

**IN THE HON'BLE NATIONAL GREEN TRIBUNAL  
PRINCIPAL BENCH AT DELHI  
O.A. No. 199 OF 2014**

**IN THE MATTER OF:**

ALMITRA H PATEL

APPLICANT

VS

UNION OF INDIA AND ORS

RESPONDENTS

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NEW DELHI  
20.05.2015

25/5/2015  
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Plastics need to be sorted near their source, not at clusters, as all recycling is done in urban areas. Even un-recyclable plastics to be used for roads (D8) need to be shredded in town near where roads are to be repaired or laid.

Wet waste which is not to be directly incinerated (D7) should also not travel directly to clusters. Only the coarse combustible compost rejects or fractions suitable for RDF or totally unusable remnants should travel to clusters.

**b. NAGAR PANCHAYATS AND SMALL TOWNS NUMBER**

**BETWEEN 63%- 88%** of the total census towns in every State/UT and **they** all have a farming hinterland nearby. So if they must compost their wet waste for supply to farmers (D7), all these towns should preferably compost their wet waste as far as possible within their ULB limits and send it to their surrounding farmlands. Only compost rejects need to travel onward to clusters if any.

**c. THE PRECAUTIONARY PRINCIPLE APPLIED TO**

**DIOXIN PREVENTION** is more effective than trying to control dioxin emissions in "burn" options for waste management or measure them in very slow, very costly and very rare testing units. Dioxin is formed only by burning of chlorine-containing items like PVC (Polyvinyl Chloride, which is 57% chlorine by weight). So it is necessary and advisable to rapidly phase out the use of PVC in use-and-throw short-life items, especially PVC flex and vinyl for hoardings and

banners, of which 80% come from China where their use is banned.

Reference may be made to Annex.-Q of the I.A. No 22 in W.P. (C ) 888/96 which was filed before the Hon'ble Supreme Court and is now before this Hon'ble Tribunal for consideration. For the sake of convenience, the said Annex Q is also annexed herewith and marked as **ANNEXURE-B.**

d. **ECO-FRIENDLY PACKAGING AND WASTE**

**MINIMISATION RULES** need to be framed under the Environment Protection Act to ensure "fully recyclable packaging" (D12 and last para of the Order dated 20.03.2015) or Extended Producer Responsibility (EPR) for all non-recyclable packaging. Many detailed suggestions for such Packaging Rules (prevalent in many countries) have been given to CPCB in Annex. M of the I.A. No. 22 in WP (C) 888/96 which was filed before the Hon'ble Supreme Court and is now before this Hon'ble Tribunal for consideration. For the sake of convenience, the said Annex. M is also annexed herewith and marked as **ANNEXURE-C.**

4. That the Applicant has also presented her comments and suggestions to the Draft Plastic waste Management Rules, 2015 to the Ministry of Environment and Forest and Climate Change. The comments and suggestions to the Draft Plastic waste Management Rules, 2015 dated 07.05.2015 are annexed herewith and marked as **ANNEXURE-D.**

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5. That the views and suggestions of the Applicant may therefore be kindly considered by this Ld. Tribunal before passing the final order.

**PRAYER**

In light of the facts and circumstances narrated, it is respectfully prayed that this Hon'ble Tribunal be graciously pleased to:

- a. Consider the views and suggestions of the Applicant set out herein above; and
- b. Pass any other order(s) which this Hon'ble Tribunal may deem just and proper in the facts and circumstances of the case.

AND FOR THE ABOVE ACT OF KINDNESS THE APPLICANT AS IS DUTY BOUND SHALL EVER PRAY.

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**ANNEXURE-A**

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03.05.2015

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Dear All

**KARNAL VISIT AT HON. NGT BEHEST April 30 – 1 May 2015**

At the suggestion of the Hon. NGT to Haryana State on 30 April 2015 in  
OA199/2015, I went to Karnal to help them improve the efficiency of  
composting and RDF operations there. I report my findings and  
suggestions below and Attached. I also Attach the two powerpoints I  
showed you all, on Kolar's 100% doorstep collection of 65% source-  
separated waste achieved within one month, and on the benefits of  
combining city compost with chemical fertilisers.

I was accompanied by Shaila Katu of Ernst and Young, their Transaction  
Advisers.

TRUE COPY  
Devina Sehgal

On 30 April night, we met for 3 hours with Karnal's very cooperative Municipal Commissioner Arvind Malhan and his Executive Officer Dheeraj Kumar to discuss Karnal's SWM (Solid Waste Mgt) practices and problems.

On 1 May 2015 we toured the city with them from 8-11 am to observe Collection and Transport (C and T) practices, which deeply affect Processing and Disposal (P and D) outcomes. Along with Haryana's Director of Urban Local Bodies Mr Pankaj Agarwal, his Chief Engineer Mr D S Bajwa and others from Chandigarh, we spent 2 hours at the Compost cum RDF plant. Suggestions for improvement have been verbally shared with all and will soon be sent in separate emails for Karnal.

