



Sanitation & Livelihoods

Mobilising Community Groups for Sanitation Livelihoods



Designed & Developed by
Urban Management Centre
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Message

Joint Secretary & Mission Director, DAY- NULM



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National Urban Livelihoods Mission,
Ministry of Housing and Urban Affairs,
Government of India, New Delhi

The Ministry of Housing & Urban Affairs is implementing a flagship mission namely, “Deendayal Antyodaya Yojana - National Urban Livelihoods Mission (DAY-NULM)” with the objective to reduce poverty and vulnerability of the urban poor households by enabling them to access sustainable self-employment and skilled wage employment opportunities.

In India, there is a need for skilled sanitary workforce to manage varied infrastructure created under Swachh Bharat Mission- Urban (SBM-U) and Atal Mission for Rejuvenation and Urban Transformation (AMRUT). The Technical Support Unit on convergence between SBM (U) and DAY-NULM by Urban Management Centre and supported by Bill and Melinda Gates Foundation, has identified sanitation-based livelihoods models through which sanitation based micro-enterprises can be mainstreamed to generate livelihoods for skilled

sanitation workforce and to manage the infrastructure created by the SBM- U across the country.

I am sure, these specific modules will help in building the capacity of functionaries of states and urban local bodies to create more livelihood opportunities in the sanitation sector to manage the sanitation infrastructure in the country.

I believe that this training module titled - Mobilising Community Groups for Sanitation Livelihoods” will help in enhancing the effectiveness and outreach of DAY-NULM in skill development and promote employment generation in the sanitation sector.

About the Module

Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (DAY-NULM) aims to reduce poverty and vulnerability of urban poor households by enabling them to access gainful self-employment and skilled wage employment opportunities, on other hand Swachh Bharat Mission – Urban (SBM-U) aims to make India free of open defecation and eradicate the practice of manual scavenging. As part of SBM (U), various kinds of sanitation-related infrastructure are getting created which will have to be maintained properly to enjoy its benefits in the future. This way SBM (U) is creating sanitation-based livelihood opportunities which DAY-NULM should address to attain its vision.

In this context, a convergence between DAY-NULM and SBM (U) has been undertaken by the Ministry of Housing and Urban Affairs (MoHUA).

The capacity building training module for functionaries of State and Urban Local Bodies on “Mobilising Community Groups for Sanitation Livelihoods” lists various livelihood options and opportunities in sanitation sector so that these newly emerged opportunities could be harnessed for providing livelihoods to sanitary workers.

Objective

Build capacities of functionaries of states and urban local bodies towards supporting safe sanitation-based livelihoods

Sanitation as a Means of Livelihoods

Target Group For This Module

Government Functionaries

- State, city officials in charge of implementing SBM, AMRUT, NULM schemes, such as State Mission Manager (SMM)
- City Mission Manager (CMM) of NULM, SBM and AMRUT etc

Field Functionaries

- Community organizers
- Staff of resource organizations
- Community resource persons



Sanitation as a Means of Livelihoods

Learning Objectives

Inculcate knowledge among the participants of the target group about Sanitation and Faecal Sludge Management (FSM) related livelihoods options

- **Basic technical understanding**
- **Business elements**
- **Standard operating procedures (SOPs)**



SBM - Urban

Swachh Bharat Mission - Urban

- Launched on 2 October 2014
- Being implemented by MoHUA (for urban areas) and MoDWS (for rural areas)

Weak sanitation has significant health costs, **untreated sewage** is the biggest source of water resource pollution in India

8 million household had no access to toilet and resorted to defecate in open

Urban population 377 million (31% of total population) as per census 2011; expected to reach **600 million** in **2031**

As per Census - 2011

- Indicates scale of the challenge ahead
- Indignity of homes without toilets and public spaces littered with garbage



Overview

Mission Objectives

- Elimination of open defecation
- Modern and scientific municipal solid waste management
- Behavioural change for healthy sanitation practice
- Generate awareness between sanitation and its linkage with public health

Mission Components

- Household toilet
- Community toilet
- Public toilet & urinals
- Solid waste management
- IEC & public awareness
- Capacity building

Mission Strategy

- Comprehensive sanitation planning
- Behavioural change strategy and IEC
- Private sector participation
- Capacity building
- Special focus group

DAY - NULM

Deendayal Antyodaya Yojana –National Urban Livelihoods Mission

- The MoHUA has been implementing a centrally sponsored scheme Swarna Jayanti Shahari Rojgar Yojana (SJSRY) since 1997 which has been restructured as Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (DAY - NULM). DAY-NULM is being implemented in all Statutory Towns.
- The objective of the mission is to reduce poverty and vulnerability of the urban poor households by enabling them to access gainful self employment and skilled wage employment opportunities, resulting in an appreciable improvement in their livelihoods on a sustainable basis, through building strong grassroots level institutions of the poor.
- The mission aims at providing shelters equipped with essential services to the urban homeless in a phased manner. In addition, the mission is also addressing livelihood concerns of the urban street vendors by facilitating access to suitable spaces, institutional credit, social security and skills to the urban street vendors for accessing emerging market opportunities.

DAY - NULM

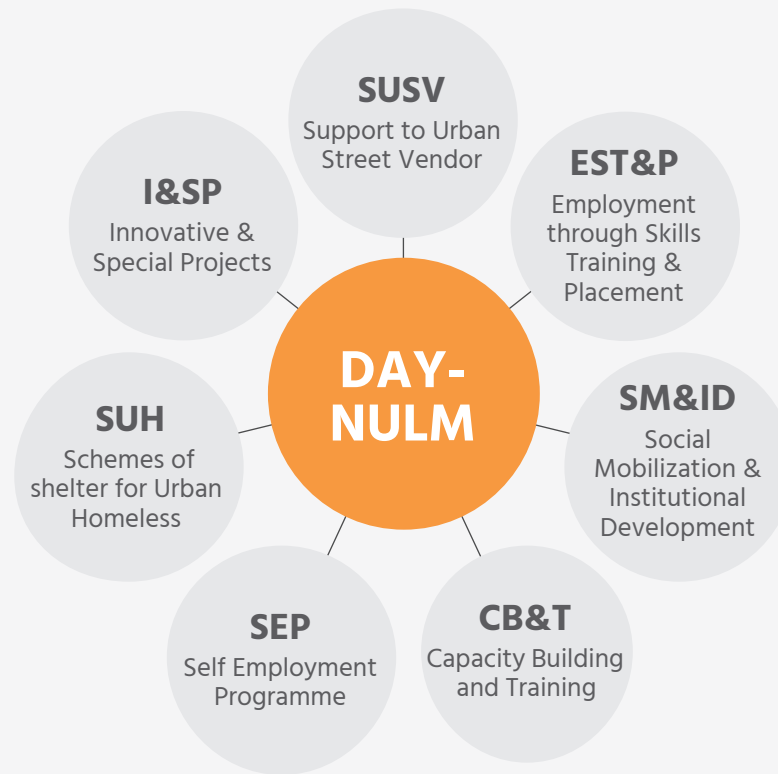
Implementation Strategy

- Building capacity of the urban poor, their institutions & machinery involved
- Enhancing and expanding existing livelihoods option of the urban poor
- Building skills to enable access to growing market-based opportunities
- Training for and support to the establishment of micro-enterprises
- Ensure availability and access for the urban homeless population to permanent 24 hours shelter
- Cater to the needs of especially vulnerable segments of the urban homeless
- To establish strong right-based linkages with other programmes
- To address livelihoods concerns of the urban street vendors



DAY - NULM

Components



Sanitation as a Means of Livelihoods

Who are Sanitation Workers

- Municipal sanitation workers
- Waste collectors
- Septic tank cleaners
- Sludge truck operators / VTO (vacuum truck operators)
- Operators of faecal sludge treatment plant
- Workers engaged in repair and maintenance of septic tanks / soak pits
- Sewer and drain cleaners
- Operators of community / public toilets
- Cleaners of toilets
- Workers engaged in housekeeping and facility management services



Sanitation as a Means of Livelihoods

Options

1. Operations and maintenance of community toilets
2. Operations and maintenance of public toilets
3. Operations and management of material recover facilities / dry waste (scrap) recovery centers
4. Operations and maintenance of faecal sludge treatment plants
5. Operation and maintenance of sludge vacuum truck / cesspool vehicle (tie up with existing mechanics)
6. Desludging services for on-site sanitation systems
7. Bio-Waste management (composting related services)
8. Sanitary mart for sanitation products including services relate to repair and maintenance of septic tanks / onsite sanitation services, installation of prefabricated septic tanks, construction of toilet with septic tanks
9. Facilities management



Sanitation as a Means of Livelihoods

Need for Safety in Sanitation / FSM Work

1. Sanitation and waste management are considered as 'dirty jobs', as various manual practices are undertaken while providing services
2. Health and safety of the sanitation workers have been a serious issue of concern – as their health is adversely impacted
3. Some of the tasks are very risky for the health of the workers
4. Possibilities of the work related health risk carried back to home and impacting kids
5. High ignorance among sanitary workers about the benefits of using protective gears while working



Sanitation as a Means of Formal Livelihoods

Immediate Possible Opportunities - Covered in This Module



Community Toilets



Public Toilets



Material Recover Facilities/ Dry Waste Recovery Centers



Faecal Sludge Treatment Plants



Desludging Services for On-Site Sanitation Systems



Facilities Management



Sanitary Mart for Sanitation Products



Bio-Waste Management

Target Group and Challenges

Target Groups	Challenges
Self Help Group	Low levels of education and skill
Local Entrepreneurs	Large in number, discrimination, social exclusion, crime, violence, insecurity of tenure, hazardous environmental conditions and lack of voice in governance
Youth Groups	Inability to access the opportunities offered
Social Enterprises	Constant threat of eviction, removal, confiscation of goods & almost non-existent social security cover

Vulnerability

Residential Vulnerability

- Access to land, shelter, basic services

Social Vulnerability

- Deprivations related to - gender, age, social stratification
- Lack of social protection
- Inadequate voice and participation in governance

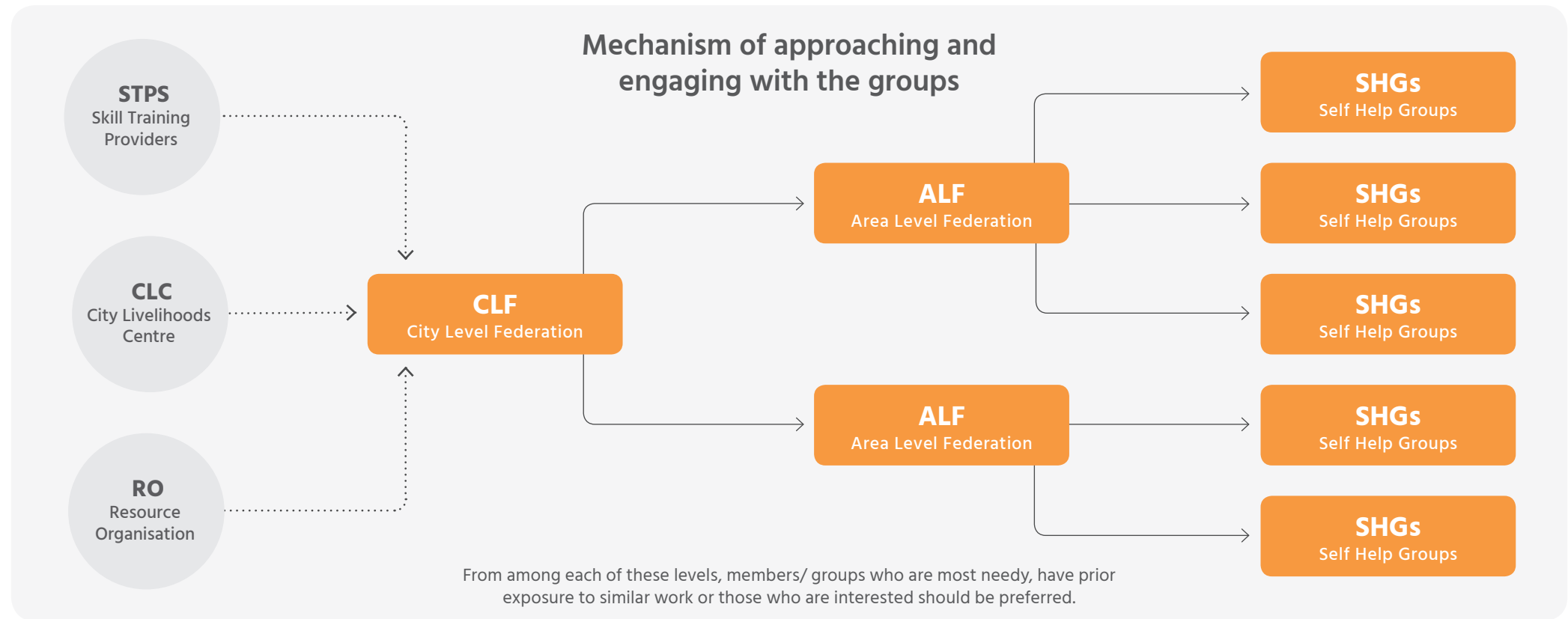
Occupational Vulnerability

- Precarious livelihoods
- Dependence on informal sector for employment and earnings
- Poor working conditions

