevent any unauthorized re-use of the same. The items contaminated with blood and body fluids including cotton, dressings, etc., are classified as Category No.6 in the Rules and the same are required to be incinerated or disinfected by autoclaving/microwaving. The used injection syringes, needles, used cotton, dressings, etc., are not allowed for re-use and the same are required to be treated and disposed of strictly in accordance with the above mentioned Rules.

These Rules make it mandatory for every occupier of an institution generating biomedical waste to take all steps to ensure that such waste is handled without any adverse effect to human health and environment. The

Rules also require such waste to be segregated, packaged, labelled, treated and disposed of in accordance with the provisions of these Rules.

(b) to (d):
To State Pollution Control Boards (SPCBs)/Pollution Control Committees (PCCs) of Union Territories are the Prescribed Authorities in the respective States Union Territories responsible for strict implementation of the Rules by the concerned agencies, such as hospitals, nursing homes, etc.

Any violation of the Rules attracts action by the concerned SPCB/PCC under the Environment (Protection) Act, 1986. Action to be taken by the SPCBs/PCCs in this connection includes closure of the unit, stoppage or regulation of the supply of electricity or water or any other service. The Act also provides for punishment with imprisonment for a term which may extend to 5 (five) years with fine, which may extend to Rupees one lakh.

The Ministry has addressed all the SPCBs/PCCs of UTs for strict implementation of the Bio-Medical Waste (Management & Handling) Rules, 1998.

Committee on Solid Waste Management

Unstarred Question No. 189
Shri Chaudhary Lal Singh :
Shri K. C. Pallani Shamy :

(a) Whether a Committee has been constituted to look into various aspects of solid waste management in Class-I Cities;

(b) If so, the details thereof;

(c) Whether the Committee has presented its report;

(d) If so, the salient features of the report;

(e) Whether the Committee has recommended setting up of a National Technology Mission for improving solid waste management practices in the country; and

(f) If so, the follow-up action taken/proposed to be taken in this regard?

Answer: Shri Ajay Maken, the Minister of State in the Ministry of Urban Development

(a) to (f): A Statement is laid on the Table of the Sabha.

Statement

Statement Referred to in reply to Lok Sabha Starred Question regarding Committee on Solid Waste Management

(a) Yes, Sir. A Committee was constituted by the Hon'ble Supreme Court of India in January, 1998 to look into all the aspects of Solid Waste Management in Class-I Cities of the country.

(b) & (c)
A copy of the order of the Hon'ble Supreme Court dated 16.1.1998 containing the directions on the Constitution of Committee is given in Annexure-A. The Committee submitted its report in March, 1999.

(d) The Committee studied the following aspects of Solid Waste Management (SWM) in the country :

(i) Waste generation

(ii) Composition of waste

(iii) Technology adopted for storage, collection, transportation and disposal of waste.

(iv) Primary collection, waste storage depots, street sweeping, transportation of waste, processing & disposal of waste, institutional arrangement and community involvement.

Recommendations of the Committee for Modernization of Solid Waste Management Practices in Class-I cities are at Annexure-B.

(e) Yes, Sir.

(f) Pursuant to the directions issued by the Hon'ble Supreme Court, in place of a Mission, the Government constituted a Technology Advisory Group (TAG) in August, 1999.

Annexure – A

In the Supreme Court of India
Original Jurisdiction

ORDER

We have heard learned Additional Solicitor General and Shri Vallapalli, learned Senior Counsel. We consider it appropriate at this stage to constitute a Committee and to specify the specific aspects, which the Committee is required to examine. We direct accordingly.

The terms of Reference for the Committee shall be as under:

To look into all aspects of urban solid waste management, particularly:

1. Examine the existing practices and to suggest hygienic processing and waste disposal practices and proven technologies on the basis of economic feasibility and safety which the Corporation/

Government may directly or indirectly adopt or sponsor.

