



## Zero Waste Kovalam activities during the tourist season of September 2004 to March 2005 – An Update

The Zero Waste Kovalam which was launched in November 2001 following a campaign against an incinerator proposal by the Department of Tourism, now completes 3 years. At this point of time we are happy to update the progress we made in the last tourist season (September '04 to May '05) at Kovalam to all those interest groups who were involved in the process of moving Kovalam towards a zero waste destination.

Thanal did a waste quantification study for the Kovalam tourist village and presented the results in the International skill share on zero waste held at Swagat Holiday Resorts Kovalam during 19-20 November 2001. It was found that about 3.5 tonnes of biodegradable discards are generated in the tourist village mainly from hotels and restaurant. The study also threw light into the issues of plastic use and discard which Kovalam face. These findings were validated and discussed in the meeting. The following were the major decisions of the meeting.

- Resource Recovery Facilities have to be set up to handle bio degradable discards and non biodegradable discards and to divert them for recycling. Biogas plant will be set up to handle bio degradable discards.
- Material substitution programme have to be launched to replace non sustainable products use such as articles made of plastics and similar materials. The local people especially women in the region should be trained to make alternate products from paper, jute, bamboo, coconut shell etc.
- Pet bottled water should be replaced with water refill facilities to reduce the pet bottle dumping in the region
- Regular Clean up programmes with the support of local people should be done to keep Kovalam clean.

The progress made so far is as follows:

### 1. Resource Recovery

Zero waste emphasis on resource management rather than waste management. Resource recovery is the key element in zero waste which helps to complete the circular flow of resources in the society.

Under Zero Waste Kovalam three such facilities (Institute of Hotel Management and Catering Technology, Light House Beach Kovalam and KTDC Samudra Hotel) were commissioned with a total capacity to handle 1000 kg of biodegradable discards on a daily basis and 1000 kg of non biodegradable discards on monthly basis

### Institute of Hotel Management and Catering Technology – Kovalam (IHMCT)

<b>Commissioned components</b>	:	<b>January 2003</b>
<b>1. Biogas Plant</b>		
Capacity	-	15m <sup>3</sup>
Model	-	Deenabandhu model
Discard feeding	-	250kg per day
financed by	-	Kerala Tourism
<b>2. Resource Recovery Room</b>		
Capacity	-	400kg per month
Financed by	-	Kerala Tourism & IHMCT

Total discards handled during 1 <sup>st</sup> August 2004 – 31 <sup>st</sup> March 2005 (8months)	
Biodegradable	Non Biodegradable
60,000kg	3,200kg

Total discards handling Capacity (Installed capacity) For the season (8 months)	
Biodegradable	Non Biodegradable
60,000kg	3,200kg

Discards handled per month (approx.)	
Biodegradable	Non Biodegradable
7,500 kg	400 kg

Average Revenue generated per month	
Biodegradable	Non Biodegradable
Rs. 5000/- (approx.) Saving in terms of LPG	1250/- (approx.) Revenue from Sale

Direct Employment generated in a month	
Full time Permanent	Temporary (in man days)
1	4

Average Maintenance expenditure per month	
Wages & Salary	Supervision and Maintenance
Rs.3,500	Rs.1000

## Cluster Resource Recovery Facility - Light House Beach, Kovalam

### Kerala Hotel and Restaurant Association

<b>Commissioned components</b>	-	<b>April 2004</b>
1. Biogas Plant		
Capacity	-	25m <sup>3</sup>
Model	-	Deenabandhu model
Discards feeding	-	500kg per day
2. Resource Recovery Room		
Capacity	-	150kg of non biodegradable discards per month
3. Electricity Generator		
Capacity	-	2.5KVA
Input	-	Diesel & Biogas (20:80)
Financed by		
Land, side wall and well	-	KHRA
Infrastructure	-	Kerala Tourism

Total discards handled during 1 <sup>st</sup> August 2004 – 31 <sup>st</sup> March 2005 (8months)	
Biodegradable	Non Biodegradable
1,70,950kg	1,800kg

Total discards handling Capacity (Installed capacity) For the season (8 months)	
Biodegradable	Non Biodegradable
1,25,840kg	1,200kg

Discards handled per month (approx.)	
Biodegradable	Non Biodegradable
15,600	150 kg

Benefit per month	
Biodegradable	Non Biodegradable
2.5KVA electricity is generated for street lights. Rest of the gas is not utilized yet. Slurry from biogas plant and compost are not commercially utilized	500/- (approx.) Revenue from Sale is paid to the sorting worker as incentive

Direct Employment generated in a month	
Full time Permanent	Temporary (in man days)
2	5

Average Maintenance expenditure per month	
Wages & Salary	Supervision and Maintenance
Rs.8,000	Rs.1000

