

LIVELIHOODS IN THE SANITATION ECONOMY

Unlocking employment opportunities
in Asia, Africa & Latin America



ACKNOWLEDGEMENTS

Founded in 2015, the Toilet Board Coalition accelerates business solutions to the global sanitation crisis. The Coalition facilitates vital partnerships between small and medium-sized enterprises (SMEs), corporates, NGOs, investors and governments who share a commitment to achieve access to sanitation and hygiene for all by 2030 (SDG 6).

Through its sector-leading Accelerator, the Coalition provides business model coaching, corporate mentorship and access to investment to Sanitation Economy entrepreneurs serving low-income markets. To date, the Coalition has graduated 70 SMEs, impacting more than 3 million people daily and unlocking US\$ 33 million in finance. Its 80+ Members' diverse approach to sanitation proudly leads to essential innovation in toilet design, circular recovery of biological resources, and smart digital technologies to ensure safe and sustainable sanitation for all.

The Toilet Board Coalition thanks Niti Aayog for its contributions.

With thanks to our leaders:



***Kimberly-Clark**

LIXIL



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INTRODUCTION

In 2010 the United Nations (UN) recognised the human right to sanitation. Well over a decade later, with this right additionally embedded in the UN's Sustainable Development Goals, billions of people still do not have access to safely-managed services. Unless sanitation coverage is addressed, global goals on health, education, economic development, gender and food security are unattainable.

More than toilets alone, the sanitation value chain includes infrastructure, product and service providers, resource recovery of water, energy and nutrients, digital technologies and more.

Importantly, sustainable universal access to sanitation requires coordinated action from governments, private sector, investors and civil society.

Since 2017, the Toilet Board Coalition has advocated for an approach to sanitation, the Sanitation Economy, which looks at the entire value chain; the products, services and ultimate value to customers and industry of this human right.



In 2017, to make this idea more tangible, the Coalition published a first market estimate of the Sanitation Economy for India. Our Members wanted to showcase the value and opportunities associated with universal access, rather than the cost burden of sanitation. Since that time, our methodology has strengthened, data availability has increased and, in particular, the potential of circular sanitation and also digital technologies has become increasingly apparent.

Leading up to this report, in 2020, the Toilet Board Coalition, in collaboration with India's esteemed NITI Aayog, developed a methodology to forecast both livelihood and Sanitation Economy opportunities.

This methodology has now expanded from India to cover three regions: Sub-Saharan Africa, Asia and Latin America. The 2030 Sanitation Economy potential is detailed in the report, with research conducted by the Toilet Board Coalition in select countries across these regions. The findings reveal a potential market value of US\$ 76.8 billion in Sub-Saharan Africa, US\$ 493.9 billion in Asia, and US\$ 19.2 billion in Latin America. To harness fully the potential of the Sanitation Economy, a skilled workforce is essential. Livelihood opportunities are generated through the creation of jobs and economic activities related to sanitation services and products.

With the aim of shaping and fuelling positive conversations and encouraging government and the private sector to prioritise sanitation investment, on the following pages we frame the Sanitation Economy market and livelihoods potential across Latin America, Africa and Asia through to 2030.

SANITATION ECONOMY

Figure 1.

TOILET MARKETPLACE

Products and services that provide safe toilets for everyone, everywhere—public or private, rural or urban. Enhances menstrual health and personal hygiene across various settings.

CIRCULAR SANITATION MARKETPLACE

Transforms waste into valuable resources. Involves collecting, transporting, treating, and reusing biological waste to produce renewable energy, organic fertilisers, proteins, and more.

SMART SANITATION MARKETPLACE

Digitised sanitation systems optimise data for efficiency, maintenance, and health insights, enhancing overall system performance and user experience.



It will, without doubt, require a concerted, enduring, multi-stakeholder entrepreneurial effort to realise the Sanitation Economy and achieve universal access to sanitation and sustainable treatment. Hence, we close the publication with four specific calls to action to ensure the livelihoods potential can keep pace with the market opportunities.