2. Examine and suggest ways to improve conditions in the formal and informal sector for promoting eco-friendly sorting, collection, transportation, disposal, recycling and re-use.

3. To review Municipal bye-laws and the powers of local bodies and regional planning authorities and suggest necessary modifications to ensure effective budgeting, financing, administration, monitoring and compliance.

4. Examine and formulate standards and regulations for management of urban solid waste, and set time frames within which the authorities shall be bound to implement the same.

The Committee is requested to give its report as early as possible preferably not later than 30th June, 1998. The Committee is also requested to give such interim reports as it may find convenient to do so.

The Secretarial assistance at Delhi will be provided for the Ministry of Urban Development, which will also make all other arrangements required by the Committee for its proper functioning while arrangements within the States/Union Territories would be made by the concerned State/UT. The expenses incurred for the purpose to the same extent would be borne at this stage by the Ministry of Urban Development and the concerned State Governments/UST. The final responsibility for meeting these expenses would be decided later on.

The Local authorities and concerned State Government/Union Territories shall extend all cooperation and assistance to the Committee for its proper functioning.

Annexure-B

Recommendations for Modernization of Solid Waste Management Practices in Class-I Cities

Ban on Throwing of Wastes on the Streets

No waste shall be thrown on the streets, footpaths, open spaces, open drains or water bodies.

Storage of Waste at Source

Waste shall be stored at source of generation in 2 bins/bags, one for food/bio-degradable wastes and another for recyclable waste. Domestic hazardous waste, as and when produced, shall be kept separately from the above two streams.

Multi-storeyed buildings, commercial complexes and group housing shall additionally provide community bins for storage of waste generated by their members. Community bins shall also be provided in slums by the local body for the community storage of waste by slum dwellers.

Doorstep Collection of Waste

Both the streams of waste, organic/bio-degradable waste as well as recyclable waste, shall be collected from the doorstep. Containerized handcarts or containerized tricycles or small motorized vehicles shall be used for daily collection of food/bio-degradable waste from the doorstep through public participation using a bell, whistle or horn as a means of announcing the arrival of the collection staff.

For collection of recyclable waste from the doorstep, NGOs may be encouraged to organize the rag pickers. They may allot them the work of collection of recyclable material from the doorsteps instead of picking it up from the streets, bins or dump-yard, thereby upgrading their status. This waste can be collected once or twice a week according to the convenience of the households, shops or establishments.

Hazardous toxic waste material which is occasionally generated shall, however, be disposed of by the citizens in special bins to be provided in the city at suitable locations by the urban local bodies.

Sweeping of Streets on All Days of the Year

Sweeping of streets and public places having habitation or commercial activities on one or both sides shall be done on all days of the year irrespective of Sundays and Public Holidays. Arrangements for rotating weekly rest-days are to be made by the local bodies.

Work Norms for Sweeping of Streets

Work norms ranging from 250 to 750 running meters of road length have been recommended, depending on the density of the area and local conditions. Giving a demarcated “pin point” area for street sweeping and waste collection is also recommended for optimum utilization of manpower.

Provision of Litter Bins at Public Places

Provision of litter bins at railway stations, bus stations, market places, parks, gardens and important commercial streets may be made to prevent littering of streets.

Abolition of Open Waste Storage Sites and Other Un-hygienic Street Bins

The pathetic condition of street bins must be corrected by the

provision of neat mobile closed body containers into which waste can be directly transferred from the containerized handcarts or tricycles and all open waste-storage sites as well as cement concrete or masonry bins must be abolished in a phased manner.

Transportation of Waste to Synchronize with Waste Storage Facility – Dispense with Manual Loading of Waste

For the transportation of waste, a system which synchronizes with both primary collection and bulk waste storage facilities may be introduced. Manual loading and multiple handling of waste may be dispensed and the instead, hydraulic vehicles for lifting the containers may be used in larger cities and tractor trolleys or a tractor container combination may be used in smaller cities.

