

VILLAGE WASTE MANAGEMENT PLAN

FOR

Village Panchayat Batim



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Chapter 1: Introduction

About Batim Village Panchayat

The village of Batim is situated in Tiswadi taluka of the North Goa District. It is situated about 12 km from the state capital, Panaji. The village is spread over 82.42.152 hectares with a population of 2300 (as per the 2011 Census).

Table 1: Village Data

Sr. No	Name of Village	No. of Households	Wet Waste Collection	Dry Waste Collection
1	Batim	615	Proposed to be undertaken by way of tendering	Yes

Batim is divided into seven wards, each represented by an elected member (Refer Table 2). The total number of households in the village, as per the Panchayat tax register is 616. The detailed ward wise data of individual households, as collected from the village, is as follows.

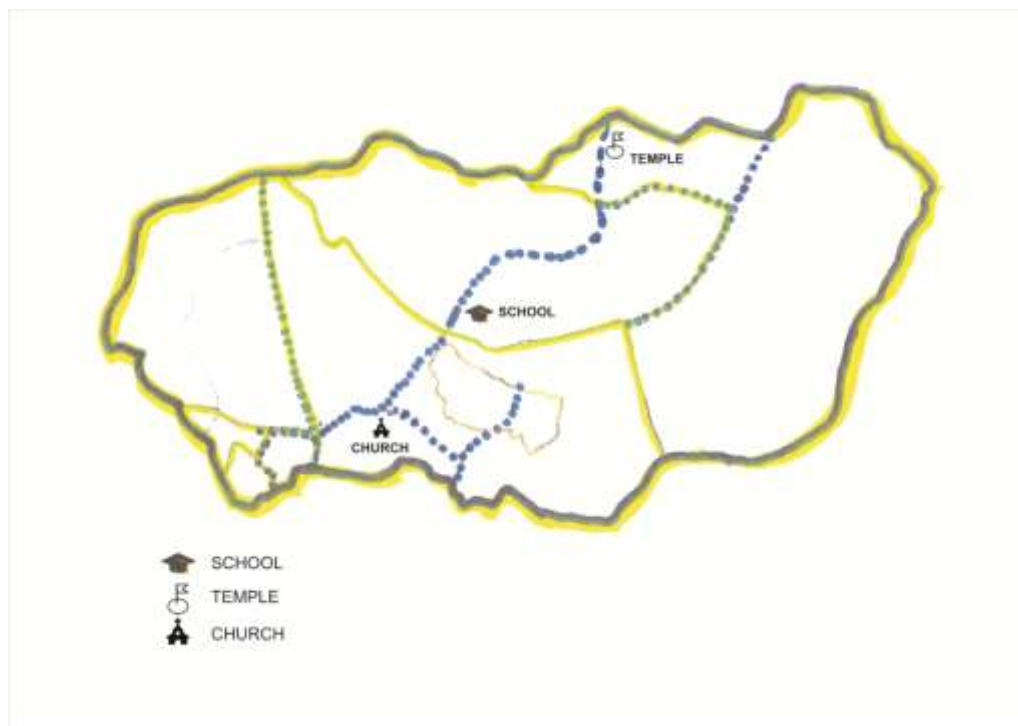
Table 2: Ward Details of Batim Village

Ward No.	Ward Name	No. of Households	Name of Elected Representative	Designation
1	Moula-Wado	87	Krishnanath S. Naik	Ward Member
2	Maina-Wado	96	Maria Fatima J. Rodrigues	Dy. Sarpanch
3	Gauncar-Wado	105	Delara V. C. Fernandes	Ward Member
4	Portel-Bhat	100	Maria Fatima M. L. Dias	Ward Member
5	Vodlem-Bhat	90	Francisco Pascoal De Sousa	Sarpanch
6	Ruma-Bhat	60	Luis Antonio Da Cunha	Ward Member

7	Sovoskai-Wado	78	Alvaro Domingos Vaz	Ward Member
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The village has 65 commercial establishments. The institutions present in the village religious and educational are as illustrated in Figure.2



