ICPE
INDIAN CENTRE FOR PLASTICS IN THE ENVIRONMENT

Envis Eco-Echoes

Management of Plastics, Polymer wastes and Bio-polymers and impact of Plastics on the Eco-system

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Ministry of Environment & Forests, Government of India

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Mass awareness during PLASTINDIA 2012 International Exhibition, at Pragati Maidan, New Delhi, February 1 – 6, 2012.

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Area of Activity

Capacity Enhancement Programme on Management of Plastics, Polymer Waste and Bio-Polymers, Impact of Plastics on Eco-System

Editorial

Plastics offer a range of benefits to almost every activities of human life in today's world. General mass rip the benefit of plastics in every sphere of their lives – whether it is in critical phase for medical attention, for some essential activities like procurement of food or other items for home, for connecting people through mobile / land line phone or while viewing the world news through the television set sitting at home comfort. In all these activities plastics play vital roles. Electricity could not have reached to the homes of billions in the world had there been no plastics for insulating the conductors. Without plastic pipes, transportation of water from the source to the consumption point could have been difficult. However, the issue of plastics wastes management, especially the plastics packaging waste management, created a perception among a section of people that plastics were causing harm to the environment, not realising that plastics are in fact life saviors.

To illustrate the real facts how plastics are saving our environment from the ill effects of Green House Gas emissions and from other hazardous emissions and to explain various methods of plastics recycling as an effective step towards resolving the plastics waste management issue, ICPE created display panels in its stall at the PLASTINDIA 2012 International Exhibition at Pragati Maidan, New Delhi during February 2012. These panels, with explanations, have been published in this edition of ENVIS Newsletter. It is heartening to observe that even the school students of different Standards, who visited ICPE stall in large numbers realised these facts. General mass realised the real issues and appreciated the responsibility of segregation of waste at source by the society at large.

The Data Sheet carries the statistical information about the diminishing number of landfills in the developed countries of Europe and more and more volume of recycling and incineration activities for disposing of their Municipal Solid Waste. The table shows that in quite a few numbers of countries in Europe there is no land filling activity! The quantity of MSW generated in the Netherlands during 2009 was 61 Mn Tons, a figure equivalent to India's MSW generation. However the major difference lies at the fact that while in the case of Netherlands only 1% of the MSW goes to landfill, in India we send most of the MSW to the landfill!!

We will try to publish such information in ICPE's ENVIS Newsletter.

Subscription Information:

ENVIS is sent free of cost to all those interested in the information on Plastics and Environment.

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

Editor
Mr. T. K. Bandopadhyay

ICPE PARTICIPATION IN PLASTINDIA 2012

ICPE Stall in PLASTINDIA 2012 International Exhibition in Pragati Maidan, New Delhi during February 1 – 6, 2012 showcased the environmental benefits of plastics, various issues caused by plastics waste and the possible solutions thereof.

Emphasis was on Green House Gas (GHG) Emission and Global Warming and how Plastics save GHG and thus help saving the environment.

All who visited the stall carried a different message / revelation as explained through the Display Panels and had requested for the copy of such Illustrative Panels. Visit of school children to ICPE stall was a satisfying experience.

Accompanying teachers were satisfied that their students were exposed to the realities of various issues of Plastics. They also requested for the copies of the panels. Students showed enthusiasm in taking part in Quiz Programme organised during the occasion.

ICPE Stall at PLASTINDIA - 2012

Mr. K.G. Ramanathan, President GC and Mr. S. K. Ray, Hon. Secretary visiting ICPE Stall along with ICPE official.

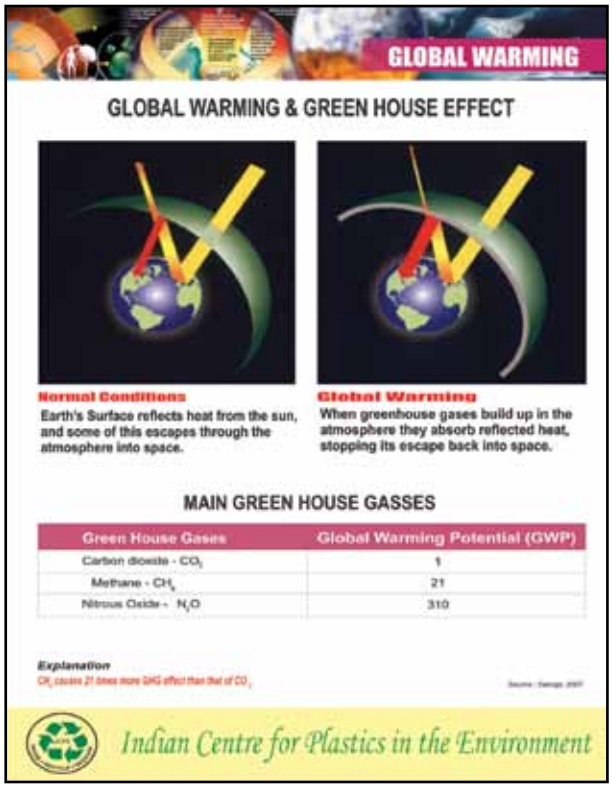
Discussions with Ministry officials - Mr. Sanjeev Kumar, Mr. Suneel Sachdeva, Dr. T. K. Chakravarthy, Mr. A. K. Agarwal

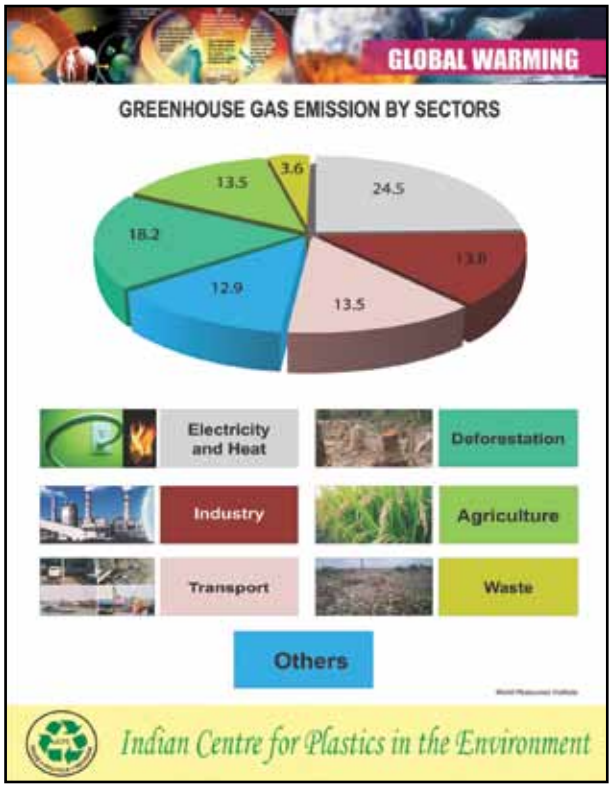
Mr. Don Roczniak, Sr. Director, American Chemistry Council, visiting ICPE Stall

