Annual Report 2015-16

About Us

Saahas, with its headquarters at Bengaluru, has been actively involved in Solid Waste Management for the past 15 years. Our commitment toward Zero Waste Communities is unflinching. We are devoted to finding and implementing new solutions to the ever-growing problems related to the management of Municipal Solid Waste.

Our Mission

To create leading examples of communities across rural and urban India managing their waste at source by reducing, reusing and recycling their waste thus achieving 90% resource recovery. Saahas would work at Policy, Process and People level to maximise resource recovery, reduce burden on landfills and generate dignified livelihood opportunities in Waste Management.

Our Vision

Communities managing Municipal Solid Waste at source in a socially and environmentally responsible manner because when ***waste is managed at source it becomes a resource.***

Our Objectives

The key objectives of Saahas are:

- Working with communities to motivate and implement decentralized waste management systems
- Providing dignified livelihood opportunities and strengthening the informal sector involved in collection and recycling of waste
- Conducting campaigns and awareness programs focused on the concepts of Reduce Reuse Recycle

- Advocacy and Policy intervention in the area of Green Waste Management
- Program support for EPR (Extended Producer Responsibility)
- Study and research related to management of different MSW streams.
- Implementation of the Municipal Solid Waste (Management and Handling) Rules, 2016.
- Implementation of e-Waste Management and Handling Rules, 2016.
- Implementation of BBMPs Waste Segregation Rules
- Implementation of Plastic Waste Management 2016 rules by Govt. of India

Our Programs

Beyond the Broom: Green Waste Management Project in villages of Bellary

Saahas was commissioned by JSW Foundation to conduct a detailed Waste Audit for 31 villages in the DIZ of their Vijaynagar Steel Plant in March 2015. This was done in order to develop a comprehensive Waste Management Program which was environmentally and economically viable. The audit was conducted by Saahas team and the report was submitted in April 2015.

The Key findings of the audit were that wet waste quantity is minimal as it is often fed to cattle or composted. Dry waste is the main issue as it is littered all over and blocks water and sewage channels. Based on the findings of the study, Saahas proposed a three-year program aimed at generating awareness about waste segregation at source, door-to-door collection of dry waste and transportation of dry waste to authorized recycler. This program was to cover 11 villages in a phased manner.

The key components of the program were awareness and collection. The major steps involved in running of the program are to conduct a door-to-door awareness campaign, distribute the dry waste collection bags, to carry out weekly door to door collection of dry, non-biodegradable waste at village level, store the waste in a temporary location in the village and transport it weekly to a centralized facility located in one of the bigger villages. From the centralized facility, it would be sent for recycling. Bio-degradable waste would be managed at village level by supporting the present composting set-up. The compost generated could be used locally by the village residents. For the semi-urban/town areas such as Torunagallu, additional public bins would be provided to handle commercial waste. These bins would also collect segregated waste only and they would be monitored. The pilot project called Beyond the Broom: Green Waste Management Program, implemented by Saahas and JSW Foundation, was launched in August 2015. The program was launched in three villages, Bhuwanahalli, Taranagara and Gadiganuru. A project coordinator and awareness team

members were recruited. The activities carried out in each village were Awareness Program in schools and SHGs, followed by meetings and sessions with Gram Panchayat members and other officials, house numbering and data collection, bag distribution and weekly door to door collection of dry waste. Collection Staff were also recruited during this time, and were trained in collection and sorting by members of the Anegundi Foundation.

The project got the extensive support of the Panchayat and village residents. By the end of the first phase, 3465 houses and 184 shops were covered. 5.5 T of Dry Waste has been collected. 2 truckloads of Dry Waste had been sent to Anegundi Foundation on 11th March 2016 and 4h April 2016.

The program has now been extended to three more villages, Bannihatti, Nagalapura and Gangalapura. The program has received excellent support from the local households and commercial establishments as well as the local bodies. The program will cover a total of 13 villages by end of the next year.