Sanitation as a Means of Formal Livelihood

Identifying Interested Groups

Among Existing SHGs and Common Interest Groups Formed Under DAY-NULM



Sanitation as a Means of Formal Livelihood

Mechanism of Engaging with Groups

Vulnerable Groups / Members

- Sanitary workers
- Waste pickers
- Domestic workers
- Beggars
- Construction workers
- SCs, STs, minorities
- Urban poor, people staying in slums
- Female-headed households
- Persons with disabilities
- Migrant labourers
- Manual scavengers

From among vulnerable target groups / existing SHGs / ALFs & CLFs, members / groups with prior exposure to sanitation may be preferred



Sanitation as a Means of Formal Livelihood

Possible Windows of Supports

Self Employment-Individual & Group Enterprises

Individuals/groups of urban poor for setting up gainful self-employment ventures/ micro-enterprises, suited to their skills, training, aptitude and local conditions

Technology, Marketing & Other Support

Setting up micro-enterprises, in relation to input procurement, production, packaging, branding, marketing

SHG - Bank Linkage

Interest subsidy over and above 7% rate of interest applicable to all SHG's accessing bank loan. A 3% interest subvention to all women SHG's who repay their loan in time

Credit Card for Enterprise Development

Cover beneficiaries with credit cards for working capital and other purposes

Innovative & Special Projects

In partnership with CBOs, NGOs, semi-government organizations, private sector, industry associations, government departments, urban local bodies, resource centres or international organizations



Business Plan

Operations and Maintenance of Community Toilets

Business Plan - Operations and Maintenance of Community Toilets

Basics

Target Users

- Members of households without individual toilets
- Shop keepers
- By-passers
- Migrants

Purpose / Use For

- Defecation
- Urination
- Bathing
- Cloth washing



Business Plan - Operations and Maintenance of Community Toilets

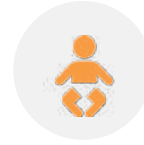
Components/Elements



Seperate
WC - males



Seperate
WC - females



Seperate
WC - child



Seperate
urinals - males



Seperate bath
rooms - males



Seperate bath
rooms females



Wash basins
with soap



Dust bin



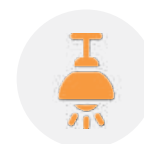
Disposal of
sanitary napkins



Fixtures for users
with special needs
including ramp,
sanitary napkin
vending and
disposal machine



Water supply



Lighting



Caretaker



Room for
caretakers



Good
ventilation



Small retail shop
– soap, shampoo,
cleaning material,
sanitary napkins,
etc



Good
ambience



Mirror

Common Problems with Community Toilets

- Behavioural issues
- Security and safety
- Poor access
- Open urination
- Hygiene and cleanliness
- Gender issues
- Not women friendly (sanitary napkin vending and disposal machine)
- Too crowded or no users
- Inadequate numbers of toilets / seats
- Poorly maintained
- Inappropriate location
- Types of toilets – males vs females
- Inadequate provisions within each facility
- Inadequate facilities for senior citizens / pregnant women / women with infant
- Lack of power supply at night
- Lack of water supply



Income & Expenditure

Income Sources

- **Usage fees**
 - Per usage
 - Monthly per member fee
 - Monthly family fee – pass
- **Charges for washing cloths**
- **Nominal charges for urination**
- **Sale of products**
- **Support from municipal authority or other support agencies including NULM, CSR, etc**
- **Income from advertising**
- **Small retail shop – soap, shampoo, cleaning material, sanitary napkins, etc**

Expenditure

- **Salaries**
 - Caretaker
 - Cleaner
 - Record keeper/ financial management
- **Other expenses**
 - Electricity
 - Water
 - Consumables – cleaner
 - Plumbing
- Breakage & repairs
- Emptying of septic tanks
- Paintings and decorations
- Any other municipal charges

Ideas for Better Usability and Sustainability

- Ensure good maintenance and cleanliness
- Provide good & hygienic ambience
- Keep open timings in a way to maximize usage and as per user preferences
- Ensure timely collection of user fee
- Open a small retail shop – soap, shampoo, cleaning material, sanitary napkins, etc as a source of added income
- Seek support from municipal authority for free supply of water and electricity, wherever possible
- Mobilize financing sources including CSR/ DAY-NULM/ others



Institutional Engagement – SHGs, ALFs, CLF and Individual

City Level Federation (CLF)/ City Livelihoods centre (CLC)

- Higher level technical support
- Negotiations and coordination
- Training & skills development
- Procurement and provision of services through ALF/SHG

Self Help Groups (SHG)

- Field implementation
- One SHG should manage at least 10-15 community
- The most appropriate members / groups to be chosen

Area Level Federation (ALF)

- Coordination
- Logistics



Sharing of Profit

City Livelihoods Centre (CLC)

0 to 5%

of total income of each group
(or as agreed)

In any case it should not be more than 5%

CLF/ALF/CLCs

City Level Federation/ Area Level Federation/
City Livelihood Centres

*Incase if there is any agreement executed with CLC/
CLF/ALF and is involved in monitoring mechanism of PT

Field Implementation

95%

of total income
of each group

SHGs

Self Help Groups

SHGs

Self Help Groups





Business Plan

Operations and Maintenance of Public Toilets

Basics

Target Users

- Market visitors
- Shop keepers
- By-passers
- Migrant labour
- Floating population

Purpose / Use For

- Defecation
- Urination
- Cloth washing
- Bathing

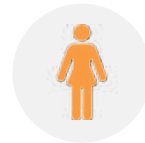


Business Plan - Operations and Maintenance of Public Toilets

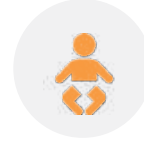
Components



Seperate
WC - males



Seperate
WC - females



Seperate
WC - child



Seperate
urinals - males



Seperate bath
rooms - males



Seperate bath
rooms females



Wash basins
with soap



Dust bin



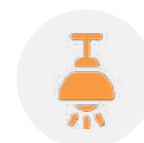
Disposal of
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Room for
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Good
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Mirror

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- Security and safety
- Open urination
- Hygiene and cleanliness
- Gender issues
- Too crowded or no users
- Inadequate numbers of toilets / seats
- Poorly maintained
- Types of toilets – males vs females
- Inadequate provisions within each facility
- No separate access for women
- Special toilets design required for senior citizen, pregnant lady and child
- Women friendly (sanitary napkin vending and disposal machine)



Income & Expenditure

Income Sources

- **Usage fees**
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Field Implementation

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of total income
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Business Plan

Material Recover Facilities / Dry Waste Recovery Centres

Type of Material Recovery Facilities

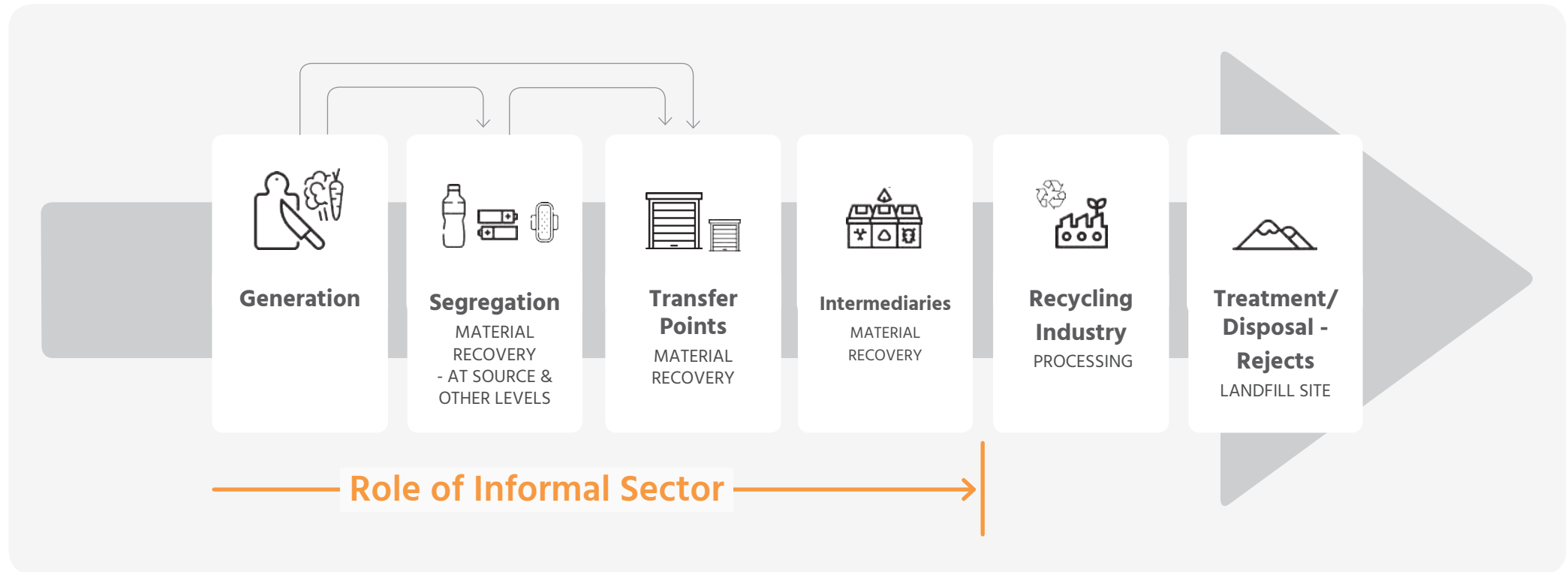
- Mixed waste
- Source segregated waste
- Dry waste stream



Recycling Materials That Can Be Sorted At Material Recover Facilities / Dry Waste Recovery Centres



Different Stages of Material Recovery Facility and Role of Informal Sector

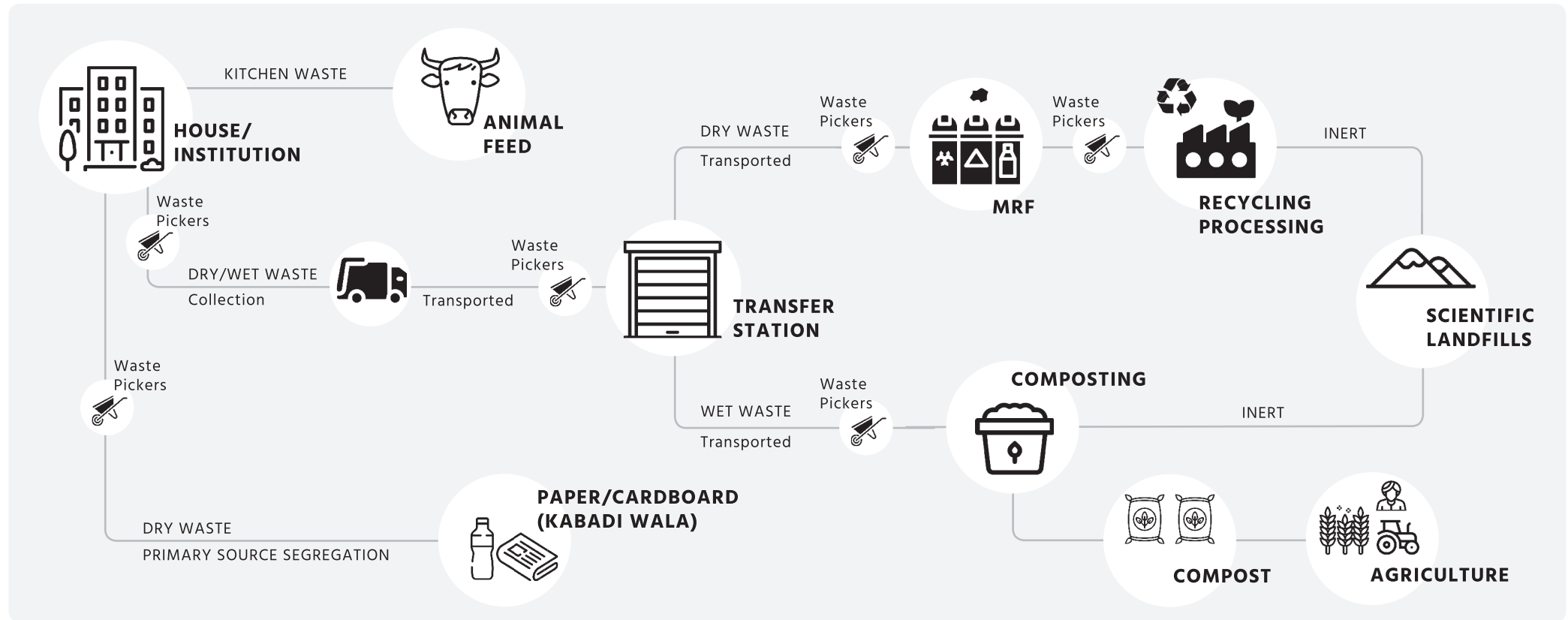


The Informal Recycling Sector

- Supplements the formal system
- Manages all types of dry waste through the informal network
- Provides employment to a large number of people
- Operates competitively and with high levels of efficiency
- Establishes linkages with the formal economy at some point in the recycling chain
- Offsets carbon emissions by making recycling possible and thus reducing the extraction and use of virgin raw materials



Stage of Material Recovery



Types of Material Recovery Facility (MRF)

