

WASTE-MANAGEMENT MIRACLE IN WARANGAL, OCT 2012

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For the first time in India, perhaps in the world, a city achieved 100% door-to-door collection of upto 80% fully-segregated waste discards in its residential areas in just one week ! A daring experiment at Warangal to make waste management exciting saw 240 local teams and 134 teams from 59 nearby cities compete for a dozen personal prizes and glory. This transformation was achieved in a mid-October week in 2012. The enthusiasm and learnings from this capital of the old Kakatiya kingdom is now being applied in two more cities in Andhra Pradesh (AP) with plans for an ever-widening ripple of cleanliness in other States too.

Warangal was a typical dirty tri-city of 648,000 population, with garbage overflowing from cement-ring dustbins, steel containers and open dumping spaces and choking its roadside drains. Today it is proudly cleaned-up and aiming to become a near zero-waste city, thanks to an exciting Clean Cities Championship (CCC) Campaign. This unique partnership of the State's committed Municipal Administration Directorate with a core team of freelance solid waste experts received Rs 2.4 million funding from the State's Pollution Control Board, its most cost-effective investment ever. Warangal's Commissioner led his city officials from the front, winning total citizen support with tremendous help from the media.

The Idea

The germ of the idea came from Uday Singh Gautam, a cricket umpire and Suresh Bhandari, both SWM Advisors to small towns in AP, who thought an SWM challenge match could be conducted on the lines of an IPL 20:20 match for SWM teams from different cities, each given one week to convert one allotted Ward of a city to total door-to-door collection of fully-segregated waste, with dry waste going to recyclers and wet waste managed within the city in vermi-beds or decentralized compost units or biogas units. Within a week the host city would become dustbin-free and not need a dumping-ground. The winning team members would get individual cash prizes like cricketers.

They shared their concept with S. A. Khadar Saheb, the Joint Director of AP DMA (Directorate of Municipal Administration) who, as Commissioner of Suryapet in 2004, put his city of 103,000 on the national map as India's first dustbin-free as well as dumpyard-free city, totally compliant with India's Municipal Solid Waste Management and Handling Rules 2000 (MSW Rules).

They got full support from Mr B Janardhana Reddy, the enthusiastic CDMA (Commissioner, DMA), famous for holding his regional city meetings in different dumpsites. This had inspired Saluru Commissioner Shaikh Subhani to hold his daughter's wedding in his town's cleaned-up dumpsite-turned-park in May 2012, earning the town a place in India's Limca Book of Records. It is probably a global first in the SWM field.

Mr Reddy, amazed and supportive, immediately agreed to test their plan of action in a city with over half a million population. The objective was to clean up the host city in 7 days with its own host team and participants of other municipal teams for whom it should be a practical learning experience, spreading in a ripple effect to many other towns. It should be able to demonstrate that the most critical steps in the MSW Rules can be implemented holistically and scientifically in one week to move towards a “No Dump” city by maximum recycling of dry wastes and composting of wet wastes.

Planning

Warangal was selected as host city for this event as it had recently ordered several push-carts for D2D collection and was headed by a dynamic and open-minded young city Commissioner Vivek Yadav. The experiment was launched in a record 20 days of intense planning and training. The media consistently provided positive and supportive coverage for this Campaign, a great help. Joined by Dr Sanjay Gupta from Delhi and communications expert Muthukumaraswamy from Hyderabad, the core team for the effort camped for 3 weeks in Warangal, dividing its Google-mapped streets into about 400 units based on road length and 300-500 households/shops depending on population density of each area. Within each unit the existing SWM Supervisor, based on first-hand knowledge of his beat, prepared detailed route planning for all the participating teams.

Unlike conventional awareness methods, the Campaign used several novel and innovative strategies like a Cycle Rally as a curtain raiser for waste management initiatives, Audio Awareness Vans with customized jingles, Hoardings on the Championship with quotes from Gandhiji and Mother Teresa, street plays and bands, FM Radio as an official partner, an SMS Campaign, Contest Cards etc.

Prior to the competition, there was intense training of city sanitation staff and workers, 60,000 self help group workers, 400 NCC youths to monitor and evaluate performance, teams of nurses and teachers to spread awareness of the need and importance of keeping wet and dry wastes unmixed and handing them over separately. Waste collection centres were identified in each Ward of the city. The durable stainless-steel pushcarts were specially designed with four 40-litre unbreakable plastic bins with lids and a double push-handle to support two large canvas bags with handles for separate collection of paper and of plastic and other dry wastes. “Wet” waste from fruit, flowers and cooked and uncooked food was collected in three of the four bins, In the fourth bin, fuel items like coconut shells, coir and tree branches were collected separately at the doorstep during pushcart rounds and sent to a biomass-to-power plant. All this ensured maximum easy utilisation of all discarded resources (never thought of as ‘waste’).