Community Waste Management Centers (Kasa Rasa)

"When waste is managed at source it becomes a resource"

This fact forms the core of a decentralized waste management system. This is the heart of our zero waste neighborhood programs. Managing waste at source involves introducing a neighborhood waste management facility which has infrastructure to manage 2-3 tons of segregated wet and dry waste.

With the support of Capgemeni, we completed the setting up of our third decentralized waste management center in Bangalore in this year. Called Kasa Rasa -3, the center has a processing capacity of 2.5T waste per day and will service 4000 households in Whitefield.

The two program objectives are:

- To create resources from waste rather than dispose it in a landfill.
- To demonstrate efficient neighborhood waste management.

This is the first such centre in Whitefield and the third in the city of Bangalore. Launched as a part of Capgemini's CSR efforts towards the Environment, the primary aim of this waste management plant is to demonstrate the concepts of *Decentralised Waste Management* driven by *Segregation at Source*. The center is located at Doddenekundi Ward 84 in Whitefield.

The center has been established based on a unique PPP model in waste management in Bangalore where Capgemini has set up the entire infrastructure of the centre including equipment such as material handling system and shredder and a building of around 3750 sq. feet. BBMP has supported by providing the land and the operations are being run by Saahas with support from Resident Communities and other citizens' organizations like such as Whitefield Rising and Naanu Nagarike.

The entire design, planning and setting up of the center was done by Saahas. The design of Kasa Rasa 3 incorporates high degree of automation in order to reduce operational costs. The local waste collection and management mechanism was surveyed and the plan for this center was made based on the inputs from the study.

The center was inaugurated on 30th June 2016 and is currently operational.

"The Environment is a critical pillar of our community and CSR efforts. We are committed to sustainability both internally and in the external world primarily through efficient energy use, business travel and waste management. This decentralized waste management center will address the urgent need of solid waste management and treatment with innovative approaches while generating livelihood opportunities, engaging more people in green economy such as recycling, composting and other waste treatment-related activities. We thank Saahas and BBMP for their support and participation in partnering with Capgemini in this initiative. We hope that our efforts will not only contribute to the creation of a better environment but will also build awareness for communities to adopt the best practices in green waste management," **said Srinivas Kandula, CEO, Capgemini India.**

Trash to Treasure : Kitchen Garden Project

The Trash to Treasure program involved the setting up of organic kitchen gardens using the compost produced from wet waste. This program was launched with the support of Global Communities and Caterpillar Inc. The Trash to Treasure program was initiated with the objectives of:

- Promoting Compost made out of Food Waste.
- Developing Organic Gardens and support the concept of growing 'Food' in public places.

- Improving income for Waste Workers (formal and informal) by providing an alternate source of income and also adding to their skill base.

Under this program, organic gardens were setup in 10 different locations across Bangalore. The plants grown in the garden are mainly vegetables and some herbal plants. The organic gardens have been setup in three schools, three apartment complexes, two waste collection & segregation centers, one BBMP park and one club.



Waste workers have been employed in managing the garden, thereby providing them with alternate source of income and enhancing their skill. The Organic Gardens have been producing flourishing and their produce is being used by the residents in the area.

Tetra Pak India Program: EPR Support

Over the last 5 years, the support from Tetra Pak India has helped us achieve significant results both in terms of awareness as well as increase in collection of post-consumer Tetra Pak cartons and filler waste from different areas of Bangalore. Currently, from Bangalore, about 200 T per month is being sent for recycling.

In the last one year, Tetra Pak partnered with Saahas to expand the program to Hyderabad and Mysore-Chenpattana region. The Chennai program that was launched in July 2013 was further supported. A detailed study in collaboration with IIMB was also undertaken to assess and document the socio-economic impact of the program in Bangalore on Waste Pickers.

