



**Indian  
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Plastics in the  
Environment**

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ICPE NEWSLETTER



## *Solid Waste Management*

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

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## The PEAS/ICPE Project has taken off in Delhi

### Programme for Environmental Awareness in Schools

The project is a one academic year study and evaluation of environmental responses by children in individual, domestic and community contexts. The activities will concentrate on waste, its use and misuse. The objective is to provide knowledge, skills and attitudes to facilitate better use of waste by reducing, reusing and recycling.

Activities will initially aim at collecting baseline data of current status of attitudes to waste and measure change over the academic year. Activities will

enlarge both the teachers and the students.

The School Programme has started with the Inaugural meeting of about 50 teachers of 20 schools. ICPE booklets along with specially prepared questionnaires were distributed among 2000 students, who would fill up the questionnaires after the activity within a specified time. Teachers would monitor the students' activities during the project period and evaluate the result at the end of the programme.

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"It's My World," the National Art Contest for Children, was organized by ICPE in the year 2003-04. The poster contest challenging the imagination of school children received enthusiastic response. Over 3,500 school children from all over India participated in the art contest. A number of prizes were distributed to the winning entries.

The campaign was successful in creating awareness on cleaner environment among school children.

Encouraged by the enthusiastic response to the last year's programme, it is now planned to conduct a similar programme this year. The programme will provide children information on the benefits of plastics and how each one of us can use and dispose of plastics responsibly for the benefit of our Society and Environment.

Final announcement with details will be made shortly.

# Solid Waste Management in Mumbai

**Mr. Ajit Kumar Jain, IAS,**  
*Senior Advisor, Solid Waste Management Cell,  
All India Institute of Local Self-Government and  
Member, Executive Committee, ICPE*

## Background

Mumbai is the hub of the trade and commerce in India. It is a city of dreams for millions of people, who come here to earn their living and make a life for themselves. The census of 2001 has registered a population of 12 million in Mumbai in a comparatively small land area of 437 sq.km. This leads to high population density, congestion, and stress on the city infrastructure.

Rapid urbanization is not peculiar to Mumbai. Urban population in India rose from 21 million in 1901 to about 300 million in 2001. The increase is more marked in the second half of the last century. Similar trends are observed in other cities in the developing countries. According to a study by the United Nations, the level of urbanization is estimated to cross 50% in 2005, 60% by 2025. The study has projected the world urban population by 2025 as 5.2 billion, of which 77% will be living in the developing countries (United Nations, World Urbanization Project, New York 1993).

The rise in the urban population in India is more due to migratory trend of rural and semi urban population to the cities and towns. Failure of the city planning process to take cognizance of the irreversible trend and underlying socio-economic and political under-currents has led to a chaotic situation in the

cities. The city infrastructure and services are crumbling under the growing population pressure, and urban environment has deeply degraded. Inadequate management of municipal solid and liquid waste leads to highly unsanitary conditions in cities, with threats of epidemic diseases every now and then.

## Solid Waste Management in Mumbai

Mumbai is a classic example of urban mess. The city generates 6500 to 7000 metric tons of Municipal Solid Waste (MSW) a day. More than a crore is spent daily on its collection and disposal. Yet, its management leaves much to be desired. The situation is no better in most other metropolitan cities in the country.

The problem is accentuated in Mumbai due to high density and large proportion of slum population. The slum and pavement dwellers do not have access to proper conservancy services and dispose their waste in the public spaces – roads, drains or railway tracks. North-South layout of the city and unidirectional commuting of millions every day along with servicing hawkers contribute to littering of major roads. Paucity of land due to geographical limitations and Coastal Zone Regulations hamper scientific processing and disposal of waste. All these factors render waste management in Mumbai more

complicated and difficult, compared to other cities.

Management of MSW is a constitutional and obligatory responsibility of the Urban Local Bodies (ULBs). A study of Class I cities in Maharashtra by the All India Institute of Local Self Government indicates that the ULBs spend over a thousand rupees on per ton of waste generated in these cities. 70% of this expenditure goes towards the labour intensive activity of sweeping and 20% on the collection and transportation. The establishment accounts for more than 75% of the entire expenditure. The expenditure on the processing and scientific disposal of waste is a meagre 10%, the disposal is hardly scientific though.

The Municipal Corporation of Greater Mumbai (MCGM) spends over Rs. 400 crores on the Solid Waste Management of which more than Rs. 250 crores goes in the wages. 25,000 employees deployed largely for sweeping of the streets and collection of waste, are disproportionately higher in number in the city area than in suburbs of Greater Mumbai.

## Primary Storage and Doorstep Collection

One reason of unsanitary conditions in our cities is the absence of primary storage of waste and an efficient collection and transportation mechanism. Traditionally, the citizens deposit their waste in the community bins, placed at public places. The storage capacity at these points is often inadequate and clearance of wastes erratic, causing garbage heaps and unhygienic



conditions. Arresting the garbage at source by its storage and synchronized collection at the doorstep of the Generators is the first step towards improving city sanitation. This is also mandated by the Municipal Solid Waste Rules 2000 framed by the Government of India.