Later three meetings were arranged by the Commissioner : with the Member-Secretary of the Market Committee for market cleanup, with Agriculture Officers to promote city compost use, and with Karnal's 2 Sanitary Officers and about 15 Darogas (SWM supervisors) who were all surprisingly cooperative and willing to implement doorstep collection of source-segregated waste.

We also spent an hour with the Director of the CSSRI (Central Soil Salinity Research Institute) and Head Crop Improvement, who have offered support in various ways.

But some major problems need guidance and Directions from the hon NGT to the Govt of Haryana and some GoI Ministries, for Administration, Compost Optimising, RDF Optimising and for Waste To Energy :

**ADMINISTRATIVE ISSUES:**

1. Inordinately frequent transfers at all levels hampers any continuity of improved practices as experience, knowledge and planning strategies are lost with each transfer. Other States have a minimum one-year tenure for senior postings and premature transfers of Commissioners etc are reversed by Appellate Tribunals.

>> Govt of Haryana may be requested to explain its tenure policies and improve them.

2. Chronic understaffing of the SWM function at Karnal and probably other cities and towns in Haryana will make a change-over to doorstep collection and source-separated primary and secondary transport of wet and dry waste streams very difficult to achieve.

>> The Govt of Haryana may be requested to clarify its SWM staffing norms and its policies to include traditional waste-pickers and kabadiwalas in dry-waste collection at least.

**OPTIMISING COMPOST PRODUCTION :**

3. Despite India's 12 million ton shortfall in organic manures, off-take of city compost by farmers is poor and unaffordable for them as compost production today costs at least Rs 3,500/ton excluding bagging, transport and dealer margins, totalling Rs 5,400/ton at farm gate.

>>> GoI may be requested to consider an indicative cost-of-living-indexed Minimum Support Price for City Compost to make this sector viable in the national interest.



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4. A 2011 study by FAI (Fertiliser Assn of India) showed that addition of just 0.8 tons of organic manure per acre along with chemical fertilisers gave a 25% increase in yield. But Agriculture Extension services to educate farmers through comparative field trials with city compost are totally absent.

>> GoI and Haryana State may be requested to now promote City Compost use in the same effective manner that use of urea was promoted during the Green Revolution.

5. The Hon Supreme Court in WP(C ) 888/96 accepted the 1 Sept 2006 recommendations of an Inter-Ministerial Task Force on IPNM (Integrated Plant Nutrient Management), including that

**"Co-marketing of the compost from city garbage with chemical fertilizers as a 'Basket Approach' by fertiliser companies should be made mandatory in the ratio of 4/3 bags of city compost with 6/7 bags of fertiliser".**

The Ministry of Chemical and Fertilisers on 2 June 2009 issued a letter (Anx A hereto) to the MDs of 21 major fertiliser producers citing the above and adding

**"In compliance of the above directions of the Supreme Court, you are requested to take action for co-marketing of compost."**

But even 6 years later, there is abysmal compliance with this "request". A few producers occasionally float tenders from random suppliers of compost.

>>> Compliance needs to be mandatory and enforced for all.

It is suggested that just as fertiliser companies are allotted areas of distribution, they should be compulsorily mandated to lift all available and future city compost from compost plants in these same areas (or near their plants, with no bar on inter-state movement) at a tender-free indicative MSP rate of say Rs 3500/ton and co-market it within a reasonable distance from the compost plant (200 km or so). Current city compost supply at 1.2 million tons is now pitifully small compared to chem.-fert supply. With a current subsidy of Rs 76,000 crore for chemical fertilisers, a mere Rs 360 crore of this or 0.47% of total subsidy would suffice for them to lift all available city compost for delivery to farms. The Kasturirangan Report 2014 estimates total city compost potential at 5.9 million tons per annum, still requiring only 2.5% of fertiliser producers' subsidy to be applied for city compost procurement and distribution, to enhance the efficiency of use of their own products.

>>> Mandatory compliance for co-marketing should be at no additional cost to GoI beyond existing fertiliser subsidy.

By way of information, all SAARC countries except India have rolled back their urea subsidies. So the Lahore Compost Plant for example has its entire annual compost production ordered and booked in advance at viable market price.

6. At Karnal, composting operations are sub-optimal for want of finances from sale of compost, ideally 15 tons per day (tpd) from 100 tpd mixed waste. Hence supply of earlier good biocultures has

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stopped. So composting takes twice as long, space is a constraint and old and new heaps are unmanageably mixed together.

Presorting capacity of 10 tons per hour or 80 tons per shift is less than intake, leading to backlog buildup of untreated waste for want of second-shift funding.

Guaranteed off-take of compost by say National Fertiliser Ltd at Panipat at a viable minimum price would help solve most of these problems.

Doorstep collection of source-segregated waste would give two useful waste streams: a reduced volume for composting and high-calorie RDF from dry waste.

The CSSRI Karnal offered its help in compost quality testing.

CSSRI was also asked to consider field trials for gypsum-reclaimed saline soils using the coarse fraction of compost rejects to be ploughed in for restoration of soil carbon. If successful, this would be a great new alternative use for this material.

