Factory-made, easy to ship and install, min. onsite work, structurally safe and scalable
Made of pre-cast reinforced cement concrete (RCC), standardised production, regular quality checks
Can be connected to existing sewage line, or CAYA’s on-site waste management units
Pre-cast RCC waste management units include septic tank & bio-digesters

Modular panels can be shipped anywhere and assembled on-site
Community complex, divyang-friendly toilets with support bars, ramp, and suitable seat
Double-storey toilets for space constrained areas

Operations & maintenance by professionally trained Swachhta Sainiks
Community outreach through customised IEC campaigns
Inviting partners for BoT model for public toilets & B2C for household toilets

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Anchor Container Services Private Limited


Corporate Profile

- Anchor Group was established in 1989 and incorporated in 1998. We started our journey with manufacturing, M&R and modification of ISO containers for close to two decades before diversifying into manufacturing of Bunkhouses, Site Offices, Porta cabins & Security cabins, Prefab Building, Fiber Allied Products made out of Containers, PPGI, PUF Panel, Fiber, Cement Fiber Board etc., and allied products like fiber tank, fiber dyes & fiber roofs. We also have expertise in fabrication of wagons and assemblies and other structural fabrication.

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WASH Transforming Urban Sector in India

Water, Sanitation and Hygiene (WASH) are among the three most significant factors directly linked to the quality of life in the urban areas across the globe and Indian cities are no exception. Given the sheer number of people living in Indian cities, 377 million at the last count—and growing rapidly with every passing moment—it becomes vital for us to double our efforts towards making WASH available to all. But the situation is far removed from reality, as the latest survey by NSSO indicates that only 56 percent of India’s urban population has access to piped water and 12 percent of the urban population still defecates in open. However, the situation is rapidly improving with the Government making important interventions on the policy front. Many initiatives have been undertaken in the past few years and an ecosystem is being developed to promote the culture of innovation in the WASH sector.

It is in this context that the National Institute of Urban Affairs (NIUA) in association with Elets Technomedia Private Limited has organised the National WASH Innovation Summit in New Delhi. The summit provides a unique platform for entrepreneurs, including startups, to showcase their innovative products and solutions to solve the WASH riddle for the country. The summit is expected to act as a catalyst to provide momentum to the innovation ecosystem and contribute to resolve the pressing issues in the WASH sector.

This special issue of e-Gov Magazine has been launched to highlight the key features of IHUWASH project, its components, the impact it has generated so far, and its future course of action.

Our cover story, ‘WASH innovation Emerging Trends in the Urban Sector’, highlights a number of innovations that are slowly but surely changing the WASH sector for good.

The special issue also carries an overview of the SCBP project initiated by National Institute of Urban Affairs (NIUA) to improve the urban WASH sector.

In an insightful interview included in this issue, Professor Jagan Shah, Director, NIUA has shared his views on various WASH innovations.

One of WASH Accelerator Labs is working in Udaipur. Siddharth Sihag, Commissioner, Udaipur Municipal Corporation has given an overview of the WASH Lab and how it is helping various private players working in the WASH segment.

This issue also covers in detail the perspectives of Professor Shamsundar, WASH Chair, Wash Innovation Lab, NIE, Mysuru; Dr DK Chadha, WASH Chair, Wash Innovation Lab, Manav Rachna International Institute of Research and Studies, Faridabad; Aditya Tejas, Senior Programme Manager, Ennovent; and Rahul Sachdeva, SCBP Project, National Institute of Urban Affairs, New Delhi.

The story, ‘Sanitation in India–Key gap areas and innovative solutions’, talks about the various challenges of the wash sector.

I hope this issue will present new perspectives on the WASH sector and prove to be an exciting read for our readers.

Looking forward to the invaluable feedback from our readers.
WASH Paving Way for Resurgent India

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**For Queries Contact:** Chandan Anand +91-8860635836 | E-MAIL: kumarchandan@elets.in
There is a need to realise the significance of water, sanitation and hygiene (WASH) in life collectively than viewing them as separate entities. It is so because they are inter-related, with one influencing the other every day. The endeavour to bring much-needed transformation in the country is being brought by the National Institute of Urban Affairs (NIUA) with the support of USAID and project partner Ennovent, observes Sandeep Datta of Elets News Network (ENN).
It is significant to remember that urban India's population is growing at the annual rate of 2.1%. By 2050, India is likely to add 416 million urban dwellers to the world's urban population, which will be about 58% of the total global population, according to an estimate stated in the UN Department of Economic and Social Affairs Report (2018).

The increasing need for water and sanitation services in the growing urban settlements presents critical challenges.

It is estimated 1,00,000 young lives are lost annually due to poor sanitation and hygiene facilities. Moreover, the Indian economy loses nearly $54 billion annually due to inadequate sanitation and its adverse effect on other sectors such as health, environment, tourism, etc.

Some of the pressing issues related to sanitation include the lack of adequate infrastructure (sewerage networks and treatment facilities), non-compliance with national standards of waste management, and inequitable distribution of WASH services affecting the urban poor.

It has been observed that the inadequacy of facilities largely affects the inhabitants of slums, informal settlements and illegal colonies, with women being the most affected lot.

Moreover, poorly planned and managed systems (public toilets) are mostly supply-driven. They are oriented towards asset-creation rather than service delivery. As a result, they fail to meet the benchmarks of service quality, efficiency and cost recovery.

**The Big Challenge**

With the steadily expanding size of the Indian cities, there is an influx of floating population that arrives in cities for livelihood or work purpose and tourism. These people, most of the time, face difficulties in accessing sanitation facilities.

The inadequacy is not only prevalent in the work environment of daily labourers, but also during their commute to work from peri-urban areas to the cities; travellers out for sightseeing; local residents commuting for various purposes. Women, who also form a major part of this moving population, suffer a lot due to lack of public sanitation facilities.

There is a vital need to address it, as it inadvertently leads to open defecation. Such challenges require solutions with an innovative edge at the local level essentially implemented by the urban local bodies.

**Need of the Hour**

The need of the hour is to bridge this gap with an inclusive ecosystem within existing working framework that can accommodate innovative solutions for the urban WASH challenge; while considering future of these ever expanding cities.
Urban WASH’s Challenges and Need for Innovative Solutions

Rapid urbanisation, along with growth opportunities, is giving birth to multiple challenges for cities in India, one of them being accessing clean water, sanitation and hygiene (WASH) for all.

There is an acute shortage of WASH infrastructure and services in the Indian cities. It is only making the issues more glaring. Hence, it is crucial for the city administrators to make steadfast efforts, and implement best practices and models to resolve these pressing concerns before they aggravate further.

In this light, as a measure to address these problems, the Government has launched flagship missions such as Swachh Bharat Mission (SBM), Atal Mission for Rejuvenation and Urban

Key Measures to Provide Succour

To address the above challenges, the Government has launched flagship missions such as Swachh Bharat Mission (SBM), Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and Smart Cities Mission.

However, to sustain the efforts through these missions and be cognizant of the future landscape of issues of urban India, adopting innovative technologies and solutions for provisioning of water and sanitation needs to be a plausibility factor.

NIUA And the WASH

The National Institute of Urban Affairs (NIUA) is a premier institute and an autonomous body under the Ministry of Housing & Urban Affairs, Government of India for research and capacity building in the urban sector. Its primary goal is to promote integrated solutions for rapidly growing urban centres in the country, and address various challenges they face to provide improved services to citizens.

