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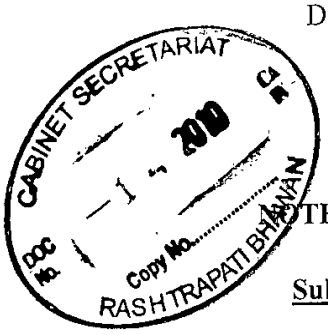
Ministry of Chemicals & Fertilizers
Department of Chemicals & Petrochemical



Copy No 9

New Delhi, dated: 25nd January, 2010

NOTE FOR COMMITTEE OF SECRETARIES

Subject: Addressing issues of Plastic Waste

National Policy on Petrochemicals has been approved by Government of India and published in the Gazette of India Extraordinary Part-I on April 30, 2007. The aim of the policy is to increase investment in the petrochemical sector both upstream and downstream, increase the demand and per-capita consumption of plastics.

2. National Policy on Petrochemicals on Plastics and Environment further states (paragraph No. 4.8) that :- "A policy that aims to increase the per capita consumption of plastics must also devote attention to issues relating to plastic waste disposal and its effect on environment. Plastic conserve natural reserves like wood, metals etc. Plastics are recyclable per se and not harmful to the environment. The presence of carbon and hydrogen in the polymer chains makes it a source for energy recovery. There is need to develop awareness on recyclable properties of plastics and eliminate its littering..... To address environmental problems, concerted efforts by the Government, industry and non- government organizations are required for bringing awareness about the proper disposal of plastic wastes and for developing suitable mechanisms for systematic waste collection, recycling and promote products in the non-critical applications".

3. Department of Chemicals and Petrochemicals has been working along the above policy aims. To put things in perspective, globally, there has been a steady growth in the Petrochemicals sector. It is established that ethylene consumption (the main building block for petrochemicals) and polymer consumption in the downstream plastic processing sector have a strong correlation with the growth of Gross Domestic Products (GDP). The domestic consumption of polymers in 2007-08 was around 5.8 million tonnes, as compared to the annual global consumption of around 200 million tonnes. The present domestic consumption of polymers is about 5.2 kg per person as against the world average of 25 kg. The growth of this sector is inevitable as the economy grows because of its multiple advantages. Also, it may be seen that the domestic petrochemical industry employs about 3.4 million persons both in upstream as well as downstream processing industry

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and as domestic demand increases and additional capacities are created, same will lead to creation of more job opportunities.

4. One major reason for the popularity of plastics has been the tremendous range of properties exhibited by them. Due to their versatility, relatively low cost, ease of manufacture, ease of handling and transportation and imperviousness to water, plastics are used in an ever-expanding range of products. Besides providing higher "strength to weight" ratio as compared to conventional materials, a life-cycle analysis of plastic products indicates that these substances not only save significant amounts of energy and water resources, they also emit lower quantum of green house gases. They have already displaced many traditional materials, such as wood, leather, paper, metal, glass and ceramic, in most of their former uses. Today the `wonder material` that is plastics has improved the quality of life in modern society and has become a. natural choice in varied applications by virtue of its own merits. Plastics are treated as versatile materials since the properties of these materials can be tailored to meet specific demands by varying molecular weight, molecular weight distribution and side chain branching. In fact plastics, either on their own or as composites have permeated every facet of human life viz. agriculture and water distribution & consumption, building construction, communication, small and bulk packaging, education, medicine, transportation, defence, automotive & aviation, space, consumer durables to name a few. Besides, their contribution to resource conservation, energy reduction and cost competitiveness has also resulted in an increasing role of plastics in consumers' life. While commenting on the role of plastics in the environment and sustainable development, leading scientists have held that the processing of natural materials like glass, paper, wood and metals consume far more energy and, therefore, lead to far greater consumption of fossil fuels, than plastics. It is a well known fact that as against 3.1 units of energy required to produce 1 kg of polyethylene, the corresponding figures for aluminum, steel and glass or paper are 74 units per kg, 13.9 units per kg and 7 to 8 units per kg respectively. It may be noted that Lightweight performance plastic components in automobiles have gone up from 3 % to 11 % in the last fifteen years, leading to a 15 % decrease in petrol consumption and lower emissions. In developing countries upto 50 % of all food is wasted between harvest and home. In a 'packaging-oriented' society wastage is reduced to around 3 %.

