



Federal Democratic Republic of Ethiopia

IUSHS

SAP-A



INTEGRATED URBAN SANITATION AND HYGIENE STRATEGY ACTION PLAN - ACTIONS



APRIL, 2017
ADDIS ABABA



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Acronyms

CC	Concession Contract
CGD	Child Gender and Differently Abled
CSA	Central Statistics Office
CWA	Consolidated WaSH Account
DEWWATS	Decentralized Waste Water Treatment Systems
DHS	Demographic and Health Survey
DSMC	Delegated Service Management Contract
ESIA	Environmental and Social Impact Assessment
FMoH	Federal Ministry of Health
FSM	Faecal Sludge Management
GOE	Government of Ethiopia
GPs	Good/Best Practices
GTP II	Growth and Transformation Plan II
H&S	Hygiene and Sanitation
HSCs	Health Science Colleges
HWM	hazardous waste management
IEC	Information, Education and Communication
IFI	International Financial Institution
IUSH-SAP	Integrated Urban Sanitation and Hygiene Strategy Action Plan
IUSH-SAP-IG	Integrated Sanitation and Hygiene Strategy Action Plan - Implementation Guidelines
JSI	John Snow, Inc.
KPI	Key Performance Indicator
LICs	Low income Communities
l/p/d	Litre per day
LWM	Liquid Waste Management
M&E	Monitoring and Evaluation
MFI	Microfinance Institutes
MIS	Management Information system

MoA	Ministry of Agriculture
MoCT	Ministry of Culture and Tourism
MoE	Ministry of Education
MoEFCC	Ministry of Environment, Forestry and Climate Change
MoU	Memorandum of Understanding
MoUD	Ministry of Urban Development and Housing
MoWIE	Ministry of Water Irrigation and Energy
MSP	Minimum Sanitation Packages
NGO	Non-Governmental Organisation
NRW	Non Revenue Water
NWCO	National WaSH Coordination Office
NWI	National WASH Inventory
O&M	Operation and Maintenance
OCSSCO	Oromia Credit and Saving Share Company
OWNP	One WaSH National Programme
R&D	Research and Development
RWCO	Regional WASH Coordination Offices
RRR (3Rs)	Reduce, Recycle, Reuse
SDGs	Sustainable Development Goals
SEUHP	Strengthening Ethiopia's Urban Health Program
SLF	Sanitation levy fund
SMC	Service Management Contracts
SMMEs	Small Micro and Medium Scale Enterprises
ST	Strategic Targets
SWM	Solid waste management
TA	Technical Assistance
TVETC	Technical Vocational Training Centre

UHEP	Urban Health Extension Program
WASHCO	Water Supply Sanitation and Hygiene Committee
WaSH	Water Supply Sanitation and Hygiene
WEEE	Waste electrical and electronic equipment
WMS	Welfare Monitoring Survey
WRDF	Water Resources Development Fund
WSUP	Water Supply and Sanitation for Urban Poor

I. Introduction

I.1 Background

The **Situation Analysis** written at the beginning of 2015 set out the background to urban sanitation in Ethiopia and was the foundation for the **Integrated Urban Sanitation and Hygiene Strategy**, developed over the course of 2015 and finally adopted by the five federal ministries (Health; Water, Irrigation, and Electricity; Urban Development and Housing; Environment, Forestry and Climate Change; and Culture and Tourism) in November 2015. This **Integrated Urban Sanitation and Hygiene Strategy Action Plan (IUSH-SAP or SAP)** has been further informed by additional consultations and visits at federal and ministry level, at municipal level and down to the various urban community levels.

This document, the **IUSH-SAP-A**, contains specific actions to be carried out under the IUSH-SAP. It should be read in conjunction with the **Implementation Guidelines (IUSH-SAP-IG)** which gives further information on how to apply the SAP as well as further information gathered since the Situation Analysis and the Strategy were issued and that will benefit users of the SAP. Both documents may be understood to comprise the **(IUSH-SAP or SAP)** and have the same section and sub-section headings.

The SAP is required to:

1. Address all eleven Strategy Components and 18 Sub-components from the Strategy and listed in **Sub-section 2.1** below
2. Meet all eleven Strategy Targets as listed in **Sub-section 2.2** below
3. Compile Strategy Actions that can, between them, meet these two criteria (1) and (2)
4. Include a Monitoring and Evaluation (M&E) system that regularly evaluates progress towards meeting the Strategy Components on the one hand (the “inputs”) as well as progress towards achieving percentage of Strategy Targets (the “outputs”). In addition, it is necessary to monitor achievement against international goals, embodied in the new Sustainable Development Goals (SDGs)
5. Include Implementation Guidelines as a separate document
6. Provide a Memorandum of Understanding (MoU) as a separate document to establish sanitation and hygiene over sitting and coordinating team within the One WASH National Programme and including all relevant ministries

I.2 The SAP explained

The IUSHS and this SAP are built on the foundation of Ethiopia’s One WASH National Programme (OWNP). Wherever possible, existing OWP structures will be used to deliver urban sanitation and hygiene on an accelerated timetable. However, the SAP does emphasize the need for a municipal level bottom-up approach alongside the One WASH federal, regional, zonal, woreda, city/town management structure that was designed to cover both rural and urban. Also targeted bilateral funding may continue to benefit initiatives and spearhead urban sanitation, hygiene and water projects that will in turn increase basket fund investor confidence.

The SAP makes it clear who is responsible for sanitation and specifically gives those responsible for sanitation the tools to access funding and to provide long term sustainable sanitation services that will enable the Government of Ethiopia to meet its sanitation targets. It is important to ensure that the Strategy Actions will lead to the achievements of the Strategy Targets (**Section 2**). This is where advocacy, project preparation, institutional development, monitoring and evaluation and the governance all play crucial roles for urban sanitation service delivery and to trigger allocation of the required resources.

WASH (including solid waste management) sector institutional changes are seen as key to improvement in service delivery and sustainability. Existing initiatives related to informal sharing of resources between municipalities and between utilities will be encouraged and expanded (**Section 3**). Longer term, more formal voluntary clustering will be encouraged, bound by contractual obligation. In addition, delegation of parts of the service delivery chains

to community based and private entities will be included in business plans. One of the clear aims of the SAP is to endow “ownership” of sanitation to municipalities and utilities, including physical and financially ring-fenced operations. Under the SAP, technical assistance and capacity building will be provided to pro-active individual, and preferably groups of, municipalities and utilities willing to explore cost saving and efficiency measures.

In order to access funding, individual or voluntarily grouped municipalities and utilities will prepare bids based on sustainability master plans (**Section 4**) and business models that fully take into account economy of scale, utilize appropriate levels of technology and utilize sound analytical tools, allow for cross cutting issues and maximise targeted cross-subsidy from water to sanitation. A basic principle of the Strategy is that WASH related funding applications from municipalities and utilities should include water, sanitation and solid waste management in full and equal measure and that this should be a condition on funding applications. Sanitation provision requires adequate water supply; conversely, any health benefits of improved water supply will be low without adequate and sustainable sanitation (liquid and solid waste management) provision. Of course, there will be exceptions to this principle: some towns have already completed their water projects and new funds should be aimed primarily at sanitation; in some cases, interventions are only needed in either water or sanitation, or in some cases just solid waste management.

Technical assistance will be provided through regional bureaus to assist with sustainability master planning and funding application procedures. Funds will be allocated on an equitable basis to those applications that present financially and environmentally sustainable business plans or “Minimum Sanitation Packages” (MSP)¹. Increasing awareness, community responsibility for sanitation and increasing demand for sanitation services at the local levels has been further investigated as part of the SAP preparation in order to establish clear focus and actions; see **Section 5** plus its annex. Such actions are aimed at the Urban Health Extension Programme, local sub-municipal authorities as well as the service providing municipalities and utilities.

Technical and operational development (R&D) is addressed separately (**Section 6**) since this will be longer term and will be carried out by a mixture of actors with the results being demonstrated through adequately sized business models. Successes, as well as lessons from failures, will be shared through national and regional fora to ensure full and timely dissemination and to eliminate duplication of effort.

Similarly, service delivery, **Section 7** (covering solid waste management, hazardous waste management, faecal sludge management, liquid waste management, institutional sanitation -schools, offices, health facilities, capacity building as well as the roles of the informal, community and private sectors) is treated separately since improving services is something that municipalities and utilities should be striving for irrespective of funding opportunity or political direction. There is of course overlap between this section and other sections so it is adequately cross-referenced so as avoid too much repetition.

An inventory of existing regulations and enforcement mechanism related to sanitation improvement is included as **Section 8** along with its annex. Operational subsidies for sanitation may come from a Sanitation Levy Fund, from municipal resources, from federal and regional government budgets and from local cross-subsidies (water, electricity and municipal rates, etc.). See **Section 9**. Very specifically, guidance is given on where along the various sanitation chains subsidies should be targeted in order to support sustainable business models.

The SAP clearly sets out (**Section 10** and annexes) the level of funding that will be required over the next 10 years to meet the ambitious targets included in the Strategy as well as in the recent Ethiopian Government Growth and Transformation Plan: Around 15 billion Birr is required in the first five years alone, 2016-2020. Funding will be made available through a new Sanitation Basket Fund or through existing water and sanitation basket funding plans (One WaSH National Programme and Water Resources Development Fund) or through bilateral funding agreements, as well as through annual government budgets and town-level revenue generation. To be able to spend this level of investment requires a very strong “enabling environment”; hence many of the SAP activities are focused on establishing such an enabling environment. Actual costs required for any particular project will be determined through comprehensive sustainability master planning and feasibility stages.

Clear direction, based on an evaluation of Ethiopian WaSH Monitoring and Evaluation (M&E) systems, is given in **Section 11** and its annex on how monitoring and evaluation should be carried out for urban sanitation. It is concluded that sanitation M&E should be based on existing and evolving structures under OWNPNP. The

¹ A suggested definition of Minimum Sanitation Package under the SAP is: The least cost option that provides equitable financially and environmentally sustainable sanitation (and water) service delivery for both small and large towns

subject of Oversight and Management of the SAP, **Section 12**, may be dependent on discussion within GOE departments and potential funding agencies over the initial months of SAP implementation so should be regarded as best available direction at time of writing. A tentative three-year programme is included to “kick start” the SAP (**Section 12.5** to the IUSH-SAP-IG document).

1.3 Who should use this document?

The SAP is aimed at several audiences. Federal and regional steering committees will take the lead while municipalities and utilities will be encouraged to collectively take initiatives. There will be research institutes assisting regional bureaus and the towns to develop appropriate technology and business models. There may also be a range of local committees and agencies involved with project implementation assisted by regional bureaus and technical consultants. And of course the municipal and government budget holders and funding agencies will be basing long term resource allocations on experience of, and learning outputs from, the initial SAP actions.

Further guidance on how to use the SAP and the rationale on section layout is included in the accompanying document, (**IUSH-SAP-IG**).

2.Strategy Components and Targets

2.1 Strategy Components

The final version of the IUSHS, issued in November 2015 by the Government of Ethiopia, includes eleven key Strategic Components. These are listed below (the numbers in brackets refer to the sub-section headings within the Strategy document):

1. Advocacy, Raising Sanitation and Hygiene Profile, Behavioral Change Communication and Promotion of Service Delivery (6.1)
2. Service Delivery for Solid Wastes, Fecal Sludge, Liquid Wastes and Industrial Wastes (6.2)
3. Institutional Sanitation (6.3)
4. Emergency in Urban Sanitation (6.4)
5. Capacity Building (6.5)
6. Technical Innovation, Research and Development (6.6)
7. Cross Cutting Issues (6.7)
8. Sanitation Financing and Tariffs (6.8)
9. Required Institutional Arrangements for the Implementation of the IUSHS (6.9)
10. Regulation Enforcement (6.10)
11. Monitoring and Evaluation (6.11)

Service Delivery for Solid Wastes, Faecal Sludge, Liquid Wastes and Industrial Waste has the following six sub-headings:

- i. Solid waste management (6.2.1)
- ii. Faecal Sludge Management (FSM) (6.2.2)
- iii. Liquid Waste Management (6.2.3)
- iv. Clustering of solid and liquid waste management services (6.2.4)
- v. Drainage (6.2.5)
- vi. Linkage between Water Supply and Sanitation (6.2.6)

Institutional Sanitation has three sub-headings:

- i. Health Institutions 6.3.1)
- ii. Schools and government offices (6.3.2)
- iii. Food and drink establishments (6.3.3)

Cross cutting Issues lists these issues under seven sub-headings:

- i. Equity (6.7.1)
- ii. Gender (6.7.2)
- iii. Environment (6.7.3)

- iv. Health and safety (6.7.4)
- v. Private sector engagement (6.7.5)
- vi. Community engagement and ownership (6.7.6)
- vii. Sustainability (6.7.7)

Sanitation Financing and Tariffs includes two sub-headings:

- I. Sanitation financing (6.8.1)
- II. Tariff setting for urban sanitation (6.8.2)

Strategic actions have been formulated within this Strategic Action Plan (SAP) to address all 11 Strategy Components and 18 Sub-components of the Strategy, as listed above, and to meet the eleven Sanitation Targets from Section 5 of the Strategy, as repeated below.

2.2 Strategy Targets

The sanitation targets listed in **Table 2.1** below were formulated by the TWG under the IUSHS in early 2015. These targets should be critically and realistically reassessed by the National WaSH Steering Coordination Office in the light of the **SAP** as one of its first steps to rolling out sanitation improvements.

Table 2.1: Strategic Targets

Ref.	Sanitation Targets
ST1	To bring sustained behaviour change for better hygienic practices, installation of facilities and delivery and uptake of sanitation services by 2020
ST2	To ensure open defecation free cities and towns by 2020 by reducing from current average of 6% to zero percent
ST3	To ensure that 100% of urban households in any given town or city have access to improved latrines or toilets by 2020
ST4	To increase the faecal sludge management systems capable of safely removing, treating and recycling faecal matter to 70% coverage by 2025 (interim targets of 30% by 2020).
ST5	To install 1,000 decentralised waste water treatment systems capable of treating liquid and faecal matter to a standard that can be directly and safely used in the immediate environment or following further conditioning in localised facilities by 2025 (interim target of 200 by 2020).
ST6	To Reduce, Recycle or Reuse 50% of all solid waste generated in medium and large towns and cities by 2025 (interim target of 20% by 2020).
ST7	To dispose of 100% of the remaining solid waste in controlled tipping and sanitary landfill sites that fully comply with 2014 Guidelines by 2030 (interim target of 50% by 2020).
ST8	To ensure safe disposal of 100% health care waste from all health care facilities by 2025 (interim target of 95% by 2020).
ST9	To enforce safe treatment, reuse or disposal of industrial liquid and solid wastes to ensure ecosystem, agricultural and human protection from all industries by 2035 (interim target of 30% of all industries by 2020).
ST10	To strengthen sector performance through formation of a “coordination body” that will be managed and financed so as to direct capacity building efforts towards participating individual or clustered municipalities, utilities and contractors. Such coordination body to be fully established by 2020 (interim coordination mechanism 2016).
ST11	To leverage and increase effective utilization of resources for accelerated and cost-effective implementation of the IUSH-SAP.

2.3 Specific targets in GTPII

The Strategy targets listed in **Sub-section 2.2**, as well as the aims of the Strategy itself, are complimented by targets included within the recently published 2016-2020 Second Growth and Transformation Plan (GTPII).

In summary, the GTPII includes construction and rehabilitation/expansion of water supply schemes and construction of urban wastewater management facilities. As per Goal 1.4 of GTPII which focuses on urban sanitation hardware, study and design of 36 categories 1, 2, and 3 towns/cities urban wastewater management system are planned. Construction of such wastewater infrastructure systems in six of these large towns/cities (with a population of 200,000 and more) are planned for completion under GTPII.

In order to have adequate water available to flush long sewers, GTPII has to allow for planning and development of water supplies in these 36 urban areas that will increase the current level of approximately 30 l/p/d to all-year-round (including drought years) reliable supply of at least 100 l/p/d and 150% of industrial and commercial demand (to allow for NRW loss).²

As noted elsewhere in the SAP, provision of such quantities of water will be difficult and may be constrained by the high cost and the levels of available funding. The SAP therefore retains the target included in the Strategy to construct 200 DEWWATS within the first 5 years and 1000 DEWWATS within 10 years, as a pragmatic approach to address health and environmental issues in a risk averse way.

GTPII also includes construction of solid waste landfills sites and provision of solid waste management services in cities having 20,000 or more population.

² It should be noted that "provision of at least 60 l/c/d", as used by MoWIE, means a minimum of 60 l/c/d at the property boundary. If all customers are metered, billing efficiency is high, willingness and ability to pay are high, delegated management systems are contractually bound and accountable, illegal connections are low and water networks are in reasonable condition, etc., then it might be possible to attain NRW figures as low as 20 or 30%. Also, since 60 l/c/d is a minimum figure, there will be many consumers who will decide to buy much more than 60 l/c/d. Hence 100 l/c/d should be the minimum production design figure to allow for variations in demand, NRW, commercial, industrial, municipal use (e.g. greenery) and institutional requirements, etc.

3. Institutional Arrangements

This **Section 3**³ of the SAP, Institutional Arrangements, meets the requirements of the Strategy Components as summarised in **Table 3.1** (included in the **IUSH-SAP-IG**). The section also addresses all Targets STI to STII inclusive (as listed in **Sub-section 2.2**).

Economy of Scale

All cities and towns shall consider the sharing of facilities and human resources between neighbouring towns in order to benefit from economy of scale and to make the best use of limited technical and management capacity. In the short term the current informal practice of sharing and mutual assistance shall be extended wherever possible and with assistance and guidance from Regional WASH Coordination Office and WASH sector Bureaus. Besides the national and regional advocacy “champions” (as discussed in **Sub-section 5.2**), it may be envisaged that the most rapid improvement and initiatives will be spearheaded by one or more ambitious individuals in each city or group of towns with vision and dedication to improve the living conditions of the urban (and particularly the poor and CGD) residents.

The cost analysis carried out in preparation for this SAP (See **Sub-section 10.1** and **Annex 6**) demonstrates how unit costs for sanitation infrastructure and operations increase significantly as town size decreases; this clearly illustrates the benefits to be gained from economy of scale. In the medium term (perhaps nearer the end of GTPII), these informal arrangements should wherever possible be transformed to more formal arrangements, whereby an “association of municipalities” enters into a formal contract with a single public operator formed from the existing town utilities. The formal arrangements shall be made binding through contract. An example of such a contract, which might be in the form of a Service Management Contract (SMC) or a Concession Contract (CC).

Such contracts shall consider economies of scale, contracting out/ delegated management, adoption of national good practices, business plans, capacity needs, drought and climate change resilience, tied water and sanitation funding and use of outside technical assistance. It should be noted, however, that such proposals need to be clearly optimised through financial analysis: For instance, including a more distant town in a cluster where roads and communication channels are poor might in fact increase, not decrease, overall costs.

As discussed further under **Sub-section 4.3**, voluntary sharing and clustering has an added advantage in terms drought and climate change resilience since, for example, multiple water sources combined with emergency water trucks can provide for better distribution to the worst affected areas.

Due to the strong links between water supply and sanitation (due to needs of hygiene, flushing water and cross-subsidy potential), individual or clustered municipalities and utilities shall prepare sustainability master plans (**Section 4**) and shall test business models (**Section 6**) that include both water supply and faecal sanitation. The linkage may also be extended to solid waste management (SWM) since environmental sanitation is also strongly linked to health benefits.

Capacity building at service provision level (**Sub-section 7.7**) shall include system development, financial analysis, procurement of facilities, operations, training of staff and development of leadership programs, etc..⁴

Municipalities and utilities shall initiate and contribute towards regional and national fora for sharing of good/ best practice for technical innovations, operational systems, capacity building, etc. See **Sub-section 6.6**. It will be the role of National and Regional Steering Committees to initiate sharing of resources, with assistance and guidance from Regional WASH Coordination Office and WASH sector bureaus.

³It is important to note that these section first deals with sharing and formal clustering that can benefit from sharing of resources and economy of scale (the “macro-level”). Secondly, it deals with delegated service delivery (call it the “micro-level”) which is completely different subject from clustering: The clustered utility may delegate supply zones or activities for all the good reasons cited. The DSMC (see example Annex 3.3) must pass down the KPIs in the CC: But even in the absence of a CC or a clustered utility, the DSMC can be signed by a single municipality or utility. Delegation of water and sanitation will be done by water and sanitation utility or utility cluster while SWM delegation will be done by a single municipality or an association of municipalities.

⁴The One WASH National Programme has recently, in February 2016, issued a series of “OpenWASH” Training Manuals (summarised which will be particularly useful for cascaded training

Delegation

As stated in the Strategy, there are many advantages for large or voluntarily grouped (and eventually formally clustered) municipalities/utilities to delegate some of their services to delegated operators which will be responsible either for a specific geographical area, where accountability and efficient service delivery to customers may be greatly improved, or for specialist technical activities, such as operation of a solid waste disposal site.

In this case, the mandated operators (public utility) shall sign a Delegated Service Management Contract (DSMC) with the delegated operators. The main advantage of a DSMC relates to the physical and financial ring-fencing of services and in establishing a clear full cost recovery (that is, including investment costs) modality in order to both promote and deliver services.

Employee incentive schemes shall be introduced in both SMCs and DSMCs to drive efficiency and improved levels of service. For instance, as stated in the Strategy (see extracts Table 3.1 in IUSH-SAP-IG), staff might receive a monetary bonus or other incentive for achieving high KPI (Key Performance Indicator) scores in water and sanitation provision. Additionally, competition between municipalities in any Region, and acknowledgement through award and recognition, shall be initiated to drive improvement: One common KPI example is street cleanliness. However, ability to cover operation and maintenance costs from revenue and to create a surplus for repayment of loans for capital infrastructure would be a higher level and perhaps even more valuable longer term indicator worthy of recognition.

Large private operators shall only be considered once systems have been fully installed and financial sustainability has been clearly demonstrated, since private operators are generally not able to receive International Financial Institution (IFI) grant money and since private companies will be risk averse and likely to pass risk on to customers in increased charges. It is envisaged that, for instance, a delegated sanitation operator serving several adjacent towns should, at least in the short to medium term, be publicly owned. In this way, charges can be controlled to ensure affordability but at the same time minimising subsidies.

There shall be full cooperation, and written agreements put in place, between all departments and organisations within a municipality or cluster of municipalities with respect to water supply, sewerage, sanitation services, beautification and greening, health services, etc. It is again expected that the National and Regional WASH Steering Committees, with assistance and guidance from Regional WASH Coordination Office and WASH Sector Bureaus, will play leading roles to ensure that such full cooperation and written agreement are put in place.

One clear example of where inter-departmental agreements will be essential is in relation to the planned use of Decentralised Waste Water Treatment Systems. Since the DEWWATS will be adjacent to buildings (medium rise clusters and institutions) within the town, then the technology and re-use paths will need to be fully evaluated at master planning and feasibility stages (**Section 4**), fully tested through business models, in terms of financial sustainability, financing, economic value of products (soil conditioner and biogas), responsibility for operation and maintenance, use of private sector, community acceptance, health and safety, ESIA, etc. Inter-department cooperation will be required for many of these links in the DEWWATS “supply chain” (for instance, between the operator of the plant and users of treated products).

4. Sustainability Master Planning

4.1 Introduction

This **Section 4** of the SAP, Sustainability Master Planning, meets the requirements of the Strategy Components as summarised in **Table 4.1, IUSH-SAP-IG**. It also addresses all Targets ST4 to ST11 inclusive (as listed in **Sub-section 2.2**). The section gives guidance on the general principles related to master planning; it does not specifically state who is responsible for each component related to master planning. However, it is generally expected that the master planning shall be carried out by individual or groups of municipalities and utilities with assistance from Regional WASH Coordination Office and Regional WASH Sector Bureaus. These organizations will use their own resources and will further engage support from national and international Technical Assistance, Universities and TVETCs.

“Minimum package” plans need to be developed for applicant individual and grouped/clustered municipalities and utilities based on readiness criteria. Master planning and feasibility studies are required to prepare such minimum packages that are financially and environmentally sustainable and that can demonstrate a business case or “bankable project” worthy of investment.

“Minimum sanitation package” has so far been conceived as applying to individual towns, with smaller towns generally being allocated lower levels of service than larger ones in the planning process. However, this has the risk of leaving smaller towns at the bottom of the sanitation ladder for some considerable time, with serious impact on the most vulnerable, including children.

The SAP therefore takes a different approach in that it encourages small and large towns to group and eventually formally cluster to share services under reformed management structures (for instance, WaSH under a utility serving several towns and certain SWM services under a delegated operator; see **Section 3**). Under these circumstances, equitable service delivery can be assured across towns of different sizes. As important, environmental protection measures can be applied throughout the service delivery areas that include both small and large towns.

Because of economy of scale, institutional review and other factors, the sustainability master planning should be able to identify a Minimum Sanitation Package (MSP) that could be broadly defined as: “*The least cost option that provides equitable financially and environmentally sustainable sanitation (and water) service delivery for both small and large towns*”.

This section **Sustainability Master Planning** of the SAP outlines the various elements that make up comprehensive master plans capable of yielding up “bankable MSP” projects. These elements, included below, are socio-economic analysis (**4.2**), cross-cutting factors (**4.3**), appropriate and affordable technology (**4.4**), economies of scale, sharing and delegated management (**4.5**), formative research (**4.6**), financial analysis (**4.7**), tariff structures and phasing (**4.8**), funding bids (**4.9**) and technical assistance (**4.10**).

Not included in the list below, but an essential part of more detailed feasibility and design studies that may follow master planning, are environmental and social impact assessments, ESIA, that may be required before a project starts. However, it is important to be aware at master planning stage of any potential issues that might arise at ESIA stage. For instance, FSM primary and secondary treatment systems including DEWWATs (**Sub-section 4.4**, **Sub-section 6.2** and **Sub-section 6.4**), need to ensure that groundwater sources are not affected, that sludge and liquid wastes are treated sufficiently for safe re-use, and that communities, as well as politicians and technical managers, are sufficiently sensitised to the low impact of well-designed and operated systems located close to dwellings: Such sensitization (or advocacy, **Section 5**) may take many months and may require visits to successful “demonstration sites” (see **Sub-section 6.5**, sharing of good practice, and **Sub-section 6.6**, business models).

4.2 Socio-economic analysis

The basis for any water, faecal sanitation and solid waste master plan is knowledge about the customers to be served by municipal and utility operators, both to understand their needs and aspirations and also to determine what is affordable. This includes socio-economic status of the various groups of customers, their spatial distribution and population trends. Such trends include in- and out-migration, natural growth, densification, planned or assumed expansion of service areas, etc. The analysis must recognize town planning ambitions in terms of “slum clearance”

and medium rise replacement, commercial and industrial development, creation of open spaces and infrastructure development (roads and railways).

Socio-economic surveys comprise collection of data from primary and secondary sources. Primary data sources include community members; local Katana, Kabele, Woreda and municipal administrations; utilities; community-based, private and informal delegated operators; as well as Regional WASH Coordination Office and Regional WASH Sector Bureaus. Secondary data is gathered from available documentation.

4.3 Cross-cutting factors

Sustainability master planning shall take full account of all cross-cutting factors which have been identified in the Strategy. These cross-cutting factors include:

Resilience to natural and manmade disasters:

- This shall involve increasing design factors, such as on surface raw water storage, groundwater reserves and treated water storage
- It should also involve establishing and supporting the supply chain for in-house water filtration units to allow for contaminated mains water during water rationing and to mitigate for residents using alternative contaminated surface and shallow groundwater sources of water
- Design of sanitation systems shall be based on lowest predicted per capita water availability during drought or due to water being required by disasters in the locality; at least 50 l/p/d is required at household level for full flush systems connected to centralized sewage treatment systems.⁵
- Hence centralized sewerage systems should only be considered where water supply of around 100 l/p/d and 150% of industrial and commercial demand (to allow for NRW) can be assured, including drought years, for all consumers connected to the sewerage system
- As a result, low water usage sanitation systems shall be considered as an option in all master planning: Such systems include minimum cost, but environmentally sustainable, FSM systems based on pit latrines, septic tanks and decentralized waste water treatment systems DEWWATS (**Sub-section 4.4 and Section 6**)

Discretionary tariffs:

- In areas where financially sustainable water and sanitation tariffs will be introduced, discretionary tariffs shall be considered
- This may perhaps best be implemented by delegated operators such as existing Katana kiosk managers, serving around 300 to 600 households, who are aware of hardship cases and can register these households as eligible for subsidised charges⁶
- If larger scale private or community based delegated water, sanitation and SWM service providers, serving populations of say 10,000 or more households, are planned under institutional changes, see **Section 3**, (and where these have been demonstrated to be financially and environmentally sustainable through master planning and feasibility studies) then such operators should also be close enough to the communities to evaluate⁷ and manage discretionary tariffs.

Equitable service delivery:

- It is obviously not possible for all urban customers to receive the same level of water and sanitation services since the variations in standards of in-house facilities, and what each customer can afford, between low and high income residents may be vastly different. However, the concept of “equitable service delivery” shall be included within any specific service level category

⁵ However, to date, average per capita urban consumptions above 30 l/p/d are rarely reached, even under normal climatic conditions and even in large developed cities

⁶ This is an example from direct observation in several low income urban areas where the residents buy water from a utility managed kiosk and where the kiosk operator earns her money on a commission basis (hence it can be regarded as “delegated management”). site visit for Awash Melkassa: “Visit to one “Ketena” or “Goxii” No.2: 297 households, 203 male led and 94 female led. Water vendor sells 25l for 0.25 Birr. She pays 2.50 Birr/m³ to the utility. From a bill that she produced, she paid 250 Birr to the utility in one month (250/2.5 = 100m³ in sale per month). So gross income = 100/0.025*0.25 = 1,000 Birr and net income = 1,000 -250 = 750 birr = around USD 37 per month.” In this particular case, the local Ketena official and the water vendor herself, when asked, did not see a need for subsidized charges, since the charges were already low. However, the potential is there.

⁷ A feedback process from customers of the SWM service providers would be ideal. That should be part of management of these businesses. Data could be consolidated by municipal WASH Office (see Section 11).

- For instance, all water kiosks shall be open for the same length of time each day and have sufficient pressure to meet consumer demand. Also, customers with a household meter at the perimeter of a water supply zone shall have equal water availability to customers at lower elevations and closer to water sources
- Appropriate FSM services shall be available to all customers in a given service area at the same unit charge: For instance, in predominantly pit latrine areas low cost technology with manual operation of equipment and donkey haulage to transfer stations shall be considered in order to bring service levels in line with customer affordability levels (see **Sub-section 4.4**)
- The above 3 bullets of course require adequate master planning and subsequent detail design and full implementation of water systems and FSM infrastructure and services
- Solid waste collection services shall be available to all customers throughout the town with appropriate primary collection methods used to ensure the dual requirements for job creation but also for full primary service level cost recovery, that is, at least to transfer stations
- It is considered that SWM tariffs (**Sub-section 4.8**) should be based on property value so as to generate revenue from higher income residents to subsidize downstream costs in the sanitation chain, that is, secondary transport and environmentally sustainable final disposal (reuse, recycle and sanitary landfill)

Gender and disadvantaged:

- The sustainability master planning shall explore and evaluate low cost options for sanitation facilities located within private, public, communal, commercial, educational, health, government and other institutional buildings to cater for gender and vulnerability requirements
- Such sanitation facilities shall have child, gender and differently abled features, but importantly they shall take into account the whole sanitation chain in terms of appropriate technology and cost recovery to ensure affordability for these customer categories
- Women, youth and differently abled persons (the CGD category) shall be involved in enterprises that will deal with sanitation services, partly since these are vulnerable groups often with poor sanitation services themselves
- The principle of job creation shall not conflict with the principles of efficiency and cost recovery; as such, enterprises shall be required to agree to and sign delegated service management contracts (see **Section 3** and **Section 9**) to ensure equitable and sufficient financially and environmentally sustainable service delivery
- The involvement of women, youth and differently abled persons in environmental protection activities shall also be considered to fill the “gap” between household responsibility for in-house cleanliness and the regular municipal and utility service provisions; namely, open dumping of rubbish. See **Sub-section 5.3** for recommended actions around communal and “no-man’s land” areas
- In compliance with the GTPII, women membership of WASHCO shall be increased to 50% or more and training of women artisans, higher and medium professionals shall be increased to 25% or more

4.4 Appropriate and affordable technology

There is an urgent need to develop and use a range DEWWATS technical options on a large scale in Ethiopia, due to the country’s medium rise housing policy, satellite housing and industrial and commercial centre, country wide shortage of water required for full flush toilets, high cost and/or lack of available land, lack of sewerage and sewage treatment work infrastructure and other factors. See **Sub-section 6.4** for R&D related to DEWWATS. This means that increasingly sophisticated technology will need to be developed and rolled out on a large scale for the very dense urban environments that are increasingly appearing in Ethiopia.

Such systems will equally require sophisticated supply chains and O&M systems to be established and maintained in a financially and environmentally sustainable way; the full business case around DEWWATS shall be derived as part of sustainability master planning and inter-relationship agreements and contracts shall be drawn up between owners, operators and the users of recycled liquids and solids. Where space allows, for instance in less densely populated urban areas, DEWWATS shall be developed that are based on appropriate technology such as baffle reactors, planted gravel beds, etc.

With this exception of DEWWATS in large towns and cities, other technologies and business plans associated with sanitation shall be appropriate to customer affordability (See **Sub-section 4.2**). This will need new or revived approaches in the master planning that consider such factors as:

- Sanitation marketing of low cost pit latrine slabs: research, design and businesses development around manufacture and selling of mass produced GRP, polypropylene, smooth thin reinforced concrete (using molds), “Sand-plat”, etc. types that also allow for easy and hygienic pit emptying using mechanically driven and hand operated pumps (see bullet below)
- Manually operated pumping systems for emptying pit latrines, particularly in inaccessible locations and low income areas.⁸ See the recently published Ethiopian OWNPN Open WASH. See also **Sub-section 6.2** for discussion on R&D related to manual systems.
- Small scale sludge transfer stations under delegated management and located within town boundaries that also act as anaerobic primary treatment and using generated biogas for local small scale enterprises (See example **Annex 2**)
- Secondary small scale engineered sludge drying beds, also located within or just outside town boundaries, from where treated sludge can be marketed as a soil conditioner for municipal and private development landscaping (again, see example **Annex 2**)
- Sorting of solid waste at household level into organic, metals/plastic and non-recyclable; involvement and formalization/ support of the existing informal sector involved with recycling
- Establishing cost effective local, regional and national reduction, re-use and recycling technologies (the “3Rs”) and associated supply chains and businesses
- Establishment of supply chain and marketing of low cost “candle” water filters for use in houses, commercial and institutional establishments (See **Sub-section 4.3**)⁹

As an integral part of sustainability master planning, individual and voluntary grouped/clustered municipalities and utilities, along with their consultants and under guidance from Regional WASH Coordination Office and Regional WASH sector Bureaus, shall fully evaluate appropriate and affordable sanitation technologies related to household toilets, communal toilets, public toilets, institutional toilets, health sanitation facilities, sanitary land fill sites, sludge drying beds etc. as indicated above. The master planning shall also involve wherever possible in Ethiopian (and if necessary counterpart international) universities and TVETCs having strong sanitary engineering faculties.