Mysore- Chennpatna Program has seen maximum success as we were able to collect beyond the set target (55T was collected against a plan of 50 T) for the year. We see huge potential here primarily because of collection from bulk generators which are hotels, bars and restaurants. We have enlisted new scrap dealers and also established a warehouse with help of Panchayat.

The Chennai team has picked up momentum and had done awareness programs and enlisted scarp dealers around the three Railway Stations. The Chennai Floods impacted collection program in the last year, and collection is slowly picking up.

The Hyderabad program started well with quite a few scarp dealers enlisted. The collections will improve if the proposed warehouse will get established in the next year. At present, the collections are being done by scrap dealers.

Responsible Recycling of Low Grade Plastic Waste - Pilot Project

A project to demonstrate responsible recycling of low grade plastic waste like multilayered laminates was piloted in Chennai with the support of Tata Global Beverages Ltd. The objective of the project was introducing a collection/recycling program for packaging waste including difficult to recycle multilayered laminates.

Multilayer plastic packaging by volume accounts for one of the largest streams of waste generated. Increasing larger quantities of plastic waste is being dumped or burnt. Owing to the lack of recycling avenues and hence the poor value attached to this material, it largely ends up in landfills even at places where there is good level of "***segregation at source***". Multilayer plastic packaging is used by most FMCG and Food companies across the globe to package their products. They are now expected to take responsibility for their, pre and post-consumer packaging under the concept of **Extend Producer Responsibility**.

This project was aimed at understanding the current scenario, recycling options available and cost structures in each to arrive upon the most sustainable option environmentally and economically. This model can be adopted by FMCG producers and other producers of plastic waste to meet their EPR requirements.

After interacting with various organizations operating in the waste sector as well reviewing the literature and information available online, the following options were found to be currently practiced or tried for managing low value plastic waste.

- Mechanical reprocessing, primarily for road construction.
- Using as alternate fuel in Cement Kilns
- Converting into synthetic fuel based on thermal or catalytic depolymerisation

We could not find any company willing to take plastic waste for road construction. So this option could not be piloted.

The second option considered was co-incineration of plastic waste in cement kilns, thereby converting plastic waste into energy in an environment friendly way.

Plastic-to-fuel is the other technology which was studied under this project. Different kinds of technologies for converting plastic waste to fuel are Catalytic de-polymerization and Thermal cracking and Pyrolysis. Pyrolysis (Thermal and Catalytic) look promising but the technology has not evolved. It also requires significant capital investment while the return is not yet guaranteed.

After considering the three options, use of low grade plastic as alternate fuel in cement kilns proved to be a workable option for running the pilot. Bharati cements was contacted and they agreed to procure our load of plastic rejects for their cement plants.

As a part of the pilot project, 5.2T of plastic waste from waste workers in Chennai was collected and sent to a cement kiln of Bharati Cements in Kadappa. The Plant is authorized by Andhra Pollution Control Board. Through this pilot project, it was demonstrated that low quality plastic waste which is not found to be of any value and is generally not picked up by any recycler can be used in cement kilns as alternate fuel and can generate revenue for waste workers.

Study Projects

Madiwala Vegetable Market Waste Study

Saahas in association with Robert Bosch Engineering and Business Solutions Private Limited conducted a detailed Waste Audit for Madiwala Vegetable Market in December 2015 and January 2016. The objective was to understand the problem of littering and dumping of waste in Madiwala vegetable market area and to implement a proper waste segregation and collection system which would increase the resource recovery and reduce the quantity going to landfill by close to 90%.

A detailed audit of the market was conducted on different days of a month. The market was first surveyed by the audit team to develop the understanding of the geographical location of shops. Regular visits of the market and discussions with shop owners, market association members, president etc. helped us to develop a rapport and win trust of the key stakeholders.

During the audit, it was observed that non-availability of dustbins is the major problem. It led to dumping of waste by shop owners and visitors on road. This further aggravated the problem and several black spots got mushroomed in the market. Temporary shops littered recklessly when they left the market. All the unsold vegetables were left behind as waste on the road. A total of 10T waste was getting generated in a day. On an average the waste generated per shop was 14 Kgs on weekdays except Fridays and Mondays when it increased by almost 30 % and doubled/tripled during festivals. Despite having 30 PKs and 2 trucks for waste collection, effective collection of waste was not visible.

