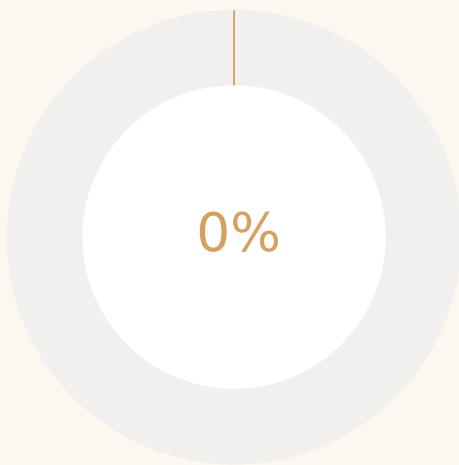


Business Model Selection for

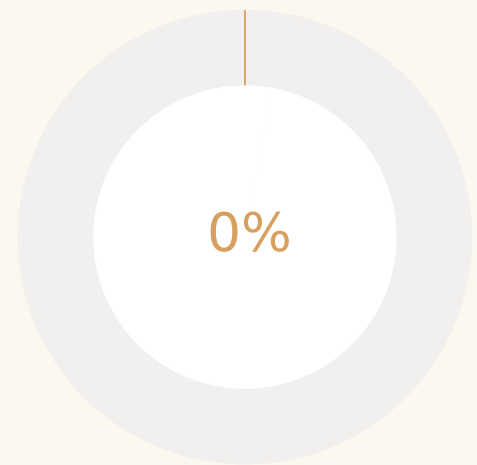
Chennai

Residential- Institutional Biogas model



Feasibility **Poor**

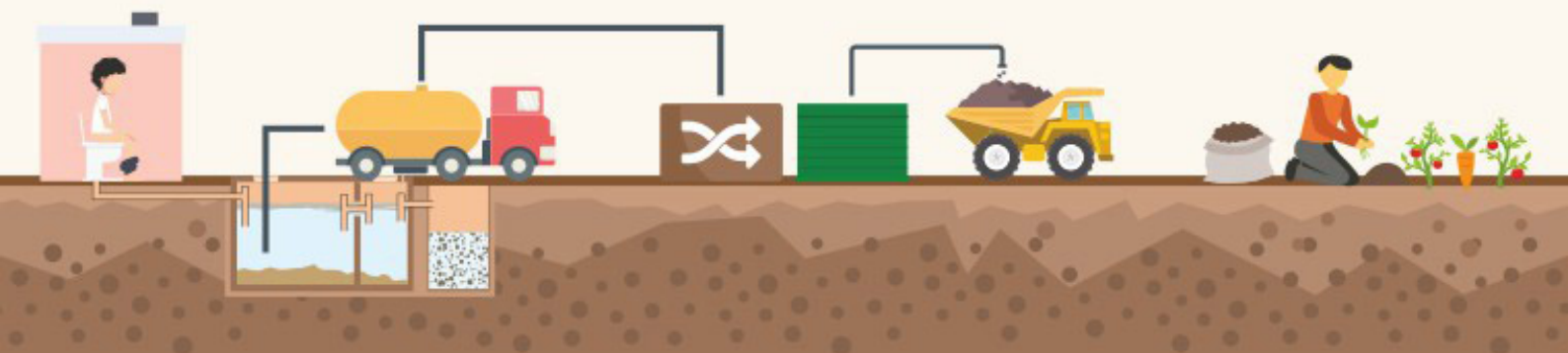
Private Emptying and Transportation Model



Feasibility **Poor**

The FSM Index score indicates that the Overall FSM performance of the city is

Scale: Poor 0-33% | Medium 33-66% | Good 67-100%.



Business Model Selection Report: chennai

11 Feb 2019

Generated By: senthil k

Produced By: senthil k, athena, chennai, Tamil Nadu, India.

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Business Model

Knowledge of potential business model options and evaluation of their suitability for the city is essential for FSM entrepreneurs. Based on the area of interest(s) in the FSM value chain, relevant business model case studies from across the world are presented. This planning module of the FSM Toolbox offers the users with case studies on a range of business models implemented in different parts of the world across the value chain, referenced from IWMI's Resource Recovery and Reuse Series 6 document. It also assists users in evaluating the relevance of these different models to their context to determine the feasibility of implementation.