Over the years, NIUA has also been supporting a number of urban local bodies through its capacity building programmes, conducting research for specific urban issues, and creating knowledge platforms like Smartnet. The experience helped NIUA learn that at the city level the intra-departmental coordination and engagement with all relevant stakeholders to augment efforts for provisioning of clean water and sanitation facilities for the citizens are rare to find.

NIUA has been actively engaged in addressing WASH focused issues through an array of projects, and has worked towards developing new research and expertise for supporting effective innovations in the urban WASH sector.

Role of IHUWASH

The Innovation Hub for Urban WASH Solutions (IHUWASH) is creating an ecosystem to addresses the challenges of urban WASH sector by engaging multiple stakeholders from the public and private sectors, civil society organizations, urban local bodies, academic institutions.

The NIUA, a premier research institute under the Ministry of Housing and Urban Affairs, is implementing the project in partnership with Ennovent. The project is supported by United States Agency for International Development (USAID).

IHUWASH Project to Benefit India’s Urban WASH sector

NIUA conceived the IHUWASH project, which
primarily focuses on scaling and replicating localised solutions and work as an ecosystem.

NIUA with the support of United States Agency for International Development (USAID) endeavoured to create an Innovation Hub for Urban Water, Sanitation, and Hygiene (IHUWASH) solution in India. During its inception stage, the hub focused on understanding the local WASH needs of the cities and identify innovative solutions—new and existing—that are relevant to the local context.

The idea was to adopt business models and best practices, and replicate them in the local context. The solution may not be the same for each city, as it would differ depending on their needs. Hence, it was essential to create an ecosystem to support that replication and scaling of solutions. The IHUWASH project has a very important dimension, which is provisioning of innovative public and community toilets.

**It is crucial for the city administrators to make steadfast efforts, and implement best practices and models to resolve pressing concerns before they aggravate further.**

**IHUWASH -- The Roadmap Ahead**

IHUWASH in its focus cities of Mysuru, Udaipur, and Faridabad has created City Innovation Hubs within the municipal corporations under the guidance of the city commissioners.

The municipal corporations with IHUWASH facilitation have collaborated with local technical institutions to create WASH labs that support the municipal corporations in implementing the innovative WASH solutions.

The National Institute of Engineering at Mysuru, Geetanjali Institute of Technical Studies at Udaipur, and Manav Rachna International Institute of Research Studies at Faridabad house the WASH Labs in the respective cities. The labs will work with the municipal corporations to find locally relevant WASH solutions and extend their efforts in involving the private sector and citizenry to create a WASH forum.

**A Glimpse of Vital Innovative Measures**

**IHUWASH Accelerator**

The IHUWASH Accelerator is working in coordination with Faridabad, Mysuru and Udaipur. Over a period of 7 to 12 months, the programme will help the selected innovations to raise funds and get support from city governments, private sector companies, experts and impact investors.

It is a unique opportunity for the private companies to showcase their innovations through a nationwide programme which is supported both by the Central as well as the State Government.

"The delivery mechanism of IHUWASH makes it different from other ongoing WASH projects. IHUWASH not only focuses on WASH infrastructure development but also emphasises on building partnerships with and between public, civil society and private sector stakeholders," said Siddharth Sihag, Commissioner, Udaipur Municipal Corporation.

The programme focuses on WASH domain specific programme. This means that only WASH innovators will directly work with the Governments, companies, experts and investors. It offers sector relevant insights, funding and opportunities that a generic program cannot match.

**WASH Parks**

To increase awareness about sanitation and Swachh Bharat Abhiyan, sanitation parks and water technology parks have been proposed.

The idea is that these parks will serve as knowledge and tourist hubs and help provide information on latest technologies tackling the various issues concerning water, sanitation and hygiene.

NIUA wants to change the perception of people regarding toilets. Instead of perceived as a bad dirty stinking place, toilets will be developed as an amusing place for experiencing a natural process.
“NIUA has been actively engaged in addressing WASH focused issues through an array of projects, and has worked towards developing new research and expertise for supporting effective innovations in the urban WASH sector.”

Innovations as a requisite for addressing urban WASH sector issues in India

The primary goal of NIUA is to promote integrated solutions for rapidly growing urban centers in the country, and address various challenges they face to provide improved services to citizens, says Professor Jagan Shah, Director, National Institute of Urban Affairs (NIUA), New Delhi in conversation with Elets News Network (ENN).
What are the key concerns of the urban WASH sector in India that demands innovative solutions?

Rapid urbanisation, along with growth opportunities, is imposing multiple challenges for Indian cities and one of them being access to clean water, sanitation and hygiene (WASH) for all citizens. An acute shortage of WASH infrastructure and services in the Indian cities is only making the issues more glaring. Hence, it becomes crucial for the city administrators to make steadfast efforts, and implement best practices and models in resolving these pressing concerns before they compound further. To address these problems, the government has launched flagship missions such as Swachh Bharat Mission (SBM), Atal Mission for Rejuvenation and Urban Transformation (AMRUT), and Smart Cities Mission. However, to sustain the efforts through these missions and be cognizant of the future landscape of issues of urban India, adopting innovative technologies and solutions for provisioning of water and sanitation needs to be a plausibility factor.

With the ever-growing size of the Indian cities, there is an influx of floating population that come to the cities for work purposes as well as for tourism. This floating population most of the time faces difficulties in accessing sanitation facilities. The inadequacy is not only prevalent in the work environment of daily laborers, but also during their commute to work from peri-urban areas to the cities; travellers out for sightseeing; local residents commuting for various purposes. Women, who also form a major part of this moving population, suffer a lot due to lack of public sanitation facilities. This problem needs to be addressed as it inadvertently leads to open defecation. Such challenges require solutions with an innovative edge at the local level essentially implemented by the urban local bodies.

How an initiative like IHUWASH project by NIUA would improve the Urban WASH sector of India?

The National Institute of Urban Affairs (NIUA) is a premier institute and an autonomous body under the Ministry of Housing & Urban Affairs, Government of India (GoI) for research and capacity building in the urban sector. The primary goal of NIUA is to promote integrated solutions for rapidly growing urban centres in the country, and address various challenges they face to provide improved services to citizens.

Over the years, NIUA has also been supporting a number of urban local bodies through its capacity building programmes, conducting research for specific urban issues, and creating knowledge platforms like Smartnet. The experience helped NIUA learn that at the city level the intra-departmental coordination and engagement with all relevant stakeholders to augment efforts for provisioning of clean water and sanitation facilities for the citizens are rare to find.

NIUA has been actively engaged in addressing WASH focused issues through an array of projects, and has worked towards developing new research and expertise for supporting effective innovations in the urban WASH sector.

One of the problems with numerous urban projects has been that there have been many pilots but they succeed only in one of the microcosm—only in isolation—or in one particular context. However, the moment you take it out from one particular context and place it somewhere else; it does not work.

Therefore, NIUA conceived the IHUWASH project, which primarily focuses on scaling and replicating localised solutions and work as an ecosystem. NIUA with the support of United States Agency for International Development (USAID) endeavoured to create an Innovation Hub for Urban Water, Sanitation, and Hygiene (IHUWASH) solution in India. During its inception stage, the hub focused on understanding the local WASH needs of the cities and identify innovative solutions—new and existing—that are relevant to the local context. The idea was to adopt business models and best practices, and replicate them in the local context. The solution may not be the same for each city, as it would differ depending on their needs. Hence, it was essential to create an ecosystem to support that replication and scaling of solutions. The IHUWASH project has a very important dimension, which is provisioning of innovative public and community toilets.