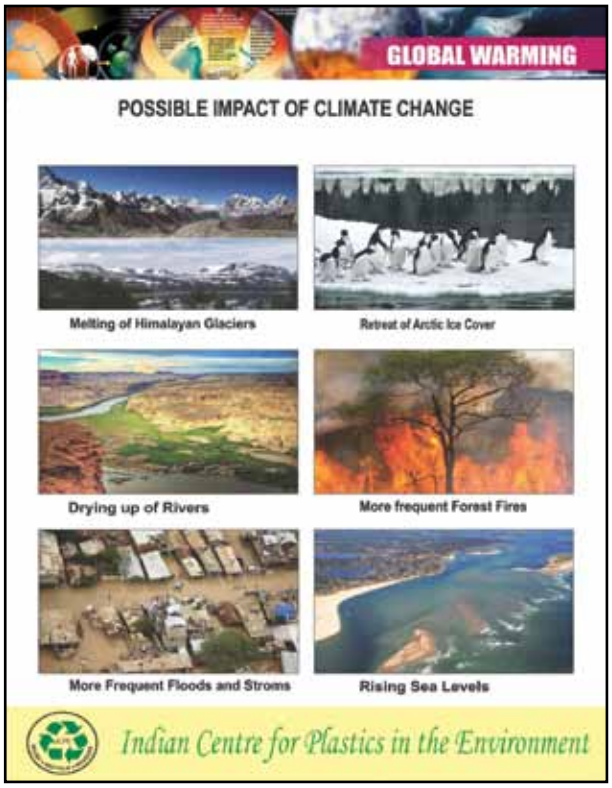
Delhi School Children viewing ICPE Awareness Film with keen interest

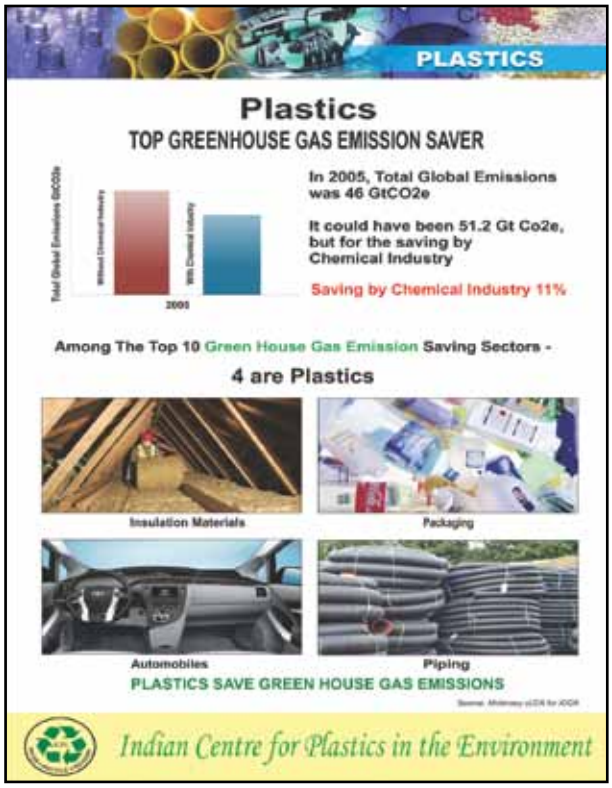
Plastics Industry Volunteer, during an awareness session with the Delhi School Children