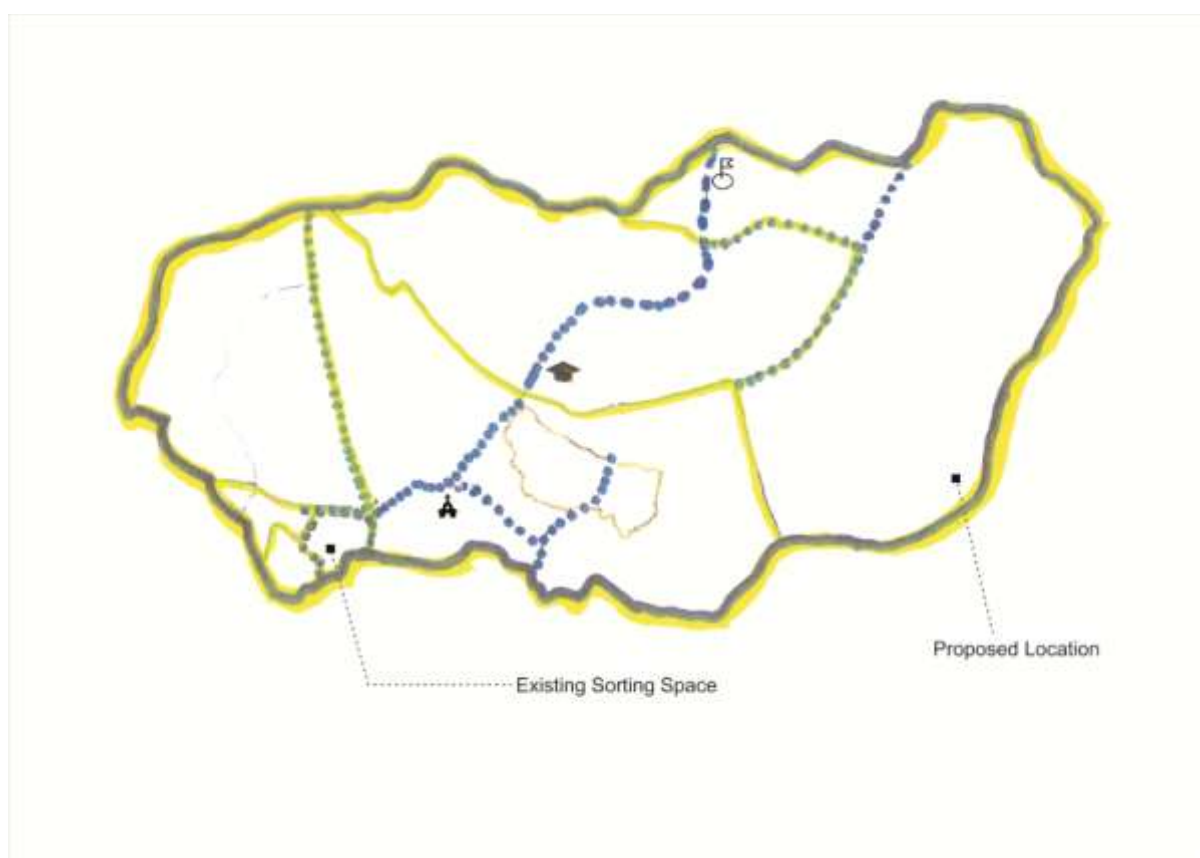
Chapter 2: Collection and Segregation

The Village Panchayat will carry out door-to-door collection of dry as well as wet garbage every day by following tendering process. The collected waste will be transported to the proposed MRF site for segregation and disposal.

