



MD SBM-U 2.0
Housing & Urban Development
Department, J&K



**SWACHH
BHARAT**
MISSION-URBAN 2.0
JAMMU & KASHMIR



Capacity building for Urban Local Bodies Jammu & Kashmir

TRAINING SCHEDULE/MODULE

Creating Water Secure & Garbage Free Cities





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INTRODUCTION

Swachh Bharat Mission-Urban (SBM-U) 2.0, launched on October 1, 2021, aims to achieve a "Garbage Free" and "Water Secure" India. For the Urban Local Bodies (ULBs) of Jammu and Kashmir, this mission holds particular significance due to the unique geographical challenges, sensitive ecology of water bodies (like Dal and Wular lakes) and the urgency of reclaiming valuable land currently held by legacy dumpsites.

This capacity building module is specifically designed to equip ULB functionaries and engineering staff in J&K with the advanced technical and managerial knowledge required to successfully implement three core pillars of SBM-U 2.0:

Water Management (Liquid Waste): Water Management (Liquid Waste): Moving beyond ODF+ status to ODF++, (FSSM) and Water+ (Used Water Management), especially focusing on decentralized systems suitable for hilly and scattered habitations.

Safaimitra Suraksha: Institutionalizing the safety, dignity, and welfare of sanitation workers, thereby professionalizing the sanitation workforce.

Legacy Waste Remediation: Scientific bio-mining and land reclamation, transforming existing dumpsites into productive assets.

These efforts are key to raising awareness, inspiring behaviour change, and fulfilling the mission's goal of creating truly Swachh (Clean) and Surakshit (Safe) urban areas in the Union Territory.

Objectives of the Session

Upon completion of this workshop, participants will be able to:



Understand SBM-U 2.0 Mandate: Articulate the 'Water Secure' and 'Garbage Free' vision of SBM-U 2.0 and its financial/technical components applicable to J&K.



Design Decentralized Liquid Waste Solutions: Identify and plan appropriate technologies (e.g., DEWATS, FSTPs) for greywater and septage management in ULBs, considering J&K's topography.



Implement Safaimitra Protocols: Institutionalize the use of Personal Protective Equipment (PPE), mechanized cleaning, and Emergency Response Protocols as per the Safaimitra Suraksha Challenge guidelines.



Plan and Execute Legacy Waste Projects: Detail the process of site assessment, bio-mining, segregation (RDF, inert, soil), and final land-use planning for dumpsite remediation projects in their respective ULBs.

Training Schedule:

Module A: Used Water Management (LWM) in Hilly Regions

Focus: Designing and implementing decentralized liquid waste solutions to achieve 'Water+' status.

Session	Sub-Topic / Key Content	Estimated Time	Target Audience
1. LWM Vision, Vigilance & Compliance	SBM-U 2.0 'Water Secure' Mandate (ODF ++, Water +). Review of the National Faecal Sludge and Septage Management (FSSM) Policy. Local challenges in hilly topography.	30 mins	CEO/EO/Nodal Officers/SI/SS/Safaimitras
2. Decentralized Used Water Management	Techniques for managing Greywater (from baths/kitchens) and Blackwater (from toilets) at the household and community level (e.g., soak pits, constructed wetlands). Principles of water recycling and reuse and the potential for treated greywater to be reused for non-potable purposes (e.g., irrigation, floor washing).	45 mins	CEO/EO/Nodal Officers/SI/SS/Safaimitras/ Citizens
3. FSSM & Septage Management	Functions and operational design of Faecal Sludge Treatment Plants (FSTPs). Protocols for septage collection, safe transportation, and treatment.	60 mins	CEO/EO/Nodal Officers/SI/SS/ Plant Operators/ Drivers
4. Advanced Decentralized Solutions (DEWATS)	Planning and implementation of Decentralized Wastewater Treatment Systems (DEWATS) suitable for scattered habitations where centralized sewerage is not feasible.	45 mins	CEO/EO/Nodal Officers/SI/SS/ Citizens
5. Monitoring & Sustainability	Water+ Protocol compliance, monitoring treated water quality, and developing Operation & Maintenance (O&M) models for long-term viability of LWM assets.	30 mins	CEO/EO/Nodal Officers
Total Module Time		3 hours (180 mins)	

Module B: Safaimitra Suraksha & Social Inclusion

Focus: Institutionalizing the safety, dignity and welfare of sanitation workers as per national guidelines.