ICPE PANELS AT PLASTINDIA – 2012



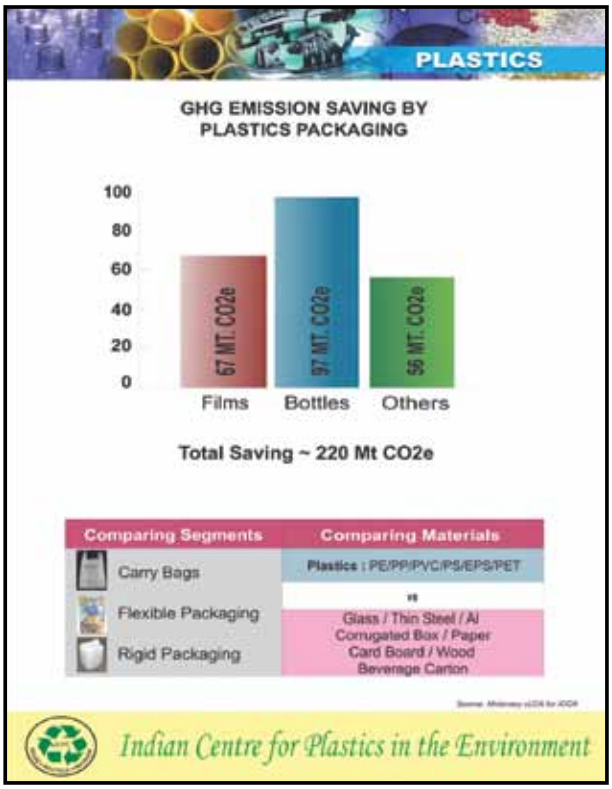


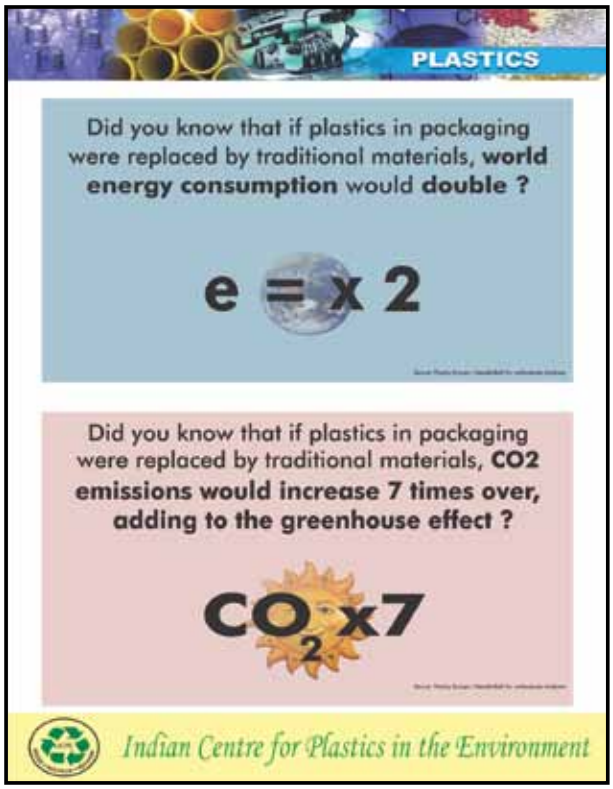


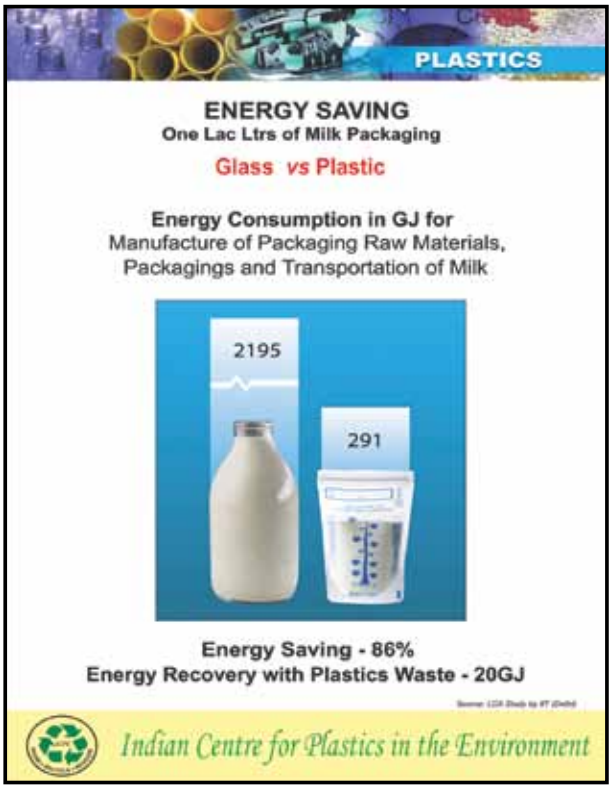


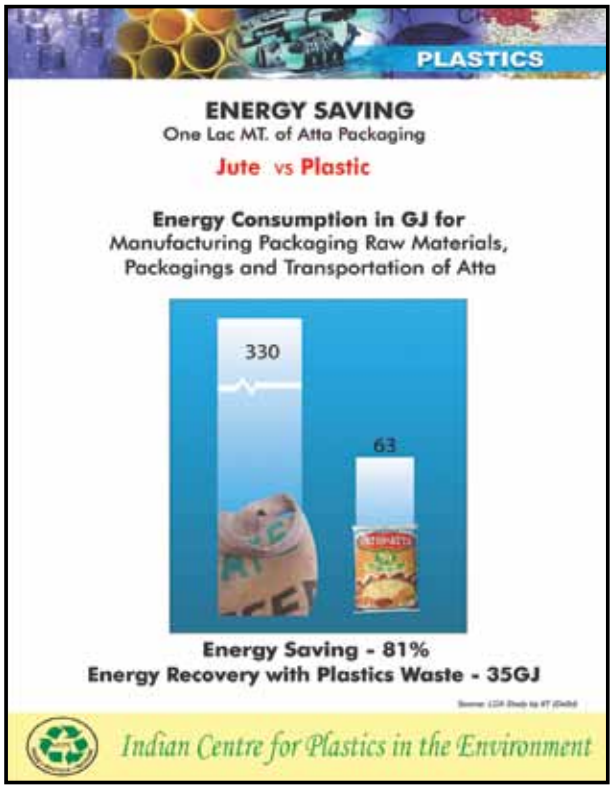
PLASTICS REDUCE GLOBAL WARMING

Climate change in the whole world after the Industrial Revolution era in general and in the recent past in particular is one of the most serious threats to public health and general safety across the world. Few people are aware of the cause and remedy. Scientists have revealed that Global Warming is a serious threat to human and other living bodies on earth. Various Green House gases which cause Global Warming have been identified and their intensity measured. Various activities, which cause the generation of Green House Gases, have also been identified. Water Vapour and Carbon dioxide are the most significant greenhouse gases. While water is not produced directly by humankind in significant amounts, industrial activities and deforestation have caused increase in the level of carbon dioxide, which can cause a substantial increase in temperature. There are some other Green House Effect creating gases like Methane (CH4), Nitrous Oxide (N_2O) etc whose intensities are more than that of CO_2. Governments