The rewards are invaluable. First, sanitation livelihoods will be decentralised and community-based. Second, such employment will be extremely resilient as the demand for sanitation is highly stable. Third, these livelihoods will offer ample growth opportunities as the sector matures and formalises.

Sanitation is an area where the scope of innovation and technological intervention remains wide open. Design thinking and systems analysis approaches call for both physical and financial models to provide environmentally-sustainable solutions. The challenge here is multifold: how to design, engineer and finance innovative sanitation solutions while offering marketable and attractive-to-investment models.

The rewards will be transformational: social impact (health and hygiene), climate change mitigation, adaptation and resilience, and employment generation. Private investments in safely-managed sanitation systems will have a strong impact on poverty alleviation through the channels of positive health impact of safe sanitation and job creation.

SANITATION LIVELIHOODS POTENTIAL

Public and private investments in sanitation infrastructure and the upgrading of sanitation services have the potential to generate jobs in the short and long term. Existing sanitation sector jobs fall mostly in the informal sector and have neither proper remuneration nor adequate safety measures. This requires rethinking the business models and skills needed for entrepreneurial ventures.

Based on the sanitation market explained in the previous section, we estimate the livelihood potential of the same, depicted in Figure 2.

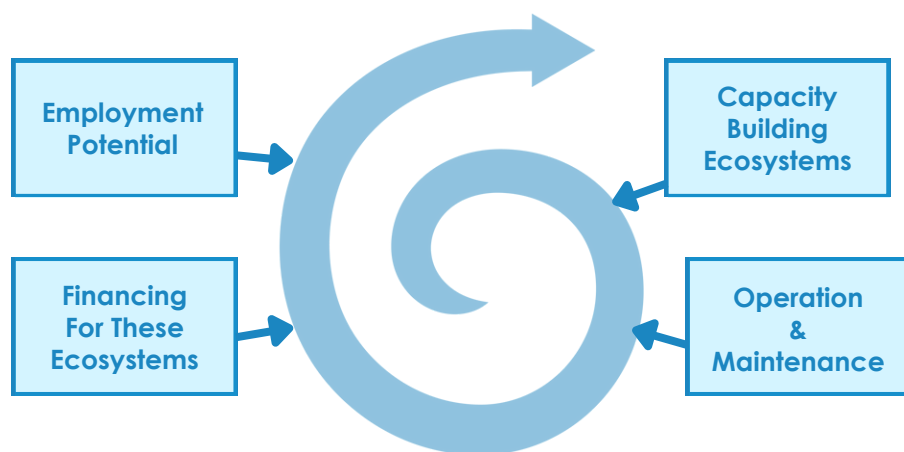


Figure 2: Employment Potential in the Sanitation Sector Framework

The sanitation sector encompasses a wide variety of job roles and demands a range of skills, from environmental and civil engineers, planners, plumbers, technicians, masons to communication specialists and grassroots-level workers to mobilise communities. It is important to note that it is not only technical profiles that are needed in sanitation but customer care, sales, marketing, business development, operations and project management skills.

As discussed, jobs in the sanitation sector are not confined to creation of physical infrastructure but also include opportunities in operations and maintenance of the infrastructure, thus creating capacity-building of the workers, both current and prospective, community mobilisers, jobs in laboratories testing products derived from the treatment of municipal (sewage and faecal) sludge, packing and bagging the derived products, among others.

Sanitation livelihoods are fortuitously created in the same community the infrastructure is serving and bring unique advantages to the community:

- Firstly, the jobs are resilient. Waste management and sanitation are essential services, rendering the business and livelihoods associated with it resilient to economic cycles, recessions or other disruptions.
- Secondly, sanitation jobs offer career mobility: waste and sanitation are new fields and will create jobs at multiple levels and across the skill spectrum; therefore workers at the entry/lowest level will have opportunities for growth and development.
- Lastly, the new solutions in waste and sanitation are technologically advanced and have shifted the human-waste interface with a human-machine-waste interface that provides greater scalability and efficiency. This also restores dignity for waste and sanitation workers.

METHODOLOGY

It is important to note that the study is estimating the livelihood potential of the Sanitation Economy operating at full scale. These estimates, therefore, do not reflect the current reality. As the Sanitation Economy scales, the market reality and this work will increasingly align. Though this study is an academic estimation exercise, the findings should encourage researchers and entrepreneurs to come up with finer estimates and pilot projects respectively.