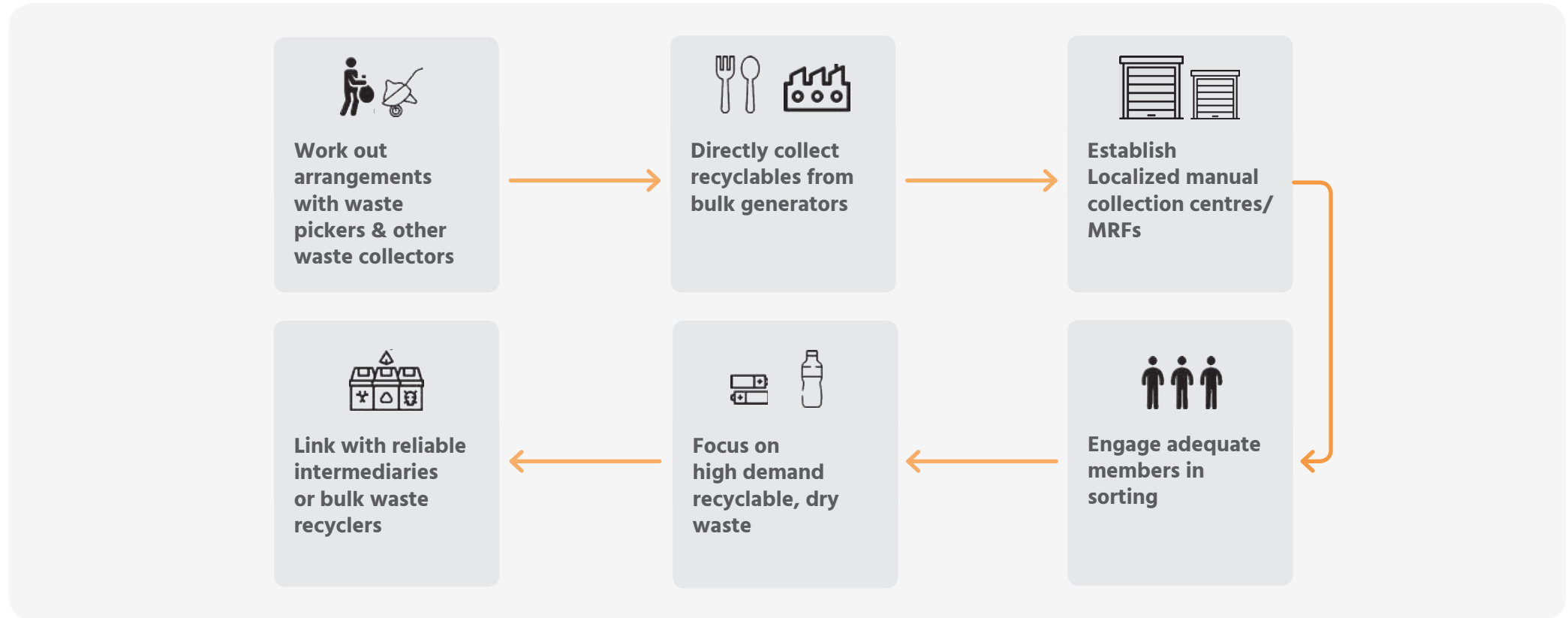


Common Problems

- Mixed waste
- Dirty, unhygienic working condition
– health impacts
- Collection from landfill and other inaccessible areas
- Infighting among waste pickers
- Coordination and working with ULBs
- Space constraint
- Harassment



How to Make It Efficient



Financial Plan to Implement Dry Waste Recovery Centre

Income Sources

- Sale of recovered products
- Support from municipal authority or other support agencies including DAY-NULM, CSR, etc
- Value added products making possibilities

Expenditure

- MRF shed Infrastructure Construction cost (if done on private basis)
- Salaries / wages
- Other expenses
 - Electricity
 - Water
 - Bags – for collection and storage and transport
 - Transportation
 - Other consumables - rope, boxes etc



Business Plan

Operations and Maintenance of Faecal Sludge Treatment Plants



Faecal Sludge and Septage Management

What is Faecal Sludge

- Faecal sludge - all liquid and semi-liquid contents of pit / septic tanks and vaults accumulating in on-site sanitation installations
- Un-sewered public and private toilets with pits and septic tanks
- These liquids are several times more concentrated in suspended and dissolved solids than wastewater



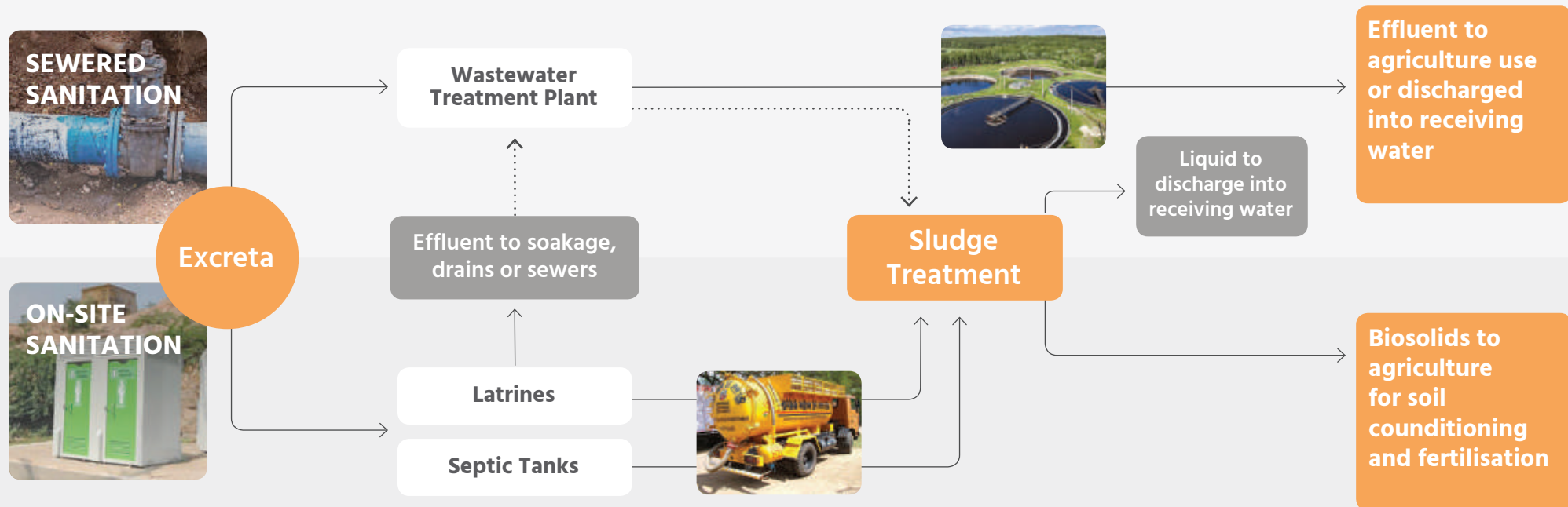
Faecal Sludge and Septage Management

Challenges

- Can impact both water supply and sanitation
- Low awareness about need and importance of emptying of faecal sludge from the septic tank periodically and prevalence of manual scavenging
- Manual handling during different stages of the system – violating laws
- Low technological advancement or penetration
- Considered as low dignity job and specific to a particular community
- Current practice of FSM management in Indian cities
- Construction of faecal sludge treatment plant
- High cost for desludging services
- Difficult to implement the scheduled desludging services as database of on-site sanitation system like septic tanks and soak pits etc. are not available
- Majority of Indian cities do not have FSTPs
- Limited knowledge among the FSTP operators about FSTP
- Job / role of the FSTP operator is not clear
- Existing FSTPs do not receive adequate faecal sludge
- Scheduled desludging services yet to be implemented in the Indian cities