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5. With the above inherent advantages, the demand for plastics in India will be further driven by the following socio-economic factors:

i) Population growth and urbanization
ii) Opening of rural markets
iii) Explosive Indian middle class and their rising aspirations
iv) Successful marketing and increasing brand awareness/loyalties
v) Effective media net work and outreach through advertising
vi) Increased purchasing power/higher disposable incomes, particularly of young Indians

6. While the usages and benefits of plastics are manifold, it invariably gets branded as a polluting material. The myth regarding the polluting characteristic of Plastic needs to be addressed. Plastics are chemically inert substances and they do not cause either environmental or health hazards. However, municipal authorities encounter problems in their disposal, which are actually reflective of the larger problem associated with solid waste management. If plastics can be collected and disposed off or recycled as per laid down guidelines/rules then the issue of Plastic waste can be suitably addressed. In fact being resource- efficient and recyclable, with obvious advantages, policies must aim to support this environmentally benign material.

7. As per the CPCB report of 1999-2000, on the status of solid waste generation, collection, treatment and disposal in Metro cities, the average percentage of various solid wastes in MSW for 23 cities in India has been indicated as follows:- Paper 5.7%, Textile 3.5%, Leather 0.8%, Metal 1.9, Glass 2.1%, Ash, Fine Earth & Others 40.3% and Compostable Matter 41.80%. The share of plastics in municipal solid wastes ranges between 1-4% of the total waste and the share of plastic carry bags constitutes an insignificant proportion of the same. It would be clear to any keen observer that many other components of urban solid waste contribute to problems of clogging of drains and choking of landfill sites than plastic carry bags, eg construction debris. Hence singling out the plastic carry bag and placing a ban on it is disproportionate to its actual contribution.

8. It also needs to be understood that plastics are 100% recyclable. In fact globally there are technologies available which use plastic waste as feedstock for conversion into different end-

products and finally to zero-emission in a closed loop model. The methods and technologies for recycling of plastic waste employed depend on the availability and type of plastic to be recycled, level of investment and techno-economic feasibility for recovery of costs. The technologies used for recycling are Mechanical Recycling, Mixed Waste Recycling, Chemical/ Feedstock Recycling, gasification, etc. Some new methods being attempted are recovery of liquid/fuel/gas/hydrocarbons, use of plastic wastes in construction of asphalt roads and scientific disposal of wastes in cement kilns etc. Although various technology options for recycling of plastic waste/ scrap are in existence today, it is the indiscriminate littering of plastic material and the lack of organized segregation/collection of plastic waste in urban centers, along with operation of unscientific/unregistered recycling units which appear to be the core of the problem.

9. Allegations of environment hazard caused by plastic waste in general and plastic carry bags, in particular, have gained a certain ill-founded legitimacy because of the ban imposed by the Government of NCT of Delhi on plastic carry bags vide its order dated 7.1.2009. This ban is in contravention with reports and recommendations of various research studies, committees and expert groups which have given a unanimous opinion that the problems created by the use of plastic bags are primarily and principally due to shortcomings in the solid waste management system. Advantages of Plastic Carry bags over other materials can be seen below:

- Plastic Carry Bags are generally made out of polyethylene (Polythene) which can be safely used in contact with food stuffs, pharmaceuticals and drinking water and its use in these critical areas is approved by the regulatory authorities across the world including that in India like Bureau of India Standards (BIS).The same plastics are used in retail packaging as in life / critical/ medical applications, hence cannot be called hazardous to health.
- Plastic Carry bags have contributed significantly in creating a sustainable, cost effective, energy efficient, hygienic and environmental friendly packing system and for carrying, storing and packing various types of commodities / products including food products.
- Plastic bags generate 60% less greenhouse gas emissions than paper bags and 79% less greenhouse gas emissions than compostable paper bags. The plastic bags generate 3,097 tons of CO2 equivalents per 100 million bags, while uncomposted paper bags generate 7,621 tons and composted paper bags generate 14,558 tons, per 100 million paper bags.