Session	Sub-Topic / Key Content	Estimated Time	Target Audience
1. The Safaimitra Suraksha Mandate	Legal Framework: Prohibition of Manual Scavenging Act (2013). SBM-U 2.0 commitment to zero fatalities and worker dignity.	20 mins	SI, SS, Safaimitras, Drivers and Helpers
2. Mandatory Safety Protocols	Selection, fitting, and maintenance of Personal Protective Equipment (PPE). Standard Operating Procedures (SOPs) for working in confined spaces (septic tanks/sewers).	40 mins	SS, Safaimitras Drivers & Helpers
3. Mechanization and Training	Training for the use of mechanized cleaning equipment (e.g., jetting machines, suction pumps etc). Preventative maintenance of equipment.	40 mins	SI, SS, Drivers & Helpers
4. Emergency Response	Developing and implementing an Emergency Response Protocol (ERP). Roles and responsibilities during an incident, first aid and rescue procedures.	30 mins	CEO/EO/Nodal Officers
5. Welfare Schemes & Inclusion	Enrollment in government welfare programs such as Ayushman Bharat Health Insurance Scheme, life/accident insurance, and other applicable Central/State schemes. Social acceptance and measures for skill up-gradation and professional development.	20 mins	SI, SS, Safaimitras, Drivers and Helpers
Total Module Time		2.5 hours (150 mins)	

Module C: Legacy Waste Remediation: Lakshya Zero Dumpsite

Focus: Scientific process of bio-mining, segregation, and land reclamation for existing dumpsites.

Session	Sub-Topic / Key Content	Estimated Time	Target Audience
1. The Zero Dumpsite Goal	Understanding the severity of legacy waste pollution (land, water, air). Economic and ecological benefits of achieving "Lakshya Zero Dumpsite."	30 mins	CEO/EO/Nodal Officers/SI/SS/Safaimitras/Citizens
3. Bio-remediation and Bio-mining Techniques	Bio-remediation: (stabilizing/accelerating decomposition of the waste mass) as the first step, followed by Bio-mining. The factors influencing treatment choice for different types of waste (wet vs.dry waste streams).	30 mins	CEO/EO/Nodal Officers/SI/SS
4. Scientific Process Flow	Step-by-step process of excavation, trommel screening (multi-stage), and material segregation. Quality checks for recovered materials.	60 mins	CEO/EO/Nodal Officers/SI/SS
5. Output Utilization and Land Use	Safe disposal criteria for inert materials. Processing and market linkage for Refuse Derived Fuel (RDF). Final dumpsite closure and land-use planning for the reclaimed land.	40 mins	CEO/EO/Nodal Officers/SI/SS
Total Module Time		3 hours (180 mins)	



Module A — Liquid Waste Management (FSTP, STP & Treated Water Reuse)

1. Why treat liquid waste? — public health and environmental imperative

- **Pathogen control:** Untreated sewage and faecal sludge contain bacteria, viruses and parasites that cause diarrhoeal diseases and cholera outbreaks; treatment reduces disease burden.
- **Protecting water resources:** Untreated discharge contaminates lakes, rivers and groundwater used for drinking and irrigation. Especially in ecologically sensitive regions (lakes in J&K), preventing raw discharge is mandatory.
- **Regulatory & mission goals:** ODF++, Water+ and FSSM policy mandate safe collection, treatment and reuse/disposal.

