CWIS Training Packages- Detailed Outlines

Background

Citywide Inclusive Sanitation (CWIS) is a new approach in sanitation sector for the attainment of the SDG 6. Along with the conventional approaches in sanitation sector, integrating all the aspects of human life that have direct or indirect linkage with the sector is the main concept of the CWIS approach. As the concept of CWIS itself is new and is evolving on regular basis, the learning on the concept itself along with the experiences across the globe for the implementation of the CWIS approach is a great initiative to expand the knowledge on CWIS.

For the training and or orientation on CWIS to various groups of targeted audiences, this is a compilation of the required packages for the CWIS knowledge dissemination among the related stakeholders. The listing of the packages was finalized with the support from the sector stakeholders, CWIS Alliance Nepal (CWISAN), along with the representatives from the government. It is also noted that a single entity/ organization is not responsible for the development of all packages and could lead the process of the development.

ENPHO, with the support from the sector stakeholder, has plan to develop 4 packages from the list with the support from the whole sector.

Key Training Packages:

- 1. Sensitization on CWIS (orientation)- for enabling environment; for the Policy Makers and Decision Makers
- 2. CWIS: Constellation to Oracle (MToT); for Sanitation experts and professionals
- 3. CWIS Oracle (ToT); for sanitation professionals
- 4. Intro to CWIS (Training); for implementers including Municipal Officers- admin officers, WASH focal person, GESI Focal person, Environment Focal Person
- 5. Monitoring mechanism; for implementers including Municipal Officers- admin officers, WASH focal person, GESI Focal person, Environment Focal Person
- 6. Design training of FSTPs; for engineers and technical personals
- 7. Design training of DEWATS; for engineers and technical personals
- 8. O&M of FSTPS
- 9. Hands on training on septic tank construction for Masons
- 10. Orientation on Infection prevention and control and Occupational health and safety
- 11. Customized package on FSM tools
- 12. Customized package on specific design of FSTPs





Module 1: Sensitizing Package on Citywide Inclusive Sanitation

	Overview
Purpose	Citywide Inclusive Sanitation (CWIS) is a public service approach aimed at advancing safe, equitable, and sustained services for all focusing on reaching to women, girls and low-income communities by strengthening the design and implementation of core system functions. Sanitation sector, largely is informal and unregulated in Nepal, primarily focused on the sewer system that is serving a minimal population of around 15% that to excluding the marginalized and pro-poor communities. One of the reasons for this is the limited numbers of institutional and regulatory documents or legal binding related to inclusivity and sustainability in sanitation. This module will provide a basic understanding on core concepts on CWIS and sensitize the target audience for creating an enabling environment with needed regulatory framework and policy along with the institutional set up.
Target Participants	 Ministry level and high rank officers responsible for the planning and making policy in sanitation. Secondary: Government decision makers, administration officials, head of departments, focal person of different theme
Learning Outcome	 At the end of this module, the participants will be able to: Identify the need for enabling environment- legal/regulatory framework on CWIS for the implementation of CWIS Incorporate CWIS while planning Sensitize on the expected roles and responsibilities of different stakeholders
Mode of Delivery	 Power-point presentation Cases of CWIS implementation along with enabling environment in different countries Group discussion and interaction related to key issues and possible solutions
Duration	2-3 hour





	Key Content			
S.N.	Session	Key components and themes	Est. Time	
1	Opening session	IntroductionObjectives of the orientation	30 mins	
2	Orientation on CWIS	 Urbanization and status of urban sanitation services Gap in sanitation practices as usual Importance of CWIS CWIS and SDG 6 CWIS- concept and framework CWIS linking with N-WASH Plan Sanitation- part of WASH plan CWIS implementation in different countries Need for policy, regulation for enabling environment Roles of stakeholders for CWIS implementation 	2 hrs	
3	Plenary discussion and Closing	Plenary discussion- Way forwardClosing	30 mins	





Module 2: CWIS: Constellation to Oracle

	Overview
Purpose	CWIS approach is new and is constantly updating with more information. As with the new concept and approach, resource person or the pool of experts also needs to update constantly with the progress on CWIS. This module targets to do the same with the updates on CWIS targeting to the pool of resources. This pool of resources are responsible for the capacity building of the trainers- training of trainers, who are further responsible for cascading the information on CWIS to the implementers. Hence, the module is targeted to the resource person or the sanitation experts for the common understanding on CWIS.
Target	Primary:
Participants	 Sanitation experts and professionals from government and private organization that are responsible for training of trainers Secondary: Public health engineers, environmental engineers, sanitation engineers, WASH engineers
Learning Outcome	At the end of this module, the participants will have:
	Common understanding on CWIS along with the updates on CWIS
	Deliver training on CWIS to the trainers
	Cascading the CWIS knowledge and information
Mode of Delivery	 Power-point presentations Q&A Group Activity and discussion Participatory and interactive activity Video Show – stories from the field
Duration	2 to 3 days