The livelihood size at country and regional level was estimated considering 2030 SDG targets and using published literature, government data, reports and other relevant sources. These findings were cross-validated through interviews with sector experts. Baseline figures for 2023 were established, with projections working towards the assumptions regarding access, waste collection and treatment. The methodology used to calculate the livelihoods in the sanitation sector involved a comprehensive approach that integrated both secondary and primary sources:



1 DATA COLLECTION:

The research team engaged with sanitation sector small and medium sized enterprises (SMEs) and globally, through semi-structured interviews conducted over virtual platforms. This interaction aimed to gain insights into current manpower deployment and future plans related to sanitation activities.

For details on the methodology please see Annex 1



2 ASSUMPTIONS:

Common assumptions were made for the estimation process.

- **Access and treatment coverage would reach 100% of population by 2030.**
- **Five categories of sanitation facilities were considered for this estimation. They are as follows:**
 - Community Toilets
 - Public Toilets
 - Bio Toilets
 - Sewage Treatment Plants
 - Faecal Sewage Treatment Plants
- **Job roles were defined for each infrastructure, treatment facility, construction, monitoring, knowledge management and training (capacity building).**
- **Jobs/livelihoods were calculated and classified into six major types, then categorised into direct and indirect employment respectively.**

Direct Employment refers to employment created directly by the infrastructure investment project, including all workers directly recruited by the main contractor and subcontractors, construction supervisor and project manager.

Indirect Employment refers to employment created in the backward-linked industries, supplying manpower, tools, materials, plant and equipment for the construction of the infrastructure project.

