

## **Source management practice of Solid Waste in Goalpara, Assam**

### **Brief outline of Goalpara:**

Goalpara town is situated western side in the state of Assam and on the southern bank of mighty river Brahmaputra. Goalpara town is the district head quarter of the Goalpara district in Assam. The Goalpara Municipality is one of the oldest Municipalities in Assam and it was established in the year 1875. It covers an area of 12.79 sq km, provides settlements for about 55535 populations (according to 2011 census) in the 19 wards at present.

### **Challenges faced before deployment of the project:**

Residents of 'Goalpara Town' is usually inserting all the biodegradable solid waste inside the plastic carry bags and then dispose it to the nearby 'Dustbin' as installed by the municipality in most of the localities. Some of the residents are use to dump their biodegradable and non-biodegradable solid waste chiefly plastic waste into their backyard compost pit which is finally burned to reduce the volume. Some of the inhabitants of Goalpara are also not feeling any hesitation to throw their composite garbage directly into the nearby drain and roadside. The composite garbage scattered in the road side, drain and dustbins clearly depict the facts that the people of Goalpara does not do anything on source segregation of solid waste and simply they are maintaining a 'throw away' culture.

### **Summary of Project Activity:**

From 1<sup>st</sup> November, 2015 ENVIRON has started a pilot project on 'Source Management Practice of Solid Waste' in ward No. 06 and 16 of 'Goalpara Town' initially among the 200 selected households in association with the 'Goalpara District Administration' and financial support from 'Goalpara Municipal Board'. Accordingly, 400 numbers of "Waste Assimilators" (2 in each household) are installed among the 200 hundred beneficiary households.

Presently all the selected households are managing their biodegradable solid waste through the "Waste Assimilator" and also practicing organic 'Green Tea Gardening' by using organic manure and bio-pest repellent in the form of 'Micronutrients', 'Vermiwash' and 'Vermicompost' produced from the "Waste Assimilator".

Moreover, along with the plastic craft ENVIRON has started a self sustainable activity of "door to door collection of plastic waste" in exchange of 'Ginger' and 'Garlic' to attract the housewives. In this connection ENVIRON has introduced a specially designed 'Tri-cycle' (named as 'Seuj Bahan') which is carrying maximum plastic waste (both 'recyclable' and 'non-recyclable') so that 'Cart-puller' is now earning his 'daily wage' by selling the 'recyclable plastic' to the scrap dealers.

Finally, ENVIRON has introduced an innovative concept of 'Domestic Organic Green Tea Gardening' along with the solid waste management to attract the people and sustain the project activity.

### **Launching of the Project Activities:**

On 01-11-2015 a pilot project on 'Source Management Practice of Solid Waste' in ward No. 06 and 16 of 'Goalpara Town' was formally launched by Sri J. V. N. Subramanyam, IAS, Deputy Commissioner of Goalpara. In this connection a large gathering was organized in ward no. 16 of Goalpara in the presence of several dignitaries of Goalpara Assam.



Launching of the Project Activities

### Selection of household:

For developing a successful model Goalpara Municipal Board has selected 45nos. households from Ward No. 06 and 155 households from Ward No. 16.

### Awareness and Training Programme:

Different awareness and demonstration programme was conducted among the residences for source segregation of plastic waste and use of Bamboo-made 'Money Earning Litter Bin' and to recycling biodegradable solid waste for production of 'organic manure' and 'bio-pest repellent' through the use of "Waste Assimilator". Awareness and training programmes were conducted specially among the housewives of the project by introducing household level 'Plastic Craft' for making different household utensils like 'chair back', 'cushion', 'mattress', 'table top container', 'table mat', 'garland', etc. to achieve efficient source segregation and source reduction of plastic waste under 'waste to wealth concept'.



Awareness Generation Programme



Demonstration on use of Domestic Waste Assimilator

### **Installation of domestic “Waste Assimilator”:**

For developing a successful model 400 nos. “Waste Assimilators” (2 in each household) are installed among the 200 selected beneficiary household. Now all the beneficiary households are depositing their daily generated biodegradable solid waste inside the waste assimilator



Household use of “Waste Assimilator”

### **Distribution of “Money Earning Litterbin”:**

For effective household level plastic waste segregation, ENVIRON has designed a special litterbin made up of local bamboo. The bin contains a bamboo net to keep the plastic compressed. This little liter bin is capable to store a large quantity of plastic waste, i.e. nearly 1.5 kg. The name of the litter bin is named as “Money Earning Litterbin” as one can earn money out of it. The idea of introducing bamboo-made bin is to collect dry waste for further use where, the source of bin itself is biodegradable. In this connection ENVIRON has provided 200 nos. “Money Earning Litterbin” among the 200 selected beneficiary household for efficient source segregation activities.

### **Digging of backyard compost pit:**

Household of the project area are motivating for digging of backyard compost pit which was earlier available in every household of Assam. In this connection 100 households were selected for digging of backyard compost pit of the project area where, “Waste Assimilator” was not provided.





Backyard compost pit

### **Construction of community “Waste Assimilator”:**

ENVIRON has successfully constructed one “Community Waste Assimilator” or “Community Improved Vermicomposting Unit” near the dumping ground of Municipal Solid Waste, Goalpara to develop a successful model of community biodegradable solid waste management. “Community Waste Assimilator” is generating both organic manure and bio-pest repellent through the use of biodegradable municipal solid waste in the form of ‘Vermicompost’ and ‘Vermiwash’.