2. Faecal Sludge Treatment Plants (FSTPs) vs Sewage Treatment Plants (STPs) — Differences & Functions

FSTP

- **Feeds:** Septic tank haulage (sludge, semi-solid faecal matter) from non-sewered areas.
- **Primary operations:** Screening, dewatering, digestion (anaerobic or composting), drying beds, constructed wetlands or other technology to stabilize sludge.
- **End products:** Stabilized biosolids (may be used as soil conditioner after meeting quality criteria), filtrate/percolate which may require further treatment before reuse or discharge.
- **Design & Challenges:** Variability in sludge characteristics means FSTP design must accommodate solids content, grit, grease and intermittent feed.

STP

- **Feeds:** Sewage conveyed by sewer network (relatively more uniform flow).
- **Primary operations:** Primary sedimentation → biological treatment (activated sludge, SBR, MBBR, DEWATS) → secondary clarification → disinfection.
- **End Products:** Treated effluent (for discharge or reuse) and biosolids (sludge) requiring further handling.



- **Design & Challenges:** Continuous flow handling, need for energy for aeration, sludge handling and consistent monitoring.

Integration: Where appropriate, FSTPs and STPs can be co-located to share infrastructure (e.g., co-treatment, co-composting or common sludge drying beds). Policy guidance recommends synergies when feasible.

3. Typical treatment train (technical detail)

- **Preliminary:** screen large solids, grit removal.
- **Primary:** sedimentation tanks to settle heavy solids.
- **Secondary (biological):** decomposition of organic matter via aerobic or anaerobic microbes (options: activated sludge, MBBR, SBR, or natural systems like constructed wetlands or facultative ponds for decentralized systems).
- **Tertiary:** filtration, nutrient removal (if required), disinfection (chlorination, UV) to meet reuse standards.
- **Sludge handling:** thickening → digestion (anaerobic/composting) → dewatering → safe disposal or reuse as soil conditioner (if tested).
- **Odour control & gas management** for sludge digestion.

4. Operation & Maintenance (O&M), monitoring and quality control

- **O&M manuals & staffing:** trained operators, maintenance schedules, spare parts inventory and maintenance logs.
- **Instrumented monitoring:** flow meters, online BOD/DO samplers where feasible, regular lab sampling for microbiological parameters (E. coli, coliforms), BOD, TSS, nutrient residuals.
- **Standard procedures:** preventive maintenance for pumps, desludging schedule for septic tanks, calibration of dosing systems for coagulants and disinfectants.
- **Performance-linked indicators:** plant uptime, effluent quality against standards, sludge disposal compliance.

5. Treated water reuse: why, where and how?

Why reuse?

- Reduces freshwater demand (significant in water-stressed or ecologically sensitive areas).
- Provides reliable non-potable water for municipal uses (parks, street cleaning), reducing burden on potable supply.
- Supports circular economy and climate resilience.



Where and How? - Safe reuse applications:

- **Irrigation of parks, urban forestry, green belts via Vehicles** — requires BOD, pathogen reduction and sometimes nutrient control.
- **Road / drain cleaning and street-washing via Vehicles** — moderate treatment; disinfection recommended.
- **Fountains and decorative water bodies via Vehicles** — need good clarity and disinfection; UV/chlorine and periodic water change.
- **Industrial cooling / dust suppression via Vehicles** — depends on industrial tolerance; pre-treatment may be necessary.
- **Groundwater recharge / aquifer recharge via Irrigation Canals/Nallahs/Vehicles** — requires stringent tertiary treatment and regulatory clearance.

Quality control & standards:

- Follow national/state reuse guidelines (monitor microbial indicators, BOD, TSS, heavy metals if applicable). Treated water used in public spaces should meet disinfection and clarity parameters to avoid public health risk. (FSSM and municipal reuse guidance provide target thresholds and monitoring frequency).