#### **RDF OPTIMISING :**

At Karnal, 100 tons a day (tpd) should optimally yield a theoretical 15 tpd of compost and about 45 tpd of coarse fraction suitable for RDF, which was supplied earlier to brick kilns for energy from waste. About 30 tpd of this is coarse organic rejects and about 15 tpd is plastics rejects. Plastics have higher calorific value but the

plant says the Haryana SPCB does not allow their use in RDF, hence plastics are being wastefully landfilled (not seen).

This advice from HSPCB is understandable, because mixed plastic waste contains a lot of PVC, which is 57% chlorine. Burning of PVC is the main cause of dioxin production, not only on footpaths or in brick kilns or in commonly-burning waste dumps, but especially in incineration plants, where proper dioxin control doubles the capital cost and operating difficulties of incinerators for municipal waste.

Currently, only cement plants operate at the very high (1400°C) temperatures necessary to destroy dioxin and prevent its re-formation.

>>> The Karnal RDF plant needs to estimate the calorific value of its coarse organics and its mixed-plastic wastes and seek HSPCB permission to supply plastics-containing RDF as a waste-to-energy replacement for coal at a cement plant just 45 km from Karnal. That cement plant should also seek HSPCB permission to help Karnal and other clusters to dispose of unwanted plastic waste by accepting their RDF.

Use of PVC has been banned in many countries, certainly in short-life use-and-throw items and flex banners and hoardings, but now even in long-life items like cables, piping and construction materials. Many affordable and benign alternatives are now available for this "poison plastic". See notes in Anx B.

>>> The hon NGT may be requested to consider directing the rapid phase-out of PVC in all non-essential items as a pollution prevention measure on precautionary principles.

PVC-free RDF will then become an acceptable feedstock for power plants also.

### **ENERGY FROM WASTE and ENERGY BALANCE:**

Energy in the form of heat or electricity can only be obtained from waste if there is enough energy in the waste in the first place to take care of plant operations and leave a surplus. That is why Energy Balance to calculate 'Energy In and Out' is so important before selecting a particular technology.

For wet waste for example, in biomethanation no moisture needs to be evaporated out of it and pumping energy consumption is minimal. The gas produced can be directly used for cooking in the hotel kitchen that produced the wet waste, with no deduction of energy required for transport. Production of electricity from biogas engines attains 40% efficiency at best and so is not a technically preferred option.

Direct incineration of wet waste has been wisely stopped in the NGT Order dt 20.3.15 in OA 199/2015 because it takes a huge amount of external energy to evaporate its initial moisture content,

dry it, shred and convey it, burn it to produce steam and then convert steam calorific energy into electrical energy with current maximum 25% efficiency only. So no surplus energy is available from it, rather the reverse.

Waste in the West is 80% packaging and 20% 'wet' waste, so it has 5500 kilo-calories of energy per kg of waste. Indian waste has exactly the opposite ratio and hence has only 1800-2200 kcal/kg. So there is not enough energy left over to produce any power from it, after deducting the power needs for plant operations and the 75% conversion losses for heat-to-electricity. In fact Energy Balance calculations require all attempts at waste incineration in India to add external calories in the form of diesel or paddy-husk or peanut shells etc to produce any power at all from MSW (Municipal Solid Waste).

When RDF (Refuse Derived Fuel) is produced from mixed or wet waste, the drying occurs from the heat generated in the waste-stabilising wind-rows, with only diesel energy inputs for the mechanical turning of heaps and for baling or briquetting. So the calorific value of mixed-waste RDF is best used to produce heat (in brick kilns or boilers or cement plants). Only unrecyclable plastics from separately-collected dry waste streams (which require no drying) will have high enough initial energy content to permit the highly inefficient conversion of RDF heat energy to electrical energy.

**WASTE TO ENERGY OPTIONS:**

Aggregating the RDF potential of other towns into Karnal as a cluster will barely increase tonnage intake by 13% to 113 tpd of mixed waste and 50 tpd of RDF.

**Plastic roads** : If plastics can be separated from this, the kwh required for shredding it for use in roads requires the least energy input to conserve the fossil fuel energy in bitumen. This will require conscious State policy for PWD acceptance, as in Himachal State and Tamil Nadu.

**P2F (Plastics To Fuel)**, like diesel) is potentially the next most energy-efficient option. For this too, Energy Balance calculations are necessary, ideally by an energy-expert group like [www.prayas-pune.org](http://www.prayas-pune.org) , to see how much transport fuel needs to be expended to aggregate, bale and transport enough RDF to produce what quantity of fuel oil and of what calorific value, to be technically viable and at what optimum locations.

**RDF** in small quantities like max 50 tpd at Karnal cluster is not enough to be technically or financially viable for or attract any incinerator operations, which the Planning Commission's Kasturirangan "Report on Waste To Energy" recommends only for a few major metro cities with over 1,100 tpd incinerable waste. In any case such plants take over 4 years to come up, if at all. Punjab's incinerator operators selected in 2011 have still not come up. Nor have 4 of the 5 incinerator projects permitted as MNRE

pilot projects by the Hon Supreme Court in 2007. So it is unrealistic for Karnal to look to this option as an early waste-disposal solution.