Based on the audit findings, a proposal was outlined delinking the existing collection and disposal system by setting up a primary and secondary collection system.

Primary Collection: Primary Waste collection points to be created at shop levels where each shop owner could dump in their dry and wet waste. Monitoring through CCTV cameras to prevent littering. Daily collection of waste from primary centres by the tipper autos to ensure waste doesn't pile up at any of these bins/bags.

Secondary Storage Point: The waste to be transported and stored at the larger bins kept at secondary storage points. Presence of secondary storage space would delink the collection and transportation process.

Storage: Storage of waste at the secondary bins would be based upon the destination. Waste, that has to be sent to a cowshed to be stored in different bins. The same process to be followed for waste destined for different disposal destinations.

Transportation: Two dedicated tipper autos would ensure timely pick-up of waste from source and transportation to secondary storage or tertiary sources like; cow shed or police academy ground etc. The waste from secondary storage bins to be collected to be picked up by BBMP compactor vehicle and transported during afternoon.

In all, 10 T of market waste, primarily green/organic waste could get segregated at source in a day. The segregated waste could further be sent to a cowshed or processed at a composting/bio-gas unit.

Primary Study on waste management in CV Raman Nagar

Continuing our focus to build zero waste communities by setting up neighborhood waste management facilities, Saahas has initiated the setting up of a waste management facility, Kasa Rasa 4 in C.V.Raman Nagar area of Bangalore. This facility will have infrastructure to manage 1,2 Tons of segregated wet waste and 0.8 Tons dry waste. This program is supported by Texas Instruments.

The site for the Kasa Rasa 4 unit has been identified and the necessary approvals are awaited. The design of the facility is completed. The construction of the unit and installation of equipment will be completed in the next financial year and unit will start operations by the end of year 2016. As a part of the initiation process, a study of waste management in C.V.Raman Nagar area was conducted. The study was done in two wards: ward 50, Benniganahalli and ward 58, New Tippasandra. The existing waste flow was studied.

In ward 50, segregated waste was being collected by the pourakarmikas through door-to-door collection. The wet waste was being sent to Kannahalli for processing. The dry waste was being sent to Kasturi Nagar DWCC and rejects were sent to Doddaballapura. However, in ward 58, no segregation at source was being done in most of the colonies. The pourakarmikas were collecting mixed waste and the collected waste was sent to Doddaballapura. The survey results have helped us in planning the capacity of the Community Waste Management Unit that has to be set up in C.V.Raman Nagar.

Study on Post-Consumer Cartons - TERI

Saahas had undertaken a consultancy project for TERI in the month of September 2015. The project involved data collection and sampling of waste at selected facilities in the cities of Chennai and Bangalore for the project "Management of Post-Consumer Tetra Pak Cartons (PCCs)" being implemented for Tetra Pak India Private Limited. The scope of work included a questionnaire survey of the key stakeholders (rag pickers, small and large kabadiwalas (junk dealers), low grade paper waste dealers and waste paper based paper mills). The questionnaires was prepared by TERI and team from Saahas conducted the survey. The survey was conducted in Bangalore and Chennai and all the different categories as specified by TERI were covered. The survey findings were submitted to TERI in the form of a report.

Waste Audits

Waste Audit in Nanjanagudu

Waste audit of Hulimavu Panchayat was conducted with support from ITC Ltd. A total of 5 Villages across Hulimavu Panchayat were audited. The existing waste management mechanisms were documented. Door-to-door collection of segregated wet and dry waste was done in the three villages and the waste collected was characterized. The data was benchmarked against the existing data from Ballary villages, where our waste management program is already successfully running.
It was found that there was virtually no waste management system in the villages. A large part of the dry waste was being burnt or dumped in the nearby canal. The bio-degradable waste was fed to cattle or composted in Tippe. However, streets are clean as the Panchayat has provided cleaning staff and littering is not significant. The recommendations based on the findings of the audit are:

- Weekly Door to Door collection of dry waste.
- A local village level compost platform (2-3 per village) to manage wet waste.
- Centralised dry waste sorting facility for Dry Waste at one of the five villages.

