

Forum for Inclusive and Resilient Sanitation in Hill Cities

Proceedings of the Consultation Meet
Held in Leh, Ladakh on 14th-15th July 2022



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We are also grateful to the Urban Development Directorate (UDD), Government of Uttarakhand for mainstreaming Faecal Sludge and Septage Management (FSSM) in Uttarakhand.

The deliberations and overall event was led by Mr. Hitesh Vaidya, Director NIUA; Dr. Mahreen Matto, Team Lead - SCBP, NIUA and Mr. Stanzin Tsephel, Regional Director, BORDA - South Asia with special support from Ms. Phunsok Angmo, Mr. Tenzin Mutup & Interns from LEDeG.

The collaterals were designed and prepared under the guidance of Mr. Deep Pahwa, Creative Lead, NIUA and his team.



Abbreviations / Organisations

 <p>Directorate of Urban Local Bodies, UT Ladakh</p>	 <p>National Institute of Urban Affairs (NIUA)</p>
 <p>Sanitation Capacity Building Platform (SCBP)</p>	 <p>Bremen Overseas Research and Development Association (BORDA)</p>
 <p>Ladakh Ecological Development Group (LEDeG)</p>	 <p>Advanced Center for Water Resources Development and Management (ACWADAM)</p>
 <p>Athena Infonomics</p>	 <p>Care North East Foundation</p>
 <p>Consortium for DEWATS Dissemination Society (CDD)</p>	 <p>Central Himalayan Rural Action Group (CHIRAG)</p>
 <p>Ecosan Services Foundation (ESF)</p>	 <p>Inclusive Development For Environment and Learning Foundation (IDEAL)</p>
 <p>Centre for Environmental Planning and Technology (CEPT)</p>	 <p>Himmotthan</p>
 <p>Indian Institute of Technology, Roorkee (IIT-R)</p>	 <p>Tata Institute of Social Sciences (TISS)</p>
 <p>HaritaDhara Research Development and Education Foundation (HRDEF)</p>	 <p>Jawaharlal Nehru University (JNU)</p>
 <p>Urban Development Directorate Uttarakhand (UDD)</p>	 <p>Keystone Foundation</p>
 <p>Pan Himalayan Grassroots</p>	 <p>Taru Leading Edge</p>
 <p>People's Science Institute (PSI)</p>	 <p>UPES University</p>

About the Consultation Meet

The climate crisis has already made its mark visible, and the recent Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Report clearly states that the water cycle is being affected, putting further pressure on provision of essential municipal services such as water and sanitation.

Himalaya, representing tectonically alive, densely populated, and one of the most marginalized mountain regions of the world has experienced rapid urban growth during the last three decades. The speedy and unplanned urbanization has perturbed the hydrological regimes of Himalayan watersheds and reduced groundwater recharge, and decreased the availability of water for drinking, sanitation and crop production; depleted forests and biodiversity; increased risks of natural hazards and disasters both in urban areas as well as in their peri-urban zones; and increased vulnerability of mountain inhabitants to water, food, livelihood and health insecurity. Moreover, climate change has stressed urban ecosystems by increasing the frequency, severity and intensity of extreme weather events. As in other parts of the world, urban growth cannot be stopped or reduced in Himalaya, but it can be steered in a more sustainable manner. Thus, it is imperative that urban centers located in these areas learn from each other, and adopt planning practices that are inclusive and resilient with the ability to mitigate and adapt to the climate crisis.

Given the specific challenges in urban sanitation faced in Himalayan region, NIUA proposes the setting up of a 'Forum for Inclusive and Resilient Sanitation in Hill Cities'. The purpose of the Forum is to bring together government officials and other stakeholders from states and cities to share their experiences with respect to Citywide Inclusive Sanitation (CWIS) and Integrated Wastewater and Septage Management (IWSM) with other cities of similar physiological and regional conditions and connect with sector experts through multi-disciplinary action research, knowledge & experience sharing and capacity building. The larger aim of the Forum is to facilitate peer-to-peer learning and help in developing solutions catering to the city's specific needs relating to varying geo-climatic factors and other contextual challenges.

As the first step towards the constitution of this forum, a two-day consultation meet was organized in Leh, Ladakh from 14th to 15th July 2022. The meeting was organised by NIUA in partnership with BORDA South Asia, in association with Directorate of Urban Local Bodies, Union Territory, Ladakh and LEDeG.