Action

During the competition, each day the wet waste and fuel bins and the dry waste bags were individually weighed at the collection centres before dispatch, for statistical purposes. Wet waste

buckets were emptied into a tipper truck or compactor for onward transport 15 km away to Madikonda, a 39-acre waste-processing site, for windrow composting. Dry waste was sent from all collection centres to a large central hall for baling and sale to recyclers. Market waste was sent to an inner-city nursery for stack composting on ingenious platforms of concrete grilles (from ventilator windows or tree guards) raised above-ground on concrete blocks, to ensure air circulation through the heaps, which after two weeks were transferred to vermi-beds in an adjacent shed. A biogas unit was nearing completion nearby to accept more wet waste, so that eventually there would be no need to send any wet waste outside the city for windrow composting. Coir waste and garden waste branches were to be sent to a nearby crematorium as free firewood for the poor.

Each day, members of the core team fanned out to spend a half-hour with each competing team, to help motivate the residents to give waste to D2D collectors at their doorstep and not throw anything into the traditional cement-ring dustbins, which were progressively removed (for eventual use as tree planters). This removal of dustbins was hugely welcomed by citizens living near them, but greatly feared by the junior inspectors of the city who wondered where the waste would go without them. They were reassured when they saw, by day 3, that hardly any waste was reaching these dustbins. It is planned to place potted plants at each former dustbin spot to beautify the site and permanently indicate that these locations are no more meant for disposal of waste.

The city Commissioner supported the one-time cleanup effort with extra vehicles and manpower on Day One for cleaning out all drains and transporting the waste to Madikonda. On Day 5 a similar mass cleanup removed all small debris heaps to leave all areas thoroughly cleaned. Madikonda itself was beautified overnight with an instant entrance garden complete with lawn and tall palms. The old waste at site was piled into wind-rows. A 'Balwan 9000' garbage sorting unit (9 tons a day input capacity) was rushed there from JK Engineering Works Malegaon in time to demonstrate the simplicity with which an old dumping ground can be cleared by "biomining". The Balwan hopper was hand-loaded with old waste (after a day's spreading for good drying) and came out as three usable fractions: dust-free plastic suitable for recycling, fine clean organic matter looking like vermin-compost and usable as bio-earth for landscaping and erosion control, and a coarse gravelly fraction suitable for garden paths and road-shoulder improvement. Almost nothing is left onsite after this operation except rags and coconut shells removed during hand-loading. These will be sent as fuel to the power-plant about 100 km away.

Results

The key outputs of this championship were that in just 7 days, the corporation segregated and collected over 300 tons of recyclables which would otherwise have ended up at the dumpsite. It established waste segregation habits among households, school children and municipal staff. It proved that a majority of the public participates if they trust the municipal collection service to be regular, punctual and sincere about transporting waste unmixed for separate processing and

recycling. It showed the importance of clear and sustained communication and proved that simple methods, simple tools and techniques are more effective than costly technologies and capital-intensive infrastructure.

Winners

The winners of the Clean Cities Competition Championship were announced at a large gathering on the morning of October 18th, where prizes of Rs 30,000, 18,000 and 12,000 were shared by the top three teams. Home teams from Warangal plus nine teams from other urban local bodies shared prizes of Rs 12,000 each. More inspiring than the money prizes, however, was the infectious spirit of participation and competition that lighted up the event and will ensure that Warangal, now clean, stays clean. The AP Pollution Control Board got more than full value for their money, a message to all other Pollution Control Boards on how to proactively control urban pollution in their respective States. The meticulous planning, hard work and attention to detail of the Clean Cities Championship core team (see Contacts below) was awesome and ensured the phenomenal success of their experiment in such a short time-frame. They were so enthused that at the end of the Campaign they decided to make their team services available to any city that sincerely requests it. They have already helped two other cities of AP to adopt single-city competitions, and two more cities are wait-listed.

Ultimately, any city that adopts this sportingly competitive route to cleanliness is a winner too.

Eleven Months later :

A follow-up review highlighted the following important outcomes.