What is the uniqueness of IHUWASH project?

To ensure the success of IHUWASH project it was important that the key stakeholders—municipal corporations, industries and private sector, academia, and the citizenry—are coalesced to create and strengthen the ecosystem of WASH.

The ecosystem comprises of a number
of different players, and primarily it is the local administration, also known as the Urban Local Body led by the Municipal Commissioner, which needs to spearhead the programme. However besides Urban Local Body, the local businesses, industries and associations of the city also form an integral part of the ecosystem. One of the big problems in Indian cities is that a city may have a top rank university, but there is little or no interaction between the municipality and academia. This is a lost opportunity to make use of the huge amount of knowledge and experience, and insight, which is available in the university within the city.

Hence, IHUWASH in its focus cities of Mysuru, Udaipur, and Faridabad has created City Innovation Hubs within the municipal corporations under the guidance of the city commissioners. The municipal corporations with IHUWASH facilitation have collaborated with local technical institutions to create WASH labs that support the municipal corporations in implementing the innovative WASH solutions. The National Institute of Engineering at Mysuru, Geetanjali Institute of Technical Studies at Udaipur, and Manav Rachna International Institute of Research Studies at Faridabad house the WASH Labs in the respective cities. The labs will work with the municipal corporations to find locally relevant WASH solutions and extend their efforts in involving the private sector and citizenry to create a WASH forum.

IHUWASH is also an effort to answer one critical question: how do we build an ecosystem that can scale and replicate good solutions either born in India or abroad, and service the need for better sanitation and water supply, and better hygiene outcomes?

What are the expected outcomes and long-term impact of the IHUWASH project in improving urban WASH sector?

The IHUWASH project is to run for three years. The real impact zone of the project are the three project cities in India, i.e. Mysuru, Udaipur and Faridabad; where NIUA is looking to demonstrate the proof of concept.
developed so that it is able to showcase this theory of change for developing the ecosystem for supporting innovations in the WASH sector. NIUA is trying to create a kind of microcosm of this ecosystem through the project and its components in the three project cities. It is expected that pilot interventions of innovative public sanitation facilities under the project alone will directly benefit nearly 90,000 beneficiaries each year in project cities. Besides the WASH Labs and innovative sanitation facilities, the project is working on introducing state-of-the-art WASH solutions through its WASH Accelerator programme. So far, 58 unique solutions have been sourced, of which 28 have been showcased to all the three partner municipal corporations. Through this, IHUWASH plans to upscale 8 innovative solutions which will address some of the pressing national and local WASH issues.

With two years of engagement, the project has also witnessed an advanced level of awareness about the goals of the project amongst its stakeholders. We are also realizing that our ecosystem partners are eager and enthusiastic to make IHUWASH a success story. In that sense, we have been able to build up the stake of the stakeholders, and they all feel invested.

Through various efforts, the project targets to achieve the establishment of an ecosystem in the focus cities, which will be able to cater to not just the city but the state as well, possibly even the country. Through the progress and accomplishments of the project, we foresee a potential to do so in future. In addition, if we are able to deliver these outcomes—provision for good services, well-managed public

**What are the needs and outcomes of the National WASH Innovation Summit?**

India is gaining a momentum and developing an appetite for innovative solutions in the urban sector. This thrust is due to the various efforts, and key stakeholders such as the urban local body, industries, academia and civil society. The summit aims to highlight this proof of concept for cross-learning purpose.

Further, innovations are not only in technological realm but also in the business models for sustainability, behaviour change through latest tools such as Information, Education and Communication (IEC) for effective awareness among communities; demonstrated by various international agencies working in the country. Private Sector is also increasingly playing an important role in addressing WASH related issues through CSR. With promotional activities by the government, many startups are venturing into the WASH sector with their solutions. The summit provides platform for such entrepreneurs to highlight their products to overall universe. Thus, briefly the WASH Innovation Summit will act as catalyst to give momentum to the innovation ecosystem and contribute to resolve pressing issues specifically in the WASH sector.”
IHUWASH project; a catalyst to improve urban WASH sector in Udaipur

The delivery mechanism of IHUWASH makes it different from other ongoing WASH projects. IHUWASH not only focuses on WASH infrastructure development but also emphasises on building partnerships with and between public, civil society and private sector stakeholders, says Siddharth Sihag, Commissioner, Udaipur Municipal Corporation, in conversation with Elets News Network (ENN).

“I appreciate the sincere efforts put in by IHUWASH team for the holistic development of WASH scenario and hope they will continue extend their support for the betterment of Udaipur.”

How was the partnership between IHUWASH and Udaipur Municipal Corporation developed?

Udaipur, also known as the City of Lakes, is a major tourist destination in India and across the globe. Today, the city’s population is around five lakhs (0.5 million). Approximately 15 to
18,000 tourists arrive daily in the city during the peak tourist season, which is more than the state’s daily average of tourist arrival. The Udaipur Municipal Corporation is implementing all the three important national missions of Smart City, Swachh Bharat Mission and Atal Mission for Rejuvenation and Urban Transformation (AMRUT) of Ministry of Housing and Urban Affairs. Through the implementations of these missions, the city’s Water, Sanitation and Hygiene (WASH) infrastructure is significantly improving. Even under Swachh Survekshan, Udaipur’s ranking has improved significantly from 310th rank in 2017 to 85th rank in 2018. To address the needs of the growing city, and to make the city, even more tourist friendly; Udaipur requires an improvement in the WASH sector, which would be sustainable in the long run, would cater to its future requirements, and is cost effective. Innovation Hub for Urban Water, Sanitation and Hygiene (IHUWASH) solutions project components are aligned with the all the national missions, and are towards building an ecosystem involving the government, industries, academia and citizens.

Citizens of Udaipur have always supported new initiatives and the city administration consciously decided to adopt and handhold projects like IHUWASH, which was proposed by National Institute of Urban Affairs (NIUA) with the support of USAID. The project aimed to improve lifestyle of Udaipur citizens, and matched the needs of the Municipal Corporation. That’s how the Udaipur Municipal Corporation with support of city leadership decided to implement the IHUWASH project.

A Memorandum of Understanding has been signed by UMC with NIUA in April 2017 to implement the project. What were the challenges of WASH Sector in Udaipur and what has been the impact of this project in addressing those issues?

Major water resources for the city are its seven lakes. Udaipur is dependent on its lakes, which is directly or indirectly the life source of the city in terms of the surface water resources, tourism, and the ecosystem at large. Despite implementation of national missions; the city is rapidly growing and posing challenges in the WASH sector of Udaipur. Importantly, public sanitation facilities like public and community toilets and urinals maintenance are the key challenges for the city administration. Moreover, as city’s sanitation infrastructure is being built up with the support of national missions, to manage the onsite sanitation system is still one of the challenges. Clean and safe drinking water in low socio-economic areas (slums) also needs some improvement.

Under IHUWASH project, important components such as the Accelerator is providing support to source innovative solutions to address the WASH challenges of the city. The project has also provided innovative public and community prototype demonstration.

To implement innovative solutions; trainings and capacity development of city officials have been developed through the WASH Lab established at the Geetanjali Institute of Technical Studies (GITS) at Udaipur.

How has the IHUWASH project been different from the other WASH projects undertaken by the Udaipur Municipal Corporation?