The aim of the meeting was to initiate a dialogue among practitioners, think tanks and academia working in the hilly region on Water, Sanitation and Climate Change to:

- Understand the gaps and challenges in different hill regions with respect to sanitation, septage management and climate change
- Identify the roles and responsibilities individual organizations can play within the forum
- Conceptualize and streamline the framework of the forum



DAY 1



Inaugural Session

Voices from the esteemed speakers



Tashi Gyalson

Chief Executive Councillor, Ladakh Autonomous Hill Development Council

- Mr. Gyalson shared experiences from Ladakh stating that climate change is real and evident from untimely melting glaciers, water scarcity and migration of rural dwellers
- All the mountain and hill states of India should collaborate and work together for the environment and for a better & liveable future
- Non-conventional thought processes towards planning and technology and its right implementation on ground are required. The forum should also focus on the implementation of new ideas and not only rely seldomly on conception.



Hitesh Vaidya

Director, NIUA

- Mr. Vaidya stated that the proposed Forum would offer hill states to come together and have a dialogue on mountain cities since there can be no standard size fit solutions for them
- It aims to scale up learnings from Uttarakhand, where a team under SCBP has been working with the state government on streamlining FSSM in the state
- The overall agenda of the Forum fits within the mandate of NIUA, which encourages peer-to-peer learning, research, knowledge management, policy, advocacy, and capacity building on urban development and management to address and develop sustainable, inclusive, and productive urban ecosystems in the country
- The need for the Forum should be established and challenges of sustaining the Forum to be addressed through series of consultation meetings.



Stanzin Tsaphel

Regional Director, BORDA South Asia

- Mr. Tsaphel proposed Forum for Hill Cities is crucial as it offers a platform for mountain people to talk to non-mountain people
- Mr. Tsaphel emphasised that the Forum was a need of the hour because usually mountain and its people are not included in the mainstream. The systematic exclusion of mountains has been real and pervasive because it starts from academics, think tanks etc. For instance, there is a general lack of mountain case studies for urban planning design and policies
- Recently, the GoI has taken up development priorities in the mountains. The Centre has put down their feet as these regions are sensitive from a national security point of view as well. This kind of forum of hill cities would certainly be helpful and thus supporting to the Centre since urban ministry is taking due diligence in the development of the region.



Dr. Ishey Namgyal

President, Municipal Committee, Leh

- Dr. Namgyal discussed the water crisis, climate change issues, extreme climatic conditions and its effects on the communities as unique challenges in Ladakh
- It is important to develop capacities of the officials to execute statewide programs efficiently and effectively.



Ravi Pandey

Superintending Engineer, Urban Development Directorate (UDD), Govt. of Uttarakhand

- Mr. Pandey reiterated the need to recognize that issues of sewerage, septage, solid waste etc. are very different in the hills than in plain areas
- Furthermore, often the much-talked about 'sustainability' factor is kept aside when it comes to implementing projects. Hilly areas are especially fragile and cannot support excessive construction load and rely on conventional technologies alone
- With the coming of policies like JNNURM, AMRUT etc. the shift has been happening from rural to urban, so the need to focus on urban-rural linkages is important.



Dr. Mahreen Matto

Team Lead, SCBP, NIUA

- Dr Mahreen Matto talked about the conceptualization of the Hill forum and thus setting the context for the need of a forum and consultation meet. Sharing a background about the water and sanitation management in the discourse of the Climate Agenda, she emphasized on the extreme seasonal events caused by climate change. Floods at the time of drought and vice-versa, thus intensifying the water cycle. On a larger discourse, the impact of climate change and urbanization pose significant threats to water and sanitation
- Water and sanitation management requires a shakeup and mindset change to integrate inclusion, diversity, equality, and multi-technology option to achieve SDG goals
- Based on the above context and NIUA's state engagement with the Government of Uttarakhand, the whole concept of developing a Hill forum has been articulated.



Tikender Panwar

Ex-Deputy Mayor of Shimla

- All mountains and hill areas are different and unique therefore, solutions can't be the same as plain regions or replicated everywhere. In continuation to this, land use plans should facilitate micro zoning of towns for better implementation of plans
- He quoted examples from Shimla stating high urbanisation of 200 thousand population and around 4.5 million tourists. This heavy populace load on any hill area or city calls for innovative but simple and unique solutions for such sensitive regions
- It is to be dwelled upon that cities are in transforming stage while adopting development models which are unsustainable
- Policies are not in conjunction with the ecology and communities. It is crucial to empower the communities so that people adapt to mountain realities and bring change for a better future.