	Key Contents		
S.N.	Sessions	Key components and themes	Est. time
1	Opening Session	 Introduction Welcome and ice-breaking Objective sharing Agenda of the training Pre-assessment 	1 hr
2	Sanitation and its linkages with Urban Development and Planning	 Urbanization Sanitation in Urban Development and Planning Urban Sanitation and Public Health Global Sanitation Targets and Progress in Sanitation Coverage Sustainable Sanitation practices for Urban Development Cases- video on urbanization and urban sanitation (Contrast in sanitation services in urban context) Open Discussion & Q/A 	1 hr
3	CWIS approach, its Principles and Frameworks for Sanitation Service Delivery	 Introduction to CWIS Evolution of the Concept of CWIS CWIS Principles and Framework CWIS Requirements, Resources and Pertinence CWIS in Nepal Video on 'An Introduction to Citywide Inclusive Sanitation' Open Discussion & Q/A 	1 hr
4	Linking CWIS to WASH Plan	 WASH plan Link WASH plan to sanitation and CWIS 	1 hr
5	Existing Laws, Rules & Regulations – Global & National	 CWIS and SDG Legal and policy provisions- Global and national context Regulatory and institutional provision for sanitation services chain in Nepal IRF for faecal sludge in Nepal A Practical Example of Formulating Sanitation focused By-laws Open Discussion: How Cities can attain the Sanitation Targets? 	1 hr
6	CWIS Framework – Equity	 PowerPoint presentation on CWIS framework PowerPoint presentation on equity – concept and measurement indicators Video on 'Inclusive Sanitation - Faecal Sludge and Septage Management in Odisha' (https://www.youtube.com/watch?v=o- TAUEWUNw8) 	2 hr





		 A case of women entrepreneurs in Itahari PowerPoint presentation on social and gender inclusion, behavior change and social mobilization Experience of Faridpur Municipality on social mobilization, equitable service delivery, pit emptiers' cooperative formation and improvement of livelihood of pit emptiers Group work on analysis of investment plan (at provincial/ municipal level) from equity perspective PPT on analysis of investment plan (at provincial/ municipal level) from equity perspective Group Discussion on equity indicators and relevant examples; identification of challenges on equity attainment and drawing plausible solutions for achievement of goals related to equity 	
7	CWIS Framework – Safety	 Video on 'waste workers' agonies PowerPoint presentation on safety – concept and measurement indicators PowerPoint presentation on financial safety along the sanitation service chain PowerPoint presentation on environmental safety-the conventional and innovative technologies for safely managed sanitation along the sanitation service chain PowerPoint presentation on occupational health and safety along the sanitation service chain PowerPoint presentation on occupational health and safety along the sanitation service chain PowerPoint presentation on occupational health and safety along the sanitation service chain 	2 hr
8	CWIS Framework – Sustainability	 PowerPoint presentation on Sustainability – concept and measurement indicators PowerPoint presentation on importance of O&M and critical O&M requirements along the sanitation service chain 	2 hr





		 Experience of Kushtia City towards cost recovery and capex expansion Group Discussion on sustainability indicators and relevant examples; identification of challenges on sustainability attainment and drawing plausible solutions for achievement of goals related to sustainability 	
9	CWIS Framework – Responsibility	 PowerPoint presentation on Responsibility – concept and measurement indicators PowerPoint presentation on Responsibility – Deep Dive 5 models of responsibility traits with case examples and video key contributing factors for responsible authorities failing to execute their mandate private sector's role in supporting execution of mandates include different stakeholders key issues in relation to responsibility and serving the poorest How does responsibility relate to accountability and resource planning and management? 	1 hr
10	CWIS Framework – Accountability	 PowerPoint presentation on Accountability – concept and measurement indicators PowerPoint presentation on Accountability – Deep Dive Modelling accountability with responsibility – Who exactly is to be held accountable, by whom, for what, and how Group work: Design a responsibility & accountability matrix for your imaginary city Accountability in practice What upward accountability models are applicable to the main categories of service provider (national utility, subnational utility, local government) Specific accountability approaches for achieving safety and equity How can higher-level accountability be strengthened 	1 hr
11	CWIS Framework – Resource Planning and Management	 PowerPoint presentation on Resource Planning & Management – concept and measurement indicators PowerPoint presentation on Resource Planning & Management – Deep Dive Components of a Financing Framework for CWIS 	3 hr





		 Common Gaps and Issues with Financing Frameworks Gaining a better understanding of the cost of CWIS Affordability remains a constraint to a balanced funding mix and viable service delivery Tax needs to make up a larger proportion of the funding mix Aligning incentives for investment in urban sanitation Using monitoring data to improve performance, drive investment and address inequality Service models and business models and PPP Experience on setting and attainment of Resource Planning & Management indicators Group Discussion 	
12	CWIS– Putting Everything All Together	 PowerPoint presentation on how the CWIS service functions will attain the CWIS outcomes and how the items of the whole matrix is interrelated with one another Q/A and Plenary 	1 hr
13	CWIS Planning, Implementation, Monitoring, Evaluation and Evidence-based Decision Making	 PowerPoint presentation on CWIS sanitation situation assessment tools (SFD, Stakeholder Analysis and CSDA) Q/A and Quiz/poll PowerPoint presentation on implementation of the CWIS Plan and its monitoring & evaluation Q/A and Plenary PowerPoint presentation on Sanitation Project Monitoring with Evidence-based Decision-Making System – IMIS [Innovative Solutions] Q/A and Plenary 	2 hr
13	Next Course of Actions	 Group work How CWIS can be taken forward in context of SDG Immediate action items with timelines 	1 hr
14	Closing Session	Review of the trainingPost assessmentClosing	1 hr





	Overview
Purpose	CWIS approach is new and is constantly updating with more information. As with the new concept and approach, capacity building on the topic is required for scaling and implementing such ideas. With this, enhancing capacity of a group of experts or WASH professionals might not be enough for the implementation of CWIS concept, but require cascading the information to the professionals at the implementation level. For the same, this module will enhance the knowledge and skills on CWIS and its implementation modality, to create a pool of trainers or a CWIS oracles who, further, will be responsible for the dissemination of knowledge through training delivery on CWIS, to next level of participants.
Target Participants	 Primary: Sanitation experts and professionals from government and private organization that are responsible for the dissemination of knowledge on CWIS Secondary: Public health engineers, environmental engineers, sanitation engineers, WASH engineers
Learning Outcome	 At the end of this module, the participants will be able to: Deliver training on CWIS and implementation modality Cascading the CWIS knowledge and information
Mode of Delivery	 Power-point presentations Q&A Group Activity Participatory and interactive activity Video Show – stories from the field
Duration	5 days