The delivery mechanism of IHUWASH makes it different from other ongoing WASH projects. IHUWASH not only focuses on WASH infrastructure development but also emphasises on building partnerships with and between public, civil society and private sector stakeholders. The project shares a common vision in improving the WASH outcomes. IHUWASH also provides an opportunity to learning and share the knowledge among cities, states and at national platforms.

How has the accelerator program under the IHUWASH project helped in finding innovative WASH solutions for Udaipur?

The Accelerator programme in IHUWASH project was designed to
identify and support marketable innovations in WASH sector. In Udaipur, 13 innovative solutions were presented in accelerator event held April 2018. In the event, the innovators pitched their ideas, product or service delivery models to a panel of sector experts and municipal officials. From those 13 innovations presented; 5-6 innovation were meeting the WASH requirements of Udaipur. UMC is planning to pilot those innovations and map their effectiveness. Based on their success, they will be further up scaled.

**How do you envision the partnership formed between the academia, business and other stakeholders under this project will help improve the WASH sector of the city?**

Under the IHUWASH project, a partnership has been formed with GITS, which is a city based technical institute to support UMC. A tripartite agreement has been signed among UMC, NIUA and GITS with a defined roadmap. Apart from this; Indian Institute of Management at Udaipur has been identified as an incubation center to mentor and incubate innovate solutions. The private sector engagement through partnering with Udaipur Chamber of Commerce and Industry (UCCI) also supports the implementation of IHUWASH in the city. UMC has organized two city strategic meetings with the support of IHUWASH Udaipur city team, to bring together various stakeholders on one platform.

**How is the IHUWASH project supporting the ongoing government initiatives such as Swachh Bharat Mission to address the WASH Challenges in Udaipur?**

A team of two members from IHUWASH is placed in the UMC office. The team has provided regular inputs to the UMC, and has supported during the Swachh Survekshans conducted by the city officials by documentation of innovation case studies, giving training to the sanitation workers, helping the officials in e-learning courses, etc. This helped in improving the city’s rank in the Survekshan. The team has also supported in creating and organizing awareness activities like Global Handwashing Day with UMC.

The Municipal Corporation is providing public and community toilets at required locations, IHUWASH team has provided designs of these toilets, which has innovative features, and are inclusive in terms of gender aspects. These toilets are being built under SBM (U) support. In addition to these, IHUWASH team has plans to pilot test innovative solution sourced through Accelerator programme, provide opportunities for cross learning through trainings. Overall, in the long run; WASH Sector of Udaipur will be significantly benefited by various components planned under the IHUWASH project.

**What is your message for IHUWASH and National WASH Summit?**

I appreciate the sincere efforts put in by IHUWASH team for the holistic development of WASH scenario and hope they will continue extend their support for the betterment of Udaipur. I look forward to read about the various activities, achievements and articles on contemporary issues on this e-gov magazine. I wish all the very best for grand success of National WASH Innovation Summit 2018.
The Ministry of Housing and Urban Affairs (MoHUA), Government of India has launched three key programmes—Smart City Mission, Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and Swachh Bharat Mission (Urban)—to improve water and sanitation infrastructure in the Indian cities. To ensure the effective implementation of these programmes, it is important that knowledge and skill sets of urban local bodies officials are enhanced and knowledge sharing based on strong partnerships is promoted, writes Dr D K Chadha, WASH Chair, Wash Innovation Lab, Manav Rachna International Institute of Research and Studies, Faridabad, for Elets News Network (ENN).
The National Institute of Urban Affairs (NIUA) in association with the United States Agency for International Development (USAID) is implementing a project—‘Innovation Hub for Urban Water, Sanitation and Hygiene Solutions’—in Mysuru, Udaipur, and Faridabad. A core element of the initiative is to build partnerships with and between public, government (national/state/local), civil society, private sector stakeholders, academia, donors, etc, dedicated to establishing shared visions and improving WASH outcomes, as well as facilitating knowledge sharing among cities, states and national platforms.

Under the IHUWASH project on March 31, 2017, NIUA has signed a Memorandum of Understanding (MoU) with Municipal Corporation Faridabad (MCF) to implement IHUWASH project in the city of Faridabad. MCF is implementing all three important national missions: SBM (U), Smart City Mission and AMRUT in the city. MCF is looking forward for innovative urban WASH solutions.

To source innovative WASH solutions by involving city-based technical institute (academia), WASH Innovation Lab has been established at Manav Rachna International Institute of Research and Studies (MRIIRS) which was identified in consultation with MCF. A tripartite agreement was signed on May 3, 2018 between MCF, MRIIRS and NIUA for setting up a WASH Innovation Lab (WIL) at MRIIRS, Faridabad and a USAID WASH Chair who convenes various activities of the WASH Innovation Lab.

To implement the WASH Innovation Lab activities, a roadmap was required by systematically designing the activities under the WASH Lab. For this purpose, an assessment workshop was proposed by the WASH Lab with all key stakeholders in Faridabad. With MCF official consultation on June 22, 2018, the assessment workshop was held at MRIIRS, Faridabad. The objective of the workshop was to map and assess WASH issues that are prevailing in the city which need to be addressed. There was also requirement to facilitate the ongoing processes and activities of Municipal Corporation of Faridabad (MCF) towards effectively improve urban WASH situation in Faridabad.

This interactive workshop was attended by 43 representatives from various stakeholders’ agencies and key players including RWA, industries, NGOs, academia, State and Central Government organisations, private agencies and all the three partners NIUA, MCF and MRIIRS. The event was convened by WASH Chair Dr DK Chadha.

Following were the important concerns highlighted by various stakeholders and representatives of RWA in the assessment workshop:

- Inadequate supply of water in their area and proliferation of grey market of water in the city.
- Industrial units’ representatives discussed the hardships they are facing in getting adequate quantity and quality water.
- It emerged from the discussions that the demand side of the management of water in the city needs to be addressed properly with efforts to minimise the non-revenue water. This was also suggested by the MCF officials.
- While showing satisfaction on the reduced ODF in the city, concerns was raised for pockets of persisting problem. The non-performing system for cleaning drain, faulty designs, or shortcuts in solutions has increased the sewerage problem in the city area, specifically the new expansion areas was a
point of discussion.

- Over dependency on septic tanks has been a matter of general concern. Disposal of sludge from these tanks needs immediate attention was placed on record.
- Reducing green cover and wetlands (ponds) were considered as negative effects of development and this needs to be balanced, was accepted as an area to be taken up seriously.
- Development of green zones all along the canals and removing the waste disposal sites was suggested.
- Initiating the personnel hygiene issues; the doctors from community medicine; ESI Medical College, Faridabad, emphasised on aggressive campaign for behavioural change and this too got support from other academia representatives.
- Regarding community hygiene, it was felt that density of toilets in the public places is still inadequate and their design needs demand based improvement.

The stakeholders were of the opinion that more and more such interaction among active groups and key players, in urban WASH sector is needed, to map the real issues, people and organisation involved in this sector to establish role and responsibilities. Following were key suggestions in the workshop to constantly engage with all key stakeholders

- Website to engage different stakeholders
- Establishing Faridabad WASH Forum

The assessment workshop brought forward various issues faced in the city for following suggestions in the assessment workshop, MCF proposed to conduct a capacity building workshop for important city officials in the area of water, sanitation and hygiene sector. As Faridabad face acute water supply and quality related issues, MCF proposed to conduct first training on the theme

‘Water Supply and Management in Faridabad.’