The Panchayat has also constituted a Village waste Management Committee. The below mentioned persons are the members of the said committee:-

- Shri. Francisco De Sousa (President)
- Smt. Maria Fatima M. L. Dias (Member)
- Shri. Krishnanath S. Naik (Member)
- Shri. Maria Fatima J. Rodrigues (Member)
- Smt. Delara V. C. Fernandes (Member)
- Shri. Luis Antonio Da Cunha (Member)
- Shri. Alvaro Vaz (Member)
- Shri. Francisco Monteiro (Member)
- Shri. Braz Rego (Member)
- Shri. Fransisco Silveira (MLA, St. Andre Constituency)
- Shri. Santosh Gaonkar, Health Inspector

Figure 3: Proposed Location of Storage and Sorting Centre and Black spots



It has been proposed that every unit in the village (residential, commercial, institutional) shall segregate their daily waste into two basic fractions - wet and dry. The Panchayat shall collect dry as well as wet waste and collection bins shall be provided for this purpose to every unit by the Panchayat. The V.P. will hand over recyclable dry waste to authorised recyclers. The table below provides an overview of the proposed segregation strategy for different units in the village.

Table 3: Proposed segregation strategy for different units in the village

Type of Unit	Wet	Recyclable Dry	Bio-medical	Non-Recyclable Dry
Independent Homes (included subdivided rental units, if any)	Collected by V.P everyday and will be disposed at Proposed MRF site.	A. Hand over the recyclables to an authorised recycler (kabadiwala); OR B. Collected by Panchayat everyday as per Schedule	To be wrapped in newspaper marked with a red cross OR placed in a yellow bag before placing in non-recyclable dry waste bin	Collected by Panchayat everyday
Apartments / Flats / Societies	All Apartments / Societies shall be responsible for primary segregation and collection of the waste and also disposal wherever possible.			
If space is available within the complex premises	Construct a compost station such that the wet waste generated from the flats are handled within the compound.	A. Hand over the recyclables to an authorised recycler (kabadiwala); OR B. Collected by Panchayat everyday as per Schedule. A common location within the premises for waste pick up shall be identified by the residents.	To be wrapped in newspaper marked with a red cross OR placed in a yellow bag before placing in non-recyclable dry waste bin	Collected by Panchayat everyday as per Schedule. A common location within the premises for waste pick up shall be identified by the residents.
If no space is available within the complex	Install space conserving composting units			
For all new construction	Plans for building approvals have to clearly indicate space allocated for composting unit and dry waste collection and sorting			
Commercial Establishments (Offices and Shops)	To be Collected by V.P. every day.	To be Collected by V.P. every day.	To be wrapped in newspaper marked with a red cross OR placed in a yellow bag before placing in non-recyclable	To be Collected by V.P. every day.

Type of Unit	Wet	Recyclable Dry	Bio-medical	Non-Recyclable Dry
			dry waste bin	
Commercial Establishments (Clinics and Pharmacies)	To be Collected by V.P. every day.	To be Collected by V.P. every day.	To be wrapped in newspaper marked with a red cross OR placed in a yellow bag before placing in non-recyclable dry waste bin	To be Collected by V.P. every day.
Hotels, Restaurants and Eateries	A. Install space conserving composting units OR B. Collected by V.P.	To be Collected by V.P. every day.	To be wrapped in newspaper marked with a red cross OR placed in a yellow bag before placing in non-recyclable dry waste bin	To be Collected by V.P. every day.
Institutions - Educational and Religious	A) Install space conserving composting units OR Collected by V.P.	To be Collected by V.P. every day.	To be wrapped in newspaper marked with a red cross OR placed in a yellow bag before placing in non-recyclable dry waste bin	To be Collected by V.P. every day.
Future Institutions or Community Halls	Plans for approvals have to clearly indicate waste management processes and space allocated for composting unit for institutions and community spaces that generate wet waste			
Market and Slaughterhouse Waste	To be Collected by V.P. every day.	To be Collected by V.P. every day.	To be wrapped in newspaper marked with a red cross OR placed in a yellow bag before placing in non-recyclable dry waste bin	To be Collected by V.P. every day.