Meanwhile, to immediately protect the health and environment of Karnal and elsewhere, organic (coarse-compost) RDF to brick kilns or boilers seems a good option, with PWD directed to use shredded plastic State-wide in bitumen roads as Himachal Pradesh does, and RDF with plastics sent to cement kilns, and perhaps with CPCB approval to power plants also.

**Almitra H Patel**

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Devina Sehgal



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**ANNEXURE-B**

[Ref para 1.9, 5.1, 6.13, of IA22 in WP(C)888/96  
(page 1 of 8)]

ANNX M

**Petitioner's 2005 suggestions to CPCB for Rules to Reduce Waste  
Quantity & Pollution**

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Member, Supreme Court Committee for Solid Waste Management  
Advisor, Ganga ICDP Project, Clean Jharkhand Project

22.3.2005

Mr Rajagopalan, Chairman, CPCB  
East Arjun Nagar, Delhi 100032

Dear Mr Rajagopalan

**WASTE MINIMISATION & POLLUTION PREVENTION**

Greetings. I refer to our conversation yesterday when you had kindly agreed to consider facilitating a list of interventions which CPCB could undertake either directly or through various concerned ministries, to minimize waste as well as to prevent pollution and inform the consumer of potential health hazards.

**WASTE MINIMISATION**

After the Supreme Court Committee submitted its recommendations in March 1999, there remained several areas not covered by its Terms of Reference or the Report, which a member suggested I could take up separately in my capacity as Petitioner, such as citizen involvement, good accounting practices and Waste Minimisation and Ecofriendly Packaging.

TRUE COPY  
Devina Seligal

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This last item is the final one of Twelve Directions Sought in September 1999 in WP 888/96, and may be taken up by the Court after December 2005 or so, as we are currently on Directions 8 and 9.

I would like to record here my great appreciation of the positive and constructive role of CPCB, despite being a Respondent, and Dr Akolkar in particular, in the task of cleaning up India, by preparing, on its own initiative, two Drafts of the Municipal Solid Waste Rules which were then formally discussed with the Supreme Court Committee before sending on to MOEF. I look forward to similar proactive initiatives by CPCB in advance of my request to the Court for the drafting of Waste Minimisation and Ecofriendly Packaging Rules for our country, similar to several prevailing in the EU and many North American States and Provinces, especially California. Some examples of the elements of their rules, not necessarily in order of priority, are given below. Most succeed best through economic incentives, so even in the absence of Rules, a slight rebate in Sales Tax or VAT for eco-friendly packaging and take-back participants can work wonders.

1. **Bottle Tax or Take-Back Rules** for single-use packaging like PET bottles for soft and hard drinks and mineral water. Even a nominal rebate works wonders: 5 cents or 10cents per bottle or can brings in upto 85% of units sold, as Ireland discovered in the first few months of introducing such a policy. Even if yuppies or housewives do not bother to return these, their employees do, or failing that the ragpickers. We already have this practice in India since almost a century, for "goli-soda" bottles and beer bottles, currently at Rs 5 per glass bottle of carbonated drinks. So the public will have no difficulty accepting this for PET as well, at a rate of say Re 1

refundable surcharge per bottle returned. (Less is not practical, since nobody handles change smaller than Re 1 nowadays). The current rate of Rs 5 per glass bottle does not represent its market value as recyclable raw material, but covers the cost of the "reverse-distribution" chain.

A Bottle Tax is being strenuously resisted by the major players, of which Pepsi is the most cooperative and Coke the most defiant and indifferent. For example, at Bangalore's "healing sessions" by Benny Hinn, attended by 5 lakh people and sponsored by Coke, the Jakkur aerodrome used was littered with uncollected PET bottles, despite advance offers of free cleanup by an experienced recycler who left Benny Hinn's Mumbai event spotless the previous year, when Pepsi were sponsors and provided both space and permission for bottle collection. The same thing must be happening at cricket matches sponsored by Coke.

2. So in addition to a Bottle Tax or Take-Back Policy, we need national policy or legislation under the E P Act to **prevent litter pollution at events** sponsored by producers of consumables like soft drinks, ice creams, distributors of fliers etc, by requiring them to file an Ongoing Cleanup Plan for any sponsored event before being granted permission for the event by civic authorities. Can this find a place in the anti-littering para of our MSW Rules?
3. **Mandatory Recycling Targets for packaging suppliers** has worked wonders in Europe. Germany's Duales System, for instance, required annually increasing targets (currently 55 to 80 %) for categories like glass, cardboard, plastics, aluminum cans,

Styrofoam etc. Europe has about 22 different such schemes in various countries. In all of them, basically the packaging user industries bear the cost of take-back for recycling in proportion to their annual tonnage purchase and use of such packaging. In India, given our high informal recycling rates, we may do this through say the Cardboard Manufacturers' Association or Carrybag Manufacturers' Associations, leaving it to registered members to rope in unregistered ones for contributions.