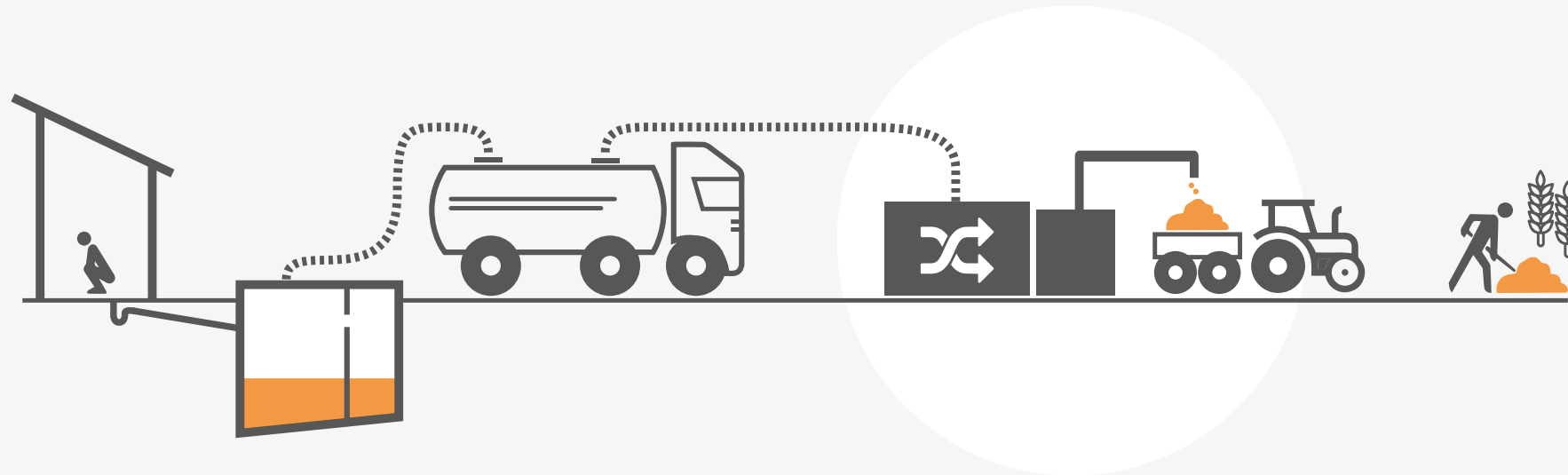
Faecal Sludge and Septage Management

What is On-site Sanitation System



Faecal Sludge and Septage Management

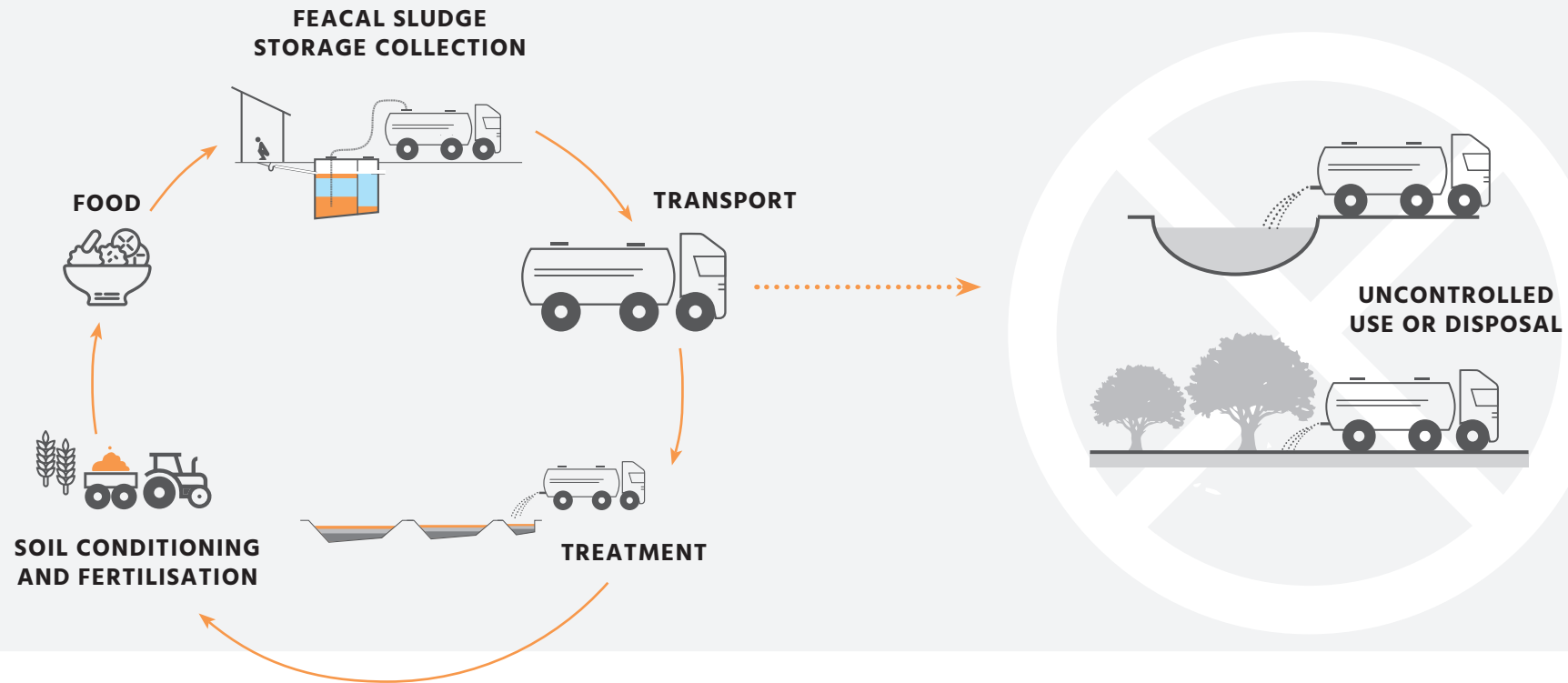
The Value Chain



CONTAINMENT > EMPTYING > TRANSPORT > **TREATMENT** > REUSE / DISPOSAL

Faecal Sludge and Septage Management

Faecal Sludge Treatment Plants for On-site Sanitation Systems



Faecal Sludge and Septage Management

The System

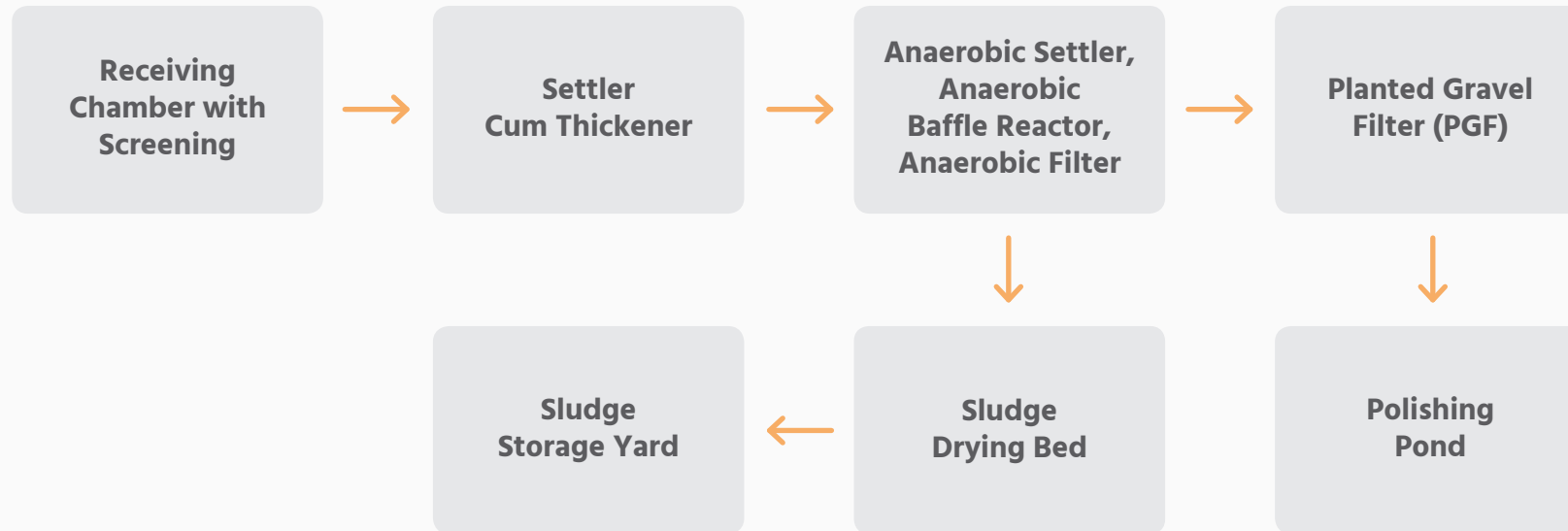
Operation: All activities that are required to ensure that a FSTP delivers treatment services as designed

Maintenance: All activities that ensure long-term operation of equipment and infrastructure

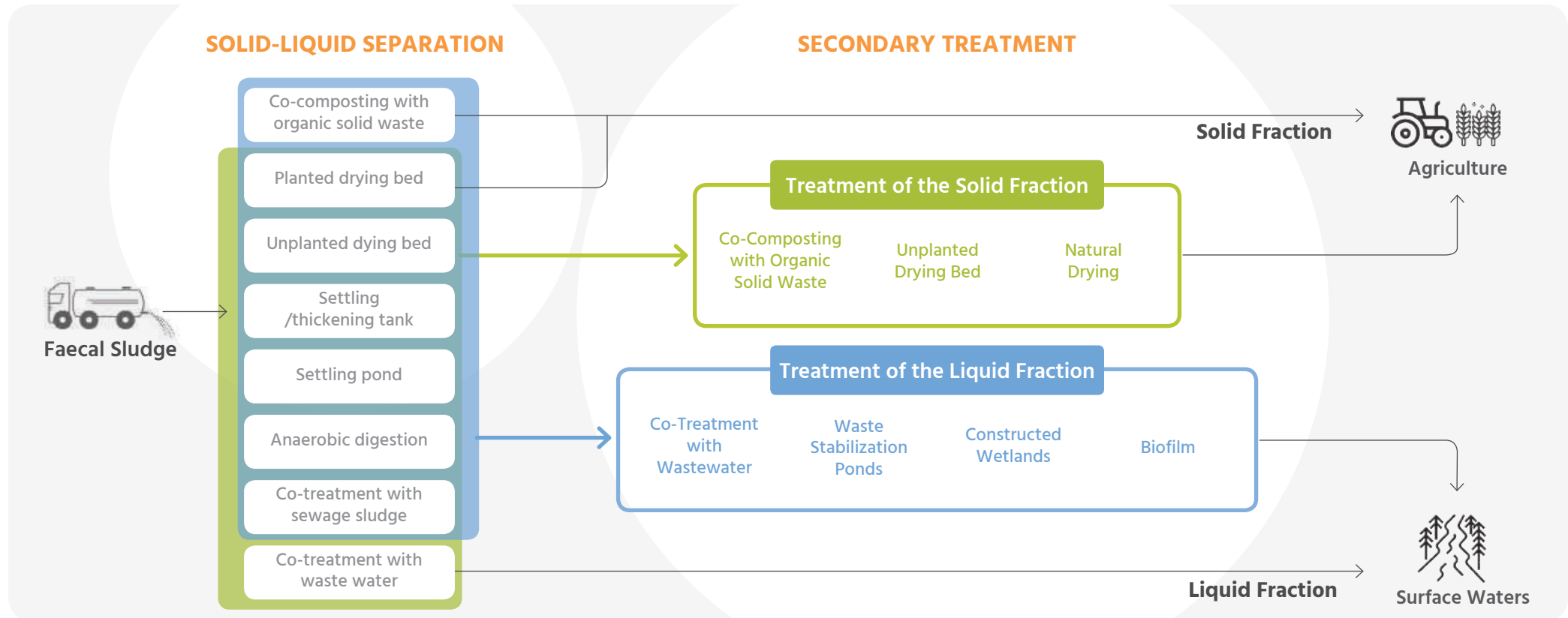


Faecal Sludge Treatment Plants

Complete Treatment Process



Faecal Sludge Treatment Plants

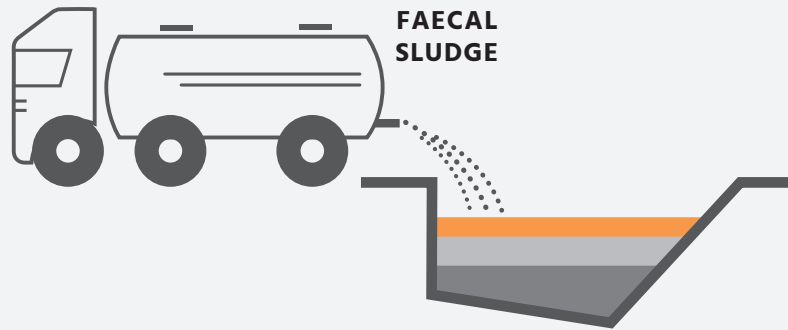


Septage/Sludge Management- Treatment Options

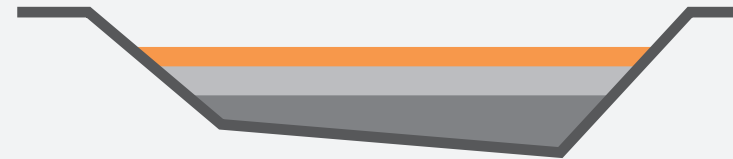
Septage Stabilization Ponds	One / more series of different types of ponds. Usually first pond is anaerobic pond, second is facultative pond, followed by maturation ponds.
Biogas Reactors	Septage - great source of biogas, very high in organic matter, also releases methane upon anaerobic digestion.
Composting	Stabilization of organic material through aerobic, thermophilic decomposition. Resulting humus-like material suitable as soil conditioner, source of nitrogen and phosphorus.
Lime Stabilization	Hydrated lime (calcium hydroxide) is added to septage to form a product that can be disposed of on land for use as fertilizer.
Drying / Unplanted Drying Beds	Planted or unplanted - sealed shallow ponds filled with several drainage layers- designed for separation of solid from liquid fraction. Sludge dried naturally by combination of percolation & evaporation.

Faecal Sludge Treatment Plants

Septage Stabilization Pond



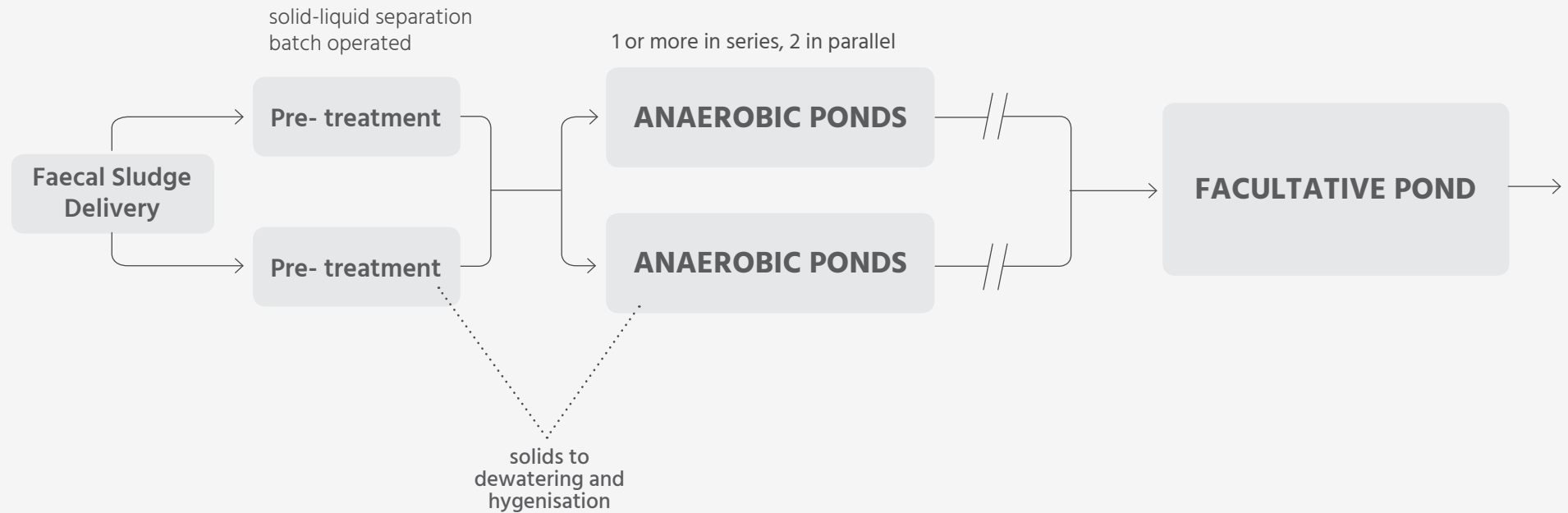
SETTLING TANKS
2 - 4 months loading / resting cycles
separated solids eg - to sludge drying
beds or co composting Solids



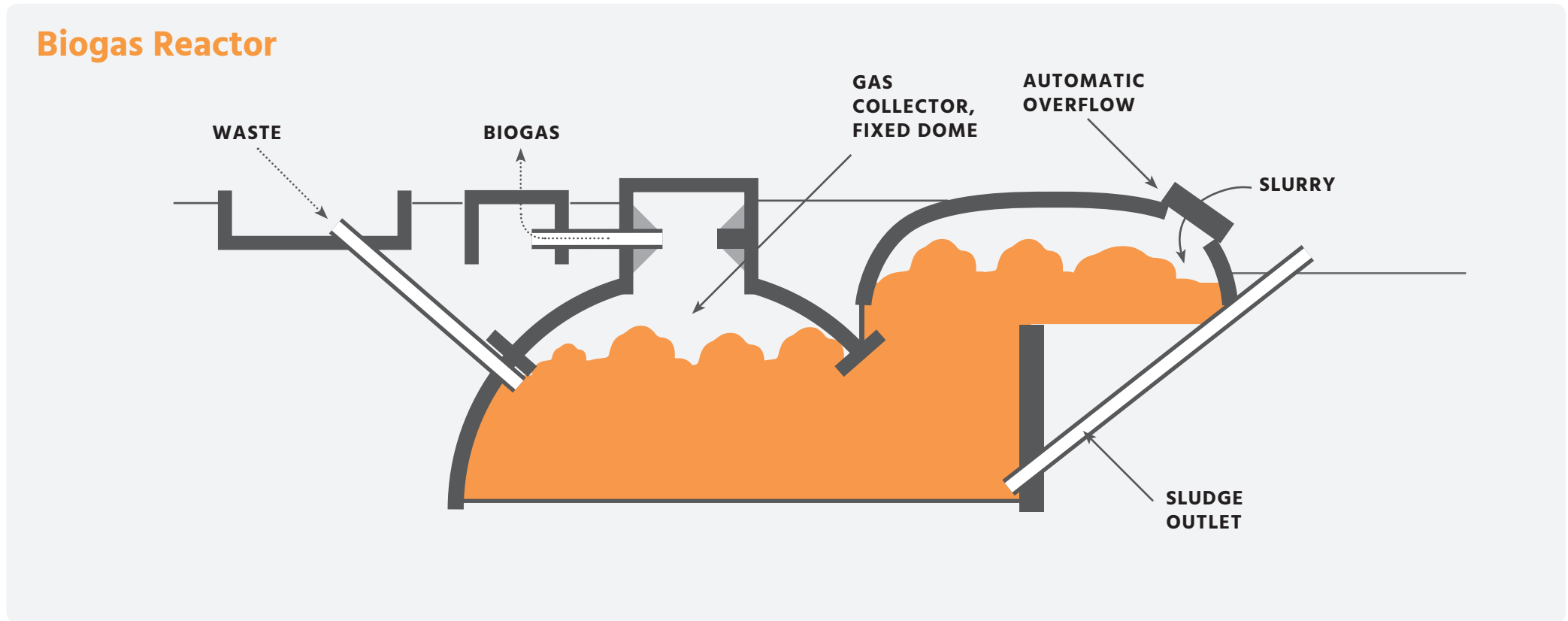
SEDIMENTATION PONDS
8 - 12 months loading / resting cycles
eg - With in-Pond Drying of Solids

