



Advisory note for Urban Local
Bodies for operationalizing

Protocol for Septage Management

.....
Notified by Uttarakhand
Urban Development Department
.....

Circular No.: 3471/36/SBM/16-17

Date: 16/12/2020



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Protocol for Septage Management

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Uttarakhand Urban Development Department
Circular No.: 3471/36/SBM/16-17

Supported by



National Institute of Urban Affairs



Sanitation Capacity
Building Platform

Date: 16/12/2020

Background

Urban Development Department, Government of Uttarakhand had notified “Protocol for Septage Management” dated 22nd May 2017. The Protocol provided a regulatory framework for Septage Management across the value chain and also prescribed actions to be taken by various stakeholders.

This advisory note aims to provide step by step directions to Urban Local Bodies (ULBs) in in developing and operationalizing effective city-level septage management plan as per the ‘Protocol for Septage Management’. This advisory shall help the ULBs in identifying a viable septage management solution based on the existing sanitation situation and available infrastructure. The advisory note for Urban Local bodies for operationalising protocol for septage management is supported by National Institute of Urban Affairs (NIUA) under the Memorandum of Understanding signed by NIUA and UDD to support Uttarakhand state in mainstreaming decentralized sanitation solution in the state.



एक कदम स्वच्छता की ओर

पत्रांक 31/36/SBM/16-17

शहरी विकास निदेशालय, उत्तराखण्ड।

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दिनांक 16/12/2020

सेवा में,

1- समस्त नगर आयुक्त,
नगर निगम,
उत्तराखण्ड।

2- समस्त अधिशासी अधिकारी,
नगर पालिका परिषद/नगर पंचायत
उत्तराखण्ड।

विषय:- **Advisory Note to Operationalize State Septage Management Protocol** के सम्बन्ध में।

महोदय,

उपरोक्त विषयक अवगत कराना है कि शहरी विकास विभाग, उत्तराखण्ड द्वारा सेप्टेज मैनेजमेन्ट प्रोटोकाल-2017 का प्रख्यापन किया गया है, जिसके अनुसार प्रदेश के समस्त निकायों द्वारा सेप्टेज मैनेजमेन्ट प्रोटोकाल को अपने-2 निकायों में प्रभावी रूप से क्रियान्वित किया जाना है।

उक्त के सन्दर्भ में NIUA के विशेषज्ञों द्वारा सेप्टेज मैनेजमेन्ट प्रोटोकाल के सफल क्रियान्वन हेतु Advisory Note तैयार कर निकायों को प्रेषित की जा रही है। उक्त Advisory में वर्णित क्रियाकलापों व दायित्वों को निकायों को चरणबद्ध तरीके से समयान्तर्गत पूर्ण किया जाना है, जिससे सेप्टेज मैनेजमेन्ट प्रोटोकाल का संचालन सही ढंग से हो सकें।

अतः Advisory को मूलरूप में इस आशय से प्रेषित की जा रही है कि Advisory में वर्णित समस्त क्रियाकलापों पर समयबद्धता के अनुरूप कार्यवाही करने का कष्ट करें।

संलग्नक: उपरोक्तानुसार।

भवदीय

(अशोक कुमार पाण्डेय)
अपर निदेशक।

प्रतिलिपि:- सचिव, शहरी विकास विभाग, उत्तराखण्ड शासन को सूचनार्थ प्रेषित।

(अशोक कुमार पाण्डेय)
अपर निदेशक।

Table of Contents



Background.....	3
State Profile.....	9
Current Sanitation Scenario.....	11
Operationalizing 'Protocol for Septage Management' in Urban Uttarakhand.....	13
Planning for treatment of Septage	15
Action Plan.....	17
Annexure I.....	21
Annexure II.....	25
Annexure III.....	26

State Profile

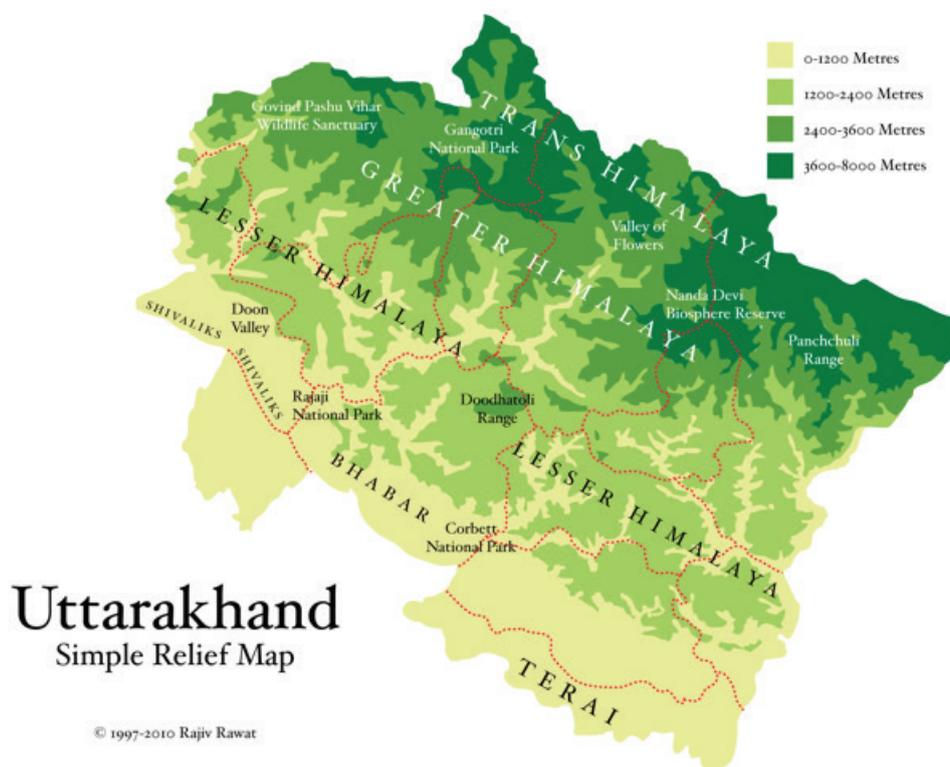
Uttarakhand has an urban population of 30,49,338 (Census 2011) with a total of 91 urban local bodies.