4. In India this has been tried successfully but sporadically for sales promotion in one-free-for-ten-or-twenty wrappers etc for items packed in tiny multi-film sachets, which are another huge nuisance in Indian wastes. We can find economic incentives for firms that institutionalize this, either for their own products or for generic products (e.g. any paan-masalas or shampoos or namkeens). Similarly for non-recycled items like expanded polystyrene use-and-throw plates and cups.
5. Some countries have **economic disincentives to discourage needlessly large packaging**, such as half-full cereal boxes. In Russia, toothpaste tubes were sold without any cardboard packaging addition, which is not really required for protecting the contents.
6. Eco-friendly substitutes for non-recyclable packaging can be mandated, such as a pre-announced gradual **phase-out of Styrofoam packaging** [expanded polystyrene, EPS] by papier-mache moulded shapes or folded-cardboard supports. This already being done since long by Sony, Nokia and others in Japan because

of the costly volume of landfills occupied by Styrofoam or Ufoam. In India in the late nineties, PSI was voluntarily recycling polyurethane foam packaging for electronic hardware received and shipped out again by a cut-and-paste peon in the stores department. Suppliers of white goods like refrigerators, washing machines etc should also be required to take back their bulky packaging by offering refunds for its return to the store. This will automatically force them to use collapsible modular shapes for compact return shipping and reuse.

### **POLLUTION PREVENTION THROUGH TAKE-BACK**

7. India's first and laudable effort is the Rule for Take-Back of lead-acid batteries. We can learn from its weaknesses and improve subsequent such rules. In an effort to keep Household Hazardous Waste out of the MSW stream, we need similar mandatory take-back (preferably driven by economic incentives) initially for:
  - a) Insecticide spray-cans (e.g. HIT) and anti-termite chemicals etc.
  - b) Garden pesticides, herbicides and agro-chemicals (maybe for ALL Red Triangle and even Yellow Triangle Agro-chemical packaging)
  - c) Fluorescents containing more mercury than levels currently exempted in EU's RoHS legislation.
  - d) Torch batteries and Button Cells.
  - e) Cosmetics and Paint cans containing heavy metals (See Labelling below).

### **POLLUTION PREVENTION THROUGH PRODUCT LABELLING**

8. If paraffin oil is being objected to in baby oils, and pesticide traces in soft drinks, how much greater is the need to label the exact content of lead in hair dyes and ayurvedic medicines and paints (also cadmium and chromium), of mercury in sindoor or in light-up switches in kiddie shoes and toys, of arsenic in wood preservatives etc. A list can be made of these highly polluting toxic elements, whose presence MUST be reported on labelling for ALL products containing them.

### **POLLUTION PREVENTION AND HEALTH PROTECTION THROUGH PRODUCT PHASE-OUTS AND BANS**

9. Lead-based paints are now banned since years in most developed countries, but not in India. UNICEF ordered (and got, in India ) lead-free paint on childrens' playground equipment sponsored by them. But these same well-informed suppliers continue to use lead-based paints on all their play equipment out of sheer indifference or because there is no blanket legislation to create a level economic playing-field for compliance. Dr T Venkatesh, Head of Biophysics and Biochemistry at St John's Hospital Bangalore and founder of NRCLPI (National Referral Centre for Lead Poisoning in India) can send you documented evidence of the lead levels found in playground soils and in the blood of children frequenting these in Mangalore. Contact [venky\\_tv@hotmail.com](mailto:venky_tv@hotmail.com) [now [venkatesh.thuppil@gmail.com](mailto:venkatesh.thuppil@gmail.com)] or 93412-42430.

10. We can start by charging an **Eco-Tax for Haz-Waste Disposal** of containers for such toxic-containing paints, with a time-table for their phased total discontinuance. The Eco-Tax can be either straightaway or progressively raised to equal the difference in cost between cheap toxic paints and their maybe costlier eco-friendly alternatives, so that compliance can be market-driven.
11. Similarly, since we cannot ban immersion of painted idols at festivals, we can certainly ban the use of paints containing lead, mercury, cadmium, selenium, chromium, mercury etc for such purposes. The paint industry will have to indicate with say a Green Dot or Blue Fish on such eco-friendly paints so that even illiterate persons know what can be permissibly used.
12. We also need **economic incentives to move away from chlorine-bleached paper and feminine products**, as their production process gives rise to large amounts of dioxins in their environs, especially water bodies contaminated by their effluents. This can be done either by a phased ban on bleached toilet paper, Huggies, sanitary napkin filler etc, or by an Eco-tax on bleached products or a tax rebate on non-bleached items.
13. We can and should ban needlessly polluting items like mercury-containing light-up kiddie-shoes and toys which have a short life and end up in municipal waste, not haz-waste sites.
14. We also need to **ban one-time-use rigid PVC containers** like bottles for ketchup, mineral water (even for duplicates of popular

brands!), cosmetics etc. These end up in municipal waste which is still commonly burnt countrywide, generating dioxins. A more important reason is that just one missed PVC bottle in 10,000 PET bottles spoils the whole batch as it chars and darkens at a lower temperature. That is why Reliance ended up with a useless batch of 5000 tons of PET flakes when it tried to enter this recycling market.