Primary storage of waste renders waste segregation enforceable. However, only 15% of the waste in Mumbai is collected house to house, rest is collected at the secondary storage stage from the community bins. This ratio needs to be reversed.

The Municipal Corporation of Greater Mumbai (MCGM) has already declared the segregation and storage of garbage at source mandatory. This should, however, be matched by an efficient house to house waste collection and transportation system throughout the city. In slums, with more than 60% city population, house to house collection can be introduced through the Community Based Organization (CBOs) under the Slum Adoption Scheme. The waste collected through hand carts, tricycles, auto rickshaws or similar modes can be transferred to community bins which could be lifted by a dumper placer/skip loader vehicles or compactors, and carted away to the landfill with narrow pathways through the slums; vehicles cannot access waste from house to house. Therefore, the system of keeping plastic containers in the passages for limited period for doorstep collection of waste and then removing them has proved successful in adopted slums.

### Decentralized Processing – Recycling Waste

The advantage of primary storage and collection of waste at the

doorstep is that it facilitates recycling of waste by removing the recyclables at source. While the doorstep collection may add to the collection cost, it is counterbalanced by the reduction in waste quantity. The associations of waste pickers or scrap dealers can be involved in the doorstep collection of dry waste. This has been successfully tried in pilot projects in Cuffe Parade, Parsi Colony, Dadar, and in Andheri. The same can be replicated in each ward of Mumbai through networking with NGOs and association of residents, recyclers, waste pickers, scrap dealers, etc. The NGOs can also be involved in the processing of the biodegradable waste like Stree Mukti Sanghathana, an NGO, working for women waste pickers has taken a contract in Tata Colony for collection of the dry waste and composting of the biodegradable waste. They are also involved in setting up small biogas facilities in the eastern suburbs.

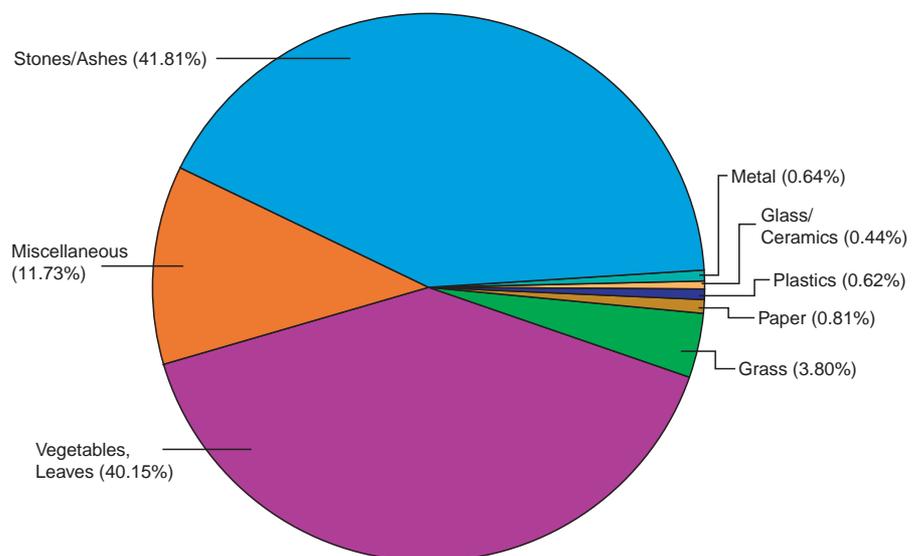
Segregated biodegradable waste can also be reduced within the ward by decentralized waste processing through simple

composting, vermicomposting or biomethanation. To begin with, the leaf litter, vegetable market waste and segregated hotel waste can be processed in the ward at the municipal land available. Biomethanation plants can be installed to process 5-10 tons of such waste in municipal hospitals, sewerage, pumping stations, municipal markets, garages, abattoir or school campus and methane which is useful for heating or cooking can be generated and commercially sold off for cost recovery. Efficacy of such Bio Gas plants has been successfully demonstrated by the Bhabha Atomic Research Centre (BARC) at its campus in Trombay. Outside BARC, first such plants have been installed in Centenary Hospital, Municipal abattoir in eastern suburbs.

### Institutionalizing Community Participation

MCGM has made pioneering efforts in involving community in waste minimization through the Advance Locality Management (ALM) concept. Around 600 such societies in different parts of the city are engaged in segregation

**Composition of Municipal Solid Waste**



Source: Management of Municipal Solid Waste, Central Pollution Control Board, Ministry of Environment and Forest.

and processing of waste at source. There is need to multiply the number of ALMs and incentivise the citizens for decentralized waste management. MCGM can consider a contractual arrangement with the Residents' societies or NGOs for this purpose and compensate them accordingly. It is estimated by the Loshi Lane ALM residents (the first ALM of the city) that the cost of Integrated Solid Waste Management by the residents is Rs. 8 per capita per month or Rs. 96 per annum. This includes the sweeping of roads, cleaning of storm water gutters, collection and decentralized waste processing and maintenance of the adopted area. This model can be tested in one unserved area first and then replicated if found successful. This may provide a legal framework to community involvement in city waste management and substantially reduce the cost of waste management.