Deepak Sanan

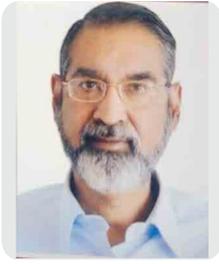
Retd. IAS officer

- As an initiative, this forum will facilitate mountain cities with similar geography but varied diversity to come together and begin a dialogue amongst each other
- The hill cities are generally small in size and have sparse populations. The governance structure of these cities must be studied prior to intervention
- It is important to focus on the political framework of these cities/states to understand the institutional structure
- Suggested that the forum should be owned by the cities or the state governments. The cities must contribute financially to build the forum together and have a sense of ownership. This is to avoid a top to bottom approach. Also, funding from external agencies/ organisations shall be avoided to operate the forum, they can fund the secretariat.

PANEL DISCUSSIONS

Panel 1: Policy and governance gaps in hill states with respect to water and sanitation

Panelists



Mr. Deepak Sanan

Retd. IAS



Mr. Tikender Panwar

Ex-Deputy Mayor, Shimla



Dr. Badrish Mehra

CHIRAG



Dr. Anil Gautam

People's Science Institute



Mr. Mohd. Imran Siddique

ACWADAM



Mr. Nikhalesh Pant

Himmotthan



Dr. Sanjay Gupta

CARE NE Foundation

Moderator



Dr. Uma Maheshwaran Rajasekhar

NIUA

Key Questions

- Challenges in the existing framework of policy and governance in hill states?
- What are the opportunities and how do we get there?
- What should the Forum prioritize in the next 1-2 years?



DISCUSSIONS

Key Insights from the Panellists

There is a need to include elements like geology, hydrogeology, botany etc. in city master plans, not just of hills but also of plains; at present these elements are missing. With hydrogeology of aquifers for example, if we do not map this underground resource, there is a huge gap in planning. The fantasy of concretizing reduces the recharge of groundwater, which in turn affects its availability for use. The strengthening of sources is missing in the policy initiatives, instead there is mere shifting from source to source. Village-level and community-based institutions are functioning well but require to be connected with the utility departments to ensure sustained functioning.

Sanitation cannot be dealt with- in isolation, it has to be linked with water as well. Since the last 4 years, post the NITI Aayog report in 2018, there is importance given to the water sources in the hilly areas especially the recharge areas. There is a need for on-boarding the right institutions and introducing a web platform to engage people.

Mr. Mohd. Imran Siddique,
ACWADAM



Continuing on the theme of water and sanitation linkages in the hills, Mr. Pant spoke about how the greatest threat to water quality in the Himalayan region came from faecal contamination, upto 100 times over the stipulated standard. The ODF status will not be complete until water sources are free from faecal matter. The core recharge zones should not have sanitation construction in order to reduce contamination of the sources. The shallow aquifers of the hills are more prone to contamination. There is a need to incentivize WasteWater and Sanitation Committees for long-term sustainability.



Mr. Nikhalesh Pant,
Himmotthan



The data gap with respect to water resources like springs is the basic challenge. It is important to locate the sources and identify their status. There is a high rate of drying of sources. While analyzing one century of data for the towns of Almora, Bageshwar, Nainital etc., it was found that rainfall has gone down by 23%. It was only in 2018, that the first policy document was formulated for springshed management, and it is not yet translated to on-ground implementation. The basic understanding of springshed is absent. The knowledge is not transferred to people on how to identify and delineate it. For any policy intervention, align thought processes. It is essential to transfer the knowledge to the community. Involve the community from the beginning including the baseline formulation, what we are doing and how it is being done. In this way, the community gets driven even without any investment.

Dr. Badrish Mehra
CHIRAG



When we talk of sanitation, we cannot separate it from water, they are closely interlinked. Mountain springs, often considered the 'purest' are contaminated by faecal coliform- 80-90% springs in Uttarakhand and 60% in Nagaland, as per People's Science Institute studies. In a study on sanitation practices in catchment areas in Almora, we found contamination associated with different types of sanitation as follows - sewage > soak pit > septic tank with soak pit.

It is to be noted that policies are formed well, but implementation falls short. For eg. Village Water Sanitation Committees are mandated in policies for community management of water and sanitation, but in reality, they are either non-existence or non-functional in most cases. The departments in the water and sanitation sector also lacks inter-departmental coordination. The opportunities include: 1) taking the impact of ODF as the measure of the quality of water sources, 2) Creating an inventory of all sources of water. There is the Har Ghar Nal scheme which gives an opportunity to focus on smaller sources going into disuse, and the lack of inventory of sources. Smaller cities becoming big towns- planning for them is essential. For this to be achieved institutional mechanisms have to be strengthened.