Module 3: CWIS Oracle





Key Contents			
S.N.	Sessions	Key components and themes	Est. time
1	Opening Session	 Introduction Welcome and ice-breaking Objective sharing Agenda of the training Pre-assessment 	1 hr
2	Sanitation and its linkages with Urban Development and Planning	 Urbanization Sanitation in Urban Development and Planning Urban Sanitation and Public Health Global Sanitation Targets and Progress in Sanitation Coverage Sustainable Sanitation practices for Urban Development Cases- video on urbanization and urban sanitation (Contrast in sanitation services in urban context) Open Discussion & Q/A 	1 hr
3	CWIS approach, its Principles and Frameworks for Sanitation Service Delivery	 Introduction to CWIS Evolution of the Concept of CWIS CWIS Principles and Framework CWIS Requirements, Resources and Pertinence CWIS in Nepal Video on 'An Introduction to Citywide Inclusive Sanitation' Open Discussion & Q/A 	1 hr
4	Linking CWIS to WASH Plan	WASH planLink WASH plan to sanitation and CWIS	1 hr
5	Existing Laws, Rules & Regulations – Global & National	 CWIS and SDG Legal and policy provisions- Global and national context Regulatory and institutional provision for sanitation services chain in Nepal IRF for faecal sludge in Nepal A Practical Example of Formulating Sanitation focused By-laws Open Discussion: How Cities can attain the Sanitation Targets? 	1 hr
6	CWIS Framework – Equity	 PowerPoint presentation on CWIS framework PowerPoint presentation on equity – concept and measurement indicators Video on 'Inclusive Sanitation - Faecal Sludge and Septage Management in Odisha' 	2 hr





		 (https://www.youtube.com/watch?v=o- TAUEWUNw8) A case of women entrepreneurs in Itahari PowerPoint presentation on social and gender inclusion, behavior change and social mobilization Experience of Faridpur Municipality on social mobilization, equitable service delivery, pit emptiers' cooperative formation and improvement of livelihood of pit emptiers Group work on analysis of investment plan (at provincial/ municipal level) from equity perspective PPT on analysis of investment plan (at provincial/ municipal level) from equity perspective Group Work: Setting equity indicators for the imaginary case city; identification of challenges on equity attainment at the imaginary case city and drawing plausible solutions; group presentations and Q/A 	
7	CWIS Framework – Safety	 Video on 'waste workers' agonies PowerPoint presentation on safety – concept and measurement indicators PowerPoint presentation on financial safety along the sanitation service chain PowerPoint presentation on environmental safety- the conventional and innovative technologies for safely managed sanitation along the sanitation service chain PowerPoint presentation on occupational health and safety along the sanitation service chain PowerPoint presentation on occupational health and safety along the sanitation service chain Health insurance of sanitation workers Video on OHS by ENPHO Video on 'PPEs and SWEEP Model' (https://drive.google.com/file/d/1m_hWtGse- qpMwlHj-F9srpzohJD72wYK/view or https://www.youtube.com/watch?v=gKGezmoL69E) Experience of Sakhipur/Saidpur City towards attainment of the safely indicators on CWIS Example on local context- Video of WASH facility centre, Kirtipur Analysis of investment plan at provincial and municipal level from safety perspective Group Work: Setting safety indicators for the imaginary case city; identification of challenges on equity attainment at the imaginary case city and drawing plausible solutions 	2 hr
8	CWIS Framework – Sustainability	 PowerPoint presentation on Sustainability – concept and measurement indicators 	2 hr





		 PowerPoint presentation on importance of O&M and critical O&M requirements along the sanitation service chain Experience of Kushtia City towards cost recovery and capex expansion Group Work: Setting sustainability indicators for the imaginary case city; identification of challenges on equity attainment at the imaginary case city and drawing plausible solutions 	
9	CWIS Framework – Responsibility	 PowerPoint presentation on Responsibility – concept and measurement indicators PowerPoint presentation on Responsibility – Deep Dive 5 models of responsibility traits with case examples and video key contributing factors for responsible authorities failing to execute their mandate private sector's role in supporting execution of mandates include different stakeholders key issues in relation to responsibility and serving the poorest How does responsibility relate to accountability and resource planning and management Group Work: Setting responsibility indicators for the imaginary case city; identification of challenges on equity attainment at the imaginary case city and drawing plausible solutions 	3 hr
10	CWIS Framework – Accountability	 PowerPoint presentation on Accountability – concept and measurement indicators PowerPoint presentation on Accountability – Deep Dive Modelling accountability with responsibility – Who exactly is to be held accountable, by whom, for what, and how Group work: Design a responsibility & accountability matrix for your imaginary city Accountability in practice What upward accountability models are applicable to the main categories of service provider (national utility, subnational utility, local government) Specific accountability approaches for achieving safety and equity How can higher-level accountability be strengthened Group Work: Setting accountability indicators for the imaginary case city; identification of challenges on equity attainment at the imaginary case city and drawing plausible solutions 	3 hr