Through the “sharing of good/best practice” at regional and national levels (See **Sub-section 6.5**), being fed in part by the results from “holistic” sustainability master planning actions, as described in this section, then it is expected that manuals will be produced at national level that will give further guidance on technological options and possible business models available at different levels of affordability.

4.5 Economies of scale, sharing and delegation

Consideration of informal sharing (short term) and formal “clustering” (implemented nearer the end of GTP II) shall be a core institutional component of all master plans, as discussed in **Section 3**. This will need the full voluntary cooperation of all participating towns which see the service delivery benefits and the greater possibility of “bankable MSP¹⁰ projects” to attract grant money and, importantly, that have the potential to lead to healthy financial operations able eventually to attract loan money.

Delegation of ring-fenced sections of service delivery and specialist activities to private and community based organization under strict delegated service management contracts, DSMCs, as further articulated under **Section 3**, shall be fully integrated in the master planning proposals.

⁸ This is clearly an area for R&D (Sub-section 6.2) where labour orientated systems need to be considered and demonstrated as part of financially sustainable and equitable service delivery to all, not just to middle and high income customers.

⁹ This will greatly reduce the unit cost of water associated with plastic bottles (including the cost of plastics disposal) and make safe water available to lower income consumers normally obliged to drink often unreliable mains water. This will also be a step towards 3Rs by reducing waste

¹⁰ Minimum Sanitation Package has been suggested under the SAP to be: The least cost option that provides equitable financially and environmentally sustainable sanitation (and water) service delivery for both small and large towns

4.6 Formative Research

As clearly stated in the Strategy, urban sanitation is principally about service delivery: An enabling environment is needed to ensure delivery of sustainable services but also to ensure that customers use and pay for the services once provided. However, there are likely to be “road-blocks” at both these levels which could result, for instance, in slow implementation of management and operational systems on the one hand and slow uptake of services by customers on the other hand. The result may be wasted investment or low “return” on the investments (in terms of consumer benefit).

As discussed under the advocacy **Sub-section 5.3** and **Sub-section 5.4**, what is known as Formative Research is required to identify, at an early stage in master planning, blocks to the implementation of financially and environmentally sustainable services and blocks to customer demand for and uptake of those services.

Essentially, Formative Research builds on Socio-economic Analysis (**Sub-section 4.2**) and Appropriate and Affordable Technology (**Sub-section 4.4**), taking into account Cross-cutting Factors (**Sub-section 4.3**) and ideally linked in an iterative or “feed-back loop” with Financial Analysis (**Sub-section 4.7**) to arrive at an Information, Education and Communication (IEC) strategy. The communication plans within the IEC roll out may typically be formulated to address four or more time stages; pre-construction, during construction, post-construction and long-term repetition of behaviour change messages.

4.7 Financial analysis

Financial analysis, which shall be carried out as the key part of master planning and feasibility studies, should demonstrate that a project is “bankable” in terms of financial sustainability, such that it will attract funding from donors and lending agencies. The analysis may, as above, involve an “iterative process” involving technical development (**Sub-section 4.3**), economies of scale (**Sub-section 4.5**), formative research (**Sub-section 4.6**) and tariff structures and phasing (**Sub-section 4.8**):

- For instance, a particular sanitation technology or service delivery level may be desired, and the corresponding capital and operating costs will be entered into a financial model. However, the result of running the model may show that the tariff levels needed to cover the costs (O&M and loan repayment, if any, and depreciation/ replacement cost), in the absence of long-term reliable cross-subsidy or outside subsidy, will be beyond the customer ability to pay (as determined from socio-economic study **Sub-section 4.2**).
- The iterative process therefore might involve re-visiting technologies that are simpler and/or more labour intensive (**Sub-section 4.3**) and/or it might involve revisiting formative research (**Sub-section 4.6**) and tariff structures (**Sub-section 4.8**) in order to explore whether the higher income customers could pay more in order to subsidize services to lower income customers. Alternatively, funding agencies might be approached to negotiate softer loan terms.
- In addition, the actual figures on income and expenditure in many situations may not be accurately known: In these cases, it is essential to run sensitivity analyses on the financial model to minimize project risk.

Consideration of economies of scale (**Sub-section 4.5** and the earlier **Section 3**) has suggested that sharing, more formal clustering and delegated management may be beneficial, since they should lead to more cost effective service delivery. This will in turn increase customer willingness to pay and to use the service¹¹; thus improving the overall financial sustainability of service delivery and increasing investor confidence, whether on a grant or loan basis. However, such proposals need to be clearly optimised through financial analysis: For instance, including a more distant town in a cluster where roads and communication channels are poor might in fact increase, not decrease, overall costs.

¹¹ Terminology used elsewhere discusses moving from a “vicious cycle” (poor service > low willingness to pay > no income to improve service > poor service) to a “virtuous cycle” (improved service level > willingness to pay > increased income > increased investment in services > improved service levels)

4.8 Tariff structures and phasing

As discussed above under financial analysis, business planning involves “balancing the books” whereby the levels of service provided and the degree of technical sophistication are matched by income generated from sales. In practice, even after introduction of all possible efficiency measures, full cost recovery for sanitation services is difficult to achieve, particularly if capital costs are included. Therefore, the SAP proposes the inclusion of subsidies and cross-subsidies as part of the business planning and for inclusion in the financial modelling (see also **Section 9, Finance**).

The SAP also proposes that subsidies be applied to “downstream” ends of sanitation chains, since ability to pay for “upstream” primary labour intensive low tech solid waste collection, and for proposed primary labour intensive low tech faecal waste collection (see **Sub-section 4.4**), may be expected to be sufficient to cover costs. It is more difficult to get cost recovery on downstream treatment, recycling and final disposal systems; also lower gate fees at solid waste disposal sites for instance can be utilised as one means (alongside enforcement) to discourage illegal fly tipping.

Although sewerage charges (ideally at full cost recovery rates) should be combined with water bills and be based on water volume, charges for pit emptying and septic tank and cesspit desludging as well as for solid waste should in principle be based on volume. However, as suggested under **Sub-section 4.3**, cross-cutting factors, discretionary tariffs shall be considered and tariffs should include a multiplier factor based on property value so as to generate revenue from higher income residents to subsidize downstream costs in the sanitation chain, that is, secondary transport and environmentally sustainable final disposal (reuse, recycle and sanitary landfill)

Master planning shall aim for full cost recovery for water supply including capital and depreciation costs as well as generation of a surplus to subsidise sanitation. Further, sanitation subsidies from municipal rates, electricity tariffs, etc. shall be discussed and agreed at municipal and regional levels. Where possible and acceptable to the local and national economy, a surplus might be generated from industrial and commercial tariffs to subsidize downstream sanitation services.

Of course, willingness to pay will likely only be achieved following construction or rehabilitation of systems to ensure adequate water sources, storage and distribution and implementation of IEC packages (**Sub-section 4.6**) and advocacy measures (**Section 5**).

The master planning shall allow for sustainable charges for vacuum trucks within business models that maximise upstream labour intensive systems (**Sub-section 4.4**) and economies of scale (**Sub-section 4.5**). For instance, labour intensive operation of small mechanical and manual desludging pumps and donkey transport to local transfer/primary treatment stations will allow the limited number of expensive-to-run vacuum trucks to concentrate on continuous full tank runs from transfer stations to drying beds in a well-managed highly efficient operation.

It is necessary for the master planning to particularly consider commercial and industrial tariffs related to water supply, solid waste management (SWM), hazardous waste management (HWM) and liquid waste management (LWM) (see also **Section 7, service delivery**). Tariffs, charges and penalties shall be strictly on a “polluter pays” principle aimed at full operational and capital cost recovery as well as to create a surplus to fund a local or regional task force perhaps under the Directorate for Compliance, Monitoring and Control in MoEF.

4.9 Funding bids

The backbone of all funding bids will be thorough sustainability master planning as described in the sub-sections above. A competitive approach between municipalities and utilities shall be encouraged, since high management level motivation at bid stage is more likely to last through to implementation and then on to long term operational sustainability.

Based on outcomes of the financial analysis, a business model shall be proposed that allows for sharing/ clustering but also allows for individual parts of the sanitation chains to be carried out by ring-fenced delegated private or community based operators (see also **Section 3** and **Sub-section 4.5** and **Sub-section 6.5**)¹².

¹² It is important to note that delegated service delivery is completely different subject from clustering: The individual or clustered municipality or utility may delegate supply zones or activities for all the good reasons cited in Section 3.

All funding bids should, as a general condition but with certain exceptions, include water supply, liquid and solid fecal sanitation and solid waste management in equal measure as noted in **Sub-section 1.2**.

Of course it will be necessary to create as far as possible a “level playing field” for competition; to take just a few examples:

- Some towns will already have received significant investment in water projects for instance, but still need very significant investment in sanitation. Since the existing water investment should already be yielding a surplus income over O&M expenditure then internal cross subsidy from water to sanitation can be included in the financial model (**sub-section 4.7**). This will strengthen the funding bid
- Some towns will have had no investment at all in either water or sanitation (including SWM) for many years and revenue collection may be extremely difficult due to the poor levels of service provided and lack of a product (water) to sell (the “vicious cycle”). In this case, it will be necessary to demonstrate in master plans the potential to yield a surplus water income over O&M expenditure and to make the necessary commitment to institutional and operational changes necessary to drive down costs (**Section 3, Sub-section 4.4, Sub-section 4.5, Sub-section 4.8, etc.**)
- Some towns may have had significant investments made in solid waste collection, treatment and disposal. However, if the streets are still full of rubbish and the engineered disposal site has reverted to open dumping, then this might indicate low management motivation to long term financial and environmental sustainable operations and might result in being ranked low in competitive funding bids. This should act as a motive for management to “get its house in order” in time for the next round of funding bids
- Some regions may have received dis-proportionate funding allocations in the past, due to a number of factors. In these cases, available national sanitation basket funds (**Section 10**) might be divided region by region proportional to population, increased through hardship factors (such as low water resource regions) and decreased by recent funding allocations

A scoring system shall be formulated at national government level, in consultation with basket fund contributors, taking into account all factors such as, but not confined to, those bulleted above.

4.10 Technical assistance

It is expected that TA will be urgently needed to support funding bids as described above (**Sub-section 4.9**). The TA shall be focused at individual and grouped/clustered municipality and utility level in order to concentrate on getting coherent master plans together that will generate “bankable MSP¹³ projects” capable of attracting funding. The TA involvement at this level will include on-the-job capacity building and it is necessary that counterpart staff are assigned to work with any TA consultants and that their individual progress is monitored, assessed and reported.

The other area for immediate focused TA, including on-the-job capacity building, is expected to be at the level of Regional WASH Coordination Office and Regional WASH sector Bureaus which will be expected to support the master planning and funding bids within their region.

It is also expected that extended term TA involvement will be required for research and development (**Sub-section 4.4**) and to bring about institutional changes proposed under **Section 3** and **Sub-section 4.5**.

TA will be engaged and managed according to the following modalities, which differ from the usual project-based approach where TA is recruited and managed by a single client or project unit:

1. By GoE through collaborating ministries and bureaus
2. Directly by an associated or collaborating partner organization, which can be a bilateral or multilateral aid agency, service provider, NGO, etc.
3. By contributors to the CWA, through the NWCO or regional/city bureaus

¹³ A suggested definition of Minimum Sanitation Package has been given above under Sub-section 4.1 as The least cost option that provides equitable financially and environmentally sustainable sanitation (and water) service delivery for both small and large towns

5. Promotion and Advocacy

5.1 Introduction

This **Section 5** of the SAP, Promotion and Advocacy, meets the specific requirements of the Strategy Components as summarised in **Table 5.1** in **IUSH-SAP-IG**. As described in the Strategy, advocacy needs to be tackled at three levels, all vitally important and essential for successful roll out of the SAP. **Sub-section 5.2** deals with high level advocacy (top-down approach) while **Sub-section 5.3** relates to the equally important promotion of, and demand for services related to, sanitation at household and street level through individual, community and local authority levels (bottom-up approach). **Sub-section 5.3** also describes complementary actions that need to be taken at federal level.

In order to achieve financially and environmentally sustainable sanitation (and water) service delivery (see **Section 3** and **Section 4**), the service providers themselves (municipalities and utilities) need to promote and “sell” their “products” (that is, sanitation and water supply services). This aspect is covered under **Sub-section 5.4**.

Section 5.2 and **Section 5.4** reach across all Target ST1 to ST11 while **Section 5.3** principally addresses Targets ST1, ST2 and ST3, but also touches on Targets ST6 and ST8 (as listed in **Sub-section 2.2**).

5.2 High Level Advocacy

It shall be the role of the National Steering Committee to take the national lead on sanitation advocacy and to identify and appoint one or more “National Urban Sanitation Champions”. It shall be the role of the Regional Steering Committee to take the regional lead on sanitation advocacy and to identify and appoint one or more “Regional Urban Sanitation Champions”. This action shall be assisted by Regional WASH Coordination Offices and Regional WASH sector Bureaux heads, etc¹⁴.

See also **SAP Advocacy 5.3.2 (c)** under **Sub-section 5.3** on recommended activities at central federal level.

5.3 Local Level Promotion and Advocacy (involving UHEP professionals and others)

The required actions needed to improve individual, community and city wide actions with respect to sanitation are clearly articulated below but it is essential that these should nevertheless be read in conjunction with **Annex 3**, which is divided into six sections: (1) Behaviour Change, (2) The Stakeholders, (3) The Three Interventions, (4) Notes on Formative Research, (5) Broad Costs Estimates and (6) Historical development of the SAP Advocacy components during April/May 2016.

¹⁴A suggested definition of Minimum Sanitation Package has been given above under Sub-section 4.1 as The least cost option that provides equitable financially and environmentally sustainable sanitation (and water) service delivery for both small and large towns

SAP Advocacy 5.3.1: Maximise the WaSH performance of the Urban Health Extension Package

Implementer: Federal MoH/ Program on Urban Health Extension Package

Immediate actions:

- Maintain the UHEP documentation, training and implementation as it is. (The rationale for doing so is put forward in **Annex 3** (2) on Stakeholders)

Later actions:

- Complement the content about householder demand for clean streets, etc. with an instruction to give advice to householders about demanding good sanitation services– but services at a level that they are willing to pay for, dependant on the set tariffs - for the house and for the neighbourhood
- Clarify the recommended mechanism (how, to whom, etc.) for householders to make such demands, and how they might be recorded
- Include a recommendation to households about helping keep their neighbourhood tidy
- Require the UHEP professional to actively engage with colleagues and other WaSH agencies, especially her collaboration with the health centre's environmental health officer and her development of school Health Clubs/ Hygiene Clubs (Please refer to **Annex 3**(2) on Stakeholders)
- Amend the Job Description of the UHEP supervisor to include a duty to (a) actively liaise and collaborate with *kebele* authorities and their health & sanitation committees and (b) get out-and-about covering the non-household areas of the catchment area

Further actions:

- Develop each health centre's access to Google Earth-type maps of their catchment areas
- Promote tighter mapping of each UHEP professional's priority sanitation areas or clusters of households, in order to highlight priority target areas and measure and record annual incremental success

SAP Advocacy 5.3.2 (a): Expand the area of public realm that is kept 'Clean and Green'

Implementer (a): The property owner, householder, shopkeeper, entrepreneur, school director

Immediate actions:

- The implementers (listed above) to marginally expand the area of commonly-held land they look after (even though they have neither legal ownership nor duty)
- At federal level, in collaboration with the regions, the relevant ministry to design and introduce a campaign - perhaps branded as 'Love My *Akababi*' Campaign ('Love my neighbourhood/ surroundings') – which promotes the social and patriotic virtue of sweeping, cleaning and greening the area immediately beyond one's own doorstep
(**Annex 3**(3.3) 'Love My *Akababi*' Campaign explains more deeply the rationale behind the campaign. **Annex 3**(1) Behaviour Change offers an example of a logo)
- At *kebele* (or *ketena*) level, the *kebele* health & sanitation committee, with moral back-up and support, to do regular 'walkabouts' speaking with citizens, promoting tree-planting and gardens, praising the householders in clean & green neighbourhoods and advising in unclean ones
- Include the cleanliness of surroundings into the criteria for the 'Model Household' graduation ceremony
- The lead responsible agency should be the health & sanitation committee. The support, as part of an accompanying team, can be drawn from formal authority figures - the UHEP supervisor at the local health centre, *denbaskebari* (law enforcement officers), and/or community police – and informal ones – the *shimagelle* and *arogit* (male and female respected elders)
- To provide momentum, volunteer schoolchildren could be invited to speak with householders, shopkeepers etc. while the nearby presence of the 'senior team' adds weight to the message
- At local level, the UHEP professional – together with the local Women's Health Development Army representative - to invite each householder to clean beyond their front gate (in the interests of the good of the neighbourhood environment)
- UHEP professionals to act more rigorously in taking non-households (shops, businesses, schools) into consideration as community members and expand routine sanitation advice to beyond just households
- Involve and use as many local civic organisations as possible to affect change. Examples will be the area's *ldirs* (self-help groups), youth organisations, women's associations

SAP Advocacy 5.3.2 (b): Expand the area of public realm that is kept 'Clean and Green'

Implementer (b): The *kebele* authority

Immediate action:

- Work to (a) designate new green spaces (b) keep existing open spaces green, and (c) turn current brown spaces to green. (Further details are described in **Annex 3(3.2)** 'Turning Brown to Green')
- Designate a *kebele* employee to 'give voice' to the voiceless 'no-man's land' within the *kebele*-supervised area. (Privately-owned spaces, which have individuals to articulate on their behalf, are probably drawing away attention - and priority – from commonly-owned spaces)

Later action:

- The *kebele* authority to review all its public realm and identify the current worst space within its area (e.g. a particular stretch of creek or gully used for open defecation and fly-tipping)
- Conceive, design and implement a plan to transform that one area into a community asset. (Probably the plan will encompass (a) securing the site to prevent further contamination (b) an intensive one-off cleaning by the contracted associated, and (c) protecting from new contamination, perhaps through improved lighting, personal oversight, etc.)
- For new-build sites, ensure 30% of land is allocated for green spaces, according to newly-introduced national planning laws. Require public realm improvement

Further action:

- Annually, identify a new site for cleaning & greening. (In this way, through the removal of the worst-offending areas from the range, the *kebele* average cleanliness will rise)
- Consider the protection of new open spaces – or the leasing of areas of 'no-man's land' to private entrepreneurs or family businesses
- Explore how religious entities (e.g. the Ethiopian Orthodox Church, mosques, other faith communities) can expand their influence on the environment. (Sacred areas are noticeably respected and litter-free)
- Create *woreda*-based sapling nurseries, for distribution

SAP Advocacy 5.3.2 (c): Expand the area of public realm that is kept 'Clean and Green'

Implementer (c): The federal authorities

Immediate action:

- Review the current national-level methodology for the awarding of town and city 'clean & green' status. (The thinking behind how this existing effort can be further enhanced is described in **Annex 3(3.1)**, Clean City Rankings)
- If necessary, convert the assessment from a generalised banding-type grading to a specific town/city score. Category-by-category, rank each town
- Consider rebranding the initiative as 'Clean City, Clean *Kebele*, Clean Neighbourhood)
- Instruct the regional authorities on the amendments

Later action:

- Publicise, internally and publicly. Allocate rewards (perhaps in the form of promised technical assistance, etc.) to best-performers. Raise the town/city ranking in discussions
- Require municipal authorities, to reflect on and plan for improvement
- Encourage municipal authorities to raise awareness and apply pressure on subordinate authorities (in cities, *woreda* authorities and then *kebele* ones; in smaller towns, *kebele* authorities and/or *ketena* ones)
- Stimulate competition (or healthy rivalry) within categories. Coax mayors to apply pressure on *kebele* authorities for the sake of municipal reputation

SAP Advocacy 5.3.3: Test approaches and generate a record of Best Practice

Implementer: The municipal authorities/ Greenery & Beautification Departments

Short-term action:

- Accompany the efforts of each *kebele* in its securing, cleaning-up and protection of its one major eyesore each year (The theoretical under-pinning behind the use of one problem area at a time, each explored in depth, is outlined in **Annex 3 (5) Notes on Formative Research.**)
- Support their plan by facilitating discussions that ‘drill down’ on each contributing factor. (e.g. Who neglected the application of penalties? What changes in the relevant unit’s management are needed? Who advised a certain premises on their latrine-to-stream sewage disposal, and when? What was the follow-up? How can the area be lit at night? What went wrong with the system of notification to the association?)
- Successively address concerns. Work to resolve each issue and, through this, attempt to trigger systemic changes with wider knock-on impacts. (A technical description of this approach is ‘Problem-Driven Iterative Adaptation’. A lay description might be ‘trial-and-error through case-reviews’)
- Document and photograph experiences (both positive and negative). Feedback into town/city forums for learning. Using best practice examples, represent town/city in federal forum
- Use best-performing towns/cities as physical role-models in best practice. Facilitate and budget for peer-exchange visits where leaders of aspiring towns can see ideas first hand, and receive return visits from experienced leaders

Further action:

- Guarantee the inclusion of open space regulations and by-laws in planning debates

5.4 Promotion of Service Delivery

In parallel with top-down advocacy (**Sub-section 5.2**) and promotion of “self-help” activities and creating a demand for services, the bottom-up approach (**Sub-section 5.3**), it is vital that the municipalities and utilities themselves utilise the outcomes from the sustainability master planning, principally the formative research aspects (**Sub-section 4.6**), to overcome any blocks to take up of services by customers (domestic, commercial, institutional) and to actively promote and “sell” their “products” (sanitation and water supply services).

The methods to be used to sell the services could be similar to methods used by commercial service providers, such as mobile phone network providers. Exactly how this is done shall be laid out in a Communication Plan (again, see **Sub-section 4**). The motivation for municipalities and utilities, as well as their delegated operators and suppliers, to promote and sell their services will come partly from conditions included in Service Management Contracts (SMC) and Delegated Service Management Contracts (DSMC), see **Section 3**. In the Ethiopian context, it is also expected that municipal and utility heads will respond to top-down advocacy as described in **Sub-section 5.2**.

6. Technical and Operational Development

6.1 Introduction

This **Section 6** of the SAP, Technical and Operational Development, meets the requirements of the Strategy Components as summarised in **Table 6.1, IUSH-SAP-IG**. The Section also addresses all Targets ST1 to ST11 inclusive, but specifically ST4, ST5, ST6, ST7, ST8, ST9 (as listed in **Sub-section 2.2**).

Although this section on technical and operational development has many overlaps with master planning (**Section 4**), it is kept separate since research and development related to new and appropriate technology and sustainable business models will be longer term, will involve national and international universities and development bodies and with the results shared through national and regional fora (**See Sub-section 6.6**).

Technical and vocational training institutions, including universities, are expected to play an important role in addressing the technical gaps. The task of achieving total WASH services in general and sanitation in particular requires active research and injection of innovative ideas to cope with emerging issues (R&D). This requires close collaboration with universities and research institutes in the country.

6.2 Manually operated systems

Formative research (**sub-section 4.6**) shall be used to determine the best route to overcoming blocks to appropriate FSM technology, where such blocks may be both at professional levels within utilities as well as at local worker levels. The new OWNP Open WASH training manuals describe a range of appropriate FSM technologies. These manuals can be used alongside the formative research and other advocacy packages (**Section 5**).

This is clearly an area for R&D where labour orientated systems need to be considered and demonstrated as part of financially, sustainable and equitable service delivery to all, not just to middle and high income customers. Whether the sludge removal systems are manual, portable motor driven, “vacutug” mounted, tractor/trailer mounted or small or large vacuum tanker mounted is a consideration for access, cost, maintenance and workshop capacity, skills, etc. However, H&S, PPE (personal protective equipment), wash facilities, worker health monitoring/checkups, worker and customer acceptance, etc. will be similar for all options. Viability investigations can be enhanced by formative research approaches including demonstration of practices and understanding of benefits. The emphasis needs to be on appropriate planning of business options for interested community based organizations and private entrepreneurs and companies. See **Annex 2** as a pictorial illustration.

Primary collection of solid waste is already being carried out manually and using donkey carts (either to transfer station or direct to waste disposal sites in smaller towns) and this technology and associated business models (**Sub-section 6.5**) can be adapted and built upon for primary FSM services. The use of small bajajs with 1.5-2.5 m³ capacity need to also be demonstrated wherever appropriate to handle solid waste and faecal sludge in congested areas where access for garbage trucks and vacuum trucks is not possible.

Manual segregation of solid waste by household occupants and household collection of recyclable materials by the informal sector is an extremely cost effective way to improve both financial and environmental sustainability. What needs to be developed is the technology and business models (**Sub-section 6.5**) related to containerization and transport and processing along the various reuse and recycling chains. An extension of this concept is how to utilize treated solid and liquid wastes from the DEWWATS proposed to be used in large towns and cities (see **Sub-section 4.4, Sub-section 6.4** and elsewhere). There is a need to investigate what role labour intensive methods can play in utilizing biogas by local entrepreneurs and in getting treated liquid effluent to where it can be used for “beautification and greening”.

6.3 Centralized treatment

Comparative analyses of the available wastewater treatment technologies carried out locally and internationally reveal that centralized systems like conventional activated sludge system and equivalent technologies could be

relevant for 80,000-100,000 pe range provided there is enough space, that sufficient water can be guaranteed for full flush toilets and that there is a possibility of reuse of the treated effluent in a cost effective manner.

As stated earlier, in order to have adequate water available to flush long sewers, the current urban water supply service levels of around 30l/p/d needs to be increased to all-year-round (including drought years) reliable supplies of at least 100l/p/d and 150% of industrial and commercial demand (to allow for NRW loss).

There may be economy of scale advantages to link adjacent cities and towns in terms of infrastructure development and reuse of treated effluent¹⁵.

6.4 Decentralized treatment

As discussed in **Sub-section 4.4** under master planning, there is an urgent need to develop and use a range of DEWWATS technical options on a large scale in Ethiopia, due to medium rise housing policy, satellite housing and industrial and commercial centers, countrywide shortage of water for full flush toilets, high cost and/or lack of available land, lack of sewerage and treatment work infrastructure and other factors. This means that increasingly sophisticated financially and environmentally sustainable systems will need to be developed and rolled out on a large scale for the very dense urban environments that are increasingly appearing in Ethiopia.

On balance, it is likely that sustainability master planning (**Section 4**) will indicate the need for DEWWATS at least in the medium term and on a large scale. Centralized sewerage is likely to be constrained to city centres and high income and commercial areas. The SAP therefore retains the target included in the Strategy to construct 200 DEWWATS within the first 5 years and 1000 DEWWATS within 10 years, as a pragmatic approach to address environmental issues in a risk averse way.

However, the full business case for DEWWATS has not yet been established, particularly related to the sophisticated supply chains and O&M systems that will need to be established and maintained in a financially and environmentally sustainable way¹⁶; the full business case (**Sub-section 6.5**) around DEWWATS therefore shall be researched and trials carried out in parallel to, and so as to inform, master planning and inter-relationship agreements and contracts that need to be drawn up between owners, operators and the users of recycled liquids and solids.

Although the capital expenditure for DEWWATs may be less than for centralized systems operating expenditure could be very high if sludge and liquid effluent has to be tankered away for final treatment and disposal. Hence design and operation of DEWWATs for use in urban Ethiopia has to allow for full treatment and local use of liquid effluent for municipal beautification and greening. In order to reduce cost for sludge transport, consideration should be given to local engineered drying beds within or on town boundaries. See **Annex 2** for pictorial example.

6.5 Business models

Achieving financial and environmental sustainability in the Ethiopian context requires that sanitation services (for faecal solids and liquids, for commercial and industrial liquid and solid wastes, for medical wastes and for domestic solid wastes) are treated as much as a business as selling mobile telephones, for instance.

Even though the sanitation “business” may rely on subsidies (for instance, from municipal rates) and cross-subsidies (for instance, from surplus water revenue, either at town level or from a national Sanitation Levy Fund, see **Section 9**), the financial analyses carried out for sustainability master planning (**Sub-section 4.7**) still need to show where the money will come from to pay all O&M costs and all capital charges.

¹⁵Addis Ababa, Kaliti and Akaki towns that share the same catchment area could be good examples where the treated effluent of the Addis Ababa centralized waste water treatment could be used for irrigation around Kaliti and Akaki. Furthermore, buildings and institutions located upstream of the treatment plant especially in Kaliti could also be connected to the system.

¹⁶Currently, condominial housing may be connected to centralized sewerage in the few places where this exists. Elsewhere conservancy tanks (“septic tank” is not the correct term unless full treatment of liquid wasted can be achieved by ground infiltration, something very difficult to achieve in the urban setting) are used, but emptying them has been a challenge in many towns and cities – as a result, the smell of raw sewage in drains is all pervasive in much of Addis and may well have been a contributory factor to current outbreaks of cholera (AVD). Linking condos to DEWWATS will, at least in theory, make operations easier and costs lower than centralized systems, through local reuse of treated (safe) liquid effluent for local “greening and beautification” and with overflow of treated (safe) liquid effluent to drains and water courses. DEWWATS will not be without its challenges, but is considered by many authorities in Ethiopia to be the best option to address sanitation in rapidly developing Ethiopian metropolitan areas

Demonstration projects need to be established and to be of sufficient scale to accurately model economics as much as technology. The demonstration models need to be monitored over an extended period and to include all information on customers, income and expenditure, health and safety, labour issues, environmental compliance, etc.

6.6 Sharing of good/best practice

As technologies and associated business models are developed (**Sub-section 6.5**), trialled and included in master planning (**Section 4**) and become established in service delivery systems (**Section 7**), then lessons need to be learnt from both success and failures and these need to be shared within and between regions so as to stimulate improvements in practice and also to avoid any duplication of effort or the repetition of less successful ways of working.

A recommended stepwise methodology on sharing of good practice is presented below as an outline for further development by the national WASH Steering Committee and regional fora including Regional WASH Coordination Offices and Regional WASH sector bureaus:

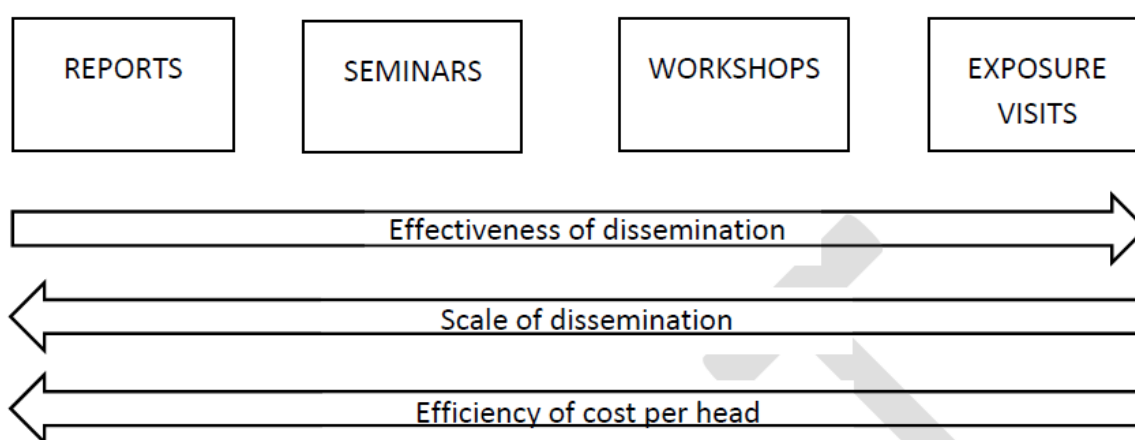
Step	Description
1.	<p>Identification of needs</p> <p>What examples of good practice are needed to address the gaps and requirements identified in the Strategic Action Plan? This will require a detailed review of the findings of the first phases of the project</p>
2.	<p>Identification of GP examples</p> <p>2.1 A scanning exercise needs to be conducted to identify where in Ethiopia GP examples exist that could be shared. This will require consultation with a wide range of stakeholders and the review of project reports and published documents.</p> <p>2.2 It may be that suitable examples that meet the needs identified in Step 2.1 cannot be found in Ethiopia. If that is the case then the search should go more widely to other countries within East Africa particularly Kenya, Tanzania, Uganda and Rwanda</p>

3.	<p>Investigation of GP examples</p> <p>3.1 A team or teams of investigators should be put together who can analyse and document the GP examples. For each example a team of 2 or 3 people should consult with all relevant stakeholders, including beneficiary communities where appropriate, and review any reports or documents relating to the GP. For stakeholder interviews they could adopt a semi-structured approach based on the following questions:</p> <ul style="list-style-type: none"> • The name and role of the person being interviewed • Their recollection of what actually took place • Their view on what was good about it • Their view on what could have been done better • Their view on what they would do different next time • What indicators are they using by which to judge success • Any other comments <p>3.2 Produce a report that identifies, as a minimum, the following:</p> <ul style="list-style-type: none"> • Roles and responsibilities of key players • What was done or achieved (some background on the before and after situations would be essential to identify the change that occurred) • The resources required to achieve the results • The lessons learned • The Critical Success Factors (both the positive factors that contributed and the negative factors that inhibited) • Any unintended consequences • Other important observations of the review team
4.	<p>Validation of findings</p> <p>Before the report described above is finalised the findings should be validated. This can be achieved through discussions with selected individuals amongst the stakeholders. This step is important in order to be confident that the investigators have correctly understood and interpreted the information received.</p>
5.	<p>Dissemination of GPs</p> <p>Depending on the level of funding available, training workshops are an appropriate method for achieving widespread effective dissemination of good practices. For that to occur it will be necessary to follow the steps identified below:</p> <p>5.1 Development of a series of workshop session plans that cover the key areas identified in Step 3 above.</p> <p>5.2 Development of a pool of trainers who have a solid understanding of the issue and key learning points and are sufficiently competent trainers and facilitators (see also note in IUSH-SAP-IG on who to work with)</p> <p>5.3 Implementation of a programme of workshops</p>

6.	<p>Replication plans</p> <p>To ensure that the examples of GP shared are adopted and replicated support could be provided for the development of replication plans. These would be plans that identify how the chosen GPs can be replicated in a particular location.</p>
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Assessment of options for dissemination

Four different methods for disseminating examples of GP have been identified below. Each can be seen against a sliding scale of effectiveness of dissemination (in terms of impact and learning), potential scale of dissemination (in terms of the numbers of people who could be reached) and cost per head of those reached. The chosen method will be a compromise between the advantages and disadvantages of each method.



Some other examples of possible areas for sharing of Good Practices

In support of the overall urban sanitation strategy that has been proposed for Ethiopia, GPs could be identified and shared, for example, in the following areas:

- Accelerated Urban Health Extension Programme (see **Sub-section 5.3**)
- Financially viable replicable solutions for sanitation services, the roles of the private and informal sectors (see **Section 4**)
- Effective mobilisation of funding, proposal writing, etc. (see **Section 4, Section 9** and **Section 10**)
- Identification of the essential characteristics that would describe what a cluster that is fit for purpose would look like (see **Section 3**)
- Technical options (see this **Section 6**)

7. Service Delivery

7.1 Introduction

This section of the SAP covers service delivery: household premises faecal solid and liquid waste facilities; institutional premises faecal solid and liquid waste facilities; downstream faecal solid and liquid waste services for both institutions and households; and special cases such as public toilets and DEWWATS. Liquid and solid hazardous wastes are categorised together since treatment regulation, handling processes are largely common.