ASIA

- Figures are in US\$
- See details in Annex



LIVELIHOOD POTENTIAL

by 2030



62.5
Million



18.8
Million

INDIA



3.6
Million

INDONESIA



2.3
Million

BANGLADESH



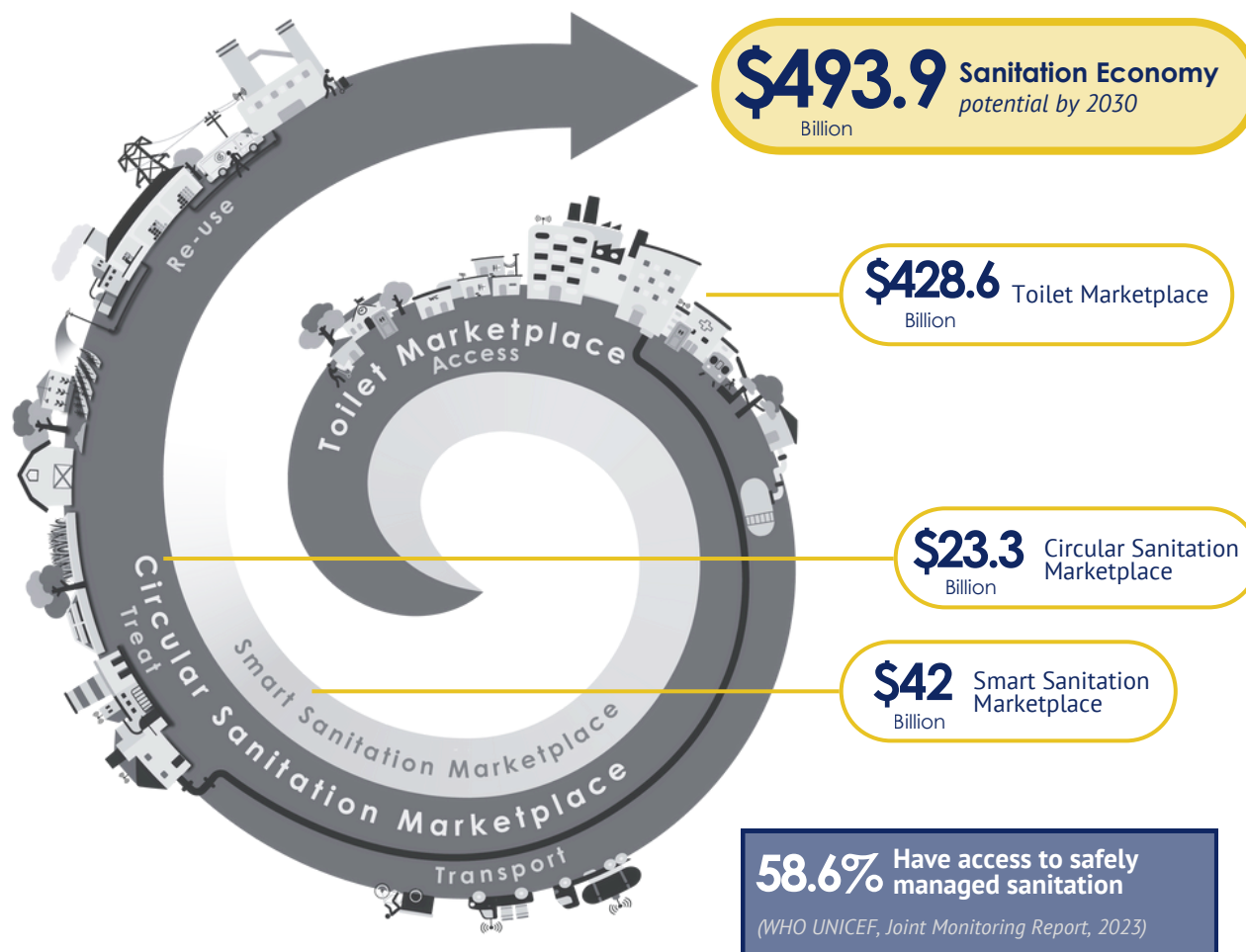
1.5
Million

PHILIPPINES



221.4
Thousand