## Resource Recovery Facility KTDC Hotel Samudra, Kovalam

<b>Commissioned components</b>	:	<b>April 2004</b>
1. Biogas Plant		
Capacity	-	15m <sup>3</sup>
Model	-	Deenabandhu model
Discards feeding	-	250kg per day
2. Resource Recovery Room		
Capacity	-	400kg of non biodegradable discards per month
3. Boiler		
Capacity	-	200litres
Financed by		
Infrastructure	-	Kerala Tourism
Land	-	KTDC

Total discards handled during 1 <sup>st</sup> August 2004 – 31 <sup>st</sup> March 2005 (8months)	
Biodegradable	Non Biodegradable
63,600kg	700kg

Total discards handling Capacity (Installed capacity) For the season (8 months)	
Biodegradable	Non Biodegradable
60,000	3,200 kg

Discards handled per month (approx.)	
Biodegradable	Non Biodegradable
7,500 kg	400 kg

Average Revenue generated per month	
Biodegradable	Non Biodegradable
Rs. 10,000/- (approx.) Saving in terms of Diesel	Not sold.

Direct Employment generated in a month	
Full time Permanent	Temporary (in man days)
1	4

Average Maintenance expenditure per month	
Wages & Salary	Supervision and Maintenance
Rs.3,500	Rs.1000

Total discards handled during 1 <sup>st</sup> August 2004 – 31 <sup>st</sup> March 2005 (8months) in all the three resource recovery facilities	
Biodegradable	Non Biodegradable
2,94,550kg	5,700kg

## 1. Material substitution Programme

The campaign for reducing the use of plastic products and replacing them with ethnic value added products and available sustainable options is on. The Hotels and restaurants are participating in the campaign. Some of them volunteered to replace plastic laundry bags, folders, etc with paper products. But little has been achieved in this front mainly because, even with alternate ecofriendly materials made available in the locality itself, there is no pressure on the hotels to start using them. Moreover, there is also very little pressure on them to start eco-friendly practices. The destination is yet to be placed as as a ecotourism destination.

## 2. Vocational training Programmes:

Thanal had established the Zero Waste Centre- a hub for Zero Waste K o v a l a m programme in April 2003 and which is acting as a catalyst for zero waste initiatives in and around. The Centre regularly organizes vocational training programmes on paper and paper discards, cloth waste and coconut shell product. So far about 300 women were given training in different processes. About 115 new jobs and 3 production units were created as part of this initiative. These production units are the Pioneer Paper Bag Unit, the Vismaya Patchworking Unit and the Classic Palmcraft Unit. Together they employ over 30 women.

## 3. Reducing the use of PET bottles

Lobbying and campaign is on to reduce the use of pet bottled water and promotion of water refilling. Some of hotels are cooperating the campaign by providing water refilling options such as 20 litre dispensers at their properties.

## 4. Cleanup Programmes

Five clean up programmes were organized in this season including one massive clean up programme in January where about 500 people participated. The clean up programmes so far collected more than 1.25 lakhs of pet bottles and other plastic materials from the tourist village. Thicker plastics and pet bottles were sent for recycling. But the thin plastics and historical mixed waste which have no recycling options where collected and sent to Thiruvananthapuram corporation.

## Research, Documentation and Outreach

Under Kerala Research Programme on Local Level Development Programme of the CDS (Centre of Development Studies, Thiruvananthapuram), a research study was carried out on 'Zero Waste and Employment generation" taking Zero Waste Kovalam as a case study during this period. (The report is available on [www.thanal.org](http://www.thanal.org))

A study - "Case study of Zero Waste Kovalam : A progressive waste management programme with focus on the best available technology options and material substitution" - was carried out as part of IPEP (International POPs Elimination Project) supported by IPEN (International POPs Elimination Network), UNIDO, UNEP, GEF (Global Environment Facility, UNITAR, SDC (Swiss Agency for

Development and Cooperation). (The report is available on [www.thanal.org](http://www.thanal.org))

The Government of Philipines issued orders on last week of March 2005 setting 'Zero Tourism Waste' as the goal for its tourism authority. This decision is inspired by the Zero Waste work in Kovalam which

was presented to the Tourism Waste Working Group in the last week of Novemeber 2004.

Municipal waste to Zero Waste - A presentation on Zero Waste Kovalam was part of the UNIDO-IPEN side event at Stockholm Convention Conference of Parties 1 (COP1) Uruguay in May 2005.