11	CWIS Framework – Resource Planning and Management	 PowerPoint presentation on Resource Planning & Management – concept and measurement indicators PowerPoint presentation on Resource Planning & Management – Deep Dive Components of a Financing Framework for CWIS Common Gaps and Issues with Financing Frameworks Gaining a better understanding of the cost of CWIS Affordability remains a constraint to a balanced funding mix and viable service delivery Tax needs to make up a larger proportion of the funding mix Aligning incentives for investment in urban sanitation Using monitoring data to improve performance, drive investment and address inequality Service models and business models and PPP Experience on setting Resource Planning & Management indicators Group Work: Setting Resource Planning & Management indicators for the imaginary case city; identification of challenges on equity attainment at the imaginary case city and drawing plausible solutions 	3 hr
12	CWIS– Putting Everything All Together	 PowerPoint presentation on how the CWIS service functions will attain the CWIS outcomes and how the items of the whole matrix is interrelated with one another Q/A and Plenary 	1 hr
13	CWIS Planning, Implementation, Monitoring, Evaluation and Evidence-based Decision Making	 PowerPoint presentation on CWIS sanitation situation assessment tools (SFD, Stakeholder Analysis and CSDA) Q/A and Quiz/poll PowerPoint presentation on implementation of the CWIS Plan and its monitoring & evaluation Q/A and Plenary PowerPoint presentation on Sanitation Project Monitoring with Evidence-based Decision-Making System – IMIS [Innovative Solutions] Q/A and Plenary 	2 hr
13	Next Course of Actions	 Group work How CWIS can be taken forward in context of SDG Immediate action items with timelines 	1 hr





14	Delivering the	Group work- expert presentation vs. facilitation	
	Training	Challenges of expert presentation and ways to	hrs
		mitigate	
		 Time management, 	
		 Focus on key message 	
		 Chunking information 	
		 Ensure key messages is grabbed by 	
		participants	
		 Power point Presentation – making it interesting 	
		 Practicing the delivery skills in groups 	
15	Closing Session	Review of the training	1 hr
		Post assessment	
		Closing	





Module 4: Intro to CWIS

Overview		
Purpose	CWIS is a new approach in sanitation sector. With the frequent update on the topic, sanitation professionals need to update on the new ideas as CWIS itself. Limited numbers of sanitation experts is not enough to bring the desired change in sanitation. To this, following all the resource materials and updating might not be feasible for all professionals. This training package, hence, look forward to training delivery to the professionals engaged at the implementation level for the smooth implementation of the CWIS. The resource person or the sanitation experts with the ToT level of training is expected to deliver this training packages to the targeted audiences.	
Target	Primary:	
Participants	 Engineers engaged at municipalities, Sanitation professionals from government and private organization that are responsible for the CMUC implementation 	
	Secondary:	
	 Public health engineers, environmental engineers, sanitation engineers 	
Learning Outcome	At the end of this module, the participants will be able to:	
	 Incorporate CWIS into the plans and implement it 	
Mode of Delivery	Power-point presentations	
	• Q&A	
	Group Activity	
	 Participatory and interactive activity Video Show – stories from the field 	
Duration	3 days	





Key Contents			
S.N.	Sessions	Key components and themes	Est. time
	Training Introduction	 Introduction with ice-breaker Objective sharing Expectation collection Pre-test 	1 hr
1	Context setting and intro to CWIS approach, its Principles and Frameworks for Sanitation Service Delivery	 Sanitation movement in Nepal Legal provisions related to urban sanitation Current sanitation practices Introduction to CWIS CWIS Principles and Framework Video on 'An Introduction to Citywide Inclusive Sanitation' CWIS perspective in sanitation service chain Open Discussion & Q/A 	1.5 hr
2	Urban sanitation options	 Sanitation service chain Sewered and non-sewered sanitation Components of sanitation service chain Analysing sanitation service chain through CWIS perspective Transformative technologies Open Discussion & Q/A 	2 hr
3	Enabling environment: Legal and Institutional Framework	 Enabling Environment Importance of FSM Policy Framework and Institutional Arrangements Legal and policy provisions Regulatory provision across sanitation service chain in Nepal Analysing existing legal and policy provisions through CWIS perspective A Practical Example of Formulating Sanitation focused By-laws Open Discussion: How Cities can attain the Sanitation Targets? 	1 hr
4	CWIS service outcome– Equity	 Equity – concept and measurement indicators Problem and issues related to Equity in sanitation Presentation on social and gender inclusion, behavior change and social mobilization Group Work: Analysing case through equity perspective- identification of challenges on equity attainment and drawing plausible solutions; Group activity and Q/A 	1.5 hr





5	CWIS service outcome – Safety	 Safety – concept and measurement indicators Public Health and Safety Environmental Safety Financial Safety Occupational Health and Safety (OHS) for Sanitation Workers Videos on 'waste workers' agonies Group Work: Setting safety indicators for the given case scenario; identification of challenges on equity attainment at the imaginary case city and drawing plausible solutions 	2 hr
6	CWIS service outcome – Sustainability	 Sustainability – concept and measurement indicators Present scenario of sanitation services/facilities Reasons behind the unsustainable sanitation services/facilities Interventions for sustainable sanitation service Equitable Sanitation Service Safe Sanitation Service Responsible Stakeholders Accountable Stakeholders Proper Resource Planning and Management 	2 hr
7	CWIS system function – Responsibility and accountability	 Understanding Responsibility – Concept and measurement indicators Responsibility and Accountability of different entities in the Sanitation Value Chain Role of private sector Responsibility and service delivery to the poor How does responsibility relate to accountability and resource planning Group Work: Setting responsibility indicators for the imaginary case city; identification of challenges on equity attainment at the imaginary case city and drawing plausible solutions 	3 hr
9	CWIS system function – Resource Planning and Management	 Presentation on Resource Planning & Management concept and measurement indicators Indicators – National and City Level Financing framework development N-WASH plan and its component Components of CWIS financing framework Financing flows of municipality Financial flow throughout SSC and gap identification WASH financial strategy planning Common Gaps and Issues with Financing Frameworks 	3 hr





