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A PATH FOR HORIZING YOUR INNOVATIVE WORK

RECENT APPEALING TRENDS IN SUSTAINABLE DOMESTIC SOLID WASTE MANAGEMENT

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Abstract: At present more or less every metro, Medium and small cities are facing the issue of waste management. Being responsibility of local authorities, possible private partnership didn't develop and grown economically though the local authorities haven't fulfilled the need and protocol of capacities and regulations. There is variety of culture, prosperity, density in existing population, for which fundamentally one rule, one solution, one method is not possible. It's clear now that the issue handling by local authorities is beyond their capacities. In any way the responsibility, methods, solutions for handling the waste and convert it in resource need to be decentralized. Everyone from citizens, corporates, local authorities need to be a part of it, for which private partners need to be motivated, emerge, grown, sustained economically, to develop appropriate working manpower in it. Most of the science available need to be applied as technology and engineering with its viable sustaining models. In this issue we will discuss some motivating and innovative cases which are light of hope in present situation in which the young and intellectually capable peoples are devoting their time to build the solutions and systems to manage the waste to resource. This effort will just to help to trigger the ignition to build new energy centers in potentially capable individuals or an institutional level who wants to contribute to save every molecule of nation's resource, rather which is share of upcoming or future generations which we are consuming unwisely.

Keywords: Solid waste, management, new trends.

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INTRODUCTION

Just on single click on web world we will get the numerical of urbane population, its future growth, and waste generations at every location, and how it is getting processed and the havoc happen. Every local authority is spending lot of their energy in publication the ways they are acting on this issue, how they are using modern techniques of waste management, most of them are centralized. Though India framed its first Municipal Solid Waste (Management & Handling) Rules 2000, which lets both cities and their citizens know their duties and responsibilities for hygienic waste management, we have not achieved base step of segregated waste collection and decentralized processing steps.

It's quite clear now; any single government authority can't be a total solution provider for ref issue, sharing and assigning responsibilities to respective polluters in decentralized manner at various levels of cascade and shaking hand with public –private partnership defiantly we can reach to part of solutions.

Eyeing just Mumbai – Punes 2.25 crore approximate populations, we have to handle almost 10000 MT waste daily.

How all sectors of society, Local authorities, NGOs, private sectors, corporate sectors, citizens, Media, can be an active part of this solution? With focus on solution part, keeping aside the failure analysis. In ref case study we will go through the success stories of various agencies working in this sector.

1. INORA

This is Pune based, the women driven enterprise established in 1992, having experience more than 20, and executed projects for diverse customers –individuals, housing complexes, industries, farmers, government institutions, and municipal corporations.

In ref of domestic solid waste management, un segregated waste was being lifted without any issue, for years & years no one was ready to invest a single rupee and land for its processing. In last 4/5 years, agitations against dumping of unprocessed municipal waste done by villagers residing near dumping yard made municipal authorities to force the societies to manage their wet waste in their land and with own cost only. This turn faces of societies towards the NGOs, firms which were in processing of wet waste. Till the history NGO/firms were requesting peoples the ethical way of wet waste processing are being get chased by societies to get the service, and being in small no's and capacities the demand supply ratio was unable to cater.

In startup gears INORA also faced lot of struggle, as today we can see the CSR activity involved, this was not situation before 5 years ago, and financial sustenance was really difficult, it was keep green by their activities like garden club, social entrepreneurs and satellite centers which was also less in nos. In this scenario being strong technical and social entrepreneur base and long experience of 20 years, INORA worked well, in ref of domestic waste at present in city INORA has strong network of satellite centers driven by volunteers.

At Present INORA is playing with more than 330 Master composters, processing 30,000 Kg per day, in various societies with the help of two garden club, 7 social entrepreneurs and connected with 1,00,000 citizens with 16 satellite centers.

INORA has also its strong footprint in Sustainable Agriculture Organic Farming, City Farming, Gardening, R&D and Manufacture of Manures, Bio Fertilizers, Pesticides and Cultures, Agro Waste, Industrial Waste and Sludge, Garden Waste, Grey Water Treatment, Bio-fertilizers, Bio-pesticides, rural solutions for house hold waste and agro waste etc.



Pic – 2 Master composter for society.

Individual city farming /composter developed by –INORA – This is small composter designed for small family of 3 to 4 peoples to promote individual composting.



Pic – 2 Composter and Planter for individual.

2. Daily Dump

The national institute of design alumni came up with simple and effective: aesthetically and appealing solution of terracotta composters, or khambas and a kit that helps individuals to compost their organic waste in their own homes.

Poonam bir kasturi, who was also a founding faculty of the Srishti School of Art and design and technology in Bengaluru.