Table 1: Status of Urban Local Bodies in the State

S. No	Category	No of ULBs
1	Nagar Nigam	8
2	Nagar Palika Parishad	41
3	Nagar Panchayat	42
Total		91

Geographically, Uttarakhand can be divided into 5 zones: the Terai, the Doons, the Lesser Himalayas, the Greater Himalaya and the Trans Himalaya. 86% of the state is mountainous. Two major rivers of India i.e. Yamuna and Ganga originate in Uttarakhand. The climatic conditions, geographical and environmental features have a significant variation across the State which will play a major role in the septage management plan of the State.

Figure 1: Geographical Profile of Uttarakhand



Current Sanitation Scenario

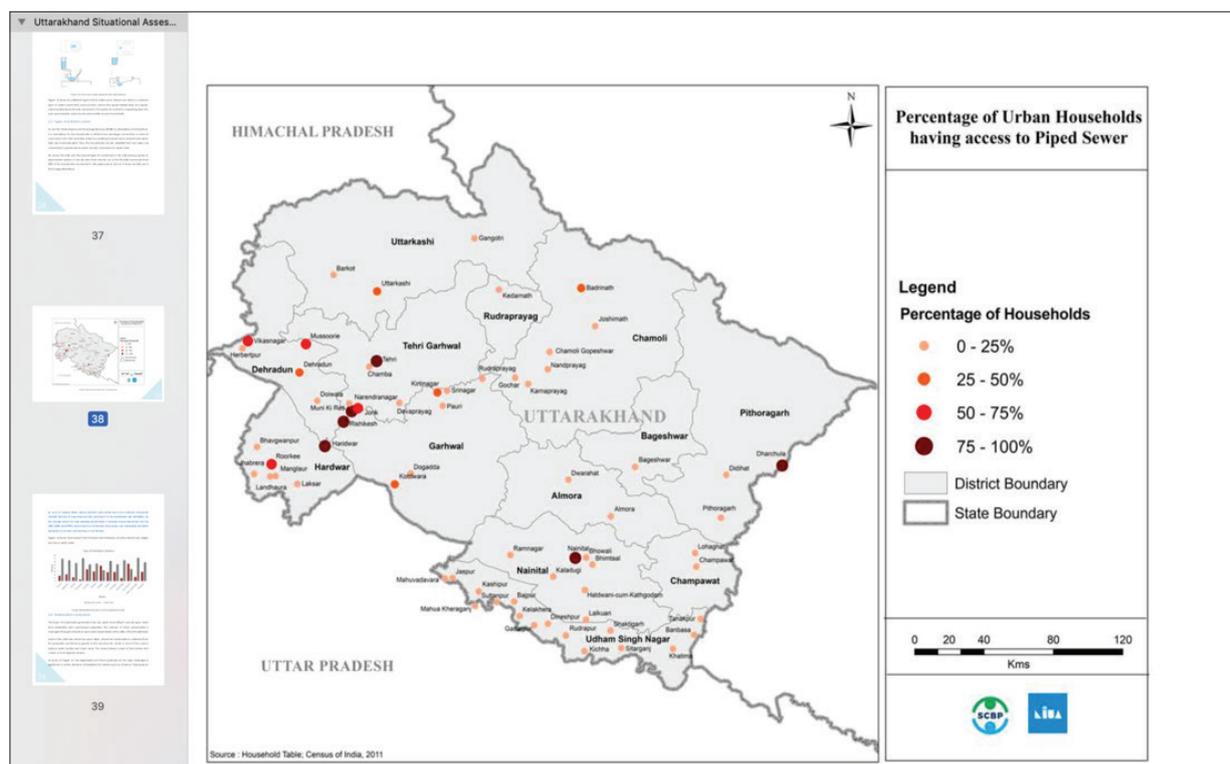
According to the Census 2011, in all the districts of Uttarakhand:

- More than 94% of the households in urban centres have Individual Household Toilet (IHHT). Around 95% of these have flush toilets.
- The dependence on the community toilet (CT) or public toilet (PT) is less than 5%.

Under the Swachh Bharat Mission, 81 cities have achieved ODF status. Whereas, 8 cities have been certified ODF+ and 2 cities ODF++.

As per the Water Supply and Sewerage Byelaws (2008) by Uttarakhand Jal Sansthan, it is mandatory for the toilets to discharge their wastewater either through a sewerage connection or a septic tank.

Figure 2: Access to piped sewer in Uttarakhand



Only ten out of the 91 ULBs in the state have more than 50% of the households connected to piped sewer. In order to achieve ODF++ and Water+ certification, all the Urban Local Bodies are required to implement effective Septage Management.

Improper septage management can pollute water bodies and is a public health hazard. As per a study by National Institute of Urban Affairs (2020) for 9 cities in the state of Uttarakhand, the following observations were reported regarding management of septage:

- Majority of the septic tanks do not conform to the design prescribed by Bureau Indian Standard (BIS) code.
- The emptying period of septic tanks is in the range of 5 to 10 years which exceeds the recommended emptying period by BIS code.
- Most cities lack safe septage disposal facilities.