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- Plastic grocery bags consume 40% less energy during production and generate 80% less solid waste after use than paper bags.
- Paper sacks generate 70% more air pollutants and 50 times more water pollutants than plastic bags do.
- It takes 91% less energy to recycle a kilogram of plastic than kilogram of paper.
- Transporting 150,000 nos. plastic carry bags of minimum stipulated size (20 X 30 cms) of 40 micron thickness (weighing-6000 kgs) would require one small tempo, whereas similar size and number of paper bags would require more than 10 such tempos for delivering the bags which will require extra fuel having their own carbon foot print.
- Plastic packaging is hygienic and preserves the material packed from contamination and decay.

10. Given the above obvious advantages, it is hardly surprising that Plastics have emerged as the favoured material for use in packaging. In addition to the ban imposed by government of Delhi, recently Ministry of Environment and Forest has published Draft Notification on Plastics (Manufacture, Usage and Waste Management) Rules, 2009, wherein they have proposed a ban on non-recyclable laminated plastic/metallic pouches, multilayered packaging. Multi layered plastic/metallic pouches are used in the packaging of processed food, food products, pharmaceuticals, personal care, personal hygiene and health products, spare parts for automobiles etc. Implementation of this proposal will remove all processed food currently being packed in multi layer and / or metalized plastic laminates from the market. The development of these laminates has resulted in overall energy efficiency, reduction in possibilities of adulteration, ease of transport, preservation of the packaged contents and consequent reduction in wastage and increase in shelf life of the product. These metallic pouches, multilayered packaging have reduced the cost barriers and increased the affordability of various consumer products for consumers having less spending power. Further, these can be recycled into a range of products. The alternates available may not meet the entire performance requirement of the existing material and result in huge environmental cost. Before proceeding further on the prohibition of laminated plastic/metallic pouches, multilayered packaging, there is a need to comprehensively evaluate the alternates available for these applications.

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11. Also, it may be seen that several Task Forces and Committees as given below have been setup in the last few years to understand the various issues related with plastic waste management in the country.

- National Plastics Waste Management Task Force (1997) **(Recommendations are at Annex-1).**
- Ministry of Environment & Forest formulated Municipal Solid Wastes (Management and Handling) Rules, 2000 indicating responsibility of Municipalities **(Annex-2).**
- Ministry of Environment & Forest formulated Recycled Plastic Manufacture and Usage Rules 1999 and amendment rule in 2003 **(Annex-3).**
- Ministry of Environment & Forest constituted Committee under Justice Ranganath Misra, to examine the regulations on plastics wastes and to suggest appropriate measures for collection, segregation, treatment and disposal of plastics waste **(Recommendations at Annex- 4).**
- In terms of a PIL filed by one V.K. Jain against the Government of NCT Delhi before the High Court of Delhi, the Court in its Order dated 19.11.2007 constituted a Committee, with the directions to study the issues relating to environmental hazards including health hazards, arising out of the use of plastics bags in the City of Delhi under the Chairmanship of Justice R. C. Chopra (Retd), Former Judge Delhi High Court **(Report at Annex-5).**

(***While the reports and major recommendations of these bodies may be seen in detail at Annexures as mentioned above, it suffices to say that none of them has ever recommended anything regarding placing a ban or prohibition on the use of plastic bags or other plastic materials and that the Anti-plastic sentiment is largely about littering. Rather they have all necessitated the requirement of waste handling and management by civic agencies of the State.***)