6. Institutional measures & behavioural change for reuse

- **Awareness & acceptance:** public messaging to allay fears about using treated water for parks — emphasise treatment, disinfection and benefits (water conservation).
- **Distribution systems:** use separate color-coded pipe networks (purple pipes often used internationally) or tanker supply to prevent cross-connection with potable systems.
- **Tariff & incentives:** incentivize ULBs to use treated water (reduced abstraction charges) or mandate reuse for municipal landscaping.
- **Quality assurance:** signage at reuse sites stating that water is non-potable and treated; routine monitoring records publicly accessible.



Module B — Safaimitra Suraksha: Safety, Equipment, Procedures, Emergency Response

1. Why worker safety and dignity matters?

Sanitation work exposes Safaimitras to multiple hazards on a daily basis. Biological hazards arise from handling faecal matter, sewage, and mixed waste that contain harmful pathogens capable of causing serious infections. Chemical hazards include the presence of toxic gases such as Hydrogen Sulphide (H₂S), methane, ammonia, and corrosive liquids inside septic tanks and drains. Physical risks include sharp objects hidden in garbage, slippery drain surfaces, the possibility of falling into manholes, and the dangers associated with handling heavy bins or operating waste collection vehicles. Workers are also vulnerable to traffic accidents during roadside waste collection, especially in low-light conditions. Additionally, repetitive lifting and bending can cause long-term musculoskeletal injuries. Ensuring safety is essential not only to prevent fatalities and illness but also to reduce absenteeism, avoid legal liabilities, and maintain consistent, efficient sanitation service delivery. Safaimitra Suraksha places dignity, respect, and protection of sanitation workers at the centre of urban service management and national health and labour standards.

2. Personal Protective Equipment (PPE) — what, why and correct use:

PPE is the final protective barrier between the worker and workplace hazards. Even with mechanized systems and preventive measures, certain risks cannot be eliminated, making PPE usage mandatory for every Safaimitra at all times.

Reflective safety jacket (high visibility): Ensures workers are easily visible to vehicle drivers, thereby reducing the likelihood of traffic accidents during early morning or night-time operations.

Rubber or Nitrile gloves: These gloves prevent direct contact with contaminated waste, harmful chemicals, sharp objects, and bodily fluids. Nitrile gloves offer extra protection during drain cleaning or when handling chemically contaminated waste.

Gumboots (knee-length, puncture-resistant): These protect feet and legs from exposure to dirty water, trash leachate, and sharp materials such as broken glass or metal pieces. They also provide grip on slippery surfaces.



N95 or triple-layer masks: Proper masks prevent the inhalation of dust, harmful fumes, and airborne pathogens during waste collection, sweeping, and drain cleaning. N95 masks are preferred in dusty or high-risk areas.

Helmet and face shield/protective goggles: Helmets protect the head during waste loading, while face shields and goggles prevent infectious splashes, dust, and debris from entering the eyes and face.

Waterproof apron or raincoat: Protects the worker's clothes and skin from direct contact with wet waste, wastewater, or liquid contaminants, reducing risk of skin infections and allergic reactions.

3. Safe work procedures — practical step-by-step:

A. Door-to-door Waste Collection

During door-to-door collection, Safaimitras must ensure that waste is received in a segregated manner from households. Workers should avoid touching waste directly, relying instead on proper tools and PPE. Masks, gloves, gumboots, and reflective jackets are compulsory during all collection activities. Covered handcarts or closed vehicles should be used to prevent spillage and reduce health risks. Workers must never ride on the backside of compactors or place hands near hydraulic lifting systems. Proper lifting techniques—bending at the knees rather than the back—must be followed to prevent physical strain. When working near roads, cones or caution signs should be placed to alert drivers and ensure worker safety.