Dr. Anil Gautam,
People's Science Institute

The lack of effective enforcement of policies and the need for emphasis on implementation is the real gap. For eg., Municipal Solid Waste rules are not implemented well on ground. In Shivsagar, Assam as per the data reported there is 100% door-to-door, 100% segregation, however on-ground check shows only 3 collection vehicles and no composting or treatment/disposal mechanisms. Secondly, the policies formulated lacks strong credible data support. DPR analysis: It was seen that the company that prepared the DPR also supplies the items. The community participation is not supported by the government. The local government is not equipped to handle or implement the policies. The opportunities lie in advocacy and enabling the people to demand accountability.

Dr. Sanjay Gupta,
CARE NE Foundation



“The focus of approach of this sector has mainly been centered on finance, technology and capacity. As a result, the people are accepting of sub-optimal service delivery. There is a need for a more accountable and decentralized system. The policies fail to identify and address the constraints, this is not sufficient. Policies should be upfront about the issues they are addressing; and a good policy identifies the constraints that it is seeking to address.

What does the political economy say – everything is top-down; there are two elements to top-down. One is mentioned already. The second top-down is that we are reviewing things only from the perspective of schemes and programs, and with a view to tick off their indicators. In sanitation, we are not knowing about the generation of blackwater. There is a lack of use of tools like SFD, only thumb rules are used to decide on the calculations. In solid waste management, do we have an idea of component-wise break-up? What happens after segregation? The goal is not collection or segregation, it is disposal of each stream of waste in a safe manner. To change this top-down approach, the desire or need has to come from the people. For example, ODF is not about the dignity of the people, it is about safe health. It is about the community saying what they require rather than providing something that is decided by the government. Only with such an approach, it would become the people's problem and thus result in a sustained effective solution.”

Mr. Deepak Sanan
Retd. IAS



“Taking the story of Shimla, there is large state control where the work is mostly done by parastatal bodies who are not answerable to local government or the people. There has been a shift from state control to privatization of the services such as water supply. If water is a right it needs to be handled by the government and if it's a need then can be handled by private. Just handing it over to community and expecting to take over is not feasible especially when the plans are made by one agency and implementation by a parastatal.

The opportunities lie in building people's involvement. The opportunities are the ward sabhas. In Shimla, unless the plans were approved from the ward sabha, it was not passed. This ensured people participation. If the 10% of the money generated from the ward goes back to the ward sabha, this can support them but it can be continued only if people own it.

The proposed Forum should be restructured to be more people-oriented. This requires more city participation, not just as a participant but as board members.



Mr. Tikender Panwar
Ex-Deputy Mayor of Shimla

Major Takeaways

- People-led approach to be encouraged
- Strengthening of baseline data leading to informed decision making
- Need for Advocacy





PANEL DISCUSSIONS

Panel 2: Strengthening city-level service delivery for sustainable water and sanitation in hill cities

Panelists



Shrawan Kumar Acharya
Jawaharlal Nehru University



Dr. Saswata Bandhopadhyay
CEPT University



Ms. Vinitha Murukesan
Keystone Foundation



Mr. Ayush Joshi
IDEAL Foundation



Mr. Bhitush Luthra
Athena Infonomics



Mr. Jay Shah
Taru Leading Edge



Mr. Ananat Bhaskar Garg
Haritdhara

Moderator



Dr. Uday Bhone
NIUA

Key Questions

- How decentralized, inclusive and equitable planning for services in a hill city is different in terms of topography, geography, climate and density. Nature of challenges faced during the process at various levels.
- Issues and challenges in hill areas with respect to service delivery of water and sanitation.
- Opportunities in terms of planning for water and sanitation service delivery especially in different settings of urban areas of a hill state.



DISCUSSIONS

Key Insights from the Panellists

WASH is a regional issue. It must not be seen and dealt with-in isolation at city level. Small towns should get proper focus even those ones which are not acknowledged by census as an urban area. The problem of water and sanitation is related to agro climatic issues. Darjeeling and Sikkim have been identified as eastern himalayan agro climatic region. In the north east, there is a problem of water supply but the situation of sewerred sanitation is very good, infact, it is a lot better than many other states in the country. One of the main reasons behind this is cultural practices. Cultural practices have a lot to do with how a city is performing. It also has a cultural dimension attached to it. Eco-tourism can be a big threat for WASH especially in hill cities. The forum should critically analyse the current practices and evaluate the alternatives. Also focus should be given to innovative ideas.