A ban on PVC bottles would automatically make PET collection and recycling viable, keeping these out of storm drains and sewer pipes and thereby reducing urban flooding in the rains. PVC has its uses and place, in long-life construction items like fire-retardant electrical wiring and casings, or flexible medical tubing. Even the common cheap PVC chappals have at least a year's life. But there is no excuse for permitting its use in one-time-use rigid packaging for which dozens of eco-friendlier substitutes exist. I have a collection of several of these needlessly-PVC bottles which I can send you if required.

#### **WASTE MINIMISATION & POLLUTION PREVENTION THROUGH PRODUCT SPECIFICATIONS**

15. The most urgent need is for a **reduction in the permissible free-phosphate levels in detergents**. Eutrophication and slow death of Lake Erie was arrested by both US and Canada jointly bringing down the levels of free phosphorus to 2.2% in a briefly-phased manner. This was done decades ago, so the know-how for alternatives is well established. In contrast, VOICE and CERC in Ahmedabad found, in a study reported by Down To Earth, that our top brands of Surf, Ariel etc have upto 21% free phosphorus. This



penny-wise attitude of detergent producers leads to huge waste-management costs for cities that have to deal with removal of water-hyacinth etc from their water-bodies, where they flourish on this free fertilizer.

Whenever this issue has been raised over the years, either in NGO forums or even at MOEF meetings, Hind-Lever has said first stop the inflow of human waste into your water bodies as faeces contain more phosphorus than our detergents. At our stage of development, I think we have no room for such a cynical and irresponsible response.

We need to act on BOTH fronts, simultaneously, not sequentially targeting the poorest persons and most difficult problems first.

#### **MAKE ECO-MARKS MANDATORY NOW**

16. CPCB has spent enormous valuable effort since 1991 in preparing criteria for certification of 14 categories of industries to qualify for Ecomarks. These were to be voluntary. Till 1999 I think there was not a single taker for any category. Soon after Godrej came forward to get an Ecomark for its detergent, its then joint-venture partner Proctor and Gamble forced them to withdraw their application. I think the country has lost patience with non-compliance on a voluntary basis. After giving industry a chance for 15 years to behave responsibly, it is time to **make these Ecomark criteria (if not the mark itself) mandatory in a phased manner**. This may require, on a case-by-case basis, a joint review with industry on slight initial relaxations. For example

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zero free-phosphate for Ecomarked detergent may be neither feasible nor necessary if 2% is acceptable to industry. The edible oil industry could not guarantee lead-free oil from peanuts grown by the roadsides in leaded-petrol days, but may be more receptive now.

17. Another objection voiced at the time was, that industries were not willing to pay for the additional BIS-type charges and bureaucratic interference in production that goes with it. Also, that their label designers, fighting for every square millimeter of space for product promotion, were reluctant to spare space for an additional Ecomark symbol. Hence I suggest that the use of and payment for the Ecomark itself can continue to be voluntary, but the STANDARDS and norms implied in them, perhaps with some relaxation, must now be made progressively mandatory as norms for the industries where so much homework is ready. It is a pre-condition for us to consider ourselves a developed nation, where value for human life and well-being is a well-established social definition of such status.

This is a very long list. But CPCB has many talented and dedicated staff who can each run with one or more of the issues raised above. At the highest levels, and yourself personally, inter-ministerial lobbying will be called for to achieve holistic results.

With best wishes and always with pleasure at your service,

Sincerely,

Almitra H Patel

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**ANNEXURE-C**

[Ref Para 5.5, 6.14 of IA22 in WP(C)888/96  
(page 1 of 3)]

ANNX Q

**PHASE-OUT OF SHORT-LIFE PVC**

**A Mission for the Environment Ministry**

**50 Kothnur, Bagalur Rd, Bangalore 560077. 98443 02914, 080-2846 5365**

**almitrapatel@rediffmail.com, www.almitrapatel.com**

**9 October 2007**

Dear Friends

We have all read about the recall of Chinese-made toys with lead-content paints. How have we reacted --- with shock or sympathy? surprise or complacency? a sense of superiority? We could be next. Has this led any of us to seek a ban on, or availability of, leaded paints and printing inks in India? Or at least disclosure of heavy-metal content in all our paint containers? Indian industry is full of similar skeletons, awaiting discovery. Even after The HINDU in October 2006 reported high levels of lead and cadmium in Indian PVC toys, there has been little effective action or self-regulation.

Today is a golden opportunity for each and every one of us to show a sense of leadership and pride in our country by proactive measures and policy advocacy for cleaner technologies. The plastic industry itself is an excellent place to begin, starting with PVC, a poison plastic now being phased out worldwide even for piping and cables. India is no longer a poor nation and has no excuse to continue with the use of PVC in short-life one-time-use applications. Sadly, most Indians and Indian industries are not eco-friendly unless legally forced to be so, hence the need to

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lobby for clear phase-out legislation. The plastics industry needs to help this along by providing technical solutions for cleaner alternatives.