Daily Dump in 2006 was clear that decentralized waste management was the only way of the future. Born out of a rigorous understanding of the Indian context, the socio-political-economic factors that create the issue of urban waste, our solutions are designed to solve the problem at its origin – in the hands of the individual or communities generating the waste.

From 30 customers when they started in 2006, the company now counts 30000 families across 17 cities. There are 20 outlets in bengluru alone. At present they are keeping approximate 15000 kg waste out of dump daily and generating about 1crore revenue in 2014-15, from which 70% revenue comes from a three tiered khamba, and expected to triple in this year.



Pic – 3 Potters with Daily dump.

Their terracotta range of composters supports another informal and threatened group - the potters. India had a very rich tradition of pottery and potters were respected craftspeople who contributed to the social, cultural and economic fabric of society. Now, potters children do not want to continue learning and practicing this craft. It has no dignity and no money. Our products support and raise value of this sector. Their value among their peers in their village has also risen because of coverage of their work in the press. Daily Dump continues to engage and understand their aspirations, their notions of wellbeing and their work to learn and build solutions that can help.

Daily Dump has empowered through a practical tool to contribute to a clean city and adopt a sustainable practice. Also the rural art of pottery making has met with real need of urban waste management. Access to a stable market for utilitarian product (as a range of our products are made from terracotta for household use) and Reduced burden on the system due to reduction in costs of waste collection, hauling, transportation and land filling.

3. GPS (Green Power Solutions) Renewables

Sreekrishna Shankar and Mainak chakraborty graduated from IIM BANGLORE founded “GPS (green power solutions) RENEWABLES” in 2012.

They took almost a year to figure out which social and environmental problem they should tackle. Being engineering background and study made around year they figured out the waste to resource area and developed a prototype that could convert organic waste to energy, specifically –biogas that could be used to power the same kitchens which are generating it.

They ran the bio-urja (the smart bio gas Plant) for a year before setting up the first modular

System. Two years down the line, the firm is operating 25 projects in India and Bangladesh with another 20 coming up including units in the US, Malaysia and shrilanka.

Along the way, the company has been profitable since its launched, has won various international awards and recognition from World wild life Funds.

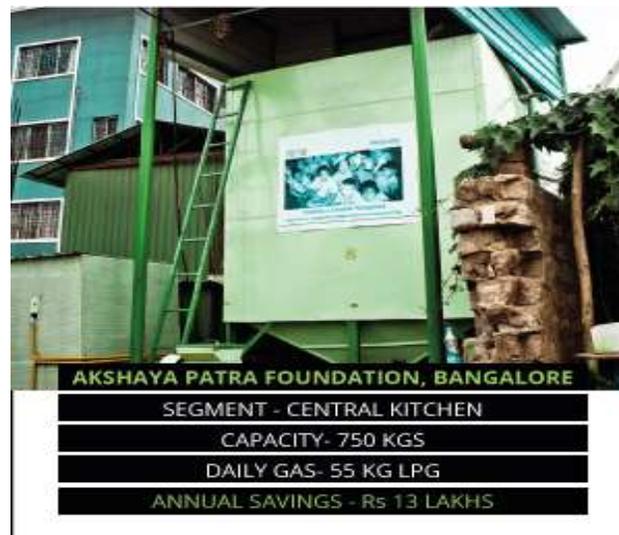
The bio urja need to fed with at least 100 kg of organic waste a day, and one of waste can generates 70 Kgs of LPG or equivalent of five cylinders. The gas is piped back to kitchens, and each unit cost between 10 to 50 lakh rupees,

Depending on capacity client can recover the cost in less than two years through the generations of gas which replaces gas cylinders. Each unit, which is remotely monitored.

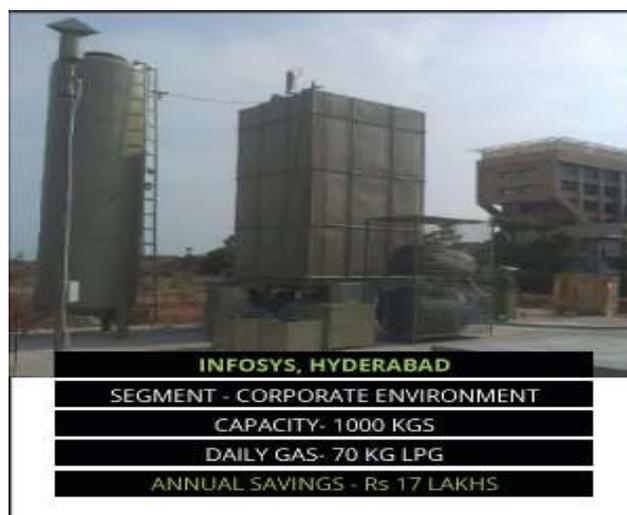
“This is the first internet of things innovation in biogas” says Chakraborty.