Prof. Shrawan Kumar Acharya
Jawaharlal Nehru University



Hill areas like Nilgiri have a lot of exploitation of natural resources and forests with tourism activities coming in. Development is decreasing forest cover and resources are getting contaminated including water sources. Authorities should take responsibility to check the root cause of contamination. In hill areas, predominantly containment type is deep pits. This contaminates the water resources. In tribal hill areas, there are no contaminants as such due to geographic conditions. Toilets are recently constructed under SBM but since they are not connected to any containment system it leads to not using the toilet at all. Access to toilets is there but not in usable condition. Mechanical desludging is cost intensive thus manual scavenging is quite common in such areas. There are frequent human-wildlife clashes in tribal communities. Concerned government departments work in isolation. If all the bodies work together, many such issues can be addressed.

Capacity building of indigeneous groups should be done to ensure they are aware of their needs. Also, traditional practices and knowledge of these groups should be documented.



Ms. Vinitha Murukesan
Keystone Foundation



Forum should be more work based instead of saying it is a forum for water/sanitation. It should be inclusive and resilient and then it can have sub groups focusing on different aspects. Sustainability of the forum itself is crucial. Participation of not only citizens but all the stakeholders is important to create a win-win situation. Instead of thinking of water and sanitation as only service delivery subject we need to link more spatially and with governance aspect. Economic geography of cities should be kept in mind. Urban planning in India is deeply interconnected with the political economy of land. Silk route is an example of economic connection in hill cities. Thus, water and sanitation should also be viewed with spatial planning and urban governance point of view. Focus should be on implementation of policies, community participation and citizen ownership. It should become a people's program.

Dr. Saswata Bandhopadhyay
CEPT



Public health is directly related to water and sanitation services. Focus should be given to data building and most importantly, data sharing. Data is there but its proper dissemination among those who may need it is required. We need to work on the credibility of data simultaneously.



Mr. Anant Bhaskar Garg
Haritdhara Foundation

In hill areas, topography adds to the cost of operation & maintenance, which is most challenging. For eg., water is fetched from a far located source. The cost of laying a conventional service delivery system in such situations becomes very high due to difficult terrain.

Mr. Jay Shah
Taru Leading Edge



Contamination of ground water/ rivers through various sources like nallah/ pits need to be checked at priority. Involvement of local people in achieving this is very important and authorities need to be more sensitive towards the subject. Every peri-urban area in Uttarakhand has at least 200 discharge points of sewage, solid waste, etc. To get easily rid of the waste, most of the dumping sites are on river banks so that it gets washed away in the rain or it is burned. Floating population is not taken into account while planning for sanitation services. Although it is extremely crucial in hill areas. In Uttarakhand, basins of the rain fed rivers are used by the tourists to defecate due to lack of any proper facility in the tourist route.



Mr. Ayush Joshi
IDEAL Foundation

It is crucial how we define CWIS. For WASH activities, the framework should include equity and sustainability. CSP talks about infrastructure delivery but we need to go beyond it and talk about service delivery as well. Currently cities create database. Credibility of data is very important. Government funding should be there for data creation. Data collection is still a top down approach.

There is no one size fits all formula when it comes to service delivery models. There are many other factors beyond infrastructure and O&M like tariff, resource recovery, business models, regulations, complaint redressal systems etc. which can impact the service delivery. Infrastructure is constant but many other aspects can be worked on to ensure people get better service and everyone is covered. Demand should always come from the city. City Sanitation Task Force (CSTF) can be a good method to achieve that. The city should decide what is good for them.



Mr. Bhitush Luthra
Athena Infonomics

Major Takeaways

- More inclusive and resilient approach needed. Regional inclusivity and stakeholder involvement is crucial
- Citizen ownership is necessary
- Conservation of natural character of hill
- Coordination among various concerned government bodies
- Creation of credible data and sharing of data is important





DAY 2



PANEL DISCUSSIONS

Panel 3 - Technological Interventions in Water and Sanitation in Hilly and Mountainous Regions

Panelists



Stanzin Tsephel
BORDA South Asia



Dr. S. M. Tauseef
UPES



Snehit Prakash
BORDA-South Asia



Krishna K
CDD Society



Saurabh Kale
ESF



Ms. Urjita Sharma
Pan Himalayan Grassroots Foundation

Moderator



Manas Rath
BORDA South Asia

Key Questions

- What is the context in which technology works? (the ecosystem in which a technology is successful or unsuccessful)
- Is there sufficient R&D done for the hilly areas specifically in terms of WASH?
- How can technology fit into the agenda and the priorities of the forum going forward?



DISCUSSIONS

Key Insights from the Panellists

“Extraordinary problems require extraordinary solutions. There is a lack of academia and industry interaction. Technology is not a solution by itself; it gives us the time to rethink and redesign our models to a more efficient one. We always tend to build into nature. Instead, we should try to build nature into our work. Technology does have its limitations; its success or failure of it depends on how we use it.”