B. Open Drain / Drain-Desilting Work

Before starting drain-cleaning operations, the site must be inspected for hazards such as open edges, sharp objects, or foul gas odour. Workers must barricade the area to prevent pedestrians or vehicles from approaching too closely. Only tools such as drain rods, long-handled shovels, grabbers, or sieves should be used to remove silt—hands should never be inserted inside the drain. Jetting machines must be operated only by trained personnel who follow safe pressure and nozzle-handling techniques. After completing the work, tools and PPE should be thoroughly washed and disinfected, and silt must be stored in covered containers to prevent secondary contamination.



C. Septic Tank and Sewer Operations

Work involving septic tanks and sewers is considered extremely high-risk due to toxic gases, oxygen deficiency, and confined-space hazards. The national guideline of **Zero Manual Entry** must be strictly followed; no worker should enter a sewer or tank under normal circumstances. Instead, mechanized systems such as jetting, rodding, and suction machines should be used. If manual entry becomes absolutely unavoidable in emergencies, it must be done only with written permission, proper gas testing, continuous ventilation, and full-body PPE. A safety harness, tripod, and lifeline must be used to anchor the worker, and an ERSU-trained rescuer equipped with SCBA must be present on-site. Gas detectors should be used to measure oxygen, methane, and H₂S levels before and during the activity.

4. Emergency response and first aid:

A well-defined emergency response system is essential for protecting Safaimitras. Every worker should know whom to contact first in case of an emergency. The supervisor must immediately inform the Emergency Response Sanitation Unit (ERSU/SRU) if a worker collapses, complains of breathlessness, or shows signs of gas exposure. No person should attempt a rescue without proper PPE and SCBA, as unprotected rescue is one of the leading causes of fatalities in confined spaces. The trained rescue team must retrieve the affected worker using the tripod and harness system, provide first aid on-site, and arrange urgent transport to a hospital covered under insurance. After every incident, an investigation must be conducted to determine the cause, and necessary corrective actions must be taken to prevent recurrence.

5. Hygiene, welfare and behaviour change

Hygiene practices are vital for preventing infections among Safaimitras. Workers must remove PPE carefully, avoiding contact with contaminated surfaces, and wash their hands, feet, and face thoroughly. After working in drains or sewers, taking a full bath is essential. Clean clothes must be worn before leaving for home, and reusable PPE must be washed and disinfected daily. Regular medical check-ups and vaccinations are necessary to maintain health and detect any work-related illnesses early.

The welfare of Safaimitras is strengthened through enrollment in national and state-level social security schemes. Every worker must be covered under **Ayushman Bharat PM-JAY**, which provides ₹5 lakh cashless health insurance annually for hospital treatment. **PMJJBY** offers ₹2 lakh life insurance in case of death, and **PMSBY** provides ₹2 lakh accident



insurance and ₹1 lakh disability cover. The **PM-SYM** pension scheme ensures a monthly pension after the age of 60, and the **e-Shram card** gives workers a recognized identity, accident benefits, and access to social welfare schemes. State-specific schemes from the Labour Welfare Board also provide additional benefits. Safaimitras must receive regular training on safe machine handling, PPE usage, emergency preparedness, and mechanized cleaning as part of the Safaimitra Suraksha initiative. ULBs must maintain updated records of scheme enrollment, PPE distribution, health check-ups, and training participation.



Module C — Legacy Waste Remediation: Bioremediation & Biomining

Legacy waste refers to the waste that has accumulated in open dumpsites over several years, often forming large mounds of decomposed and partially decomposed materials that pose serious environmental, health, and safety hazards. These dumpsites release foul odours, attract disease-carrying vectors such as flies, mosquitoes, and rodents, and generate toxic leachate that seeps into soil and groundwater. Methane emissions from decomposing organic waste increase the risk of fire and contribute to greenhouse gas emissions. In addition to environmental harm, legacy dumps occupy valuable urban land that could otherwise be used for public infrastructure, parks, institutions, or economic development. Under SBM-U 2.0, the “Lakshya Zero Dumpsite” mandate aims to eliminate all legacy waste in ULBs through scientific bioremediation and biomining.