Community Waste Assimilator

### **Mass Awareness Rally:**

On 5<sup>th</sup> February, 2016 ENVIRON in association with Goalpara Municipal Board have organized a mass awareness rally in the Goalpara Town to generate mass awareness on Solid Waste Resource Management among the citizens of Goalpara. The awareness rally was formally inaugurated by Sri J. V. N. Subramanyam, IAS, Deputy Commissioner of Goalpara. The basic objective of the awareness rally was to generate the awareness and spread the message for developing a clean and green Goalpara. Thorough awareness rally ENVIRON has also introduced “door to door collection of plastic waste against Ginger and Garlic”.



Mass Awareness Rally

### Door to door collection of Segregated Plastic Waste:

ENVIRON has observed that until and unless people are getting some benefit, they are never accepting any additional burden and participate to segregate the Non-biodegradable Solid Waste at source. Therefore for successful segregation and efficient solid waste management, ENVIRON has introduced an innovative approach on door to door collection of plastic waste against Ginger and Garlic. The idea of offering ginger and Garlic is to attract the housewives. In this connection ENVIRON has introduced a specially designed 'Tri-cycle Van' named as 'SEUJ BAHAN' for maximum collection of plastic waste from source. The 'Cart-puller' is now earning his 'daily wage' by selling the 'recyclable plastic' to the scrap dealers.



Door to door collection of Plastic waste

### Introduction of domestic 'Organic Green Tea Gardening':

As the climatic condition of Assam is suitable for 'Tea plant', through the project activities ENVIRON has introduced an innovative concept of 'Domestic Organic Green Tea Gardening' along with the solid waste management to attract the people and sustain the project activity. Due to the pest infestation normally in a tea garden, different chemical pesticides are used and sometimes it is beyond permissible limit and the 'Tea' is becoming toxic. On the other hand, the liquid waste constantly discharged from the outlet of the "Waste Assimilator" is having the potency of both 'organic manure' and 'bio-pest repellent' which can be used for the plantation of 'Organic Tea'.



Through the use of “Waste Assimilator” household of the project location are now producing organic manure and bio-pest repellent in the form of ‘Micronutrients’, ‘Vermiwash’ and ‘Vermicompost’ from the household generated biodegradable solid waste and practicing ‘Domestic Organic Tea Gardening’. In this connection, ENVIRON has developed a simplified technology for producing ‘Organic Green Tea’ at household level.

Green tea contains an antioxidant called epigallocatechin-3 gallate (EGCG) which is helpful in treating a variety of diseases. Green tea is a well established great beverage which we can include our diet for the prevention and treatment of cancer, heart problems, cardiovascular diseases, high cholesterol levels, rheumatoid arthritis, infection, tooth decay, and many others. Green tea is actually comes from the same plant (known as *Camellia Sinensis*) where normal tea is obtained and can be processed very easily at household level.

As per the study of ENVIRON, due to the suitable climatic condition of Assam, every residence can plant ‘Tea’ where water logging problems are not there. Plantation of ‘Tea’ in every household of Assam could enhance the green cover and developing decorative domestic green garden along with the substantial domestic economic growth.



Solid waste management and practice of organic ‘Green Tea’ gardening in Goalpara

### **Pre-deployment scenario and post deployment benefits:**

Before implementation of the project activities, most of the residents of ‘Goalpara Town’ is usually inserting all the biodegradable solid waste inside the plastic carry bags and then dispose it to the nearby ‘dustbin’, ‘drain’ or ‘roadside’ of the localities. Some of the residents were use to dump their biodegradable and non-biodegradable solid waste chiefly plastic waste into their backyard compost pit which was finally burned to reduce the volume. Some of the inhabitants of Goalpara were also not feeling any hesitation to throw their composite garbage directly into the nearby drain and roadside.

After implementation of the project activities people are now understand the ‘value’ of their ‘waste’. Now a wave of source segregation and source utilization of solid waste is generating. The project is developing a practical field of demonstration where, people are now utilizing their biodegradable solid waste for organic kitchen gardening and organic tea gardening and nearly 2000 households of the project area are now exchanging their waste plastics including other non-biodegradable solid waste through Ginger and Garlic. Now, a visible change is occurred in the project where there is no littering of plastic waste, even some of the residents are now adopting the household plastic craft.

### **Key learning from the project:**

Though the beneficiary households are participating on source segregation of both biodegradable and non-biodegradable solid waste at source but still some of the residents are mixed plastic waste inside the “Waste Assimilator” without their knowledge even after the completion of six months monitoring activities. It clearly indicates that the source segregation part is not so easy which needs continuous brain storming awareness to change our behavior of ‘use and throw’. Through the

project activities individual benefit is generated out of the solid waste resource and thereby demand is increasing day by day for expansion of the project activities.

### **Future Road map of the project:**

Definitely, project is generating the concept of producing benefit from the day to day generated solid waste both at household level and community level which is attracting the people. By considering the people participation 'Goalpara Municipal Board' is planning to expand the project activities so that household generating biodegradable solid waste will be managed at source and plastic along with the other non-biodegradable solid waste will be collected from source.

The project is now generating the concept of solid waste management and organic cropping which is opening a path for economical growth and enhancement of green cover in India along with the achievement of real meaning of "Sawachh Bharat" & "Make in India Programme".

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