Dr. S. M. Tauseef
UPES



“The Leh FSTP began with a site visit to the first FSTP in Devanahalli, Karnataka by the government officials of Leh in 2017. They believed FSSM could be a temporary solution for Leh till the sewage lines were set up. In 2017, conversations started in February and construction started in June within six months and by August 2017, the FSTP plant was operational in Leh. It resulted in increased desludging from 10 to 150 establishments, annually. It is a public infrastructure running for the past five years with a recent response time. This has also reduced the public nuisance and reduced manual scavenging.”



Mr. Snehit Prakash
BORDA



There is less awareness about the solutions available in the hilly areas. The diffusion of knowledge is also less in hilly towns (although, Uttarakhand is an exceptional example of good FSM practices in the hills). There is a good intention, but it is not turning into action in most cases. More effort is required from the practitioners to reach out to these places. The nature-based solutions can work, at least to primary and secondary treatment levels in wastewater management, even in cold areas (basically anaerobic systems). The technical aspects like retention time will be off by 30-50%; hence these aspects are to be considered while designing along with high O&M cost. For the tertiary treatment a more hybrid solution needs to be adopted, it might take the O&M cost on the higher end but given the fragile ecosystems of the hills a more sustainable technology needs to be adopted.

Mr. Krishna Swaroop
CDD Society



The engineers push back while working in the hills. Mostly stating it won't work in the hills, as just an excuse. While various international places with even colder climates have adequate systems, it is not impossible for us. It is not economically viable for the practitioners to reach out to each hilly town as they are located far away, and access may also be difficult in remote areas.

The forum can help in bringing all these towns and concerned stakeholders together. Academic institutions should also deliver better engineers to focus on new and suitable solutions. Change in the mindset needs to be made, multiple solutions to one problem must be identified instead of merely looking at one solution.



Mr. Stanzin Tsaphel
BORDA

There are different interfaces in Eco San, with Urine Diversion Dry Toilets (UDDT), tiger toilets, etc. These systems are sustainable. There is a changing behaviour for using toilets in Leh, shifting to flush toilets to serve tourism. In Peru, urban areas have NGO's that provide service and take the liquid and solids separately, converted to manure, and sold. We can adopt Eco-San toilets without the need of desludging in the difficult terrains. Tourists may find using traditional toilets difficult and hence the locals resort to a newer or modern toilet technologies which are not as sustainable as the traditional ones.

Even the hotel flush toilets currently don't have any water-saving features. We need such features in water-scarce hilly areas i.e. adopting traditional technologies for sustainability. IEC is required for behaviour change.

Mr. Saurabh Kale
Ecosan Services Foundation



All our pilot works are based on nature-based solutions- a sit focus on ecology and people participation. People are alienated in front of new technology when they are not involved. Technology transfer is supposed to be a process where they live and need. It must involve three steps: 1. Develop need based assessment, 2. Setting of pilots & systems (with community engagement) and 3. Implementation.

For eg. If water is not present, they have to understand that they have to save it, and they need to be exposed to the technology, and further, they need to take it forward. They are not just imposed on them. They have to learn and take care of the O&M, only then it will be self-sufficient. The people accept the technology in this process and with slight support from organizations it helps to take it up. Understand need-based assessment of technology.

Another example, there was a technology that was implemented to convert moisture from air to water, but no one had any idea what to do after 6 months when it stopped functioning. Covid hit and the team couldn't help from the backend. The team could not fix it post 3 years of functioning and they said it can't be fixed but we have new technology, and we can implement this. The team was ready to place it in the remotest place, where it couldn't even be done due to the structure present in these areas. Thus, lack of understanding of the context by technology provider leads to failure of a particular technology.



Ms. Urjita Sharma
Pan Himalayan Grassroots Foundation

Major Takeaways

- Need for focused research and development programs for hill regions
- Technology should not be imposed on the hills but rather should be introduced while being sensitive to how people will understand and use it
- Adopting traditional technologies in the hills for ensuring sustainability
- Need based assessment and community engagement

Participating Organisations



Breakout session

Value proposition of the hill forum

Overall objective of the break-out session was to facilitate brainstorming in three smaller groups among the invited participants of the Meet as regards to the proposed Forum for Inclusive and Resilient Sanitation in Hill Cities – structure, functions, roles & responsibilities and thematic areas of work.

Key Questions

- The Goal of the forum, say at a span of 2-3 years.
- To discuss on the proposed structure and operationalisation of the forum and need to improvise it
- Which are the other similar hill cities alliances that have been up and running, if any, that the forum should be aware of
- What are the different options for ensuring financial sustainability of the Forum?
- Suggest an attractive name of the forum



Key Insights and suggestions received at the discussions

Overall objective of the break-out session: To facilitate brainstorming in three smaller groups among the invited participants of the Meet as regards to the proposed Forum for Inclusive and Resilient Sanitation in Hill Cities – structure, functions, roles & responsibilities and thematic areas of work.