Transportation of waste shall be done on a regular basis before the temporary waste-storage containers start over-flowing. For economy in expenditure, the vehicle fleet should be used in at least two shifts. Workshop facilities may be optimized to keep at least 80% of the vehicle fleet on road. Transfer stations may be set up in cities where the distance to waste-disposal sites is more than 10 kms.

Processing and Disposal of Waste

Conversion of Organic Waste/Biodegradable Waste into Bio-organic Fertilizer (Compost).

With the availability of land for processing and disposal of waste becoming scarce and the food and bio-degradable component useful to agriculture going waste, measures for conservation of land and organic waste resource shall be taken and organics shall be returned to the soil. To meet these objectives, all food waste and bio-degradable waste shall be composted, recyclable waste shall be passed on to the recycling industry and only rejects shall be land-filled in a scientific manner. Decentralized composting with public and NGOs/CBO participation, may be encouraged wherever possible, and centralized composting of the rest of the waste may be done. Microbial or vermin composting processes may be adopted. A variety of composting options has been given in the report and their processes are explained.

Caution Against Using Unproven Technologies

Local bodies are cautioned not to adopt expensive technologies of power generation, fuel palletization, incineration, etc., until they are proven under Indian conditions and the Government of India or expert agencies nominated by the Government of India advises cities that such technology can be adopted.

Land to be Made Available on Priority for Processing and Disposal of Waste

Availability of land for setting up processing plants and for disposal of waste is a major problem faced by urban local bodies. Government wasteland must therefore be given on top priority for this purpose free or at nominal cost, and if such land is not available or not found suitable, private land should be acquired or purchased through negotiated settlement. A Committee at the district level should identify suitable land and State Governments should form Empowered Committees to give speedy final clearance and prompt possession of suitable land to the ULB.

Criteria for Site Selection, Site Development and Landfill Operations

Criteria for site selection, development of landfill sites and scientific landfill operations may be adopted. Remediation of old abandoned landfill sites should also be done as suggested in the report. Bio-medical waste, industrial waste and slaughterhouse waste may be managed as per the relevant Rules and Guidelines of the Government of India and/or Central Pollution Control Board.

Institutional Strengthening and Capacity Building

Institutional strengthening is the key to success of the SWM system. Professionalism in administration, decentralization of administration, delegation of financial and administrative powers, induction of environmental/public health engineers in the solid waste management services and fixation of work norms and proper supervisory levels are recommended. Human resource development through training at various levels needs to be taken up. Municipal Commissioners and Chief Executives should not be transferred frequently and should have a tenure of at least 3 years to perform effectively. Inter-city meets for sharing of experience are recommended.

Adequate safeguards for the supervisory staff against abuse of the Scheduled Caste/Scheduled Tribe (Prevention of Atrocities) Act 1984 may be provided through suitable amendments in the law to enable the Supervisory staff to perform their duties fearlessly.

NGO/Private Sector Participation in SWM Services

There is a need to improve accountability and the level of

services through NGO/Private Sector participation in SWM services to improve overall performance without harming the interests of the existing staff. Suitable amendment in the Contract Labour (Regulation and Abolition) Act, 1970 may be done by the Govt. of India to permit Private Sector participation in this service.

Enforcement

A system of levy of administrative charges or special cleaning charges from those who litter the streets or cause nuisance on the streets may be introduced and powers to punish offenders may be given to the local bodies through suitable additions to the Municipal Acts & Rules.

Management Information System

MIS is the key to monitoring the performance of manpower and machinery and to help in planning for the future. Detailed management information systems suggested in the report may be introduced.

Financial Aspects

The poor financial health of ULBs is major constraint in improving SWM systems. The financial condition of local bodies may first be improved by setting the house in order and series of measures towards financial discipline, avoidance of wasteful expenditure, prioritizing the expenditure on essential services, as recommended in the report may be taken. Taxes, user charges and fees should be raised and linked to the cost-of-living index. Area-based property-tax reforms may be taken up to improve the finances of the ULBs.