10	Monitoring Mechanism and Site Visit	 Monitoring (What does it mean?) When to carry on monitoring? Guide on the Site visit Site visit and evaluation Presentation of the findings from site visit Q/A and Plenary 	3 hr
11	Applying CWIS Lens and Next Course of Actions	 Group work: Given case scenario Presentation and discussion Way forward/ what is next? Immediate action items 	1 hr
12	Training Closing	 Training remarks from participants Post-test Training evaluation 	1 hr





Module 5: Monitoring Mechanism

	Overview
Purpose	There are various examples of simple preventable mistakes that are causing a huge resource. If a problem is sort out on time, it may save a lot of extra work later and this is possible with a proper monitoring mechanism in place. Assessing the activities in each level for the effective implementation and timely improvements along with the well-defined roles and responsibilities of stakeholders is the core purpose of the monitoring mechanism. This module will support to achieve the same purpose of monitoring in context of CWIS implementation. The monitoring mechanism defined in the module will support the effective implementation of CWIS. Along with it, this module will also support for the replication of implementation modality on CWIS.
Target	Primary:
Participants	 Ministers at provincial level and central level organization's head (Development partners, Academic Institutions) and sanitation experts and professionals Secondary:
	Government decision makers, administration officials, head of departments, focal person of different theme
Learning Outcome	At the end of this module, the participants will be able to:
	Discuss the reporting and monitoring mechanism for CWIS implementation
	List the indicators for monitoring of CWIS
Mode of Delivery	Power-point presentation
	 Cases of CWIS monitoring and reporting mechanism Discussion and interaction
Duration	2.5 hour





Key Content			
S.N.	Session	Key components and themes	Est. Time
1	Opening Session	Introduction	30 mins
		Objective sharing of the orientation	
2	Monitoring mechanism and roles of stakeholders	 Define/ clarify the monitoring mechanism- overall concept of mechanism at national level Who is responsible for monitoring? (N-WASH) Who is liable for the reporting on CWIS implementation (regulatory body and framework) Process and frequency Boles of stakeholders 	1 hr
3	Indicators	Monitoring indicators for the CWIS implementation	30 mins
4	Wrap up session and Closing	 Wrap up the discussion of the orientation Closing of the orientation 	30 mins





Module 6: Design Training of FSTP (a technical package)

	Overview		
Purpose	FSM is a huge component of the CWIS implementation and the technical knowledge on FSM along with the design and operation and maintenance of FSTP are the key for the proper CWIS implementation. Hence, the package focuses on the technical information related to the FSM, that is, from choosing the best option for collection of FS, to selecting the appropriate technology for FS transportation, to identifying the most effective FS treatment technology and designing it for the given context.		
Target	Primary:		
Participants	 Engineers engaged at municipalities and private organization that are responsible for designing the FSTP and/or approving the design of the same Secondary: Private consultants 		
Learning Outcome	At the end of this module, the participants will be able to:		
	Select the most appropriate FSTP		
	 Verify the design of the FSTP 		
	 Create an O&M plan for sustainability of the FSTP 		
Mode of Delivery	 Power-point presentations Hands on exercise Q&A Group Activity Participatory and interactive activity Site visit 		
Duration	5-6 days		





Key Contents				
S.N.	Sessions	Key components and themes	Est. time	
1	Characterization of	 How is FS different from sewage 	1 hr	
	FS	 Characteristics of FS – range 		
		 Sampling of FS for analysis 		
		 Lab analysis methods for parameters 		
		 Standards for treated water and solids 		
2	Treatment objective	Solid liquid separation	1 hr	
		Dewatering		
		Liquid treatment		
		Stabilization		
		Pathogen removal		
3	Quantification of FS	How to estimate FS quantity	1 hr 30 mins	
	and Case study	Methods of Quantification		
		• Estimation of FS volume for a given case study		
		(hands on Exercise to understand the activity of		
		quantification from a specific Nepalese context		
4	Nature based FS	Understanding of the Treatment	1 hr 30 mins	
	treatment	units/processes involved in a nature-based		
	technologies	treatment system(An example case study:		
		Lubhu / Shreekhandapur Kavre FSTP)		
		Case study – Videos on Nature based FSTP		
		model in India		
		 Understanding Various treatment 		
		combinations for nature-based system		
		Rationale for selecting and sequencing		
		treatment modules		
		Operational requirements of such modules		
5	Design of unplanted	 Principles and components 	1 hr 30 mins	
	SDB (Hands on	Treatment process		
	exercise)	Design calculations		
6	Design of Anaerobic	Principles and components	1 hr 30 mins	
Ū	digestion tanks	Treatment process		
	(hands on exercise)	Design calculations		
7	Design of planted	 Design principles of PSDBs 	2 hr	
	SDB (hands on	Treatment mechanisms of PSDBs		
	exercise)	Factors attecting the performance of PSDBc		
		 Components of PSDR design 		
		Details of PSDB design		
8	Virtual tour of	Technical briefing	3 hrs	
	Lubhu FSTP	Observation of the system		
		 Interaction with the operator 		