1. Goals of the forum

The goals of the forum were discussed among all the groups and it was considered that the primary goal of the forum shall be to 'make hill cities to be inclusive and resilient' by bringing together state and non-state stakeholders. The instruments to attain the goal can be through knowledge sharing, convening networking workshops from time to time, evidence based research for advocacy, data repository, supporting in developing policies and guidelines and monitoring and evaluation of the development.

2. Structure of the forum

The proposed structure in the concept note was well acknowledged by the groups. The role of the secretariat (NIUA) should play a critical role in bridging the gap among elective, administrative and other stakeholders of the city. The groups reiterated the panel discussion and emphasized largely to have a dedicated cohort of the city's elective and administrative representatives into the forum. The forum should be driven and owned by cities. It can have four verticals: Institutional, Individuals, NGOs, and Academia.

3. Operationalising the forum

Under the operationalisation of the forum, it was discussed that the thematic areas of the forum should be manifested-like springshed development; analysis of policy; knowledge management and dissemination. The forum should have distinct and outcome based activities which should have timeline and specific targets. The activities should be with regard to data collection; analyse data for qualitative and quantitative analysis of the situations, advocacy and; implementation of projects at Model/Pilot scale. The forum should have meetings and conferences to communicate ideas of the forum to cities.

It was discussed and suggested that, to have multiple consultation meetings with cities and experts and identify all the potential stakeholders of the proposed forum, once there are concrete ideas and buy-in for the forum, then move ahead in setting roles of all the stakeholders. This will give prior knowledge about the city/states for better output before officially launching the forum.

4. Similar forums

Sustainable Sanitation Alliance- Knowledge Sharing; Climate Alliance; River City Alliance; Spring initiative (north east states); Spring management consortium; Participatory Groundwater partners (Training & capacity Building; Action research; advocacy); City managers' association; Maharashtra urban WASH & emergency coalition; NFSSM alliance; GAIA - Global Alliance for Incineration Alternatives

5. Financial sustainability

Regarding the financial sustainability of the forum, it was discussed that the cities shall contribute financially in building the forum. NIUA as the secretariat of the proposed forum should have a budget in their annual plans. State funds can be explored for carrying out activities and meetings. Donors/bi-lateral agencies can be looped in the forum so that their objectives are aligned with the forum's programmes. Another suggestion that came from the groups was to have membership subscription basis fees from the participating organisations.

6. Suggest an attractive name of the forum

- High Flyers of India (HFI)
- City Forum for Inclusive and Resilient Mountains (C-FIRM)
- Mainstreaming Inclusivity and Resilience in Hilly Cities (MIRHC)
- Resilient Urban Hill Forum (RUHF)

Site Visit

Leh Faecal sludge treatment plant (FSTP): The FSTP with a treatment capacity

The FSTP with a treatment capacity of ~12m³/day consists of Planted Drying Bed (10 units), Horizontal Planted Gravel Filter (2 units), and a Polishing Pond (1 unit). The planted Drying Bed Technology was being used in India for the first time in this project. The plant works on a Gravity-based system, using natural and biological treatment, without chemicals or electricity. This plant was designed by BORDA and CDD Society and executed by MCL and Blue Water Company (O&M as well), a sanitation service company that provides end-to-end Faecal Sludge Management Services.

Leh legacy waste processing site

The legacy waste site is located at Bombgarh, near Diskit Tsal between the mountains. The site has been used for the dumping of garbage for the last 20 years. The waste is spread across an area of 114906 Sqm with a height varying from 0.5 to 8m. To manage the legacy waste, biomining was initiated in July 2022 using auto-feeding, conveyor belts, and 3 trommels (90-100mm, 30-40mm, 8-10mm). The waste is being segregated into fine materials, RDF, C&D waste, and recyclables. The project has already cleared out 40k tonnes to date and plans to clear the entire area by end of the year.



Loo-café

The café is located near the main market, where the tourists and locals face a lot of trouble in finding clean and safe public toilets. It is an all-in-one café, sales outlet, and all-weather public toilet built in an eco-friendly way using local techniques and knowledge of architecture with insulated walls and mud plasters. The public toilet remains functional throughout the year as it is constructed using the passive solar building technique that uses the sun's energy for heating to keep it warm even in sub-zero temperatures. The public toilet has been designed for males, females as well as the specially-abled. The Loo-café also has handicrafts and café section run by the NGO-PAGIR, who takes care of the O&M of the toilets, making it a sustainable business model.