Faecal Sludge Treatment Plants

Septage Stabilization Pond



Faecal Sludge Treatment Plants

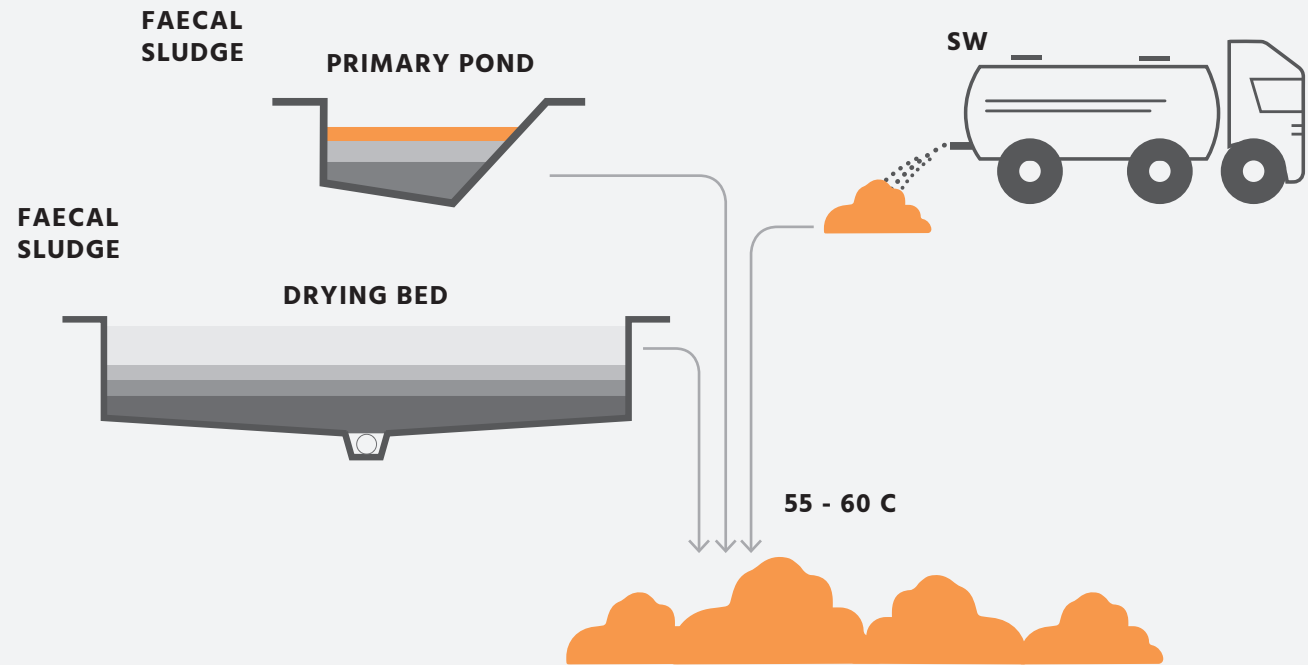


Faecal Sludge Treatment Plants

Composting

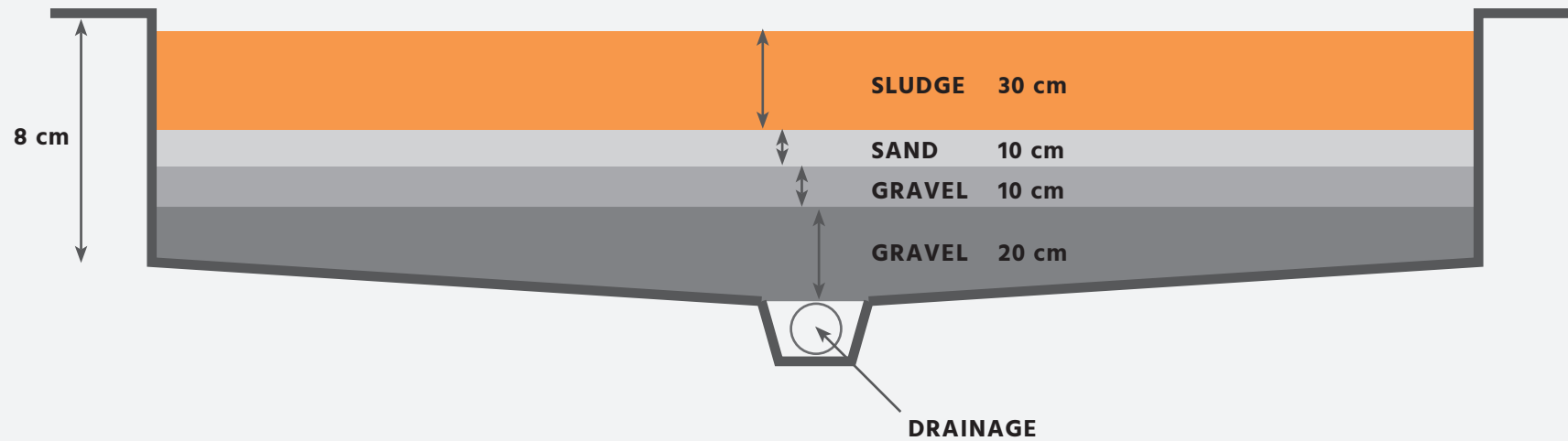
Compost from Treatment Plants Can Be Mixed with Municipal Compost:

'Co-composting'

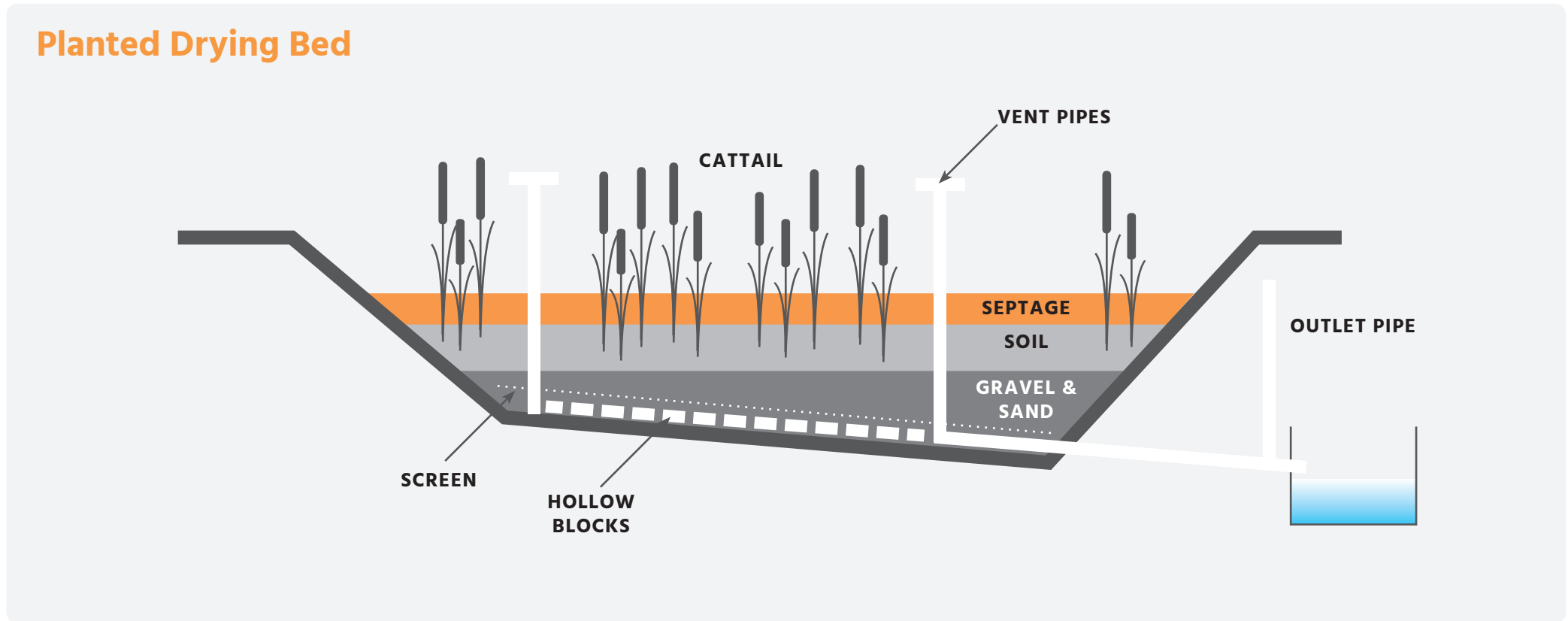


Faecal Sludge Treatment Plants

Unplanted Drying Bed



Faecal Sludge Treatment Plants



Income & Expenditure

Income

- Sale of compost
- Sale of treated water
- Service fee from municipal authority
- Service fee from residential, commercial and institutional areas septic tank / soak pits emptying

Expenditure - O&M Cost

- Salaries
 - FSTP O&M technician
 - Cleaner
 - Record keeper / financial management
- Other expenses
 - Landscaping
 - Testing lab
 - Electricity
 - Water
 - Consumables – cleaners
 - Plumbing
 - Breakage & repairs



Financial Plan - O&M of FSTP by Third Party

Income

- Sale of solid conditioner / compost
- Sale of treated water
- Service fee from municipal authority

Expenditure - O&M Cost

- Salaries
 - FSTP O&M technician
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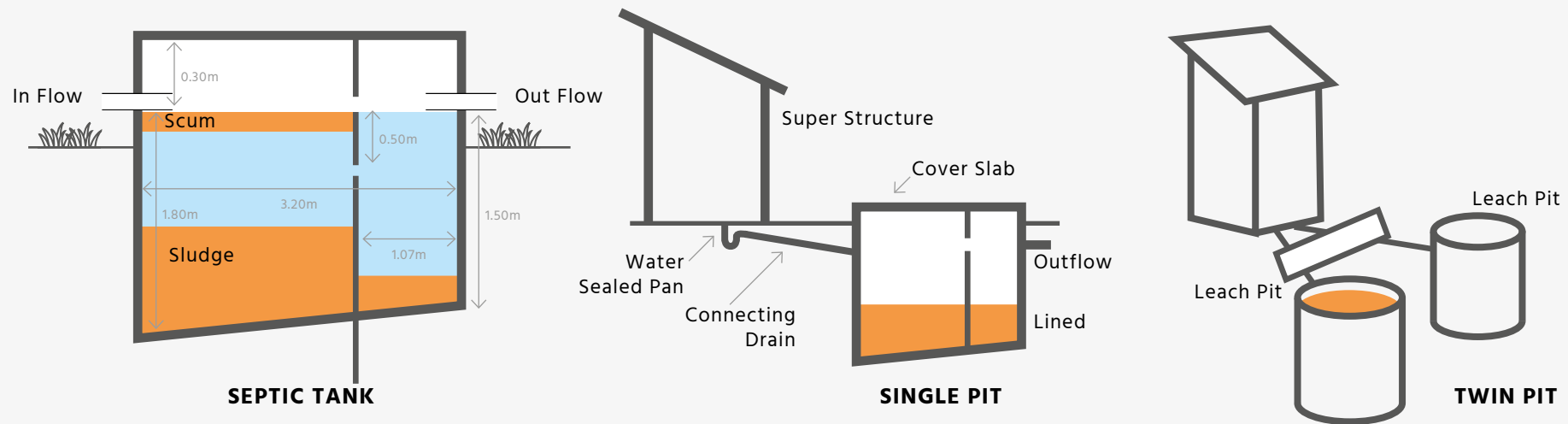