This section on service delivery has many overlaps with other sections such as institutional development (**Section 3**), master planning (**Section 4**), promotion and advocacy (**Section 5**), technical and operational development (**Section 6**), regulation and enforcement (**Section 8**) and finance (**Section 9**) but it is kept separate since it is something to be addressed by municipalities and utilities and regional WaSH offices and bureaus either alongside or independent of master planning and applications for funding: This is because improvement and sustainability of service delivery is the core duty of municipal and utility providers and such improvement should be a motive in itself, even without the inducement of development money (**Section 10**) and technical assistance (**Sub-section 4.10**).

7.2 Solid Waste Management

This **Sub-section 7.2** of the SAP, Solid Waste Management, meets the requirements of the Strategy Components as summarised in **Table 7.2.1, IUSH-SAP-IG**. The sub-section also addresses Targets ST6 and ST7 (as listed in **Sub-section 2.2**). Non-hazardous solid wastes are discussed here separately from hazardous wastes which are covered under **Sub-section 7.3** below. Non-hazardous solid waste will be generated from industry, institutions and households with little distinction except in proportions of waste types.

See **IUSH-SAP-IG** document for full details, but in summary:

- As a guiding principle, SWM shall follow and enforce the Ethiopian National Urban Solid Waste Management Standards, published in February 2014
- The targets set within GTPII and this SAP shall enable the Ministry of Urban Development and Housing (MoUDH) to meet the ambitious standards set out via Proclamation (513/2007). See **Annex 4** for a comprehensive list of regulations
- As with all aspects of sanitation, advocacy shall be used to raise the sector profile with regards to SWM
- In parallel with SWM initiatives related to Clean/Green Cities, the current practice to build on designated open spaces, often in contravention of planning laws, shall to be stopped¹⁷
- Reduction of waste at source shall be achieved through improved waste segregation and composting using the concept of “3Rs” (Reduce Reuse Recycle)
- For larger towns and groups of sharing or clustered towns, the private sector shall be involved in collection, transport and recycling of waste¹⁸
- Support shall be provided for business planning (**Sub-section 6.5**) for SMMEs
- The role of the large informal sector engaged in SWM and recycling, such as *Korealias*, shall be recognized and included in business planning (**Sub-section 7.8**)

¹⁷ It is understood that a new institution, “Land Use Corporation”, has been established that will ensure that space for DEWWATS and public latrines shall be created as per 30%, 30%, 40% approach in Addis and other congested big cities

¹⁸ The private sector will be looking to make money which means that there must be the potential for a viable or financially sustainable business model. Much of the SAP addresses how such “businesses” can rise up out of the currently very poorly performing sanitation services. It is considered that through clustering, pooling of resources, choice of affordable service delivery levels and mechanisms, cross-subsidies, use of clear contractual arrangements, etc., . It is likely that small towns acting alone will not be able to attract the private sector (other than the SMMEs and informal workers already engaged, as described in this Sub-section 7.2) but in combination with other large and small towns, there is a greater chance of attracting formal delegated private enterprises. Hence the importance of “sharing” and “clustering” as described in the Strategy and SAP, Section 3.

- Municipalities and regional bureaus shall link the informal sector with accessible recycling industries
- The recycling of waste electrical and electronic equipment (WEEE), chemicals and oils shall follow good environmental practice with monitoring carried out by the Ministry of Environment
- Regional bureaus and municipalities shall prepare inventories of locally or nationally accessible formal and informal recycling industries
- Urban drainage often contains indiscriminately disposed solid wastes so that design of access covers for easy cleaning shall be considered by municipal authorities alongside cost effective SWM and street cleaning and advocacy to reduce loads
- All primary collection, sorting and recycling of waste shall be financially sustainable and demonstrated through master planning (**Section 4**)
- Secondary stage SWM, such as management of transfer stations and secondary transportation, shall be performed, as far as possible on a cost recovery basis¹⁹, by SMMEs or private contractors depending on the size and number of clustered municipalities and local conditions
- Individual and clustered municipalities shall, as part of master planning (**Section 4**), develop plans for safe final processing and disposal

Immediate actions to be taken, or at least considered, at municipal level, in order to improve financial sustainability of SWM operations (See also **Sub-section 4.3**, **Sub-section 4.9** and **Sub-section 9.5** related to tariffs and subsidies), shall include:

- Introduction or expansion of existing informal sharing by municipalities to improve SWM through economy of scale and sharing of skills and other resources
- Setting up a reserve for municipal solid waste management operation and maintenance finance at town level through current taxation mechanism
- Increased household, commercial, industrial and institutional collection fees
- Inclusion of a multiplier factor to SWM tariffs based on property value so as to generate revenue from higher income residents to subsidize downstream costs in the sanitation chain, that is, secondary transport and environmentally sustainable final disposal (reuse, recycle and sanitary landfill)
- Consideration of combining solid waste and water tariffs²⁰

The following shall be particularly considered when planning SWM disposal sites:

- Land fill sites need careful planning since sanitary land fill requires daily operations carried with maximum efficiency. Skilled professional inputs are needed since there are many factors to be considered when designing and constructing a landfill site
- A high standard of operational management is required with strict control over the types of wastes reaching the landfill and to ensure maximum cost recovery from domestic, commercial and particularly industrial waste streams, without driving customers to use illegal tipping
- Hence, any subsidies (whether locally, regionally or nationally derived) shall be put into the downstream end of “sanitation chains” in order to ensure that waste is properly disposed and not “fly-tipped” (see also **Sub-section 4.8**)

¹⁹ As discussed in Sub-section 6.5 on business models, it will be difficult to cover all sanitation costs through revenue at least in initial stages of the SAP. However, it should be possible to organise upstream services to be financially, sustainable while strategic subsidy to downstream SWM activity is envisaged.

²⁰ There is a possible potential to combine solid waste and water tariffs following the example of one town where the garbage collection bill is linked to water bill based on water consumption. However, the case for this and associated questions around equitability need to be fully evaluated during master planning (Section 4) and establishment of business models (Sub-section 6.5)

- Focus shall, wherever possible, be on low cost technologies and equipment which can be easily maintained at landfill/disposal sites
- Future proposals for landfill sites shall include full recovery of operation and maintenance costs in addition to capital costs. Donor funding should be conditional on municipalities committing to full cost recovery principles (including guaranteed subsidies and cross-subsidies)
- Global Environment Facility and Climate Funds may be considered to cover both capital and subsidies for operation costs as a short term interim measure until financial sustainability can be reached. (Six cities in Ethiopia are currently covered under this initiative.)

Most of the enforcement for solid waste management is concentrated on industrial parks with no mechanisms in place for monitoring domestic waste disposal points such as landfill sites. Improved co-ordination is required between the Ministry of Urban Development and Housing (MoUDH) which shall be responsible for managing the landfill sites and the MoEFCC responsible for testing and establishing quality assurance. Refer to Section 13 of the National Urban Solid Waste Management Standards (2014) which highlights landfill standards for category 1 and 2 cities and category 3,4 and 5 towns. The MoUDH shall set out action plans detailing how compliance with standards will be achieved. All waste disposal sites shall have in ESIA undertaken in compliance with Proc. No 299/2002 Environmental Impact Assessment Proclamation.

Regional bureaus shall explore how links with universities both in Addis and in the Regions can be strengthened in order to tap into existing and proposed testing and laboratory capabilities. Currently MoFE uses two laboratories in Addis and Oromia region, but could well benefit further from other regional testing capabilities.

7.3 Hazardous Waste Management

This **Sub-section 7.3** of the SAP, Hazardous Waste Management, meets the requirements of the Strategy Components as summarised in **Table 7.3.1, IUSH-SAP-IG**. The Sub-section also addresses Targets ST8 and ST9 (as listed in **Sub-section 2.2**). Solid and liquid hazardous wastes will primarily be generated by industry (with enormous variations) and health institutions, although e-wastes may come from all sources.

Hazardous solid waste that includes health care waste, e-waste and industrial waste shall be handled separately from municipal waste so as to reduce the risk of irreversible pollution from heavy metals, hazardous health care waste, etc. Hazardous and industrial liquid wastes also have toxic effects and need special treatment to make them less harmful. Common examples of hazardous substances include paints, fuels, oils, cleaners, metal processing chemicals, agrochemicals, etc.

All hazardous solid and liquid wastes generated must receive treatment at the production facilities prior to disposal in a manner approved by the municipal authority. Following treatment, the proposed method and timing of the disposal must also be approved by the municipal authorities following consultation with regulatory and environmental bodies.

Regulations shall be enforced and financial penalties and high disposal charges shall be implemented to encourage in-factory processing and recycling of industrial wastes. In the management of these wastes it is better to implement fully the “polluter pays” principle. The industries should take responsibility for the processing, collection and safe disposal of the wastes by contracting with the municipality or specialist enterprises. They should also cover all the costs encountered in the management of these wastes.

7.4 Faecal Sludge Management

This **Sub-section 7.4** of the SAP, Faecal Sludge Management, meets the requirements of the Strategy Components as summarised in **Table 7.4.1 IUSH-SAP-IG**. The Sub-section also addresses Targets ST3, ST4 and ST5 (as listed in **Sub-section 2.2**).

As noted in **Sub-section 4.4**, there is an urgent need to develop and use a range of DEWWATS technical options on a large scale in Ethiopia, due to its medium rise housing policy, satellite housing and industrial and commercial centres, countrywide shortage of water for full flush toilets, high cost and/or lack of available land, lack of sewerage and treatment work infrastructure and other factors. The full business case (**Sub-section 6.5**)

around DEWWATS shall be derived as part of master planning (**Section 4**) and inter-relationship agreements and contracts shall be drawn up between owners, operators and the users of recycled liquids and solids.

Individual and voluntary grouped/clustered municipalities and utilities shall consider how they can manage package plant decentralised waste water treatment systems (DEWWATS) to serve local medium rise (condominial) communities having flush toilets but where there is neither centralised sewerage nor sufficient water for full flushing. Considerations include: ownership of the systems; responsibility for operation maintenance and cost recovery; service management contracts with suppliers of the equipment; local reuse of liquid waste; removal, transport, processing and recycling of (faecal) sludges; customer relations; enforcement of discharge; environmental and H&S impacts; etc.

With the exception of DEWWATS in large towns and cities, other technologies and business plans associated with sanitation shall be appropriate to customer affordability (See **Sub-section 4.2**). Individual and clustered municipalities and utilities shall develop businesses (**Sub-section 6.5**) around primary and secondary FSM and LWM services by SMMEs or private enterprises. Primary FSM and LWM business models shall include costing, financial modelling, delegated service management contracts, appropriate pit latrine, septic tank and cesspit emptying technologies, primary transport, tariff setting and collection, customer liaison, etc. Primary services are considered to include mostly low tech. activities from customer to transfer station gate:

- As described under **Sub-section 6.2**, of immediate concern is development of appropriate technology for emptying pit latrines (in some towns over 80% of inhabitants use pit latrines) that are inaccessible to vacuum equipment or where the financial analyses (**Sub-section 4.7**) indicates that use of vacuum trucks is financially unsustainable²¹
- FSM transfer stations may involve primary treatment of faecal wastes through anaerobic treatment or through other technology developed under DEWWATS research. Final treatment of FSM faecal sludge is best done on engineered drying beds, preferably covered and preferably close to transfer stations within built up areas so as to save on secondary transport. See pictorial example **Annex .2**²²

Secondary FSM and LWM business models shall include costing, financial modelling, delegated service management contracts, appropriate decentralised treatment technologies within built up areas, tariff setting, customer liaison, etc. Secondary services are considered to include management of transfer stations, primary and secondary treatment processes, secondary transport, quality control of final products for re-use, liaison with users of final products, community relations with people living near to process units, marketing and sales.

7.5 Liquid Waste Management

This **Sub-section 7.5** of the SAP, Liquid Waste Management, meets the requirements of the Strategy Components as summarised in **Table 7.4.1 IUSH-SAP-IG**. It also meets the requirements of all Targets ST4 and ST5 (as listed in **Sub-section 2.2**).

Hazardous liquid wastes are covered under **Sub-section 7.3**. This sub-section deals with liquid wastes arising from overflowing septic tanks and cesspits and from centralized sewage treatment systems. It does not cover storm water in open and closed drains, road surface, pools, culverts, ditches and other places, although many of these drains act as open sewers taking overflow from “septic tanks” and pit latrines as well as sludge water.

Liquid waste management related to conventional sewerage systems and sewage treatment works is the responsibility of the water supply and sewerage utilities. It is the responsibility of these utilities to comply with environmental discharge consents. However, the Ministry of Forestry and Environment and Climate Change (MoFECC) currently concentrate their efforts and limited resources on monitoring and control of industrial discharges with little time for sewage effluent or stream and river basin quality modelling, etc.

Service delivery around centralized sewerage shall concentrate on three issues that have been found in many such schemes throughout Africa:

²¹This is clearly an area for R&D (Sub-section 6.2) where labour orientated systems need to be considered and demonstrated as part of financially sustainable and equitable service delivery to all, not just to middle and high income customers.

²² Experience elsewhere is that digested sludge dried in thin layers on engineered beds does not create adverse health or aesthetic impact

1. Having adequate water available to flush long sewers: Water supply systems are required that will increase current unreliable supplies of around 30l/p/d to all-year-round (including drought years) reliable supply of at least 100l/p/d and 150% of industrial and commercial demand (to allow for NRW loss)
2. Using formative research tools to persuade customers to connect: This is often a roadblock to sewerage introduction, particularly in low income communities
3. Introduction of full cost recovery for both O&M and loan repayments: Without very significant guaranteed operational subsidies, full cost recovery principle will likely limit sustainability of centralized sewerage

Currently conventional sewage effluent makes up only a fraction of liquid wastes. In consequence; the SAP also covers service delivery around liquid and solid fecal waste streams from pit latrines, septic tanks and cesspits and from proposed DEWWATS as described in the various sections and sub-sections (4.4, 6.2, 6.4, 6.5, etc.).

As noted above and under **Sub-section 6.4**, centralized sewerage is likely to be constrained to city centres and high income and commercial areas. The SAP therefore retains the target included in the Strategy to construct 200 DEWWATS within the first 5 years and 1000 DEWWATS within 10 years, as a pragmatic approach to address health and environmental issues in a risk averse way.

7.6 Institutional sanitation (schools, offices, health facilities)

This **Sub-section 7.6** of the SAP, institutional sanitation (schools, offices, health facilities), meets the requirements of the Strategy Components as summarised in **Table 7.6.1 IUSH-SAP-IG**. The Sub-section also addresses Targets ST1, ST2, ST3, ST5 and ST8 (as listed in **Sub-section 2.2**).

Installation and maintenance and operation of institutional sanitation facilities (schools, health facilities and government offices, prisons, market places, bus stations, etc.) is the responsibility of the parent local government authorities for funding and compliance with regulations (building regulations, CGD friendly, environmental discharge consents, service provider conditions, etc.).

These authorities are also responsible for promotion of proper use of facilities and expenditure on operational costs. However, as noted above, these authorities are, in many cases, neglecting their duty with a consequential significant impact in poor health of the nation: Something to be vigorously tackled under the SAP where effort has been made to find out and to suggest remedial measures to turn around attitudes on sanitation. See **Section 5** and **Annex 5.1** for very specific recommended actions; also general reference may be made to **Sub-section 4.6** and **Annex 4.4** on formative research.

Individual and clustered municipalities shall develop businesses (**Sub-section 6.5**) around provision and operation of public toilets by SMMEs or private enterprises including costing, financial modelling, delegated service management contracts, community relations, secondary public services (such as showers, meeting rooms, gardens and shops), marketing and sales.

7.7 Capacity Building

This **Sub-section 7.7** of the SAP, Capacity Building, meets the requirements of the Strategy Components as summarised in **Table 7.7.1 IUSH-SAP-IG**. The Sub-section also addresses all Targets ST1 to ST11 inclusive (as listed in **Sub-section 2.2**).

Capacity building at service provision level shall include system development, financial analysis, procurement of facilities, operations, training of staff and development of leadership programs, etc. Training shall be extended to both in-house staff and workers and also to SMMEs. Medium and short-term training aimed at generating technical and professional staff and leadership will be organized with different educational institutions. Training shall be cascaded to TVETCs/HSCs (Technical and Vocational Education Training Colleges/ Health Science Colleges) and to artisans.

Curriculum and delivery of training courses to elevate the professional capacity of city officials and SMMEs in a range of priority SWM aspects shall be established. The OWNPN One WASH National Programme has recently, in February 2016, issued a series of "Open WASH" Training Manuals: They include five manuals, including Urban

Water Supply, Urban Sanitation, and Solid Waste Management, Working with People and Guidelines on use of the manuals.

As detailed in **Sub-section 4.10**, it is expected that technical assistance (TA) will be urgently needed to support funding bids. The TA will be focused at individual and clustered municipality and utility level in order to concentrate on getting coherent master plans together capable of attracting funding. The TA involvement at this level will include on-the-job capacity building and it is necessary that counterpart staffs are assigned and that their individual progress is monitored, assessed and reported.

The other area of immediate focused TA, including on-the-job capacity building, is expected to be at the level of Regional WASH Coordination Office and Regional WASH sector Bureaus which will be expected to support the master planning and funding bids within their region.

7.8 Informal Sector

This **Sub-section 7.8** of the SAP, Informal Sector, meets the requirements of the Strategy Components as summarised in **Table 7.8.1, IUSH-SAP-IG**. The Sub-section also addresses Targets ST4 and ST6 (as listed in **Sub-section 2.2**).

In most of the towns/cities the formal private sector, as recognised associations, is properly engaged in the sanitation and waste management activities, while informal private waste collectors are not supported by the government and not structurally organized²³. The informal sector comprises of metal- and rag-pickers (*Korealias*) and small dealers who collect waste from streets, possibly from households and certainly from disposal sites.

There is a need to prepare inventories of recycling industries and map how those industries are currently engaging with the informal sector. Municipalities and regional bureaus shall therefore prepare inventories of formal and informal recycling industries, to engage with the informal sector (which is primarily involved with solid waste recycling), to give support and training to the informal workers on H&S and business development, and to link the informal sector with recycling industries.

The municipalities shall authorise and permit the formation of co-operatives for the informal workers. This will enable the municipalities to then establish contracts included KPIs (related to level of service and charging mechanisms) and minimum safe working conditions (examples from outside Ethiopia may be referred to)²⁴.

MoUDH shall provide guidelines for formation of *Korealias* co-operatives. The Ministry already has stipulated health and safety practices in the SWM proclamation which should be followed by co-operatives. Links shall be strengthened with MFIs so that the co-operatives have access to funds to acquire equipment such as wheel barrows and PPE (personal protective equipment, such as overalls, gloves, masks and safety boots) which would facilitate their work. Refer to **Sub-section 9.4** on microfinance for current schemes in Ethiopia. Also co-operatives shall be linked to the Urban Health Extension Programme (see **Sub-section 5.3**) so that joint capacity building activities can be developed.

7.9 Private Sector

This **Sub-section 7.9** of the SAP, Private Sector, meets the requirements of the Strategy Components as summarised in **Table 7.9.1 IUSH-SAP-IG**. The Sub-section also addresses Targets ST6, ST7, ST8 and ST9 (as listed in **Sub-section 2.2**).

Currently waste segregation at household level is low and needs to be improved²⁵. This is an area where private sector providers can play a critical role. Private sector can also play a role in improving the recycling industry.

²³Situational Analysis of Urban Sanitation and Waste Management, "The Political, Structural, Socio-Economic, Institutional, Organizational, Environmental, Behavioral, Cultural, Socio-Demographic Dimensions", Prepared by: Addis Continental Institute of Public Health for Strengthening Ethiopia's Urban Health Program (SEUHP), John Snow, Inc. (JSI), Addis Ababa, Ethiopia

²⁴<http://www.swachcoop.com/about-swachpune.html>

²⁵Situational Analysis of Urban Sanitation and Waste Management, "The Political, Structural, Socio-Economic, Institutional, Organizational, Environmental, Behavioral, Cultural, Socio-Demographic Dimensions", Prepared by: Addis Continental Institute of Public Health for Strengthening Ethiopia's Urban Health Program (SEUHP), John Snow, Inc. (JSI), Addis Ababa, Ethiopia

The federal government shall develop and disseminate model franchise/contract documents for SWM services, including collection, 3Rs and landfill operations, with performance specifications and legal clauses geared towards enhancing the participation of entry-level SMMEs to the SWM services sector. This would be organised by municipalities since they manage SWM services.

For primary collection of solid waste from household to common collection bin or waste collector trucks, the small, medium and micro enterprises (SMMEs) which currently handle this upstream end of the business will need to sign contracts that make them fully accountable for cost effective service delivery. Current cost recovery is extremely low so that some serious and concerted effort will be needed to move to full operational cost recovery.

7.10 Community Based Enterprises

This **Sub-section 7.10** of the SAP, Community Based Enterprises, meets the requirements of the Strategy Components as summarised in **Table 7.10.1, IUSHS-IG**. The Sub-section also addresses Targets ST3, ST4 and ST6 (as listed in **Sub-section 2.2**).

Community based enterprises will be widely used in SWM and FSM management including composting of organic waste in line with the IUSHS and the solid waste standards prepared by MoUDH (See **Sub-section 7.2** above). Mechanisms need to be developed to enable community based groups to set up solid and faecal waste enterprises. An enabling environment for SMMEs shall be created through schemes such as the Oromia Credit, Savings Share Company scheme run under the auspices of the ROSSA project. Refer to **Sub-section 9.4** and **Annex 5** for further information.

All delegated service providers, whether private or community based, need to be controlled through clear contractual arrangements that include KPIs and tariff setting, etc.

8. Regulation and Enforcement

This **Section 8** of the SAP, Regulation and Enforcement, meets the requirements of the Strategy Components as summarised in **Table 8.1 IUSH-SAP-IG**. The Section also addresses Targets ST3, ST6, ST7, ST8 and ST9 (as listed in **Sub-section 2.2**). For regulation and enforcement related specifically to SWM, then reference should also be made to **Sub-section 7.2**.

It is clear that there needs to be a stronger coordination and integration amongst the various sectors in order to create a common mechanism to enforce the laws and acts. The enforcement and application of such provisions in the course of IUSH-SAP implementation not only improves the immediate environment but also human health and wellbeing, thereby enhancing growth and development.

As stipulated in the IUSHS with reference to Regulation and Enforcement, the IUSH-SAP focuses on the following areas as effective enforcement of the various proclamations pertaining to the IUSHS as shown in **Annex 4**.

Building Control

Building control shall be applied on rigorous, regular and consistent basis to ensure that a given construction fulfils a set of rules and standards that specify the minimum standards of buildings and non-building structures. The main purpose shall be to protect public health, safety and general welfare to the construction and occupancy of buildings and structures. The minimum standards of design and implementation include mechanical integrity such as sanitation, water supply, plumbing, site drainage and storage. Though the building control focuses mainly on the new buildings, its principles strongly apply to existing buildings leading to renovation and complete replacement of buildings as started in Addis Ababa and other regional capitals.

The MoUDH, which has recently issued draft building codes for consultation, is expected to control the construction of appropriate latrines, hand wash facilities, septic tanks and other sanitation facilities in such a way that sanitation and hygiene status in towns is improved during the IUSH-SAP implementation period.

Evaluation of environmental data shall be done on repetitive and continuous bases in order to observe, measure and to follow changes over a period of time with a view to assess the efficiency of control measures. Inspection functions shall be co-ordinated and, where needed, consolidated. Avoiding duplication and overlaps will not only ensure better use of public resources but will help to minimize the burden on regulated subjects and maximize effectiveness.

Process Monitoring

Process monitoring shall be covered in formal contract arrangements that include key performance indicators KPIs.

Environmental Compliance

Measurement and verification that standards are strictly followed at sites during construction, as provided by the rules and regulations, are key elements towards safeguarding health and safety, protecting the environment, etc. All actors shall develop and apply mechanisms that help achieve the best possible outcomes. In this case, combining broad compliance promotion with well targeted controls and the application of deterrent sanctions for various violations will ensure attainment of optimal results. Transparency and compliance shall be promoted through the use of appropriate instruments such as guidance, toolkits and checklists.

Regulatory enforcement and inspections shall be evidence-based and measurement-based: deciding what to inspect and how it shall be grounded on data and evidence, and results shall be evaluated regularly. Though monitoring of environmental compliance with regard to sanitation facilities by the recently established Ministry of Forestry and Environment is at an infant stage, it is expected that their scope and effectiveness will be enhanced during the IUSH-SAP implementation period. As an example, this Ministry is expanding its laboratories and other facilities to undertake their tasks (see also **Sub-section 7.2**).

As the area of Urban Sanitation and Hygiene involves different sectors there is a likelihood of overlap in the course of regulatory enforcement. Coordination and consolidation of efforts by the various actors would lead to avoiding overlap or duplication across different inspection and enforcement activities. Information and communication technologies shall be used to maximize coordination and information-sharing – as well as optimal use of resources.

9. Finance

9.1 GTPII

WASH sector GTPII budgets include both capital and recurring costs. It is envisaged that possible financial sources would comprise of 49% from government treasury, 31% donor funding (loan and grant), 4% from CSO's and 16% from municipalities and urban utilities. Refer to **Section 2**.

9.2 Sanitation levy fund

Operational costs of sanitation will likely exceed direct revenue for some time and it is expected that subsidies will be required for “downstream” services as described in **Sub-section 4.8**. This may be achieved through a sanitation levy fund (SLF) or more localized forms of cross-subsidy. The SLF concept is to add a small percentage to all water bills (for instance 2% existing in Lusaka and 5% proposed in Kampala) with this revenue being exclusively used to support the FSM/LWM sanitation chain from on-site latrine to final disposal.

9.3 Micro-finance

There is a need to promote co-operative bank/MFI financing for solid and liquid waste projects through a group loan guaranteed by the municipality of towns. One example is the Oromia Credit and Saving Share Company (OCSSCO) who provide loans to co-operatives formed by youth and women groups. A dedicated scheme for solid and liquid waste management shall be introduced and lessons learnt from existing schemes to support replication in regions and scale up. See also **Annex 5** for details of available micro-finance schemes.

9.4 Subsidies and cross subsidies

Currently, the water sector does not rise enough funding through tariffs to meet operation and maintenance costs. Once the water sector is strengthened (**Section 3** and **Section 4**) there would be scope to cross-subsidise costs for the sanitation sector.

Tariffs for water supply shall be reviewed by using the Ministry of Water guidelines. Tariff increases shall be proposed to match inflation to ensure affordability, following master planning and associated financial analysis (**Section 4**).

Direct subsidies to the downstream end of the sanitation chain rather than the upstream end shall be applied in order to make services delivery cost effective; such considerations to be included in master planning/ business planning (see **Section 4** and **Section 6**).

Sanitation marketing shall be promoted through campaigns and through improved access to finance (such as MFIs) for youth groups to set up enterprises. SMMEs may be supported through low interest loans with initiatives similar to the scheme discussed in **Annexe 5**.

The private sector could also be a financing source, e.g. for business advertisement on street dust bins, etc²⁶.

²⁶ Currently there are significant number of street dust bins in Addis Ababa and other cities sponsored by business organizations with their business advertisement on them.

10. Basket Funds

10.1 Estimates for Establishing Sanitation Basket Fund under the Umbrella of Consolidated WaSH Account

To come up with a manageable basket fund requirement, this section has been made to focus on major sanitation areas in line with GTPII period 2016-2020 and also a further 5 year follow on period 2021-2025. Accordingly, improving household, community and institutional sanitation will be considered in a way that it was not done in the past. It is proposed to undertake Sanitary Land Fill Site Construction, Sludge Drying Bed Construction, Public Toilets Construction, Communal Toilets Construction, School Toilets Construction, Waste Water Study and Design, Waste Water Construction, Procurement of Vacuum Trucks, Garbage trucks, Garbage bins, push carts and dust bins, Rehabilitation of Sanitation Facilities in such a way that both GTP II and IUSH-SAP targets are achieved²⁷.

Perhaps the best way to view funding and the relationship between the IUSHS targets and the parallel aspirations contained in GTPII is to consider the IUSHS and this SAP as the longer term goals and methodology to achieve urban sanitation across the whole country and to view the GTPII relatively short term 5 year goals as a “desired outcome” of the SAP.

As noted in **Section 4** and **Section 6**, DEWWATS may offer better medium term solutions to urban sanitation than centralized systems in the majority of cases, and that this conclusion will likely be arrived at following individual master planning exercises. However, pre-empting conclusions ahead of thorough analysis will rightly not be enough to convince planners and funders, they will need hard evidence. Hence the cost analysis includes for both centralized and decentralised systems as the most pragmatic approach, while, as noted in **Sections 4**, **Section 7**, etc., the reality is likely to be that centralised sewerage will continue to serve only a fraction of city residents, high income and commercial areas for instance.

A total of **14.6 Billion Birr** is estimated as being required to accomplish the objectives of IUSH-SAP under the umbrella of GTPII in Phase I (2016-2020), as indicated in the **Table 10.1** below.

- Brief details of funding are included in this sub-section, but full details are included in the comprehensive **Annex 6**, which is in turn based on dozens of spreadsheet calculations along with clear explanation of assumptions and methods of calculation.
- For assumptions and technical descriptions related to all cost data, refer to **Annex 6** bearing in mind that **Table 10.1** represents a best estimate of global sanitation costs based of available data: It is not a BoQ and technical specification (“shopping list”).
- Enhancement of UHEP, advocacy and promotion, capacity building and miscellaneous other software activities that would help to create enabling environment and are also included in the costs.
- For capacity building allowance estimates note that Item B3 under **Table 10.1** has 3 subheadings (3.1, 3.2, 3.3 and includes around 0.56 billion Birr in first 5 years and around 0.80 billion Birr in the following 5 years.
- The indicated amounts are expected to be raised by the government, development partners, the towns and the community to establish a Sanitation Basket Fund that shall be administered under the umbrella of the Consolidated WaSH Account (for grants) that will have a strong link with the Water Resources Development Fund (for loans). Alternative bi-lateral funding mechanisms may also be used.
- Indicative figures that shall critically be reviewed at the end of Phase I are also provided for Phase II (2021-2025) in the table. The review is expected to come up with refined technology choice based on the feasibility studies (**Section 4**) and outcomes of Phase I especially with regard to faecal and waste water treatment (**Sub-section 4.4**, **Section 6**, and **Sub-section 7.5**).

²⁷ It should be noted that there is no allowance for subsidized household toilets. In Ethiopia, it has so far been deemed more important to emphasize household maintenance, use and management of toilets rather than offer subsidies. The comprehensive UHEP covers this sanitation aspect (as detailed in the Strategy: “latrine construction, operation and use”). UHEP has been under recent significant review and improvement by MoH and the SAP supplementary studies. Section) It is generally considered that it is the house (or tenanted block) owner’s responsibility to build toilets along with construction and repair of the house itself. Selective household subsidies can have a negative effect (“I’ll wait for my grant or free materials issue before I do anything” syndrome) and micro-finance for toilet construction has proved to be difficult. Sanitation marketing, related more to sanitation entrepreneurs, is covered under Sub-section 4.4. The idea is that it is generally better to subsidize downstream FSM services to ensure clean and safe disposal and avoid overflowing pits and septic tanks. See 4.8, 9.3, 9.4, etc.

- However, the cost data included in **Annex 6** and the base spreadsheets provide the best available data for performing the immediately required master planning and feasibility studies at individual and grouped municipality and utility level.
- As technological and business development data becomes available, **Section 6**, and is shared (**Sub-section 6.6**) then so the standard and reliability of such planning will be enhanced.

Physical plan (Phase one (2016-2020) Detail)

Vision:- To see all cities / towns enjoying safer and cleaner man-made and natural environments that contributes to the achievement of healthy, productive and prosperous nation.

Goal:- The overall goal of this strategy is to mitigate the negative impacts of poor urban sanitation on health, environment, social and the economy by implementing full sanitation system (from containment to disposal) for liquid and solid waste by introducing locally sound, operationally sustainable service delivery systems, intensifying behavioural change communication, strengthening sector integration; institutional capacities and enforcement of regulations.