Stakeholder analysis was conducted listing out the cost and benefit of the proposed solution for all the stakeholders: Villagers, Panchayat, District Authority and ITC.

Waste Audit in Hosur

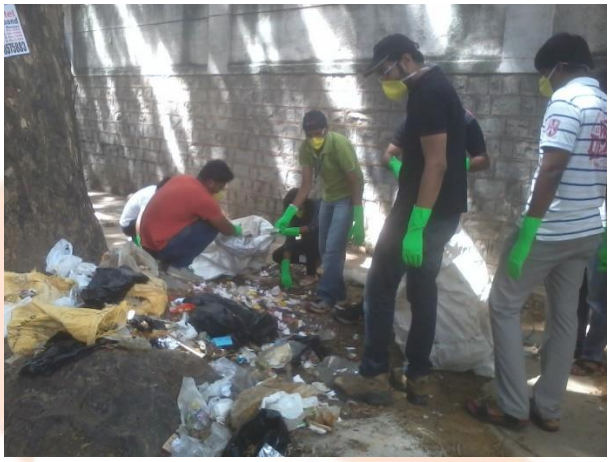
Waste audit was conducted in 6 wards of Hosur municipality and Titan township with support of Titan Industries. The data of waste collection was characterized for analysis. The dry waste was further segregated into 14 different streams for analysis. Food waste, garden waste , e-waste and rejects were also collected and data was captured. A report capturing the findings of the audit was handed over to Titan Industries.

Awareness Events

The following awareness events were conducted to spread awareness on Waste Management among citizens:

Environment day program at Robert Bosch

As a part of the Environment Day on June 5th, a clean up drive was organized in the vicinity of the office of Robert Bosch. The employees of Bosch identified an area around their office where waste was regularly being dumped. As part of the program, the area was cleaned by the employees.



Capgemini – Gurgaon Jashn

A waste segregation drive was organized at Gurgaon during the Jashn 2015 event. Saahas supported the Capgemeni staff is promoting waste segregation at the event.

Annual Walkathon event in Lalbagh flower show with NMIMS University

A walkathon was organized in Lalbagh during the Flower Show of Independence Day 2015. The students of NMIMS University participated in the event.

Kasa Rasa – Open House Program for School kids

Open House programs were conducted for kids of various schools in Bangalore at the Kasa Rasa 2 unit. School children were given an awareness session, explained the processes involved in waste segregation and were also given a chance to segregate the waste themselves.
The schools that participated were: Silican Valley School, Gurukul School, Bangalore International School, Parikrama, NPS, DPS, Alpine Public School and Baldwins Boys school.

Kasa Rasa Waste Processing Units Collection Data

Waste Processed at Kasa Rasa Center 1, Ejipura

Months	Wet waste (Kg)	Dry waste(Kg)
April 2015	1,500	6,716
May 2015	3,004	4,567
June 2015	1,504	4,567
July 2015	2,238	6,137
August 2015	2,990	8,845
September 2015	5,172	9,975
October 2015	8,806	3,151
November 2015	5,477	10,551
December 2015	6,882	8,460
January 2016	9,178	5,155
February 2016	5,013	3,200
March 2016	5,448	4,578
Total	**57,212**	**75,902**