Bioremediation is the first and critical step towards stabilizing legacy waste. It involves accelerating the natural decomposition of old waste by introducing microbial cultures and bulking materials to enhance aeration and moisture control. This process reduces the odour, moisture content, and pathogenicity of waste, making it safer and easier to mine, screen, and handle. Proper windrow formation, regular turning, moisture maintenance, and monitoring of temperature ensure that microbial activity remains effective. This stabilization minimizes leachate generation, reduces fire hazards, and prepares the waste mass for the next stage—biomining.

Biomining is the scientific process of excavating and processing the stabilized legacy waste through mechanical screening systems. Using loaders and excavators, the waste is loosened and fed into trommel machines that separate different fractions based on size. The outputs typically include recyclables such as plastics, metals, and glass; Refuse-Derived Fuel (RDF) made from high-calorific-value dry waste; compost-like material or soil-like fractions; and inert materials such as stones and construction debris. Each of these fractions must be managed responsibly. Recyclables should be sent to authorized recyclers, RDF can be co-processed in cement kilns or waste-to-energy plants, soil-like material can be used for landscaping after quality checks, and inert fractions can be used in road underlayers or disposed of safely in engineered landfills.



Before beginning any bioremediation or biomining activity, ULBs must conduct a detailed baseline assessment of the dumpsite. This includes mapping the site using drone or topographic surveys, estimating total waste quantity, determining waste composition, assessing leachate pathways, and identifying nearby water bodies or habitations that may be impacted. A scientific Detailed Project Report (DPR) should be prepared, outlining the remediation strategy, machinery requirements, environmental safeguards, workforce planning, and timeline for completion. Safety protocols must be defined in advance, including dust suppression, fire safety, traffic management within the dumpsite, and the mandatory use of PPE for workers.

Environmental management during dumpsite remediation is essential. Dust control must be achieved through water sprinkling, especially during excavation and screening. Temporary stormwater drains should be created to prevent runoff from carrying contaminants outside the site. Leachate that emerges during excavation must be collected in lined pits and treated through aeration, constructed wetlands, or other appropriate treatment systems before discharge. To avoid vector proliferation, the site must be treated periodically with disinfectants or biological agents. Continuous air, water, and soil quality monitoring ensures compliance with environmental standards and helps maintain public confidence in the project.

Community engagement and communication play an important role in the success of dumpsite remediation. Residents living near dumpsites often suffer from odour, smoke, and pollution. ULBs should regularly update the community about the progress of the project, safety measures taken, and expected timelines for completion. Grievance Redressal mechanisms must be established to address citizen concerns quickly. By involving local communities, ULBs can reduce resistance, build trust, and strengthen public participation in waste management reforms.

Once the remediation work is completed, the reclaimed land must be restored and repurposed. Proper grading and leveling of the site, along with soil improvement measures, set the foundation for redevelopment. Many cities have successfully transformed old dumpsites into public parks, green belts, sports complexes, solar farms, or institutional areas. These renewed spaces not only improve local environmental quality but also become symbols of urban transformation.

Effective implementation of legacy waste remediation requires strong managerial oversight from CEOs, EOs and Nodal Officers of the ULB. Clear contracts, performance-based payments, third-party monitoring, and



regular field inspections are essential to ensure the work is executed scientifically and within timelines. Maintaining detailed records of screened quantities, recovered materials, disposal routes, and environmental data ensures transparency and accountability.

Overall, legacy waste remediation is not just an operational task—it is an environmental necessity and a transformative opportunity for cities. Through scientific bioremediation and biomining, ULBs can eliminate old dumpsites, reclaim valuable land, reduce pollution, and move towards a cleaner, healthier, and more livable urban future. This aligns directly with the goal of achieving “Lakshya Zero Dumpsite” under SBM-U 2.0.