Note: This module should only be used as a pre-feasibility tool and not an 'end-to-end business solution' tool. The main objective of this section is to function as a guiding tool for users who are interested to start a business in the FSM sector and already are familiar with the intricacies of the sector. This tool only showcases the possible business options which have been documented as part of IWMI's report on 'Business Models for Faecal Sludge Management' as part of the Resource Recovery and Reuse Series.

Basic Information about your city:

- **City Name:** chennai
- **State:** Tamil Nadu
- **Country:** India
- **Total Population:** 10000

Name of the organisation: athena

The business models selected are:

S#	Name of Business Model
1	Residential-Institutional Biogas model
2	Private Emptying and Transportation Model

Feasibility Assessment

Mandatory and optional variables are used to calculate the feasibility score for the business models selected based on their requirement. The presence of the mandatory variables is essential for the successful implementation of the business models. However, the presence of the optional variables supports the ecosystem and is not an essential requirement for the existence of the business models. Both variable types have equal weightage in the feasibility calculation.

(Mandatory Variables for Business Model) - To be fetched from database

(Optional Variables for Business Model) - To be fetched from database

The feasibility of the business models is grouped as Good, Medium and Poor based on the score obtained.

Scale: Poor (0-33%), Medium (33-66%), Good (67-100%)

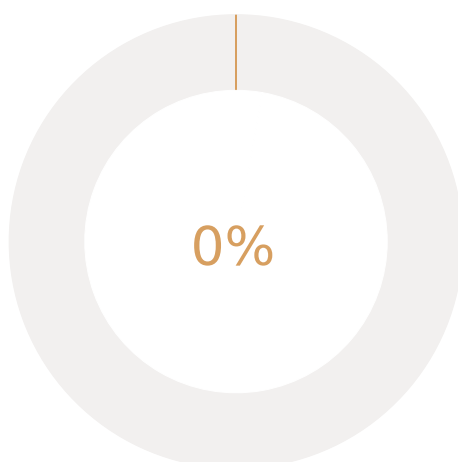
The feasibility of the selected business models are:

(E.g.):

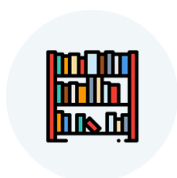
1- 30% (poor)

2- 60% (medium)

Residential-Institutional Biogas model



Feasibility **Poor**



Recommendations for implementation of Residential-Institutional Biogas model.

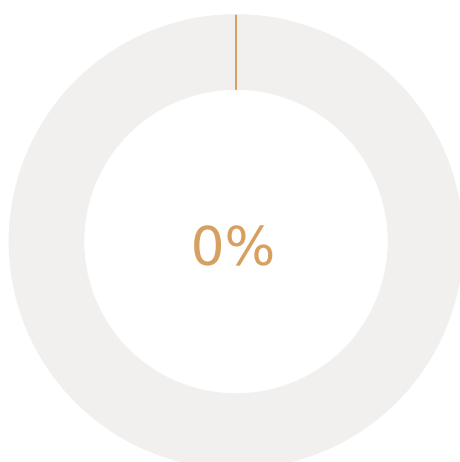
The following table lists the key requirement for successful implementation of this business model.

Sl.No.	Treatment	Your Answer	Recommendations
1	Are there design standards for design, operation and maintenance of treatment facilities?	no	It is important that the residential toilet is connected to a containment unit/treatment facility. In this particular business model, the biogas digester acts as a form of treatment technology and it is important that the treatment facility is built according to appropriate standards and maintained accordingly.
	Is there an institution with mandate for monitoring design, operation and maintenance of treatment facilities?	no	In order for the regulatory provision to be enforced successfully on ground, there needs to be an institution responsible for its