### Secondary Storage

Notwithstanding a mandatory storage of waste at source matched by an efficient doorstep waste collection system, secondary waste storage is essential for waste transfer and particularly in areas of bulk waste generation such as slums. The MSW Rules 2000 mandate prohibition of littering through the provisions of community waste storage bins. There are about 5500 waste collection points in Mumbai, where more than 6000 storage bins have been placed. Most of these receptacles are open and bottomless or are open RCC refuse bins which require manual and multiple handling of waste.

The MSW Rules 2000 provide for closed type bins of prescribed colour code, i.e., white for recyclable waste, green for biode-

gradable and black for debris and inert waste. The bins should be compatible with the transport vehicle and facilitate mechanized loading, avoiding manual and multiple handling of waste.

With a general shift from secondary collection to primary collection of waste at the doorstep of the generators, the garbage collection points can be substantially reduced to 20% or even less. Secondary storage will be required more in the slums or in areas with very heavy waste generation, viz., markets, railway stations, hawking zones. With reduced requirement, the MCGM will do well to replace the existing open bins with covered skip containers or compactor trolleys or even stationery compactors.

Staff must be posted in minimum two shifts to guard, maintain these points neat and clean.

Mumbai typically has a very high volume of floating population and daily commuters. Almost 65 lakh people traverse the city every day by different modes of transport. This necessitates installing litter bins on the pavements at a distance varying from 20 to 250 metres depending on the area. Litter bins will facilitate the commuters to deposit the waste in hand in such bins rather than littering the roads. These bins can be installed and maintained through sponsors or associations of traders/business groups.

Once the storage and collection system improves, the pressure on

<b>Municipal Solid Waste Generation in Metro Cities</b>		
<b>City</b>	<b>Municipal Solid Waste (TPD)</b>	<b>Per Capita Waste (kg/day)</b>
Ahmedabad	1,683	0.585
Bangalore	2,000	0.484
Bhopal	546	0.514
Chennai	3,124	0.657
Coimbatore	350	0.429
Delhi	4,000	0.475
Hyderabad	1,566	0.382
Indore	350	0.321
Jaipur	580	0.398
Kanpur	1,200	0.640
Kochi	347	0.518
Kolkata	3,692	0.383
Lucknow	1,010	0.623
Ludhiana	400	0.384
Madurai	370	0.392
Mumbai	5,355	0.436
Nagpur	443	0.273
Patna	330	0.360
Pune	700	0.312
Surat	900	0.600
Vadodara	400	0.389
Varanasi	412	0.400
Visakhapatnam	300	0.400

*Source: Management of Municipal Solid Waste, Central Pollution Control Board*



sweeping will naturally come down. However, all major roads in the city will require cleaning every day. Major roads must be cleaned by night. This was experimented in Mumbai in 1999 with good results.

Cities like Hyderabad and Surat clean their major roads at night. Night cleaning can be contracted out in case the regular staff is unwilling to do this.

### **Efficient Collection and Transportation System**

Collection and Transportation of 100% waste on a daily basis is an imperative of the MSW Rules. In Mumbai, the collection and transportation is carried out largely through the departmental work force using partially departmental vehicles and partially vehicles provided by the contractors. Recently contracts have been awarded for collection and transportation in unserved areas in which both vehicles and staff are provided by the contractor. Thus, at present, there are three systems in operation. Some of the lacunae in the waste collection and transportation system in Mumbai are as follows:

Firstly, there is an area overlap of departmental vehicles and contractors fleet, making it impossible to fix accountability on either side. It is therefore advisable to delimit area within the zones or ward for the departmental and contract collection and transport.

Secondly, the capacity utilization of the departmental fleet needs improvement. Dual control on the waste loaders and vehicle staff results in low efficiency. Combination of private vehicle and municipal loaders is not an efficient system for the private waste carriers as well. It may be

considered to man only departmental vehicles by the municipal staff. Contractors could be allowed to deploy their own staff to maximize the efficiency of their fleet.

Thirdly, the system of storage and types of vehicles are often not compatible. Thus, one finds a mechanically liftable bin being emptied manually raising the cost of collection.

Fourthly, the vehicles are engaged on the shift or trip basis resulting in more vehicles and trips without commensurate results. MCGM has now installed electronic weigh bridges at its landfill sites and introduced weighment criterion. This should be applicable to both departmental and private operations. Departmental staff could be incentivised for extra load carried and penalized for under utilization of the machinery and staff.

The private operations fill up their vehicles to the brim, once weight is the major parameter for valuation. Along with weight, the inspection reports of the supervisory staff and citizens' complaints should also be considered for performance evaluation, in-built incentives for segregation and recycling of waste should be an essential component of collection and transportation systems.