- 1, Constant focus on SWM at the topmost level is important and necessary. Cmr Yadav pays daily surprise morning visits to a route picked at random by draw of lots. For the first few months he rewarded good performers with spot-cash rewards of Rs 250 to a group performing well. A best-household-per-route reward system was also planned.
- 2, Residential areas comprising about 5 lakh (77%) of the total population is still successfully covered by door-to-door collection, and is clean and happy. The remaining 23% population along heavily commercial areas was not covered by the CCC Campaign and still dumps mixed waste into skips lifted by dumper-placers to the compost-yard at Madikonda.
- 3, Excellent widespread dependable long-term data on waste generation is being daily uploaded since almost a year on Warangal's website www.ourwmc.com. This is astonishingly useful almost city-wide data for waste analysis. It was soon found that waste generation is only 150 tons a day from 5 lac population, or 300 kg per capita, the correct standard for medium-sized towns. Before the campaign, Warangal Corp was being billed for average 360 tons per day, 2.4 times the actual amount. (The Health Officer on deputation was returned to her H&FW Dept). Diesel savings are around 20-30% of previous figures.

4, When tractor payments were restricted to actual weighment and strictly monitored, the 8 private-tractor contractors who were exaggerating trips earlier, went on strike. Luckily Warangal's own 18 tractors and spare drivers temporarily took up the load. This highlights the importance of every city privatising not more than 50% of its SWM activities, so that the city cannot be blackmailed either by city labour unions or by private contractors.

5, No extra labour force is needed to provide full door-to-door coverage to all residential areas. The 200 permanent and 1800 other workers who were "not working" effectively earlier are now working properly and earning their salaries. The local union protested that the workload had increased and more labour should be employed. They were pacified by the Commissioner and promised 5% of sale proceeds of Dry Waste for the Union Welfare Fund.

6, Out of 150 tons a day of waste, 20 tpd (11.3%) is paper and plastics, awarded by tender to a Hyderabad bidder ACF. His payments (about Rs 1 lakh in the first three months) are kept in a separate escrow account for distribution to the waste-collection crew. About 8 tpd (5.3%) is combustible (coconuts, rubber etc) which is collected at site on payment by Shalivahana Power in Karimnagar (70-80 km away) for power generation.

7, The remaining 122 tpd is wet waste. One ton a day of market waste is being vermi-composted and one ton a day fed to a biogas unit, both in a city park. The biogas power is lighting up a playground, park and municipal office nearby.

8, 120 tpd of wet waste is being unloaded at Madikonda in shallow windrows which are not turned. There are plans to treat them with water from a local nala plus 5% by weight of fresh cowdung, as a bioculture. Old compost onsite may be used as temporary cover for fresh heaps for odour, fly and pest control.

9, Biomining with the Balwan garbage-sorter has already cleared a large backlog of waste at the Madikonda dumping-ground, recycling both space and old material. One 9 ton/day garbage sorter is already working at Sira in Karnataka, and Goa is ordering four much larger machines with conveyor feed.

10, All expenses on the Championship were recovered as savings in SWM costs in less than two months at Warangal, with the citizens happy and cooperative.

Experience in Other Cities :

The team confidently launched the Clean Cities Championship in two other cities in the same State of AP, both without any Government funding. In Guntur, pop. 700,000 they were able to raise donations for pushcarts plus advertising revenue from sponsors' names on them. They also greatly reduced the advance publicity, invited no outside cities' participation, and launched it in phases in a few Wards each day which allowed more focused attention to micro-planning along the route and for collection practices. The actual "competition" event has been postponed

because of political unrest, but self-help groups have been engaged to do regular daily monitoring and performance-grading citywide, for eventual awards. In the port city of Vishakhapatnam or 'Vizag', population 2 million, the Clean Cities Championship methodology is being launched without fanfare but with effective change of waste-workers' habits in one of the six Zones of this large city. Three other cities are eagerly awaiting their turn for a CCC transformation.

REFERENCES, WEBSITES AND PERSONAL COMMUNICATIONS :

- 1, Urban Connect Special Issue Vol 3 Issue 4 apufidc@yahoo.com
- 2, Inter Press Service News Agency 22 Nov 2012 <http://www.ipsnews.net/2012/11/making-waste-management-a-sport-in-india/>
- 3, Keya Acharya keya.acharya@gmail.com in The Sunday Hindu Bangalore 25 Nov 2012 <http://www.thehindu.com/arts/magazine/trash-driving/article4126243.ece?textsize=large&test=1>
- 4, Presentation by Almitra Patel at Bhopal, Madhya Pradesh, India on February 16, 2013 at "International Conference on Waste, Wealth and Health" organised by International Institute of Waste Management (IIWM).
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