Many urban habitation in the State discharge wastewater i.e. greywater and supernatant from septic tanks in open drain 'nallah' system, which is designed to convey stormwater to the river or any water body. National Mission for Clean Ganga (NMCG) has recognized this problem as a source of river pollution and have initiated interception and treatment of open drains (nullahs) before disposal of wastewater into the river.

Table 2: Status of Treatment Facilities in Uttarakhand (see annexure)

S No	Status of Facility	No. of facilities	No. ULBs served	Treatment Capacity (MLD)	Utilized Capacity (MLD)
1	Operational	61	21	355	226
2	Under Construction	8	5	92	—
3	Proposed	6	3	47	—
Total		75	29		

Operationalizing 'Protocol for Septage Management' in Urban Uttarakhand

The 'Protocol for Septage Management' provides a framework for effective Septage Management in Uttarakhand. The protocol prescribes the formations of the following committees for effective planning, implementation and monitoring of Septage Management in a city.

- Monitoring Committee to be set-up under the chairmanship of District Magistrate i.e. District Level Septage Monitoring Committee (DSMC).
- Septage Management Cell (SMC) at city-level under the Chairmanship of Municipal Commissioner / SDM

A State-level Septage Management Committee (SSMC) has already been established to help guide ULBs in mainstreaming effective Septage Management. Out of 91 ULBs, 43 ULBs have formed a Septage Management Cell in their respective cities as of November 2020.

After the creation of the respective committees, the Protocol prescribes the following actions to be taken in the cities for effective Septage Management:

1. Identification of Septic Tanks in the city:

- i. Conduct a survey for Identification and registration of septic tanks.
- ii. Develop and regularly update database regarding septic tanks.
- iii. Provide incentives for improvement of septic tanks.

2. Developing infrastructure for effective septage management

a. Regular emptying of septic tanks

- Ensure regular emptying of septage from septic tank.
- Ensure storm water or surface water does not enter septic tank

b. Safe emptying and transportation of septage

- Registration and licensing of private operators involved in desludging / emptying & transportation of septage.
- Enforcement of 'Prevention of Manual Scavenger Act, 2013' by ensuring no manual emptying of septic tank takes place in the state.
- Ensure availability of appropriate mechanized equipment / vehicle for emptying of septic tanks.
- Ensure health and safety of staff engaged in emptying and transportation of septage.

c. Treatment and safe disposal / reuse of septage

- Ensure that the septage emptied from septic tank is treated before safe disposal / reuse.

4. IEC and capacity building for effective septage management

- i. Awareness generation campaign regarding effective septage management targeted towards citizens and stakeholders in the city.
- ii. Capacity building of city stakeholders which would include training and workshops. City stakeholders would include ULB officials, masons, private operators involved in emptying of septic tanks etc.

Planning for treatment of Septage depending upon the existing city scenario is provided in the next section. A matrix for action to be taken by different agencies is provided in section 6 of this advisory.

Planning for treatment of Septage

While planning for treatment of Septage in a city, the following should be factors need to be assessed:

- Availability of Existing Sewage Treatment Plant (STP) or Septage Treatment Plant (SeTP)
- The extent of connection of city properties to a sewerage network.
- The type of containment systems / septic tanks prevalent in the city.
- Geographical details like topography, groundwater level in the city.
- Availability of a treatment plant with spare capacity in a neighboring city.

Based on the above criteria, option for treatment of septage can be selected:

a. Co-treatment of septage with sewage in an STP –

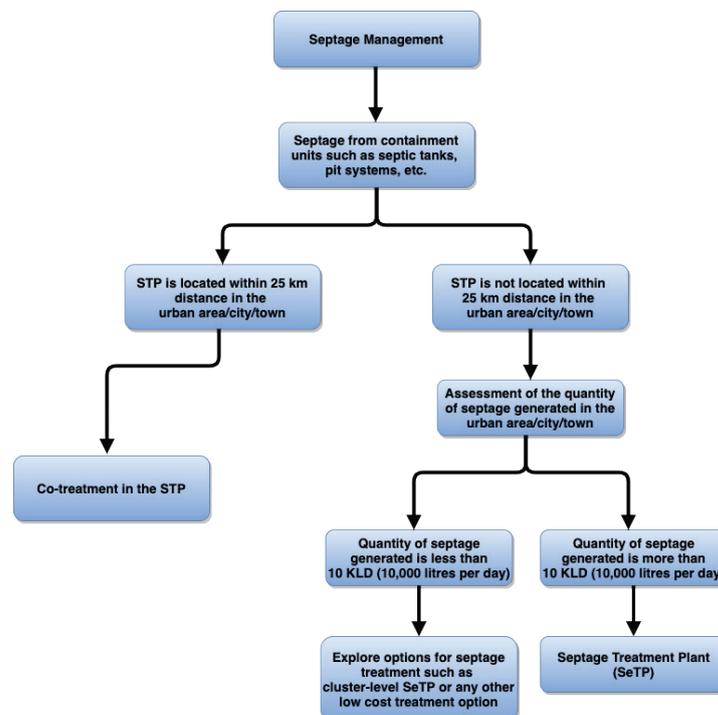
- Catering to an individual city
- Catering to a cluster of cities

a. Septage Treatment Plants (SeTP) –

- Standalone SeTP for a city
- Catering to a cluster of cities

Deep Row Entrenchment (DRE) – temporary disposal of septage

It is advisable to go for a standalone SeTP only when Septage Generation is more than 10 KLD. Refer the flowchart below for decision making regarding treatment of septage.