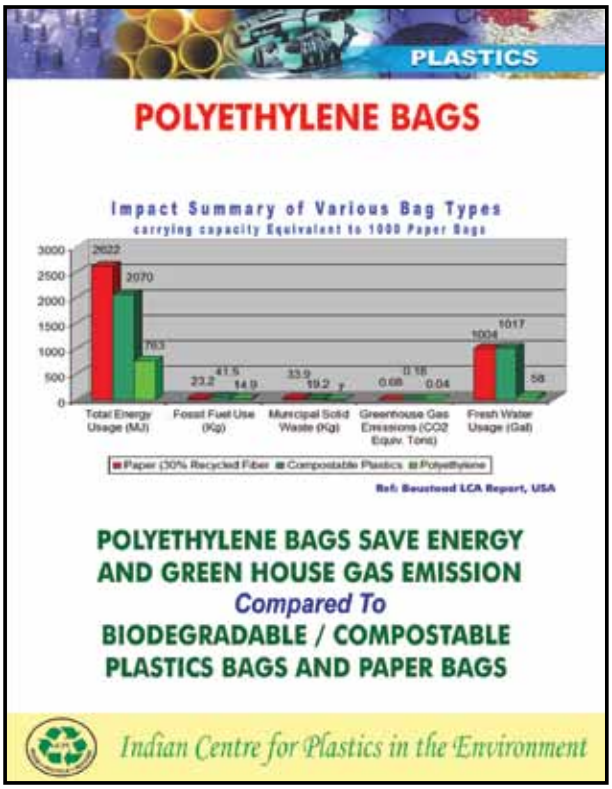


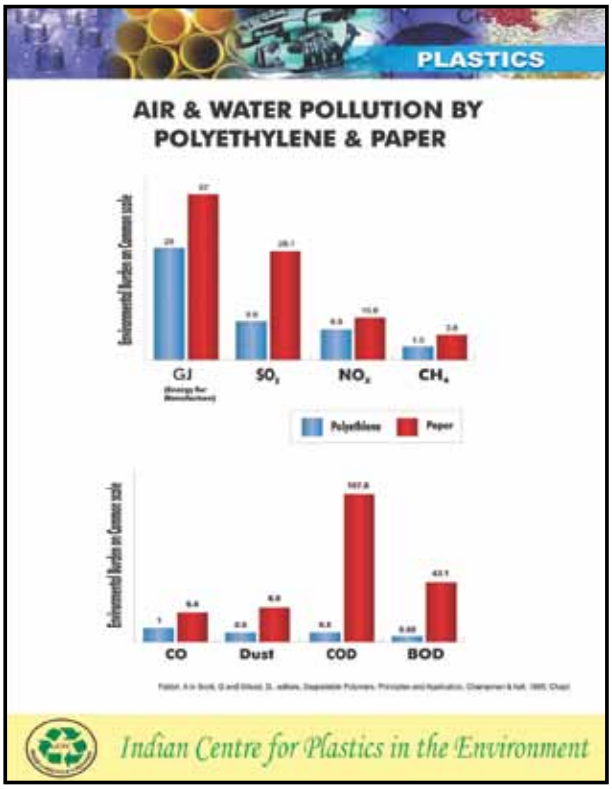


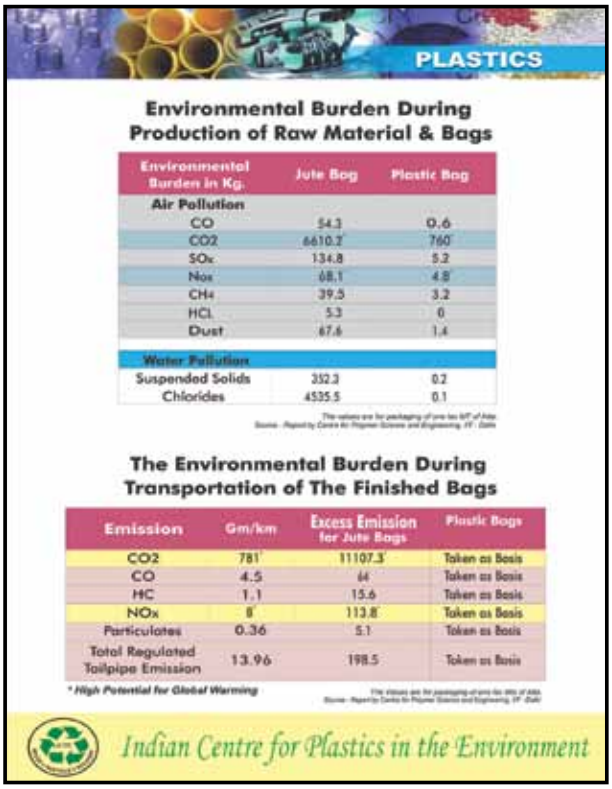


across the world are busy to find out actions to reduce the effect of Global Warming on earth. McKinsey, on behalf of International Council of Chemical Associations (ICCA), in its report submitted in 2009, revealed that the Global Emissions of Green House Gases in 2005 was 46 GT CO_2e. It was also assessed that Chemical Industries as a whole saved about 5 GT CO_2e in the world. It went ahead with its finding that Plastics constituted 4 among the top 10 Green House Gas savers in the Chemical Industry. The savings in MnT CO_2e were by the following sectors: – Insulation (2400), Plastics Packaging (220), Plastics in Automobiles (120) and Plastics Piping (70). Energy saving is considered as an important abatement measure in ensuring a low carbon situation. LCA studies in the packaging sector with products like Liquid Milk and Atta (flour) was conducted by IIT (Delhi). It is observed that plastics save 86% and 81% energy for manufacturing packaging raw material, packaging and transportation of milk and atta (flour) compared to alternative materials – glass and jute respectively.