9	Introduction to electro-mechanical FS treatment systems Design of electro-	 Different mechanisms available for Dewatering (emphasis on technologies applicable to Nepal Context) Key highlights of the different mechanisms based on experiences outside the country Pros and cons of each mechanism to help better understanding Activity-Screw press and High rate 	1 hrs 2 hrs
	mechanical FS treatment systems	Anaerobic digesters (Hands on Exercise)	
11	Overview of liquid treatment technology options	 Different technologies available and their pros and cons 	1 hr 30 mins
12	FSTP site selection criteria, layout and planning	 Understanding the design concept and Hydraulic designs Approaches for planning a faecal sludge treatment facility Access road requirements for easy operation and maintenance Receiving station/s Other necessary/ancillary components of FSTP 	2 hr
13	Costing, construction and commissioning of FSTP	 Resource requirement assessment to guide costing Cost estimation assessments based on discussed designs Construction stages and requirements Site supervision – quality control and quality assurance Commissioning of FSTP Post implementation monitoring of FSTP Environmental compliance and legislation in Nepal for regulating FSTPs. 	2 hrs
14	Operation and maintenance of FSTP	 Setting Context for O&M Sanitation Safety Planning (SSP) Required operational staff; Skill Requirements and Job Descriptions Operations activities at FSTP Housekeeping at FSTP 	2 hrs 30 mins
15	Routine maintenance of	Equipment Repair and Maintenance	2 hrs





	FSTP and challenges	 Daily and routine maintenance of 	
	in O&M of FSTPs	FSTP (e.g. filter media replacement,	
		desludging of modules)	
		 Greasing and corrosion treatment 	
		 Inspection of equipment and FSTP system 	
		 Motor, pumps, Valves, electrical 	
		components	
		 Roofs of drying beds 	
		 Ventilation and blower systems 	
		 The exhaust system in mechanical 	
		drying units.	
		 Dosing systems and stirring units 	
		 Replacing equipment and reporting 	
		Conducting routine maintenance of all	
		components (Module wise)	
16	FSM modelling	Case study	2 hrs 30
	case study	Group activity	1111115
			2 h
1/	approach for	Linking to CWIS and its components ELETS model for sustainability approach	2 nrs
	sustainability	• FIETS model for sustainability approach	
	,	 Life cycle cost and cost recovery plan 	
		Institutional arrangements, compliances	
		 Technological sustainability and social 	
		sustainability	
18	Bidding for FSTP	 Understanding CWIS concepts and tools 	(Optional
		TOF DIG Practice bidding for ESTP with a case	private
			consultants)





Overview		
Purpose	With the limitations of the conventional sanitation systems and approaches, new approaches are being focused and implemented. One of such limitation of the conventional sanitation system is the accessibility to all the denizens of the area. The conventional, centralized system is appropriate for the coverage of the certain area only, while for the hundred per cent coverage the decentralized systems are highlighted. This is either of the cost benefit analysis or of the technical constraints or of the involvement of wide range of the stakeholders making them accountable for the proper operation of the system. Hence, the concept of decentralized waste water treatment system (DEWATS) comes into existence and this particular package focus on the design training of such DEWATS.	
Target Participants	 Primary: Engineers engaged at municipalities and private organization that 	
i u ucipanto	are responsible for designing the FSTP and/or approving the design of the same	
	Secondary:	
	Private consultants	
Learning Outcome	At the end of this module, the participants will be able to:	
	 Identify various DEWATS technology for the proper management of FSM 	
	•	
Mode of Delivery	Power-point presentations	
	 Participatory and interactive activity O&A 	
Duration	4 days	

Module 7: Design Training of DEWATS



	Key Content				
S.N.	Session	Key components and themes	Est. Time		
2.	Session Intro to water, wastewater and its characteristics Wastewater treatment approaches	 Introduction to water consumption and wastewater Wastewater generation and management scenario in Nepal Types of wastewater Wastewater characteristics- physical, chemical and biological Q&A and interaction Objectives of wastewater treatment Wastewater composition Principles of treatment Treatment methods Treatment technologies Decentralised wastewater 	1.5 hr		
3.	DEWATS principles and modules	 DEWATS approach Decentralization Simplification Conservation/ recycling DEWATS technology DEWATS modules Treatment efficiency and investment costs Comparison- centralised and decentralised system DEWATS in urban planning 	1.5 hr		
4.	DEWATS design parameters	 Dimensioning parameter Additional design parameter Design description of DEWATS modules Design of settlers Design of baffle reactor Design of anaerobic filter Design of planted gravel filter Design of polishing pond 	1 hr		
5.	Design of primary treatment- Settler	 Objectives of primary treatment (settler) Parameters to design Calculation factors Hands on practice- calculation Removal of organic pollutants (BOD and COD) Determination of sludge storage volume 	1.5 hr		





		 Determination of chamber 	
		sizes	
6.	Design of secondary treatment modules	 Objectives of secondary treatment (ABR and AF) Parameters to design Calculation factors Rules of thumbs Hands on practice- calculation Hydraulic: chamber size and number of chambers Biological: sludge storage volume Biological: remove of organic pollutants 	1.5 hrs
7.	Design of tertiary treatment modules	 Objectives of tertiary treatment (HPGF and polishing pond) Parameters to design Calculation factors Rules of thumbs Hands on practice- calculation Biological requirements Hydraulic requirements Dimensional requirements Cross-checks 	1.5 hrs
8.	DEWATS feasibility- essential requirements	 Importance of feasibility study Data collection Source, Conveyance Survey for preparation of contour map Treatment Availability of land for construction Disposal and reuse Operation and maintenance 	1 hr
9.	DEWATS construction, commissioning and operation and maintenance	 Construction requirements Construction of DEWATS modules Settler ABR AF Planted Gravel Filter Pond Construction Supervision Commissioning process and tests Monitoring the performance Operation and maintenance activities 	1.5 hrs