It has been proposed that collection of dry and wet waste in each ward shall be done as per the following guidelines:

1. The Panchayat has decided to adopt the model of assigning the collection of dry and wet waste to a contractor. In case this mechanism fails at a future date, the possibility of switching to a Panchayat-managed worker model can be considered.
2. Area wise collection of dry and wet waste is to be carried out every day as per the following schedule:

Table 4: Dry and wet waste collection schedule

Sr. No.	Day	Cluster No.	Ward / Area Name	Collection Time
1	Everyday	I	Moula-Batim	8.30 am to 5.00 pm
		II	Maina-Batim	
		III	Gaoukar-Wado-Batim	
		IV	Portel-Bhat-Batim	
		V	Vodlem-Bhat-Batim	
		VI	Ruma-Bhat-Batim	
		VII	Sovoskai-wado-Batim	

Chapter 3: Awareness Strategy

As collection and disposal of waste will commence at the Panchayat, a lot of programs must be formulated by the Panchayat to create awareness across various inhabitants of the village. Some initial strategies to help the Panchayat are described below:

1. Mobilise any NGO's, youth clubs, mahillamandals, self-help groups, sports clubs and other social organisations in the village and approach them to partake in spreading awareness about the waste management efforts of the village.
2. Every Panch ember shall conduct a door-to-door visit to the households, shops, offices and institutions in their respective wards to educate the waste generators and to understand any issues / challenges faced by them. Repeating this activity once every three months shall encourage everyone to participate in the waste management plan.
3. Panch members are also encouraged to conduct a common meeting of all ward members to appraise them about the progress of the program and to address any issues faced collectively by the community.
4. The Garbage Management Committee shall conduct a monthly review meeting to discuss the progress and way forward. It must be mandated for at least 80% attendance of members at such meetings. Panch members of the various wards and any external expert can also be invited at these sessions. A formal report shall be formulated on the proceedings of the meeting and filed in the Panchayat.
5. Every year, the Panchayat shall conduct two sessions in each of the educational institutions located in Batim on the waste management practices adopted by the Panchayat. Experts from the field, representatives from other villages and students of other institutions can also be invited to showcase their efforts across the state.
6. Training on waste management is to be provided to teachers and staff of educational campuses at least twice a year such that they can imbibe good practices to students.

7. It is also mandatory for the Panchayat to conduct training and capacity building sessions with the waste management workers and informal recyclers working in the village. This activity shall be organised in collaboration with experts working in the field and shall be conducted at least four times a year.

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Chapter 4: Proposed Storage and Sorting Centre

The Village Panchayat will carry out door-to-door collection of dry as well as wet garbage every day by following tendering process. The collected waste will be transported to the proposed MRF site for segregation and disposal.

Details of Site

Site Details

Site Area	1000sqmts in Sy. No.15/0
Land Status	Open
No. of Households	615
Quantity of Dry Waste	2 tone Month
Frequency of Collection(door-to-door)	Every day
Frequency of Collection (centre - plant)	Every day
Special Waste Type	Plastic bag, bottle
Number of Workers Engaged	3
Vehicle used for collection	Ricksha