### **Micro Planning**

One reason of high cost of waste management in Mumbai is the absence of micro planning. Mumbai's population is almost one-fourth of the state's urban population and the waste generation is more than 40% of the state's figure. Even an administrative ward in Mumbai is bigger than many Class I cities in the state. Thus, micro planning at an

electoral ward or conservancy section for storage, collection, decentralized processing and transportation of waste should be considered. This will ensure an effective participation of the elected representatives, NGOs and citizens in planning and waste management process.

An average population of an electoral ward in Mumbai is about 50,000 and waste generation nearly 30 tons. It will be easier to plan at this scale. An electoral ward could be serviced totally by the departmental work force or by a contract arrangement for collection and transportation of waste. Ideally even the sweeping operations should be with the same agency. MCGM should use the experience of ALMs and the involvement of the NGOs in micro planning for the waste management. Possibilities of processing and recycling of segregated waste within the electoral ward must be explored. Processing of even five tons of waste per ward will reduce nearly 25% of the biodegradable waste generated.

### **Scientific Disposal**

A city with 12 million population and 7000 MT of waste/day has to provide scientific processing and disposal facility. Currently, Mumbai has three landfills at Deonar, Gorai and Mulund with areas 110 ha, 15 ha, and 25 ha respectively. Deonar receives nearly 70% of the waste.

The Mandate of the MSW Rules was to improve the existing landfill by December 2001. It is advisable that the MCGM takes measures on the warfooting to upgrade the existing sites. Pune, Pimpri-Chinchwad, Nashik, Hyderabad, Bangalore, etc., have surged ahead in this area. The waste should be sanitized

through a biological process to treat the waste and avoid the nuisance of stench, flies, birds and rodents. This also reduces the waste to 50% by volume due to evaporation and stabilization process. Further, construction debris which accounts for 35% of the waste should not go to the landfills and can be stored within the wards and either processed to make bricks or tiles or reused for construction activity.

### Centralized Processing

If the waste is processed on the above lines, the existing landfills duly upgraded into sanitary landfills, can last more than 5 years. The life can be extended if three Waste to Energy projects of 1000 TPD each and two compost projects of total 800 TPD capacity (already contracted) are commissioned during next two years. Mumbai should not rule out the option of Waste to Energy (WTE) technology especially the one based on anaerobic composting or biomethanation. This technology though more capital intensive requires smaller area compared to aerobic composting and is more efficient in terms of waste

reduction, cost and resource recovery. The possibility of getting Clean Development Mechanism Funds established by the United Nations Framework Convention on Climate Change (Kyoto Protocol) should be tapped to partially balance the capital investment. Incidentally the first such plant is shortly being commissioned in Lucknow which may obviate much of the fears about the WTE technology.

### Institutional Waste

Additionally, waste generated by the large public sector and private sector institutions such as Railways, Mumbai Port Trust, Airport Authority, RCF, Godrej, clubs, etc., should be processed and disposed of within their premises. Only processing rejects should be allowed to be transported to the upgraded landfills and tipping fee should be charged to the generators to motivate them to minimize their waste.

### Enforcement

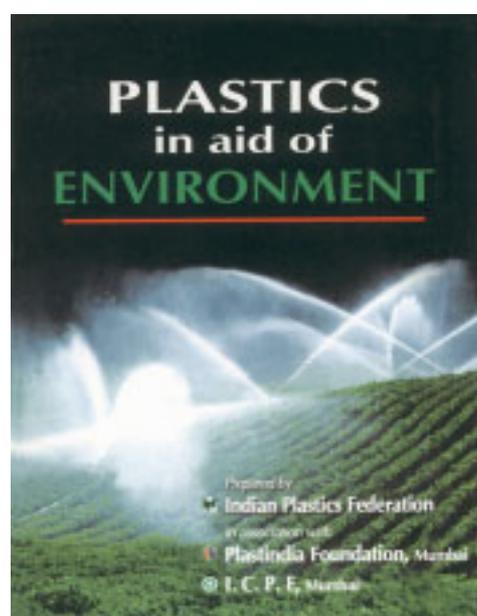
The MCGM has prohibited littering and mandated storage and

segregation of waste at source. Yet it is required to be enforced more effectively. The nuisance detection squads need to be strengthened and more squads raised to have visible impact. It may be worthwhile to involve NGOs in this area primarily for awareness building and then for nuisance detection.

### Conclusion

Processing of waste at source by residents, recycling of dry waste, decentralized waste processing within the wards, separate collection and disposal of debris, centralized processing of waste into energy and compost and restricting the institutional waste, can significantly reduce the waste and enhance the life of upgraded sanitary landfills.

It is high time that the city guardians, administrators, Government, and NGOs and the citizens join hands to make concerted efforts for the revival of the Mumbai and upgrade the city into a world class metro. This is essential not only for its improvement and growth but also for its very survival.