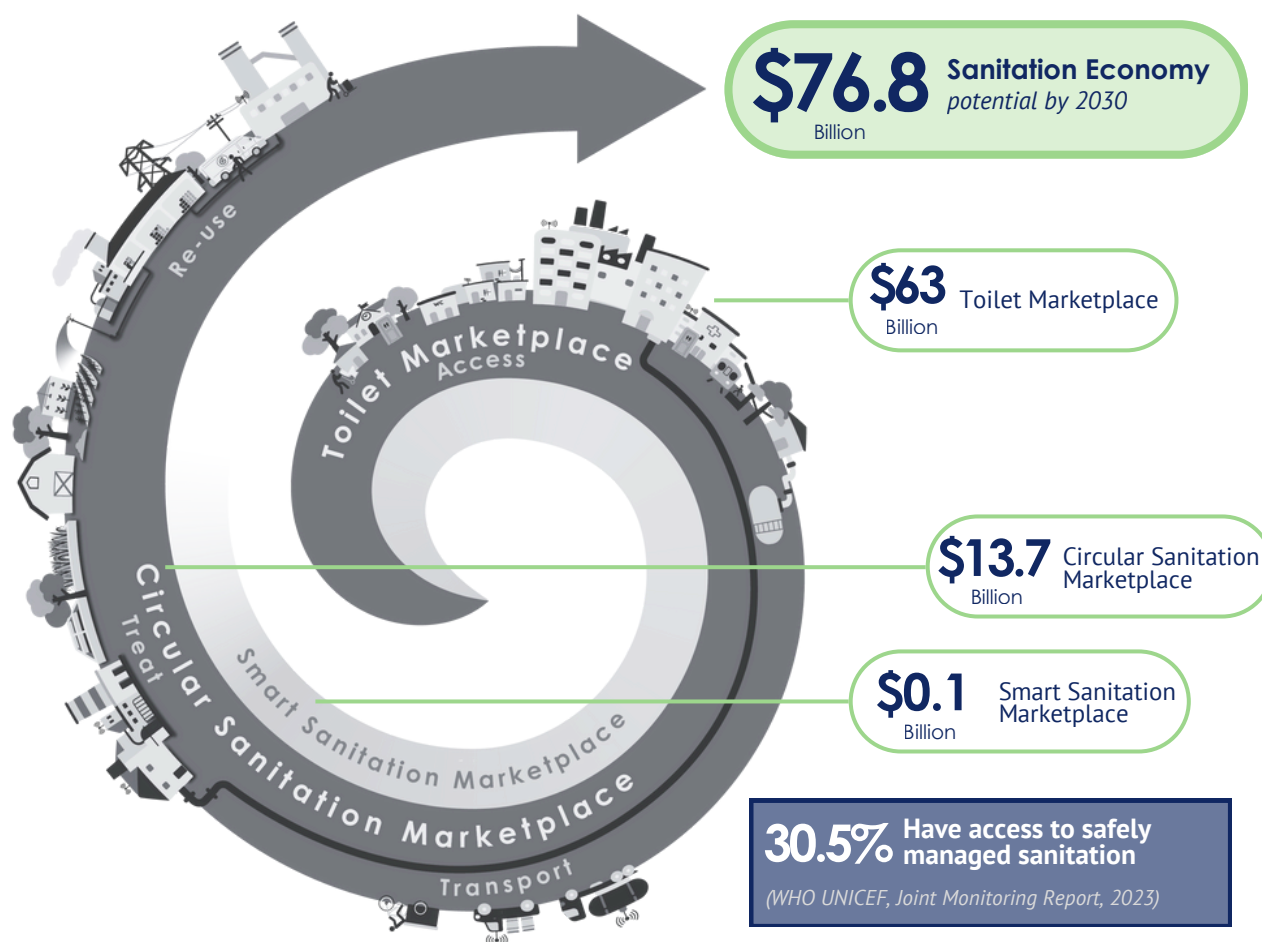
CAMBODIA



Non-India numbers are derived from India average livelihood potential of Sanitation Economy potential

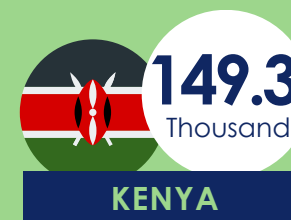
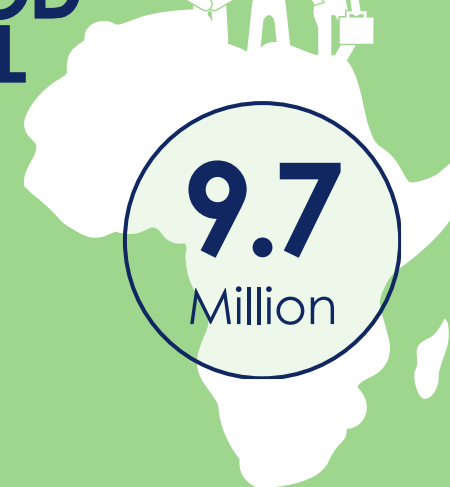
SUB-SAHARAN AFRICA