MRIIRS in consultation with MCF conducted two days training programme on 18th and 19th July, 2018. MCF nominated about 57 officials in the rank of JE, AE, EE in the training programme and also supported by providing MCF Auditorium for this purpose. The faculties/resource persons invited in this training programme were from recognised and leading institutions of Central and State government and other recognised consultancy firms.

The training programme imparted covered themes suggested by MCF engineers. topic covered were rainwater harvesting for groundwater recharge, management of storm water drains, urban water management by recycle, reuse and reduce, tools and techniques for landscape management for water conservation, and SCADA monitoring systems.

MCF officials appreciated the two days training programme and requested for follow up training sessions on subject specific module for small group of officers so that hands on skill can be transferred to the officers engaged in specific job.

The WASH Innovation Lab with its two years of planning will carry out action research in the water, sanitation and hygiene sector in Faridabad and share learnings of the studies with MCF to improve urban WASH situation in the city. The WASH Innovation Lab is planning to further transfer the IHUWASH knowledge in the state level training programme where other cities of Haryana can learn about adopting multi-stakeholder approach to improve urban WASH sector.”
The National Institute of Engineering; a WASH Innovation Lab to improve urban WASH sector at Mysuru, Karnataka, India

Mysuru is one of the cities where the IHUWASH project is being implemented in partnership with the Mysuru City Corporation (MCC). Under this project, the primary aim of the academic institutions is to become the storehouse of knowledge, provide institutional, research and advocacy support to the city administrators, and deliver long term solutions to city’s WASH problems, writes Professor Shamsundar, WASH Chair, Wash Innovation Lab, NIE, Mysuru, for Elets News Network (ENN).

Mysuru is the third largest city in Karnataka with a population of about 10 lakhs (1 million). Known as the heritage city of Karnataka, Mysuru's vivid culture and history is reflected through its magnanimous palaces and gardens, which makes it a hotspot for tourism. The city’s proximity to Bengaluru and improved connectivity with the state capital has also resulted in the growth of tourism in Mysuru. The city receives around three million tourists every year. Mysuru has been a leading city in the country when it comes to providing water and sanitation services to citizens. The impact of Mysuru's water
and sanitation infrastructure and services reflects in the Swachh Survekshan, or cleanliness surveys of 2015, 2016 & 2017, where the city was ranked amongst the top 5 cities in India. Mysuru was declared as the first open defecation free city in India in 2016. In 2018, the city bagged the first rank in the category of cleanest medium city with a population between 3 and 10 lakhs.

Mysuru is undergoing rapid urbanisation. Though the city is known for its comprehensive urban planning, rapid urbanisation is putting a stress on the existing infrastructure. Currently, 90 percent of the households in the city have access to improved water services with piped water supply, yet parts of Mysuru are experiencing water scarcity due to leakages, low pressure in the water supply system, lack of infrastructure and depletion of groundwater due to over exploitation.

Moreover, even with improved sanitation services; 33 percent of the faecal sludge is lost due to missing sewer lines and leakage in sewers. Also, approximately 6.7 percent of faecal sludge is not adequately treated due to unlined lagoons. Missing sewer lines and unauthorised habitations are directly draining sewage into storm water lines. This is leading to blockages in the sewer lines in the lower income community areas.

The National Institute of Urban Affairs (NIUA), New Delhi is implementing a project—Innovation Hub for Urban Water, Sanitation and Hygiene Solutions (IHUWASH)—with the support of the United States Agency for International Development (USAID). The project’s primary goal is to improve the performance of urban WASH sector through incubation and acceleration of innovative solutions, technologies, programmes and service delivery models within a collaborative framework by building partnerships at the local level.

Mysuru is one of the cities where the IHUWASH project is being implemented in partnership with the Mysuru City Corporation (MCC). However, bringing about an innovative solution alone was not possible for the MCC owing to its engagement in various other WASH related projects to improve the city’s infrastructure. The MCC needed support for bringing about innovations, addressing the city’s WASH related challenges through localised solutions, and an institutional support that would provide the research base for successful implementation of the innovative solutions.

Under the IHUWASH project, the primary aim of the academic institutions is to become the storehouse of knowledge, provide institutional, research and advocacy support to the city administrators, and deliver long term solutions to city’s WASH problems. The project allows setting up of WASH Innovation Labs in collaboration with city-based technical institutes to support municipal corporations.

The National Institute of Engineering (NIE) is a leading engineering college of Mysuru and one of the oldest engineering colleges of India. NIE-CREST (Centre for Renewable Energy and Sustainable Technologies) is one of the 13 centres of excellence at NIE. NIE-CREST is implementing various projects in the field of renewable energy, water and environmental friendly technologies. NIE also houses an incubation centre wherein young entrepreneurs are nurtured for the success of their startups and to scale up their business. Entrepreneurs working in the domain of green technology and WASH sector will be of prime focus in the upcoming days.

Rainwater harvesting projects at Mysuru City Palace, Administrative Training Institute, Mysuru Silk Factory, industries and many new establishments, and residential premises have been implemented by NIE faculties. Decentralised wastewater system is also being promoted. Design of innovative water backpack systems to provide clean water in case of disaster with
membrane filter technology is under research and development.

The faculties of NIE are actively engaged in various projects with MCC and state government from time to time. Thus, NIE is a go to institute for MCC to source solutions for various implementation projects.

Therefore, NIE was made a part of the IHUWASH project by establishing a WASH lab with a tripartite partnership between NIUA, MCC and NIE. The three institutes are working together with local, state and national government bodies to undertake interventions for Mysuru city on WASH issues.

The primary goal to establish a WASH Lab is to source timely interventions through various methods and outreach programmes. The key role of the WASH Lab is to provide a platform to government organisations like Mysuru Water Supply Board, Mysuru Underground Drainage Board, Mysuru Urban Development Authority (MUDA), academia, NGO’s, and other stakeholders for supporting Mysuru City Corporation (MCC) in addressing the local challenges of WASH sector.

WASH lab at NIE under IHUWASH project has been able to establish a good platform for innovations in urban WASH sector and enables a strong local network to expand and scale up.

The WASH lab at NIE has developed concrete plans of sustaining its existence at Mysuru. It will continue working on rainwater harvesting projects, wastewater treatment projects and training programs in the WASH sector. The lab will develop a team of professionals and project engineers to address the WASH sector issues of not only Mysuru but for the state of Karnataka, which can be further replicated in other cities of India. Innovative WASH products to address the local problems will be developed, which will in turn fetch sustained revenue to the WASH lab. The money generated out of projects and consultancies in WASH sector will play a major role in sustaining the WASH lab. A revolving self-sustained financial mechanism will be developed in a period of 2-3 years for the sustainability of the WASH LAB.

Following are the recent activities of conducted by NIE as a Wash Lab under the IHUWASH project.

Assessment workshop by WASH LAB: It was held in July 2018 with an agenda to identify and prioritise the issues in WASH sector, assessing the need of capacity building and identifying the potential focus area and open house discussion on WASH issues of the city. Engineers from MCC and MUDA, members and students from Institutions, IHUWASH Team from Delhi and NIE, stakeholders, CSO/NGO persons, private sector, company and city representatives, and Citizens of Mysuru city were actively participated in the workshop.

‘Mysuru WASH economy and Findings of Assessment Workshop’ was conducted on August 9, 2018. Mysuru City Corporation (MCC), WASH Lab at National Institute of Engineering (NIE), Federation Karnataka Chambers of Commerce and Industry (FKCCI), Mysuru Chambers of Commerce and Industry (MCCI) and WASH stakeholders participated in it.