The criteria for selection of the relevant treatment option is given below:

Solution	Conditions
Co-Treatment	STP available within ULB or within 25Km distance and has potential to co-treat septage with sewage
SeTP	STP available in ULB or within 25Km distance does not have potential for co-treatment No STP available in 25KM distance and septage generated with in the ULB is equal to or more than 10KLD STP's potential (available within the ULB or within 25Km distance) to co-treat septage with sewage is less than the septage generated in the city
Cluster level SeTP	No STP having potential for co-treatment available in 25KM distance and septage generated with in the ULB is less than 10KLD
	STP available within 25KM distance does not have potential for co-treatment
Cluster Level Co-treatment	STP available within 25Km distance has potential to co-treat total septage generated in the ULB
DRE	Until SeTP is on proposal or construction stage, DRE can be done within the SeTP site or any other location close to it.
Decentralized wastewater treatment solutions	ULBs having poor accessibility or steep slopes where emptying is not feasible with desludging vehicles

Action Plan

Action to be taken for operationalizing 'Protocol for Septage Management' at ULB level

S. No.	Activity	Department	0 to 1 year	1year to 5 years	Beyond 5 years
1	Instituting effective Septage Management	DMO	Setting up District Level Septage Monitoring Committee (DSMC)		
		ULB	Setting up ULB Level Septage Management Cell (SMC) Formation of an Appellate Body / Grievance Redressal Mechanism.		
2	Identification of individual septic tanks, bio digesters, community septic tank/ bio digesters	UDD	Issue guidelines to ULBs to prepare Septage Management Bylaws	-	Updation of the guidelines issued to ULBs for preparing septage management bylaws.
		ULB	1.Assessment of the ULB to identify viable FSSM solution 2.Preparation of Septage Management Bylaws/ Regulations 3.Amending the building bye-laws to include design and approval mechanism for safe on-site sanitation system for new construction 4.Survey and register all households to: a. collect and compile data regarding sanitation systems (individual septic tank, community septic tank, etc) b. Method of disposal of effluent/ septage c. Record location of common septic tanks and its ownership, individual/ institutional/ community bio digesters. d. Include information of new constructed septic tanks/ bio digesters and update data	Issue notices to HHs/ institutions with a deadline where upgradation of containments is required.	Update data bank to include information of the upgraded containments and new constructed septic tanks/ bio digesters.

S. No.	Activity	Department	0 to 1 year	1year to 5 years	Beyond 5 years
3	Creation of Infrastructure for treatment of septage				
	a. Collection and transport of septage	ULB	1. Licensing of septage transporters and registration of septage transportation vehicles	1. Renewal of licenses. 2. Installation of GPS tracking device in Septage transportation vehicles.	In case of potential (assessed based on the data created through surveys) prepare a timetable for schedule desludging.
	b. Treatment and disposal of septage	Jal Nigam	1. Prepare DPR and estimates for infrastructure required for treatment (co-treatment, SeTP, etc.) 2. Implementing co-treatment at existing STP and construction of new SeTP. 3. Construction of interim treatment solution like DRE, etc. till SeTP/ Co-treatment is operational.	Ensure commissioning and operationalising of septage treatment facilities.	-
		UDD	1. Select appropriate FSSM technology solution based on the assessment done by the ULB. 2. Allocate budget based on the DPR and estimates prepared by Jal Nigam.		-
		ULB	Identification of treatment units/ land to create infrastructure for selected treatment facility		
Jal Sansthan	-	Operation and Maintenance of infrastructure created by Jal Nigam			
4.	Disposal	Jal Nigam/ Jal Sansthan	Develop standards for reuse of treated water and sludge from treatment units. Develop guidelines and business/ distribution model d for end products.	Implement distribution/ business model prepared.	Revise and implement the distribution/ business mechanism for end products based on new infrastructure created, market demand and rates.
		ULB	Assess the demand of end products from treatment units within the ULB like in parks/ horticulture, etc.	If feasible, procure and use end products from treatment units as per demand assessed.	-
		SMC	-	Monitor the distribution/ business activities and revenue generated from treatment units.	

S. No.	Activity	Department	0 to 1 year	1year to 5 years	Beyond 5 years
5	Monitoring	SMC	<ol style="list-style-type: none"> 1. Review and approval of Septage Management Bylaws 2. Periodical review of monitoring done by ULB based on the report submitted by ULB. 3. Monitoring of Licencing and registration activities of desludging operators 4. Develop a protocol for monitoring of septage management activities at different levels. 	<ol style="list-style-type: none"> 1. Monitoring and review of the survey conducted by ULB 2. Revision of desludging charges based on type of property, volume of septic tank, distance from treatment facility. 3. Revision of licencing/ registration/ renewal fee 4. Revision of penalties charged. 	Monitoring/ updation of all FSSM activities through SMC meetings
		ULB	<ol style="list-style-type: none"> 1. Monitoring and enforcement of septage management bylaws/ regulations. 2. Submit periodical report of activities and progress to SMC 3. Maintain a MIS based databased for record keeping and other septage management related activities. 	Developing a central online portal for record keeping, data management and septage management activities	<ol style="list-style-type: none"> 1. Revision of clusters/ FSSM option based on the new infrastructure created. 2. Analysing potential for schedule desludging based on the data collected during survey. 3. Preparing schedule for desludging for all the properties within ULB boundary
		DMC	It will monitor progress of ULBs through report submitted by SMCs on regular intervals.		
6	Information, Education & Communication and Capacity Building	UDD	<ol style="list-style-type: none"> 1. Prepare IEC materials for owners, treatment plant operators, desludging operators, ULBs 2. Empanelment of agencies to support ULBs in IEC activities. 	Revision of IEC materials.	
		Jal Nigam/ Jal Sansthan	Prepare protocols/ standard operating procedure for operators at SeTP and Co-treatment units		-
		ULB	Conducting IEC activities including distribution of flyers, announcements, awareness campaigns, workshops, trainings with the help of empanelled agencies for different stakeholders including house owners, truck operators, operators at treatment units, etc.		