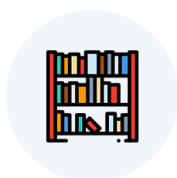
			implementation.
2	Are there standards for effluent disposal?	no	There should be regulations determining the effluent discharge standards. Also, for the treatment technology, the effluent coming out of the treatment infrastructure should be within environmentally safe limits.
	Are these standards enforced in the city?	no	Once these regulatory provisions are in place, it is required that the provisions are enforced and practiced on ground.
	Is there an institution with the mandate for monitoring compliance to effluent disposal standards?	no	In order for the regulatory provision to be enforced successfully on ground, there needs to be an institution responsible for its implementation.
3	Are there standards for solids disposal?	no	For the treatment technology, the bio-solids (faecal sludge) coming out of the treatment infrastructure should be within environmentally sustainable limits.
	Is there an institution with mandate for monitoring compliance to solids disposal standards?	no	In order for the regulatory provision to be enforced successfully on ground, there needs to be an institution responsible for its implementation.
SI.No.	Reuse - Variables	Your Answer	Recommendations
1	Are there regulatory provisions for legalising reuse of treated end products	no	
	Is there an institution with mandate to legalise reuse of treated end products?	no	
2	Are there standards	no	

prescribing the quality of reuse by-products for a particular use?		
Is there an institution with mandate to inspect the quality of by-products generated for re-use?	no	

Private Emptying and Transportation Model



Feasibility **Poor**



Recommendations for implementation of Private Emptying and Transportation Model

The following table lists the key requirement for successful implementation of this business model.

Sl.No.	Containment	Your Answer	Recommendations
1	Are there standards for the construction of a particular type of On-Site Sanitation System (OSS)?	no	
	If No, is there an institution with mandate for inspecting containment unit?	no	
2	Are there regulations for improving improperly built OSS?	no	
	Is there an institution with mandate for improving OSS?	no	
3	Are there regulations (rules/guidelines) for issuing permits for OSS construction?	no	

	Is there an institution with mandate for issuing permits for OSS construction?	no	
	Are there enough resources (financial and human) to verify and issue permits for OSS construction?	no	
Sl.No.	Collection and Conveyance	Your Answer	Recommendations
1	Are there regulations (rules/guidelines) for desludging frequencies?	no	
	Is there an institution with mandate towards enforcing the desludging frequency?	no	
2	Is there a regulation for licensing of desludging operators and workers?	no	Depending on the local context, the implementer of the business model/operator should also be aware of regulations related to trade license and have an operating license if required. Also, in some cases, it may be mandatory that the operator is registered with the local government and inform them about the service that they are providing. As such it is helpful for the business model implementer to have knowledge about such regulations before initiating their business.
	Is there an institution with mandate for licensing desludging operators and workers?	no	In order for the regulatory provision to be enforced successfully on ground, there needs to be an institution responsible for its implementation. This would enable the implementer of the business model to identify which institution to approach

			to obtain their licence(s).
3	Are there standard operating procedures (zone/time of operations, accidents, spills, proper disposal, record keeping, route planning) for desludging/transportation?	no	For desludging operators, it will be helpful to follow standard operating procedures to be more efficient in their service delivery. Also, from the environmental sustainability point of view, the collected sludge should be disposed of at a designated site or a treatment plant.
	Is there an institution with mandate for monitoring of desludging operator's compliance to standard operating procedures?	no	In order for the regulatory provision to be enforced successfully on ground, there needs to be an institution responsible for its implementation. This would enable the implementer of the business model to identify which institution to approach for getting access to such information.
4	Are there vehicle standards for determining the roadworthiness (whether the vehicle can access the roads in terms of elevation - steep climb, road width, etc.) of desludging vehicles?	no	
	Is there an institution with mandate for monitoring whether the desludging vehicles meet the roadworthiness standards?	no	
5	Is there regulatory provision for setting the desludging tariff?	no	In case of this business model, the desludging tariff should be determined as a result of competition in the market and a household's willingness to pay, allowing the private operators to set

			the tariffs based on market demand. If there is an existing regulatory provision setting the desludging tariff, then private operators would have to follow the tariffs set by the regulatory body. This would lead to operators not making a profit out of the service delivery business, as the private operators work on a profit driven model, while the objective for the public body is the welfare of society.
	Is there an institution with mandate for setting the desludging tariff?	no	For the desludging operator to seek information about the desludging tariffs, it is important to know which institution (if any) is responsible for setting up of desludging tariffs and overseeing the desludging services in the coverage area.
6	Is there provision of tipping fee for the desludging operators at the treatment facility?	no	

FSM Toolbox has an extensive repository of knowledge products that are most relevant to your city. Here is a list of select knowledge products for your reference. [Click here to learn more.](#)