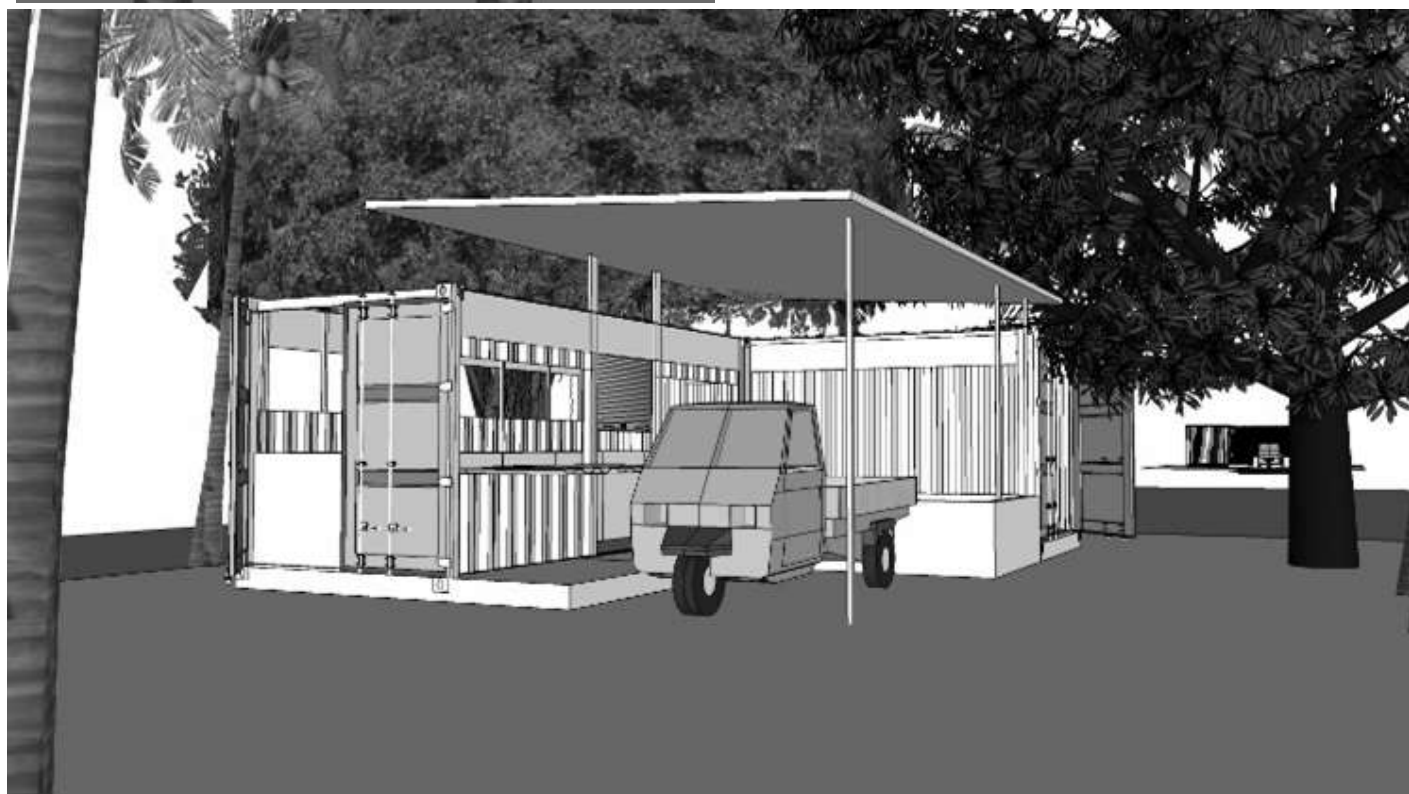
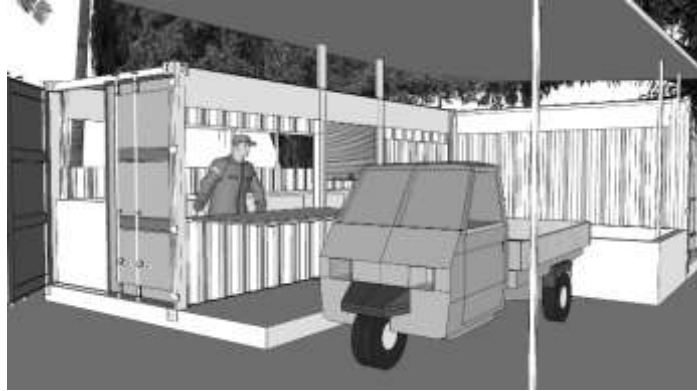
Table 6: Tentative Commercial Breakup

Total Site Area	1000sqmts
Total Built up Area	150sqmts
Prototype	B
Project Budget	52,50,000/- Lakhs
Tentative Breakup:	
Civil, Electrical, Plumbing, Site Development, Equipmentation and Miscellaneous Works	28,00,000/- Lakhs
Electrical	1,00,000/- Lakhs
Plumbing	2,00,000/- Lakhs
Site Development	1,00,000/- Lakhs