Global Hand Washing Day: It was celebrated on October 13, 2018 at the National Institute of Engineering (NIE) Mysuru. An awareness programme was held for sanitation workers, civil workers and general public on the importance of personal hygiene. As many as 200 Pourakarmikas (sanitation workers) of Mysuru City Corporation, students from the institute, and general public participated in this initiative. As part of awareness programme, hygiene kits and handouts were distributed. A street play in Kannada underscoring the importance of personal hygiene was also enacted on the occasion.
Come December 2018, and India’s premier conference on Innovation for Transformation is Back. Elets Technomedia Pvt Ltd is proud to announce prestigious eINDIA Summit in New Delhi on 14 December 2018. The thirteenth edition of this premier summit on innovation for governance, infrastructure, health, education, BFSI, energy is going to see presence of Policymakers, Industry Leaders, International Experts. Innovators coming together to discuss and deliberate upon various aspects of building knowledge society with digital and social innovation and also top tech leaders from various industries will be a part of eINDIA 2018.

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Sanitation in India–Key gap areas and innovative solutions

The National Institute of Urban Affairs (NIUA), New Delhi, is a premier research institute under the Ministry of Housing and Urban Affairs (MoHUA). NIUA’s primary vision is to improve the urban sector of India through research, implementation of innovative solutions, and capacity building, writes IHUWASH Project Team of the National Institute of Urban Affairs, for Elets News Network (ENN).

The Sustainable Development Goal 6 (SDG-6) of the United Nation’s Agenda 2030 aims to “achieve universal and equitable access to safe and affordable drinking water for all”. SDG 6 ensures availability and sustainable management of water and sanitation for all, and has put forth a set of six targets.

The World Health Organisation (WHO) mentions that a dollar spent on sanitation saves nine dollars spent on health, education, and economic development (WHO, 2007). Rapid increase in urbanisation (possibly 50 per cent by 2050) raises concerns over the development of infrastructure services of sewerage and sanitation to serve the urban centres.

Sanitation is a broad term, which includes environmental sanitation which is largely viewed as “the control of all those factors in man’s physical environment which exercise a deleterious effect on his physical environment, health, alleviating poverty, enhancing quality of life and raising productivity- all of which are essential for sustainable development (WHO 1992)”.

Sanitation includes all four items viz. excreta or faecal sludge management systems, wastewater management systems, solid waste management systems, drainage systems for rainwater, also called storm-water drainages.

The cumulative sewerage treatment capacity of Indian cities is 22,963 million

Namma Toilet in Tamil Nadu
litres a day (MLD), whereas sewage generation is estimated at 61,754 MLD (CPCB, 2016). In a number of cities, the existing treatment capacity remains under-utilised, while a lot of sewage is discharged without treatment in the same city. This means that nearly 40,000 MLD of sewage is simply going untreated and is polluting the country’s surface and ground water sources and imposing major threat to health and environment.

Key milestones for improving sanitation status in India

Since 1980-81, progressively various initiatives have significantly improved the sewerage and sanitation status in India. It started with the Integrated Low-Cost Sanitation Scheme (ILCS). In 1993, the 74th Amendment further empowered Urban Local Bodies (ULBs) to include under them sanitation and solid-waste management.

Along with these initiatives, schemes for the urban poor were also initiated. In 2001, the ‘Valmiki Ambedkar Awaas Yojana (VAMBAY)’ laid emphasis on improving the living conditions of slum dwellers by constructing community toilets. This major programme, which ran for almost a decade, brought out realities related to urban infrastructure and had systematic plans to upgrade it. In 2005, a mission on urban renewal, Jawaharlal Nehru National Urban Renewal Mission (JNNURM), was launched and in 2008 the National Urban Sanitation Policy (NUSP) came into effect. The Faecal Sludge and Septage Management (FSSM) policy of 2016 was a paradigm shift in septage management in the country.

In the past four years, various national missions have significantly changed the mindset of the people with various key programmes launched by the Urban Development Ministry. A movement was started with a call from the Prime Minister Narendra Modi in 2014 through Swachh Bharat Mission (SBM) in both rural and urban areas. On the lines of urban renewal mission, Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and Smart Cities Mission laid major emphasis on improving urban sewerage and sanitation infrastructure.

The provision of clean water and sanitation services were among the priorities of these programmes. The efforts have led to a significant improvement in the WASH sector in the country. Over 5 million (50 lakh) individual toilets and about 0.4 million (4 lakh) community and public toilets have so far been constructed in urban areas. As many as 3,347 towns and cities have been declared open defecation free.

Key Gap Areas

1. The institutional arrangements
Since water and sanitation are state subjects, there are a range of different institutional arrangements across the states, and often across cities within the same state in India. The role of Central and state-level (para-statal) bodies is restricted until technical handholding and financial support to ULBs is provided. However, this is not sufficient for the successful implementation of the programmes designed at the central level.

2. Financial provisions
Building infrastructure needs huge financial investments. India has mostly implemented major infrastructure projects with support from international financial institutions like World Bank, Asian Development Bank (ADB), Japan International Cooperation Agency (JICA) and with the support of international donor agencies. Over the period of 2012-32, the financial requirement for the proposed capital expenditure (including programmatic support) makes
up about Rs 5,805 billion (69 percent of the total requirement includes both new infrastructure and replacement of ageing infrastructure), while operating expenditure accounts for about Rs 2,647 billion.

3. Time for laying infrastructure
India is a vast country with different physical (hills, plains, coastal areas) and climatic conditions. Laying the sewerage infrastructure imposes various challenges ranging from land acquisition, tendering process, selections of competent contractor and completion of project in time. The election protocols in various states at various times delay the approval process as well as the implementation process.

4. Capacity issues
One of the prime concerns is severe lack of capacity at all levels. The various organisations, especially urban local bodies, are understaffed. Besides, the knowledge and skill levels related to both technical and managerial aspects are often inadequate. Hiring external consultants is therefore seen as a solution, but the ULBs/relevant state departments may not have the capacity to manage the consultants either.

Key Innovative solutions
Recognising the scale of problem of sewerage and sanitation infrastructure and its impacts on health and environment, along with conventional approach, the Government of India has now focused on sourcing innovative solutions to reduce the gap in infrastructure.

Creating enabling environment for innovations
The Local administrator (urban local body), academia, industries, civil society groups and communities are key stakeholders, who work together in synergy to resolve the sanitation related issues in the city. However, there is a need to create a platform at city levels in an organised way to interact frequently and find local solutions for local problems. The complex issues related to sanitation management can be resolved with innovative solutions, and with an approach of involving local academic institutes to work alongside with local industries to finance them. Creating awareness among communities by city based civil society groups is equally imperative. Local government can facilitate sourcing solutions by creating enabling environment through city-based forums.

Scaling up innovations
NITI Aayog, the premier policy think tank of Government of India has launched Atal Innovation Mission (AIM) to source innovative solutions. The mission has established network of institutes across India that acts as Atal Incubation Centres, Atal Tinkering Labs to identify and scale up innovations in the area of sewerage and sanitation management. The Ministry of Housing and Urban Affairs (MoHUA), under its’ AMRUT mission recently launched an AMRUT Technology Challenge to find technical solutions to eliminate manual scavenging in India. The National Institute of Urban Affairs (NIUA), a premier autonomous research institute under MoHUA has established the Innovation Hub for Urban Water, Sanitation and...
Hygiene Solutions (IHUWASH) to identify, upscale, and pilot test innovative solutions that gel in with conventional approaches to address the sewerage and sanitation management in India.