Integrated Urban Sanitation Five Years Strategic Action Plan

Ref.	Strategic Initiative	Strategic Activities	Indicators	# of schemes to be constructed in phase one	Base Line					Responsible Organizations
					2008	2009	2010	2011	2012	
	SMART Strategic Objectives To bring sustained behaviour change for better hygienic practices, installation of facilities and delivery and uptake of sanitation services by 2020	UHEP improvement in relation to the Hygiene and Environmental Health full package implementation	Proportion of HHs graduated for model HHs	%	60%	75%	85%	95%	100%	MOH & RHBs
		Training and experience sharing	Number of training and experience sharing visit conducted	8		2	2	2	2	MOH & RHBs
		Promotion and communication of the Health Service Transformation Plan	Proportion cities and towns transformed	%		5%	10%	15%	20%	MOH & RHBs
		Advocacy raising on sanitation and hygiene profile	Proportion of Population with increased KAP for Hygiene and Sanitation	%		10%	20%	30%	40%	MOH & RHBs
		Evidence-based IEC/BCC Materials (advocacy packages; fact sheets, human interest stories and documentaries on relevant sanitation and hygiene issues produced	Types of sanitation and hygiene Message developed	5		1	1	1	2	MOH
		two-way dialogue in small groups or with individual HHs (HHs, school, church meetings Health facilities etc.) Visits supported with tools, flipchart stories, role plays, image cards and other materials that can be used in a face to face setting.(IPC)	Proportion of HHs and Public institutions visited with IPC	%		10%	20%	30%	40%	MOH&RHBs, FMHACA
		Food and Drinking Establishments visits with:- Visual job aides (discussion cards, flipchart. toolkit, discussion guide, games safety& hygiene promotion), -Take home materials: Flyers, brochures etc.	Proportion of Food and drink establishments visited	%		10%	20%	30%	40%	MOH,MOCT, FMHACA

			-Sales kits: product brochures, application forms, contact cards etc.)									
			Direct Consumers contact(DCC) Scripted events (road shows, street theatre, demonstrations, mobile video) using at venues/locations with large target audiences	Proportion of population raised awareness	%			10%	20%	30%	40%	MOH, RHBs, FMHACA
			National and local medias TV advertising, community, radio, prints advertising.	frequency of spot/ messages transmitted	Number of air time per year=one air time spot =30 minuteX52 weeks= 26Hours/year			26	26	26	26	MOH, RHBs, FMHACA
			Social mobilization for(policy makers, networks and communities) together to raise awareness on the problem and facilitate behavior change	Proportion of population effected to positive behavioural and social change	%			10%	20%	30%	40%	MOH, RHBs, FMHACA
		Advocacy and Promotion(~0.3% of Grand Sum per annum or ~1.5% per phase) Advocacy and communication	- Clean City Rankings	Proportion of cities with improved urban sanitation and Hygiene	%			10%	20%	30%	40%	MOUDC, MOH and RHBs and RUDC Bureaus
			- Turning brown to green'	Proportion of cities and towns turned from brown to green	%			10%	20%	30%	40%	MOUDC, MOH and RHBs and RUDC Bureaus
			- Launch a 'Love My Akababi' campaign	Proportion of cities with clean and improved environment	%			10%	20%	30%	40%	MOUDC, MOH and RHBs and RUDC Bureaus
		Updating/preparation of Manuals(0.05% of Grand Sum)	Revise and update urban sanitation and hygiene documents	Types of documents revised and updated	3				1	1	1	MOU, MOH, MOWIE, MOCT and MOEFCC and FMHACA
		Continuous Cascaded training on Solid waste,	Conduct Cascading training	Proportion of cities and town provided cascading training	970			50%	50%			Regional Mayors, RHB, RWB, REFCC Bureau, RCT Bureau and

		liquid waste management , composting , etc.(0.1% of Grand Sum per annum or 0.5% per phase)									Federal Ministries
		Capacity	Procurement of vehicles	Number of vehicles procured	20		30				MOU, MOH, MOWIE, MOCT and MOEFCC and FMHACA
		Building in terms of Logistics (4% of Grand Sum)	Procurement of motorcycles	Number of motorcycles procured	1000		1000				MOU, MOH, MOWIE, MOCT and MOEFCC and FMHACA
			Procurement of laptop computer	Number of laptop computers procured	1000		1000				MOU, MOH, MOWIE, MOCT and MOEFCC and FMHACA
		Seed money for Formative Research(1 % of Grand Sum	Appropriate urban sanitation and hygiene technology options research and development	Type of urban sanitation and hygiene technology options innovated	No. Unit		3	3	3	3	MOU, MOH, MOWIE, MOCT and MOEFCC and FMHACA
		M&E(1% of Grand Sum)	Conduct process, outcome, impact evaluations and Review meetings	Type and Frequency of meeting and conducted evaluations	Evaluations/Reviews meetings		1:2	1:2	2	1:2	MOU, MOH, MOWIE, MOCT and MOEFCC and FMHACA
		Technical Assistance by NWCO and S&H TWG(0.5% of Grand Sum)	ISS	Number of ISS conducted	8		2	2	2	2	MOU, MOH, MOWIE, MOCT and MOEFCC and FMHACA
ST2	To ensure open defecation free cities and towns by 2020 from current average of 6% to zero percent open defecation	Promote CLTSH/SLT SH	Pre-triggering, Triggering and Post triggering implementations	Proportion of cities and towns open defecation free	6%		2%	2%	1%	1%	MOH, RHBs, Municipalities, MOCT, MOT

ST3	To ensure that 100% of urban households in any given town or city have access to improved latrines or toilets by 2020	Improved Public latrines construction	Public latrine Construction in 970 towns	Proportion of cities and towns with improved public latrines	1201		150	300	401	350	Municipality, Water & Sewerage utility
		Improved Communal latrines construction	Communal Toilets Construction in 970 towns	Proportion of cities and towns with improved communal latrines	2237		187	600	800	650	Municipality, Water & Sewerage utility
		Improved Public institutions(federal, regional and zonal prisons,offices,religious, food and drink establishments, industries etc) latrines construction	Public institutions latrine construction	Proportion of public institutions with improved latrines	%		40%	60	80	100	
		HHs hold latrines	HHs hold improved latrines construction	Proportion of HHs with improved latrines	%		40%	60%	80%	100%	Municipalities Water & Sewerage utility
		School latrines	Improved school latrine construction	Proportion of Schools with Improved latrines	1942		292	450	550	650	Ministry of education
ST4	To increase the faecal sludge management systems capable of safely removing, treating and recycling faecal matter to 30% coverage by 2020.		Appropriate technology for sludge management study design and construction(50 in No. Unit		50		5	10	17	18	Water & Sewerage utility/Municipality

			<ul style="list-style-type: none"> Procurement of 8 m3 capacity Vacuum Trucks for 50 towns and surrounding cities 	No. Unit(48)	48		20	20	8		Water & Sewerage utility/Municipality	
			<ul style="list-style-type: none"> Procurement of 5 m3 capacity Vacuum Trucks for 50 towns and surrounding cities 	No. Unit(25)	25/50		25				Water & Sewerage utility/Municipality	
			<ul style="list-style-type: none"> Procurement of 3 m3 capacity Vacuum Trucks for 50 towns and surrounding cities 	No. Unit(1)	1/50		1				Water & Sewerage utility/Municipality	
			<ul style="list-style-type: none"> Procurement of small capacity 0.5M³ - 2M³vacuum Truck 	No. Unit	100		50	50			Water & Sewerage utility/Municipality	
ST5	To design 36 Centralized and decentralized Waste water Management system and install 200 decentralised waste water treatment systems and capable of treating liquid and faecal matter to a standard that can be directly and safely used in the immediate environment or following further conditioning in localised facilities by 2020.		<ul style="list-style-type: none"> Waste Water system Study and Design (36 in number) 	36			5	6	12	13	Ministry of Water, Irrigation & Electricity	
			<ul style="list-style-type: none"> Complete Waste Water management system construction (6 in number) 	6			-	1	2	3	Ministry of Water, Irrigation & Electricity	
			<ul style="list-style-type: none"> Decentralized Waste Water Treatment systems study, design and Installation (200 in number) 	200			30	40	60	70	Ministry of Water, Irrigation & Electricity	
OST6	To Reduce, Recycle or Reuse 50% of all solid waste generated in medium and large towns and cities by 2025 (interim target of 20% by 2020).	Proper & safe solid waste management	<ul style="list-style-type: none"> Advocacy/Awareness creation/Promotion of solid waste collection and segregation from the source Promotion of Market network/chain to formal & informal solid waste collectors Establish Incentive scheme for those who 	Proportion of solid waste that is reused, recycled and reduced			-	5%	10%	15%	20%	MoUDH Municipalities, AA City Cleansing Management Agency, AA city Reuse, Recycle Project Office

			<ul style="list-style-type: none"> Reduce, Recycle or Reuse solid waste To promote Community based Composting activities 									
ST7	To dispose of 100% of the remaining solid waste in controlled tipping and sanitary landfill sites that fully comply with 2014 Guidelines by 2030 (interim target of 50% by 2020).	Sanitary Land Fill study, design & Construction(50%)	<ul style="list-style-type: none"> Sanitary Land Fill study, design & Construction To Improve the capacity of solid waste machineries and facilities 	Number of cities and towns with constructed sanitary land fill	50	I(AA) Modern S.LF and 40 open land fills	12	12	13	13	MOUDH, AA Reuse, Recycle and Disposal Project Office, AA Cleansing Management Agency and Municipalities	
				Solid Waste Service Coverage	%	50%	60%	70%	80%	90%	MOUDH, AA Reuse, Recycle and Disposal Project Office, AA Cleansing Management Agency and Municipalities	
				Procurement of 8 m3 capacity Garbage Trucks for 50 towns and surrounding cities	70	-	17	17	18	18	MOUDH, AA Cleansing Management Agency and Municipalities	
				Procurement of 5m3 Capacity Garbage bins for 50 towns	30	-	7	7	8	8	MOUDH, AA Cleansing Management Agency and Municipalities	
				Procurement of 1m3 Capacity Push Cart for 50 towns	260	-	65	65	65	65	MOUDH, AA Cleansing Management Agency and Municipalities	
				Procurement of 0.5m3 Capacity dust bins for 50 towns	390	-	97	97	98	98	MOUDH, AA Cleansing Management Agency and Municipalities	
				Procurement of	15		3	4	4	4	MOUDH, AA	

To ensure safe disposal of 100% health care waste from all health care facilities by 2025 (interim target of 95% by 2020).				Compactors (to be shared by 50 towns)							Reuse, Recycle and Disposal Project Office, AA Cleansing Management Agency and Municipalities	
					100			25	25	25	25	MOUDH, AA Reuse, Recycle and Disposal Project Office, AA Cleansing Management Agency and Municipalities
				Procurement of Graders (to be shared by 50 towns)	15			3	4	4	4	MOUDH, AA Reuse, Recycle and Disposal Project Office, and Municipalities
		Construction of Transfer station	Number of transfer station to be constructed	54				13	13	14	14	MOUDH, AA Reuse, Recycle and Disposal Project Office, and Municipalities
		Master planning solid waste garbage container/plate form location	Proportion master planned garbage container location	%				5%	10%	15%	20%	MOUDH, Land management office, Cleasing management agency, Municipalities
		enhance fleet management system	Group of fleet management ICT centers	61				15	15	15	16	MOUDH, AA Cleansing Management Agency and Municipalities
		Procurement of sweeper truck	Number of sweeper purchased	100				25	25	25	25	MOUDH, AA Cleansing Management Agency and Municipalities

ST8		Facilitate proper Excreta disposal system	Improved construction latrines	Proportion of Health facilities with improved latrines	%			10%	20%	25%	30%	MOH
		Health care Waste Management	Liquid waste management(Septic tank, sewerage connection, placenta pit)	Proportion of health facilities properly managed liquid waste	%			10%	20%	25%	30%	MOH
		Healthy environment	Implementing hygiene and environmental health interventions(clean compound, examination and wards cleanness, ventilation, light, water, hand washing, availability and functionality pts cloth laundry machines, food hygiene, Bathing facilities etc)	Proportion of Health facilities with improved hygiene and environmental Health parameters	%			10%	20%	25%	30%	MOH
ST9		Proper solid Waste Management	Garbage container	Proportion of Industries with proper solid Waste Management	%			15	20	25	30 %	MOI, MOEFCC,
			Strengthening the capacity of the private sector through appropriate cost recovery method and incentive mechanism	Proportion of private sectors engaged in industrial waste collection and whose capacity have been strengthen	%			15	20	25	30 %	MOUDH, AA Cleansing Management Agency and Municipalities
	To enforce safe treatment, reuse or disposal of industrial liquid and solid wastes to ensure ecosystem, agricultural and human protection from all industries by 2035 (interim target of 30% of all industries by 2020).		Implement polluters pay principles	Proportion of industries in which polluter pay principle has been practiced	%			15	20	25	30 %	MOI, MOUDH MOEFCCI, Cleansing Management , Regulatory body, Agency, Municipalities
		Proper liquid waste Management	Septic tank/connection to sewer	Proportion of industries with proper liquid waste management	%			15	20	25	30 %	MOI, MOEFCCI
ST10	To strengthen sector performance through formation of a "coordination body" that will be managed and financed so as to direct capacity building efforts towards participating individual or clustered municipalities, utilities and contractors. Such coordination body to be fully established by 2020 (interim coordination		<ul style="list-style-type: none"> Formation of "coordination body" (%) Hold national workshop on technical & operational development through sharing good 		%			100				MOUDC, MOH,MOWIE, MOCT, MOEF
					l			l				MOUDC,MOEFC C, MOCT, MOH,MOWIE;M unicipalities/

	mechanism 2016).		practice (1 workshop)								water & sewerage utilities
			<ul style="list-style-type: none"> Capacity building on service delivery at town/cities (6 training) 	6			2	2	2		MOUDC,MOEFC C, MOCT, MOH,MOWIE;M unicipalities/ water & sewerage utilities
			Formation of “coordination body” (%)				100				MOUDC,MOEFC C, MOCT, MOH,MOWIE;M unicipalities/ water & sewerage utilities
ST II	To leverage and increase effective utilization of resources for accelerated and cost-effective implementation of the IUSH-SAP.		Deploy appropriate professionals in 970 towns/cities (%)				40%	65%	85%	100%	MOUDC,MOEFC C, MOCT, MOH,MOWIE;M unicipalities/ water & sewerage utilities
			Allocate required resources in 970 towns/cities (%)				40%	65%	85%	100%	MOUDC,MOEFC C, MOCT, MOH,MOWIE;M unicipalities/ water & sewerage utilities
			Create conducive working environment in 970 towns/cities (%)				40%	65%	85%	100%	MOUDC,MOEFC C, MOCT, MOH,MOWIE;M unicipalities/ water & sewerage utilities

Table 10 - I: IUSH-SAP Financial Requirement Summary for Minimum Package Sanitation Facilities & Related Software Aspects

No	Particulars	Unit	Quantity		Estimated Financial Requirement (ETB)	
			Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016-2020)	Phase 2 (2021-2025)
A	Hardware		50	15	926,694,505	827,027,921
1	Sanitary Land Fill study, design & Construction	No. of towns	50	15	280,819,629	237,083,549
2	Sludge Drying Bed study, design & Construction	No. of towns	1201	1177	939,088,500	1,271,411,272
3	Public Toilets Construction in 970 towns	No. of units	2237	1967	1,249,787,500	1,503,237,404
4	Communal Toilets Construction in 970 towns	No. of units	1942	1942	1,303,194,000	1,799,419,165
5	School Toilets Construction in 970 towns	No. of units	36	28	180,000,000	177,203,673
6	Waste Water Study and Design	No. of towns	6	10	6,161,800,000	10,330,638,206
7	Waste Water Treatment Plants Construction	No. of towns	200	800	Included in above figure	Included in above figure
8	Decentralized Waste Water Treatment systems study, design and Installation/construction ²⁸	No. of units	48	32	144,000,000	111,290,311
9	Procurement of 8 m ³ capacity Vacuum Trucks for 50 towns and surrounding cities	No. of units	25	24	62,500,000	69,556,444
10	Procurement of 5 m ³ capacity Vacuum Trucks for 50 towns and surrounding cities	No. of units	1		2,000,000	
11	Procurement of 3 m ³ capacity Vacuum Trucks for 50 towns and surrounding cities	No. of units	70	66	160,813,694	175,977,804
12	Procurement of 8 m ³ capacity Garbage Trucks for 50 towns and surrounding cities	No. of units	42	17	84,074,234	37,096,770
13	Procurement of 5 m ³ capacity Garbage Trucks for 50 towns and surrounding cities	No. of units	36	26	5,486,794	3,318,332
14	Procurement of 8m ³ Capacity Garbage bins for 50 towns and surrounding cities	No. of units	30	12	10,350,000	2,488,749
15	Procurement of 5m ³ Capacity Garbage bins for 50 towns	No. of units	195	100	20,025,000	3,828,845
16	Procurement of 1m ³ Capacity Push Cart for 50 towns	No. of units				

²⁸Note that the numbers of DEWWATS has increased from Zero Draft SAP but that overall costs have been kept the same. This is based on the premise that an increase in DEWWATS is likely to be accompanied by a reduction in centralised sewerage systems so that overall sanitation budgets will still be in the same order. Also the majority of DEWWATS will be low tech rather than the sophisticated units that might be appropriate for congested city centres, which will reduce the unit cost per DEWWATS.

No	Particulars	Unit	Quantity		Estimated Financial Requirement (ETB)	
17	Procurement of 0.5m ³ Capacity dust bins for 50 towns	No. of units	390	200	6,975,000	1,276,282
18	Procurement of Compactors (to be shared by 50 towns)	No. of units	15	5	28,462,500	10,998,613
19	Procurement of Graders (to be shared by 50 towns)	No. of units	15	5	39,847,500	15,398,058
	Sum				11,605,918,855	16,577,251,399
20	For Rehabilitation of Sanitation Facilities(7% of Sum)	The indicated percentage shall be used to determine financial requirement for rehabilitation at regional/town administration level			812,414,320	1,160,407,598
	Grand Sum				12,418,333,175	17,737,658,997
B	Software Enhancing UHEP for promotion and awareness creation(3% of Grand Sum)	The indicated percentage shall be used to determine financial requirement for software activities at town level			372,549,995	532,129,770
1	Advocacy and communication(0.1% of Grand Sum per annum or 0.5% per phase)				62,091,666	88,688,295
2						
3	Capacity Building Updating/preparation of Manuals(0.05% of Grand Sum)				6,209,167	8,868,829
3.1	C o n t i n u o u s Cascaded training on Solid waste, liquid waste management, composting, etc.(0.1% of Grand Sum per annum or 0.5% per phase)				62,091,666	88,688,295
3.2	Capacity Building in terms of Logistics (4% of Grand Sum)				496,733,327	709,506,360
3.3						

No	Particulars	Unit	Quantity	Estimated Financial Requirement (ETB)	
C	Miscellaneous				
1	R&D				
1.1	Seed money for Formative Research(1% of Grand Sum)			124,183,332	177,376,590
2	M&E(1% of Grand Sum)			124,183,332	177,376,590
3	Technical Assistance by NWCO and S&H TWG(0.5% of Grand Sum)			62,091,666	88,688,295
4	Seed money for MFIs(3%)			372,549,995	532,129,770
5	Seed money for providing rewards to successful institutions, school, hygiene and sanitation clubs, communities, etc.(1% of Grand Sum)			124,183,332	177,376,590
6	Seed money for promotion of the RRR principle, use of bi-digesters for generating energy and speeding up pathogen die off at transfer stations(2% of Grand Sum)			248,366,664	354,753,180
7	Seed money for Enhancing Sanitation supply chain(1.5% of Grand Sum)			186,274,998	266,064,885
	Grand Total			14,659,842,313	20,939,306,445

The indicated percentage shall be used to determine financial requirement for Miscellaneous activities at town level

Notes:

- i. A cost escalation rate of 5% per annum is considered in projecting unit rates and per capita costs to phase II for construction activities while for equipment the rate is kept at 3%.
- ii. Detail Plan and Financial requirement are shown in **Annex 10-1**.
- iii. Limited financial data collected during the baseline data collection of five towns (see **Annex10-2**) has been used for verifying assumptions and unit rates used in the basket funding estimate.

Rehabilitation of Sanitation Facilities

7% of the sum of the minimum package indicated in **Table 10-I** above is taken as seed fund for rehabilitation. Estimates for individual regions and either groups of towns or individual towns shall be determined using similar percentages to those used for the overall estimation as required.

Software Aspects and Capacity Building

Software aspects and capacity building are considered as percentages of grand sum (minimum package activities plus rehabilitation) as shown in **Table 10-I** above. Estimates for individual regions and either groups of towns or individual towns shall be determined using similar percentages to those used for the overall estimation as required.

Miscellaneous Seed Money

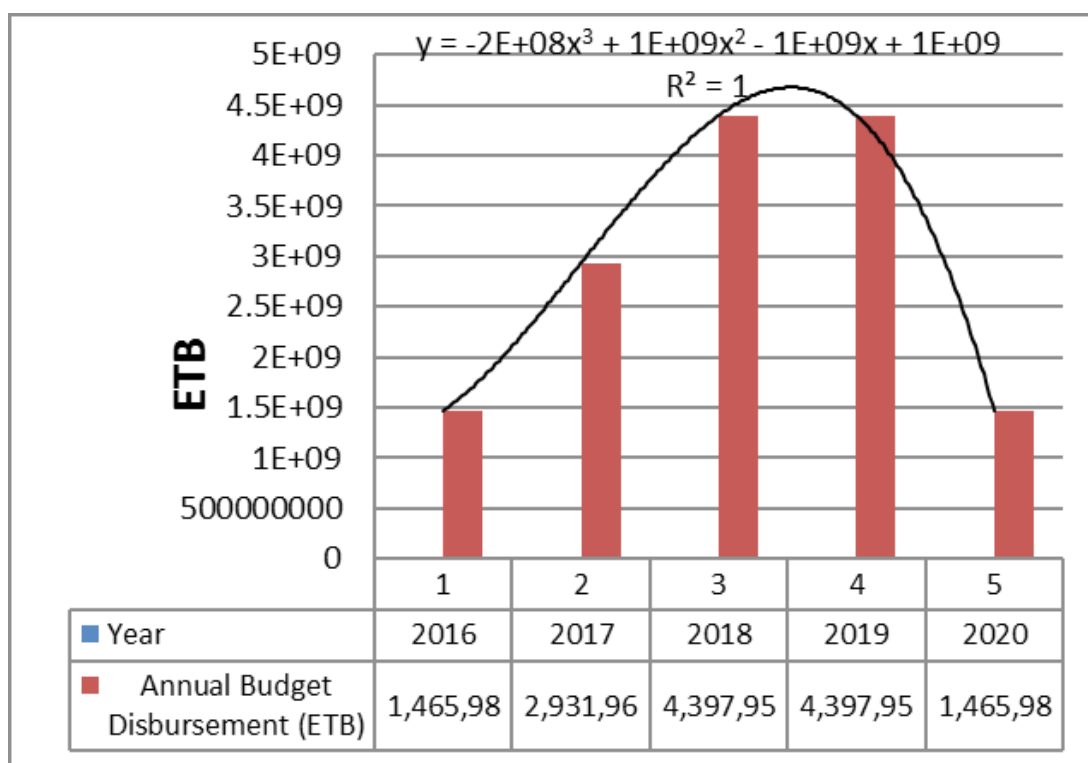
Miscellaneous seed money for formative research, MFIs, M&E, promotion of RRR, supply chain etc. are calculated as percentages of the grand sum as shown in **Table 10-I** above. Estimates for individual regions and either groups of towns or individual towns shall be determined using similar percentages to those used for the overall estimation as required.

Basket Fund Disbursement

The basket fund disbursement shall be as shown in **Figure 10.1** below in order to implement IUSH-SAP smoothly. A slow start followed by enhanced implementation in 2017, 2018 and 2019 is assumed.

It is envisaged that funds flow will be as per OWNPN mechanisms, through the CWA or non-CWA channels for infrastructure development. Apart from the establishment of a new Sanitation Fund (this is a suggestion to streamline the resources for urban sanitation and apply the cost recovery principle wherever sustainable and applicable, see **Sub-section 10.4**) fund flow from federal to towns will be the same as per sector/GOE arrangements.

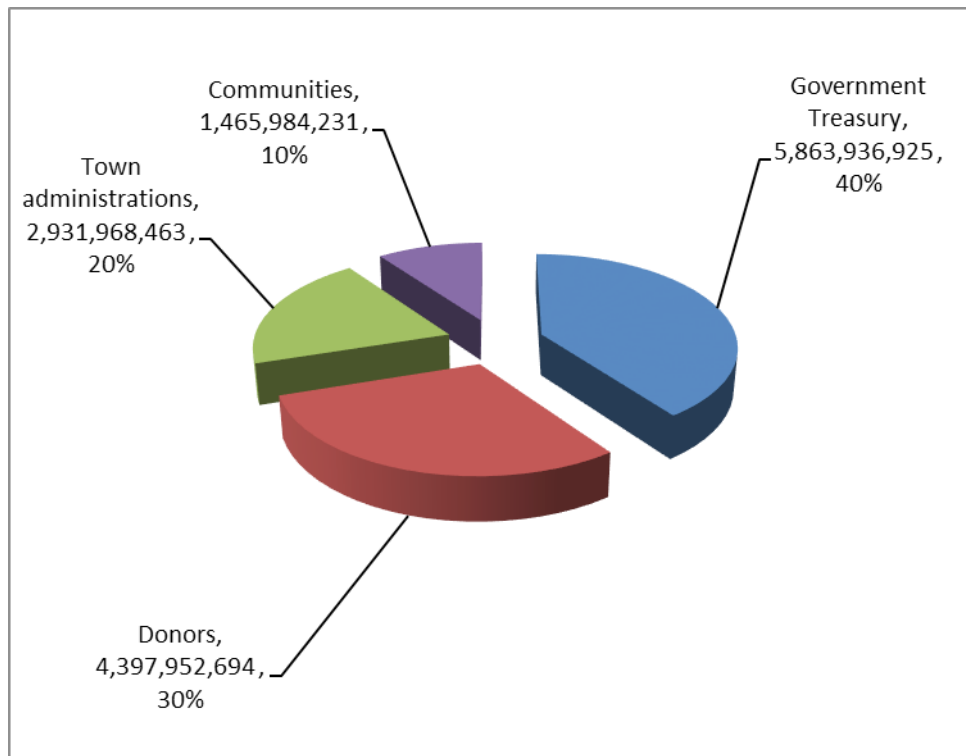
Figure 10 - 1: Annual Financial Disbursement



10.1.5. Basket Funding Contributions by Stakeholders for Phase I

Based on past experiences, the following percentage contribution of funding as shown in **Figure 10.2** below is proposed²⁹. The ministry of health in coordination with MoUDH and WaSH ministries shall arrange a Donor Conference and come up with a final percentage contribution table. The government contribution is kept very close to GTP's estimated budget for construction of 6 towns waste water treatment plants.

Figure 10 - 2: Funding Contributions by Stakeholders in ETB for Phase I (2016-2020)



See **IUSH-SAP-IG** for equivalent indicative figures in international currencies.

10.2. Existing Consolidated WaSH Account as an option for administering Sanitation Basket Fund

Funds for urban sanitation to be generated following the launching of IUSH-SAP shall ideally be consolidated in the form of Basket Fund that shall be accessed by feasible towns or clusters in the various administrations and regions of Ethiopia that present “bankable MSP³⁰ projects” for consideration under a climate of competition following thorough sustainability master planning (**Section 4**).

One option is to incorporate a Sanitation Basket Fund into the existing Consolidated WaSH Account (CWA) and make sure that the sanitation component will be “ring-fenced” to ensure that it will be solely used for sanitation only to avoid the past experience of sanitation fund ending up being used in water supply intervention.

²⁹ The government contribution is kept very close to GTP's estimated budget for construction of 6 towns waste water treatment plants. Though plans for 50 towns sanitary land fill sites construction is indicated in the reviewed GTP II draft document, the corresponding financial requirement is not indicated. Plans for sludge drying beds, public toilets, communal toilets and school toilets are not also indicated in the GTP II draft document.

³⁰ Suggested definition of Minimum Sanitation Package: The least cost option that provides equitable financially and environmentally sustainable sanitation (and water) service delivery for both small and large towns

Furthermore, in order to strengthen solid waste management (SWM), there is an argument to bring it also under the umbrella of the One WASH National Programme (OWNP). Ring-fenced SWM finance would be disbursed as per the usual CWA modality or disintegrated channels based on requirements of the implementing sectors. As also stated in **Sub-section 10.4**, in order to incorporate solid waste management, the MoUDH would need to be part of the OWNP and the associated CWA³¹.

Since, as noted earlier, sanitation investment also requires water investment (unless already provided) to ensure financial and environmental sustainability, then any given project would need to draw on basket (or bilateral) ring-fenced water funding as well as basket (or bilateral) ring-fenced liquid sanitation funding and basket (or bilateral) SWM funding.

10.3. Water Resources Development Fund

As a further step to implementing what is indicated in **Section 10.2**, the part of the fund that will be allocated for study, design, construction and construction supervision of the sanitation facilities from the consolidated WaSH account shall be channeled to the Water Resources Development Fund³² for on lending to towns (and preferably clusters of towns and utilities, **Section 3**) that will show their readiness by generating 30% of the financial requirement for the intervention (i.e. study, design, construction and construction supervision of the sanitation facilities) and who also present “bankable projects” through sustainability master planning (**Section 4**).

However, all towns or clusters, including those which are unable to generate 30% of what is required for sanitation intervention, shall be eligible to apply for available Capacity Building Funds from the CWA.

10.4. Sanitation Fund

The other option that is favored by some in the sanitation sector requires the establishment of standalone Sanitation Fund. As the way forward at the initial stage of IUSH-SAP implementation, the OWNP Steering Committees at the federal and regional levels³³ shall take the low prevailing attention³⁴ being given to sanitation into consideration in their effective management of the Sanitation Fund as a major component of the CWA.

10.5 Application procedures

Suggested application procedures are included in the **IUSH-SAP-IG**.

³¹ This has been written into the draft MoU that accompanies the SAP

³² Under this arrangement, Water Resources Development fund shall strengthen its window for funding sanitation.

³³ The One WaSH Steering Committees shall immediately include MoUDH and respective urban development and housing bureaus/offices into the WaSH steering committees in order to consolidate funding for solid waste, liquid waste and faecal sludge management under the existing Consolidated WaSH Account.

³⁴ WaSH implementers are giving less attention to sanitation due to low awareness and highly competing priorities as indicated by officials in the WaSH Sector ministries

11. Monitoring and Evaluation

11.1 Introduction

This **Section 11** of the SAP, Monitoring and Evaluation, meets the requirements of the Strategy Components as summarised in **Table 11.1 IUSH-SAP-IG**. The Section cuts across all Targets ST1 to ST11 inclusive, but specifically ST10 and ST11 (as listed in **Sub-section 2.2**).

Outlines guidance is provided for achieving the Monitoring & Evaluating (M&E) component of the IUSHS. It must be read in combination with **Annex 7** which contains relevant figures and tables referred to below. **Sub-section 11.2** provides recommendations on how to evaluate existing M&E systems and analyze gaps and duplications. Building on WASH M&E systems already existing in Ethiopia, **Sub-section 11.3** outlines the suggested M&E framework for the Strategy Components and Targets as implemented through the IUSH-SAP. Finally, **Sub-section 11.4** provides guidance on how to evaluate longer-term impact and contribution towards achieving the SDGs.

The overall objective is to 'establish a results-based M&E system with realistic key development indicators'³⁵ which includes a three-staged approach:

1. Monitor outputs under each Strategy Component heading (see **Sub-section 2.2**) at town and regional levels through surveys and documenting evidence;
2. Evaluate progress towards achieving Sanitation Targets (see **Sub-section 2.3**): comparison of achievement against pre-set milestone;
3. Assess longer-term impact of achievement of Sanitation Targets - and contribution to SDGs.

A well-functioning M&E system is essential for the successful implementation for the IUSH-SAP and moreover for a strong overall performance of the urban WASH sector in Ethiopia (Sanitation Target 10).

11.2 Evaluation and Gap Analysis of existing WASH M&E systems in Ethiopia

M&E for the IUSH-SAP needs to be integrated with existing WASH M&E systems in Ethiopia³⁶. In fact, the existing OneWASH National Program's (ONWNP) M&E system is comprehensive and the M&E for the IUSH-SAP should and can be fully integrated into the ONWNP M&E system. In Ethiopia,³⁷ four GoE Ministries (i.e. MoH, MoE, MoUDH, MoWIE) hold responsibility for certain aspects of urban WASH (including SWM) in order to collect data needed to track progress and understand achievements and shortfalls falling under their mandates. In addition, the Central Statistics Office (CSA) collects data on WASH through nationally representative household surveys³⁸. Data from these surveys should feed into a centralized monitoring database managed by the WASH Coordinator Office.

MoFED is an important stakeholder for M&E because it can provide data that is required to monitor some of indicators in the ONWNP M&E framework (**Table 11.1, Annex 7**). In turn, data reported on other indicators listed below helps with budget planning (i.e. where to focus resources).

It is recommended to slightly adapt the M&E system already developed for rural WASH to make it fit for purpose for urban sanitation and hygiene (**Figure 11.1, Annex 7**). One important adjustment is to include the Ministry of Urban Development and Housing (MoUDH), as it bears the responsibility for safe transfer and treatment of solid wastes.

³⁵ This follows the TWG's request for a results-based M&E framework.

³⁶ This follows the TWG's request for integration to existing M&E frameworks for WASH.

³⁷ Extensive consultations were held with IRC One WASH (Meeting with Desta Dimtse (IRC Capacity Building Specialist, One WASH National Program) and Henok Getachew (IRC MIS Specialist, OneWASH National Program) on March 10, 2016 in Addis Ababa). Furthermore, relevant publications were reviewed (e.g. Jones 2015).

³⁸ Demographic and Health Survey (DHS) and Welfare Monitoring Survey (WMS).

In terms of data flow (**Figures 11.2 and 11.3, Annex 7**), existing data collection processes should be used as much as possible for IUSH-SAP. Data already collected (DHS and others) can be used as baseline data for the IUSH-SAP. However, additional specific data on urban sanitation and hygiene is required and stakeholder ministries will need to collaborate in data collection and analysis. Most importantly, the WASH-MIS should be modified to include sanitation and hygiene data. Moreover, the 2nd National WASH Inventory (NWI) which is planned to be conducted by CSA in 2016 should include indicators for urban sanitation infrastructure and hygiene³⁹.

As stated, the WASH Coordination Office at national level should hold the central responsibility of compiling M&E data on urban sanitation and hygiene. In relation to DHS and NWI, this means that the WASH Coordination Office will need to jointly prepare, conduct and analyze results of these surveys in full collaboration with CSA and MoWIE.

Monitoring data for urban sanitation and hygiene should be generated by municipalities. Therefore, it is suggested that GoE ministry offices at municipal level should be responsible for data collection for all indicators outlined in the M&E framework (**Table 11.1, Annex 7**). Ministry offices at municipal level should provide relevant data to the municipal WASH Coordination Office. In turn, the municipal WASH Coordination Office should be empowered to hold focal responsibility for compiling (i.e. transferring it into a central database) and analyzing data at municipal level. It is recommended that the municipal WASH Coordination Office also checks for errors and thus controls data quality. Once the database holds complete data, the regional and national WASH Coordination Office should be required to review and approve data within an agreed timeframe.

The National WASH Coordination Office should be responsible for guiding quality control of data (e.g. by providing templates for data entry forms and managing database). Moreover, it should be responsible for analyzing data and tracking progress towards achieving Sanitation Targets and Strategy Components.

Once the national WASH Office has approved data, it should make the data accessible to the WASH Coordination Office as well as all relevant ministry offices at regional and municipal level. The approval process should be swift, as it is essential for ministry offices to use real-time data to monitor their performance; they should use this data for reporting within their ministry hierarchy⁴⁰.

In summary, current systems for M&E data collection and analysis (ONWNP M&E) need to be improved and harmonized to allow for integration of M&E for urban sanitation and hygiene:

- Increase and improve resources to implement M&E systems at federal, regional and Woreda/ town level (i.e. well-trained and clearly mandated personnel plus financial resources)
- National targets for sanitation and hygiene need to be included in the 2nd Growth and Transformation Plan (GTP-II) which is currently being developed. Preferably, GTP-II should specify separate targets for urban and rural sanitation and hygiene
- Align national targets for sanitation and hygiene⁴¹. Targets should be realistic and achievable. This goes in line with the above mentioned need to align indicator definitions
- Harmonize indicator definitions for sanitation and hygiene among the various datasets
- Align national WASH targets and indicators with the Sustainable Development Goals (SDGs). This is essential to allow monitoring of Ethiopia's progress towards contributing to the SDGs. See **Sub-section 11.4**.

³⁹ At the time of writing, indicators for sanitation and hygiene have not yet been included.

⁴⁰ Staff in ministry offices and WASH Coordination Office should also be able to filter (e.g. by date, location, indicator). For quality control purposes, all data should be password protected. Such a database can be set up in excel using pivot tables – but there are also other (web-based) software solutions available. It is understood that WASH M&E MIS already is such a web-based software solution – so it might be easiest to include sanitation and hygiene data here. Municipal WASH Coordination Offices should act as focal points for queries on data.

⁴¹ Currently, this IUSHSAP aims for 100% open defecation free cities and 100% of urban households having access to improved latrines or toilets by 2020 – this aligns with MoWIE and MoH's Universal Access Plan II. In contrast, the current Health Sector Development Programme IV 2010/11 aims for 80% of Kebeles to be ODF and 82% of households utilising a latrine (increase from 20%). Also, previously set targets (e.g. in Hygiene and Sanitation Strategy and Strategic Action Plan of 2005: '100% open defecation free Ethiopia with all households having access to and using a basic 'minimum' standard of toilet by end of 2015') were not met.

- Include indicators for urban sanitation infrastructure and hygiene in the 2nd National WASH Inventory (NWI).
- Clarify linkages and reference between M&E processes and indicators suggested in National Hygiene and 2006 Sanitation Strategy and National Protocol (Jones 2015, p.8).
- Clarify data reporting requirements and improve data quality and lines of responsibility at all levels. Suggestions have been made on this above. However, relevant GoE Ministries need to agree and define those in detail.

It is considered that Jones' (2015) M&E recommendations for rural, but adapted to include urban as described above, be implemented by GoE and all the stakeholders in Ethiopia's urban WASH sector⁴².