Financial Support to ULBs by States and Central Government

Financial support to ULBs from the State Government and the Central Government in terms of the 74th Amendment to the Constitution may be given expeditiously and funds may also be allocated to ULBs for a period of three years as per the formula given in the report. In the meantime, transfer of unspent grants by the 10th Finance Commission to the ULBs may be considered for modernizing their SWM practices. Fiscal autonomy to local bodies, tax-free status for municipal bonds, incentives to recycling and composting Industries may be considered by the Central and State Government and Union Territories.

Health Aspects

Improper SWM practices give rise to problems of health and sanitation. Twenty-two types of diseases are associated with improper SWM practices. Proper management of processing the disposal sites, special attention to cleaning of slums, provision of low cost sanitation facilities to prevent open defecation, prevention of cattle nuisance, proper training to the workforce and use of protective clothing are some of the measures the local body should take immediately to protect the health of the citizens and the workforce.

Legal Aspects

Citizens' active participation may be ensured through massive public awareness campaigns. Simultaneously, adequate provision may be made in local State laws governing the local bodies to ensure public participation and action against defaulters. Legislative provisions to be made by each State have been suggested in the report.

Public Awareness Strategy

Public awareness campaign using Information, Education and Communication (I-E-C) techniques may be used. Waste Reduction, Reuse, Recycling (R-R-R) may be advocated to reduce the burden on the local body and citizens may be motivated to store waste at source in a two-bin system, co-operate with the doorstep primary collection system and keep the city litter-free. Hygienic Solid Waste Management needs to find a place in the National Agenda.

Technology Mission for Solid Waste Management

Given the vastness of the country and the present condition of urban local bodies, implementation of these recommendations requires very effective follow-up, monitoring and technical support. A Technology Mission for SWM may therefore be urgently constituted by the Government of India under the Ministry of Urban Development for a period of 5 years, having a mandate to monitor the performance of various local bodies, to guide the local bodies about various technologies for processing and disposal of waste, to give technical assistance as well as financial assistance by channelizing funds from various Government sources as well as financial institutions to develop material for awareness programmes, identify training needs, benchmark performance indicators and give continue and focused attention to the reform of SWM practice nationwide.

Time Frame

A time frame is necessary to implement the recommendations which have been prescribed ranging from 3 months to 3 years as per the details given in the report.

Ban on Plastic Utensils

Unstarred Question No. 132
Shri Chandrakant Khaire:

(a) Whether various scientists of the country have demanded an immediate ban on utensils made of plastics particularly, in view of its ill-effects on infants;

(b) If so, whether the Government proposes to take a decision on the same;

(c) If so, the details thereof; and

(d) If not, the reasons therefor?

Answer: Shri Namo Narain Meena, Minister of State in the Ministry of Environment and Forests

(a) to (d) :
A statement is laid on the Table of the House.

Statement referred to in the Answer to the Lok Sabha Starred Question regarding "Ban On Plastic Utensils" raised by Shri Chandrakant Khaire, MP.

(a) to (d):
No such demand from scientists has been received in the Ministry of Environment and Forests. However, the Ministry of Environment and Forests has notified the Recycled Plastics Manufacture and Usage Rules 1999, which was amended in 2003, under the Environment (Protection) Act, 1986 for regulating and managing plastic carry bags and containers. As per these rules, carry bags and containers used for packaging of foodstuff shall be made of virgin plastics and of natural shade or white and that no vendor shall use carry bags and containers of recycled plastics for storing, carrying, dispensing or packaging of foodstuffs. In addition, the Prevention of Food Adulteration Rules. 1955 requires that containers made of plastic materials used as appliances or receptacles for the packaging of storing food articles must conform to the Indian Standards specifications as notified for this purpose and specified in the aforesaid Rules.