“ Plastic is a great boon to this age. Its utility is enormous. We cannot think of our life without plastics. However our ignorance about its use and indiscriminate littering is turning it into a bane. A proper management of the Plastic waste is the only remedy to solve this problem. So, let not say “No to Plastic” rather let’s say “To know Plastic”. Our positive and conscious approach may cover life comfortable while keeping our environment pollution-free. Hope this booklet will convey this message to masses and reveal many unknown facts about plastics. ”

**Prof. Dr. Sudip K. Banerjee**  
Chairman,  
West Bengal Pollution Control Board

*Preface in the booklet “PLASTICS in aid of ENVIRONMENT” prepared by Indian Plastics Federation in association with Plastindia Foundation, Mumbai and I.C.P.E., Mumbai*



## ICPE Participation at FICCI Environment Conclave 2005



*On the dais (L to R): Dr. V. Rajagopalan, Mr. Onkar S. Kanwar, Hon. Minister Shri Namo Narain Meena, Dr. Pradipto Ghosh and Mr. Salil Singhal.*

ICPE participated in FICCI Environment Conclave on Sustainable Waste Management – Public-Private Partnership and Business Opportunities for Industries. The Conclave was supported by the Ministry of Environment and Forests (MoEF), Central Pollution Control Board (CPCB), The World Bank, International Finance Corporation and USAID. The Conference attempted to identify areas of public-private partnerships and promote waste management as a business opportunity in areas of Industrial Hazardous Waste Management, Municipal Solid Waste Management, Bio-medical Waste Management and Waste Water Treatment.

The Conclave was inaugurated by Shri Namo Narain Meena, Hon'ble Minister of State for Environment and Forests, Govt. of India. Dr. Pradipto Ghosh, Secretary, MoEF, GoI, Dr. V. Rajagopalan, Chairman, CPCB, Mr. Onkar S. Kanwar, President, FICCI, Mr. Salil Singhal, Chairman, FICCI Environment Committee, Dr. R. Mandal, Adviser (E&F), Planning Commission, GoI, were among the main

dignitaries who attended the Conclave.

Some of the important information shared during the Conclave were:

- Solid Waste Generation in India today is approximately 1,00,000 MT per day.
- Hazardous Waste Generation in India is approximately 4.3 million tons per annum.
- 85 Common Waste Management facilities have been created in India till the end of 2004.
- 70% of Hazardous Waste is generated by 5 States : Andhra Pradesh, Gujarat, Karnataka, Maharashtra and Tamil Nadu.



*Mr. T. K. Bandopodhyay of ICPE making a point. Dr. J. D. Desai of IICL seen on his left.*

- 40 MT of MSW can be composted to 8 MT by weight. Fertilizer subsidy by the Union Government is Rs. 14,000 crore per year. A small part of this amount was proposed to be given to composting sector for encouraging the activity. The use of this compost in the agricultural field would reduce the use of synthetic pesticides drastically.
- 100 MT of MSW can generate 1 MW of power. One unit near Hyderabad generates 6.6 MW power from 500 MTD of MSW.
- Use of biodegradable plastic bags for collection of bio-medical waste at some of the hospitals was debated. It was opined in the open forum of the Conclave that as the bio-medical wastes are either incinerated or specially treated before any other mode of disposal, there is no need for using biodegradable plastic bags for this purpose.

### Other points discussed during the Conclave:

Any plastic bag including biodegradable plastic bag should not be used for wrapping food wastes for disposal. (Issue raised by ICPE, supported by Ms. Almitra Patel and Mr. P. U. Asnani and others).



*Ms. Almitra Patel and other delegates discussing an issue.*



The Conclave discussed mainly on hazardous wastes, bio-medical wastes and common problem of disposal of Municipal Solid Wastes. There was no reference of plastics during the general discussion. Reference of use of plastics for road construction was widely discussed. Some delegates wanted to know more authenticated information on this subject. They were advised to refer to Tamil Nadu Government Site on the subject as well as ICPE websites for detailed information.

Dr. J. D. Desai of IPCL's HSE Department raised the point on the lacuna in the Maharashtra Government's policy on not giving permission to corporates to have their own hazardous waste management disposal system.

The deliberation during the Conclave was very useful and free exchange of ideas among the delegates and the policy makers helped everybody to update their information on the present status of Solid Waste Management System in the country.

## **Excerpts from the inaugural address of the Hon. Minister Shri Namoi Narain Meena**

The three important components of sustainable development are economic development, social development and environmental protection are interdependent and mutually reinforcing pillars. Poverty eradication, changing unsustainable patterns of production and consumption and protecting and managing the natural resource base of economic and social development are overarching objectives of, and essential requirements for, sustainable development.

Significant increase in municipal solid waste has also been reported. As per report of the Energy and Resources Institute (TERI), the waste generation per capita is increasing at the rate of 1 to 1.33% annually. Under the business as usual scenario, the total waste generation within next five decades would multiply five times the present level of about 50 million tons per day. As urbanization continues to take

place, management of solid waste is becoming a major public health and environmental concern.

Environmentally sound waste management, be it, industrial, hazardous or municipal is required to face the challenging task.

Some of the revolutionary waste management solutions have been demonstrated through bio-methanation, composting, etc., which are innovative and need to disseminated and used on a large scale. The development of such model environmental friendly solutions are based on a vision of a sustainable future, which attempts to convert waste into a valuable resource.