- Figures are in US\$
- See details in Annex



LIVELIHOOD POTENTIAL

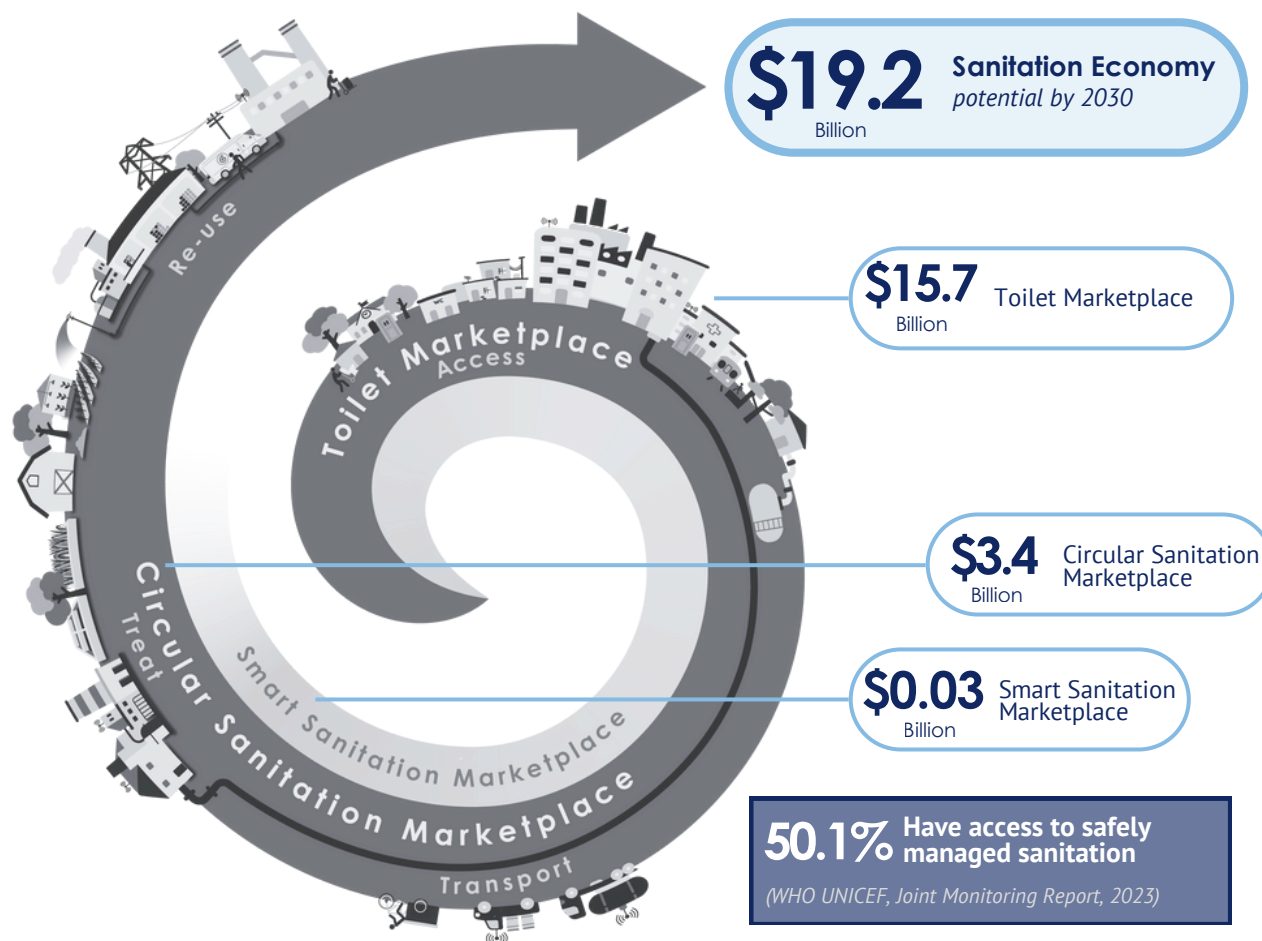
by 2030



Livelihood numbers are derived from India average livelihood potential of Sanitation Economy potential

LATIN AMERICA

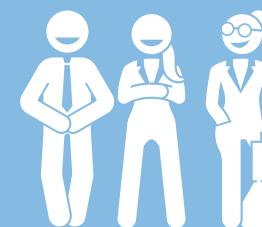
- Figures are in US\$
- See details in Annex



LIVELIHOOD POTENTIAL

by 2030

2.4
Million



Livelihood numbers are derived from India average livelihood potential of Sanitation Economy potential

1

Empowering
Sanitation through
Government and
Entrepreneurial
Synergy

2

Financing
Frameworks

3

Standards
Development and
Adoption

4

Robust Skill Gap
Analysis and Skilling
Opportunities

**CALL
TO
ACTION**



CALL TO ACTION

The enormous livelihood opportunities emerging from the growth, formalisation and maturity of the sanitation supply chain will require multi-stakeholder alignment and concerted action to ensure a skilled workforce is available.

This alignment needs a clear, actionable agenda for each of the stakeholders.

1 EMPOWERING SANITATION THROUGH GOVERNMENT AND ENTREPRENEURIAL SYNERGY



In unlocking the potential of the Sanitation Economy, entrepreneurs, with the support of governments, need to come up with modular solutions which can be scaled up quickly.