**PVC is toxic at every stage of its life cycle: manufacture, use and disposal.**

Its global production of 40 million tons a year uses 40% of global industrial chlorine, converted first to Ethylene DiChloride, then to volatile Vinyl Chloride Monomer (VCM) which at even one part per billion increases cancer risks by one per five thousand individuals exposed to fugitive emissions during VCM transfer from ships, from plant pumps, compressors, pressure relief devices, connectors and valves, from dryer exhaust and even evaporation from discharged effluents.

During use, toxic phthalates leach into foodstuffs, yet we turn a blind eye to use-and-throw PVC for mineral water, food packaging and even baby milk-bottles! Twenty countries have already banned phthalates in toys for children below 3 years. India is not one of these. Surely our kids also deserve protection from such 'poison lollipops'?

During disposal, the 57% chlorine content of pure PVC generates deadly dioxins when waste is burnt on roads or waste-dumps or as refuse-derived fuel in waste-to-energy incinerators or in boilers. At waste dumps and landfills, toxics in PVC, like phthalates and heavy metals, leach into soil and water. Burning releases them into the air and landfill gases.

PVC recycling is not an answer. It is a health hazard for those handling and recycling electrical cabling. In mixed waste it increases the toxic impacts of other discarded products like computers, auto parts, coated papers. One PVC bottle can ruin a batch of 100,000 PET bottles during

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their recycling and adds a lot to plastic recycling costs. Hence the 1990 Swiss ban on PVC bottles. Even recycled alone, PVC's variable formulations make it difficult to recycle all PVC economically.

### **Where is PVC useful?**

Abroad, 84% PVC is used in long-life items like piping and the construction industry. PVC pipes are corrosion-resistant, easy to install and give low-friction flow of liquids. PVC in cables does not burn, though its HCl gas release in fires kills many. Fires in buildings and vehicles also release dioxins.

Despite this, countries like Canada and Slovakia, and cities in US, UK and the EU have already banned or are banning the use of even long-life PVC items like piping. Six German States, 62 Spanish cities and the Sydney Olympic Village are PVC-free.

Industry is following suit. GM, VW and Honda are removing PVC from cars. (Indian exporters take note!) and Sony from electronics. The US Navy and Airforce and NASA are eliminating PVC. The USEPA HQ in Washington DC and major architects have vastly reduced or stopped the use of PVC in walls, floors and roofing.

### **Where is PVC unnecessary?**

PVC need not and should not be used in use-and-throw items like bottles, packaging for food, water and medicines, stationery and labels, toys, footwear and consumer goods, amounting to 24% of global use. Replacing PVC with other plastics will cause no labour or technical problems. But one should be careful not to replace PVC labels, say, with nuisance non-recyclables like BOPP labels for soft-drink bottles, which in

many countries including Pakistan have been replaced by easily removed paper, or no-wrapper printing.

Hidden toxics like PVC in multi-film sachets and packaging, must be eliminated. All of us must decline to promote its use and work for safe recyclable alternatives.

### **PVC for Biomedical Use**

PVC is used in 25% of all medical plastics, because it is flexible, transparent, low cost and bio-compatible. That is why the Biomedical Waste Rules require that all biomedical plastics can only be sterilized and shredded, not incinerated. Still, it is time to develop and promote safer alternatives and make them cost-effective. Soft PVC for medical gloves and intravenous bags is easily replaced by polyethylene and even compostable plastic film. Till full replacement is done, the low-cost treatment invented by Trivandrum's Sree Chitra Tirunal Institute for Medical Sciences to prevent leaching of toxic phthalate plasticizers into life-saving fluids should become mandatory for Indian producers of all PVC items.

### **The Way Forward**

**At an Asia Pacific conference on Recycling of Plastics in February 2007 at Mumbai and Delhi, this proposal for a ban on use-and-throw short-life PVC items was met with surprising acceptance by all.** So what is now needed is a compilation of Indian producers or importers of PVC, the percentage of their raw material going into short-life items, an inventory of PVC rigid and film producers who would be affected by a ban, the cost of conversion to non-PVC production, the added cost of such non-toxic products, a reasonable time-table for phase-out, policy

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advocacy with the industry, with MoEF & CPCB, and any economic instruments necessary to ease the transition.

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Devina Sehgal

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**ANNEXURE-D**

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Member, Solid Waste Managemt Expert Committee, Bruhat Bengaluru Mahanagar Palike

7.5.2015

To The Secretary MOEFCC  
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Dear Sir

**DRAFT PLASTIC WASTE MANAGEMENT RULES 2015**

Greetings. The revision of the Plastic waste Management Rules and its preamble "need to give thrust on waste minimisation" is a great opportunity for PREVENTION OF NUISANCE AND UNRECYCLABLE WASTES ON PRECAUTIONARY PRINCIPLE. We can go far beyond carry bags and laminates to eliminate major non-recyclables in municipal waste. What must at the very least be included are the following major points :

1. **BAN ONE-TIME-USE PVC** or halogenated polymer items. PVC which is 57% by weight of chlorine, is now a "poison plastic" being increasingly banned in the West, because it is the only one which produces dioxins wherever it is burnt: on shop footpaths, burning waste-dumps or MSW (Municipal Solid Waste) incinerators. Unlike almost all other polymers, it is also not usable in bitumen roads or in P2F (polymer to fuel) plants, as the chlorine will corrode equipment.