Waste Managed at Kasa Rasa Center 2, HTW

Months	Wet waste(Kg)	Dry waste(Kg)
April 2015	8,758	651
May 2015	8,521	6,180
June 2015	5,594	4,137
July 2015	6,327	4,070
August 2015	12,938	7,976
September 2015	4,656	4,277
October 2015	10,456	8,908
November 2015	8,686	3,667
December 2015	14,351	10,526
January 2016	27,720	6,229
February 2016	12,231	6,763
March 2016	7,699	9,514
Total	**1,27,937**	**72,898**

Balance Sheet 2015-16

Balance sheet as on 31.03.2016							
LIABILITIES	**INDIAN**	**FCRA**	**TOTAL**	**ASSETS**	**INDIAN**	**FCRA**	**TOTAL**
General Fund as on 31.3.16	13,51,636	35,46,400	48,98,036	Fixed assets as on 31.3.16	3,94,422	24,990	4,19,412
Current Liabilities	10,26,534	3,515	10,30,049	Current assets	12,69,358	0	12,69,358
Duties and taxes payable	42,497		42,497	Cash and Bank Balances	7,56,887	3524925	42,81,812
	24,20,667	**35,49,915**	**59,70,582**		**24,20,667**	**35,49,915**	**59,70,582**

Income and Expenditure Account for the year 31.03.2016							
EXPENDITURES	**INDIAN**	**FCRA**	**TOTAL**	**INCOME**	**INDIAN**	**FCRA**	**TOTAL**
Programme Expenses	56,03,186	17,33,735	73,36,921	Grants and Donations	50,43,427	39,81,771	90,25,198
Administration Expenses	10,88,642	1,03,722	11,92,364	Consultation	4,43,333	-	4,43,333
Depreciation	68,908	4,410	73,318	Sale of e-waste BIN	36,000	-	36,000
Surplus	-	22,71,048	22,71,048	Miscellaneous Income	60,150		60,150
			-	Bank Interest	19,171	1,31,144	1,50,315
			-	Deficit	11,58,655	-	11,58,655
	67,60,736	**41,12,915**	**1,08,73,651**		**67,60,736**	**41,12,915**	**1,08,73,651**

Human Resources

Salarywise Staff Distribution			
Slab of gross salary plus benefits (Rs. Per month) CTC	**Male**	**Female**	**Total**
Up to 10000	8	3	11
10000-25000	5	1	6
25000-50000	2	2	4
50000-100000	0	1	1
100000 above	0	0	0
Total	**15**	**7**	**22**

Gender	**Full time**	**Part Time**	**Paid Consultant**
Male	15	0	0
Female	7	0	1
Total	**22**	**0**	**1**

Our Board Member

DETAILS OF BOARD MEMBERS

Sl no	Name	Role	Nationality	Year of Joining	Educational qualification	Occupation
1	Mrs. Wilma Rodrigues	Founding Member; Chief Functionary, Secretary	Indian	2001	Graduation in Life Science	CEO, Saahas Zero waste
2	Mr.Nagesh Manay	Treasurer	Indian	2001	Post Graduation	CEO Opus CDM Advertising and marketing professional
3	Mr. Viswanath Gopalakrishnan	Member	Indian	2013	BSc and PGDM	Director, Organisation development consultant
4	Mr. Ivatury Satya Subrahmanyam	Member	Indian	2013	BE Mechanical Eng	30 years of experience in the tech industry
5	Mrs. Asha Kilaru	President	American	2001	M.P.H.	Independent Researcher , Public Health & research
6	Mr. Ashish Patel	Member	Indian	2016	MBA and Chartered Accountant	National Coordinator, CMCA
7	Prof. P D Jose	Member	Indian	2016	a) Fellow, IIM Ahmedabad, India b) Post Graduation in Forestry Management (PGDFM), India c) Indian Institute of Forest Management (IIFM), Bhopal, India	Professor at IIMB

- None of the Board Members have any blood relations with any other Board Member
- None of the Board Members or staff have made any International travel trips funded by Saahas during this period
- None of the Board Members receives any remuneration from Saahas
- Last Board rotation happened in 2015 with 2 members moving out and 2 new members joining.