Session Summaries (Key Learning Points)

A. Liquid Waste Management in J&K (Water Secure Cities)

The goal under SBM-U 2.0 is to ensure that all waste-water is safely managed, making ULBs ODF++ and Water+ Certified. In J&K, dispersed settlements and difficult terrain make centralized Sewage Treatment Plants (STPs) costly and often impractical. ODF Parameters: The mission requires ULBs to progress from ODF (no defecation in public) to ODF+ (all public/community toilets are functional and well-maintained) and then ODF ++ (safe management of faecal sludge/septage and sewerage) and Water + (Reuse Treated Water).

FSSM & FSTP vs. STP: Faecal Sludge Treatment Plants (FSTPs) treat Faecal Waste (human waste/semi-solid waste) from septic tanks, and are mandatory for every ULB to ensure safe collection, transportation, and treatment of septage. Sewage Treatment Plants (STPs) primarily treat Sewage (liquid\ waste) which is mostly greywater and, in some cases, blackwater .

Water+ Protocol: Used Water Management: All wastewater must be managed safely. Blackwater from toilets (which contains the highest pathogen load) and Greywater from sinks, bathing, and washing (which is lower in pathogens but higher in detergents) must be collected and treated. The goal is to maximize the recycling and reuse of this treated liquid waste. ULBs must demonstrate safe management of all blackwater and greywater, and ensure that untreated liquid waste is not discharged into local water bodies, crucial for protecting the ecology of the region's rivers and lakes.

B. Safaimitra Suraksha and Welfare

SBM-U 2.0 places the dignity, safety, and welfare of sanitation workers (**Safaimitras**) at the core of the mission, aiming for the 'Surakshit Shehar' (Safe City) certification.

- **Zero Manual Entry:** The key principle is Zero Fatalities and {Strict Prohibition of Manual Scavenging} and Manual Entry into septic tanks or sewers.
- **Safety Protocols and PPE:** Safety Protocols and PPE: Mandatory provision and usage of high-quality PPE for all Safaimitras. This includes **gloves, gumboots, helmets, safety harnesses, gas masks,**

oxygen cylinders, rope ladders, and provision of ID cards. ULBs must ensure all Safaimitras are trained on the correct fitting and maintenance of this equipment.

- **Welfare and Social Security:**

- **Health Insurance:** Enrollment in applicable Central/State schemes.
- **Skilling:** Mandatory training and certification of Safaimitras by certified agencies for safe and professional operation of equipment.
- **Emergency Response:** Establishment of a clear, functional Emergency Response Sanitation Unit (ERSU) or Sanitation Response Unit (SRU). This unit is mandated to rescue sanitation workers if they encounter an incident. The Responsible Sanitation Authority (RSA) at the District Collector (DC) level and the ERSU/SRU at the Executive Officer (EO) level must be clearly defined and accessible via a helpline number, with trained personnel and ambulances on standby.

C. Legacy Waste Remediation (Garbage Free Cities)

SBM-U 2.0 mandates the scientific remediation of all legacy dumpsites (those accumulating waste for years) to achieve the goal of '**Lakshya Zero Dumpsite**'.

- **Technology Choice:** Bio-remediation is the process of treating legacy waste *in situ* (in place) by adding bio-cultures and bulking agents to accelerate the decomposition and stabilization of the waste. This is followed by Bio-mining, which is the scientific process of excavation and screening to extract recoverable resources. The combined process reclaims valuable land and extracts resources.
- Remediation efforts must also address the challenge of steep slopes and prevent soil erosion and runoff into sensitive floodplains or rivers during the process. Reclaimed land must be utilized for green spaces or urban forest creation.

Expected Outcomes of the Capacity Building Programme

The capacity building programme on Liquid Waste Management, Safaimitra Suraksha and Legacy Waste Remediation, and will result in measurable improvements across the Urban Local Body. The outcomes are seen at multiple levels — CEOs/EOs/Nodal Officers/Sanitary Inspectors/Supervisors, Drivers, Safaimitras and Helpers. These outcomes ensure safer operations, improved compliance, better service delivery, and enhanced environmental performance of the ULB.