Annexure I

District Wise List of STPs in Uttarakhand (Operational, Under-construction and Proposed)

S. No.	Name of the ULB served	S. No.	Name of the STP	Installed capacity in MLD	Current status	Utilised Capacity (M.L.D.)
1	Dehradun	1	Motharawala 1	20	Operational	20.2175
		2	Indranagar	5	Operational	5.9
		3	Jakhan Doon Vihar	1	Operational	0.325
		4	Salawala	0.71	Operational	0.3875
		5	Vijay Colony	0.42	Operational	0.2825
		6	Motharawala 2	20	Operational	10.9075
		7	Kargi	68	Operational	13
		8	Kolagarh	3	Under-construction	–
		9	Raipur	24	Proposed	–
		10	Banjarawala	11	Proposed	–
2	Mussoorie	11	Kurli	0.9	Operational	0.15
		12	Landhor North	0.8	Operational	0.03
		13	Happy Valley	1.2	Operational	0.02
		14	Landhor South	1.3	Operational	0.17
		15	Bhatta Gaon	3.12	Operational	1.69
3	Haridwar	16	Jagjeetpur 1	18	Operational	18.3
		17	Jagjeetpur 2	27	Operational	25.96775
		18	Sarai 1	18	Operational	18.83425
		19	Sarai 2	14	Operational	10.8175
		20	Jagjeetpur 3	68	Operational	54.225
4	Rishikesh	21	Lakkarghat	26	Operational	11.93625
		22	Tapovan	3.5	Operational	0.6675
5	Swargashram Jaunk	23	Swargashram	3	Operational	2.5885
6	Muni ki reti Dhalwala	24	Chandreshwar Nagar	7.5	Operational	4.45
		25	Chorpani	5	Operational	3.76
7	Devprayag	26	Bah Bazaar	1.4	Operational	0.34
		27	Sangam Bazaar	0.15	Operational	0.142
		28	Shanthi Bazaar	0.075	Operational	0.0135

S. No.	Name of the ULB served	S. No.	Name of the STP	Installed capacity in MLD	Current status	Utilised Capacity (M.L.D.)
8	Tehri	29	B. Puram	5	Operational	2.575
9	Uttarakashi	30	Gyanshu	2	Operational	1.6625
10	Gangotri	31	Gangotri	1	Operational	0.19
11	Kirtinagar	32	Kirtinagar I Near DRO bidge	0.05	Operational	0.02525
		33	Kirtinagar II Near Temple	0.01	Operational	0.009
12	Srinagar	34	Srikote I	0.075	Under-construction	–
		35	Srikote II	0.05	Under-construction	–
		36	Srinagar I	3.5	Operational	1.64575
		37	Srinagar II	1	Operational	0.292
13	Rudraprayag	38	Near Anup Negi memorial public school	0.075	Operational	0.053
		39	Near Rudra complex	0.1	Operational	0.07975
		40	Near bus stand	0.075	Operational	0
		41	Near SBI/Masjid	0.1	Operational	0.016
		42	Near Girder Bridge	0.125	Operational	0.116
		43	Near Belani Road	0.05	Operational	0.0135
14	Karnprayag	44	Near Subash Nagar	0.05	Operational	0.03
		45	Near Karnprayag Sangam	0.1	Operational	0.035
		46	Near Gandhi Nagar	0.05	Operational	0.04625
		47	Near Karn Mandir	0.05	Operational	0.009
		48	Near New Bridge	0.1	Operational	0.04125
15	Badrinath	49	Bamini	0.26	Operational	0.025
		50	Temple	0.01	Operational	0.004
		51	Suspension Bridge	1	Operational	–
16	Chamoli Gopeshwar	52	Near Old Suspension bridge	0.05	Operational	0.0165
		53	Chamoli Ghat	0.76	Operational	0.037
		54	Pokhari band	1.25	Operational	0.0725
		55	Vivekanand colony	1.19	Operational	0.01333
		56	Deendayal Upadhyay Park	1.12	Operational	0.031667

S. No.	Name of the ULB served	S. No.	Name of the STP	Installed capacity in MLD	Current status	Utilised Capacity (M.L.D.)
17	Joshimath	57	Near Pokhari Joshimath	1.08	Operational	0.49225
		58	Marwari Joshimath	2.7	Under-construction	–
18	Nandprayag	59	Near Forest Nala	0.1	Operational	0.015
		60	In Sangam Marg	0.05	Operational	0.00975
19	Almora	61	Bukh	2	Operational	1.6
20	Nainital	62	Russi Village	10	Operational	6.75
		63	Hari nagar	0.46	Operational	0.3
		64	Krishnapur	0.8	Operational	0.54
21	Pithoragarh	65	Aicholi	5	Operational	3
		66	Nirada ward	1.5	Operational	1
22	Bhimtal	67	Bhimtal	1.25	Operational	0.81
23	Dharachula	68	Near stadium vivekanand ward	1	Proposed	–
24	Haldwani	69	Haldwani	28	Under-construction	–
25	Ramnagar	70	Ramnagar	7	Under-construction	–
		71	Ramnagar 2	1.5	Proposed	–
26	Kashipur	72	Kashipur	18	Under-construction	–
27	Doiwala	73	Doiwala	10	Proposed	–
28	Roorkee	74	Roorkee	33.5	Under-construction	–
29	Rudrapur	75	Rudrapur FSTP	0.125	Proposed	–