Equipments	20,00,000/- Lakhs
Miscellaneous	50, 000/- Lakhs
Total Estimate	52,50,000/- Lakhs

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Proposed Design of Sorting Centre: Prototype B (205to 5 tons)



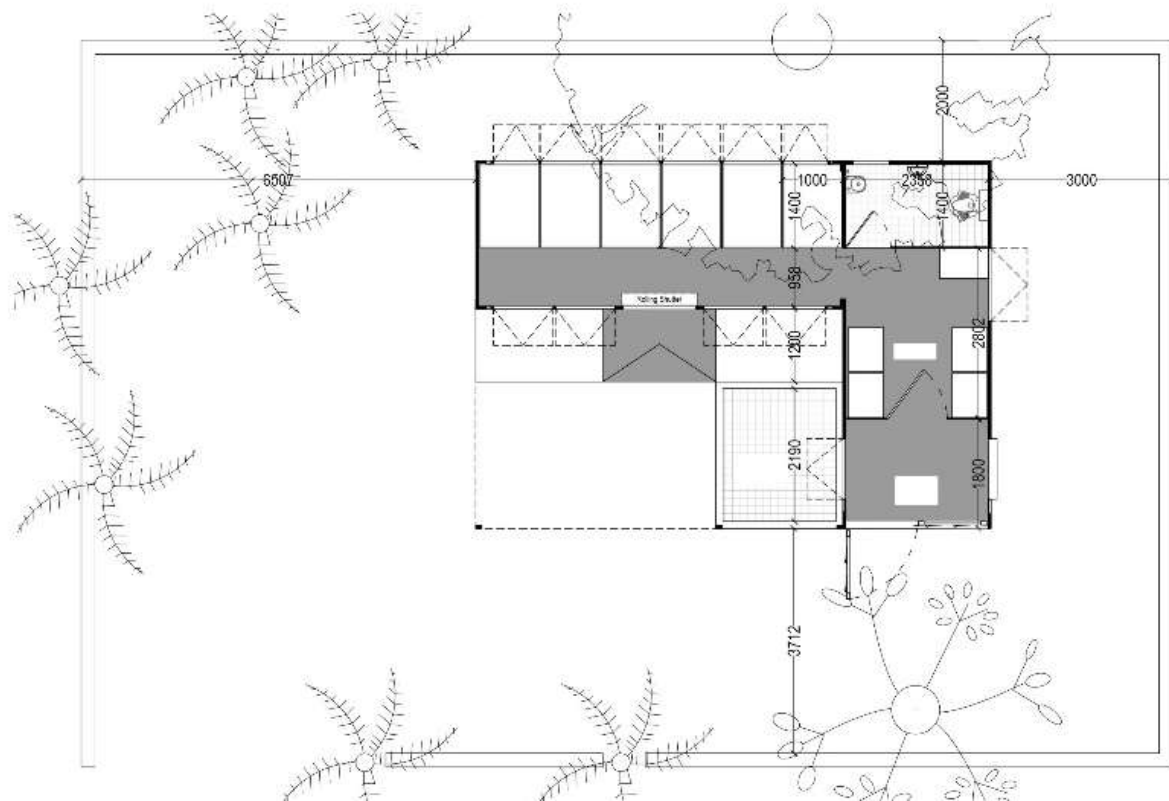


Figure8: Storage and Sorting Centre Plan

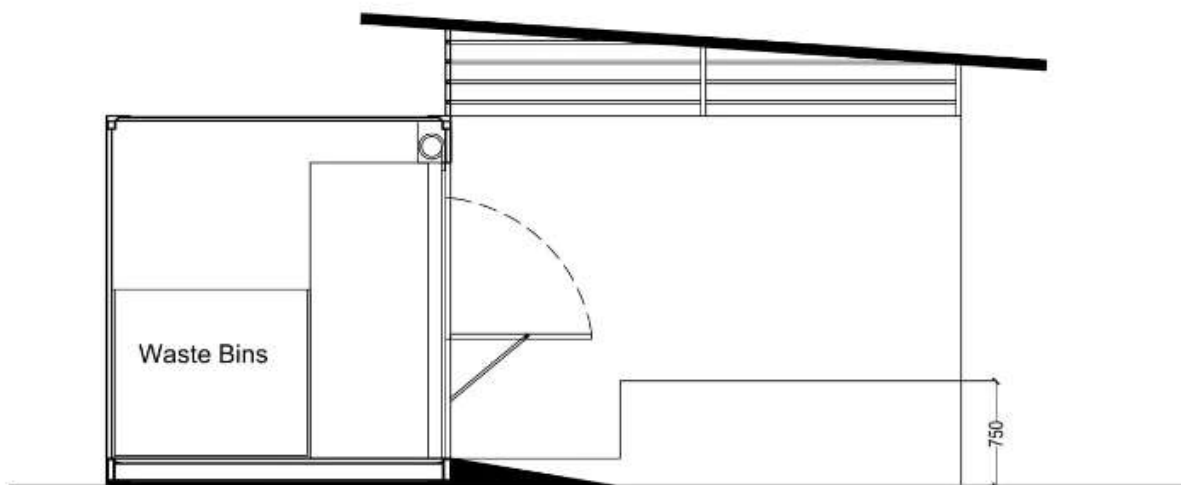


Figure9: Storage and Sorting Centre Section

Chapter 5: Transportation

The Panchayat will appoint a contractor to collect the waste. Segregated dry and wet waste will be sent to the proposed MRF site for processing and disposal.

Types of Vehicle to collect the waste:



Piaggio Ape Mini



Garbage Compactor Vehicle

Figure10: Vehicle Model

Proposed Vehicle for Collection Purpose:

Piaggio Ape Mini:	For Door to Door collection of dry waste
Garbage Compactor Vehicle	For Door to Door collection of wet waste

Chapter 6: Costing and Economics

Village Panchayat has been sanctioned Rs. 1,50,000 by Directorate of Panchayat as their first instalment towards solid waste management.

Monthly Expenses:

The estimates for door to door garbage collection wet and dry and clearing open spaces will be prepared and further tendering process shall be carried out. The expenditure for the garbage will be borne by Panchayat or from the funds made available by the government. A suitable Garbage Tax will be levied in the jurisdiction of Village Panchayat.

Chapter 7: Final Disposal

It is proposed to set up Material Recovery Facility (MRF) and suitable land will be identified by this V.P for the same. The collected waste will be transported to the proposed Material Recovery Facility (MRF) site for processing and disposal.

Chapter 8: Monitoring Strategy