Update

Road Project – Flashback

Reusing plastic waste to pave roads is an experiment that's been successfully conducted in many other places such as Kalamasseri in Kerala, Tamil Nadu and Bangalore. Not only does the road become a receptacle for plastic waste but also gives a better grip. The plastic also brings down the quantity of bitumen used by 10% – resulting in saving of cost.

Mumbai caught on to the idea two years ago, when the BMC's road department experimented on a few roads at Prabhadevi. The road laid by BMC, with the help of ICPE in December 2004, is still in a very good condition 15 months after the laying.

View of the road – 7 days after completion

View of the road – 6 months after completion

View of the road – 15 months after completion

World Packaging Organisation (WPO) Programme at Indian Institute of Packaging (IIP), Mumbai

A 3-week Residential Programme on *Packaging Technology as Viewed in Developing Countries* was organized for World Packaging Organisation, by Indian Institute of Packaging, Mumbai, during 7th-28th March, 2006.

Mr. T. K. Bandopadhyay, Technical Manager, ICPE, was invited to make a presentation on ***Packaging Waste and Environmental / Eco Issues.***

Reproduced below are highlights of his presentation.

The Solution ...

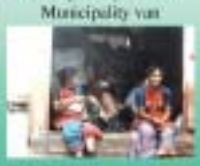
Segregation Of Waste At Source...

Rag pickers with van

Loading of dry waste in Municipality van

Dry waste being carried for loading into Municipality van

Dry waste at housing colonies



Municipality van with dry waste on way to segregation area

Segregation Of Waste At Source

Segregation of dry waste

Storing of segregation dry waste in secured place

Packing of segregated dry waste

Segregation of dry waste being weighed and sold to recyclers / traders

Nagpur Factory for Manufacture of Fuel from Plastics Waste

UNIQUE FEATURES

- ALL TYPES OF PLASTICS WASTE- MIXED / MULTI LAYER / LAMINATED / EPS ETC. CAN BE USED
- CLEANING NOT ESSENTIAL (DRY WASTE)
- PVC WASTE CAN BE HANDLED
- DIOXIN FORMATION RULED OUT AS REACTION TEMP $\leq 350^{\circ}$ C AND O_2 IS ABSENT
- 100 % VALUE ADDITION

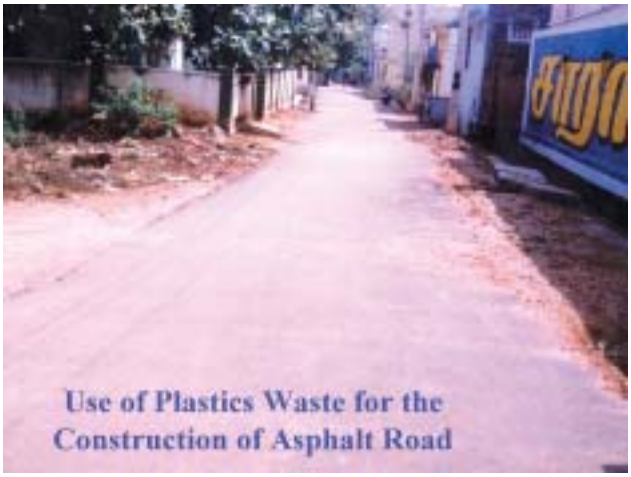
COST ASPECTS
5 MTD CAPACITY PLANT

PLANT	~	RS. 5 CRORES
POWER	<	100 kwh

(GENERATED WITH LPG PRODUCED IN THE PLANT)

MAN POWER	<	10
PLASTICS WASTE	≤	RS. 5 / kg

FUEL SALE PRICE > RS. 20 / litre



Use of Plastics Waste for the Construction of Asphalt Road

BENEFITS

- BETTER BINDING PROPERTY
- HIGHER SOFTENING POINT- WITHSTANDS HIGHER TEMP
- LOWER PENITRATION VALUE- WITHSTANDS HIGHER LOAD
- NO STRIPPING- RESISTS PERMIATION OF WATER