Annexure II

A circular issued by Urban development director of septage management protocol

संख्या- 597/IV(2)-श0वि0-2017-50(सा0)/16

4/20

प्रेषक,
राधिका झा,
प्रभारी सचिव,
उत्तराखण्ड शासन।

सेवा में,
1. समस्त नगर आयुक्त,
नगर निगम, उत्तराखण्ड।
2. समस्त अधिशासी अधिकारी,
नगर पालिका परिषद / नगर पंचायत,
उत्तराखण्ड।

शहरी विकास अनुभाग-2 देहरादून, दिनांक 2 मई, 2017

विषय : "प्रोटोकॉल फॉर सैप्टेज मैनेजमेन्ट" के सम्बन्ध में।

महोदय,



उपर्युक्त विषयक अवगत कराना है कि मा0 राष्ट्रीय हरित अधिकरण द्वारा आवेदन संख्या 10/2015 में दिनांक 10.12.2015 को निम्नानुसार आदेश पारित किये गए हैं:-

"Proper management scheme or protocol shall be prepared and notified by the State and all its agencies to ensure that the sewerage or sewage effluent collected in common septic tanks or bio-digesters, is emptied regularly and taken to the STP for appropriate treatment and its consequential release. The manure collected in the bio-digester shall be distributed free of cost to the farmers around the area and for this purpose the State administration shall ensure effective participation of the respective gram panchayats".

उपरोक्त के कम में "प्रोटोकॉल फॉर सैप्टेज मैनेजमेन्ट" की प्रति संलग्न कर प्रेषित करते हुए मुझे यह कहने का निदेश हुआ है कि नगर निकायों के क्षेत्रान्तर्गत उक्त प्रोटोकॉल का कड़ाई से अनुपालन किया जाना सुनिश्चित किया जाए।

संलग्नक:- यथोपरि।

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संख्या- 597/IV(2)-श0वि0-2017-50(सा0)/16 तददिनांकित।

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित:-

1. सचिव, पेयजल, उत्तराखण्ड शासन।
2. निदेशक, शहरी विकास निदेशालय, उत्तराखण्ड, देहरादून।
3. मुख्य महाप्रबन्धक, उत्तराखण्ड जल संस्थान, देहरादून।
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Annexure III

Protocol for Septage Management

Protocol for Septage Management

Contents

1. Title, Extent and Commencement
2. Basic Concept in Septage Management
3. Definition
4. Purpose and Scope
5. Elements of Septage Management
 - 5.1 Monitoring Committee
 - 5.2 Cell for Septage Management.
 - 5.3 Identification of individual septic tanks and Community septic tanks.
 - 5.4 Creation of infrastructure for treatment of effluent collected from septic tanks
 - 5.4.1 Collection of Septage
 - 5.4.2 Transport of Septage
 - 5.4.3 Treatment and Disposal of Septage
 - 5.5 IEC & Capacity Building for Septage Management

Protocol for Septage Management

1. Title, Extent and Commencement

In accordance with the provisions of U.P. State Water Supply and Sewerage Act, 1975/ Municipalities Act, 1916 and having modified and adopted by the Government of Uttarakhand, the following protocol is notified, namely:-

“Protocol for Septage Management”.

The provisions of these Protocols shall apply to the area under the jurisdiction of the ULB of Uttarakhand.

It shall come into force with effect from the date of notification by the State Govt.

2. Basic Concept in Septage Management

The National Urban Sanitation Policy (NUSP), 2008 specifically highlights the importance of safe and hygienic sanitation facilities with proper collection; proper disposal and treatment of sludge from on-site installations.

Septage Management entails regular and i) safe disposal of effluent from septic tank/bio-digester; ii) safe removal of septage sludge from septic tanks/bio digesters and iii) proper operation and maintenance of septic tanks/bio digesters.

3. Definition

“Septage” is the settled solid matter in semi-solid condition usually a mixture of solids and water settled at the bottom of septic tank. It has an offensive odour, appearance and is high in organics and pathogenic microorganisms. Septage, in case of bio-digester, is that sludge which has not been completely digested, it happens in case when the bio digester is not functioning properly.

Scum – Oil and grease that floats on the top

Influent- The liquid waste of a household or community including human excreta.

Effluent-The supernatant liquid discharge from a septic tank.

Supernatant liquor- The layer of liquid overlying the settled solids which have separated from it.

Desludging: Desludging refers to the process of removing the accumulated sludge or septage from the septic tank

Facility: Facility means any site or location where septage is handled.

Septic Tank: An underground tank that treats wastewater by a combination of solids settling and anaerobic digestion. The effluents may be discharged into soak pits or trench, and the solids have to be pumped out periodically.

Bio Digester: A bio digester toilet is an anaerobic multi compartment tank with inoculum (anaerobic bacteria) which digests organic material biologically. This system converts faecal waste into unstable water and gases in an eco-friendly manner.

Sludge: is the settled solid matter in semi-solid condition – it is usually a mixture of solids and water deposited on the bottom of septic tanks, ponds, etc. The term sewage sludge is generally used to describe residuals from centralized wastewater treatment, while the term septage is used to describe the residuals from septic tanks.

Faecal sludge is the solid or settled contents of pit latrines and septic tanks. Faecal sludge differs from sludge produced in municipal wastewater treatment plants. Faecal sludge characteristics can differ widely from household to household, from city to city, and from country to country. The physical, chemical and biological qualities of faecal sludge are influenced by the duration of storage, temperature, intrusion of groundwater or surface water in septic tanks or pits, performance of septic tanks, and tank emptying technology and pattern.