1. Panch members will conduct random labour monitoring during the collection days. The Panch members of respective wards will meet the labours on the scheduled route to interact with them while also observing if the work is being done properly.
2. It is proposed that during the monthly review meeting on Waste Management, Garbage Management Committee will be invited for discussions and making planning strategies.

Chapter 9: Mapping of Village

Mapping of Village Panchayat provides data on various parameters including households that helps in effective planning awareness and collection strategy as well as route mapping therefore efficiently deciding on transportation routes. Various points like, collection spot, religious places, schools, halls, collection etc are marked. The map also gives the citizens and the community a bird's eye view of village thereby bringing in transparency into the system.

Refer digitized map of the Village Panchayat with ward wise boundaries marked in Annexure-I.

Chapter 10: Enforcement Strategy

Village Panchayat office will maintain a complaint register. The calls of grievances will be received by the staff of the village Panchayat and accordingly noted on the register. All the complaints recorded will be discussed and resolved in the monthly fortnightly meeting and the acknowledgement will be sent to the concerned person.

A suitable garbage tax will be imposed.

As per Goa Non-Biodegradable Garbage (Control) Act, 1996, fines shall be imposed on miscreants by the Village Panchayat Secretary to prevent throwing or depositing non-biodegradable garbage in public drains, roads and place open to public view in the V.P. jurisdiction and for matters connected therewith.

**Digitized map of the Village Panchayat with ward wise boundaries in
Annexure-**