**Private sector engagement**

This is one of the most important aspects for successfully achieving the goals of SDG 6. The Government of India has launched various programmes and missions from time to time to improve the sewerage infrastructure and sanitation management. However, the huge financial investments are required to achieve the national and international goals. The Corporate Social Responsibility (CSR) from the private sector through Chambers of Commerce and Industries is increasing playing an important role in achieving these goals. The Swachta Kosh established by the Government and donations from the private sector has significantly improved the situation across Indian villages and cities. There are many other possibilities and local success initiatives demonstrated for private sector participation.

The National Institute of Urban Affairs (NIUA), New Delhi, is a premier research institute under Ministry of Housing and Urban Affairs (MoHUA). NIUA’s primary vision is to improve the urban sector of India through research, implementation of innovative solutions, and capacity building. NIUA demonstrates the proof of concepts on various urban themes through its vast gamut of work in the urban sector and its services. Sanitation is a key area; wherein NIUA has undertaken two important projects.

The Innovation Hub for Urban Water Sanitation and Hygiene Solution (IHUWASH) supported by United States Agency for International Development (USAID) is a project, where NIUA has developed partnerships with city governments, chambers of commerce, and academia to strengthen the urban WASH sector in three cities in India.

The other project on sanitation sector is the Sanitation Capacity Building Platform (SCBP) supported by the Bill and Melinda Gates Foundation (BMGF). Both of these projects are on the lines of two important national missions of the Government of India viz. Swachh Bharat Mission (SBM) and Atal Mission for Rejuvenation and Urban Transformation (AMRUT).

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Sanitation Capacity Building Platform Initiative by NIUA

The Sanitation Capacity Building Platform (SCBP) is an initiative of the National Institute of Urban Affairs (NIUA) for addressing urban sanitation challenges in India. The programme, funded by a grant from Bill and Melinda Gates Foundation (BMGF), is aimed at promoting decentralised urban sanitation solutions for septage and wastewater management, writes Rahul Sachdeva, Senior Programme Manager, SCBP Project, National Institute of Urban Affairs, for Elets News Network (ENN).

The Sanitation Capacity Building Platform is an organic and growing collaboration of universities, training centres, resource centres, non-governmental organisations, consultants and experts.

The main goal of this platform is to build the capacity of urban local bodies and other stakeholders working in urban sanitation to ensure improved delivery of
sanitation services through decentralised approaches. The platform lends support to the Ministry of Housing and Urban Affairs (MoHUA), Government of India, National Urban Sanitation Missions, States and Towns by focusing on urban sanitation and move beyond the open defecation free (ODF) status by addressing safe disposal and treatment of faecal sludge and septage.

SCBP advocates decentralised sanitation solutions by developing and sourcing the best capacity building, policy guidance, technological, institutional, financial and behaviour change advise.

Some key organisations on board of SCBP are Centre for Environmental Planning & Technology (CEPT) University, Administrative Staff College of India (ASCI), EcoSan Foundation (ESF), Wateraid, Centre for Policy Research, Centre for Science and Environment etc. The platform works in close collaboration with the National Faecal Sludge and Septage Management Alliance (NFSSMA) anchored by BMGF.

The platform works around following thematic areas:

- Awareness and advocacy
- Policy advise
- Technical support
- Developing training content and modules
- Delivering trainings and
- Knowledge building through research and learning events.

The platform provides a sharing and cross learning opportunity for SCBP partners. It also allows to pool in their knowledge resources on all aspects of urban sanitation capacity building. It facilitates joint development of training modules, learning and advocacy material including developing key messages and content and a platform for sharing and dissemination of FSSM research, advocacy and outreach to State governments and Urban Local Bodies.

The platform engages at state and city level for advocating and awareness generation for Faecal Sludge and Septage Management (FSSM) followed by on demand support for capacity building and implementation of decentralised sanitation solutions. The capacity building focus on FSSM is distributed across three levels – state level capacity building for FSSM; Institutional capacity building at National level; and evidence-based advocacy for FSSM.

Some of the key training modules developed under SCBP are

- FSSM Orientation Module
- Advanced technical training module for FSSM
- Integrated Wastewater and Septage Management module
- Consultants training module on FSSM DPR preparation

SCBP is currently engaged with eight state nodal training institutes and has conducted trainings for officials from across 13 states in India. Since inception of this platform in 2016, 1000+ government officials and people engaged in private sector have been trained in FSSM. SCBP has also engagement with nine reputed academic institutes like BITS Goa, Shiv Nadar University, MANIT Bhopal, College of Engineering Pune, Lovely Professional University, etc. The objective here is to mainstream decentralised sanitation system options as part of core curriculum on public sanitation and create a cadre of trained professionals for planning and execution of these options on ground. 

Photo Credit: Sanitation Capacity Building Platform (SCBP)
Elets Technomedia Pvt Ltd, the premier media & technology research organisation of Asia and the Middle East, is organising 13th World Education Summit in Mumbai on 7-8 December, 2018.

Over the years, World Education Summits have congregated various education stakeholders to deliberate on finest practices and innovations in education. So far, 12 editions of the summit have seen participation of dignitaries from over 30 countries and engaged over 52,000 stakeholders of education ecosystem.

The Biggest Event on Innovation in Education

13th World Education Summit
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WES LEGACY CONTINUES IN MUMBAI...

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Cities in India are plagued by multiple Water, Sanitation and Hygiene (WASH) challenges. But thanks to the Government of India’s flagship Swachh Bharat Mission, common issues across urban locations, such as inadequate number of functional toilets (leading to open defecation), poor maintenance of community toilets, and low sewerage network coverage have received a lot of attention over the past few years, writes Aditya Tejas, Manager Startup India, Ennovent.
Currently, India tops the global list of countries with the largest urban population without access to sanitation. The rapid pace of urbanisation adds urban residents which further complicates the urban challenges. As a result, sustainability of water and sanitation services is expected to be affected even more severely in future.

India, with a proactive government and growing population, has a unique opportunity to find and accelerate decentralised innovations that are financially and environmentally sustainable. Alliances of individuals and organisations from governments, the non-profit sector, development experts, investors and businesses have the opportunity of using their diverse perspectives and resources to jointly address WASH challenges.

These were the driving forces behind the setting up of the Innovation Hub for Urban Water, Sanitation and Hygiene or IHUWASH, which is a collaborative initiative between the National Institute of Urban Affairs (NIUA) and Ennovent. The three-year project is supported by the United States Agency for International Development (USAID) and aims to improve the performance of urban WASH programmes using a collaborative framework, incorporating both private and public participation. Under IHUWASH, sustainable national and city-level Innovation Hubs have been established to work closely with national level WASH stakeholders and the city administrations of Faridabad, Udaipur and Mysuru.

IHUWASH Accelerator

Based on a combination of evidence-based strategy planning and the lab-to-land approach, the IHUWASH initiative seeks not only to contribute to Sustainable Development Goal 6 to ensure clean water and sanitation for all, but also to create WASH champions for ensuring improved water and sanitation management beyond the project’s duration. This necessitates collaborative engagements with all stakeholders in the value chain – including governments, businesses, academia and civil society, among others. In particular, there is a need to provide start-ups, entrepreneurs and innovators with the opportunity to rapidly scale their innovations through key partnerships, particularly with local government bodies.