ICPE PANELS AT PLASTINDIA – 2012

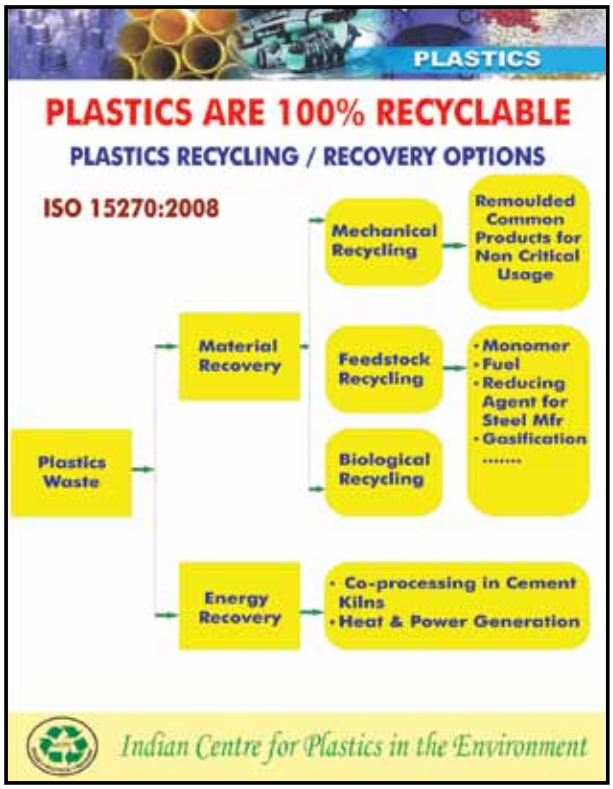


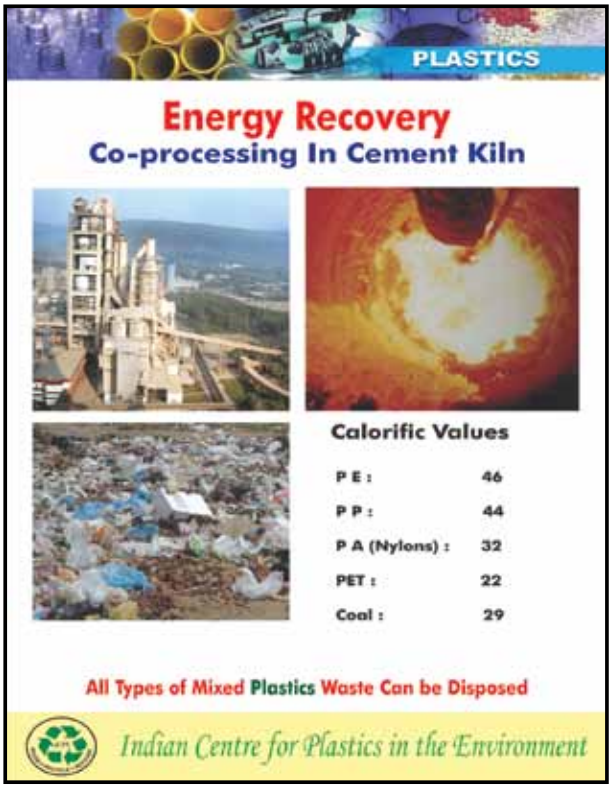


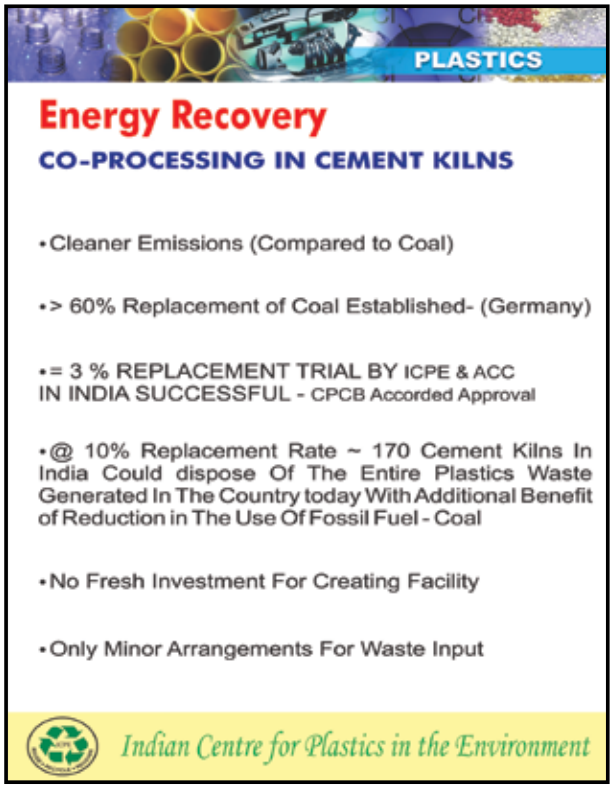


In general it has been estimated that if plastics packaging were to be replaced by alternative materials, world energy consumption would have doubled and CO_2 emissions would increase 7 times. Plastics carry bags save energy – both during its production as well as during recycling, reduce Green House Gas emission and save transportation fuel during delivery from the place of production to the place of consumption compared to paper bags and biodegradable / compostable plastic bags. Facts stand at scientific revelations that emissions during production of plastics are far less compared to those of alternatives. These excess emissions by the alternatives like paper and jute cause long term damage to the environment silently, which are not seen by naked eyes though. Plastics Waste, when not collected and not properly disposed of, create environmental damage by choking drains and creating other related problems. Segregation of plastics waste and making arrangements for its proper recycling is the most important solution to plastics waste management problem.