A. Outcomes for CEOs / EOs

- Improved capability to plan, manage, and monitor liquid waste, solid waste, and legacy waste operations.
- Strengthened understanding of Zero Manual Entry, legal compliance, and safety protocols.
- Enhanced skills in DPR evaluation, vendor management, and contract monitoring for FSTPs, STPs, and biomining projects.
- Ability to establish and oversee Emergency Response Sanitation Units (ERSU/SRU) at ULB level.
- Better decision-making regarding infrastructure investments, technology selection, and resource allocation.
- Improved ability to ensure 100% PPE compliance and enforce worker safety standards.
- Strengthened capacity to monitor and certify treated water reuse, sludge management, and environmental performance.
- Enhanced capacity to engage with communities and ensure transparency and grievance redressal.
- Capability to track and ensure worker enrollment in welfare schemes (PM-JAY, PMJJBY, PMSBY, PM-SYM, e-Shram).
- Better documentation, digital reporting, and compliance on SBM-U 2.0 portals (Water+, ODF++, GFC, Safaimitra Suraksha).

B. Outcomes for Supervisors & Field Engineers

- Improved operational knowledge of PPE enforcement, task distribution, and team management.
- Enhanced ability to conduct site inspections, enforce safety rules, and report hazards.
- Strengthened skills in jetting, suction, desludging operations, and safe handling of machinery.



- Clear understanding of gas detection, confined space protocols, and emergency rescue readiness.
- Better coordination with contractors for biomining, segregation, and dumpsite remediation.
- Improved skills in maintaining daily registers, desludging logs, treatment plant performance data, and compliance records.
- More effective communication with Safaimitras to ensure safe behaviour, hygiene practices, and proper PPE use.

C. Outcomes for Safaimitras (Sanitation Workers)

- Increased awareness of workplace hazards and how to avoid them.
- Mandatory use of PPE (masks, gloves, gumboots, reflective jackets) during all field operations.
- Improved confidence in using jetting machines, suction vehicles, PPE kits, gas detectors, and tools safely.
- Clear understanding of Zero Manual Entry and the importance of mechanized cleaning.
- Ability to recognize warning signs of toxic gases, unsafe drains, or sewer conditions.
- Enhanced knowledge of hygiene practices, including handwashing, bathing, and PPE sanitization routines.
- Awareness of welfare benefits such as Ayushman Bharat, PMJJBY, PMSBY, PM-SYM, e-Shram, and how to access them.
- Reduced risk of injuries, infections, and accidents, leading to better health and dignity.
- Improved morale through recognition, training, and inclusive capacity building.

D. Outcomes for the Urban Local Body (ULB) as a System

- Safer, mechanized, and efficient sanitation service delivery.
- Reduction in accidents, injuries, and unsafe practices.
- Improved environmental performance through scientific legacy waste management.
- Strengthened compliance with SBM-U 2.0 Urban indicators — ODF++, Water+, and Lakshya Zero Dumpsite.
- Enhanced ability to reuse treated water, reducing freshwater demand.
- Better public satisfaction through cleaner surroundings, safe workers, and responsible governance.
- Strengthened institutional capacity for long-term sustainability in sanitation and waste management.

Conclusion

The transition to SBM-U 2.0 demands a paradigm shift in urban governance, especially in a geographically sensitive region like Jammu and Kashmir. Achieving **Water Security** ODF ++ and Water + through decentralized liquid waste management, attaining **Lakshya Zero Dumpsite** through scientific legacy waste remediation, and ensuring **Safaimitra Suraksha** are not isolated goals but integrated components of a sustainable, circular economy model.

This module provides the necessary technical and procedural framework. The success of the mission now rests on the committed and proactive implementation of these strategies by the ULB officials on the ground. By customizing these national guidelines to address the local topographical and social context of J&K, we can collectively transform the Union Territory into a model of clean, safe, and ecologically resilient urban living.