10.	Sectors of applications and City Sanitation Plan	 DEWATS in various see Prefabricated DEWAT Concept on city sanita Methodology Sanitation mapping a 	ctors 1.5 hrs S ation plan nd analysis	
11.	FSM overview- relevance and value chain	 Intro to FSM Opportunities Problems Solutions 	1 hr	
12.	Understanding FS characteristics	 What is FS? FS quantification Influencing factors or characteristics FS characteristics and 	1 hr FS fractionation	
13.	Overview of treatment technologies	 Objective of FS treatr Treatment options Integrated FS treatment 	nent 1 hr ent system	
14.	Site visit	 Site visit and observation components of DEWA Discussion and debrie 	tion of 1 day ATS f	





Module 8: Operation and Maintenance of FSTP

Overview			
Purpose	Whilst infrastructure development is a key component of the FSM service delivery chain, is sustainability largely depends on ensuring appropriate O&M approaches are adopted by the plant operators. This training aims at strengthening public sector engineers' understanding of the important operation and maintenance (O&M) aspects of FSTP. This module covers the operation, maintenance, and monitoring requirements and related financial requirements of different FS treatment technologies. It explains key parameters that need to be monitored and optimized to ensure treatment efficiency. It also covers health and environmental risks, mitigation measures, and compliance with risk management; and presents the importance of monitoring activities and why they are crucial for the long-term successful operation of the treatment systems.		
	This module also covers the municipal regulations and the importance of		
	compliance with the pollution norms.		
Target Participants	 Primary: Engineers engaged at municipalities and private organization that are responsible for designing the FSTP and/or approving the design of the same Secondary: Private consultants 		
Learning Outcome	 At the end of this module, the participants will understand: Key requirements for monitoring the FSTP operations, truck operations, and oversee the performance of private operators The Economics of FSTP operations (Treatment cost, Operation cost, PPE, Repair and Maintenance cost) How to identify key risks and challenges and plan suitable mitigation strategies accordingly 		
Mode of Delivery	 Power-point presentations Documentary show Participatory and interactive activity 		
Duration	2 days		





	Key Content			
S.N.	Session	Ke	y components and themes	Est. Time
1.	Introduction to	•	Setting Context for O&M	1 hr 30 mins
	FSTP- operation	٠	Sanitation Safety Planning (SSP)	
	and maintenance		Required operational staff; Skill	
			Requirements and Job Descriptions	
2.	Operations activities at FSTP-	•	Preparatory activities for FS delivery	2 hrs
			 Coordination between FSTP and 	
			Desludging truck drivers	
			 Preparation for onsite testing and sample collection. 	
		•	Receiving FS at the FSTP	
			 Onsite – Testing for delivered FS 	
			 Screening and removal of solid 	
			waste Monogorrent of colid worth	
			 Management of solid waste onsite 	
		•	Planning of FSTP modules Operation	
			(Planted Drving Bed (PDB). Sludge Drving	
			Bed (SDB), Anaerobic Stabilization tank,	
			Mechanical dewatering units, Liquid	
			treatment units – Nature-based and	
			conventional system) suitable for Nepal	
			context	
			 Sludge disposal and generation 	
			• FS supernatant (liquid stream)	
			disposal and disinfection	
			 Operational decision making 	
		•	Equipment used at FSTP for the	
			technology and processes selected (Tools	
			Sampling and analysis/testing of ES and	
		•	dried biosolids at ESTP (Parameters to be	
			analyzed)	
з.	Operation	•	- Housekeeping at FSTP	2 hrs
	activities at FSTP		• Harvesting plants at PGF	
	П		 Sludge harvesting from 	
			dewatering and drving units.	
			 Spill management during regular 	
			operations.	
			 Sludge storage. 	
			 Stock management for 	
			consumables	





			 Fly control and drainage 	
			maintenance	
		•	Onsite records maintenance	
			(Responsibility of Operator):	
			• Maintaining Lab Test records and	
			Sample details	
			 Daily and routine monitoring of 	
			FSTP	
			 Management of log sheet for 	
			regular maintenance activities	
			 Issues reporting and FSTP 	
4	Boutine		Equipment Penair and Maintenance	2 hrs
4.	maintenance at	•	\sim Daily and routine maintenance of	21115
	FSTP		ESTP (e.g. filter media	
			replacement desludging of	
			modules)	
			 Greasing and corrosion treatment 	
		•	Inspection of equipment and FSTP system	
		•	\sim Motor numps Valves electrical	
			components	
			 Boofs of drying beds 	
			 Ventilation and blower systems 	
			• The exhaust system in	
			mechanical drving units.	
			 Dosing systems and stirring units 	
		•	Replacing equipment and reporting	
			Conducting routine maintenance of	
			all components (Module wise)	
5.	Risks and risk	•	DO's and Don'ts of Septic tank emptying	1 hr
	mitigation		at site	
	FSTP O&M	•	Do's and Don'ts while transporting FS to	
			FSTP	
		•	Do's and Don'ts at FSTP while unloading	
		•	Do's and Don'ts of FSTP O&M, for	
			example:	
			 PPE requirements 	
			 Spill control measures and its 	
			management	
			 Testing and safety precautions 	
			required while handling by-products.	
			 Proper disposal of FS and disposal 	
			sites	
6.	Monitoring and	•	Understand the requirements of a good	45 mins
	evaluation		M&E framework	





		•	FSM performance indicators and linking	
			them to existing benchmarks-water &	
			sanitation	
7.	Challenges in O&M of FSTP	•	Risks in FSTP operations and strategies to overcome the same, through examples of operational plants	45 mins
8.	FSM modelling –	•	Cost estimation for O&M of FSTP.	2 hrs
	group activity		 Estimating the FSTP O&M cost 	
			components - Fuel cost, Repair,	
			PPE, Recurring cost for	
			consumables required for	
			Treatment, HR cost, etc.	
			Sustainability of FSM	
			operations – Total O&M and	
			Individual contribution to	
			O&M cost of various factors	
			discussed above.	
9.	Cases studies	٠	Case studies from other countries	1 hr
	model of FSM		focusing on O&M related issues.	