Septage Management: Septage Management refers to the comprehensive programme for managing septic tanks, bio digesters and the procedures for desludging, transporting, treating and disposing of septic tank content.

“Septage transporter”: Septage transporter means any person who engages in the collection, transportation, disposal of domestic septage.

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4. Purpose and Scope

The purpose and scope of these Protocols are:

- (1) To provide a regulatory framework for construction, routine maintenance of septic tanks and bio digesters; transportation, treatment and safe disposal of septage;
- (2) To prescribe the actions to be taken by the owners of the premises connected to septic tanks/bio digesters and septage transporters to ensure compliance with their obligations;
- (3) To provide for appropriate inspection and enforcement mechanisms;
- (4) To ensure cost recovery on a sustainable basis for proper septage management;
- (5) To facilitate participation of private and non-Government sector in septage management

5. Elements of Septage Management

- (1) Monitoring Committee
- (2) Cell for Septage Management
- (3) Identification of individual septic tanks, bio digester, Community septic tanks/bio digester
- (4) Creation of infrastructure for treatment of Septage
 - a. Collection of Septage
 - b. Transport of Septage
 - c. Treatment and Disposal of Septage

5.1 Monitoring Committee

The following Monitoring Committee shall be in place to monitor the activities related to septage management at timely intervals, as and when required-

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S.No.	Designation	Members
1.	District Magistrate	Chairman
2.	Mayor/ Chairman, ULB	Co Chairman
3.	MNA / Executive Officer, ULB	Member
4.	Representative from State Pollution Control Board	Member
5.	S.E.Jal Nigam	Member
6.	S.E. JalSansthan	Member
7.	Representative from Health Department	Member
8.	Representative from Town & Country Planning Department	Member

5.2 Cell for Septage Management

Septage Management Cell: State Government by notification shall direct to each urban local body/District Board to create a "Septage Management Cell" (SMC). The cell shall have the following members:

A. Nagar Nigam

S.No.	Designation	Members
1.	Municipal Commissioner, Nagar Nigam	Chairman
2.	Representative from Uttarakhand Jal Sansthan not below E.E.	Member
3.	Representative from PeyJal Nigam not below E.E.	Member
4.	Representative from State Pollution Control Board	Member
5.	Representative from Health Department	Member
6.	Other persons who may be invited to provide technical advice to the SMC	Member

B. Nagar Palika Parishad/Nagar Panchayat

S.No.	Designation	Members
1.	SDM of the concerned sub-division in which the NPP/NP is located	Chairman
2.	E.O., NPP/NP	Member Secretary
3.	Representative from Uttarakhand JalSansthan not below A.E.	Member
4.	Representative from PeyJal Nigam not below A.E.	Member
5.	Representative from State Pollution Control Board	Member
6.	Representative from Health Department	Member
7.	Other persons who may be invited to provide technical advice to the SMC	Member

Responsibilities of SMC: This cell shall be responsible for ensuring that the septage/effluent from individual or common septic tank and Bio digesters is collected and appropriately treated before its consequential safe disposal. The undigested partially digested waste of Bio Digester cell also be collected and treated before its safe disposal. The manure removed from the Bio-digester shall be distributed free of cost to the farmers around the area.

The SMC shall have power to impose the penalty to individual, government body or private entrepreneur to enforce the protocol.

5.3 Identification of individual septic tanks, Community septic tanks and Bio-Digesters

Identification of Septic tanks/bio digester: The SMC shall carry out the survey of all households within the area of action to collect and compile the data regarding sanitation systems such as individual septic tank, community septic tank and its method of disposal of effluent/septage. It shall also carry out the survey to have the record of each Bio digester in the ULB's area, either operated by individual or any private or Government body.

Location of Septic tank, bio digester: The SMC shall also record the location of common septic tanks with its ownership (e.g. Sulabh Shochalya), individual or institutional bio digesters. The SMC shall also update the information by recording the new constructed Septic tanks/Bio digester.

Registration of Septic tank, bio digesters: Every such household/institutions having septic tanks/bio digester shall be registered by the SMC.

The SMC shall ensure that the new septic tanks are design along with proper soak pits, planted filter etc. If any existing septic tank is without the treatment of effluent/soak pit from septic tank, the SMC shall direct the individual, government body or private entrepreneur to construct the method of treatment of effluent from septic tanks within an appropriate time otherwise the SMC shall impose the penalty.

Responsibilities of Owner: The owner of a premises connected to septic tank shall be responsible for its operation and maintenance and shall ensure that its parts and components are fit for purpose, operational where appropriate and kept in good order and repair so as to prevent a risk to human health or the environment.

The owner of a premises connected to septic tank shall at least once a year check for the sludge level so that the effluent shall not discharge, seep, leak or otherwise escape

from the septic tank, or part thereof into surface waters or onto the surface of the ground.

The owner of a premises connected to septic tank shall ensure that roof water or surface water run-off shall not enter a septic tank.

In case there is no ownership, SMC shall be the owner of common septic tanks. If the Bio digesters are constructed for community septage management, it shall be handed over to SMC for maintenance.

5.4 Creation of infrastructure for collection, transportation and treatment of Septage

5.4.1 Collection of Septage/De Sludging of Septic tanks

Though de-sludging frequencies vary, de-sludging of tanks will be done once every two to three years, or when the tank becomes two third full.

The owner of a premises connected to septic tank shall be responsible for informing the SMC for emptying the tank, as per the scheduled provided by SMC.

The de-sludging shall only be carried out by the septage transporters registered and authorized by SMC and as per the directions of the SMC.