11.3 M&E Framework for Strategy Components and Sanitation Targets

M&E methodology and tools shall be developed for the IUSH-SAP based on the framework provided by the eleven key Sanitation Targets (as per **Sub-section 2.3** or as revised and amended by the National WaSH Coordination office), as they form the backbone of the IUSH-SAP. This approach will ensure that all Strategy Components of the IUSHS will be monitored and evaluated. Refer to **Table 11.1** in **Annex 7** for a detailed outline of M&E methodology and tools (light red columns) in the overall framework provided by the Sanitation Targets and corresponding Strategy Components⁴³ (light green columns).

As part of the M&E results-based framework, it is recommended that baseline data be collected for each indicator at municipal level, directed and processed at national level as described in **Sub-section 11.2**. To enable the National WASH Coordination Office to track progress for each indicator, it is important to understand the baseline situation that progress is being measured against. Furthermore, it is recommended to conduct a first evaluation in early 2021 in order to assess progress towards achieving Sanitation Targets as well as the immediate impact of these achievements (both intended and unintended⁴⁴). The 5-year evaluation should in particular assess progress towards targets that have been set for the end of 2020 (**Table 11.1, Annex 7**).

11.4 Evaluation of IUSH-SAP's contribution to SDGs and assessment of the program's longer-term impact

In order to evaluate the overall IUSH-SAP impact as well as Ethiopia's contribution to those SDGs most relevant to urban sanitation and hygiene, it is recommended to conduct an independent impact evaluation in Year 10 of the IUSH-SAP roll out. For this purpose, an impact evaluation framework shall be designed, within the first year of the SAP roll out, that focuses on selected SDGs that are most relevant to urban sanitation and hygiene; for instance, SDG6: 'Ensure availability and sustainable management of water and sanitation for all' and SDG11: 'Make cities and human settlements inclusive, safe, resilient and sustainable'.

Similar to the 5-year evaluation, both intended and unintended impact will need to be identified. Moreover, such impact evaluation will need to take into consideration firstly, potential contributions made by other urban WASH interventions in Ethiopia during the reviewed period and, secondly, contributions by factors that lie beyond the IUSH-SAP sphere of influence (e.g. economy performance, climate change).

It should be emphasized that any targets and indicators used as part of the M&E framework for IUSH-SAP (and WASH) for Ethiopia will need to be aligned with targets and indicators used for SDGs. This is essential in order to assess Ethiopia's contribution to the SDGs. Comment has been made above on discrepancies between indicators currently used for WASH in Ethiopia and indicators used for SDGs. It is particularly important that indicators focusing on sanitation and hygiene at household level need to be complemented by indicators that look at various points in the FSM/ LWM chain.

⁴² It is understood that Jones' (2015) recommendation have been accepted by the MoH, and wider OneWASH National Program –and will also inform the new Hygiene and Environmental Health Strategy (Jones 2015, p.1).

⁴³ Please note that most Strategic Components concern more than one Sanitation Target. In order to provide a comprehensive overview, they have been repeated in the table.

⁴⁴ It is important to identify unintended negative impact, as implementation arrangements or activities might need to be modified to counteract. Monitoring data provides essential information that should be used to improve implementation whenever required.

12. SAP Oversight and Management⁴⁵

See IUSH-SAP-IG for suggested details of Oversight and Management

12.1. Initial Strategic Action

12.2. Fundraising

12.3. Oversight and Management at Federal Level

12.4. Oversight and Management at Regional and sub-Regional level

12.5 Programme

Following acceptance of the SAP, it will be the responsibility of those responsible for Oversight and Management to prepare a plan to roll out the SAP. A suggested programme on how this might be achieved is included under **Section 12.5** in the Implementation Guidelines IUSH-SAP-IG and an example Project Plan, as illustration only, is included as **Annex 8**.

⁴⁵Note: Draft to be modified based on the requirements of the TWG

Annex I: Example of ranking of clustered water utilities from another African country

There are 10 publicly owned water utility companies listed and comparisons are made on nine Key Performance Indicators (KPIs). An award is made each year by the National Regulator to the utility showing the best improvement in service levels as indicated by the KPI changes.

Table 3: Overview of Key Performance Indicators

	UFW [%]	Trend	Water Quality [% compliance to number of samples]#	Trend	Metering Ratio [%]	Trend	Water Service Coverage [%]	Trend	Sanitation Coverage* [%]	Trend	Hours of supply	Trend	Staff per 1,000 connections	Trend	Collection efficiency [%]	Trend	O+M Cost coverage collection* [%]	Trend			
LWSC	51	↓	84	↑	50	↑	68	↑	17	↑	16	→	11	↑	73	↓	91	↓	0	3	6
NWSC	38	↑	84	↑	55	↑	85	↑	52	↑	16	→	9	→	63	↓	78	↓	1	5	3
KWSC	46	↑	93	→	32	↑	84	↓	46	↓	15	→	9	↓	68	↓	60	↓	1	2	6
MWSC	42	→	92	↓	46	↑	87	↑	63	↓	17	→	8	↓	89	↑	134	↑	4	4	1
LGWSC	52	↑	76	↑	77	↑	65	↑	25	↑	17	↑	15	↑	73	↑	80	↑	0	3	6
SWSC	40	→	93	→	76	↑	89	↑	53	↑	18	↑	10	→	121	↑	113	↑	5	4	0
CHWSC	50	↑	45	↑	25	↑	58	↑	25	↑	12	↑	16	↓	56	↓	54	↓	0	0	9
NWWSC	31	↑	97	→	100	→	63	↑	5	↑	22	↑	13	↓	88	↑	104	↑	6	1	2
WWSC	47	↓	50	↓	10	↓	57	↑	17	↑	8	→	14	↑	81	↓	71	↓	1	1	7
CWSC	33	↓	70	↑	100	→	79	↑	46	↑	21	↓	11	↑	76	↓	76	↓	3	3	3
Av.	45 (w)	→	82 (s)	↑	51(w)	↑	74.4 (w)	↑	34(w)	↑	16.2 (s)	↑	**		78(w)	↓	80 (w)	↓			

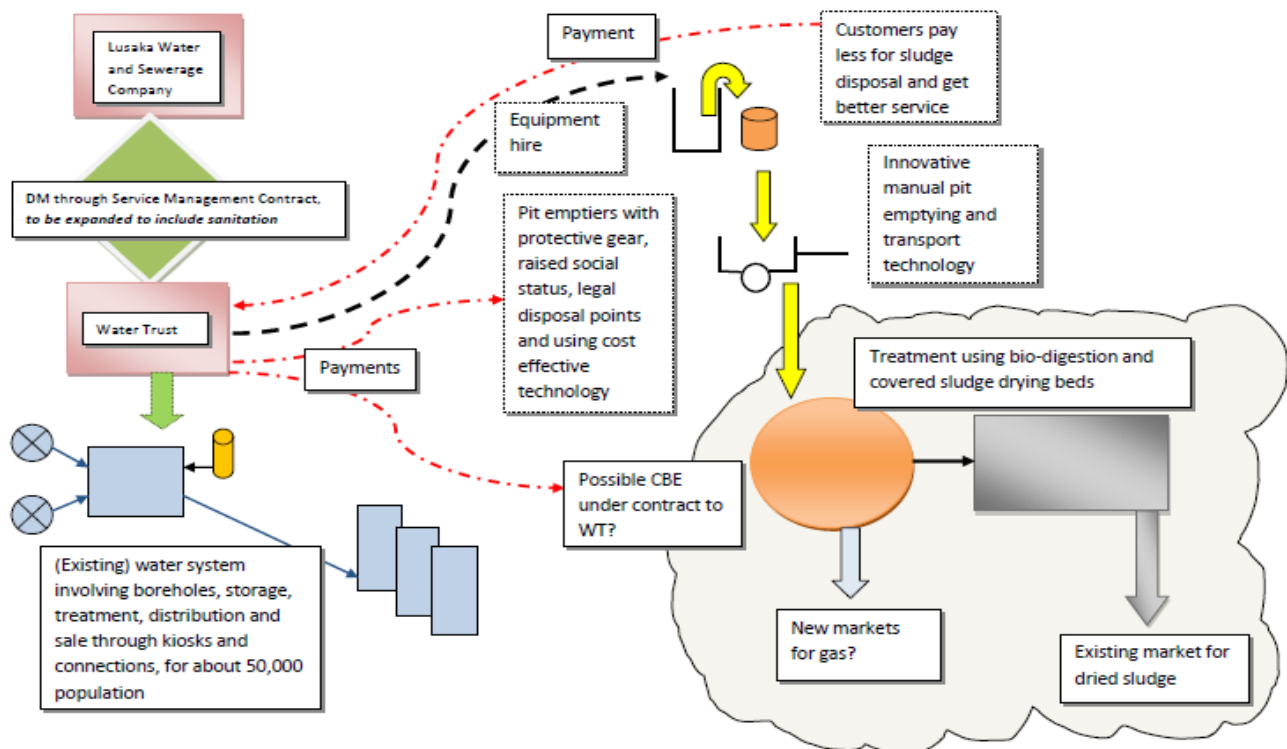


Worse than the relevant average and benchmark not achieved
 Better than the relevant average but benchmark not achieved
 At least "acceptable" benchmark achieved

(w) weighted average
 (s) simple average

- * No benchmark defined
- ** Different benchmarks depending on size of company, therefore no comparison to average
- *** No comparison to previous year because of structural changes
- # The water quality compliance indicator calculation has been revised in accordance to the new water quality guideline that incorporates the compliance to the required number of samples

Annex 2. Localised sludge transfer and drying bed schematic example



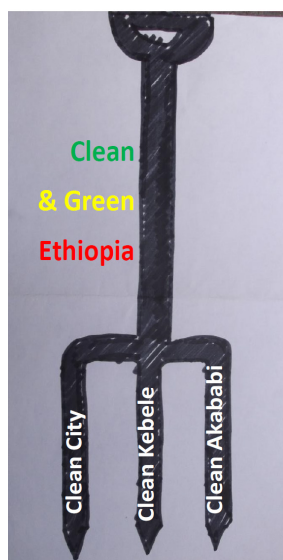
Annex 3: Rationale, Estimated Costs and other aspects related to Promotion and Advocacy at Community and Local Authority Levels

This annex should be read in conjunction with **Sub-section 5.3** of the SAP. The annex is divided into six sections: (1) Behaviour Change (2) The Stakeholders, (3) The Three Interventions (4) Notes on Formative Research and (5) Broad Costs Estimates and (6) Historical development of the SAP Advocacy components.

(1) Behaviour Change

Rationale

- A useful description of a strategy is “something which shows you how to get from here to there”. The ‘here’ represents the existing state-of-affairs in mid-2016; the ‘there’ are the conditions associated with the ultimate goal of the sanitation plan. The ‘something which shows you [the path]’ can be conceived of as a road-map of practical, achievable actions, getting you from here to there
- Regarding the changes in behaviour that the strategy requires, they should be (a) extremely limited in number since fewer demands have a much better likelihood of being accepted - and then adopted – than a multitude of new behaviours and (b) they should be simple, since easy changes are more likely to succeed than difficult ones.
- The use of three phrases is a number with historically-profound roots in rhetoric, the ancient art (or science) of persuasion⁴⁶. Three behaviour changes can be easily memorized, mentally accessed and hence repeated by communicators. Publicity around, repetition of and familiarity with the messages will need to assume a greater importance amongst lay stakeholders than the technical messages aimed at sanitation professionals
- The image of three prongs lends itself a potential logo, (please see example below). A garden fork type instrument – itself intimately associated with rubbish collection – may have an Ethiopian equivalent
- If so, each of the vertical prongs could represent a stakeholder-related action. (The horizontal spurs could represent, on the one side, the municipality working together with the *kebele* leaders and, on the other, the *kebele* leaders working together with householders⁴⁷.) The fork could become a brand, an essential feature of campaigns



⁴⁶ 'Tricolon', or triple emphasis, is a powerful figure-of-speech often used in persuasion. (University of Washington website, 2016.) An example here might be "Clean City, Clean Kebele, Clean Akebab" (or, Clean City, Clean Borough, Clean Neighbourhood)

⁴⁷ If only a two-pronged instrument is a familiar icon in Ethiopia, the shaft could represent the municipality with the two prongs as kebele and household.

(2) The stakeholders

At this stage, the principal stakeholders in the behaviour change strategy are the municipal authority, the *kebele* authority and the householder/ property owner.

In more detail they are:

- The municipal authorities, specifically the Greenery & Beautification Department, responsible for solid waste management. (In small-to-medium sized urban areas the municipality may cover the entire geographical area of the town and lie within a larger *woreda* which may also have a number of rural subordinate *kebele*. In large cities, the *woreda* may be entirely urban and be subordinate to the larger city municipality.)
- The community authorities represented by the *kebele* leader and his/her team. In the larger *kebeles*, a further subdivision, known as *ketena*, will more closely match a community or neighbourhood. They will be headed by the *ketena* chairman.
- the owner or tenant of a given town space (meaning the householder in the case of domestic premises, the shopkeeper or entrepreneur for business locations, the director in the case of schools, etc.).

Rationale

- There is a multiplicity of actors in the sanitation drama, and each can play a part. The UHEP professional's central coordinating role in the facilitation of all actions related to WaSH Issues must continue. However, the educational and motivational role played by the UHEP professional to date may be approaching its natural limit: some issues around sanitation – notably the fly-tipping in abandoned areas – go beyond the household where the UHEP professional operates most successfully
- There is no obvious opportunity for a vast expansion of duties of the UHEP professional regarding WaSH. Her duties in taking the lead in the coordination of neighborhood WaSH activities may be reinvigorated. Otherwise, her current remit should remain as it is.
- The stakeholder with the greatest potential for rapid – and easy – expansion of the role in sanitation and hygiene is **the *kebele* authority**, represented by the person of the *kebele* leader. She or he will already have a 5-person voluntary health & sanitation committee assigned to each subordinate *ketena*, at least in theory. (Each *kebele* may be subdivided into two or three subordinate *ketena*.) They often have offices and staff, and certainly do have authority, representing as they do the will of the state at sub-*woreda* level
- While it is the higher-up municipal authority that maintains the administrative responsibility to keep clean the municipal space – in effect, everywhere not owned or rented by an individual, i.e. the streets, footpaths, pavements, drainage channels and ditches – day-to-day management and over-sight seems to come, in practice, under more local control
- The *kebele* authority – especially its health & sanitation committees – seem in a position to exercise more clout in the clearing up of existing refuse and the cleaning up existing eye-sores. It is the *kebele* authority that oversees the sanitation work of the so-called SMEs, the small-to-medium sized enterprises, popularly referred to as 'associations'
- A typical sanitation SME – which may number ten employees– will have competitively negotiated sub-contractor status with the larger town municipality to collect the solid waste in a given *kebele*, either getting paid according to its contract from the municipality through its levy of a local tax or tariff, or being paid directly by the household served. In addition to house-to-house refuse collection the SME teams organize street cleaning. They seem to generally perform well. There may be an opportunity for the *kebele* authority to further instruct their SME in the

cleaning-up of particular sites on a one-off basis. These sites might be termed ‘no-man’s land’ in that they are not obviously associated with or near any private premises

- The areas more obviously associated with, or near, private premises could be kept clean by householders, business people or others – so reducing the demand on the SME’s services. While there may be no legal basis to demand citizens do such work (it is not their legal property, after all) a socially-responsible pressure might be usefully applied. The *kebele* authority looks to be in a position to exert its will – currently not consistently applied - in the general tidying up of these area immediately surrounding private premises
- **The owner or tenant** of a given town space are often already contributing greatly by sweeping-up, looking after and keeping clean the area in front of their property wall, or area in front of their shop or business premises. There is an untapped potential for either (a) more people to do the same, and/or (b) the same people to extend the area they look after. The *kebele* authorities could contribute to and promote this⁴⁸.
- The reason why the *kebele* authorities might become more energised in this regard is because of the final principal stakeholder, **the municipal authorities** to whom they answer. The *kebele* authorities are very likely to respond to administrative interventions from above. (Their responsiveness to the demands of service-users is still evolving.) The municipal authorities (or in the cities, the *woreda* authorities) will in turn be energised to act because of federal or regional pressure.

(3) The Three Interventions, or Prongs

3.1: ‘Clean City Rankings’: The Federal Authorities to continue to score each of Ethiopia’s recognised urban centres according to its greenery and beauty; and update annually: to rank each category of city or town, vigorously publicising the rankings, so generating competition between cities; to use the best performers in each category as role models and, through the study of their practical methods, facilitate their value as learning agents.

Rationale

- The Greenery & Beautification Directorate already conducts such assessments using a tested, agreed-upon and established set of criteria. Harnessing an established and already well-understood dynamic is more appropriate (and suitable) than trying to introduce a new concept
- Hawassa City, in SNNP Region, has been recognised as among the country’s cleanest cities for the last four years. This suggests the review is conducted annually, an approach which should be retained. Although greening and beautification are medium-term projects, the short-term achievement of specific goals is the engine for action. Annual checks on performance help to maintain the pace of the work⁴⁹.
- If a specific score is being calculated, this methodology should stand. If, however, a broad banding or grade is being allocated, there may be opportunities to convert the system to one of scoring. This will allow a more precise ranking, so tightening a sense of healthy competition (or naked rivalry) between cities⁵⁰. For example, neighbours Dire Dawa

⁴⁸There is known to be an existing law against litter-dropping in the Ethiopian Legal Code, which carries a discretionary penalty fine. However, in the circumstances under consideration, where it is highly unlikely that the dropped litter can be traced back to the householder or shop-owner, the law would not apply. Persuasion, rather than coercion or regulation, are being suggested.

⁴⁹ In India, the Swachh Bharat (Clean India) Campaign, spearheaded by the Prime Minister Narendra Modi, is expected to last only five years. 436 cities (probably with at least a million inhabitants each) were measured according to a series of criteria largely involving (a) the presence and connectedness of sewage treatment plants (b) the absence of manual scavenging and (c) the absence of open defecation. Directly, because of this, very major investments in time and money were made by the Greater Visakhapatnam Municipal Council to improve on its 225th ranking (Personal experience, 2015)

⁵⁰A possible rough-and-ready scoring mechanism combining environment, beauty, waste and sanitation could be as follows: For every *kebele* within a city, award a preliminary 50 points. Then, add five points for every well-kept public green space, decent community toilet, clean main street or tree-lined street. Subtract five points for every visible open defecation site, rubbish-blocked drain, smelly stream or open rubbish tip. Calculate the average.

and Harar, both sizeable population centres, could constructively jostle for improved rankings if scores are exact, but not if they are grouped as equivalent

- The Ethiopian authorities have created and approved a five-category clustering of its 970-odd recognized cities and towns based on estimated population size. Category 1, or metropolitan, has but one member in its set, Addis Ababa. Category 2 (at least 100,000 population) has around a dozen members. Category 5 (less than 20,000 head of population) may hold around 300 members. Rankings should compare like with like, not least because of the similarities of revenue available to similar sized towns. For the purposes of practicability within Category 1, Addis Ababa's sub-cities could be compared.
- It is the municipal desire to maintain a high standing - or the urge to improve on a poor one – that will lead each city's mayor to identify poor performers among the *woredas*. They in turn will identify poorly-performing *kebele*. Taken further, *kebele* leaders can apply pressure to weak *ketena* health & sanitation committees⁵¹.
- The anticipated audience for the publicity around the Green & Clean City rankings is primarily official, most importantly among ministerial and regional government circles. Perhaps NGOs, diplomatic missions and the like could be in circulation. While civic pride is important and its role in motivating city leaders acknowledged –the annual rankings should certainly not be a secret, and could be annually published once in a national newspaper, for example – it is expected that the chief motivator is to be individual prestige among senior decision-makers.
- With municipal pride at stake, municipal authorities might be expected to apply pressure to *kebele* authorities, they next level of stakeholder

3.2 'Turning brown to green': Each *ketena* to identify its own single worst environmental eye-sore and, for that year, work to contain, clean and protect that chosen space; create new green spaces; enable entrepreneurs to contribute to the greening of the public realm.

Rationale

- There is an existing government initiative entitled 'Woreda Transformation' which intends to address, amongst other aspects, the all-round environmental features of each *woreda*. This sanitation action will feed into that
- There are some sites - usually on the margins along administrative boundaries - that are effectively no-man's land (although they do probably all legally belong to the municipality). Household property boundaries, unlike inter-state frontiers, do not extend to mid-streams, merely to the stream edge. These not-owned-by-anybody areas are currently very poorly treated in Ethiopia
- With no householders to complain about the sites (or only slum dwellers living nearby who do not wish to draw attention to their precarious legal situation) the municipal authority is more easily able to ignore the sites
- Only when they are brought centre-stage (rather than on the wings), or moved from being dark spaces into the full glare of light, might there be change
- Pragmatically, it will be easier organizationally to address one space at a time. (It is probably unlikely that many *ketena*, which are not enormous tracts of land, have multiple sites.) Resources can be targeted rather than diluted.

⁵¹ For example, Hawelti is one of Mekelle City's seven *woreda*. Selamkebele was considered (in an unscientific assessment) by the *woreda* health authority to be the least sanitary of its five *kebele*. Within Selam the *ketena* around the market, Ketena 1, was in the most need to attention. An improvement in Ketena 1 would raise the score of Hawelti generally. In fact, Ketena 1 was already the focus of the *woreda*'s annual action plan, demonstrating that the concept is already in use if not formally or measurably. (Personal communication).

Zooming in on one site will provide greater clarity on the specific issues than zooming out where problems – and their solutions - become generalised

- Kebele authorities, in turn, might be expected to apply pressure to individual property owners, the next level\ of stakeholder

3.3: Launch a ‘Love My Akababi’ campaign: Persuade all owners or tenants of premises (in other words, householders, shopkeepers, retailers, business owners, stall-holders, the directors of schools, church premises, etc.) to extend the margins of the area they care for. Back-up this one-to-one persuasion with peer pressure using a team of local opinion-formers visiting house-to-house according to need

Rationale

- Within the boundaries of privately-owned (or rented) property, citizens demonstrate they are perfectly aware of the value of cleanliness and tidiness. Some hidden courtyards are exquisite oases of greenery and beauty within, and bleak barren, sometimes untidy, spaces without. The strategy’s tactic will be to persuade citizens to extend their conceptual boundaries of what they consider theirs
- The expanded combined area of what is being looked after by individual citizens will reduce the total area needed to be after by the municipal authority. This will allow the authority – or more exactly, the SME associations – to redirect their efforts to those areas not covered by individuals
- The effort could start with a nationwide publicly-broadcast campaign inviting people to voluntarily look after their own patch of municipal territory. The Federal MoH’s Health Extension Program and Primary Services Directorate may already hold a budget for such a campaign. (In the competition for limited resources, however, sanitation will have to vie convincingly for resources with disease-based public health information initiatives which are usually perceived by health professionals as more urgent and important.) The UHEP Unit may be able to gather contributing funds from non-health sources, such as the national greenery & beautification authorities
- Culturally, there appears to be a folk understanding – derived from village communities - of the need to clean the parts between houses for the common good. Local languages should be exploited as much as possible in order to tap into existing already-accepted concepts
- In Tigrinya, *mender* describes one’s surroundings, although it may be more closely interpreted as meaning ‘yard’, which is unhelpful (since yards are already clean). Perhaps *akababi* (close surroundings), or *akababina* (our close surroundings, or immediate neighbourhood) is more appropriate. *Mehelaw* means ‘to look after’ but carries connotations of ‘keeping an eye on’ (a surveillance-type implication which could be resisted.) Perhaps *m’tsiray*, meaning ‘to keep clean’ is better. In Amharic, the equivalent words will be *akababiachin*, *meketatel* and *tsidu*
- The airwaves campaign – which will merely introduce the notion - will need to be reinforced with house-to-house visits as necessary. While the visit can only invite collaboration – the behaviour change cannot carry the weight of the law, at least not yet - it is more an opportunity to reset expectations
- In order not to diffuse, or dilute, responsibility and accountability, committees and ‘task forces’ can, of course, be convened, but they should not collectively take charge. One named individual should be held accountable. In some areas, a dynamic UHEP professional might take the lead. In others, perhaps the *kebele*’s law enforcement officer. Generally though the exercise should be managed by the *kebele* authorities, in the person of the *kebele* leader, albeit with technical input from the UHEP sister. As far as possible, implementation should be handed over to the *kebele*’s own health & sanitation committee (When ownership is enhanced so too is commitment.)

- Other official leaders, namely staff from the relevant health centre and community police, together with unofficial leaders, namely the *shimagelle* (male elders) and *arogit* (female elders) could accompany the visit to lend much moral gravitas. The pre-existing 1-to-25 health teams and 1-to-5 networks of the Women’s Health Development Army need to be fully engaged too; they can also exert neighborly social pressure. The health centre has a range of cadre who might be suitable; the UHEP sister herself, her more senior supervisor and/or the environmental health officer
- Another civic resource – the schoolchildren of the health clubs and WaSH clubs of the local school – could also be engaged. Volunteer children from the neighbourhood’s school, overseen by a teacher in order to maintain an easy chain-of-command, could join in. Their helping role might to be run up to the gates of properties along a given street and knock, inviting the householders to meet briefly with the adult team. Senior children with more expertise might be allowed, after training, to advise the occupants directly. A gesture of appreciation could be given to each school. (There are multiple benefits: the children are being educated to be good – and hygienic – citizens and the adults can cover greater ground, and for longer, if the door-knocking is speeded up.)
- It is important that the team praises as well as draws attention, applauding the good work of conscientious citizens and examples of local beautification as well as trying to persuade others
- The leader of the local 1-to-5 network (as well as the Woman’s Health Development Army lead for the 1-to-25 health team) should also become involved, if not take the lead in a given street. A visible demonstration of official backing, in front of neighbours, will strengthen the 1-to-5 leader’s mandate and leverage

(4) Notes on Formative Research

Two principles will be adopted: (a) “Failures should be treasured as much as successes.” (Municipal authorities will look upon each site waste-strewn no-man’s land as a priceless opportunity to learn what has gone wrong.) (b) In this area, practical successes in fixing the problem(s) will inform procedures, rather than the other way around. (The detailed day-to-day lessons of what works will generate procedures.)

- The formative research will follow a Problem-Driven Iterative Adaptation model, as advocated by Matt Andrews, Lant Pritchett and Michael Woolcock in various documents for the Centre for Global Development, an independent, non-profit policy research organisation⁵².
- The work:

“Proposes an approach based on four core principles, each of which stands in sharp contrast with the standard approaches. First, PDIA focuses on solving locally nominated and defined problems in performance (as opposed to transplanting preconceived and packaged “best practice” solutions). Second, it seeks to create an authorizing environment for decision-making that encourages positive deviance and experimentation (as opposed to designing projects and programs and then requiring agents to implement them exactly as designed). Third, it embeds this experimentation in tight feedback loops that facilitate rapid experiential learning (as opposed to enduring long lag times in learning from ex-post “evaluation”). Fourth, it actively engages broad sets of agents to ensure that reforms are viable, legitimate, relevant, and supportable (as opposed to a narrow set of external experts promoting the top-down diffusion of innovation).”
- The problem will be successive examples of insanitary sites (e.g. a fly-tipped creek, a faeces-laden side street, a rubbish-filled drainage channel), one at a time, to take apart what has gone wrong in this instance. Using appropriate methodology – perhaps an open-air facilitated brain-storming session amongst neighbours and *kebele* authorities – a ‘problem tree’ can be described. Each problem can be examined back to its component root causes and recorded

⁵² Details are taken from Andrews, Pritchett & Woolcock. Escaping Capability Traps through Problem-Driven Iterative Adaptation (PDIA), Centre for Global Development Working Paper 299 (June 2012)

- The authorizing environment will be the autonomous *kebele* authority in collaboration with all concerned stakeholders. Their remit, under *kebele* control, will be to clean up and green a given area using whichever methods, resources, techniques they conceive of – and agree upon – as being appropriate for that context
- The tight feedback loops will be the visible evidence of cleanliness. Continued open defecation, new fly-tipping or still-contaminated water (or whichever indicators are chosen) will be feedback loops that will show that more experimentation or fine-tuning is needed
- The broad set of agents will be long-term residents, neighbouring businesses, service-users, service providers and *kebele* authorities
- The use of real insanitary sites will keep the work grounded and real. Working on one site per *kebele* in any one year will keep it focussed. Putting the site itself at the centre of the work will dissolve demarcation boundaries about who does what, making the initiative greater than the sum of its parts. (Each of the multitudes of actors is working well - but working separately. There appears to be as-yet unrealised potential in collaboration and unified effort.)
- The axiom that “Nothing succeeds like success” remains valid. When campaigns are spread out, incremental change may be occurring but at a pace that is un-noticed, and therefore unsatisfying. A steady series of one-by-one extremely visible changes will give the (satisfying) impression of progress.

(5) Broad Cost Estimates

SAP Advocacy 1: Maximise the WaSH performance of the Urban Health Extension Package	
Implementer: Federal MoH/ Program on Urban Health Extension Package	
Action	Estimated cost
Maintain the UHEP documentation	0
Isolate the content about householder demand	0
Clarify the recommended mechanism	0
Include a recommendation to households	0 (in next planned revision)
Require the UHEP professional to engage with others	0
Amend the Job Description of the UHEP supervisor	0 (in next planned revision)
Develop access to Google Earth-type maps of catchment	License payment (?)
- Printing & distribution of maps	\$15 (?)/ <i>ketena</i> x 2000 <i>ketena</i> (?)
Promote tighter mapping	0
Contribution to regular UHEP in-service training events	\$50/participant x 200/year
Sub-Total	\$35,000 (?)

SAP Advocacy 2: Expand the area of public realm that is kept ‘Clean and Green’

Implementer (a): The property owner, householder, shopkeeper, entrepreneur, school director

<u>Action</u>	<u>Estimated Cost</u>
Relevant ministry to introduce a campaign	0
- Branding design	\$1000 (?)
- Printing & distribution of posters	20 per <i>ketena</i> x 2000 <i>ketena</i> (?) = \$4,000 (?)
- Airtime	\$50,000 (?)
- Newspaper adverts	\$20,000 (?)
Kebele H&S committee to do 'walkabouts'	0
UHEP professional to invite each householder	0
UHEP professionals to involve shops etc	0
Donations to collaborating schools	\$500 x 2000 (?) <i>ketena</i>
Sub-Total	\$85,000

SAP Advocacy 2: Expand the area of public realm that is kept 'Clean and Green'

Implementer (b): The *kebele* authority

<u>Action</u>	<u>Estimated Cost</u>
Work to (a), (b) and (c)	0
Designate a <i>kebele</i> employee	0
Kebele authority to review public realm	0
identify the current worst space	0
Conceive, design and implement a plan	1 site/year x 1000 (?) <i>kebele</i>
- (a) securing the site	\$100/ site
- (b) an intensive one-off cleaning	\$400/site
- (c) protection (if no leasing)	
For new-build, ensure 30% green allocation	\$500 salary/ year
Annually, identify a new site	0
Consider leasing of areas of 'no-man's land'	0
Explore possible role of Church	0
Creation of <i>kebele</i> nurseries	0
Donations of saplings, plants	\$50,000
	\$75,000
Sub-total	\$1, 125,000 /year

SAP Advocacy 2: Expand the area of public realm that is kept 'Clean and Green'

Implementer (c): The federal authorities

<u>Action</u>	<u>Estimated Cost</u>
Review current methodology	0
Convert the assessment to a score.	0
Category-by-category, rank each town.	0
Rebranding	0
Publicise, internally and publicly.	\$1000 (?)
Allocate Technical Asststo best-performers.	\$25,000/ kebele x 10 kebele/ year
Raise the town/city ranking in discussions.	0
Reflect on and plan for improvement.	0
Encourage awareness and apply pressure	0
Stimulate competition within categories.	0
Coax mayors to apply pressure on kebele	0
Sub-total	\$251,000/ year

SAP Advocacy 3: Test approaches and generate a record of Best Practice

Implementer: The municipal authorities/ Greenery & Beautification Departments

<u>Action</u>	<u>Estimated Costs</u>
Accompany the efforts of each kebele	0
Support their plan by facilitating discussions	0
Successively address concerns.	0
Work to resolve each issue	0
Document and photograph experiences	\$100/ space x 1000 (?) kebele/ year
Represent town/city in federal forum.	
- Travel & per diems	\$200 (?) / person x 50 (?) persons/ year
Use best-performers as role-models.	0
Facilitate peer-exchange visits	\$200 (?)/ visit x 25(?) visits/ year
Guarantee open spaces in planning debates	0
Feedback into town/city forums for learning.	0
Sub-total	\$115,000/ year

Grand total (approx.)	\$1,610,000/ year
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(6) Historical development of the SAP Advocacy components

February 2016

SAP Activity SAP –A1: Outline guidance (to be developed during implementation of the SAP) for improving Urban Health Extension Program (UHEP) in terms of management, messages, rewards and reaching targets.

SAP Activity SAP –A2: Outline guidance (to be developed during implementation of the SAP) for restructuring of the Primary Health Care Units (PHCU)

March 2016

Advocacy 1: Maximise the performance of the Urban Health Extension Program in relation to the four WaSH components of the full package.

Advocacy 2: Engage with the imminent introduction of the Health Service Transformation Plan.

Advocacy 3: Test Formative Research Approaches.

April 2016

Advocacy: Raising Sanitation and Hygiene Profile, Behavioural Change Communication and Promotion of Service Delivery

Municipal authorities and utilities will be encouraged and assisted to provide and manage sustainable services

- In order to take commercial and social advantage of the improved levels of service that will be offered, these services need to be promoted to customers

- The best promoters of any service will be the service providers themselves. These providers include the utilities, the asset owning municipalities, contractors, delegated community-based enterprises and private micro-enterprises

- Urban communities and households will be encouraged and led to invest in provision and proper use of improved sanitation and hygiene facilities such as latrines, septic tanks, drainage, sewerage systems, solid waste collection, etc

Properly designed communication and service promotion approaches are key to this Strategy

- Evidence-based advocacy packages will be developed, including fact sheets, human interest stories and documentaries on relevant sanitation and hygiene issues and will target stakeholders at different levels (Federal, Regional and Towns)

- Specific packages will also be developed to create consumer demand for better quality services

- Formative research will be carried out to provide a platform for IEC approaches to reverse the low priority given to sanitation and to promote uptake of services

- It is expected that specialist national and international agents will be contracted to assist with formulation of communication plans and creative concepts

Rewards can serve as triggers for improvements that will earn credit to the city, town or groups of municipalities

- For instance, promise of technical assistance and funding for sanitation projects (and complementary essential water projects) can very effectively act as the “reward” for overcoming any blocks to voluntary informal sharing of resources and facilities; such sharing/ clustering being intended to improve service delivery both through sharing of limited resources and through economies of scale

- Strengthening UHEP, Health Development Army (HDA) and restructuring of PHCUs are among the top priorities for the health sector for improving sanitation facilities and hygiene practices, especially for the urban poor.

May 2016 (Propos Please refer to Section 5 of the SAP.

Annex 4: Federal Laws and Acts pertaining to Urban Sanitation and Hygiene in Ethiopia

Ethiopia has different policies, regulation and proclamations related to Environmental Protection and Management, Sanitation and Hygiene focusing on but not limited to Solid Waste Management, Liquid Waste Management, Hazardous Waste Management, Construction and Use of Sanitation Facilities. Etc. The bases for the policies are articles 92.1 and 92.2 of the constitution of the Federal Democratic Republic of Ethiopia. These articles enshrine the following rights:

- Article 92.1:- “Government shall endeavor to ensure that all Ethiopians live in a clean and healthy environment”
- Article 92.2:- “Government and citizens shall have the duty to protect the environment.