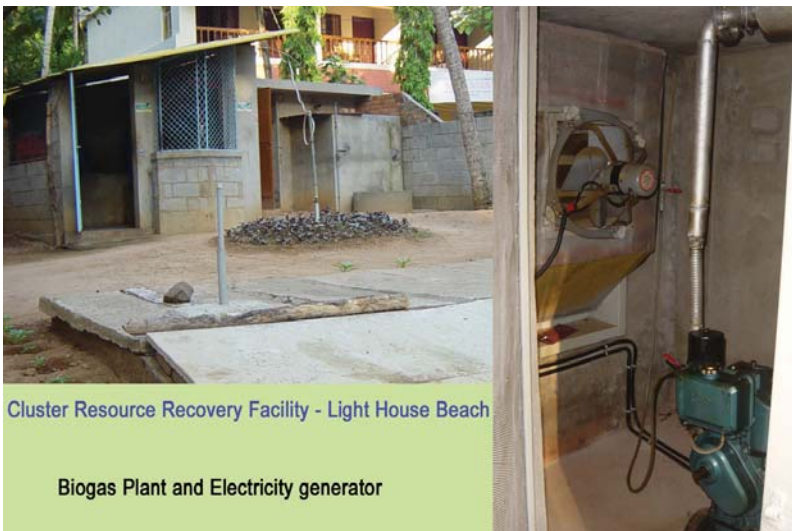
## Afterword

At this stage, this programme has succeeded in handling and recovering nearly 1/3rd of the biodegradable and non biodegradable discards in the Kovalam area. It has also succeeded in developing and marketing products that can replace many of the toxic and unsustainable materials such as plastic covers. It has given direct and indirect employment through 'waste to wealth' programmes. This serves as a successful, time tested and sustainable model that needs to be scaled up / replicated for a complete solution of the waste issue in Kovalam.

### Clean-up Programmes done at Kovalam during the season

Date	Labour / Volunteers used	Discards removed				
		Plastic bottles	Glass bottles	Glass pieces	plastics	Mixed waste (in Kg)
19 -25 September 04	15	40,000	30	5kg.	20kg	
2 - 7 January 05	20	11,000	40	10kg	10 kg	
11 - 12 January 05						300
23 <sup>rd</sup> January 05	450 volunteers and 20 Labour					25,000
17 <sup>th</sup> February 05	4					20

*\* Indian Coast Guard, Vizhinjam and Venganoor Grama Panchayaths, Kerala Tourism, Clubs, Schools and Colleges, NCC, Tourism Clubs and local community particiapted in this massive clean up programme*



Cluster Resource Recovery Facility - Light House Beach

Biogas Plant and Electricity generator



Resource Recovery Facility  
Institute of Hotel Management &  
Catering Technology

Commissioned - January 2003



Resource Recovery Facility - KTDC Samudra Hotel  
Boiler, Biogas Plant and Resource Recovery shed



**ZERO WASTE**  
CENTRE

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## Things to do

Of the three biogas plants two of the biogas plant need to be supplemented with facilities to handle the discards in a sustainable way. The facility at IHMCT (Institute of Hotel Management and Catering Technology) is a model facility which can be replicated and upscaled to other needs.

The 25cubic meter biogas plant at Light House beach needs the following additional things to make it fool proof facility.

**1. Vermi Compost:** Bio degradable discards like garden trimmings, leaves, wet paper etc cannot be fed into a biogas plant. Every day the facility receives about 40-60kg of such discards which is pit composted and due to space limitation it is not up to the desired level. A Vermi Compost facility to handle 60 kg of such discards on a daily basis will streamline the resource recovery facility.

**2. Permanent Resource Recovery room:** At present a temporary shed is being used for recovery of non bio degradable discards and its storage. The life of shed is almost over and need to be replaced with a permanent structure. A simple construction with half walls, tin roof and netted windows will serve the purpose.

The 15 cubic meter biogas plant at KTDC Samudra needs the following additional things to make it fool proof facility.

**1. Resource Recovery Room:** A resource recovery shed which will serve the purpose of recovery and storage of non biodegradable discards. The room will act as feeding room for biogas plant.

**2. Water Connection:** The facility needs a tap connection to meet the water requirements of the plant.

**3. Vermi Compost:** A vermi compost pit of 40 kg capacity to handle the rejects from the biogas plant.

## Campaign

1. A campaign have to be launched to address the shop keepers and tourists to discourage the use of disposable plastics, packing materials and other products. Encourage the use of alternate products and services like water dispensing systems to reduce the use of pet bottled water. There are enough alternative materials such as paper bags, cups, plates etc available in the market. This activity needs a voluntary force to do a consistent and continuous campaigning in the beach

2. Departmental intervention to declare the region a disposable plastic free zone and necessary measures to stop the use such of plastics.

3. Government intervention and legislation to implement extended producer responsibility (EPR) on products such as tubelights, bulbs, batteries and such toxic consumer products which cannot be handled locally and needs expertise in disposal. The shop keepers and manufacturers should be motivated to take it back to the producer for further management.