Only mechanized vehicles shall be used for effective de-sludging and collection of septage from septic tanks. The mechanical tankers shall be used by the septage transporters to empty the septic tanks. Where such vehicles are not available or number is inadequate, the SMC shall encourage the private entrepreneurs to introduce new vehicles.

The SMC shall decide the time of cleaning of Septic Tanks etc. and shall provide the owner a chart in which the date of emptying of tank shall be recorded. A regular monitoring of Septic Tanks shall be carried out to determine this sludge levels in Septic Tanks. The SMC shall use proper method and equipments for monitoring the septic tanks to assess the effluent turbidity, sludge level in septic tanks. If the Septic Tank have enough space for sludge storage the emptying time of that tank can be enhanced.

5.4.2 Transportation of Septage

Registration: The SMC shall register and issue license to private entrepreneurs having mechanized emptying and transport vehicles. The SMC prior to issuing license shall ensure that these trucks have proper equipments and adequate safety measures.

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Protocol for Septage Management

An application for registration as a septage transporter and registration of septage transportation vehicle shall be made to the SMC. The SMC shall also motivate the private persons to engage in this activity.

No person/vehicle shall be engaged by the registered septage transporter in the collection, transportation and disposal of septage, unless it is registered as a septage transportation vehicle with the SMC under these Protocols.

Renewal of registration: The application for renewal of a registration shall be made by a septage transporter at least three months before the expiry of registration. Every renewal granted under these Regulations shall be for a period not exceeding three years.

Responsibilities of Septage Transporter

(1) The septage transporter shall be responsible for safe transport of vehicle to the approved treatment facility designated by the SMC from time to time.

(2) The septage transporter shall ensure that:

(a) the registered collection vehicle including all equipments used for the transport of septage shall have a leak-proof body and lock to secure the sludge and septage; comply with applicable standards.

(b) Any tank and equipments used to transport septage shall not be used for the transportation of any other materials or liquids;

User charges:

All owners of the premises connected to a septic tank shall pay a user charge for the desludging of their septic tanks and treatment of the septage, as notified by the SMC from time to time.

The SMC shall revise the charges based on revisions in costs involved from time to time. Such user charges shall include cost of desludging, transportation, treatment and disposal.

The SMC may authorize any person including septage transporter to collect user charges from the owners of the premises connected to a septic tank.

Monitoring of De-sludging: The SMC shall keep records of emptying the septic tanks. The owner/occupier of premises having septic tank shall have to maintain a chart,

Protocol for Septage Management

supplied by SMC, in this chart the date of emptying and next due date shall be recorded. The same record shall be maintained by the SMC.

The SMC shall make the monthly schedule of emptying. This schedule shall be decided on the basis of monitoring or time period as mentioned earlier. While preparing the schedule the following shall be considered:

- Each truck shall collect the sludge from the same or nearby localities.
- Based on the sludge volume, the number for cleaning the septic tank may be more than one and the charges shall be decided accordingly.
- The charges shall be decided as per distance of locality from the Septage Treatment Plant (SeTP).
- Movement of sludge carrying vehicle shall be decided as per traffic load.

Safety Measures

(1) The desludging shall be carried out using appropriate technology, equipment, safety gear and using operating practices which are in compliance with the CPHEEO Manual 2013.

(2) The septage transporter shall ensure that:

(a) all desludging workers wear appropriate personal protective equipment, safety gear and accessories including shoulder length fully coated neoprene gloves, rubber boots, a face mask, and eye protection as specified in the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013;

(b) all the safety equipment are operational before proceeding to a collection site;

(c) all desludging workers are trained to use the safety gear and on hygiene practices;

(d) first aid kit, gas detection lamp and fire extinguisher are kept in the vehicle before it goes to the collection site;

(e) smoking shall be prohibited while working at septic tank;

Protocol for Septage Management

- (f) desludging workers shall never enter septic tank and shall ventilate the covered tanks by keeping them open for sufficient period before starting the operation;
- (g) children are kept away and tank lids are always secured with screws and locks. The workers shall be cautious while performing desludging process as excessive weight on lid or manhole cover may result breakage;

5.4.3 Treatment and Disposal of Septage

Each Urban town shall have its own treatment unit. If there already exists any STP within 25 km distance, the septage shall be transported to the nearest STP otherwise a separate Septage Treatment Plant (SeTP) shall be constructed.

This treatment unit may be single or multiple based on the nature of urban population, existing provisions for sewage treatment etc. The treatment unit will be designed and constructed in accordance with the **CPHEEO Manual on Sewerage, 2013**.

It shall be promoted to engage private partners for construction and maintenance of STP/SeTP otherwise State Government shall make the provision of funds for the construction of new STPs/Septage treatment facility as well as the maintenance of all STPs/septage treatment facility. These STPs/septage treatment facility shall be constructed by Uttarakhand Peyjal Nigam or any other agency as directed by the State Government and the maintenance shall be carried-out by Uttarakhand JalSansthan or any other agency as directed by the State Government.

The construction agency shall construct the STP/septage treatment facility based on such technology which is cheaper in construction and maintenance. The construction agency shall also make the provision for the disposal/reuse of treated septage/sewage. These STP/SeTP should meet the norms as specified by the CPCB.

5.5 IEC and Capacity Building about Septage Management

Awareness program from time to time shall be run to teach the individual, government bodies or private entrepreneur about the proper construction technology of septic tanks, bio digesters, de-sludging of septic tanks, collection mechanism, transportation, disposal and the treatment of septage.

Regular handholding of the staff shall be done for monitoring of different activities for proper management of Septage.



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