Module 9: Hands on Training on Septic Tank Construction for Masons

	Overview
Purpose	A properly constructed septic tank works efficiently as a primary treatment facility in the whole sanitation service chain. However, in the lack of proper construction of such facility, such primary treatment does not take place as expected. Hence, the proper construction of the septic tank is necessary for the efficient use of the tank as a primary treatment. Hence, the module focuses on the proper construction of the septic tank by enhancing the capacity of the masons that are responsible for the construction of it. This module focuses on the design and construction of a septic tank, common mistakes and things to consider while constructing a septic tank with a practical session.
Target	Primary:
Participants	 Masons working in a local area for the construction of building and septic tanks
Learning Outcome	At the end of this module, the participants will understand:
	 Understand the facts and importance of proper construction of a septic tank
	- Explain common mistakes and things to consider while constructing
	a septic tank
	- Construct a proper septic tank
Mode of Delivery	Power-point presentations
	Documentary show
	Hands on practice of septic tank construction
Duration	5 - 6 hours





	Key Contents			
S.N.	Sessions	Key components and themes	Est. time	
1	Faecal sludge management and Sanitation service chain	 Faecal sludge, Faecal Sludge Management Sanitation Service Chain 	45 mins	
2	Septic tank	 What is a proper septic tank? What are the current issues related to septic tank? What are the impacts of such issues? Common mistakes while constructing septic tank Things to consider while constructing septic tank 	1 hr	
3	Design and construction of septic tank- Hands on practice	 Hands on practice of septic tank construction Debriefing experiences 	3 to 4 hrs	





Module 10: Orientation on Occupational Health and Safety

	Overview		
Purpose	One of the key component of CWIS is safety and it means the safety fricted including the personnel engaged in the sanitation service provision sanitation workers. As one of the major duty-bearers for maintain healthy and clean environment for city dwellers, sanitation and v workers come across different people, households, roads, hospitals other institutions during their services. Unfortunately, they are sociall economically marginalized, living in congested colonies, slums or income informal settlements with limited access to basic services. It he nature of their work and their living conditions, they are at high r becoming infected by various infectious diseases. Without regular dedicated service from the workers, it will be nearly impossible fo authorities to maintain their support mechanisms. Ensuring the healt' safety of these workers and their families is crucial for cities to con their services.		
	Based on same understanding, the module focuses to mitigate the knowledge and practice gap and inspire the sanitation workers to adopt good hygiene practices during service delivery.		
Target	Primary:		
Participants	Sanitation workers		
Learning Outcome	 At the end of this module, the participants will be able to: Sensitize on the use of PPE for the infection prevention and control 		
Mode of Delivery	Power-point presentations Destining a stimitum		
	 Participatory and interactive activity Q&A 		
Duration	4.5 hrs		





	Key Content				
S.N.	Session	Key components and themes	Est. Time		
1.	Waste, hygiene and role of sanitation workers	 Explain the concept of waste and hygiene Classify types of waste Role of sanitation workers in maintaining hygiene of the community 	45 mins		
2	Occupation health and Disease transmission	 Describe occupational health Describe how most of the infectious diseases are spread Identify what types of health threats workers face 	45 mins		
3	Importance of maintaining hygiene	 Identify the correct ways of hand washing with soap Explain importance of hand washing and maintaining hygiene Describe self-hygiene practice after coming from work 	45 mins		
4	Importance of PPE	 Identify the advantages and disadvantages of PPE Explain the role of safety gears along with hand hygiene as a multi- barrier approach in reducing disease transmission 	1 hr		
5	Correct usage of PPE and cleaning of PPE	 Explain the purpose of each piece of safety gear Predict outcomes of improperly worn PPE Explain the proper ways of cleaning PPE 	1 hr		





Overview			
Purpose	Any FSM tool helps to assess the overall FSM ecosystem in the city and plan for infrastructure improvements. Use of such tools supports in the proper design and implementation of FSM infrastructure or improvement of the existing one.		
	This module focuses on such FSM tools or any specific tool, that support to design and implement any sanitation projects or programs. This module highlight the specific FSM tool as per the need or context of the city or the participants.		
Target Participants	 Primary: Engineers engaged at municipalities and private organization Secondary: Private consultants, environmental engineers, public health engineers 		
Learning Outcome	At the end of this module, the participants will understand:		
	 Criteria and scope of the specific FSM tool 		
	 How to use the FSM tool for assessment 		
Mode of Delivery	Power-point presentations		
	Hands on practice of the specific tool		
Duration	As per requirement		

Module 11: Customize package on FSM tools





Module 12: Customize package on specific design of FSTP

Overview	
Purpose	Faecal sludge management is one of the prominent solutions in sanitation sector. In the sector of sanitation, specifically for the management of wastewater and the faecal sludge, various options of FSTPs are available. Among those available options, knowledge on specific design of FSTP as per context, available resources, criteria, and scope of use is required for the implementation of the same.
	to the context. As per the requirements, specific design will be selected and thus the content is developed and delivered.
Target Participants	 Primary: Engineers engaged at municipalities and private organization that are responsible for designing the FSTP and/or approving the design of the same Secondary: Private consultants
Learning Outcome	At the end of this module, the participants will understand:
	- Design the specific FSTP
	 Criteria and scope of use of such FSTP Hands on calculation and practice of design of such FSTP
Mode of Delivery	Power-point presentations
	 Documentary show Participatory and interactive activity Hands on practice
Duration	As per requirement