A template for public-private partnership can be developed and the government can generate social, economic and environmental impact at ground level and make public finance utilisation more targeted and effective. The private sector can bring innovation and design new products and services that can increase their service envelope.

Fortunately, these collaborations have started across multiple points in the sanitation supply chain. Governments are increasingly engaging entrepreneurs who can not only provide sanitation infrastructure, but realise a business model that provides an incentive to operate it in such way that delivers consumer satisfaction.

These partnerships mean not only more satisfied citizens, but also better utilisation of public finances in economically weaker areas, where affordability and willingness to pay are a challenge.

STAKEHOLDER ROLES

PUBLIC SECTOR – NATIONAL/STATE GOVERNMENTS

- Clarity on contexts where business solutions can be implemented
- Greater awareness of new solutions in sanitation
- Designing the right kind of contractual frameworks that deliver customer value while encouraging innovation

PRIVATE SECTOR – CORPORATES AND SMES

- Long-term mindset of creating sanitation value for customers
- Transparency in solutions and their applicability to contexts

Entrepreneurs looking to scale their businesses may choose the micro-entrepreneur model to expand their operations – it lowers their risk if, in return, they are willing to share rewards with the micro-entrepreneurs. Further, since these microentrepreneurs will be from the same communities where sanitation assets are deployed, they will be able to bring community intelligence as well to the business.

Of course, they themselves will also require capacity-building support.

2 FINANCING FRAMEWORKS

Apart from entrepreneurial investment, government also needs to mobilise financial resources to speed up investment in treatment plants. Unfortunately, organisations looking after sanitation infrastructure are inadequately capitalised. However, many private enterprises have been able to earn profit, which indicates there is financial viability, at least in cities.



This financing framework will likely include a spectrum of financing. On the one hand, it might require a combination of subsidies, grants and commercial financing. On the other hand, it will require an efficient mechanism to disburse the finance.

Fortunately, all these different forms of financing are currently available and have begun to address the Sanitation Economy. For example, the Toilet Board Coalition's Accelerator has enabled more than US\$ 33 million of investments into sanitation SMEs. This investment is a combination of grants and commercial capital.

Of course, the volume and diversity of investment must increase drastically to achieve our ambition of universal access to safely-managed sanitation.

STAKEHOLDER ROLES			
NATIONAL GOVERNMENT	STATE GOVERNMENT	PRIVATE SECTOR	INVESTORS
- Encourage improvement of the creditworthiness of municipal and state governments to ensure that their contracts with SMEs are bankable. - Encourage innovation in financial instruments for municipal and state governments.	Provide land as public investment to support sanitation projects.	Enable strategic supply chain partnerships with SMEs that can de-risk demand.	- Develop innovative financing tools, such as credit guarantees and blended finance, to provide sustainable finance to sanitation entrepreneurs. - Local-level financing mechanisms for households, such as rotating funds, can be implemented along the lines of micro-finance. - Results-based financing solutions (impact bonds, performance-based loans) for sanitation enterprises. - Asset management fund for long-term ownership of sanitation assets

3 STANDARDS DEVELOPMENT AND ADOPTION



Standards are critical to the formalisation of the sanitation supply chain and the realisation of demand for trained and certified sanitation workers. Effective standards will make the process of procurement effective and also provide critical inputs for the training and development of sanitation workers.

In terms of human rights and dignity of labour, mechanisation of sanitation work, particularly high-risk work such as sewer/septic tank/drain cleaning, along with protection of the livelihoods of sanitation workers by making them equipment owners and service providers is the need of the hour.

STAR RATED PUBLIC TOILETS: TBC GUIDELINES

The TBC's [Star-Rated Public Toilet Guidelines](#) released in 2020, provide examples for rating public toilets based on a customer centric set of guidelines, which is useful in comparing and rating public toilets within and across cities. These Guidelines helped in developing training modules for toilet operators, with a clear step-by-step process on how to clean and maintain public toilet facilities, thereby providing dignity and safety for the toilet operators.