As the area of Urban Sanitation and Hygiene falls under the jurisdiction of a number of sectors, so are the policies, laws and acts promulgated by these actors. Most laws and acts address common issues related to Urban Sanitation and Hygiene but are applied and enforced by the various Sectors with little or no coordination between the institutions. It is clear that there needs to be a stronger coordination and integration amongst the various sectors that have stake in the sector in order to create a common mechanism to enforce the laws and acts.

Some of the Federal Laws and Acts promulgated by the Council of Ministers include:

No	Number and date of Regulation/Proclamation	Title
1	Proc. No. 200/2000	Public Health Protection
2	Regulation 159/2001	Prevention of Industrial Pollution
3	Proc. No. 299/2002	Environmental Impact Assessment
4	Proc. No.300/2002	Environmental Pollution Control
5	Proc. No. 414/2004	Ethiopian Criminal Code
6	Proc. No.513/2007	Solid Waste Management
7	Proc. No. 661/2009	Food, Medicine and Health Care Administration Control
8	Regulation299/2013	Food, Medicine and Health Care Administration Control

As shown in the above table, the list is not exhaustive but the Regulations and Proclamations indicated above are the major ones that provide premises for averting Urban Sanitation and Hygiene malpractices. The enforcement and application of such provisions not only improves the immediate environment but also human health and well being thereby enhancing growth and development. For the sake of full understanding of the provisions of some of the specific Laws and Acts, it might be worthwhile to list down the major articles pertaining to Urban Sanitation and Hygiene.

According to the report extracted from The Assessment of Bahir Dar City Solid Waste Management System Report, the specific articles stipulated in the Federal proclamations related to the various elements of Urban Sanitation and Hygiene with more emphasis on Solid Waste Management include the following:

No	Activity	Law/Act	Description
1	Source Reduction/ Segregation		
	Households	SWM Proclamation article 11.1	Households shall ensure that recyclable wastes are segregated
	Industrial	Regulation 159/2001	<ul style="list-style-type: none"> ✓ Prevent or, if that is not possible, shall minimize the generation of every pollutant to an amount not exceeding the limit set by the particular environmental standard ✓ Dispose of it in an environmentally sound manner ✓ Handle equipment, inputs and products in a manner that prevents damage to the environment as well as to human and animal health
2	Collection and Storage	SWM Proclamation Article 11.2 Article 5.2 b and c	<ul style="list-style-type: none"> ✓ Urban Administration shall ensure that adequate HH SW collection facilities are in place ✓ Ensure the installation of marked bins by streets and in other public places ensuring the collection of SW from waste bins with sufficient frequency
3	Transportation	SWM Proclamation Article 13.2	Urban Administration shall set standards to determine the skill of drivers and equipment operators and prevent overloads of SW
4	Treatment	Environmental Pollution Control Proclamation Article 5.1	All Urban Administrations shall ensure the collection, transportation, and, as appropriate the recycling, treatment or safe disposal of municipal waste through the institution of an integrated municipal waste management system
5	Landfill/Disposal	SWM Proclamation Article 14 Article 15	Construction of SW Disposal sites Auditing of existing SW Disposal sites
6	Recycling and Reuse	SWM Proclamation Article 7.1	Manufacturer or importer of Glass Containers or tin cans shall collect and recycle used glasses or tins

7	Hazardous Waste	Environmental Control Proclamation Article 4.2 Ethiopian Criminal Code Article 520 (a,b,c)	Any person engaged in the collection, recycling, transportation, treatment or disposal of any hazardous waste shall take appropriate precaution to prevent any damage to the environment or to human health or well-being Whoever: a. Fails to manage hazardous wastes or materials in accordance with relevant laws; or b. Fails to label hazardous wastes or materials; or c. Unlawfully transfers hazardous wastes or materials is Punishable
8	Construction and Demolition	SWM Proclamation Article 12	Construction Debris and Demolition of Wastes
9	Food, Medicine and Health Care Administration Control Proclamation 661/2009	Dangerous Chemical Part Six Article 24	Dangerous Chemicals: 1. It shall be prohibited to transport or store chemicals with foods or in a manner which can cause pollution to the environment or endanger human health 2. Any person who produces, transports or stores dangerous chemicals shall fulfill the requirements set by the executive organ in order not to affect the environment and public health

		Waste Handling and Disposal Article 30	<ol style="list-style-type: none"> 1. No person shall collect or dispose solid, liquid or other wastes in a manner contaminating the environment and harmful to health 2. Any wastes generated from health or research institutions shall be handled with special care and their disposal procedures shall meet the standards set by the executive organ 3. It is prohibited to discharge untreated waste generated from septic tank, seepage pits 4. and industries into the environment and water bodies or water convergences
		Availability of Toilet Facilities Article 31	<ol style="list-style-type: none"> 1. Any institution providing public service shall have the obligation to organize clean and adequate toilet facilities and keep it open to its customers 2. Any City or Rural Administration shall be responsible to provide public toilet and ensure its cleanliness
10	Food, Medicine and Health Care Administration Control Proclamation 299/2013	Waste Handling and Disposal Article 39	<ol style="list-style-type: none"> 1. It shall be prohibited to burn or dispose by any other means a poisonous or contagious waste without obtaining permit from the appropriate organ 2. No person shall engage in recycling of poisonous or contagious wastes without obtaining permit from the appropriate organ upon fulfilling the requirements set by the Authority 3. The appropriate organ shall, prior to the designation of a place for disposal or recycling of waste at such place may not cause damage to public health 4. No person may discharge liquid waste to the environment unless treated in accordance with the standards issued by the appropriate organ
		Waste Disposal and Disease Prevention Article 87	Any health professional shall dispose of disposable healthcare wastes in an appropriate manner for the sake of himself, the client and the public health
		Institutional Requirements and Prohibitions Article 93	Any institution shall develop internal waste management system to its hazardous substances and wastes

On top of the above mentioned Federal level regulations and proclamations, Regional States have promulgated their own laws and acts in the area of Environmental Health, Environmental Pollution Control and Management with focus on Solid, Liquid and Hazardous Wastes Management. However, even if there are laws and regulations at Federal and Regional levels, their implementations and enforcement appears to be very weak.

Therefore, all stakeholders of IUSH-SAP shall integrate their efforts in implementing and enforcing the above indicated laws and regulations in the course of translating the strategic action plan to ensure the clean green city objective of the country.

Urban Sanitation and Hygiene related issues reflected in the draft Building Code of 2014

NOTE: the document is still under review and cannot be cited as a reference until it is endorsed and made official.

No.	Section	Activity	Description
1	EBCS - 12 Section 8 Services	8.3 Water Supply and Sanitation	<ul style="list-style-type: none"> • Every space intended for human occupancy shall be provided with access to water & sanitation • All buildings for human occupancy shall be provided with toilets whose number, floor area and range of services are in accordance with acceptable standards • All public buildings in areas where municipal water supply of not less than 75 liters per person per day is available shall be provided with flush type toilet • All public buildings shall be provided with gender separate toilets • All buildings required to be accessible to physically challenged persons shall be provided with access to toilets in accordance with acceptable standards
2	EBCS – 9 Plumbing Services of Buildings	Section 2 Administration: Drainage and sanitation: Preparation & submission of plan: Drainage Plan	<ul style="list-style-type: none"> • No person shall install or carry out any water-borne sanitary installation or drainage installation or any works in connection with existing or new building or any other premises without obtaining the previous sanction of the Authority. The owner shall make an application in the prescribed form to the Authority to carry out such a work. • The application shall be accompanied by a drainage plan
		Section 3 Sanitary Fixtures: Design considerations: Hygiene	Sanitary accommodation Hygienic condition of fixtures and installations
		Section 5 Internal drainage system for buildings	Sets out requirements and standards
		Section 6 External drainage system for buildings	Sets out requirements and recommendations for external drainage
		Section 7 Storm water drainage	Sets out requirements and standards
		Section 8 Solid Waste Management	Sets out requirements and recommendation for efficient Collection, transportation and disposal of Solid Waste Including RRR

Annex 5. The Association of Ethiopian Microfinance Institutions (AEMFI) and MFI Schemes for public toilets

The Association of Ethiopian Microfinance Institutions (AEMFI) was formed as a non-for-profit, non-governmental association of the Ethiopian microfinance institutions as defined by Proclamation No.40/1996 under which microfinance institutions in Ethiopia are regulated by the National Bank of Ethiopia.

It was registered and licensed as such on 28th June, 1999 by the Ministry of Justice of the Federal Government of Ethiopia. The original goals were for it to serve as a platform for knowledge and information sharing, and lobby for political support for the development of an enabling environment for the business of microfinance.

Since its formation, AEMFI's goals and activities have broadened to include training, research, performance monitoring and benchmarking and provision of technical assistance. Regionally, AEMFI is the strongest of the Country Level Networks in Africa.

AEMFI which started with four (4) MFIs now has the membership of all the 30 MFIs licensed by the National Bank of Ethiopia under Proclamation Number 40/1996. Prior to the Proclamation, some of the members were government projects/schemes and the others were private NGO programmes.

These were transformed into companies limited by shares to mobilize savings from the public and grant loans to the public under the regulatory supervision of the National Bank of Ethiopia. Since the Proclamation, completely new microfinance companies with no antecedents as NGOs or projects/schemes have been formed and licensed as MFIs and subsequently joined the membership of AEMFI.

Member List

The following list shows the current members of AEMFI

MFI Name	General Manager	Contact
Amhara Credit and Saving Institutions S.C (ACSI)	Mr.Mekonnen.Y	acsi@ethionet.et 058-220-16-51 /52 Bahir Dar
Addis Credit and saving Institutions S.C (ADCSI)	Mr.Awash A	adcsi@ethionet.et 0111-572720/0118-957027 Addis Ababa
Afar Microfinance S.C	Mr.Sentayehu K	sentualm2011@yahoo.com Samara
Aggar Microfinance S.C	Mr.Hailu.L	amfsc@ethionet.et 011-183104/0116-183382 Addis Ababa
Africa Vilage Financial services S.C (AVFS)	Mrs.Kibre D	avfs@ethionet.et 0113-204732 /0116-532053 Addis Ababa
BenshangulGumuzMicrofinance S.C	Mr.Aynalem B.	bgmf@ethionet.et 057-7750666/057-7751375 Assosa
BussaGonofaMicrofinance S.C	Mr.Teshome.Y	bgmfi@ethionet.et 0114-653283 /0114-654155 Addis Ababa
Dedebit Credit and saving Institutions S.C (DECSI)	Mr.Yohanes G.	decsi@ethionet.et 034-4409306/034-440401 Mekelle
DiredawaMicrofinance S.C (Dire)	Mr.Getachew Y.	diremfi@ethionet.et 025-1119247/025-120246 Dire Dawa
DigafMicrofinance S.C	Mr.Feleke B.	dmcps@ethionet.et 0112-132928/0112-787390 Addis Ababa

Dynamic Microfinance Inst.S.C	Mr.Sileshi H.	sileshi.hailu@gmail.com 0115-549158 Addis Ababa
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GashaMicrofinance S.C	Mr.Yabowerk T.	gashamfi@gmail.com 0118-952389/0116-558830 Addis Ababa
HararMicrofinance S.C	Mr.Arif A.	hararmfin@yahoo.com 0256-663745/0256-664078 Harar
HarbuMicrofinance S.C	Mr.Tesfaye B.	harbumfi@ethionet.et 0116-6513834/0116-185510 Addis Ababa
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Meklit Microfinance S.C	Mr.Tesfaye Y.	mmfi@ethionet.et 0115-512109/0113-482183 Addis Ababa
MetemamenMicrofinance S.C	Mrs.Wegayehu A.	mmfisc@ethionet.et 0116-615398 Addis Ababa
Nisir Microfinance S.C	Mr.Dawit W.	dawitwak@gmail.com Addis Ababa
Oromia Credit and saving S.C (Ocscso)	Mr.Teshome L.	ocscso@ethionet.et 0115-534870/72/73 Addis Ababa
OmoMicrofinance S.C	Mr.Musema C.	omomicro@yahoo.com 046-202053/0462-214572/73 Awassa
Rays Microfinance S.C	Mr.Habtamu D.	habtamudebela8@gmail.com Addis Ababa
Poverty Eradication and Community Empowerment Microfinance Institutions S.c (PEACE)	Mr.Tezero K.	peace@ethionet.et 0116-521541/42 Addis Ababa
Specialized Financial and Promotional Institutions S.C (SFPI)	Mr.Anbessie C.	sfpi@ethionet.et 0116-614804/622780/81 Addis Ababa
Shashimeneaddiryalimat Agar S.C (SEYAMFI)	Mr.Abrham A.	seyamfi@ethionet.et 0461-105952/ 046-1103881 Shashimene
SidamaMicrofinance S.C	Mr.Tarkegn B.	Sdc10@ethionet.et 0462-200850/204704 Awassa
Somali Microfinance Institutions S.C	Mr.Mohammed A.	geleh33@yahoo.com 02567-756976/77 Jigjiga

WasasaMicrofinance S.C	Mr.Amsalu A.	wasasamf@ethionet.et 0111-234181/82/83 Addis Ababa
Vision Fund Microfinance S.C	Mr.Worku T.	wisdom@ethionet.et 0116-463569/0116-511435 Addis Ababa

MFI scheme for public toilet – WASTE NGO and Oromia Credit and Saving Share Company

WASTE is a Dutch NGO with a focus on urban sanitation that works in Ethiopia with local partner organisations, including municipalities, businesses, business consultants, municipalities. the partnering business consultant in Ethiopia is [Fair and Sustainable](#).

Key activities: urban sanitation with a focus (but not exclusively) on business support and the identification of locally available finance.

Where WASTE work: Arba Minch, Mojo, Arsi Negele, Ziway, Dire Dawa, and Adama.

WASTE focus on market-led solutions to the problem of poor sanitation, working with (informal and formal) entrepreneurs, business consultants, municipalities, NGOs, and financing through micro-finance institutions. All to make it easier and more popular for households to invest in a toilet and the related infrastructure. The programme activities of WASTE and its partners in Ethiopia are now being financed by the Dutch Ministry of Foreign Affairs (SPA programme in Arbaminch and Mojo, WASH programme in Dire Dawa, Arsi Negele and Ziway) and the Nederlandse Waterschapsbank N.V. (ROSSA programme in Adama).

The experiences in Arba Minch have been among the most successful so far (under a project called ROSA). Here, WASTE has been working with OMO Micro Finance to make micro-loans available to households (to invest in toilets) and businesses (to invest in e.g. equipment), all backed up by a guarantee fund. There are also specific subsidies designed for poorer households. The process has been careful and step-wise, building up capacity in the public and private sectors at the same time as building up demand from households. So far between 500-1000 households have used the programme to build their toilet.

WASTE is partnering with [Fair and Sustainable](#) to bring in business development skills to the projects. They help to identify entrepreneurs who can take on and build up a part of the sanitation service and value chains. Another part of the approach is the signing of contracts with municipalities, so that the vital 'software' tasks needed to build up the programme are done and embedded in the regular activities of the municipalities. These activities are critical and the public sector needs to undertake a range of enabling functions if households are to invest in hardware. Government however might prefer to invest in hardware itself, wanting to put its money into infrastructure, but this is in the end not scale able, and therefore not sustainable. In Arba Minch the new approach seems to be successful.

Now the effort is to further upscale these experiences to five other cities, including Dire Dawa, Adama, Mojo, Arsi Negele and Ziway.

WASTE is also concerned about engaging more regional and federal level government. Unless embedded in new policies, these types of innovations may not go beyond successful pilots and will remain 'islands of success'. Or a waste.

Source: <http://www.ircwash.org/news/waste-ethiopia>

Annex 6: Basket Funding Estimate for IUSH-SAP

I. Minimum Package Implementation IUSH-SAP Minimum Package

I.1 Minimum package considered in IUSH-SAP Phase I (2016-2020)

- a. Public toilets & shower facilities, communal toilets and school toilets with hand washing facilities in all towns as much as budget is secured in Phase I
- b. Sanitary land fill sites, sludge drying beds and associated garbage trucks, vacuum trucks, garbage bins, trash compactors, graders, push carts and dust bins for 50 towns ranging from Category 1 to Category 4
- c. Waste Water Treatment Plant study and design in 36 towns
- d. Waste Water Treatment Plant Construction in 6 towns
- e. DEWWATs in 33 Apartment/condominium/industrial villages in recommended towns based on the 36 towns study that is expected to identify WWTP and DEWWATS options(The number of DEWWATs units could increase to 200 if some of the centralized waste water treatment plants are not going to be feasible following feasibility study)

I.2. Minimum package considered in IUSH-SAP Phase I (2020-2025)

- a. Additional Public toilets & shower facilities, communal toilets and school toilets with handwashing facilities in all towns as much as budget is secured in Phase 2
- b. Sanitary land fill sites, sludge drying beds and associated garbage trucks, vacuum trucks, trash compactors, graders, garbage bins, push carts and dust bins for at least 15 towns ranging from category 1 to category 4
- c. Waste Water Treatment Plant study and design and or design review in 28 towns(The purpose of this is to cover all the 63 category 1-3 towns and additional 1 category 4 town in Afar⁵³ region where there are no category 3 and above towns with study and design and start some form of waste treatment till 2025)
- d. Waste Water Treatment Plant Construction in 10 towns
- f. DEWWATs in 69 Apartment/condominium/industrial villages in recommended towns based on the 64 towns studies that are expected to identify WWTP and DEWWATS options(The number of DEWWATs units could increase to 800 or more if phase I intervention proves the option to be technically feasible and cost effective)

I.3. Costing Background and Assumptions

In addition to costing data of eight towns⁵⁴ integrated water supply and project financed by UNICEF and DFID, data from 11 towns⁵⁵ assessed at the situation analysis stage are used. Furthermore limited baseline data obtained from 5 towns visited at the SAP preparation stage are used in comparison with other data in setting unit rates which in turn were used to determine per capita costs. In the case of vacuum trucks, garbage trucks, compactors, graders and other equipment FOB unit rates (i.e. unit rates at Djibouti port) from websites are adopted by including inland transport and tax. Furthermore GTP II estimates and recent tender documents are used as references in setting unit rates for WWTPs and DEWWATs.

limited baseline data obtained from 5 towns⁵⁶ visited at the SAP preparation stage are used in comparison with other data in setting unit rates which in turn were used to determine per capita costs. In the case of vacuum

⁵⁴ The study can include Semera town, the capital city of Afar Region where there are a few apartments and a university in spite of its low category in terms of population range

⁵⁵ The eight towns are Wukro, Adishahu, Maksegint, Sheno, Wolenchiti, Abomsa, Kabeidahare and Jigjiga

⁵⁵ The 11 towns assessed at the SITAN stage were Addis Ababa, Hawassa, Hallaba, Bishouftu, Adama, Gewane, Wukro, Mekelle, Bahir Dar, Gondar and Maksegint

⁵⁶ The five visited towns at the SAP preparation stage are Kombolcha, Wolliso, Wolaita Sodo, Dire Dawa and Harar (see Annex 10.2)

trucks, garbage trucks, compactors, graders and other equipment FOB unit rates (i.e. unit rates at Djibouti port) from websites are adopted by including inland transport and tax. Furthermore GTP II estimates and recent tender documents are used as references in setting unit rates for WWTPs and DEWWATs.

In line with what is mentioned above, unit rates used in the SAP costing were derived as shown in table below.

Table A: Unit Rate Data Obtained From Various Sources along Recommended Unit Rates for IUSH-SAP

Item No	Particulars	Source of Unit Rate	Unit	Unit Rate-2016 (ETB)	Remarks
1	Construction of Public Toilets	Baseline data of 5 visited towns at the SAP stage	No	150,000 to 300,000	Toilets are dry drop and store type and the rates are not recent
		Eight towns project data	No	981,901	Recent regional rate for CGD friendly Water Borne toilet with 7 seats , 4 showers with ramp and handwashing facilities
		Recommended	No	700,000	<ul style="list-style-type: none"> For CGD friendly water borne toilet with 4 seats, 2 showers and ramp for A.A. For determining unit rates For other towns multiply with regional cost factors
2	Communal Toilets	Recommended	No	500,000	<ul style="list-style-type: none"> No recent data was obtained As a result it was estimated a CGD friendly communal toilet with four seats and ramp could cost 500,000 Birr in A.A based on rates for school and public toilets For other towns multiply with regional cost factors
		Eight towns project data	No	600,621	<ul style="list-style-type: none"> Recent rate for eight towns CGD friendly toilets with 6 seats of which one is assigned for MHM service
3	School Toilets	Recommended	No	600,000	<ul style="list-style-type: none"> Unit cost for A.A for a CGD friendly school toilet with 6 seats and hand washing facilities of which one is assigned for MHM service in the case of girls toilets. In the case of boys the toilet shall have urinals For other towns multiply with regional cost factors
		Eight towns Project data	Per Ha	5,793,156	<ul style="list-style-type: none"> The rate is recommended for A.A For other cities multiply the A.A rate with regional cost factors

Item No	Particulars	Source of Unit Rate	Unit	Unit Rate-2016 (ETB)	Remarks
5	Sanitary Land fill site	Recommendable Eight Towns Project data	Per Ha	6,758,682	<ul style="list-style-type: none"> The rate is recommended for A.A For other cities multiply the A.A rate with regional cost factors
6	Garbage Truck (8m ³ capacity)	Recommendable Website FOB price including inland transport and tax	No	2,500,000	
7	Garbage Truck (5m ³ capacity)	Recommendable Website FOB price including inland transport and tax	No	2,000,000	
8	Garbage bins (5m ³ capacity)	Recommendable Website FOB price including inland transport and tax	No	50,000	
9	Push cart(1m ³ capacity)	Recommendable Recent information from local manufacturers	No	15,000	
10	Dust bins (0.5 m ³ capacity)		No	2,500	
11	Vacuum truck (8m ³ capacity)	Recommendable Website FOB price including inland transport and tax	No	3,000,000	
12	Vacuum truck (5m ³ capacity)	Recommendable Website FOB price including inland transport and tax	No	2,500,000	
13	Garbage Compactor	Recommendable Website FOB price including inland transport and tax	No	1,897,500	
14	Grader for spreading Garbage	Recommendable Website FOB price including inland transport and tax	No	2,656,500	
15	WWTP study and design in Addis Ababa	Based on GTP II Estimate	No	4,475,942	No size in m ³ /day is indicated in the source GTP II document. Size to be indicated following feasibility study. The figure will only help to establish the basket fund at this stage
16	WWTP study and design in other towns	Based on GTP II Estimate	No	Multiply A.A rate with regional factor to determine rate of other towns	1. See the above remark (corresponding to I. No. 15) 2. Multiply A.A rate with regional factor to determine rate of other towns
17	WWTP study , design and construction in Addis Ababa including ESIA study and Capacity building	Based on GTP II Estimate	No	4,024,205,749	1. See the above remark (corresponding to I. No. 15)

Item No	Particulars	Source of Unit Rate	Unit	Unit Rate-2016 (ETB)	Remarks
18	WWTP study , design and construction in other towns including ESIA study and Capacity building	Based on GTP II Estimate	No	Multiply 2,309,793,367.35 with regional factors to determine rate of towns other than A.A	I. See the above remark (corresponding to I. No. 15)
19	600m ³ /day capacity DEWWATs Units Study, design and construction for A.A including ESIA study and Capacity building	Recommendable Recent Tender document	No	24,000,000	
20	600m ³ /day capacity DEWWATs units Study, design and construction for other towns including ESIA study and Capacity building	Recommendable Recent Tender document	No	The unit rate under I.No. 19*regional cost escalation factor	Multiply A.A rate with regional factor to determine rate of other towns

I.4. Regional Cost Factors

The regional cost factors to be used in the model as multipliers on the recommended unit rates shown in Table A above for determining unit rates in towns other than Addis Ababa are as shown below. For Addis Ababa the factor is 1.

Table B: Regional Cost Factors

Region	Regional Cost factor
Afar	1.21
Gambella	1.21
Harari	1.21
Addis Ababa	1.0
Dire Dawa	1.16
Benishangul	1.21
Somali	1.21
Amhara	1.1
Oromya	1.1
SNNPR	1.1
Tigray	1.1

Source: OOWNP 2013 with modifications attributed to infrastructure development

1.5. Cost Escalation Factors

A cost escalation compounded factor of 3% per annum⁵⁷ is considered for procurement of trucks and equipment while a cost escalation compounded factor of 5% per annum⁵⁸ is used for construction.

2. Financial Requirements for Particulars

2.1. Public Toilets

Well managed public toilets where groups of up to 7 to 10 persons (7 of them women and 3 men) organize themselves and provide shop, barber service in addition to the toilet service are assumed to be constructed. It is assumed that the groups shall get loans from MFIs to extend such services. The town administrations are also expected to convert the public toilet sites to resting places with seats and ornamental trees as is being done in Addis Ababa and a few other cities. Provision of WIFI services and Telephone stands by the town administrations are possibilities that shall help to modernize the towns and create a good impression about public toilets. Once such toilets begin to be rolled out by pro-active municipalities following successful local or national funding bids, it is expected that these will trigger replication throughout the country contributing to sanitized urban environment.

In order to calculate financial requirements by region and town categories an excel model was used. One of the basic inputs to the model was number of towns by town category (2025) as shown in Table C below. By considering 2025 projected population, there is one Category 1 town (with population range >500,001), 24 category 2 towns (with population range between 100,001 and 500,000), 38 category 3 towns (with population range between 50,001 and 100,000), 141 category 4 towns (with population range between 20,001 and 50,000) and 766 category 5 towns (with population <20,000).

Table C: Number of Towns by Town Category and Region (2025)

Region	No. of Towns by Town Category 2025				
	Category 1	Category 2	Category 3	Category 4	Category 5
Afar	-	-	-	6	41
Gambella	-	-	1	-	11
Harari	-	1	-	-	-
Addis Ababa	1	-	-	-	-
Dire Dawa	-	1	-	-	-
Benishangul	-	-	1	2	20
Somali	-	1	3	8	69
Amhara	-	7	1	41	155
Oromya	-	7	18	54	289
SNNPR	-	5	9	19	142
Tigray	-	2	5	11	39
Total	1	24	38	141	766

The other basic input to the model was the recommended no. of minimum package CGD friendly public toilets per town category as shown in Table D below.

⁵⁷Source OOWNP 2013 with modifications that took the current trend into consideration. The rate is kept a bit lower than OOWNP by taking the increasing number of machinery assembly plants in the country into consideration

⁵⁸Source OOWNP 2013 with modifications that took the current trend into consideration

Table D: Recommended No. of Minimum package CGD friendly public toilets for a single town under the five town Categories

Recommended No. of Minimum package CGD friendly public toilets for Demonstration Purpose									
Category 1		Category 2		Category 3		Category 4		Category 5	
Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)
5	5	3	2	2	2	2	2	1	1

Using the data on number of towns by town category in Table C and the recommended number of public toilets in Table D recommended number of minimum package CGD friendly public toilets for all towns by region in all categories was determined as shown below in Table E.

Table E: Recommended No. of Minimum package CGD friendly public toilets (Two showers with 4 seats-one for differently-abled)

Region	Recommended No. of Minimum package CGD friendly public toilets for Demonstration Purpose (Two showers with 4 seats-one for differently-abled)									
	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)
Afar	-	-	-	-	-	-	12	12	41	41
Gambella	-	-	-	-	2	2	-	-	11	11
Harari	-	-	3	2	-	-	-	-	-	-
Addis Ababa	5	5	-	-	-	-	-	-	-	-
Dire Dawa	-	-	3	2	-	-	-	-	-	-
Benishangul	-	-	-	-	2	2	4	4	20	20
Somali	-	-	3	2	6	6	16	16	69	69
Amhara	-	-	21	14	2	2	82	82	155	155
Oromya	-	-	21	14	36	36	108	108	289	289
SNNPR	-	-	15	10	18	18	38	38	142	142
Tigray	-	-	6	4	10	10	22	22	39	39

Calculating per capita costs and overall costs needs projected population figures up to 2025 (Phase 2 target year of IUSH-SAP) in such a way that varying population in different regions under the five population categories can be taken into consideration. Such a step has the advantage of avoiding errors that arise from taking plain averages of the population of towns in different categories. Accordingly, the excel model with projected populations for the 970 towns was used to determine the average population figures for town categories by region as shown in Table F below.

Table F: Average Population for Town Categories

Region	Category 1	Category 2	Category 3	Category 4	Category 5
Afar	-	-	-	36,045.00	5,806.49
Gambella	-	-	94,159.00	-	8,534.36
Harari	-	186,267.00	-	-	-
Addis Ababa	5,129,053.00	-	-	-	-
Dire Dawa	-	442,083.00	-	-	-
Benishangul	-	-	56,916.00	21,344.50	7,833.20
Somali	-	245,288.00	84,245.00	23,633.75	7,661.16
Amhara	-	303,603.67	108,585.00	30,858.83	8,299.26
Oromya	-	251,339.80	74,297.67	29,385.76	8,343.84
SNNPR	-	207,522.25	90,725.67	31,830.32	8,278.85

Per capita costs were then calculated by using prevailing unit rates, average population figures and recommended number of minimum package public toilets as inputs as shown in Table F below.

Table F: Per Capita Cost (ETB) of recommended public, communal and school toilets Per town category (Phase I-2016-2020)

Region	Per Capita Cost (ETB) of recommended public toilets Per town					Per Capita Cost (ETB) of recommended communal toilets Per town					Per Capita Cost (ETB) of recommended school toilets Per town				
	Category 1	Category 2	Category 3	Category 4	Category 5	Category 1	Category 2	Category 3	Category 4	Category 5	Category 1	Category 2	Category 3	Category 4	Category 5
Afar	-	-	-	47.00	145.87	-	-	-	50.35	208.39	-	-	-	40.28	250.07
Gambella	-	-	17.99	-	99.25	-	-	25.70	-	141.78	-	-	15.42	-	170.14
Harari	-	13.64	-	-	-	-	16.24	-	-	-	-	7.80	-	-	
Addis Ababa	0.68	-	-	-	-	0.97	-	-	-	-	0.47	-	-	-	
Dire Dawa	-	5.49	-	-	-	-	6.53	-	-	-	-	3.14	-	-	
Benishangul	-	-	29.76	79.36	108.13	-	-	42.52	85.03	154.47	-	-	25.51	68.03	185.36
Somali	-	10.36	20.11	71.68	110.56	-	12.33	28.73	76.80	157.94	-	5.92	17.24	61.44	189.53
Amhara	-	7.61	14.18	49.90	92.78	-	9.06	20.26	53.47	132.54	-	4.35	12.16	42.78	159.05
Oromya	-	9.19	20.73	52.41	92.28	-	10.94	29.61	56.15	131.83	-	5.25	17.77	44.92	158.20
SN NPR	-	11.13	16.97	48.38	93.01	-	13.25	24.25	51.84	132.87	-	6.36	14.55	41.47	159.44
Tigray	-	5.14	16.56	49.47	68.58	-	6.12	23.66	53.01	97.97	-	2.94	14.20	42.41	117.56

Finally all the above inputs were combined to obtain the financial requirement as shown in Table G below.

Table G: Financial Requirement for CGD friendly public toilets (Two showers with 4 seats, ramp, hand washing facilities and urinals)

Region	Regional Cost factor	Unit Rate (ETB)	Financial Requirement for CGD friendly public toilets for Demonstration Purpose (Two showers with 4 seats)											
			Phase 1(2016-2025)		Phase 2(2020-2025)		Phase 1(2016-2025)		Phase 2(2020-2025)		Phase 1(2016-2025)		Phase 2(2020-2025)	
			Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)
Afar	1.21	700,000.0	-	-	-	-	-	-	-	10,164,000	12,972,126	34,727,000	44,321,430	44,891,100
Gambella	1.21	700,000.0	-	-	-	-	-	1,694,000	2,162,021	-	-	9,317,000	11,891,115	11,011,100
Harari	1.21	700,000.0	-	-	2,541,000	2,162,021	-	-	-	-	-	-	-	2,541,100
Addis Ababa	1.0	700,000.0	3,500,000	4,466,985	-	-	-	-	-	-	-	-	-	3,500,100
Dire Dawa	1.18	700,000.0	-	-	2,425,500	2,162,021	-	-	-	-	-	-	-	2,425,100
Benishangul	1.21	700,000.0	-	-	-	-	-	1,694,000	2,162,021	3,388,000	4,324,042	16,940,000	21,620,210	22,022,100
Somali	1.21	700,000.0	-	-	2,541,000	2,162,021	5,082,000	6,486,063	13,552,000	17,296,188	58,443,000	74,589,723	79,618,100	
Amhara	1.1	700,000.0	-	-	16,170,000	15,134,147	1,540,000	2,162,021	63,140,000	88,642,860	119,350,000	167,556,625	200,200,100	
Oromya	1.1	700,000.0	-	-	16,170,000	15,134,147	27,720,000	38,916,377	83,160,000	116,749,132	222,530,000	312,412,030	349,580,100	
SN NPR	1.1	700,000.0	-	-	11,550,000	10,810,105	13,860,000	19,458,189	29,260,000	41,078,398	109,340,000	153,503,489	164,010,100	
Tigray	1.1	700,000.0	-	-	4,620,000	4,324,042	7,700,000	10,810,105	16,940,000	23,782,231	30,030,000	42,159,409	59,250,100	

2.2. Communal Toilets

Well managed communal toilets could be clean and resting places as demonstrated in few successful towns like Adishahu in Tigray where communities pay a nominal amount per month for operating and maintaining the toilets. The same modality proposed for public toilets of providing barber and shop could improve income for the operators. MFIs can play a big role in promoting such businesses by providing seed money, perhaps sourced from the proposed Sanitation Fund and from elsewhere.

In a similar manner with the public toilets, the recommended No. of minimum package CGD friendly Communal toilets for a single town as shown in Table H below.

Table H: Recommended No. of Minimum package CGD friendly Communal toilets for a single town under the five town Categories

Recommended No. of Minimum package CGD friendly Communal toilets for Demonstration Purpose									
Category 1		Category 2		Category 3		Category 4		Category 5	
Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)
10	5	5	3	4	2	3	2	2	2

Moreover, the number of towns' data by region and town categories in Table C above and the recommended numbers in Table H above are used to determine recommended number of minimum package CGD friendly communal toilets for all towns by region and town categories as shown in Table I below.

Table I: Recommended No. of Minimum package CGD friendly Communal toilets

Region	Recommended No. of Minimum package CGD friendly Communal toilets for Demonstration Purpose									
	Phase 1(2016-	Phase 2(2020-	Phase 1(2016-	Phase 2(2020-	Phase 1(2016-	Phase 2(2020-	Phase 1(2016-	Phase 2(2020-	Phase 1(2016-	Phase 2(2020-
Afar	-	-	-	-	-	-	18	12	82	82
Gambella	-	-	-	-	4	2	-	-	22	22
Harari	-	-	5	3	-	-	-	-	-	-
Addis Ababa	10	5	-	-	-	-	-	-	-	-
Dire Dawa	-	-	5	3	-	-	-	-	-	-
Benishangul	-	-	-	-	4	2	6	4	40	40
Somali	-	-	5	3	12	6	24	16	138	138
Amhara	-	-	35	21	4	2	123	82	310	310
Oromya	-	-	35	21	72	36	162	108	578	578
SNNPR	-	-	25	15	36	18	57	38	284	284
Tigray	-	-	10	6	20	10	33	22	78	78

Subsequently, financial requirement for Minimum package CGD friendly Communal toilets was determined using the above indicated inputs as shown in Table J below.