ALL THESE LEAD TO LONGER ROAD LIFE

ECONOMICS

- ABOUT 10 % BITUMEN IS REPLACED
- COST OF LOW-END, SHREDDED WASTE PLASTICS IS ABOUT Rs.10 – Rs. 12 / kg.
- COST OF BITUMEN IS Rs. 19 / kg.
- 1 KM OF A 7 ft WIDE TAR ROAD REQUIRES 1 MT OF WASTE PLASTICS AND HENCE SAVING IS ABOUT Rs.7000 – Rs.9000 PER KM LENGTH OF ROAD

Domestic News

Salient Points of the Maharashtra Government's Statement and Rules for the Manufacture and Use of Plastics Carry Bags

– Notification dated 3rd March, 2006

STATEMENT

It was observed that during the torrential rain on 26th July, 2005 non-biodegradable garbage, especially plastic bags, HIPS cups, plastic strips and thermocol used for packaging were grossly responsible for blockage of gutters, sewers and drains, resulting in serious environmental problem in Mumbai and other parts of the State. With a view to prevent the occurrence of such problems, the Government of Maharashtra has declared the entire State as the "Plastic Bag Free Area" and has published draft Order, dated the 13th September, 2005, inviting suggestions and objections from the general public.

RULES:

7. Marking or Codification:

1. Manufacturers of Plastic Carry Bags shall mark or code carry bags and containers as per Bureau of Indian Standard Specification: IS 14534 : 1998 entitled "The Guidelines for Recycling of Plastics" and end product made out of recycled plastics shall be marked as "recycled" along with the identification of the percentage of use of recycled material.

2. The manufacturers of plastic carry bags, who do not have printing facilities, shall put stamp with permanent ink on each carry bag as to whether these are made of "recycled material" or of "virgin plastic".

8. Thickness of Carry Bags:

(1) The minimum thickness of carry bags made of virgin plastics or recycled plastics shall not be less than 50 micron and of the size of 8 x 12 inches.

(2) No person shall manufacture, stock, distribute or sell carry bags made of virgin or recycled plastic bags which are less than 8 x 12 inches (20 x 30 cms.) in size and which do not conform to the minimum thickness specified in sub-rule (1)

ICPE Stand on Maharashtra Government's Rules

ICPE is not convinced that Plastics Carry Bags were grossly responsible for the floods in Mumbai on 26th July, 2005 as alleged. In fact, several technical committees have submitted their reports on the above subject and none of them has blamed plastics carry bags as mainly responsible for the flooding of Mumbai suburbs. ICPE continues to hold the same view though ICPE agrees with the Government that there is a pressing need for collection and disposal of plastic waste in a more effective and scientific manner.

Notwithstanding ICPE's misgivings on the premise on which the above notification has been issued, ICPE would like to submit a few observations on certain clauses of the notification which are technically impracticable and difficult to implement. These relate to the following:

1. Clause No. 8 (2) of the Maharashtra Government's rule lays down that no person shall 'manufacture' carry bags of virgin or recycled plastics which are less than 50 micron in thickness. The rules governing thickness of the bags vary from state to state. The Government of India vide "Recycled Plastics Manufacture and Usage Rules, 1999" and its subsequent amendment in June 2003 has prescribed minimum thickness for plastic carry bags as 20 microns. Several bag manufacturers in

(Contd. on page 22)

Initiative

Plastics Waste Management at Mahabaleshwar

ICPE has been working in close co-operation with Maharashtra Plastics Manufacturers Association and Mahabaleshwar Giristhan Parishad for the awareness of the citizens – local as well as visitors on proper way of disposal and collection of dry waste with special attention to Plastics Waste. As per the programme, all plastics waste are being collected and segregated and directed towards recyclers through a network of plastic waste collectors and traders. The project has gained momentum and there has been a considerable improvement in the plastics waste collection and disposal system. ICPE representatives are closely following up with the local authorities and NGOs for a larger awareness in the area.

