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**MANAGING HOUSEHOLD SANITARY WASTE**

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India’s Municipal Solid Waste Rules 2000 require waste generators to keep ‘wet’ and ‘dry’ wastes unmixed, so that ‘wet’ food waste can be biologically stabilized by composting or biomethanation, and ‘dry’ waste can be recycled, leaving just 10-15% of total waste for landfill.

But household sanitary waste (saniwaste) like used sanitary napkins (sanipads), soiled baby diapers and adult diapers is now an urban problem countrywide, added unthinkingly into “mixed waste”. Its processing and disposal is a problem in a segregated waste scenario, as it is not ‘dry’ recyclable waste but its non-biodegradable plastic content makes it unsuitable for addition to ‘wet’ compostable waste, and the Rules do not allow landfilling of biodegradables. This ‘saniwaste’ is actually biomedical waste but is not covered by the Biomedical Waste Rules 1998 for hospitals and healthcare units. The solution is to develop and require use of only fully-compostable sanipads and diapers, using imported nonwoven PLA outer wrappings and locally-available compostable films to replace polythene barrier films.

Till then, cities must find alternative solutions. Since September 2013, Bangalore has begun separate collection of this domestic sanitary waste in about 4% of its 198 Wards. Used sanipads and diapers wrapped in newspaper (not plastic) are separately collected daily for drop-off at regular Biomedical Waste pick-up points along existing routes, such as municipal health-care centres or cooperating private hospitals.

In this four-month pilot effort, Bangalore has diverted from its dumping grounds totally seven tons a month of potentially infectious saniwaste. About half of this is collected from a dozen large apartment complexes at their gate by two biomedical waste management firms. They are charged a fee of Rs 17-20 per kg for this dedicated pickup service, costing Rs 35-40 per flat per month, as average saniwaste generation is 2 kg per month per family.

No fee has yet been fixed by these firms for transport of saniwaste brought by doorstep waste collection services from individual homes to designated locations. The municipality will later pay the biomedical firms for saniwaste pickup from existing points on their route. As both biomed facility incinerators are running at only 40% of installed capacity, the marginal-costing per kg need only be for the additional power and fuel costs of longer incinerator hours.

This simple Bangalore model is a waste-management example that can be readily adopted countrywide by every town or city where a biomedical waste processing facility is in place.

Full paper :

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India’s Municipal Solid Waste Rules 2000 require waste generators to keep ‘wet’ and ‘dry’ wastes unmixed, so that ‘wet’ food waste can be biologically stabilized by composting or biomethanation, and ‘dry’ waste can be recycled, leaving just 10-15% of total waste for landfill. Many citizens who care about the environment and the ill effects of dumping mountains of mixed waste are already doing their bit to keep their wet and dry wastes unmixed, even where cities are not very helpful in this mandatory effort.

But household sanitary waste (saniwaste) like used sanitary napkins (sanipads), soiled baby diapers and adult diapers is now an urban problem countrywide, added unthinkingly into “mixed waste”. Its processing and disposal is a problem in a segregated waste scenario, as it is not ‘dry’ recyclable waste but its non-biodegradable plastic content makes it unsuitable for addition to ‘wet’ compostable waste, and the Rules do not allow landfilling of biodegradables. This ‘saniwaste’ is actually biomedical waste but is not covered by the Biomedical Waste Rules 1998 for hospitals and healthcare units. The solution is to develop and require use of only fully-compostable sanipads and diapers, using imported nonwoven PLA outer wrappings and locally-available compostable films to replace polythene barrier films. A few small-scale industries are piloting efforts to develop fully-compostable products.

Till then, cities must find alternative solutions. Since September 2013, Bangalore has begun separate collection of this domestic sanitary waste in about 4% of its 198 Wards and 85 lakh population. Used sanipads and diapers wrapped in newspaper (not plastic) and preferably marked with a red X are separately collected daily for drop-off at regular Biomedical Waste pick-up points along existing routes, such as municipal health-care centres or cooperating private hospitals, or in one Ward from nearby Dry Waste Collection Centres.