Table J: Financial Requirement for Minimum package CGD friendly Communal toilets with 4 seats, ramp, urinals hand washing facilities for Demonstration Purpose

Region	Regional Costfactor	Unit Rate (ETB)	Financial Requirement for Minimum package CGD friendly Communal toilets for Demonstration Purpose									
			Phase 1(2016-	Phase 2(2020-	Phase 1(2016-	Phase 2(2020-	Phase 1(2016-	Phase 2(2020-	Phase 1(2016-	Phase 2(2020-	Phase 1(2016-	Phase 2(2020-
Afar	1.21	500,000.0	-	-	-	-	-	-	10,890,000	9,265,804	49,610,000	63,316,328
Gambella	1.21	500,000.0	-	-	-	-	2,420,000	1,544,301	-	-	13,310,000	16,987,308
Harari	1.21	500,000.0	-	-	3,025,000	1,815,000	-	-	-	-	-	-
Addis Ababa	1.10	500,000.0	5,000,000	3,860,752	-	-	-	-	-	-	-	-
Dire Dawa	1.16	500,000.0	-	-	2,887,500	1,732,500	-	-	-	-	-	-
Benishangul	1.21	500,000.0	-	-	-	-	2,420,000	1,544,301	3,630,000	3,088,601	24,200,000	30,886,014
Somali	1.21	500,000.0	-	-	3,025,000	1,815,000	7,260,000	4,632,902	14,520,000	12,354,406	83,490,000	106,556,748
Amhara	1.1	500,000.0	-	-	19,250,000	11,550,000	2,200,000	1,544,301	67,650,000	63,316,328	170,500,000	239,366,607
Oromya	1.1	500,000.0	-	-	19,250,000	11,550,000	39,600,000	27,797,412	89,100,000	83,392,237	317,900,000	446,302,900
SNNPR	1.1	500,000.0	-	-	13,750,000	8,250,000	19,800,000	13,898,706	31,350,000	29,341,713	156,200,000	219,290,698
Tigray	1.1	500,000.0	-	-	5,500,000	3,300,000	11,000,000	7,721,503	18,150,000	16,987,308	42,900,000	60,227,727

2.3. School Toilets

CGD friendly toilets with ramps and seats for differently abled, as well as MHM facilities, are expected to improve enrollment and create good school environment as per the vision of the Ministry of Education. Students being inspired by the hygiene and sanitation clubs and health extension workers are expected to develop good behavior in keeping their toilets clean⁵⁹. Table k below

Table K: Recommended No. of Minimum package CGD friendly school toilets for a single town under the five town Categories

Recommended No. of Minimum package CGD friendly School toilets for girls and boys for Demonstration Purpose									
Category 1		Category 2		Category 3		Category 4		Category 5	
Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)
4	4	2	2	2	2	2	2	2	2

Similarly, minimum Package numbers of CGD friendly School Toilets was determined using the number of towns data by region and town categories in Table C above and the recommended numbers in Table K above as shown in Table L below.

⁵⁹ The national WaSH coordination office, the ministry of education and the TWG in FMOH can use model schools for promoting good use of toilets.

Table L: Recommended No. of Minimum package CGD friendly School toilets for girls and boys (With six seats,ramp, hand washing facilities, urinals in the case of boys, MHM facility in the case of girls)

Region	Phase 1(2016-2025)		Phase 2(2020-2025)		Phase 1(2016-2025)		Phase 2(2020-2025)		Phase 1(2016-2025)		Phase 2(2020-2025)	
	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)
Afar	-	-	-	-	-	-	12	12	82	82	-	-
Gambella	-	-	-	-	2	2	-	-	22	22	-	-
Harari	-	-	2	2	-	-	-	-	-	-	-	-
Addis Ababa	4	4	-	-	-	-	-	-	-	-	-	-
Dire Dawa	-	-	2	2	-	-	-	-	-	-	-	-
Benishangul	-	-	-	-	2	2	4	4	40	40	-	-
Somali	-	-	2	2	6	6	16	16	138	138	-	-
Amhara	-	-	14	14	2	2	82	82	310	310	-	-
Oromya	-	-	14	14	36	36	108	108	578	578	-	-
SNNPR	-	-	10	10	18	18	38	38	284	284	-	-
Tigray	-	-	4	4	10	10	22	22	78	78	-	-

Subsequently, financial requirement for Minimum Package CGD friendly school toilets was determined using the above indicated inputs (the average population and per capita costs shown under public toilets and the recommended no. of CGD friendly school toilets) as shown in Table M below.

Table M: Financial Requirement for Minimum package CGD friendly School toilets for girls and boys

Region	Regional Costfactor	Unit Rate (ETB)	Phase 1(2016-2025)		Phase 2(2020-2025)		Phase 1(2016-2025)		Phase 2(2020-2025)		Phase 1(2016-2025)		Phase 2(2020-2025)	
			Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)	Phase 1(2016-2025)	Phase 2(2020-2025)
Afar	1.21	600,000.0	-	-	-	-	-	-	8,712,000	11,118,965	59,532,000	75,979,594	-	-
Gambella	1.21	600,000.0	-	-	-	-	1,452,000	1,853,161	-	-	15,972,000	20,384,769	-	-
Harari	1.21	600,000.0	-	-	1,452,000	1,853,161	-	-	-	-	-	-	-	-
Addis Ababa	1.0	600,000.0	2,400,000	3,706,322	-	-	-	-	-	-	-	-	-	-
Dire Dawa	1.16	600,000.0	-	-	1,386,000	1,853,161	-	-	-	-	-	-	-	-
Benshangul	1.21	600,000.0	-	-	-	-	1,452,000	1,853,161	2,904,000	3,706,322	29,040,000	37,063,217	-	-
Somali	1.21	600,000.0	-	-	1,452,000	1,853,161	4,356,000	5,559,482	11,616,000	14,825,287	100,188,000	127,888,097	-	-
Amhara	1.1	600,000.0	-	-	9,240,000	12,972,126	1,320,000	1,853,161	54,120,000	75,979,594	204,600,000	287,239,928	-	-
Oromya	1.1	600,000.0	-	-	9,240,000	12,972,126	23,760,000	33,356,895	71,280,000	100,070,685	381,480,000	535,563,480	-	-
SNNPR	1.1	600,000.0	-	-	6,600,000	9,265,804	11,880,000	16,678,447	25,080,000	35,210,056	187,440,000	263,148,838	-	-
Tigray	1.1	600,000.0	-	-	2,640,000	3,706,322	6,600,000	9,265,804	14,520,000	20,384,769	51,480,000	72,273,272	-	-

2.4. Sanitary landfill sites (SLFs), garbage trucks, garbage bins, push carts and dust bins

The standard manual prepared by MOUD&H recommends landfill sites for categories 1-3 towns mainly for cost effectiveness. The standard suggests well controlled dumping sites that do not pollute the environment in categories 4 and 5 towns as could be seen in **Attachment I** to this document.

Determination of financial requirements for sanitary land fill sites, garbage trucks, garbage bins, push carts and dust bins requires identifying no.of towns per category, average population for relevant town categories to2025, required areas in hectares of SLFs,prevailing unit rates/ per capita costs.Among these data, proposed No. of towns per category for SLF is shown in Table N below.

Table N: Proposed No. of Towns per Category for SLF⁶⁰

L.No	Region	Phase 1(2016-2021)		Phase 2(2021-2025)		Phase 1(2016-2021)		Phase 2(2021-2025)		Phase 1(2016-2021)		Phase 2(2021-2025)	
		Phase 1(2016-2021)	Phase 2(2021-2025)	Phase 1(2016-2021)	Phase 2(2021-2025)	Phase 1(2016-2021)	Phase 2(2021-2025)	Phase 1(2016-2021)	Phase 2(2021-2025)	Phase 1(2016-2021)	Phase 2(2021-2025)	Phase 1(2016-2021)	Phase 2(2021-2025)
1	Afar	-	-	-	-	-	-	1	-	-	-	-	-
2	Gambella	-	-	-	-	1	-	-	-	-	-	-	-
3	Harari	-	-	1	-	-	-	-	-	-	-	-	-
4	Addis Ababa	1	1	-	-	-	-	-	-	-	-	-	-
5	Dire Dawa	-	-	-	1	-	-	-	-	-	-	-	-
6	Benishangul Gumuz	-	-	-	-	1	-	-	-	-	-	-	-
7	Somali	-	-	1	-	2	1	-	-	-	-	-	-
8	Amhara	-	-	7	-	1	-	-	-	-	-	-	-
9	Oromya	-	-	7	-	9	9	-	-	-	-	-	-
10	SNNPR	-	-	5	-	7	2	-	-	-	-	-	-

Moreover, average Population for Relevant town Categories (2025) is shown in Table O below;

Table O: Average Population for Relevant town Categories (2025)

Region	Phase 1(2016-2021)		Phase 2(2021-2025)		Phase 1(2016-2021)		Phase 2(2021-2025)		Phase 1(2016-2021)		Phase 2(2021-2025)	
	Phase 1(2016-2021)	Phase 2(2021-2025)	Phase 1(2016-2021)	Phase 2(2021-2025)	Phase 1(2016-2021)	Phase 2(2021-2025)	Phase 1(2016-2021)	Phase 2(2021-2025)	Phase 1(2016-2021)	Phase 2(2021-2025)	Phase 1(2016-2021)	Phase 2(2021-2025)
Afar	-	-	-	-	-	-	36,045	-	-	-	-	-
Gambella	-	-	-	-	94,159	-	-	-	-	-	-	-
Harari	-	-	186,267	-	-	-	-	-	-	-	-	-
Addis Ababa	-	5,129,053	-	-	-	-	-	-	-	-	-	-
Dire Dawa	-	-	-	442,083	-	-	-	-	-	-	-	-
Benishangul	-	-	-	-	56,916	-	-	-	-	-	-	-
Somali	-	-	245,288	-	84,245	-	-	-	-	-	-	-
Amhara	-	-	303,604	-	108,585	-	-	-	-	-	-	-
Oromya	-	-	251,340	-	74,298	-	-	-	-	-	-	-
SNNPR	-	-	207,522	-	90,726	-	-	-	-	-	-	-

Calculating areas in hectares and garbage trucks requirement involves the use of an excel model, where corresponding population figures, solid waste generation rates, latrine access, height of compacted layer, working days per annum, no. of trips, etc. are used as inputs as shown in a typical spread sheet posted below.

⁶⁰Proposed No. of towns for Sanitary landfill sites (SLFs) are made to tally with GTP II i.e. 50 selected category 1-3 towns in phase I. Beyond GTP II (i.e. Phase 2 of IUSHSAP, 15 additional SLFs (a few of which will be in category 4 towns of Gambella, Afar and Benishangul with dominantly categories 4 and 5 towns) are proposed.

Table P: Typical Model result run for Category 2 town (Harari)

Daily per capita loadings of various on-site sewerage sludge					
Variable		Septage	nit latrine		
BOD(mg/l)		5,000	53,000		
Discharge(l/c/d)		1	0.15		
Sludge accumulation rate(l/c/d)		0.15	0.15		
Latrine toilet coverage projection(Bulen)					
		2016	2020	2025	
No latrine		10.00%	6.07%		
Dry pit latrine		80.00%	81.65%	82.00%	
Flush toilet		0.00%	12.27%	16.00%	
Total		100.00%	100.00%	100.00%	
Wastewater Production					
Wastewater production factors					
Domestic	70%	70%	80%	80%	80%
	80%	80%	80%	80%	80%
Septage volume to be generated					
		2016	2020	2025	
Domestic			4,351	6,926	12,238
Non domestic (140% of					
			4,796	7,618	13,462
Total			9,147	14,544	25,700
Solid Waste Generation and Collection Potential					
	Unit	2016	2020	2025	
		13,238.9	15,457.9	18,626.7	
	gr/c. d	250	300	350	
	kg/day	33,097	46,374	65,198	
		55%	60%	65%	
	kg/day	18,203	27,824	42,376	
	m ³ /day	36.4	55.6	84.8	
	m ³ /day	35.2	53.9	82.0	
	irrigally m ³ /day	28.2	43.1	65.6	
	m ³ /yr	10,288	15,725	23,949	
	after some years*				
				500	
				600	
				775	
				1000	
		0	0	2013	2020
Cumulative quantities	m ³		7,973	48,293	125,162
	Ha		0.19	1.16	3.00
		0	0	2013	2020
Number of 8m ³ capacity Solid Waste Disposal			10,287.91	15,725.17	23,949.13
			1	3	4
Sludge Production					
	Unit	2016	2020	2025	
	No	132,389	154,579	186,267	
Non domestic sludge					
	No of Vacuum trucks considering				
	300 m ³ truck		1	1	2
Total effective Drying bed					
Sludge drying bed area including access road and	Ha		0.38	0.48	0.65

SLF (sanitary land fill) and SDB (sludge drying bed) areas per town category obtained from the model shown above are given in table below;

Table Q: Area of SLF and SDB per Town Category (in Ha)

I.No.	Region	Area of SLF per Town Category (in Ha)					Area of SDB per Town Category (in Ha)				
		Category 1	Category 2	Category 3	Category 4	Category 5	Category 1	Category 2	Category 3	Category 4	Category 5
1	Afar	-	-	-	0.73	-	-	-	0.13	-	-
2	Gambella	-	-	1.90	-	-	-	-	0.39	-	-
3	Harari	-	3.00	-	-	-	-	0.81	-	-	-
4	Addis Ababa	82.72	-	-	-	-	22.84	-	-	-	-
5	Dire Dawa	-	7.13	-	-	-	-	1.93	-	-	-
6	Benishangul Gumuz	-	-	1.17	-	-	-	-	0.24	-	-
7	Somali	-	3.96	1.70	-	-	-	1.07	0.35	-	-
8	Amhara	-	4.90	2.19	-	-	-	1.33	0.45	-	-
9	Oromya	-	4.05	1.50	-	-	-	1.10	0.31	-	-
10	SNNPR	-	3.35	1.83	-	-	-	1.13	0.38	-	-

Per capita costs calculated based on prevailing rates and data obtained from the above given tables are shown below in Table R. One can see that per capita costs get higher when the town gets smaller. This would mean more support is required for smaller towns.

Table R: Per Capita Cost (SLF+SDB) in Birr

I.No.	Region	Area of SLF per Town Category (in Ha)					Regional Cost Factor	Unit Rate/ha (ETB)		Area of SDB per Town Category (in Ha)					Regional Cost Factor	Unit Rate/ha (ETB)		Per capita Cost (SLF+SDB) in Birr												
		Category 1	Category 2	Category 3	Category 4	Category 5		Phase 1 2016-2020 (SLF)	Phase 2 2021-2025 (SLF)	Category 1	Category 2	Category 3	Category 4	Category 5		Phase 1 2016-2020 (SDB)	Phase 2 2021-2025 (SDB)	Category 1		Category 2		Category 3		Category 4		Category 5				
		Phase 1 2016-2020 (SLF)	Phase 2 2021-2025 (SLF)	Phase 1 2016-2020 (SDB)	Phase 2 2021-2025 (SDB)	Phase 1 2016-2020		Phase 2 2021-2025	Phase 1 2016-2020	Phase 2 2021-2025	Phase 1 2016-2020	Phase 2 2021-2025	Phase 1 2016-2020	Phase 2 2021-2025		Phase 1 2016-2020	Phase 2 2021-2025	Phase 1 2016-2020	Phase 2 2021-2025	Phase 1 2016-2020	Phase 2 2021-2025	Phase 1 2016-2020	Phase 2 2021-2025							
1	Afar	-	-	-	0.73	-	1.21	5,793,156	7,393,698	-	-	-	0.15	-	1.21	6,758,682	8,625,981	-	-	-	-	-	-	-	-	174.60	-	-	-	-
2	Gambella	-	-	1.90	-	-	1.21	5,793,156	7,393,698	-	-	0.39	-	-	1.21	6,758,682	8,625,981	-	-	-	-	-	-	-	-	175.26	-	-	-	-
3	Harari	-	3.00	-	-	-	1.21	5,793,156	7,393,698	-	-	0.81	-	-	1.21	6,758,682	8,625,981	-	-	-	-	-	-	-	-	-	-	-	-	-
4	Addis Ababa	82.72	-	-	-	-	1.00	5,793,156	7,393,698	22.84	-	-	-	-	1.00	6,758,682	8,625,981	-	-	157.65	-	-	-	-	-	-	-	-	-	-
5	Dire Dawa	-	7.13	-	-	-	1.16	5,793,156	7,393,698	-	-	1.93	-	-	1.16	6,758,682	8,625,981	-	-	-	-	-	-	-	-	181.28	-	-	-	-
6	Benishangul Gumuz	-	-	1.17	-	-	1.21	5,793,156	7,393,698	-	-	0.24	-	-	1.21	6,758,682	8,625,981	-	-	-	-	-	-	-	-	178.64	-	-	-	-
7	Somali	-	3.96	1.70	-	-	1.21	5,793,156	7,393,698	-	-	1.07	0.35	-	1.21	6,758,682	8,625,981	-	-	-	-	-	-	-	148.80	-	60.19	-	-	-
8	Amhara	-	4.90	2.19	-	-	1.10	5,793,156	7,393,698	-	-	1.33	0.45	-	1.10	6,758,682	8,625,981	-	-	-	-	-	-	-	135.28	-	159.33	-	-	-
9	Oromya	-	4.05	1.50	-	-	1.10	5,793,156	7,393,698	-	-	1.10	0.31	-	1.10	6,758,682	8,625,981	-	-	-	-	-	-	-	135.28	-	159.33	-	-	-
10	SNNPR	-	3.35	1.83	-	-	1.10	5,793,156	7,393,698	-	-	1.13	0.38	-	1.10	6,758,682	8,625,981	-	-	-	-	-	-	-	143.40	-	159.33	-	-	-
11	Tigray	-	7.25	1.87	-	-	1.10	5,793,156	7,393,698	-	-	1.97	0.39	-	1.10	6,758,682	8,625,981	-	-	-	-	-	-	-	135.28	-	159.33	-	-	-

Making use of all the data provided under this annex **section 2.4**, financial requirements for SLF is determined as shown in Table S below.

Table S: SLF Financial Requirement for Proposed Towns per Category

I.No.	Region	Regional Cost Factor	Unit Rate/ha		Financial Requirement for Proposed of Towns per Category (SLF)																						
			Phase 1 2016-2020 (SLF)	Phase 2 2021-2025 (SLF)	Category 1		Category 2		Category 3		Category 4		Category 5		Sum All Categories												
			Phase 1 2016-2020 (SLF)	Phase 2 2021-2025 (SLF)	Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016-2020)	Phase 2 (2021-2025)											
1	Afar	1.21	5,793,156	7,393,698	-	-	-	-	-	-	-	-	-	-	5,093,256	-	-	-	-	-	-	-	-	-	5,093,256	-	
2	Gambella	1.21	5,793,156	7,393,698	-	-	-	-	-	-	-	-	-	-	13,305,261	-	-	-	-	-	-	-	-	-	13,305,261	-	
3	Harari	1.21	5,793,156	7,393,698	-	-	-	-	-	21,056,470	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21,056,470	-	
4	Addis Ababa	1	5,793,156	7,393,698	-	-	611,571,648	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	611,571,648	
5	Dire Dawa	1.16	5,793,156	7,393,698	-	-	-	-	-	60,882,991	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60,882,991	
6	Benishangul Gumuz	1.21	5,793,156	7,393,698	-	-	-	-	-	-	-	-	8,234,808	-	-	-	-	-	-	-	-	-	-	-	-	8,234,808	
7	Somali	1.21	5,793,156	7,393,698	-	-	-	-	27,728,454	-	-	23,808,577	15,193,224	-	-	-	-	-	-	-	-	-	-	-	-	51,537,032	15,193,224
8	Amhara	1.1	5,793,156	7,393,698	-	-	-	-	218,404,356	-	-	13,948,780	-	-	-	-	-	-	-	-	-	-	-	-	-	232,353,136	
9	Oromya	1.1	5,793,156	7,393,698	-	-	-	-	180,807,116	-	-	85,898,715	109,630,947	-	-	-	-	-	-	-	-	-	-	-	-	266,705,831	109,630,947
10	SNNPR	1.1	5,793,156	7,393,698	-	-	-	-	106,632,773	-	-	81,582,226	29,749,112	-	-	-	-	-	-	-	-	-	-	-	-	188,214,999	29,749,112
11	Tigray	1.1	5,793,156	7,393,698	-	-	-	-	92,418,185	-	-	47,775,527	-	-	-	-	-	-	-	-	-	-	-	-	-	140,193,712	
	Total						611,571,648	647,047,355	60,882,991	274,553,894	154,573,282	5,093,256													926,694,505	827,027,921	

As a step for determining financial requirements, Garbage Trucks Per Capita Cost in ETB for Relevant town Categories (2025) derived from prevailing rates are shown in Table T below

Table T: Garbage Trucks Per Capita Cost in ETB for Relevant town Categories (2025)

Region	Average Population for Relevant town Categories(2025)										Garbage Trucks Per Capita Cost for Relevant town Categories(2025)										
	Category 1		Category 2		Category 3		Category 4		Category 5		Category 1		Category 2		Category 3		Category 4		Category 5		
	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	
Afar	-	-	-	-	-	-	-	36,045	-	-	-	-	-	-	-	-	-	-	-	55.49	-
Gambella	-	-	-	-	94,159	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42.48	-
Harari	-	-	186,267	-	-	-	-	-	-	-	-	-	-	37.04	-	-	-	-	-	-	-
Addis Ababa	-	5,129,053	-	-	-	-	-	-	-	-	-	-	-	31.19	-	-	-	-	-	-	-
Dire Dawa	-	-	-	442,083	-	-	-	-	-	-	-	-	-	-	36.19	-	-	-	-	-	-
Benishangul	-	-	-	-	56,916	-	-	-	-	-	-	-	-	-	-	35.14	-	-	-	-	-
Somali	-	-	245,288	-	84,245	-	-	-	-	-	-	-	-	28.13	-	47.48	55.04	-	-	-	-
Amhara	-	-	303,604	-	108,585	-	-	-	-	-	-	-	-	26.97	-	37.52	-	-	-	-	-
Oromya	-	-	251,340	-	74,298	-	-	-	-	-	-	-	-	18.30	-	26.92	31.21	-	-	-	-
SNNPR	-	-	207,522	-	90,726	-	-	-	-	-	-	-	-	33.25	-	44.09	51.11	-	-	-	-
Tigray	-	-	449,647	-	92,978	-	-	-	-	-	-	-	-	25.58	-	43.02	-	-	-	-	-

Similarly, the per capita costs for Garbage bins, Push Carts for relevant town categories are shown in Table U below.

Table U: Garbage bins, Push Carts and Dust Bins Per Capita Cost in ETB for Relevant town Categories (2025)

Region	Average Population for Relevant town Categories(2025)										Garbage bins, Push Carts and Dust Bins Per Capita Cost for Relevant town Category(2025)										
	Category 1		Category 2		Category 3		Category 4		Category 5		Category 1		Category 2		Category 3		Category 4		Category 5		
	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	
Afar	-	-	-	-	-	-	-	36,045	-	-	-	-	-	-	-	-	-	-	-	5.55	-
Gambella	-	-	-	-	94,159	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.98	-
Harari	-	-	186,267	-	-	-	-	-	-	-	-	-	-	4.56	-	-	-	-	-	-	-
Addis Ababa	-	5,129,053	-	-	-	-	-	-	-	-	-	-	0.62	-	-	-	-	-	-	-	-
Dire Dawa	-	-	-	442,083	-	-	-	-	-	-	-	-	-	-	2.45	-	-	-	-	-	-
Benishangul	-	-	-	-	56,916	-	-	-	-	-	-	-	-	-	-	7.03	-	-	-	-	-
Somali	-	-	245,288	-	84,245	-	-	-	-	-	-	-	-	8.97	-	13.06	6.06	-	-	-	-
Amhara	-	-	303,604	-	108,585	-	-	-	-	-	-	-	-	2.35	-	46.05	-	-	-	-	-
Oromya	-	-	251,340	-	74,298	-	-	-	-	-	-	-	-	6.02	-	17.83	6.87	-	-	-	-
SNNPR	-	-	207,522	-	90,726	-	-	-	-	-	-	-	-	8.66	-	14.15	5.63	-	-	-	-
Tigray	-	-	449,647	-	92,978	-	-	-	-	-	-	-	-	4.78	-	9.25	-	-	-	-	-

The ultimate outcome of the computation, i.e. Financial Requirement for Proposed Garbage Trucks by Region (8m³ and 5m³ in capacity are shown in Tables V and W below.

Table V: Financial Requirement for Proposed Garbage Trucks by Region (8m³ Capacity)

Region	Proposed No. of Garbage Trucks by Region per Category (8m ³ capacity)										Unit Rate(ETB)	FIN Req.(ETB)	FIN Req.(ETB)
	Category 1		Category 2		Category 3		Category 4		Category 5			Phase 1 (2016-2020)	Phase 2 (2021-2025)
	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)			
Afar											2,300,000		
Gambella											2,300,000		
Harari				3							2,300,000	6,900,000	
Addis Ababa		60									2,300,000	-	159,979,822
Dire Dawa					6						2,300,000	-	15,997,982
Benishangul											2,300,000	-	
Somali				3							2,300,000	6,900,000	
Amhara				25							2,300,000	57,313,694	
Oromya				14							2,300,000	32,200,000	
SNNPR				15							2,300,000	34,500,000	
Tigray				10							2,300,000	23,000,000	
Total		60		70		6						160,813,694	175,977,804

2.5. Trash compactors and graders for compacting and spreading garbage

Trash compactors and graders shall be used by town clusters or networks to become cost effective. Regions shall form such networks and assign adequate number of compactors and graders at zonal administration levels or centrally located category 2 towns in such a way towns around these towns use the machineries by sharing capex and opex expenses in a cost effective manner. See Section 3 of the SAP on institutional arrangements which include proposed arrangements for formal and informal sharing. Also see Section 4 of the SAP on Master Planning where financial sustainability optimization is described.

Recommended number of compactors and graders and corresponding financial requirements by region for the two phases are shown in Table AA below.

Table AA: Recommended number of compactors and graders with corresponding financial requirements by region

Region	No. of Compactors		No of Graders		Unit Rate- 2016 (ETB)		Estimated Financial requirement		Estimated Financial requirement	
	Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016-2020)	Phase 2 (2021-2025)	Compactors	Graders	Compactors		Graders	
							Phase 1	Phase 2	Phase 1	Phase 2
Afar	1		1		1,897,500	2,656,500	1,897,500	-	2,656,500	-
Gambella	1		1		1,897,500	2,656,500	1,897,500	-	2,656,500	-
Harari	1		1		1,897,500	2,656,500	1,897,500	-	2,656,500	-
Addis Ababa	1	1	1	1	1,897,500	2,656,500	1,897,500	2,199,723	2,656,500	3,079,611.58
Dire Dawa	1		1		1,897,500	2,656,500	1,897,500	-	2,656,500	-
Benishangul	1		1		1,897,500	2,656,500	1,897,500	-	2,656,500	-
Somali	1		1		1,897,500	2,656,500	1,897,500	-	2,656,500	-
Amhara	2	1	2	1	1,897,500	2,656,500	3,795,000	2,199,723	5,313,000	3,079,611.58
Oromya	3	1	3	1	1,897,500	2,656,500	5,692,500	2,199,723	7,969,500	3,079,611.58
SN NPR	2	1	2	1	1,897,500	2,656,500	3,795,000	2,199,723	5,313,000	3,079,611.58
Tigray	1	1	1	1	1,897,500	2,656,500	1,897,500	2,199,723	2,656,500	3,079,611.58
Total	15	5	15	5			28,462,500	10,998,613	39,847,500	15,398,058

2.6 Sludge Drying Beds (SDBs) and Vacuum Trucks

Though the country doesn't yet have a standard for sludge drying beds and related machineries and equipment, it has been assumed that sludge drying beds categories 1-3 towns will be feasible intervention in the bigger regions and town administrations. In smaller regions with category 4 and 5 towns like Afar, Gambella and Benishangul at least one town per region that could be the regional capital or relatively bigger city has been assumed for the purpose of costing.

Determination of financial requirements for sludge drying beds and vacuum trucks requires identifying no. of towns per category, average population for relevant town categories up to 2025, required areas in hectares of SDBs, latrine access, per capita costs and prevailing unit rates. Proposed No. of towns per category for SDB is shown in Table BB below. For costing purposes, it is assumed that SDBs will be constructed in towns where the urban development sector in GTP II has also planned to construct SLFs to realize the clean green city vision of the country.

Table BB: Proposed No. of Towns per Category for SDB

I No	Region	Phase 1 (2016-2020)		Phase 2 (2021-2025)		Phase 1 (2016-2020)		Phase 2 (2021-2025)		Phase 1 (2016-2020)		Phase 2 (2021-2025)	
		Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016-2020)	Phase 2 (2021-2025)
1	Afar	-	-	-	-	-	-	-	-	1	-	-	-
2	Gambella	-	-	-	-	-	1	-	-	-	-	-	-
3	Harari	-	-	1	-	-	-	-	-	-	-	-	-
4	Addis Ababa	-	1	-	-	-	-	-	-	-	-	-	-
5	Dire Dawa	-	-	-	1	-	-	-	-	-	-	-	-
6	Benishangul Gumuz	-	-	-	-	1	-	-	-	-	-	-	-
7	Somali	-	-	1	-	-	2	-	1	-	-	-	-
8	Amhara	-	-	7	-	-	1	-	-	-	-	-	-
9	Oromya	-	-	7	-	8	-	10	-	-	-	-	-
10	SN NPR	-	-	5	-	7	-	2	-	-	-	-	-

In addition to the SDB per capita costs shown in this annex **section 2.4 above**, Vacuum Trucks Per Capita Costs in ETB for Relevant town Categories as shown in Table CC below are used for determination of financial requirement.

Table CC: Vacuum Trucks Per Capita Cost in ETB for Relevant town Categories (2025)

Region	Average Population for Relevant town Categories(2025)										Vacuum Trucks Per Capita Cost for Relevant town Categories(2025)									
	Category 1		Category 2		Category 3		Category 4		Category 5		Category 1		Category 2		Category 3		Category 4		Category 5	
	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)
Afar	-	-	-	-	-	-	-	36,045	-	-	-	-	-	-	-	-	-	55.49	-	-
Gambella	-	-	-	-	94,159	-	-	-	-	-	-	-	-	-	-	-	-	26.55	-	-
Harari	-	-	186,267	-	-	-	-	-	-	-	-	-	16.11	-	-	-	-	-	-	-
Addis Ababa	-	5,129,053	-	-	-	-	-	-	-	-	-	19.66	-	-	-	-	-	-	-	-
Dire Dawa	-	-	-	442,083	-	-	-	-	-	-	-	-	23.60	-	-	-	-	-	-	-
Benishangul	-	-	-	-	56,916	-	-	-	-	-	-	-	-	-	-	-	-	43.92	-	-
Somali	-	-	245,288	-	84,245	-	-	-	-	-	-	-	-	-	-	-	-	29.68	34.40	-
Amhara	-	-	303,604	-	108,585	-	-	-	-	-	-	-	-	-	-	-	-	23.02	-	-
Oromya	-	-	251,340	-	74,298	-	-	-	-	-	-	-	-	-	-	-	-	33.65	78.02	-
SNNPR	-	-	207,522	-	90,726	-	-	-	-	-	-	-	-	-	-	-	-	27.56	31.94	-
Tigray	-	-	449,647	-	92,978	-	-	-	-	-	-	-	-	-	-	-	-	26.89	93.51	-

Bringing relevant data from these annex sections **2.5** and **2.6** above; Financial Requirement for Proposed Towns per Category for SDB and vacuum trucks was calculated as shown in Tables DD, EE, FF and GG below.

Table DD: SDB Financial Requirement for Proposed Towns per Category

I.No.	Region	Regional Cost Factor	Unit Rate/ha (ETB)		Financial Requirement for Proposed No. of Towns per Category(SDB)														
			Phase 1 2016-2020 (SDB)	Phase 2 2021-2025 (SDB)	Category 1		Category 2		Category 3		Category 4		Category 5		Sum All Categories				
					Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)			
1	Afar	1.21	6,758,682	8,625,981	-	-	-	-	-	-	-	-	1,200,203	-	-	-	-	1,200,203	-
2	Gambella	1.21	6,758,682	8,625,981	-	-	-	-	3,197,080	-	-	-	-	-	-	-	-	3,197,080	-
3	Harari	1.21	6,758,682	8,625,981	-	-	6,660,901	-	-	-	-	-	-	-	-	-	-	6,660,901	-
4	Addis Ababa	1	6,758,682	8,625,981	-	197,014,591	-	-	-	-	-	-	-	-	-	-	-	-	197,014,591
5	Dire Dawa	1.16	6,758,682	8,625,981	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Benishangul Gumuz	1.21	6,758,682	8,625,981	-	-	-	-	1,932,529	-	-	-	-	-	-	-	-	1,932,529	-
7	Somali	1.21	6,758,682	8,625,981	-	-	8,771,490	-	5,720,919	3,650,752	-	-	-	-	-	-	-	14,492,409	3,650,752
8	Amhara	1.1	6,758,682	8,625,981	-	-	69,089,084	-	3,351,728	-	-	-	-	-	-	-	-	72,440,812	-
9	Oromya	1.1	6,758,682	8,625,981	-	-	57,195,740	-	18,346,961	29,269,860	-	-	-	-	-	-	-	75,542,701	29,269,860
10	SNNPR	1.1	6,758,682	8,625,981	-	-	42,164,705	-	19,603,209	7,148,347	-	-	-	-	-	-	-	61,767,914	7,148,347
11	Tigray	1.1	6,758,682	8,625,981	-	-	29,235,200	-	14,349,879	-	-	-	-	-	-	-	-	43,585,079	-
	Total					197,014,591	213,117,121		66,502,305	40,068,958	1,200,203							280,819,629	237,083,549

Table EE: Financial Requirement for Proposed Vacuum Trucks by Region (8m³ Capacity)

Region	Proposed No. of Vacuum Trucks by Region per Category (8m³ capacity)										Unit Rate(ETB)	FIN	
	Category 1		Category 2		Category 3		Category 4		Category 5			Phase 1 (2016-2020)	Phase 2 (2021-2025)
	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)			
Afar											3,000,000		
Gambella											3,000,000		
Harari			1								3,000,000	3,000,000	
Addis Ababa		29									3,000,000	-	100,856,844
Dire Dawa					3						3,000,000	-	10,433,467
Benishangul											3,000,000	-	
Somali			1								3,000,000	3,000,000	
Amhara			21								3,000,000	63,000,000	
Oromya			14								3,000,000	42,000,000	
SNNPR			5								3,000,000	15,000,000	
Tigray			6								3,000,000	18,000,000	
Total		29	48		3							144,000,000	111,290,311

Table FF: Financial Requirement for Proposed Vacuum Trucks by Region (5m³ Capacity)

Region	Proposed No. of Vacuum Trucks by Region per Category (5m ³ capacity)										Unit Rate(ETB)	FIN	
	Category 1		Category 2		Category 3		Category 4		Category 5			Phase 1 (2016-2020)	Phase 2 (2021-2025)
	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)			
Afar											2,500,000		
Gambella					1						2,500,000	2,500,000	
Harari											2,500,000	-	
Addis Ababa											2,500,000	-	
Dire Dawa											2,500,000	-	
Benishangul					1						2,500,000	2,500,000	
Somali					2	1					2,500,000	5,000,000	2,898,185
Amhara					1						2,500,000	2,500,000	-
Oromya					9	18					2,500,000	22,500,000	52,167,333
SNNPR					7	2					2,500,000	17,500,000	5,796,370
Tigray					4	3					2,500,000	10,000,000	8,694,556
Total					25	24						62,500,000	69,556,444

Table GG: Financial Requirement for Proposed Vacuum Trucks by Region (3m³ Capacity)

Region	Proposed No. of Vacuum Trucks by Region per Category (3m ³ capacity)										Unit Rate (ETB)	FIN Req.(ETB)
	Category 1		Category 2		Category 3		Category 4		Category 5			Phase 1 (2016-2020)
	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)		
Afar							1				2,000,000	2,000,000
Gambella											2,500,000	-
Harari											2,500,000	-
Addis Ababa											2,500,000	-
Dire Dawa											2,500,000	-
Benishangul											2,500,000	-
Somali											2,500,000	-
Amhara											2,500,000	-
Oromya											2,500,000	-
SNNPR											2,500,000	-
Tigray											2,500,000	-
Total							1					2,000,000

2.7. Waste Water Treatment Plants study, design and construction

Waste Water Treatment Plants study, design and construction are planned in line with GTP II. The cost estimate is also based on GTP II estimate.