Picture showing Mr. Rajiv Tolat, Hon. Treasurer of ICPE, with a large collection of PET Bottles which earns livelihood for the waste collector as well as keeps the area clean.

(Contd. from page 21)

Maharashtra produce plastic carry bags for usage all over India and also export their products outside India. The present Notification bars any manufacturing activity if the products are less than 50 micron thickness. Apart from doubts on the legal validity of such a blanket ban, it is also unfair to the manufacturers located in Maharashtra as they cannot serve customers located outside Maharashtra or abroad. It is therefore felt that the Clause No.8 (2) needs amendment and should exclude manufacturing of plastic carry bags less than 50 micron thickness as long as they are not sold within the State of Maharashtra.

2. ICPE has noted that all the restrictions placed under the above rule are with reference to only plastic carry bags, which have been defined under Clause 2 of the Rules. Unfortunately, there is some misunderstanding at the field level where the Municipal officials have seized all plastic packaging materials. Clearly, this is not contemplated in the Rules.
3. Lastly, ICPE believes that the objective behind issuing of the Maharashtra Plastic Carry Bags Rules 2006 can be substantially realized only with the co-operation of the industry and the public at large. It is therefore suggested that an Advisory Committee consisting of Government, Industry and the implementing agencies may be set up to help in successful implementation of the above order.

International News

Europe to put tariffs on bags from China, Thailand

The European Commission has reportedly changes its mind on laying anti-dumping duties on plastics bags from China and Thailand and now plans to impose tariffs on bags from two countries. It is likely that EC may levy provisional tariffs of 5% to 22% on the Chinese bags.

EC study deems phthalates safe for range of products

An extensive European Commission's Scientific study has found that the phthalate plasticizers used most widely to soften PVC pose no human health and environmental risks and their use requires no new regulation.

This is the latest decision in an extended debate in Europe over the safety of phthalates. EC's official journal has published the study findings recently, found that the chemicals are safe to use as plasticizers in a range of applications including PVC flooring, clothing, cosmetics and medical products.

The EC finding were, welcomed by the European Plasticizer Industry. Although the phthalates cannot be used in baby toys, officials hope the study means that the phathalates will continue to be permitted in other applications

Recycling Packaging Film Scrap

Osaka Gas Chemicals Co. Ltd. has started marketing its polymer-based additive Maricom in China, Singapore and Malaysia for recycling packaging film scrap. Maricom helps compound scrap of polyethelene, polypropylene, nylon and PET films.

Old Computers to be recycled into decking

It is estimated that 60 million personal computers enter the market every year and about 12 million are thrown out.

According to West Virginia University professors, they are close commercializing a process of making wood-plastic composite deck boards using recycled ABS from discarded computers. They are also making glass filled polycarbonate-based products using predominantly recycled material.

According to National Safety Council, Illinois around 680 million computers are predicted to become obsolete within the next few years and that the waste generated from these will contain more than 4 billion pounds of plastic.

The US Department of Energy and the Environmental Protection Agency are funding the project, which aims to remove recyclable plastics from the waste stream through new product development.

China ready to start regulating recycling

According to the officials, china is planning to pass recycling legislation in the first half of 2007.

This proposed law is aimed at addressing the issues connected with recycling in the country.

(Source: www.plasticsnews.com*)*

Do Not Litter.
Keep Your Environment Clean.

- **Segregate and Throw Waste Only in Waste Bins.**
- **Use Two Bins – One for Wet Waste, One for Dry Waste.**

Plastics, Metals, Paper …
Can be recycled into useful products.

Waste Food and other Biodegradable Waste.
Can be composted into manure.

Issued in Public Interest by

Municipal Corporation of Greater Mumbai

and

Indian Centre for Plastics in the Environment

• www.icpenviro.org • www.envis-icpe.com
• www.icpeenvis.nic.in