In this four-month pilot effort, Bangalore has diverted from its dumping grounds totally seven tons a month of potentially infectious saniwaste. In Bangalore now, all bulk generators of waste including hotels, marriage halls and large group-housing apartments and estates have to make their own arrangements for both wet and dry wastes, preferably with onsite composting or biogas production. Group housing societies must deliver household saniwaste to city-designated pickup points in their area or pay for a dedicated pickup service, which is what most prefer to do. So four tons a month (of the 7 tpm) is collected from a dozen large apartment complexes at their gate by two biomedical waste management firms, Maridi for South Bangalore and Sembramky (now Ramky) for North bangalore . Such bulk generators of waste are charged a fee of Rs 17-20 per kg for this dedicated pickup service, costing Rs 35-40 per flat per month, as average saniwaste generation is 2 kg per month per family. Sharps and expired medicines are also picked up from them.

No fee has yet been fixed by these firms for transport of saniwaste brought by the city’s doorstep waste collection services from individual homes to designated locations. The municipality will later pay the biomedical firms for saniwaste pickup from existing points on their route. As both biomed facility incinerators are running at only 40% of installed capacity, their marginal-costing charge per kg need only be for the additional power and fuel costs of longer incinerator hours.

Countrywide, all biomedical waste collection firms have to file reports with their respective State Pollution Control Boards, giving data for the previous year or two of total charges per bed for hospitals and of total quantities of waste in each category (for autoclaving, incineration, etc). This data can form the basis of negotiations for proposed Sani-Waste Collection charges payable.

It is important to note that no special or costly jumbo bags are required for collection and transport of domestic sanitary waste for incineration at biomedical waste facilities. Even old cement bags will do for this, as they made of woven HDPE, similar to the yellow polythene bags permitted in the BMW Rules. Unlike blood/urine bags and IV tubes, they contain no PVC which is the only plastic that can generate dioxins on burning. Firms that wrongly promote various types of “degradable” bags as “mandatory” for incineration of hospital biomedical waste are doing this only to increase their business. The only benefit of fully-compostable (not degradable or oxo-degradable) bags is for disposal of ‘wet’ food wastes for composting.

This simple Bangalore model is an example of domestic sanitary waste management that can be readily adopted countrywide by every town or city where a biomedical waste processing facility is in place.

**COMPOSTABLE SANIPADS**

Saniwaste is now spreading also to villages with no waste-collection services, as States begin distributing millions of factory-produced sanitary napkins (sanipads) annually to rural students. Here land is readily available and burial is an easy option for disposal, preferable to open burning. But this requires that buried sanipads be fully compostable. This is easy but is not enforced. The inner layer of absorbent fiber is fully compostable. The lower leakproof barrier film (usually a blue plastic polythene layer) is very easily and immediately replaceable by affordable and fully-compostable films readily available in India since years. The upper or outer covering layer is usually of non-woven PP (polypropylene) which is non-biodegradable. But this can be readily replaced by non-woven cellulose or nonwoven PLA (Poly-Lactic Acid) which is now available.

So States should distribute only fully-compostable sanipads in rural areas. Also, the Govt of India should set a time-table for the 3-4 major sanitary napkin producers with maximum market share to switch to fully-compostable sanipads and diapers within a year or so. Economic incentives can also be recommended as a policy to drive the change-over, such as excise-duty and customs waiver on eco-friendly non-wovens or a lower sales-tax on compostable products for a two or three-year window, and an enhanced eco-tax on non-compostable models thereafter. This can be one of the Resolutions emerging from this conference.

References and contacts : [www.maridibmw.com](http://www.maridibmw.com), seshi.reddy@sembcorp.com [www.earthsoulindia.com](http://www.earthsoulindia.com)

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