Pedestrianisation in Leh market

Leh Market is an ancient market dating back to the 15th century, the era of King Singe Namgyal, The Market today is one of the main attractions of Leh City. The market area has been completely pedestrianized, since 2014. There are continuous stretches of paved walkways along the sides, and benches along the center for the people to rest. The market area is also well lit and has various shops for souvenirs, cafes, local vendors, etc that attract an active crowd of locals and tourists that makes the place lively.



Key output of the Consultation Meet

- Realisation of the absence of urban forum in hilly regions collectively echoed. Emphasis on creating a forum which is owned by the cities, has people's involvement, inclusive and sustainable in nature and provides technical know how on infrastructure which impacts livelihood
- A network of around 25 participating organisations working in the Hills has been created. Establishing contact with more such organisations is underway
- Uttarakhand representatives appreciated the engagement of NIUA with the Uttarakhand government. Also, they acknowledged the cohort of the consultation meet and to host the Uttarakhand based organisations in all the relevant future state level deliberations
- A successful networking event with inter-disciplinary experts who presented their views and concerns on evident climate change impact in the water and sanitation sector in hilly areas. Need for series of such consultation meets with varied stakeholders before launching the forum
- Identify a model city related to climate resilience and sanitation nexus; to generate evidence and amplify the learnings in other cities based on 'One size doesn't fit all' and "what works where'.





ABOUT PARTNERS

The **Directorate of Urban Local Bodies Department**, Ladakh facilitates better co-ordination and control on the working of municipalities in the State. The department is also facilitating administrative, technical, and financial assistance to the Municipalities in UT Ladakh which includes Leh and Kargil. The Department was established to give impetus to the 74th Amendment of the Constitution and to lay a solid foundation for the Urban Development in the UT of Ladakh. Over the past years, Ladakh has experienced rapid economic growth. This has led to a rapid rise in their urban population. The 74th Constitutional Amendment Act of India lays the foundation for a sustainable Urban Governance System in the Country. While the national governments pursue the goals of economic development, it is generally left for the local governments to manage the rapidly growing urban areas, and to provide the basic services to the residents. In India, Urban Local Bodies are the constitutionally provided administrative units, who provide basic infrastructure and services in urban areas i.e cities and towns. The DULB along with the Municipal Committee of Leh and Municipal Committee of Kargil strives to improve administration of basic civic amenities like water supply, drainage, public health and sanitation for urban areas in Ladakh and also housing, Urban livelihood and Urban development. The functions include planning, policy formulation, tendering and support in implementation across all urban development matters.

Bremen Overseas Research and Development Association (BORDA) founded in 1977, is a civil society expert organization focused on providing essential public services. BORDA South Asia, headquartered in Bangalore, operates in four countries: India, Bangladesh, Bhutan, and Nepal. In India, we are carrying out projects in Ladakh (Leh and Kargil) and Karnataka (Chintamani and Chikballapura). BORDA-SA partners with organizations to help design and implement integrated water and solid/liquid waste management plans focusing on small and medium towns. We aim to improve the living conditions of socially disadvantaged groups by facilitating access to basic needs services such as sanitation, wastewater management, and water provision while maintaining a safe environment.

Ladakh Ecological Development Group (LEDeG) has been in service of the people of Ladakh since 1983. LEDeG is a grassroots organization that has been working in the fields of sustainability, renewable energy, climate change, and rural livelihood development since its inception. Over the last three years, however, the organization's focus has shifted from rural to sustainable urban development. The boom in tourism over the last couple of decades has come at the cost of environmental degradation; this is especially true of Leh town, Ladakh's largest urban settlement. With this specific urban focus, two of our ongoing projects are dedicated to improving water and sanitation services in Leh and Kargil town.

ABOUT NIUA

National Institute of Urban Affairs (NIUA) is India's leading think tank on urban planning and development. NIUA's Sanitation Capacity Building Platform (SCBP) aims to address urban sanitation challenges in India, through capacity development of stakeholders in urban sanitation. This can facilitate improved delivery of sanitation services through implementation of citywide inclusive sanitation approach and adoption of non-sewered sanitation, including Faecal Sludge and Septage Management (FSSM). Through its experience and learnings over the past five years, SCBP has developed a normative framework for states on mainstreaming non-sewered sanitation. To deliver proof of concept of this framework, SCBP is working in Uttarakhand and providing capacity building, technical, and policy & advisory support on Integrated Wastewater and Septage Management (IWSM) at the state and ULB levels.



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