ICPE PANELS AT PLASTINDIA – 2012



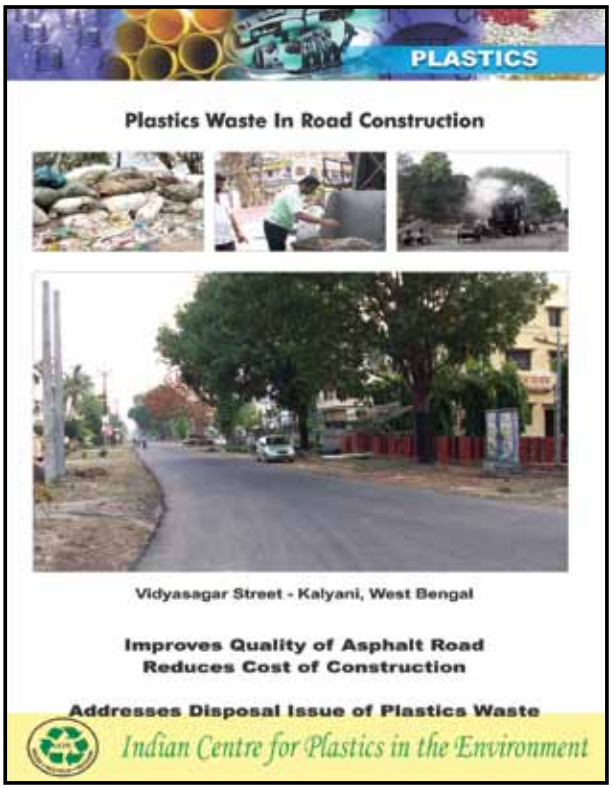


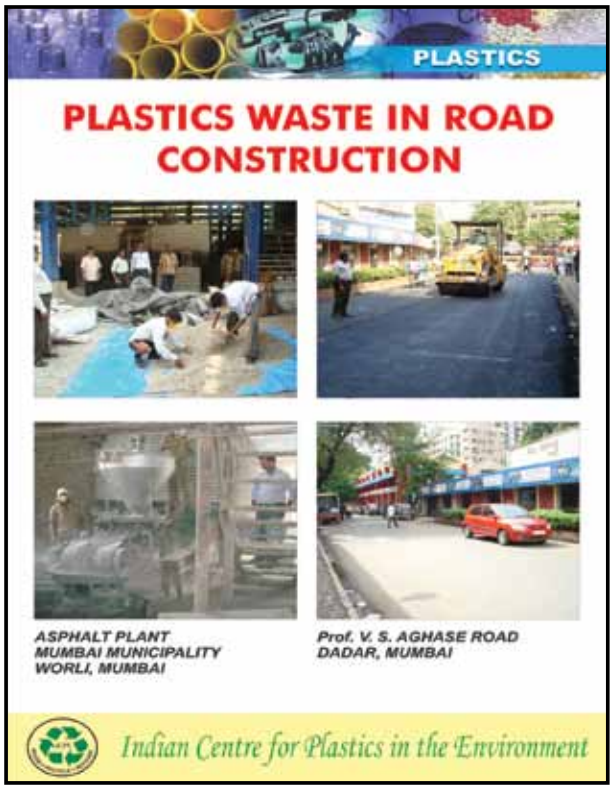


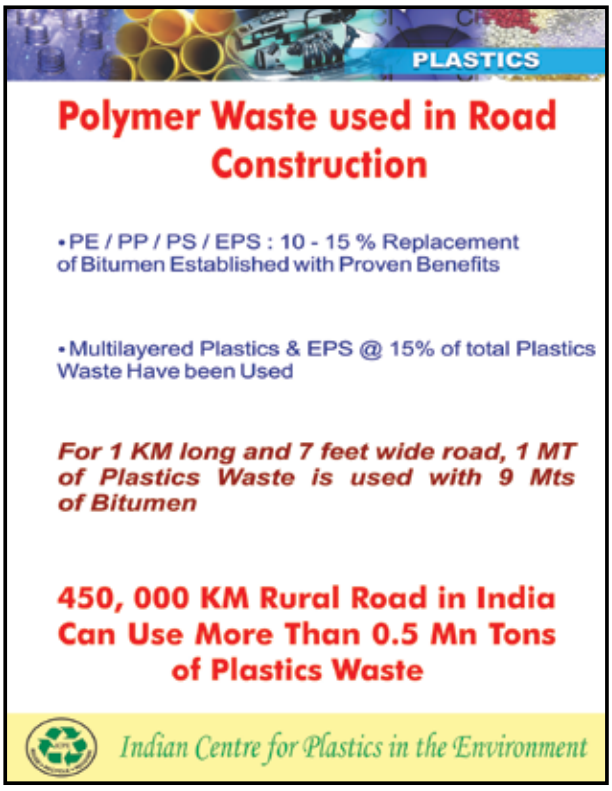
Energy Recovery: Co-Processing of Plastics Waste in Cement Kilns

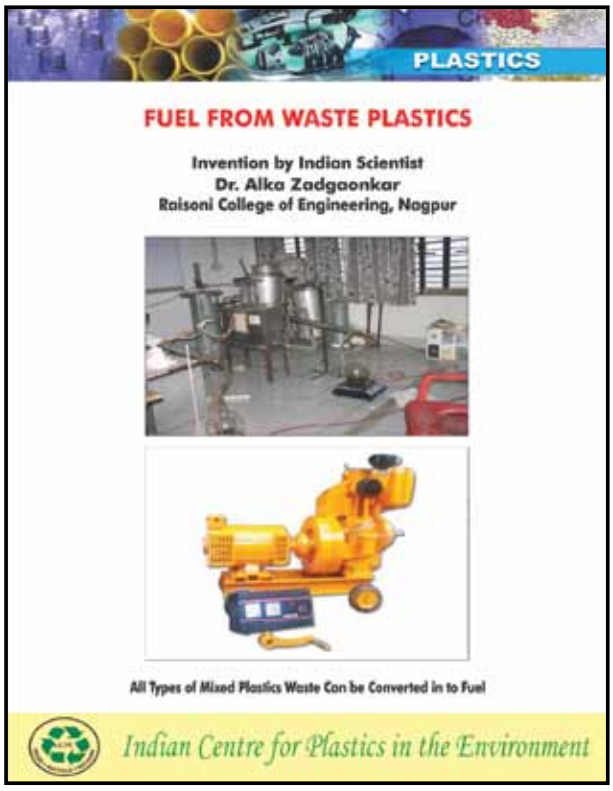
Plastics are 100% recyclable. Various methods of recycling / recovery have been described by International Standards. While mechanical recycling is the most adopted method worldwide, it requires clean and similar group plastics materials. When plastics waste get mixed up and when cleaning and segregation (into separate groups) is difficult, alternate methods of recycling can be adopted. Energy Recovery by co-processing in cement kilns is very advantageous. Plastics have higher calorific values than coal. This higher calorific value of plastics could be recovered in the cement kilns. There are lesser emissions of VOC's (Volatile Organic Chemicals) when plastics are burnt inside cement kilns at around 2000 °C. In Germany, 60% replacement of coal by plastics waste as the energy source