12. The Honourable High Court of Delhi vide its judgment dated 7.8.2008: **(Annex-6)** allowed the PIL filed by V.K. Jain. . In its order it mentioned that a blanket ban on the use of plastic bags may be premature having regard to the fact that plastic bags are indeed part of the commercial milieu in the city and cannot be completely banned without providing cheap and acceptable alternatives. It directed the Government of NCT of Delhi to issue a notification fixing the minimum thickness of plastic bags at 40 micron in place of 20 micron, currently stipulated and further directed that the Government of Delhi, the Pollution Control Committee

of Delhi and the civic agencies shall take immediate steps for closure of unlicensed recycling units operating from non-conforming areas by using unsound methods for recycling of plastic bags and to issue an appropriate notification forbidding use of plastic bags in the main markets and local shopping centre apart from hotels, hospitals and malls where use of such bags is already forbidden. It was also directed that Government of India shall expedite the constitution of the committee for verifying protocols for degradable and biodegradable plastics in India if the same has not already been done. Thereafter Delhi Government vide Notification dated 7.1.2009 banned the use, sale and storage of all kinds of plastics bags. **(Annex 7)**. An appeal against the ban has been filed with one Writ Petition and three Special Leave Petitions (SLPs) and all the four have been admitted in the Supreme Court of India..

13. It seems, that while imposing complete ban, the environmental consequences of substitutes and alternatives of the plastic bags have not been assessed As regards the promotion of use of bio-degradable plastics, it is stated that the viability of this substitute is yet to be established as (i) its development is still in a nascent stage, (ii) is presently prohibitively expensive and (iii) so far there is no nationally accepted criteria/standard fixed by any of the State and Central Agencies for the same. The solution lies not in banning the use of plastic bags all together but in better waste management practices and adoption of proven alternative technologies for re-cycling it. At the same time Government may launch a campaign to educate the people of Delhi to be responsible citizens and say "no" to littering.

14. In India, nearly 30% of the plastic wastes are being already recycled, which is one of the highest in the world. Comparatively, only 7% of the wastes in Europe are being recycled. Recycled plastics could eminently be used for manufacture of bins and bin-bags, containers, luggage goods, plastic benches, railways sleepers, outdoor furniture and many other products such as liquid fuel, ammonia gas for use in production of urea, hydrocarbons and in construction of asphalt roads along with bitumen.

15. With increased economic development there have been changes in the life style of the consumers, leading to increased use of plastics in disposable consumer goods. Most affluent economies have similar consumerism and related plastic waste generation patterns. Based on the principle of 3 R's ie Reuse, Recycle and Recover, several practices are in vogue globally to

address the issues of plastic waste. Some options are available regarding levying of a charge on each consumer goods having significant plastics content or those that use plastics as packaging material. Similarly, a charge could be levied on the use of plastic carry bags and other plastic packaging material at the point of purchase, which would encourage us to re-use such bags or dispose them of in a systematic manner, leading to reduction in burden on waste disposal syestems. The amount so collected could be used for the management of plastic waste in the country. The mechanism of levying and collecting this extra cost e.g. a 'Disposal Charge' as done by other countries could be an option. Alternatively, setting up of a Plastic Waste Disposal Fund could be considered (just as Educational Cess), where funds are made available by way of levying a charge, say, @ 0.5 % on the manufacture and import of plastics in the country. Ultimately, it would be the consumer who would bear the impact of this Cess. The funds so generated could be used in promoting plastic waste management schemes/projects.

16. Problems are faced by the enforcement agencies, i.e. Central Pollution Control Board and State Pollution Control Boards, in monitoring and enforcing the regulations on the thickness of plastic bags. To overcome this, it may be desirable to mandate printing of address and other approval details of the manufacturers on each carry bags. Guidelines for recycling of plastics have been issued by Bureau of Indian Standards (IS 14534:1998), which includes adoption of identification/symbol for the use of particular polymer material by the manufacturer of plastic end products. Mandation of BIS guidelines will regulate the market and help in creating consumer awareness also. State governments/civic agencies may be directed to take immediate steps for closure of unregistered recycling units that use unsound methods for recycling and those operating in non-conforming areas as per the directives of State Director of Industries.