Business Plan

Desludging Services for On-site Sanitation Systems

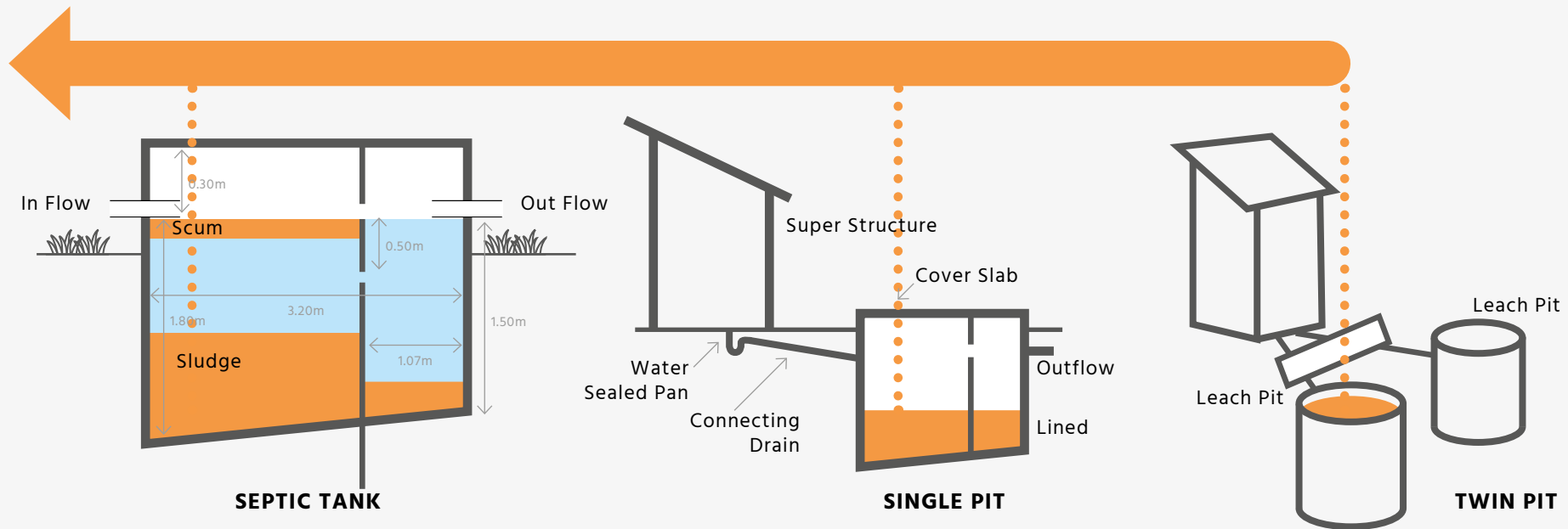
Type of Prevailing On-site Sanitation Systems



Business Plan - Desludging Services for On-site Sanitation Systems

Desludging

Desludging – is a process to remove faecal sludge from the pits/septic tanks so that the sanitation system functions effectively



Business Plan - Desludging Services for On-site Sanitation Systems

Frequency of Emptying

Desludging required frequently depending on number of users and topography, type toilets and size of septic tanks / soak pits

On-Site Sanitation System	Frequency of Emptying
Single Pit	<ul style="list-style-type: none">• 3 to 4 years or more
Twin Pit	<ul style="list-style-type: none">• Not required if designed and used as recommended. Manure however has to be collected & used• 12 months or more
Septic Tank	<ul style="list-style-type: none">• 4-5 years if designed and used as recommended



CPHEEO norms for emptying of septic tanks are to be followed while doing desludging services

Business Elements

Emptying Services on Call Basis

- Soak pits of latrines – single pit – mechanized emptying
- Septic tanks –mechanized emptying
- Twin pit – manual emptying – dry sludge (compost)



Business Plan - Desludging Services for On-site Sanitation Systems

Business Elements

- Each trip for emptying the septic tanks / soak pits is chargeable – service charge vary from city to city & type of service provided
- A team of at least three members (driver + 2 emptiers) can be engaged with mechanized cesspool vehicle
- Each team can make 3-4 trips a day
- Household with septic tanks / soakpits should be made aware and encouraged to empty septic tanks / soak pits periodically
- After desludging the tanks / pits – location of designated safe disposal points and space are critical elements that decide efficiency and economic viability of the services



Financial Plan – Desludging Services

Income Sources

- Usage (desludging) fees
 - Per trip of desludging
- Repair / retrofitting of septic tank / pit for easy access emptying
- Sale of soil conditioner, compost
- Sale of treated liquid
- Support from municipal authority or other support agencies including DAY-NULM, CSR, etc

Expenditure

- Salaries
 - Driver/s
 - Desludging operator / emptier
 - Record keeper / financial management
- Other expenses
 - Maintenance of vehicle
 - Fuel
 - Consumables – cleaners
 - Plumbing related to emptying
 - Advertising and promotions
 - Any others



स्वच्छता
ही सेवा



Business Plan
Facilities Management



Elements and Options

Professional Service Providers To Deliver Various Services to:

- Housing societies
- Individual households
- Offices and institutions (nursing homes, hospitals, schools, colleges, hotels etc.)
- Public and private utilities including (but not limited to)
 - Railways stations
 - Bus stand
 - Parks and gardens
 - Hotel and restaurant
 - Sanitation facilities, etc



Business Plan - Facilities Management

Services – Expertise Requirements

Facilities Management	Services	Expertise Requirements
Housekeeping	Daily cleaning	Understanding cleaning needs / techniques
	Waste collection	Basic knowledge waste collection
	Garden maintenance	Basic knowledge garden & plants
Campus Waste Management	Composting of garden waste	Basic knowledge of waste collection
	Composting of kitchen waste	Basic knowledge of waste collection
	Dry waste management	Basic knowledge of waste management
Cleaning Services	Daily cleaning	High level understanding cleaning needs and technique
	Periodic cleaning	
	Special cleaning	
Plumbing and Electrical Works	Regular cleaning of drains	Technical understanding of plumbing
	Maintenance of closed campus drains	
	Routine electrical work	Technical understanding as electrician
Sanitary Mart	Marketing and sales of various products used for house keeping facilities	Understanding the needs and demands of the area
	These may be bought from SHG's or from wholesale market	Quality products
		Communication and good customer service
Pest Control	Mosquito, rodents, termite, bed bug control	Technical understanding
	All other household / office pest control	Expertise to carry out pest control operations
		Basic understanding of chemicals vs bio based options

Business Plan - Facilities Management

Needs

- Satisfactory performance
- Quality output
- Friendly approach
- Cost effective
- Reliability
- Knowledge and expertise for each services



Financial Plan for Facilities Management


Income Sources

- Service fee
 - Per call
 - Annual contracts
- Incentives from municipal authority or other support agencies including NULM, CSR, etc

Expenditure

- Salaries / wages
 - Caretaker
 - Cleaner
 - Record keeper / financial management
- Other expenses
 - Equipment's
 - Consumables – cleaners
 - Tools
 - Any others municipal charges



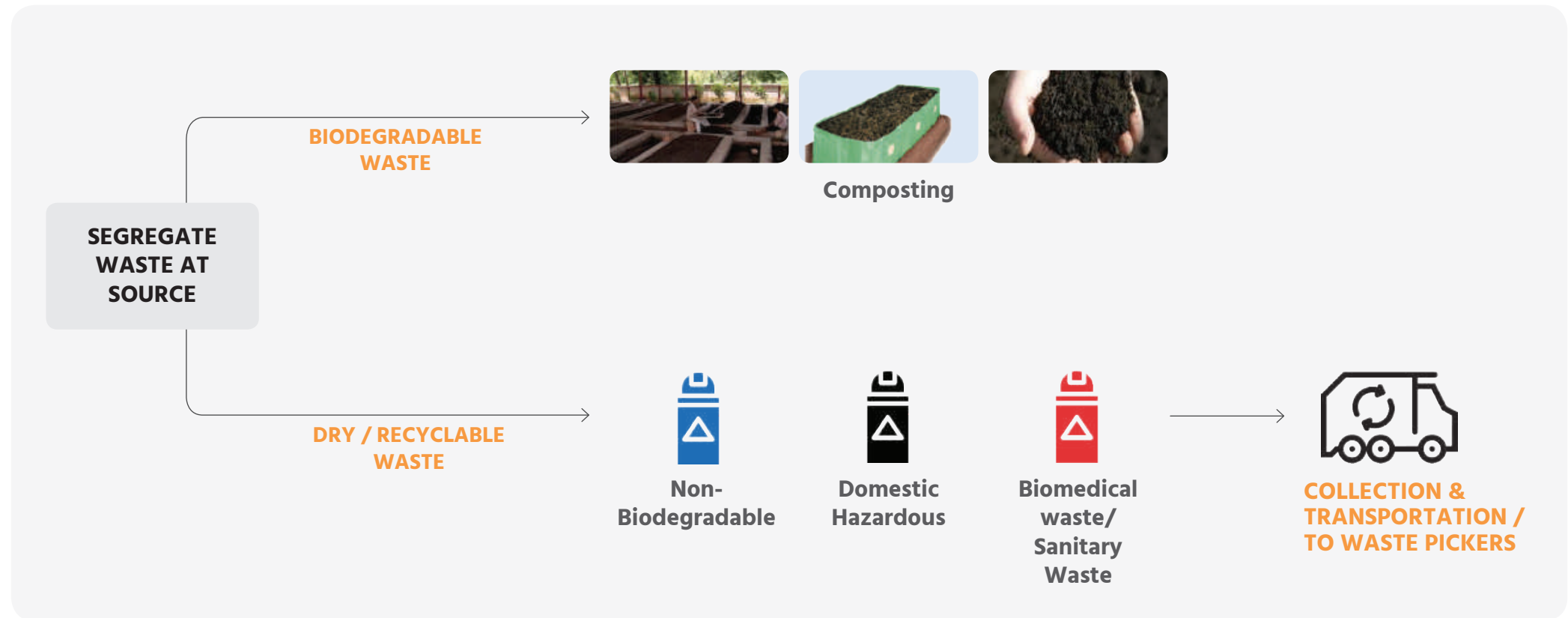
A man in a blue shirt is working in a bio-waste management facility. He is using a long wooden pole to stir the contents of a large concrete bin. The facility consists of many rows of similar bins, each with a red circular marker on its side. The bins are filled with dark, decomposing organic matter. The structure is covered by a metal roof. In the background, there is a sign with text in Hindi. The overall scene depicts a systematic process of waste decomposition.

Business Plan

Bio-Waste Management

प्रारंभिक दिनांक
अंतिम दिनांक

Waste Segregation at Source



Business Plan - Bio-Waste Management

Elements and Options

Professional Service Providers to Deliver Various Services to:

- Housing societies
- Offices and institutions
- Public and private utilities including (but not limited to)
- Parks and gardens
- Hotel and restaurant
- Urban local bodies



Services – Expertise Requirements



Collection of Biodegradable Waste

- Understanding collection system and options
- Understanding tools and equipment required
- Understanding biodegradable waste



Installation of Composting Technologies

- Skills to install different composting technologies
- Skills to procure material from market
- Skills to negotiate



Operation and Maintenance of Composting Units

- Skills to operate and maintain different composting technologies



Marketing and Sale of Compost

- Understanding of basic sales and marketing of compost

Technologies – Solid Waste Management

Windrow Composting

- Suitable for large volumes
- Large amounts of compost, require market to the end-product
- Organic waste organized into rows of long piles called “windrows”
- Aerating periodically manually or mechanically
- Ideal pile height between four and eight feet with a width of 14 to 16 feet
- This size is large enough to generate heat and maintain temperatures
- It is small enough to allow oxygen flow to the windrow’s core
- Requires land



Technologies – Solid Waste Management

Rotary Drum Composting

- Can accommodate any type of organic waste
- Allows good control of environmental conditions such as temperature, moisture, and airflow
- Material is mechanically turned or mixed to ensure it is aerated
- Size of the vessel can vary in size and capacity



Technologies – Solid Waste Management

NADEP Method

- Composting takes place in rectangular brick tank with aeration holes
- Organic material is added in layers
- Compost is ready in ~3 months
- Composting can be done on larger scale than using piles
- All nutrients are retained in the tank so resulting compost is more nutrient rich
- Tanks can be built in all conditions



Technologies – Solid Waste Management

Vermi-Composting

- Using specific species of worms to break down waste
- Compost is ready in 3-4 months
- Lower temperatures hamper reproduction and higher temperatures kill the worms or make them leave



Composting Basics – Key Factors

- Feedstock & nutrient balance
- Particle size
- Moisture content
- Oxygen flow
- Temperature



Business Plan - Bio-Waste Management

Needs

- On time service
- Satisfactory performance
- Quality output
- Friendly approach
- Cost effective
- Reliability
- Knowledge and expertise for each component



Financial Plan to Implement Bio-waste Management

Income Sources

- **Service charges**
 - Setting up the unit
 - Operation of the unit
- **Sale of compost**
- **Support from municipal authority or other support agencies including NULM, CSR, etc**

Expenditure

- **Salaries**
 - Caretaker / operator
 - Marketing promotion
 - Record keeper / financial management
- **Packaging and delivery of compost**
- **Other expenses**
 - Tools and equipment's
 - Consumables – cleaners
 - Additives such as effective microbes solution
 - Advertising and promotions
 - Any others



विनदयाल अन्त्यादय याजना
राष्ट्रीय शहरी आजीविका मिशन
(DAY-NULM)

Business Plan

Sanitary Mart for Sanitation Product



Business Plan - Sanitary Mart for Sanitation Products

A social enterprise (trade) that can promote products related to sanitation and waste management. It can include:

- **Materials; hardware**
- **Designs (toilets, composting)**
- **Services – desludging services, housekeeping, water purification, installation of prefabricated septic tanks etc**
- **Sale of SHG's sanitation products**



Business Plan - Sanitary Mart for Sanitation Products

- Compost
- Micronutrients
- Pans
- Traps
- Plumbing items
- Toilet brush
- Toilet washing liquids
- Floor cleaner

- Sanitary napkin
- Bio-toilets
- Floor wipers
- Naphthalene balls
- Dustbins
- Buckets
- Mugs
- Baking soda

- Garbage bag
- Broomsticks
- Soaps
- Footwear
- Shampoo
- Toothpaste
- Toothbrush, etc