ICPE PANELS AT PLASTINDIA – 2012







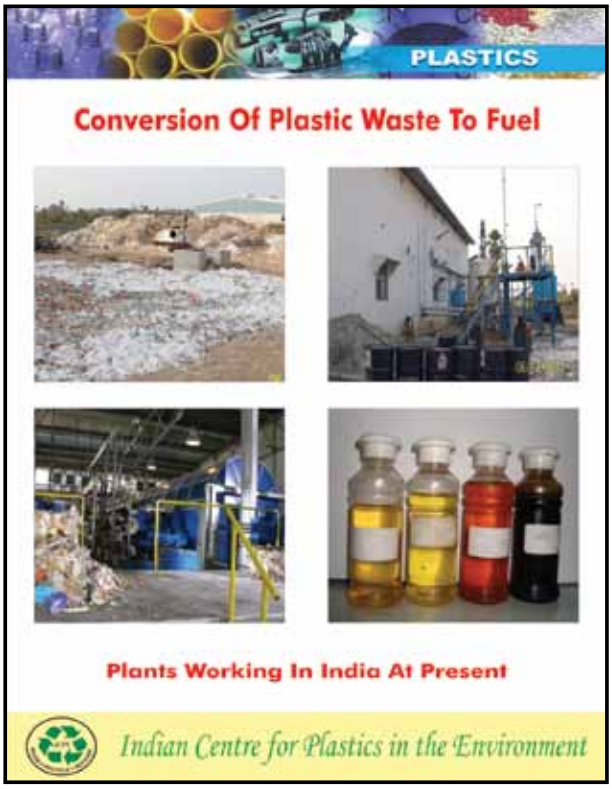


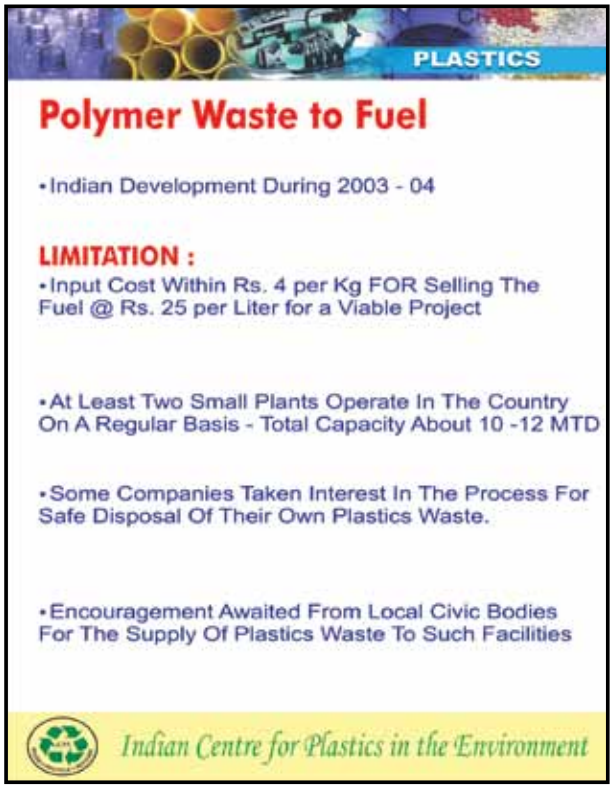
has been established. In India, ICPE & ACC Ltd took the initiative for the first time and the trial run at the Kymore Plant of ACC in Madhya Pradesh was successful. All the emissions were tested as per provisions laid down by the Central Pollution Control Board and were found to meet the requirement. 10% replacement of coal by plastics waste by about 170 odd cement plants in the country could scientifically dispose of about 2 Mn Tons of plastics waste – which however is not available.

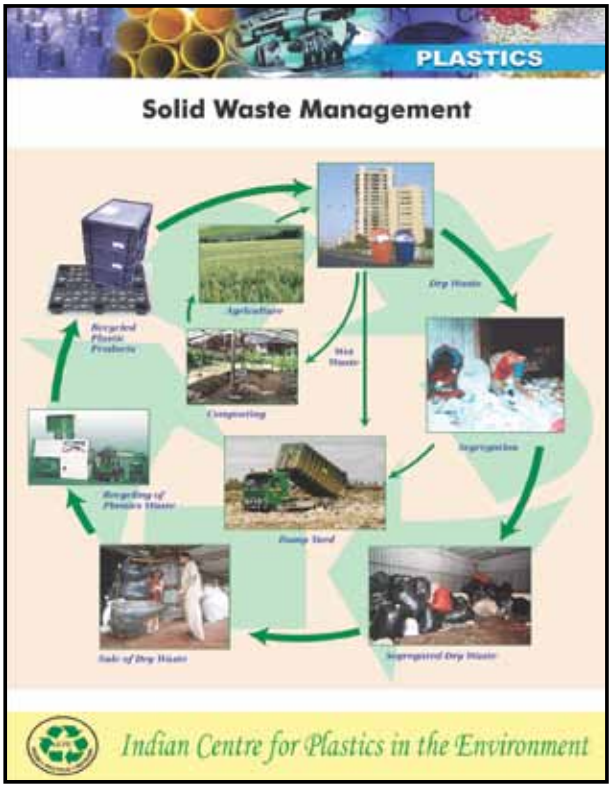
Plastics Waste for the Construction of Asphalt Road

Plastics waste mostly from flexible packaging system has been used successfully in the construction of asphalt road. At least two technologies have been developed and demonstrated in the country during the early 2000. ICPE has also developed a technology in 2007 - 08. In these processes, there is scope of using low-end plastics waste of the MSW stream by blending with Bitumen and / or Aggregates

ICPE PANELS AT PLASTINDIA – 2012

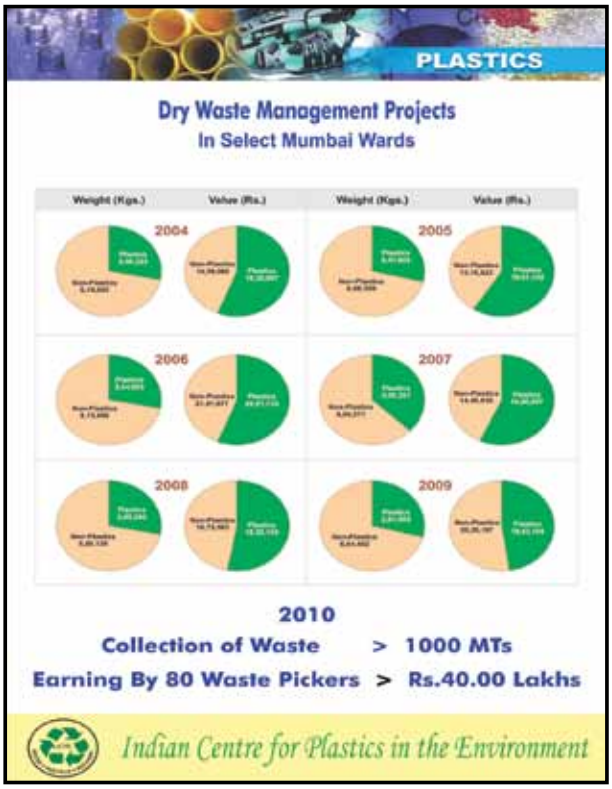






without elaborate cleaning and at the same time improving the overall quality and life of the road. The processes replace about 10 % of Bitumen in comparison to the normal technology. The cost of plastics waste being less than that of Bitumen, there is a scope of reduction of the overall cost of the road construction to that extent. ICPE has taken initiatives to popularise this technology throughout the country as this provides one of the answers to resolve the plastics waste management issue in an environment friendly way. Successful trials were conducted near Kolkata, in Mumbai and Delhi and other places. The technology is already very popular in the State of Tamil Nadu.