17. Municipal wastes, of which plastic wastes also form a constituent, are being handled by local bodies/local self-governments. The current awareness campaign through advertisements/hoardings promotes banning of plastic without suggesting any viable alternative. There is rather a need for promoting awareness for segregation at source of various recyclable materials including plastic waste for which the appropriate recycling technology options and effective solid waste management principles can be adopted for the benefit of the society.

18. This note was circulated to various concerned Ministries and the Govt of NCT. Ministry of Petroleum and Natural Gas, Ministry of Small & Medium Enterprises, Ministry of Consumer

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Affairs, Department of Commerce, Department of Agriculture, Cooperation, Ministry of Road Transports and Ministry of Environment and Forest have supported the proposal. Ministry of Urban Development has suggested that the segregation of waste can be addressed under JNNURM. Government of NCR Delhi while supporting the proposal has not agreed for lifting the ban. Department of Economic Affairs while agreeing for the proposal does not support the concept of CESS. The comments received have been tabulated at **Annex 8.**

19. To summarize, the points on which the recommendations of the Committee of Secretaries are solicited are as follows:

i) As suggested by the DCPC, MOE&F have drafted amended rules in terms of which a minimum thickness of 40 microns and dimensions not less than 12 X 18 inches (30 X 45 cm) for plastic bags, manufactured from both virgin and recycled plastics has been prescribed. These need to be finalized at the earliest by way of necessary amendments in the Rules framed under the Environment Protection Act 1986. (**Annex 9**). However MoE&F's proposal to prohibit laminated plastic/metallic pouches, multilayered packaging, needs to be reviewed as alternatives are not available.

ii) Subject to orders as may be passed by Supreme Court on the appeals /SLPs filed, Government of National Capital Territory of Delhi should be requested to lift the ban on Plastic carry Bags and other restrictive measures. They could, instead, launch a drive to educate the citizen of Delhi against littering. In addition, Delhi Government may put in place appropriate collection, segregation facilities for plastic waste.

iii) The present review of the Recycled Plastic Manufacture and Usage Rules, 1999 (amended in 2003 by Mo E & F) framed under the Environment Protection Act 1986 should stipulate mandatory adherence to guidelines for recycling of plastics issued by Bureau of Indian Standards (IS 14534:1998). MoE&F may, in consultation with Bureau of Indian Standards consider laying down mandatory colour code and markers for bio-degradable and recyclable bags separately for each source material. Further plastic bags manufactured from recycled plastic materials should be mandated for use in the manufacture of dustbins and garbage containers, bin-liners etc.

iv) Strict implementation of the existing provisions on registration of plastic manufacturers and recyclers is required. Mo E&F may give a time limit of say, three months to all such units to

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get them registered. Thereafter, they may undertake a review of unregistered plastic recycling units that use unsound methods for recycling and take appropriate action.

v) Ministry of Urban Development to facilitate proper collection, segregation and storage of plastic waste, efficient transportation and processing through the involvement of RWAs, NGOs, Local Municipal Authority, Private entities, etc under various ongoing programs including the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), or a special scheme could be launched for the purpose in consultations with stakeholders. Awareness building programmes, along with formation of Nuisance detection Squads could also be taken up in a more structured form.

vi) A Plastic Waste Reprocessing Fund (on the pattern of Education Cess) be created by levying a charge @ 0.5 % on manufactured price of polymers produced or imported into the country to be utilized in promoting the setting up of plastic waste reprocessing units for which an administrative mechanism under the DCPC will be created. DCPC has drafted a scheme for creation and management of the Fund **(Annex 10)**.

20. This note has the approval of Hon'ble Minister of Chemical and Fertilizers

25/01

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New Delhi
Dated: 25nd January, 2010

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