Business Plan - Sanitary Mart for Sanitation Products

Ideal Locations

- Attached to community / public toilet
- Nearby low-income localities or slums
- Nearby municipal offices / ward office
- Clubbed with other matching venture
- Specially identified location



Business Plan - Sanitary Mart for Sanitation Products

Needs and Preparations

- Space / shop / outlet
- Material as per needs and demands
- Quality of materials or products
- Basic market understanding
- Record keeping
- Outreach mechanism / marketing

Business Elements

- Sale, supply of products
- Installation of prefabricated septic tanks / on site sanitation facilities
- Installation of biotoilets
- After sales service
- Supply of other services (can be linked with other services identified in this module)



Financial Plan to Establish Sani-marts

Income Sources

- Sale of products
- On call service charge/s
- Advertisement and promotion
- Incentive from municipal authority or other support agencies including NULM, CSR, etc

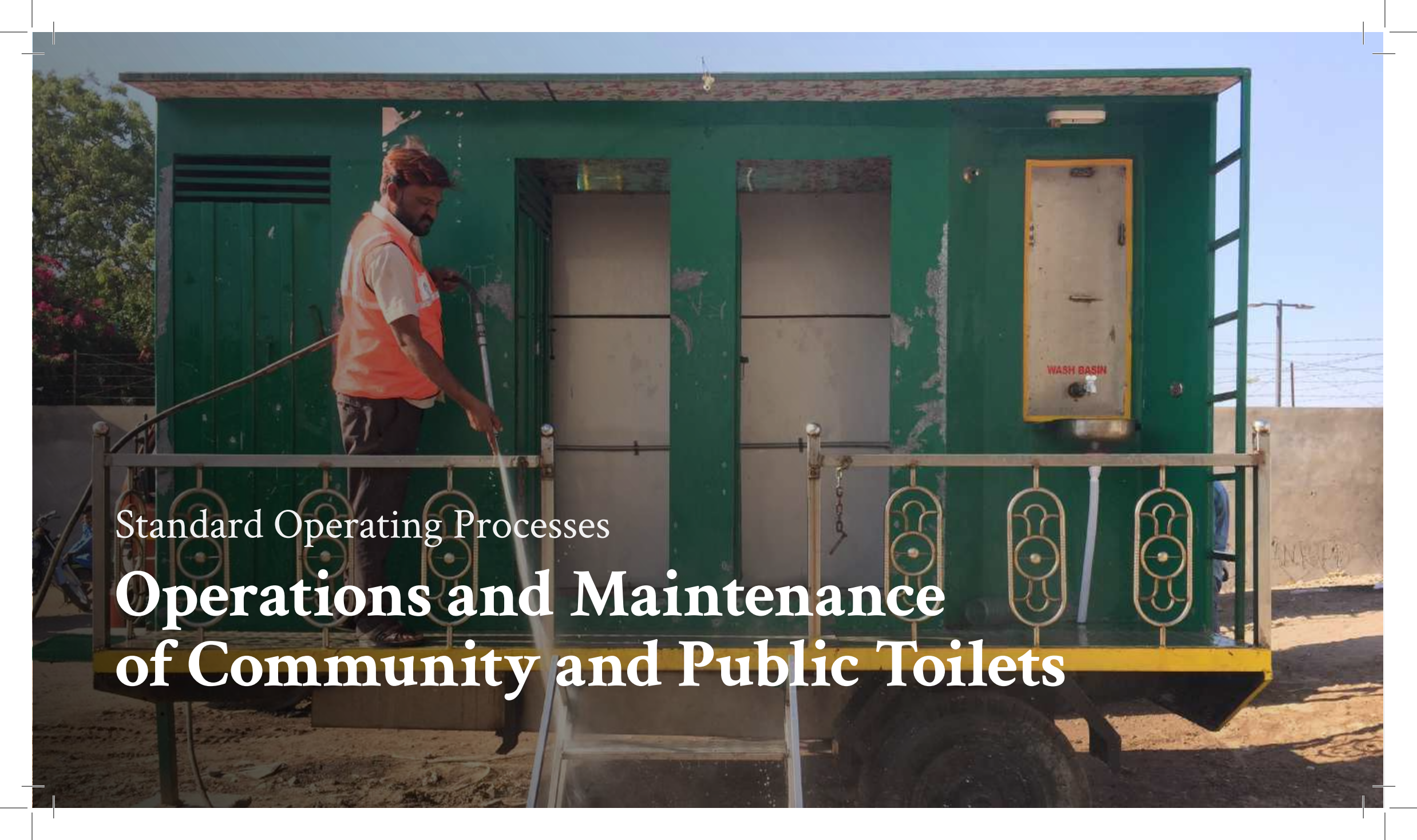
Expenditure

- Purchase of products
- Salaries
 - Caretaker / operator
 - Marketing promotion
 - Record keeper / financial management
- Packaging and delivery of products
- Other expenses
 - Electricity
 - Water
 - Advertising and promotions
 - Any others

A group of approximately 20 workers are standing in a line outdoors. They are wearing white hard hats, light blue face masks, and high-visibility yellow safety vests. In the center of the group, a man in a white polo shirt and dark trousers stands with his hands clasped. Behind them is a large orange industrial tank with the word 'POL' visible. To the right, a banner with the 'Innodust' logo and the text 'Development' and 'PRIORITY' is partially visible. The background shows a building with a metal gate and some trees.

Step-by-step Procedure to Deliver the Expected Service

Standard Operating Processes



Standard Operating Processes

Operations and Maintenance of Community and Public Toilets

SOP - Operations and Maintenance of Community and Public Toilets

What is SOP?

- **Step-by-step procedure for cleaning and maintaining the facilities**
 - Either by the ULB or
 - Through private operators or SHGs



SOP - Operations and Maintenance of Community and Public Toilets

Standard Operating Processes

Operations Vs Maintenance - daily cleaning and maintenance of physical infrastructure.

Operations

- General day-to-day functions of cleaning of toilet seats, urinals, floor, walls, doors, windows, sanitary fixtures and rest of the interior and exterior of the toilet block

Maintenance

- Repair (and replacement) of infrastructure
- Building (civil construction)
- Plumbing
- Sanitary and electrical fixtures
- Other types of repairs as required.

Equipment and Supplies Required

Safety Gear

- Rubber gloves
- Face mask
- Gum boots
- Uniform / apron
- Safety goggle

Cleaning Equipment

- Brush for cleaning toilet seats / bowls
- Plastic scrubber / brush for cleaning wash basins
- Brush / scouring paper for cleaning tiles
- Brooms for wet & dry areas
- Cloths / mops for cleaning floor
- Floor wipers
- Plastic scrubber / sponge / cloths for scrubbing plumbing fixtures and other purposes
- Bucket for mixing floor cleaning agent with water
- Mug for pouring floor cleaner
- Sponges / soft cloth for cleaning mirrors
- Dust collecting pan
- Dustbins

Consumables

- Liquid sanitary ware cleaning agent
- Liquid / powdered tiles cleaning agent
- Liquid / powdered floor cleaning agent
- Liquids / powdered plumbing fixtures cleaning agent
- Soap / non-abrasive cleaning liquid / powder (non-acidic)
- Disposable garbage bags
- Hand washing soap
- Naphthalene balls
- Baking soda
- Glass & mirror cleaning liquid

Other Equipment

- Sign boards / warning signs
- Trolley / tray for carrying cleaning equipment
- Room freshener (optional)
- Plumber's snakes
- Plunger
- Ladder

Cleaning Frequency and Process

**Once a day minimum or
as and when required**



WASH BASINS



**WATER-CLOSETS,
CUBICALS AND URINALS**



BATHING AREAS

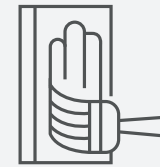


COMMON AREAS



PLUMBING FIXTURES

**Once a month minimum or
as and when required**



PAINTED WALLS




ELECTRICAL FIXTURES

SOP - Operations and Maintenance of Community and Public Toilets

Maintenance

- Leakages and / or broken water supply plumbing and fixtures
- Choked sewerage pipes and filled septic tanks / pits
- Civil repairs to the building
- Failure of electrical fixtures
- Clearing access to the facility
- Repair and maintenance of broken door and fixtures
- Fixing of broken toilet seats, pots



Standard Operating Processes

Material Recover Facilities / Dry Waste Recovery Centres

What is SOP?

- Step-by-step procedure for operating material recovery facility / dry waste recovery centre
 - Either by the ULB or
 - Through private operators / waste collectors / SHG's
 - Collection centres already in place



Standard Operating Processes

Operations

- General day-to-day functions of material recovery at the centre
- This may also include collecting dry waste from specified areas

Maintenance

- Repair (and replacement) of infrastructure / machines / vehicle as applicable
- Building & infrastructure (civil construction)

Equipment and Supplies Required

Safety Gear

- Rubber gloves
- Face mask
- Gum boots
- Uniform / apron
- Safety goggle
- Disposable Cap

Cleaning Equipment

- Water tub with mug, and brush, etc for cleaning the dry waste
- Brooms for cleaning
- Brushes for cleaning

Consumables

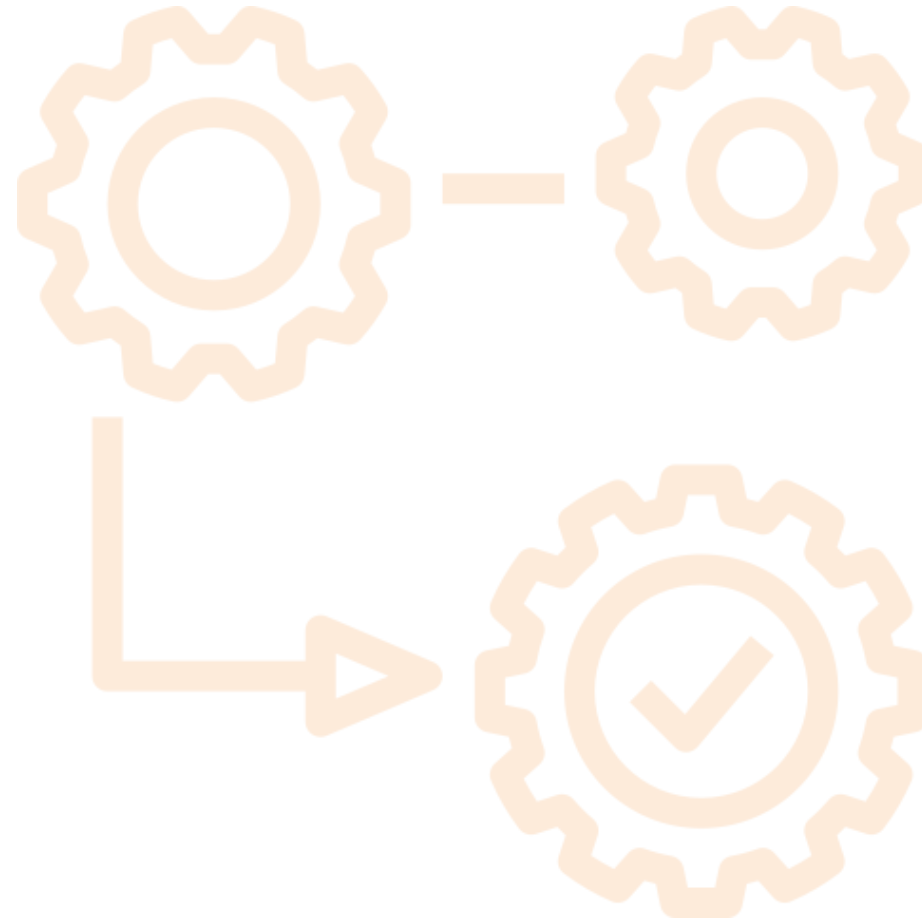
- Storage bags
- Rope and other tie
- Supply of water
- Bins for storage of sorted fractions of waste
- Soap / cleaning liquid
- Disposable garbage bags – for refuse collection
- Hand washing soap

Other Equipment

- Compactor- bailing machine
- Vehicles for collection
- Sorting tables
- Crushers tools
- Calibrated Weighing Scale

Processes in MRF

- **Collection of dry waste from generators (segregated at the source) / secondary and tertiary collection source**
- **Manual pre-sorting**
- **Mechanical sorting**
 - Screening
 - Ferrous metal separation
 - Air classification
 - Non-ferrous metal separation
 - Detect and route system
 - Size reduction
 - Bailing
- **Market linkage**





Standard Operating Processes

Faecal Sludge Treatment Plants

SOP - Faecal Sludge Treatment Plants

What is SOP?

Step-by-step procedure for managing the faecal sludge treatment plants – Operation and maintenance of facility

- Either by the ULB or
- Through private operators



SOP - Faecal Sludge Treatment Plants

Standard Operating Processes

Operations Vs Maintenance - Daily cleaning and maintenance of physical infrastructure.