ICPE PANELS AT PLASTINDIA – 2012



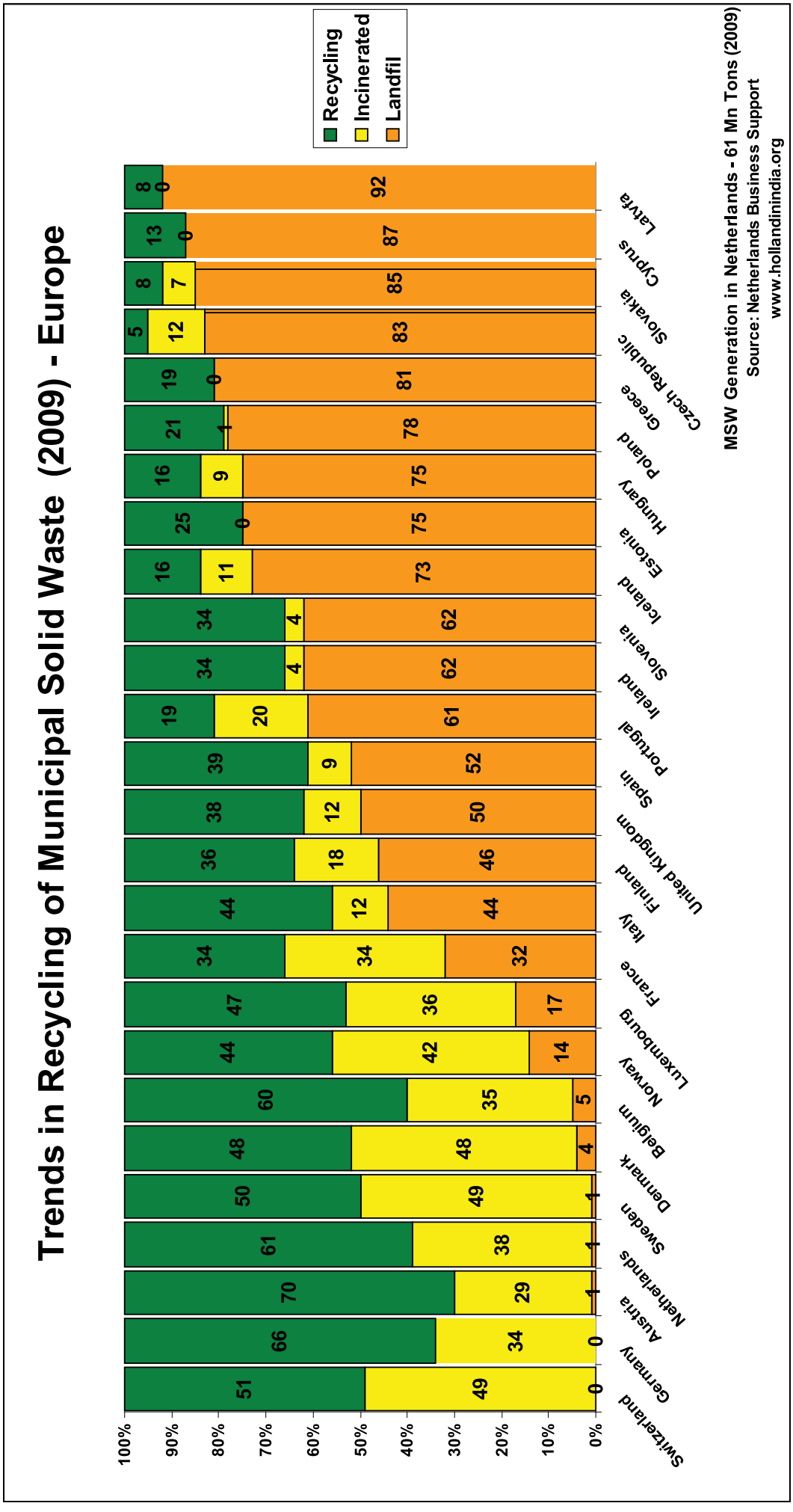
Fuel from plastics waste:
Mixed plastics waste can be converted in to industrial fuel in an environmental friendly technology without segregation and elaborate cleaning. Industrial Fuel made out of the plastics waste is a substitute of fossil fuel. Though commercial production has already started in the country in a small scale, State support and incentive is required for popularizing this technology among the entrepreneurs for its wide scale commercial utilization.

Reducing Agent in Blast furnace for production of iron
Plastics waste has been used as a reducing agent in the blast furnace for the manufacture of iron from its ore. Use of coke in the blast furnace provides only one type of reducing agent – Carbon Monoxide. In contrast, use of plastics waste provides one additional type of reducing agent – Hydrogen, besides Carbon Monoxide. The process also reduces generation of 'ash'.

A steel manufacturing facility having production capacity of 3 Mn Tons per anum, can consume 0.6Mn Tons of plastics waste. Japan is the world leader in using this technology. This is yet to be developed and practised in our country

Waste Management
All these processes can be adopted effectively when the Dry and Wet waste is segregated at the source of waste generation. Dry Waste, when get mixed with Wet Waste (food waste etc), it loses its value and waste pickers tend to abandon such mix-waste. Such mix- waste ultimately finds its place in the landfill or is simply remaining uncollected in the road side or in the drains causing environmental problems. Model segregation projects are available scattered in some cities of the country including the one in Mumbai. In one such Mumbai Municipality assisted project, more than 1000 MTs of Dry Waste was segregated by about 80 waste pickers in 2010

DATA SHEET


Trends in Recycling of Municipal Solid Waste (2009) - Europe
Recycling
Incinerated
Landfil
MSW Generation in Netherlands - 61 Mn Tons (2009)
Source: Netherlands Business Support
www.hollandinindia.org
Switzerland 51 49 0
Germany 66 34 0
Austria 70 29 1
Netherlands 61 38 1
Sweden 50 49 1
Denmark 48 48 4
Belgium 60 35 5
Norway 44 42 14
Luxembourg 47 36 17
France 34 34 32
Italy 44 12 44
Finland 36 18 46
United Kingdom 38 12 50
Spain 39 9 52
Portugal 19 20 61
Ireland 34 4 62
Slovenia 34 4 62
Iceland 16 11 73
Estonia 25 0 75
Hungary 16 9 75
Poland 21 1 78
Greece 19 0 81
Czech Republic 5 12 83
Slovakia 8 7 85
Cyprus 13 0 87
Latvia 8 0 92
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

THINK
Before You THROW

How to dispose waste wisely.

At Household Level

- Keep two waste bins or even two plastics garbage bags.
- Think and throw Dry Waste into one and Wet waste into the other.
- Instruct your sweeper to handle them separately.

At Society / Building Level

- Instruct the Sweeper to keep the collected Dry Waste and Wet Waste Separately.
- Construct two separate areas to store Wet Waste and Dry Waste.
- Local Municipality authority would arrange to collect the Dry Waste and Wet Waste

What is Dry Waste: Consists of plastics, paper, glass, cloth, rubber, metal, etc., i.e., all recyclable material. This forms nearly 70% of the volume of waste

What is Wet Waste: Consists of garden waste, kitchen waste such as fruit and vegetable peels, egg shells, tea leaves etc., i.e. all bio-degradable material

IT'S SMART TO SEGREGATE WASTE
because the waste generated in households, consists of

Dry Waste and **Wet Waste**
Most of the Dry Waste can be recycled for manufacturing useful items.
Wet Waste Can be composted / vermiculated to make manure for growing plants.

Do it - For the Sake of our Environment
Do it - Because it is now the LAW!

Issued in the Public Interest by

Indian Centre for Plastics in the Environment *in association with* **NGO'S, Plastics Associations and Responsible Citizens like you.**

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