**80% of banners, hoardings and posters in India are printed on PVC flex and vinyl imported from China, where its**

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Devina Sehgal



**domestic use is banned!** PVC-free eco-flex based on polyethylene is already produced in India by four companies. All PVC-free flex can be recycled and fetch recovery value, unlike current unwanted and unrecycled PVC flex and vinyl. This value compensates for the 15% higher cost of PE flex.

PVC is widely and unnecessarily used in stationery, toys, footwear and luggage, bottles and tablet-packaging. PVC-free substitutes for all are readily available.

PVC use can be temporarily permitted in piping, cables, wiring insulation and wall and floor coverings which have a long life, but generate killer hydrochloric acid gas fumes during fires in buildings.

PVC may be temporarily permitted in use-and-throw medical tubing and blood/urine bags until these can be phased out by differential tax pricing.

2. **PHASE OUT AND PROGRESSIVELY BAN EXPANDED POLYSTYRENE PACKAGING** ('Thermocole' or 'Styrofoam'). This is a huge nuisance waste in MSW although it is recyclable and can be used in 'plastic roads', because less than one ton can be loaded in a 10-ton truck for transport to a recycler. Abundant recyclable alternatives are available and in fact used in the West, Japan etc: folded cardboard, papier-mache, bubble wrap, soluble "peanuts", reusable urethane foams etc.
3. **REQUIRE ONLY FULLY-COMPOSTABLE PLASTICS AND INGREDIENTS TO BE USED IN SANITARY NAPKINS AND BABY AND ADULT DIAPERS.** Then these can go with "wet

waste" instead of requiring drop-off at biomedical waste pick-up points where such services exist. The technology is fully available and was introduced in Korea until phased out for economic reasons during the 2008 financial recession. All non-compostable sani-waste management must be compulsorily EPR-funded at least by the three major feminine-hygiene producers in India (Unilever, Procter and Gamble, Johnson) to make a switch-over financially attractive. Currently urban Local Bodies are bearing the cost of their extra profits by not using compostable plastics in this increasing urban waste. Also all Government-promoted or funded distribution of sanitary napkins in rural areas must compulsorily use compostable products to enable deep burial for disposal.

#### **4. STRENGTHEN E P R REQUIREMENTS**

The original inclusive definition of EPR in Plastics Rules 2011 should be retained, not diluted as in draft 2015 rules. The EPR responsibility must be made mandatory for all manufacturers, producers and users of branded plastic packaging with a specified minimum annual sales turnover of packaging material and/or packaged commodities. SPCB / PCC licencing needs to be conditional on proof of enrolment and participation in and contribution to EPR activity in any ULB or Gram Panchayat as a tiny percentage of their reported turnover, on Polluter Pays Principle.

Their opportunities for compulsory individual or collective EPR by way of funding or services should be clearly spelt out.

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**5. INCLUDE ALL CENSUS TOWNS IN ALL FIVE WASTE MANAGEMENT RULES**

All Census Towns should be included in the definition of Urban Local Bodies (or 'Towns' ) because in the 2011 Census, there were 4041 urban local bodies plus almost as many 3894 census towns out of a combined total of 7935 towns in India which are not villages or Gram Panchayats.

**6. NO CHANGE IN MINIMUM 40 MICRON THICKNESS**

It has been conclusively proved countrywide that twice increasing the minimum thickness of carrybags to first 20 micron and then 40 micron has had not led to any improvement whatsoever in collection of waste plastic but has rather doubled and then quadrupled the actual weight of plastics in the environment. Us supermarket plastic bags are just 8 microns and adequately carry heavy contents.

**7. WASTE COLLECTOR AND RECYCLER REPRESENTATION**

No waste-picker organisation or recycler representative has ever been included in these micron-thickness decisions pushed allegedly for their benefit. It has been solely driven by a major virgin-granule manufacturer's desire to increase the volume of plastics consumed in the market. This must stop.

A representative of Alliance of Indian Wastepickers or Pune's Swach and similar grassroots organisations, plus of eventual recyclers, must definitely be included as Expert Members in State Advisory bodies.

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9769**8. USE OF COMPOSTABLE PLASTICS**

This should be mandatory for sanitary napkins and diapers etc, and also for packets of garbage bin-liners sold in shops. There should be NO MINIMUM THICKNESS REQUIREMENT for fully-compostable bags conforming to IS/ISO 17088 as these have proportionately much higher strength than same-thickness polythene etc. Hence thinner bags can be priced closer to non-compostable bags, for public benefit. In fact persons should be discouraged from using any plastic bags for wet waste.

My point-wise minor corrections are being emailed separately to Mr Sinha and Mr Shard.

With best wishes and always with pleasure at your service,

Sincerely

Mrs Almitra H Patel

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Deekina Sankar