The industry, therefore, should encourage with public-private partnership, a green supply chain for products and processes and waste to energy technologies, etc., keeping in view the "life cycle" concept.

### **ICPE as Envis Centre**

MoEF has converted ICPE Envis Node to ICPE-Envis Centre w.e.f. July 2004 and considered continuation of its support to this Centre, as a member of Envis Network.

This has been the result of the effective contributions made by ICPE Envis Node towards the programme on Environmental Management Capacity Building Technical Assistance Project.

### **Website hits**

ICPE websites – [icpenviro.org](http://icpenviro.org) and [envis-icpe.com](http://envis-icpe.com) provide useful information on plastics and environment including Solid Waste Management with special reference to Plastics Waste.

The sites have created growing interest among the net surfers as can be seen from the increasing number of hits.

#### **[www.icpenviro.org](http://www.icpenviro.org)**

<b>Months</b>	<b>Hits</b>
January	12,253
February	12,883
March	12,049

#### **[www.envis-icpe.com](http://www.envis-icpe.com)**

<b>Months</b>	<b>Hits</b>
January	28,289
February	43,195
March	56,671



## Events



## ICPE Participation

**25th-28th Feb. 2005, Chennai Trade Centre, Chennai**

The ICPE put up its Theme Pavilion at the above exhibition exclusively devoted to the area of plastics, organized jointly by the Tamil Nadu Plastics Manufacturers Association (TAPMA) and the counterpart associations from Andhra Pradesh, Karnataka and Kerala and Central Institute of Plastics Engineering & Technology (CIPET), Chennai.

Welcoming the exhibition participants, invitees, dignitaries and specially the Chief Guest His Excellency, Shri Surjit Singh Barnala, Governor of Tamil Nadu, Mr. C. K. Sekar, President, TAPMA, observed that this maiden effort by the joint participation of the associations in the Southern States with CIPET-Chennai and blessings of the Plastindia Foundation will indeed lay the foundation for similar events in the future spreading the expanded entrepreneurship and use of plastics in this part of the country.

Mr. Mahesh Shah, President, Plastindia Foundation, requested the Industry and the Government to address the Plastics Waste Management in an appropriate manner and remove the myth in the minds of the public – that plastics litter the atmosphere and the fact that littering in effect is caused by the consumers. The realization needs to be driven home effectively considering the proposed quantum jump in plastics consumption in the country.

The Joint Secretary, Ministry of Chemicals and Petroleum addressing the gathering highlighted the advantages the plastics industry offers to the country and the benefits derived from thereof. He assured all possible help from the Government in the earnest use of plastics in the economic development of the country.

The Chief Guest, His Excellency Shri S. S. Barnala recalled the debates on sacks for foodgrains, cement, fertilizers in the earlier years and observed that since then the perceptions have changed. He added that plastics play a significant role in everyday life of all in as much as plastics in one form or the other finds an inroad in every conceivable application. It is necessary to understand the util-



*Visitors – ICPE Theme Pavilion*



ity of a product and display the same for economical benefit of all, he concluded.

In his address, Dr. Sushil K. Verma, Director General, CIPET, said that the strong link established between the associations and the Institute has helped to revitalize the subject of plastics and such shows and conferences should take the goal forward.

The Theme Pavilion with an area of 225 sq.mtr. was put up at the entrance of the exhibition site. The display panels highlighted the concepts and use of plastics as well as better and beneficial utilization of used plastics, possible adoption of

plastics recycles into various usable forms and the overall benefits they stand to offer particularly in the context of environmental aspects. The text matter with illustrations depicted through a series of panels were also supported with actual products produced from recycles that included partition boards, blankets, straps, consumer and industrial products, chains and fuel sample from post-consumer wastes.

The efforts to convey that waste plastics are not pollutants was further augmented by a continuous film show (in a separate block built within the stall), an internet connection to access ICPE website and a discussion room.

English/Tamil versions of the ICPE publication – “Plastics &

Environment – Point Counterpoint and Frequently Asked Questions.” were distributed to the visitors.

The visitors profile was a mix of general public, business community, potential entrepreneurs,



*Memento for the Theme Pavilion*

academic community and significantly, a large number of school children with their faculty.

Considerable interest was witnessed for technology and source availability, for the Partition Boards and PET recycle-based Blankets. The social representatives also evinced keen interest to have educative programmes and more literatures.

### Conference

ICPE co-sponsored the Conference, held on 26th-27th February, 2005 at Le-Meridian, on the occasion of the exhibition. The Conference was organized by CIPET.

The paper “Plastics and Environment” was presented by Mr. P. V. Narayanan, Advisor ICPE, on 27th February, 2005.

## ICPE's Advertisement wins National Award!

ICPE had launched an awareness campaign in mass media to highlight the benefits of plastic to the society at large. The campaign was launched in various languages.

ICPE's advertisement in Tamil, which appeared in the Tamil version of India Today dated 24th March, 2004, has won the prestigious Kalki Sadasivam Memorial Trust Award for the year.