Operations

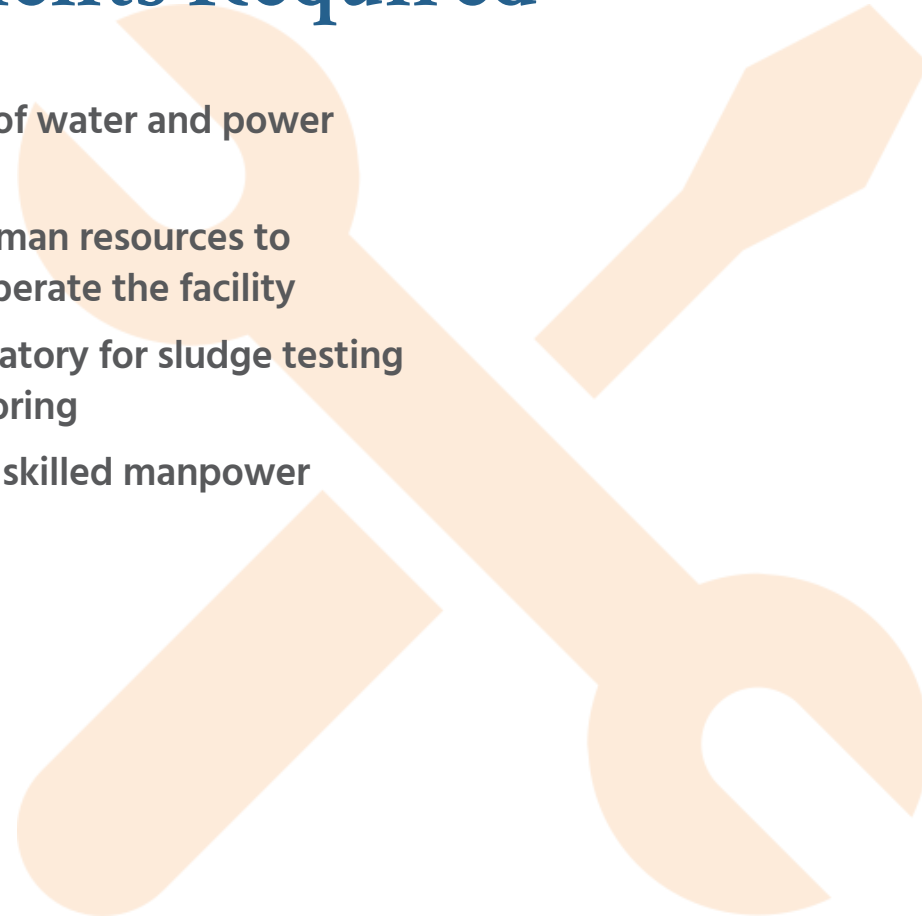
- General day-to-day functions of cleaning parts of the treatment plant

Maintenance

- Repair (and replacement) of sand filters
- Building (civil construction)
- Plumbing work
- Other types of repairs as required
- Maintain records of cesspool vehicle visited to the FSTP

Equipment and Supplements Required

- Spare parts and tools (pumps, engines, motors, filters, bar screens, valves, hose pipes, buckets, shovel, plastic sheet, long steel sieve, measuring tap, screw driver, sludge measurement instrument, glass tube, ice box etc.)
- Consumables (e.g. chemicals for flocculation)
- Reliability of water and power supplies
- Trained human resources to properly operate the facility
- Local laboratory for sludge testing and monitoring
- Labor and skilled manpower



Operations – Basics

- Removal of solids from screenings
- Appropriate load feeding (quantity, quality and frequency)
- Processing (e.g. mixing compost pile, chemical addition for mechanical drying)
- Retention time
- Extraction
- Further treatment or disposal of end products
- Collection and further treatment or disposal of liquid end products
- Storage and sale of the end products



Maintenance – Basics

- Visually inspect the equipment at the FSTP for any damage
- Carry out the replacement of worn parts and perform emergency services
- Monitor facilities and equipment in order to identify and repair leaks or other malfunctions
- Perform routine maintenance activities including greasing of moving parts, changing oil etc
- Perform the maintenance of motors, bearings, flanges, seals and any other equipment of FSTP
- Prepare the repair and maintenance records of the main activities, malfunctions and recommendations as required
- Corrosion control – scraping rust, painting metal surfaces, and repairing corroded concrete
- Sludge and coarse solids extraction from the basins and canals
- Repacking and exercising valves (i.e. locating and maintaining fully operational valves)
- Oiling and greasing mechanical equipment such as pumps, centrifuges or emptying trucks
- Housekeeping activities including picking up of refuse and vegetation control

Asset Management

- Capital cost of purchasing and installation
- Labour required for operation and maintenance
- Spare parts for repairs
- Essential consumables, such as grease or chemicals
- Replacement costs once the component has reached the end of its useful life.



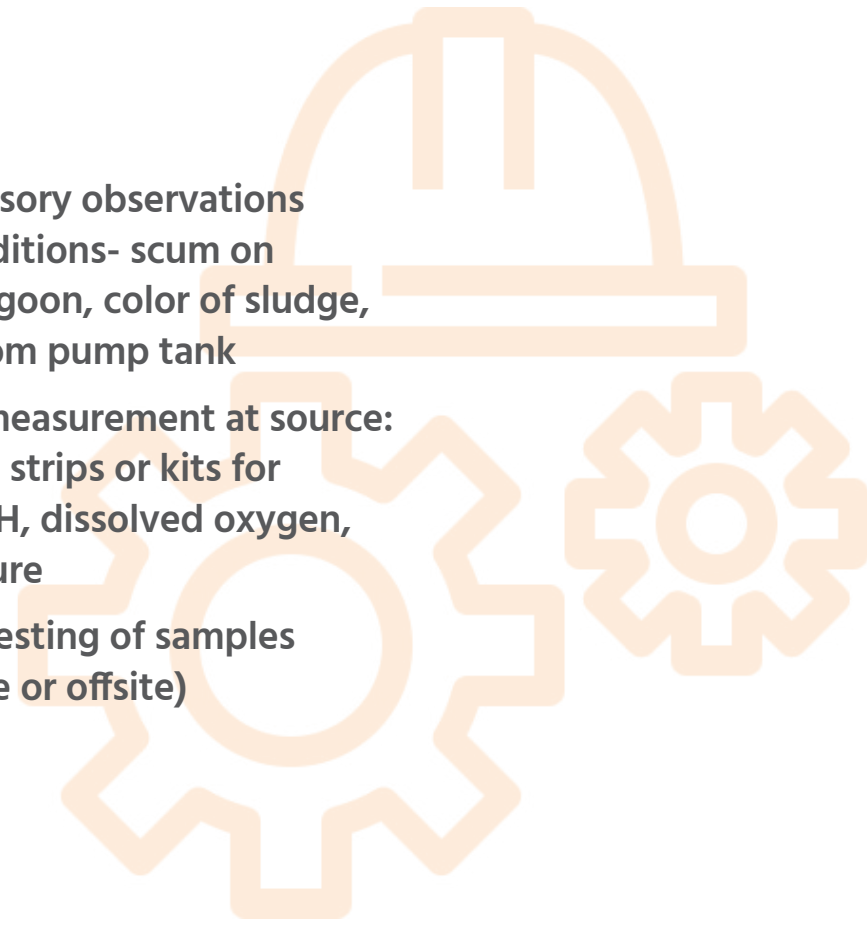
Asset Management

Maintenance Plan

- Current state of the assets
- Required sustainable level of service
- Assets which are critical to sustained performance
- Minimum life-cycle costs
- Long-term financing strategy

Monitoring

- Visual or sensory observations of plant conditions- scum on treatment lagoon, color of sludge, or odours from pump tank
- Analysis or measurement at source: includes test strips or kits for measuring pH, dissolved oxygen, or temperature
- Laboratory testing of samples (either onsite or offsite)



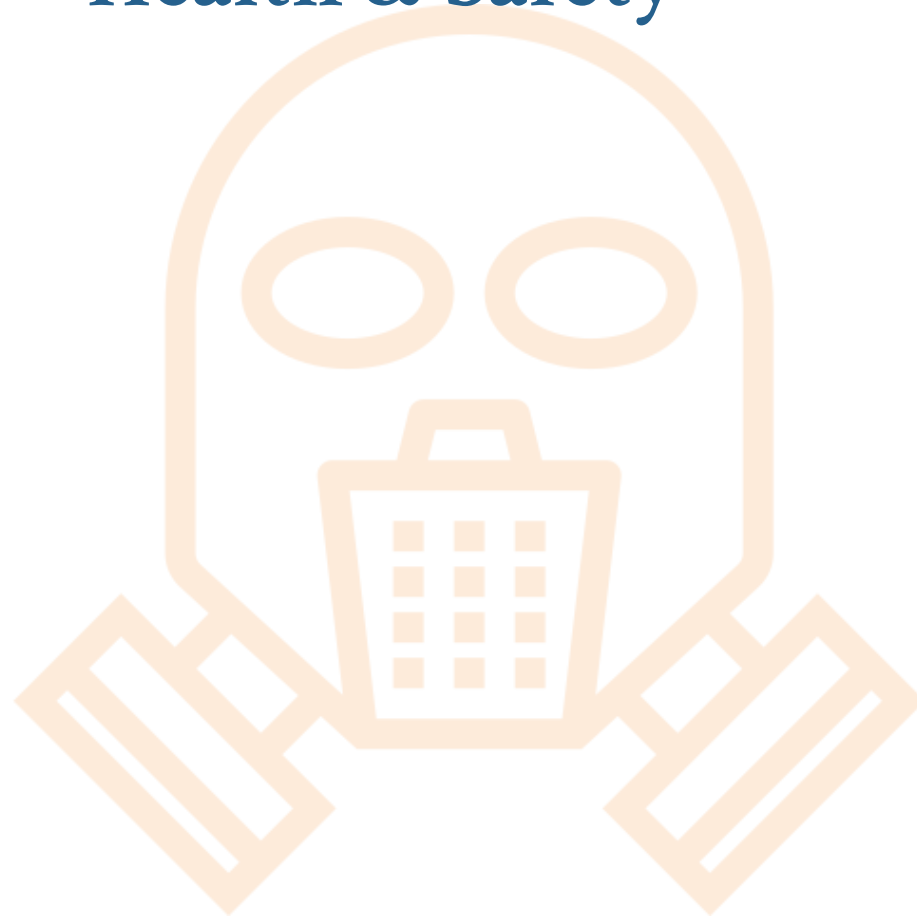
Record Keeping

- Daily operating records
- The operators log book
- Treatment unit operating data sheet
- Records related to FS deliveries to the plant
- Disaster response and emergency recovery records
- Preventative and corrective maintenance records including the equipment maintenance log books and store room supply reports
- Compliance reports including field and analytical data, and correspondence from regulatory officials
- Employee records, such as employee schedules, time sheets and injury reports



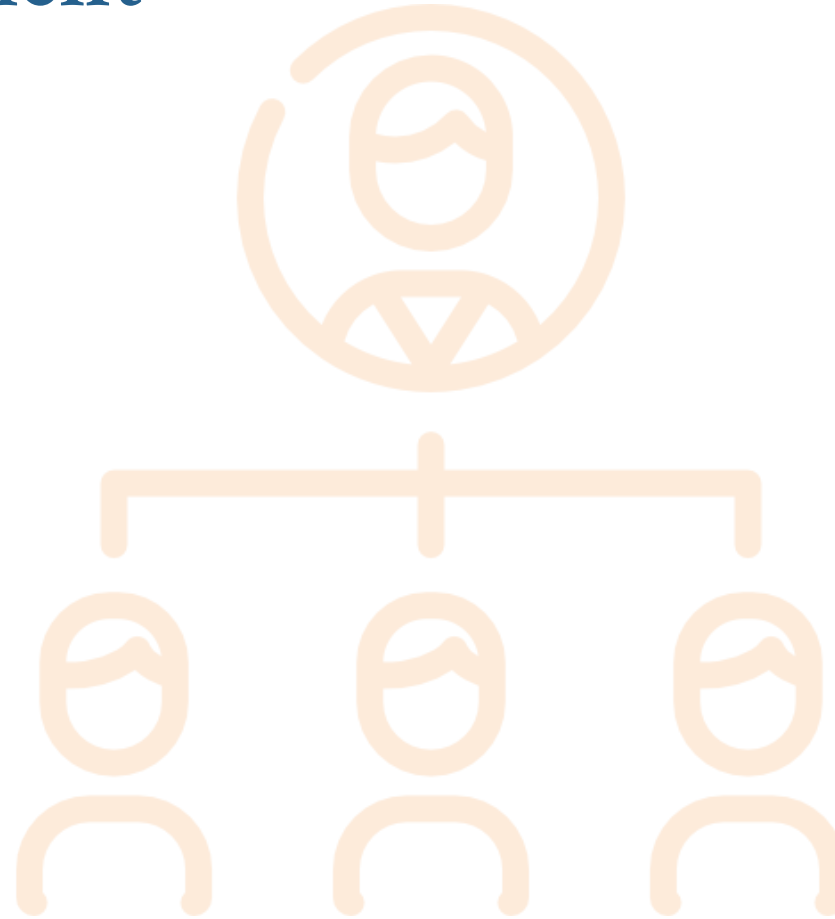
Plant Security and Safety - Health & Safety

- Personal protective equipment
- Safety measures for O&M activities
- Infection control and hygiene measures
- Emergency contact procedures
- Protection against falling and drowning hazards
- Confined space entry protection
- Electrical safety



Administrative Management

- Financial procedures
- Human resource management
- Staffing, roles and responsibilities
- Plant superintendent
- Plant engineer
- FSTP operation and maintenance technician





Ministry of Housing
and Urban Affairs
Government of India

DAY-NULM

Deendayal Antyodaya Yojana
National Urban Livelihoods Mission



Designed & Developed by
Urban Management Centre
www.umcasia.org | info@umcasia.org