“About 58 high-quality applications were received, of which 57% had an innovative revenue model where end-users did not pay, and 88% needed less than 6 months to scale their model in a new city.”

Leveraging its experience in partnering with and catalysing social businesses, Ennovent has found that there exist a number of entrepreneurs in India creating innovative technologies, products, services and business models, as a way of using and reusing resources to solve urban WASH problems. Through the IHUWASH Accelerator, a programme under the IHUWASH an attempt has been made to select and support scalable, market-based innovations to solve key WASH problems. Working with the government will offer WASH entrepreneurs the fastest way to create widespread impact, since governments have the resources and the means to facilitate change at scale. City governments also have the opportunity to support innovation beyond conventional contracts or service providers. Further, the Accelerator offers entrepreneurs access to partnerships with private sector companies, WASH experts and impact investors.

Seven key WASH challenges were identified through a landscape mapping/research process mentioned in the previous page. Following this, the accelerator sourced innovative, scalable, market-based innovations that addressed the various WASH challenges highlighted earlier. About
## EVENT CALENDAR 2018-19

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## OUR INITIATIVES
58 high-quality applications were received, of which 57% had an innovative revenue model where end-users did not pay, and 88% needed less than 6 months to scale their model in a new city. Total 23 innovations were shortlisted and presented to jury panels comprising municipal commissioners, key Smart City programme representatives, urban local government officials, and academic and industry experts. Based on the relevance of the innovation in meeting specific city needs, 6 innovations have been shortlisted for further discussions to implement pilots in Udaipur and 8-10 innovations are being reviewed for pilot implementations in Mysuru and Faridabad.

While the IHUWASH Accelerator is a step towards promoting innovation in WASH, there is much scope for the involvement of a wider variety of partners to accelerate the process. We hope that this programme will create a sound foundation for increased collaboration in the WASH ecosystem and continue to grow beyond the three target cities.

**IHUWASH Cohort**

*Environment Planning Group (EPG):* Integrated community water ATMs and bio-toilets. The company sells monthly water subscriptions with free toilet usage. Rejected water from RO flushes toilets and bacterial culture treats solid waste sustainably.

*FFEM:* A product that provides accurate, low cost, in-situ tests for water quality based on a smart phone. The product also allows integration with other data management platforms.

*InnoDi:* New water purification technology called Capacitive de-ionisation (CDI) reduces water wastage by 50%. Also effectively treats saline and brackish source water better than what RO systems.

**Swacch Neer:** Eco-friendly earthen water purifier that uses activated silicon from burnt rice husk and low chlorination to kill germs without removing enriching natural minerals from the water.

**Water Health India:** Funds, installs and maintain RO plants in underserved communities across India through a Public Private Partnership (PPP) model. Local governments only provide land, water source and access to electricity.

**Biomass Controls:** Creates community-scale sustainable toilets that convert human fecal waste into fuel and stored energy. It also recycles flush water into disinfected reusable water.

**Tide Technocrats:** Soil Bio-Filter (SBF) incorporates soil as the medium to hold the required micro & macro life forms called as “BioActive Soil” to cleanup wastewater.

**eERGIPL:** LIFE+ is a pre-fabricated, decentralized, biological blackwater and greywater treatment system. It uses anaerobic decomposition, dilution and aerobic reactions to prevent pollution by black or grey water.

**Ekam Eco Solutions:** Accelerated Fecal-sludge decomposition with aerobic and anaerobic bacterial culture.

**Garv Toilets:** Indestructible public toilets made of stainless steel that are pro-actively maintained through automatic toilet monitoring systems.

**GenRobotics:** Use of man-assisted robotic technology to eliminate manual scavenging of manholes.

**SquatEase:** A unidirectional inclined toilet pan to eliminate improper usage of community toilets, thereby reducing recurring maintenance costs. It also makes toilets more accessible for users with physically challenges or disabilities.

**Boondh:** Boondh menstrual cup lasts for 10 years, an alternative menstrual hygiene management system along with training and menstrual health programs to address menstrual hygiene problems.

**Pee Buddy:** It is a low-cost female urination device for women to stand and pee when they don’t have access to clean toilets. Prevents infections like UTI and makes toilets more accessible for women with arthritis, pregnancy or joint problems.

**Haqdarshak:** Mobile application to help low-income households learn about various government schemes and apply to relevant schemes easily. Luminociti Networks: Modern cities have unengaged citizens. CitiXP improves engagement between city administrations and residents/ local business communities via a cloud-based platform.
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#eletsonline elets
Aligarh Municipal Corporation is presently focusing on building an efficient drainage system, a network of smart roads, and an intelligent transport and surveillance system in the city. The corporation is also on its way to establish an Integrated Control and Command Centre (ICCC) soon, says Satya Prakash Patel, Commissioner, Aligarh Municipal Corporation in conversation with Gautam Debroy of Elets News Network (ENN).

Tell us on the various Smart City projects in Aligarh?

Aligarh was selected under the third round of Smart Cities Mission. We have already set up the Special Purpose Vehicle (SPV) and selected the Project Management Consultants (PMCs). We have also formulated the projects. While few projects are in the Detailed Project Report (DPR) stage, some are in the tendering stage as well. It is expected that in the coming months, a few projects will get off the ground.

Aligarh Smart City will be developed as an eco city. We seek to develop water and energy grids along with conserving the greenery of the city. We want to use technology to make the life of the citizens easy so that Aligarh becomes one of the most liveable cities in India.

Can you elaborate more on the key focus areas of development under the Aligarh Smart Cities Mission?
We are focusing on building an efficient drainage system, a network of smart roads, an intelligent transport and surveillance system in the city. We are soon going to set up an Integrated Control and Command Centre (ICCC). To enhance round the clock security in the city, thousands of surveillance cameras and Internet of Things (IoT) devices will be connected with ICCC. We are also looking at monetising the data we gather so that the Aligarh Smart City SPV becomes financially independent and sustainable in the future.

**Please tell us about the projects which are in the tendering stage?**

The DPR of ICC is almost complete and we are soon going to float the tender. DPR of Smart Roads has been completed. We have already floated the Request for Proposal (RFP) for solar energy projects.

DPRs worth Rs 500 crores have already been completed. We have also tendered projects worth Rs 200 crores. Soon a large number of projects will be started. By the end of this year, projects worth Rs 600 crores will be tendered.

**How has been the public response for Smart City projects?**

The citizens of Aligarh are jubilant. They are looking forward to the completion of projects under the Smart City Mission. They are keen to see the projects on the ground. The Aligarh administration is working hard to conceptualise the projects and implement them.

**What response have you received from the private sector for these projects?**

Not only Indian companies but international companies are keen on collaborating with us. A Dutch delegation has already visited us. They are interested in building a robust infrastructure in the city, especially for the drainage and water supply system.

Big players like Cisco, Larsen and Toubro and PWC have also visited us. We are looking for experienced market players to develop a world-class infrastructure in Aligarh.

**What progress in terms of smart city projects has been made in the last one year?**

For the last one year we were doing a thorough study of the project plans so as to develop better understanding before inception of various projects. We have been able to complete detailed project reports and take the projects to the tendering stage. The initial stage was that of planning and now we are in the execution stage.

**What challenges do you face in implementing the projects?**

One of the major challenges we have been facing is engaging with the Project Management Consultants. We are not getting the required quality of assistance and facilitation from these consultants. On the other hand, our local administration is doing a great job in managing the SPV.
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