The award instituted by the Kalki Sadasivam Memorial Trust is given every year to the best advertisement with good creativity, attractive visual and copy matter besides, a touch of social purpose.

Dr. Sushil. K. Verma, Director General, CIPET, and Member Executive Committee, ICPE received on behalf of ICPE, a memento as a mark of recognition and appreciation for having sponsored the prize-winning advertisement at a function held in Chennai on 12th March, 2005.





## Participation in SPMA's 9th Seminar

**Rajkot-29th January, 2005**

Saurashtra Plastics Manufacturers Association had organized its 9th Seminar at Rajkot wherein this members of SPMA and leading personalities connected with Plastic Industry, senior officials of Rajkot Municipal Corporation, along with other dignitaries participated. This Seminar was inaugurated by Shri Vajubhai Vala, Hon'ble Finance Minister, Gujarat State. Shri Sujit Banerji, President, Polymers & Olefins Business, RIL and Executive Secretary, Member, Executive Committee, ICPE was the Chief Guest.

The business session was on the topic of "Plastic is option, No option for Plastic". A team of five expert speakers from renowned industries and connected fields presented their papers.

In the Seminar it was emphasized that Plastics Waste Management is the only alternative to environmental problems for which certain agencies like Civic authorities, Plastic Industry, Govt. and Community base support through NGOs can do something jointly for clean & green environment.



*Hon'ble Minister Shri Vajubhai Vala is seen lighting the lamp. Shri Sujit Banerji, Chief Guest and other dignitaries look on.*



*Technical Session in progress.*

## ICPE - EC Meeting

ICPE held its combined Executive Committee and Governing Council Meeting on 27th January at Board Room, Plastindia Foundation.

Another Meeting of its Executive Committee was held on 29th March, 2005 at AIPMA House.

During these meetings, ICPE's activities were reviewed and the Plans for the year 2005-06 were made.



*ICPE-EC Meeting in progress at AIPMA House, on 29th March, 2005.*

## International News

### Joint Capacity Development Project under EU-Asia link Programme

The EU-Asia Pro Eco II Programme is a regional co-operation programme between Asia and the EU within the realm of the environment. In order to tackle the most environmental issues which may have a negative impact on the welfare and health of the increasing numbers of Asian city dwellers, this programme has adopted an urban focus which builds upon the environmental achievements of two earlier programmes : EU-Asia Pro Eco and EU-Asia Urbs I + II. The programme aims to:

- Enhance capacities to improve the existing environmental quality in urban contexts, and plan for new or expanding settlements in a sustainable way;
- Improve mutual understanding and awareness by and between stakeholders and local urban communities in Europe and Asia of environmental issues;
- Facilitate local implementation of international environmental agreements in different urban contexts;
- Provide solutions for improved living conditions for vulnerable Asian city dwellers identified and provided;
- Involve local urban populations in environmental management and planning;
- Implement and exchange innovative technologies, policies, measures and techniques to address existing environmental problems that affect city or town.



*Dutch Team visit to ICPE: Clockwise from left: Dr. Kasteren, Mr. Vijay Merchant, Dr. Patrick, Mr. K. G. Ramanathan and Dr. D. D. Kale.*

Under this programme, an application to undertake a project titled “Joint Development of Clean Technologies for the Recycling of Plastics” were made jointly by Faculty of Chemistry and Chemical Engineering, Eindhoven University of Technology, Eindhoven, The Netherlands, the University Institute of Chemical Technology (UICT), formerly known as UDCT, Mumbai University and ICPE. The Dutch Team comprising Dr. Ir. J. M. N. Van Kasteren and Dr. Patrick van Schijndel visited Mumbai, who were taken to a representative plastic recycling plant near Mumbai. A joint proposal has been submitted to the EU Commission for approval.

### City of Tomorrow and Cultural Heritage

Within the European Union’s 5th Framework Programme for Research, Technology Development and Demonstration (RTD), launched in 1999, six projects of the action line “Sustainable city planning and rational resource management” (Key Action “City of tomorrow and cultural heritage”) successfully developed decision-making tools for sustainable Municipal Solid Waste (MSW) Management.

The six projects were subsequently organized in a cluster

project that aims to provide waste solutions for local authorities – the Waste Solutions – European Urban Waste Management Cluster Project (EUWMC); [www.wastesolutions.org](http://www.wastesolutions.org).

The cluster brings together decisionmakers and practitioners from local authorities with researchers, with the aim of contributing to policy and technology development on waste management and avoidance.

On 14-15 March 2005 in Orléans, France, the Waste Solutions Clus-

ter will host the conference AWARE – Avoidance and Management of Municipal Solid Waste in the EU/25 and Mediterranean countries: New and future research, a common forum aiming to synthesise current research on urban waste management with the actual situation and needs of EU and Mediterranean municipalities.

The AWARE Conference will also provide recommendations regarding the directions Applied Research should take in the future.