STAKEHOLDER ROLES

PUBLIC SECTOR	Encourage the design and adoption of standards in sanitation in consultation with industry and not-for-profit organisations.
PRIVATE SECTOR	- Provide inputs into the standards process. - Adopt and report standards.
SANITATION NOT-FOR-PROFITS	Provide inputs into standards that open doors for new solutions while creating enduring social and environmental impact.
STANDARDS ORGANISATIONS	- Input into making standards that are effective and also easy to adopt. - Testing and certification.

4 ROBUST SKILL GAP ANALYSIS AND SKILLING OPPORTUNITIES



New job profiles and skillsets are emerging in the sanitation space with the advent of new technologies. As sanitation coverage accelerates, it will systematically require trained workers to operate the diverse sanitation infrastructure in a way that creates value for users and communities and, at the same time, ensures their safety and the dignity of their jobs. There is an on-going need to understand the existing skills gaps in the sanitation sector value chain and to, develop training and job opportunities based on routine needs analysis.

This will require a systems approach to training and development. Operating standards of the diverse sanitation infrastructure will need to be defined so that organised training and development programmes can be undertaken to meet the demand for sanitation.

E-LEARNING MODULES - WASH INSTITUTE INDIA

The WASH Institute India collaborates with government bodies, NGOs, and the private sector to implement sustainable solutions, enhance public health and promote hygiene across the country. In 2023, alongside the Toilet Board Coalition and with support from USAID India, they developed e-learning modules to professionalise the operation and maintenance of public and community toilets.

These modules, based on the Star-Rated Public Toilets guidelines, cover user interaction, personal safety and cleaning procedures. Available as nine short videos in Hindi with English subtitles, they culminate in a certification. This initiative aims to boost private sector involvement, ensure worker safety and provide professional growth opportunities, with plans to expand training and translation to various regional languages, advancing progress towards SDG 6.

THRIVE - GIZ PROGRAMME IN ZAMBIA

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) is a global service provider in international cooperation for sustainable development. In Zambia, GIZ's THRIVE programme addresses high youth unemployment by modernising vocational training in the water and energy sectors.

With Zambia's young population and around 375,000 new job seekers annually, the programme targets the skills gap in critical areas like water, sanitation and solar energy. It helps the Ministry of Technology and Science and the Technical Education, Vocational and Entrepreneurship Training Authority to modernise vocational training in the water and energy sector, and to align it with the needs of the labour market.

THRIVE aims to produce skilled professionals, improve employment rates and enhance the delivery of essential services, fostering economic development in Zambia (GIZ).

4 ROBUST SKILL GAP ANALYSIS AND SKILLING OPPORTUNITIES



Sanitation workers lack access to social security and basic labour rights. They suffer social stigma and discrimination in their daily lives. Recognising their skills can be one step towards their formalisation. The skills of informally-trained sanitation workers should be formalised through assessments and certifications. The concept known as Recognition of Prior Learning should be embedded effectively for formally recognising skills of sanitation workers and offering upgrading of skills through relevant bridge courses.

The present skill gap exists because sanitation is currently not considered a respected or prestigious career choice. Certified sanitation courses and skill training institutes will begin transforming this and develop a cadre of sanitation professionals.

Many initiatives are already in place, offering certification courses and striving to provide placements to their trainees. However, there is a need for a concerted effort to formalise and scale up this process to build a cadre of formally trained and certified professionals in sanitation.

STAKEHOLDER ROLES

PUBLIC SECTOR

- Sanitation workers should be given access to counselling on available livelihood opportunities.
- Organised and decentralised skill development programmes are needed.
- There should be provision for awarding and recognising sanitation workers for good performance.
- Human resources that are currently engaged in sanitation activities (mainly in maintenance and operations) need to be upskilled and reskilled. Recognition of Prior Learning (RPL) will equip them with essential skills for upward movement in their careers and ensure the practice of safety and dignity of work.

PRIVATE SECTOR

- Assist in need analysis for development of training and development programmes.
- Training and development businesses are needed.

TRAINING INSTITUTES

- Training and development modules need to be developed.

1

Annex 1:
METHODOLOGY



2

Annex 2:
COUNTRIES



3

Annex 3:
DETAILED ESTIMATES



ANNEXES





LIVELIHOODS IN THE SANITATION ECONOMY

TOILETBOARD.ORG