4.1 Bio urja Biogas Installations in India:

The GPS Biourja system has been adopted across customer segments as a reliable solution for waste management as well as cooking fuel replacement. While certain customers use Biourja to manage their waste onsite in a viable manner, many customers choose Biourja to reduce their fuel costs. Below have a snapshot of 4 of GPS customers.



Pic – 4 Bio Gas plant



Pic – 5 Bio gas plant

3.2 Awards Received by GPS

1. The Tech Awards 2014 – Finalist in the Intel Environment Award Category.
2. Sankalp Awards – Winner (Clean Energy) at Sankalp Summit.
3. Global Entrepreneurship Week 2011-12 – The Most Promising Indian Cleantech Startup Award.
4. International Knowledge Millennium Conference – Among the Top 6 firms globally.

4. NEPRA RESOURCE MANAGEMENT PVT LTD's

Let's recycle. Initiative

Let's Recycle is the largest waste management solution in India. They strategize to bring in environmental solutions that can help the communities and organizations to become sustainable.

With the wide spread network of recycling facilities the business adapts to meet the needs of various customer groups by tailoring, scheduling and organizing the operations to suite their requirements. Since 2012 they have helped 500+ customers become greener.

Let's Recycle has formalized the Indian unregulated and unorganized waste management sector by sourcing waste from the marginalized waste pickers, ensuring long standing relationships by providing fair and transparent prices. We have impacted the lives of 5000+ people from bottom of pyramid and are committed to do in future.

They are the only waste management organization in India to have developed an Enterprise Resource Planning (ERP) system to track and monitor our activities so as to make the system more authentic and efficient. With our constant endeavors we plan to divert 30000 MT of waste from the landfill by 2020, up from 373MT in 2012, when we just started the operations. A part of this will be accomplished by expanding the business footprint in other cities and the rest by increasing the portfolio and becoming a one stop shop for all waste management solutions.

Services offered by -

Waste pick up -Irrespective of your company's size and profile, we can schedule and tailor the waste services as per your need. We understand the requirements to develop a customized waste management plan for you. Making disposal easy for you

Let's Recycler's Single stream recycling program is easy and convenient. The customers are now experiencing the ease of placing all acceptable recyclable material into a single bin.

They Collects & Process a range of material including industrial waste, papers, cardboard, metal, plastic and wood.

For the organization creating a zero waste business can be long term goal but is highly valuable in current operations as it encourages continuous improvement in the waste management of the firm.

Let's Recycle is an initiative of NEPRA which helps you envisage your company as a Zero Waste Operation and then we figure out ways to help your vision become reality. We thrive for innovation for waste diversion and recycling, bringing in a fresh approach to waste management. Let's Recycle offers full environmental compliance in its operating procedures along with quality and cost effectiveness.



Pic – 6 News from media

5. Let's look in – Yes ...its opportunity

At present eyeing just Maharashtra, approximate 5 crores is urban population and in coming future obviously its rate of increase will be rising one. Domestic Waste generation not going to be a lesser one than prevailing. Expecting recent caring trends in environment and smart cities with Bharat swachhata abhiyan, the future tossing of coins may show the fever to modern and innovative techniques to emerge as we seen in recent cases. In same way people are also working in E waste, electronics waste etc.

Waste economics of 1.25 crore Urban Families considering 4 member in a family						
Sr No	Expected material to be recycled	Avg waste per family per month in Kg	Generated Waste in a Month in MT	Total Waste in a Year in MT	Cost of raw waste per MT in Rs.	Estimated cost of raw waste For a Year in Crs.
1	Papers / coverings /cardboard	10	125000	1500000	5000	750
2	Glass	5	62500	750000	5000	375
3	Clothings	5	62500	750000	4500	337.5
4	Plastic - Bags /coverings.	1.5	18750	225000	5000	112.5
5	Plastic - containers.	1	12500	150000	9000	135
6	Wet waste	18	225000	2700000	1000	270
7	Garden waste	5	62500	750000	250	18.75
						1998.75

Table – 1 Waste Economics

6. CONCLUSION

Let's consider the approximate waste generation by every family considering 4 persons in one family and 5 crores urban population residing in Maharashtra. Considering very basic rates of raw waste can be purchased in viable and sustainable process owner the present cost of waste to be handled from Maharashtra today is Rs 2000 crores in a year. If considering the daily dump revenue expected this year to be of 3 crores, at least ideally 650 firms can run in Maharashtra eyeing zero waste generation. And definitely we should think this as opportunity for generating waste to resource for greener and cleaner nation. Considering this scenario and expectations from green revolution, emerging of innovative entrepreneurs and ruling the government policies need to go smoothly with hand in hand.

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