## Initiative

# Awareness Programme among School Children



*Mr. Rajiv Tolat making the presentation.*

ICPE has been in fore-front in organizing programmes in schools to create Awareness on Waste Management and Clean Environment amongst school children.

ICPE, Maharashtra Plastics Manufacturers' Association (MPMA) and Plastindia Foundation jointly organized an Environmental Awareness Programme in Panchagani, Maharashtra, during 4th and 5th March, 2005. Mr. Rajiv Tolat, Member, Executive Committee, ICPE, Mr. Gopal Rathi, President, MPMA and Mr. Bansilal Lunkad, Plastindia Representative for Educational and Awareness Programme in Maharashtra, visited the schools in the area.

On 4th and 5th March, 2005 Mr. Rajiv Tolat, Member-Executive Committee of ICPE, made presentations in 6 schools at Panchagani and Mahabaleshwar. More than 1,200 school children attended the programme in the schools.

The presentations prepared by ICPE covered Responsible Use of Plastics; the Importance of Clean



*Students of St. Joseph's Convent.*

Environment; Recycling of Plastics and Myths and Realities (Point – Counter-Point) about plastics.

The school children found the audio-video presentation very interesting. The students raised number of questions, which were answered by Mr. Rajiv Tolat to the satisfaction of the school children.

The usefulness of plastics in daily life and the need for its responsible use was quite well understood by the students and teachers.

Mrs. Karhadkar, President of the Panchgani Giristhan Parishad, requested ICPE to make similar presentations in other schools during the next academic year.



*Mr. Rajiv Tolat and Mr. Bansilal Lunkad seen at (Left) St. Kimmin's High School and (Right) St. Peter's School*

## Forthcoming Events

### PLASTOPOL 2005

9th International Fair of  
Plastics Processing  
31st May-3rd June, 2005

PLASTOPOL is Poland's fastest growing plastic exhibition and is one of the major plastic events in Central and Eastern Europe.

### WasteTech 2005

Moscow, Russia  
31st May-3rd June, 2005

The 4th International Trade Fair and Congress for Waste Management and Recycling Industry will be held in Moscow between 31 May-3 June, 2005. Event will be organized in newly built Crocus Expo – modern exhibition grounds on the cross-road of Volokolamskoye Avenue and Moscow City ring.

*For details:*

E-mail: waste-tech@sibico.com  
Internet: www.waste-tech.ru



Nehru Centre, Mumbai  
7th-8th June, 2005

The exhibition will usher in a new era of excellence for solid waste management in the city of Mumbai.

The objective of this event is to bring a heightened awareness of sophisticated technology, equipment and materials which go towards solid waste management.

### Printpack Asia-2005

Palace Grounds, Bangalore  
23rd-26th June, 2005

<http://www.revivetradefairs.com>

### The Recycling and Waste Management Exhibition

Birmingham, UK  
13th-15th September, 2005

<http://www.rwmexhibition.com>

### INTERPLAS 2005

Birmingham NEC, UK  
4th-6th October, 2005

### Interplastica

Moscow  
13th-16th December, 2005

### CHINAPLAS 2005

Guangzhou, Baizhou, China  
21st-24th June, 2005

China is the World's Fastest Growing Economy offering huge trade and investment opportunities for British companies.

CHINAPLAS is the perfect gateway to the Chinese Market. It is the largest plastics and rubber fair in the Asia Pacific region and one of the top 5 International Plastics shows.

Indonesia's most comprehensive Event

### PLASTICS & RUBBER INDONESIA 2005

The 18th International  
Plastics & Rubber Machinery,  
Processing & Materials  
Exhibition

Jakarta International Expo,  
Kemayoran, Jakarta,  
Indonesia  
7th-10th December, 2005

For more details contact:  
E-mail:  
[sales@ans-exposition.com](mailto:sales@ans-exposition.com)

Asia's biggest and one of the largest fairs in the world of Plastics



### PLASTINDIA 2006

6th International  
Plastics Exhibition &  
Conference  
9th-14th February, 2006  
Pragati Maidan, New Delhi

INDIA:

#### ENDLESS OPPORTUNITIES

As a nation that has experienced stupendous growth over the past two decades, India is today the world's 2nd largest growing economy. There is no other country more conducive to the expansion and development of the plastics industry.

With a double-digit growth of around 15%, Indian per capita consumption of plastic is set to rise from 4 kgs to 10.5 kgs by 2010 and its polymer consumption to 12.5 MMT per annum, making India the 3rd largest polymer consumer in the world.

PLASTINDIA 2006 attempts to provide a platform for both, members of the Indian plastics fraternity and their international counterparts, to discuss and display their latest innovations in plastics.

PLASTINDIA 2006 is the most awaited event for product sourcing, technology exchange and joint venture.

*For further details contact:*  
**PLASTINDIA FOUNDATION**  
Tel.: (022) 2683 2911  
E-mail: [plastindia@vsnl.com](mailto:plastindia@vsnl.com)  
[www.plastindia.org](http://www.plastindia.org)



# Plastics *for* Environment & Sustainable Development

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