The plan according to GTP II but that additionally includes phase II interventions beyond GTP II for number of WWTPs are shown in Tables HH and II below.

Table HH: Waste Water Treatment Plants (WWTPs)			Table II: Proposed Waste Water Treatment Plant Construction by Region		
Region	WWTPs Study and Design		Region	WWTPs construction	
	Phase 1(2016-2025)	Phase 2(2020-2025)		Phase 1(2016-2025)	Phase 2(2020-2025)
Afar	1	0	Afar	0	0
Gambella	1	0	Gambella	0	0
Harari	1	0	Harari	1	0
Addis Ababa	1	0	Addis Ababa	1	1
Dire Dawa	1	0	Dire Dawa	-	1
Benishangul	1	0	Benishangul	0	0
Somali	2	2	Somali	0	0
Amhara	8	0	Amhara	1	2
Oromya	10	15	Oromya	1	3
SNNPR	6	8	SNNPR	1	2
Tigray	4	3	Tigray	1	1
Total	36	28	Total	6	10

Table JJ: Per Capita Cost of WWTP Study and Design in Birr

Region	Per capita Cost for WWTP Study and Design in Birr									
	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)
Afar							150.25			
Gambella					57.52					
Harari			29.08							
Addis Ababa	0.87									
Dire Dawa			11.69							
Benishangul					95.16					
Somali			44.16							
Amhara			18.53							
Oromya			27.98							
SNNPR			28.47							
Tigray			21.90							

Per capita costs by region and town categories are used in the determination of financial requirements for study, design and construction of WWTPs are shown in table JJ above (study and design) and Table KK below (construction). Table KK: Per Capita Cost of WWTP Construction in Birr

Region	????????????????									
	Category 1		Category 2		Category 3		Category 4		Category 5	
	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)	Phase 1(2016-2020)	Phase 2(2021-2025)
Afar	-	-	-	-	-	-	-	-	-	-
Gambella	-	-	-	-	-	-	-	-	-	-
Harari	-	-	1,500.45	-	-	-	-	-	-	-
Addis Ababa	784.59	1,001.36	-	-	-	-	-	-	-	-
Dire Dawa	-	-	-	-	-	-	-	-	-	-
Benishangul	-	-	-	-	-	-	-	-	-	-
Somali	-	-	-	-	-	-	-	-	-	-
Amhara	-	-	836.87	1,068.08	-	-	-	-	-	-
Oromya	-	-	1,010.89	1,290.18	-	-	-	-	-	-
SNNPR	-	-	1,224.34	1,562.60	-	-	-	-	-	-
Tigray	-	-	565.06	721.18	-	-	-	-	-	-

Putting the above data and prevailing unit rates and regional cost factors together, financial requirement for WWTPs study, design and construction are determined as shown in Tables LL and MM below.

Table LL: Financial Requirement for WWTPs Study and Design by Region in ETB(including ESIA and Capacity building)

Region	Regional Cost factor	Unit Rate (ETB)	WWTPs Study and Design FIN Req. Amount(ETB)	
			Phase 1(2016-2025)	Phase 2(2020-2025)
Afar	1.21	4,475,942	5,415,890	-
Gambella	1.21	4,475,942	5,415,890	-
Harari	1.21	4,475,942	5,415,890	-
Addis Ababa	1.0	4,475,942	4,475,942	-
Dire Dawa	1.16	4,475,942	5,169,713	-
Benishangul	1.21	4,475,942	5,415,890	-
Somali	1.21	4,475,942	10,831,779	13,824,400
Amhara	1.1	4,475,942	39,388,288	-
Oromya	1.1	4,475,942	49,235,360	94,257,273
SNNPR	1.1	4,475,942	29,541,216	50,270,546
Tigray	1.1	4,475,942	19,694,144	18,851,455
Total			180,000,000	177,203,673

Table MM: Financial Requirement for WWTPs Construction by Region in ETB

Region	Regional Cost factor	Unit Rate (ETB)*	WWTPs construction FIN Req. Amount(ETB)	
			Phase 1(2016-2025)	Phase 2(2020-2025)
Afar	1.21	279,485,034	-	-
Gambella	1.21	279,485,034	-	-
Harari	1.21	279,485,034	279,485,034	-
Addis Ababa	1.0	4,024,205,749	4,024,205,749	5,136,019,601
Dire Dawa	1.16	266,781,169	-	340,487,888
Benishangul	1.21	279,485,034	-	-
Somali	1.21	279,485,034	-	-
Amhara	1.1	254,077,304	254,077,304	648,548,357
Oromya	1.1	254,077,304	254,077,304	972,822,536
SNNPR	1.1	254,077,304	254,077,304	648,548,357
Tigray	1.1	254,077,304	254,077,304	324,274,179
Total			5,320,000,000	8,070,700,918

*Based on GTP II overall estimate

2.8. Decentralised Waste Water Treatment Systems (DEWWATs) study, design and construction

In a situation where the per capita water consumption is less than 50l/day (that is, for the majority of urban areas in Ethiopia), the Strategy recommends the use of DEWWATs designed to suit the often limited available space in many towns. They should also be designed to a standard of treatment and operational systems put in place such that liquid effluent can be used within the towns local to the DEWWATs.

To this end, 33 units in phase I and additional 69 units in phase 2 (see justification for planning $33+69=102$ units instead of 1000 at this stage⁶¹) are planned to be constructed at selected apartment, condominium and industrial villages that will not be connected to sewerage systems. It is considered that each unit will serve populations usually ranging from a few thousands to 10,000.

The per capita cost of DEWWATs ranges from 2500Birr to 5000 Birr for populations less than 10,000. For higher populations the per capita cost could be lower.

If package DEWWATs units are to be used, local manufacturing would be a cost effective option both in terms of initial cost and sustainable O&M.

Table NN:DEWWATs Construction Financial Requirement by Region

Region	Regional Cost factor	Unit Rate- 2016 (ETB)	Number of Appartment/condomini		DEWWATs Construction FIN Requirement (ETB)	
			Phase 1(2016-	Phase 2(2020-	Phase 1(2016- 2025)	Phase 2(2020- 2025)
Afar	1.21	24,000,000	-	1	-	37,063,217
Gambella	1.21	24,000,000	-	1	-	37,063,217
Harari	1.21	24,000,000	1	2	29,040,000	74,126,433
Addis Ababa	1.0	24,000,000	15	30	360,000,000	918,922,725
Dire Dawa	1.16	24,000,000	1	2	27,720,000	70,757,050
Benishangul	1.21	24,000,000	0	1	-	37,063,217
Somali	1.21	24,000,000	1	2	29,040,000	74,126,433
Amhara	1.1	24,000,000	4	8	105,600,000	269,550,666
Oromya	1.1	24,000,000	5	10	132,000,000	336,938,333
SNNPR	1.1	24,000,000	4	8	105,600,000	269,550,666
Tigray	1.1	24,000,000	2	4	52,800,000	134,775,333
Total			33	69	841,800,000	2,259,937,288

Note that unit rate for DEWWATs comes from Table A and, for costing purposes, is assumed to be independent of population served

⁶¹The numbers of the DEWWATs units kept at 102 at this stage could increase to 1000 following the feasibility studies through soft loan arrangements to be borne by apartment/condominium/industrial village owners.

2.9. Financial Requirement Summary

IUSH-SAP Financial Requirement Summary for Minimum Package Sanitation Facilities & Related Software Aspects is depicted in Table OO below.

Table OO: IUSH-SAP Financial Requirement Summary for Minimum Package Sanitation Facilities & Related Software Aspects

I.No	Particulars	Unit	Quantity		Estimated Financial Requirement (ETB)	
			Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016 -2020)	Phase 2 (2021 -2025)
A	Hardware					
1	Sanitary Land Fill study, design & Construction	No. of towns	50	15	926,694,505	827,027,921
2	Sludge Drying Bed study, design & Construction	No. of towns	50	15	280,819,629	237,083,549
3	Public Toilets Construction in 970 towns	No. of units	1201	1177	939,088,500	1,271,411,272
4	Communal Toilets Construction in 970 towns	No. of units	2237	1967	1,249,787,500	1,503,237,404
5	School Toilets Construction in 970 towns	No. of units	1942	1942	1,303,194,000	1,799,419,165
6	Waste Water Study and Design	No. of towns	36	28	180,000,000	177,203,673
7	Waste Water Treatment Plants Construction	No. of towns	6	10	5,320,000,000	8,070,700,918
8	Decentralized Waste Water Treatment systems study, design and Installation/construction	No. of Apartment /condominium/ industrial villages	33	69	841,800,000	2,259,937,288
9	Procurement of 8 m ³ capacity Vacuum Trucks for 50 towns and surrounding cities	No. of units	48	32	144,000,000	111,290,311
10	Procurement of 5 m ³ capacity Vacuum Trucks for 50 towns and surrounding cities	No. of units	25	24	62,500,000	69,556,444
11	Procurement of 3 m ³ capacity Vacuum Trucks for 50 towns and surrounding cities	No. of units	1		2,000,000	
12	Procurement of 8 m ³ capacity Garbage Trucks for 50 towns and surrounding cities	No. of units	70	66	160,813,694	175,977,804
13	Procurement of 5 m ³ capacity Garbage Trucks for 50 towns and surrounding cities	No. of units	42	17	84,074,234	37,096,770
14	Procurement of 8m ³ Capacity Garbage bins for 50 towns and surrounding cities	No. of units	36	26	5,486,794	3,318,332
15	Procurement of 5m ³ Capacity Garbage bins for 50 towns	No. of units	30	12	10,350,000	2,488,749
16	Procurement of 1m ³ Capacity Push Cart for 50 towns	No. of units	195	100	20,025,000	3,828,845
17	Procurement of 0.5m ³ Capacity dust bins for 50 towns	No. of units	390	200	6,975,000	1,276,282

I.No	Particulars	Unit	Quantity		Estimated Financial Requirement (ETB)	
18	Procurement of Compactors (to be shared by 50 towns)	No. of units	15	5	28,462,500	10,998,613
19	Procurement of Graders (to be shared by 50 towns)	No. of units	15	5	39,847,500	15,398,058
	Sum				11,605,918,855	16,577,251,399
20	For Rehabilitation of Sanitation Facilities(7% of Sum)				812,414,320	1,160,407,598
		The indicated percentage shall be used to determine financial requirement for rehabilitation at regional/town administration level				
	Grand Sum				12,418,333,175	17,737,658,997
B	Software					
	Enhancing UHEP for promotion and awareness creation(~2% of Grand Sum)				249,376,661	356,195,805
1	Advocacy and Promotion(~0.3% of Grand Sum per annum or ~1.5% per phase)				185,265,000	264,622,260
2	Capacity Building					
3	Updating/preparation of Manuals(0.05% of Grand Sum)				6,209,167	8,868,829
3.1	Continuous Cascaded training on Solid waste, liquid waste management, composting, , etc.(0.1% of Grand Sum per annum or 0.5% per phase)				62,091,666	88,688,295
3.2	Capacity Building in terms of Logistics (4% of Grand Sum)				496,733,327	709,506,360
3.3						
C	Miscellaneous					
1	R&D					
1.1	Seed money for Formative Research(1% of Grand Sum)				124,183,332	177,376,590
2	M&E(1% of Grand Sum)				124,183,332	177,376,590
3	Technical Assistance by NWCO and S&H TWG(0.5% of Grand Sum)				62,091,666	88,688,295
4	Seed money for MFIs(3%)				372,549,995	532,129,770
5	Seed money for providing rewards to successful institutions, school, hygiene and sanitation clubs, communities, etc.(1% of Grand Sum)				124,183,332	177,376,590
6	Seed money for promotion of the RRR principle, use of bio-digesters for generating energy and speeding up pathogen die off at transfer stations(2% of Grand Sum)				248,366,664	354,753,180
7	Seed money for Enhancing Sanitation supply chain(1.5%of Grand Sum)				186,274,998	266,064,885
	Grand Total				14,659,842,313	20,939,306,445

Note:

1. A cost escalation rate of 5% per annum is considered in projecting unit rates and per capita costs to phase II for construction activities while for equipments the rate is kept at 3%.
2. Details of the advocacy and promotion financial requirement are shown in **attachment 2to this annex**.
3. Limited financial data collected during the baseline data collection of five towns (see Annex I0-2) has been used for verifying assumptions and unit rates used in the basket funding estimate.

3. Rehabilitation

7% of the sum of financial requirement for the minimum package in Table OO above is taken as seed budget for rehabilitation. Estimates for individual regions with a group of towns or individual towns shall be determined using similar %ges used for the overall estimation as required.

4. Software Aspects and Capacity Building

Software aspects and capacity building are considered as %ges of grand sum (minimum package activities + Rehabilitation) as shown in Table OO above. Estimates for individual regions with a group of towns or individual towns shall be determined using similar %ges used for the overall estimation as required.

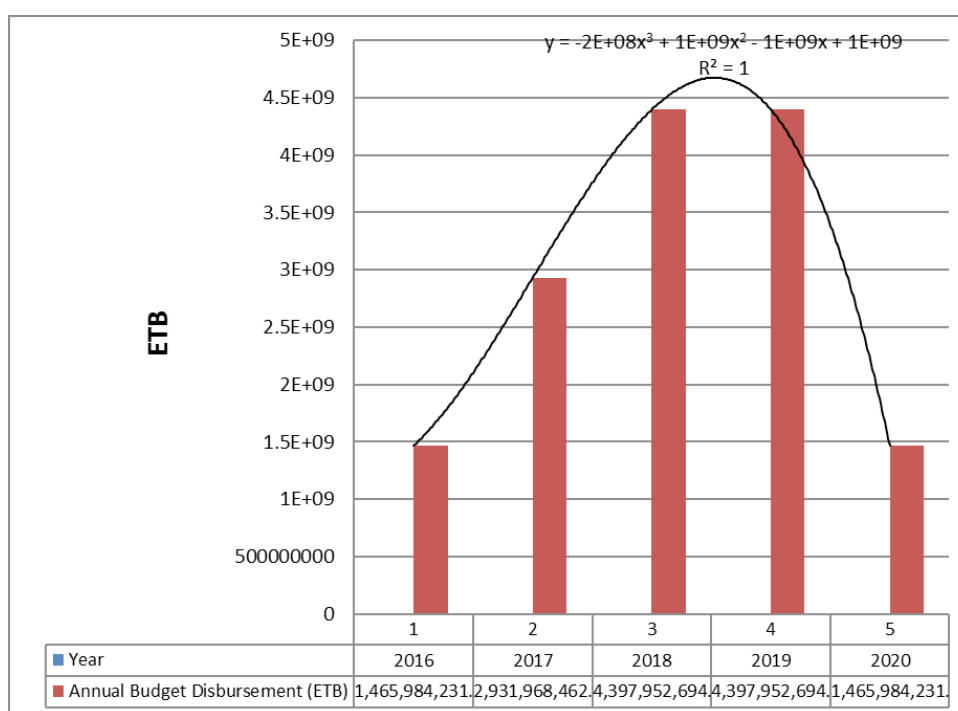
4. Miscellaneous Seed money

Miscellaneous Seed money for formative research, MFIs, M&E, promotion of RRR, supply chain etc. are calculated as %ges of the grand sum as shown in Table OO above. Estimates for individual regions with a group of towns or individual towns shall be determined using similar %ges used for the overall estimation as required.

5. Financial Disbursement

The financial disbursement would be as shown in figure below in order to .implement IUSH-SAP smoothly.A slow start followed by enhanced implementation in 2017, 2018 and 2019 is assumed.

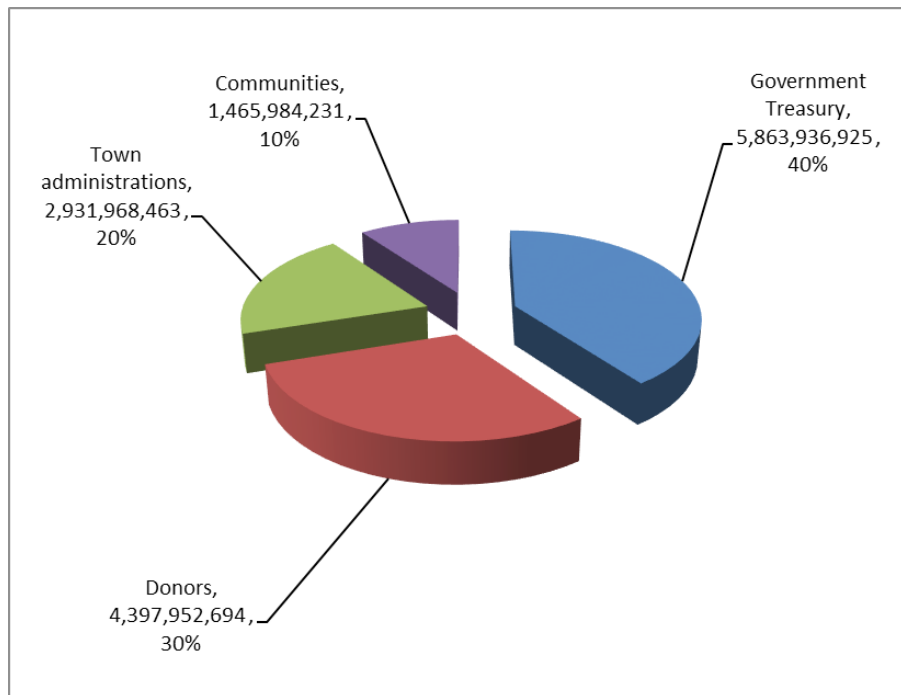
Figure 1: Annual Financial Disbursement



6. Basket Funding Contributions by Stakeholders for Phase I

Based on past experiences, the following %ge contribution of funding as shown in figure below is proposed⁶². The ministry of health in coordination with MoUD&H and WaSH ministries shall arrange a donor conference and come up with a final percentage contribution table. The government contribution is kept very close to GTP's estimated budget for construction of 6 towns waste water treatment plants.

Figure 2: Basket Funding Contributions by Stakeholders in ETB for Phase I

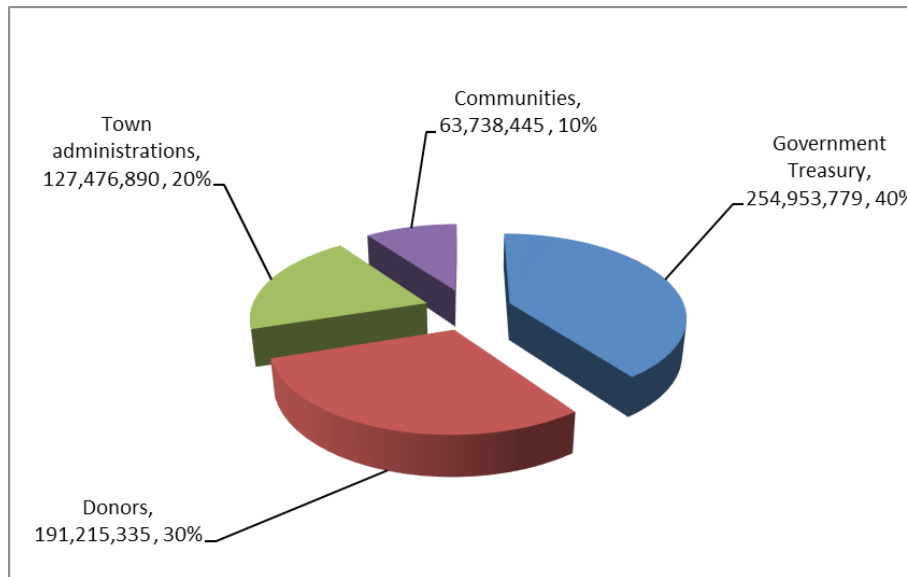


In spite of the fact that government documents shall come up with local currency, an indication of the amount in hard currency is assumed to help in future adjustments that would be required at times of unexpected devaluation. Under normal situations the price escalation factors used in the cost estimation are assumed to be adequate

Accordingly, the funding contribution in USD is as shown in figure below.

⁶²The government contribution is kept very close to GTP's estimated budget for construction of 6 towns waste water treatment plants. Though plan for 50 towns sanitary land fill sites construction is indicated in the reviewed GTP II draft document, the corresponding financial requirement is not indicated. Plans for sludge drying beds, public toilets, communal toilets and school toilets are not also indicated in the GTP II draft document.

Figure 3: Basket Funding Contributions by Stakeholders in USD for Phase I



Note: Exchange rates: For phase 1, 1 USD=23Birr; for phase 2, 1USD= 25Birr

7. Cost effective Administration of the Basket Funding

Past experiences have shown that merging water supply and sanitation funds into one basket leads to giving priority to water supply at times of funding shortages. Such a situation dictates the necessity for ring fencing sanitation funding within consolidated WaSH account and or establishing a separate basket for sanitation.

In line with this, the Water resources development fund shall setup a separate sanitation fund account in a like manner with water supply. Such a setup is believed to pave the way for using the basket fund in a cost effective manner by facilitating the injection of fund by the government and donors as indicated in the above figures. As a proof of readiness for getting access to the basket funding, town administrations and communities shall contribute their share as indicated in the figures above.

To reinforce this arrangement, the SAP proposes that all WASH project funding should be conditional on funding both water and sanitation, except where adequate funding has already been received for water. See Sections 1 and 9 of the SAP.

Attachment I: Summarized recommendations of various solid waste management components of five levels of towns/cities

So	Parameters	Level/status of towns					Remarks
		Level one >500,001	Level two 100,001-500,000	Level Three 50,001-100,000	Level Four 20,001-50,000	Level Five 2,001-20,000	
1	Storage	<ul style="list-style-type: none"> Communal containers of 8 cu m capacity or above if applicable 	<ul style="list-style-type: none"> Communal containers of usually 8 m cu capacity. 	<ul style="list-style-type: none"> Communal containers of 8 cu m can be used in some of the towns in this 	<ul style="list-style-type: none"> In localities where high amount of solid waste is generated a suitable communal container that can be easily handled by two persons may be employed; 	<ul style="list-style-type: none"> Specific communal storage facilities are not required 	<p>The storage facilities:</p> <ul style="list-style-type: none"> Should not be placed near avenues and pedestrian ways; Should be placed at a reasonable distance from the generators; Should be placed in such a way that they can be easily picked up by collection vehicles Should not be placed in wet and swampy areas so as to protect rusting.
2	Sorting	<ul style="list-style-type: none"> Required 	<ul style="list-style-type: none"> Required 	<ul style="list-style-type: none"> Required 	<ul style="list-style-type: none"> Particularly at household level is required. 	<ul style="list-style-type: none"> Particularly at household level is required. 	<ul style="list-style-type: none"> Sorting of wastes should be undertaken in all levels of the towns/cities at household level, transfer stations, and disposal sites as long as it is appropriate. Segregation at source should be encouraged so as to facilitate and enhance recycling, reuse and composting particularly in level one and level two urban centers.

So	Parameters	Level/status of towns					Remarks
		Level one >500,001	Level two 100,001-500,000	Level Three 50,001-100,000	Level Four 20,001-50,000	Level Five 2,001-20,000	
3	Collection	<ul style="list-style-type: none"> Door-to-door collection Communal collection to collect the solid wastes from the communal containers Block collection kerbside collection For street wastes wheelbarrows can be employed. 	<ul style="list-style-type: none"> Door-to-door collection Communal collection to collect the solid wastes from the communal containers If possible block collection of solid wastes in the central and main roads where communal containers are not appropriate. 	<ul style="list-style-type: none"> Door-to-door collection Block collection Communal collection For street wastes wheelbarrows can be employed. 	<ul style="list-style-type: none"> Door-to-door collection Block collection; Wheelbarrows should collect wastes from major streets and from inaccessible areas. 	<ul style="list-style-type: none"> Door to door collection by the use of horse-drawn carts or human handcart from residential and other establishments. 	<ul style="list-style-type: none"> MSE's should be involved in all levels of the towns at various scales.
4	Transportation	<ul style="list-style-type: none"> Lift dump trucks that are compatible with the communal containers should be put in place; Side-loader trucks for block collection 	<ul style="list-style-type: none"> Lift dump trucks and compactors that are compatible with the communal containers should be put in place; If conditions allow side-loader trucks 	<ul style="list-style-type: none"> A combination of lift dump trucks, tractors, and animal drawn carts can be used as appropriate; Wheelbarrows should be employed to collect street 	<ul style="list-style-type: none"> Tractors; Animal-drawn carts; Wheelbarrows; Hand pulls carts; and Tricycles. 	<ul style="list-style-type: none"> Animal-drawn carts; Wheelbarrows; Tractors and Hand pull carts 	<p>The means of transportation employed should be compatible and appropriate with the capacity of the containers and the distance of the disposal site. In this regard, wheelbarrows and animal-drawn carts has operational radius of 1 and 3 km a capacity of 200 kg and 2 cu m respectively;</p>

So	Parameters	Level/status of towns					Remarks
		Level one >500,001	Level two 100,001-500,000	Level Three 50,001-100,000	Level Four 20,001-50,000	Level Five 2,001-20,000	
		system should be employed. ➤ Compactor vehicles or trucks can be used in localities where density of waste are relatively low (they can also be adjusted to 4m ³ containers)	for block collection system should be employed; ➤ Hand pull carts and animal-drawn carts can be used in local collector roads in outskirts of towns/cities.	wastes and ➤ Hand pulls carts.			
5	Disposal	➤ Sanitary landfill sites ➤ Recycling and reuse, ➤ Composting ; and, ➤ Incineration	➤ Sanitary landfill sites ➤ Recycling and reuse ➤ Composting ➤ Incineration (optional)	➤ Sanitary landfill sites of medium size ➤ Composting ➤ Recycling and reuse	➤ Protected open dump sites or sanitary landfill site may be employed ➤ Recycling and reuse	➤ Protected open dump sites ➤ Recycling, reuse and composting at small scale level.	
6	Transfer Stations	➤ Transfer Stations must be put in place.	➤ Must be required	➤ Should be considered particularly in relatively large towns of this category	➤ Limited applicability.	➤ Not required	
7	Institutional aspect	➤ Solid waste management	➤ Solid waste management	➤ Solid waste management	➤ A team/unit should be organized to oversee	➤ A team/unit should oversee	The institutions should have adequate manpower and

So	Parameters	Level/status of towns					Remarks
		Level one >500,001	Level two 100,001-500,000	Level Three 50,001-100,000	Level Four 20,001-50,000	Level Five 2,001-20,000	
		should be carried out by an institution above department level with organizational structure up to the lowest level of administration ➤ Sanitary landfill sites can be managed separately.	alone should be handled at a department level with organizational structure up to the lowest level of administration	can be handled at a department level together with other environmental components.	environmental issues independently or together with other services of the municipality or it can also be managed by focal person (solid and liquid waste, urban greenery and other environmental issues)	the environmental issues (solid waste, liquid waste, urban greenery and other environmental issues)	equipments to carry out the day to day activities as per the extent of tasks at their disposal.

Source: Solid Waste Management Standards (MoUD&H)

SAP Advocacy 1: Maximize the WaSH performance of the Urban Health Extension Package	
Implementer: Federal MoH/ Program on Urban Health Extension Package	
<u>Action</u>	<u>Estimated cost</u>
Maintain the UHEP documentation	*
Isolate the content about householder demand	*
Clarify the recommended mechanism	*
Include a recommendation to households	*
Require the UHEP professional to engage with others	*
Amend the Job Description of the UHEP supervisor	*
Develop access to Google Earth-type maps of catchment(licence payment)	*
- Printing & distribution of maps	\$15 / <i>ketena</i> × 2000 <i>ketenas</i>)
Promote tighter mapping	-
Contribution to regular UHEP in-service training events	\$50/participant × 200/ year
Sub-Total	\$35,000 /year
N: B Items with(*) are to be addressed from the UHEP enhancing fund of 249,376,661 ETB in phase I	
SAP Advocacy 2: Expand the area of public realm that is kept 'Clean and Green'	
Implementer (a):The property owner, householder, shopkeeper, entrepreneur, school director	
<u>Action</u>	<u>Estimated Cost</u>
Relevant ministry to introduce a campaign	-
- Branding design	\$1,000
- Printing & distribution of posters	20 per <i>ketena</i> × 2000 <i>ketena</i> = \$4,000
- Airtime	\$50,000
- Newspaper adverts	\$20,000
Kebele H&S committee to do 'walkabouts'	*
UHEP professional to invite each householder	*
UHEP professionals to involve shops etc	*
Donations to collaborating schools	\$500 × 2000 <i>ketena</i>
Sub-Total	\$85,000
N: B Items with(*) are to be addressed from the UHEP enhancing fund of 249,376,661 ETB in phase I	

Attachment 2: Details of Financial Requirement for Advocacy and Promotion

SAP Advocacy 2: Expand the area of public realm that is kept 'Clean and Green'	
Implementer (b):The <i>kebele</i> authority	
<u>Action</u>	<u>Estimated Cost</u>
Work to (a), (b) and (c)	*
Designate a <i>kebele</i> employee	*
Kebele authority to review public realm	*
identify the current worst space	*
Conceive, design and implement a plan	1 site/year × 1000 <i>kebele</i>
- (a) securing the site	\$100/ site

- (b) an intensive one-off cleaning	\$400/site
- (c) protection (if no leasing)	\$500 salary/ year
For new-build, ensure 30% green allocation	*
Annually, identify a new site	*
Consider leasing of areas of 'no-man's land'	*
Explore possible role of Church	*
Creation of <i>kebele</i> nurseries	\$50,000
Donations of saplings, plants	\$75,000
Sub-total	\$1, 125,000 /year
N: B Items with(*) are to be addressed from the UHEP enhancing fund of 249,376,661 ETB in phase I	

SAP Advocacy 2: Expand the area of public realm that is kept 'Clean and Green'

Implementer (c):The federal authorities

Action	Estimated Cost
Review current methodology	*
Convert the assessment to a score.	*
Category-by-category, rank each town.	*
Rebranding	*
Publicise, internally and publicly.	\$1000 (?)
Allocate Technical Assts to best-performers.	\$25,000/ kebele × 10 kebele/ year
Raise the town/city ranking in discussions.	*
Reflect on and plan for improvement.	*
Encourage awareness and apply pressure	*
Stimulate competition within categories.	*
Coax mayors to apply pressure on <i>kebele</i>	*
Sub-total	\$251,000/ year

N: B Items with(*) are to be addressed from the UHEP enhancing fund of 249,376,661 ETB in phase I

SAP Advocacy 3:Test approaches and generate a record of Best Practice

Implementer:The municipal authorities/ Greenery & Beautification Departments

Action	Estimated Costs
Accompany the efforts of each <i>kebele</i>	*
Support their plan by facilitating discussions	*
Successively address concerns.	*
Work to resolve each issue	*
Document and photograph experiences	\$100/ space × 1000 (?) kebele/ year
Represent town/city in federal forum.	
- Travel & per diems	\$200 (?) / person × 50 (?) persons/ year
Use best-performers as role-models.	*
Facilitate peer-exchange visits	\$200 (?)/ visit × 25(?) visits/ year
Guarantee open spaces in planning debates	*
Feedback into town/city forums for learning.	*

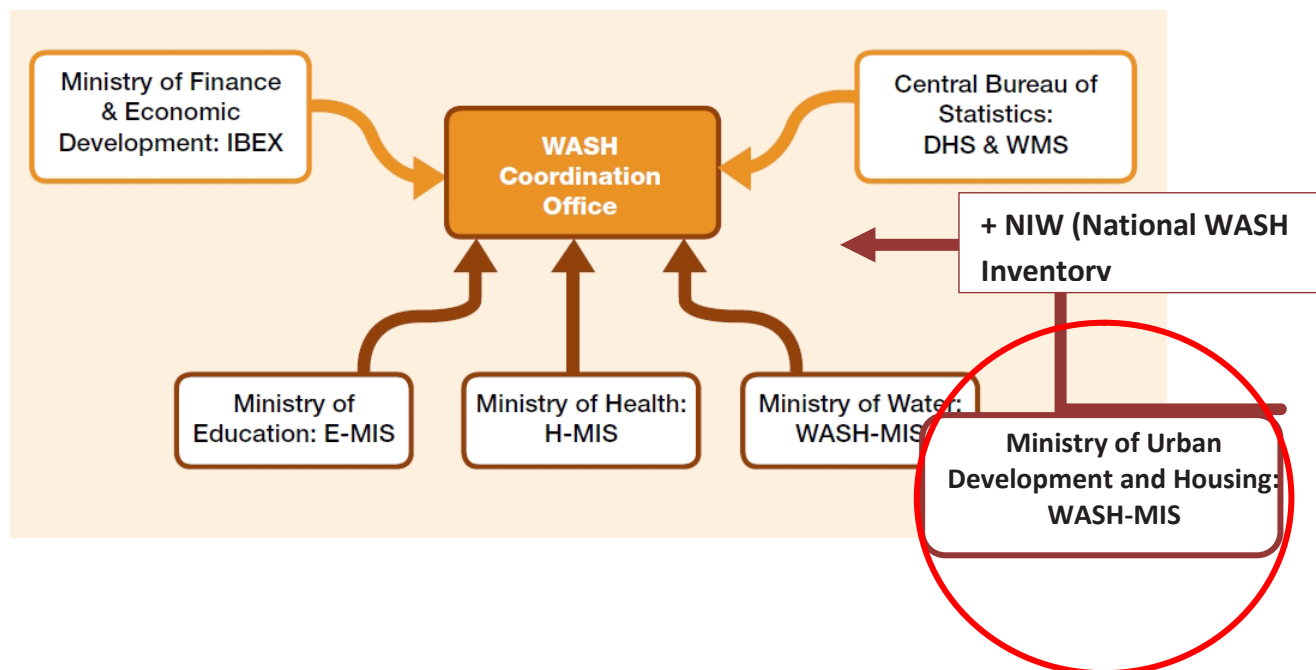
Sub-total	\$115,000/ year
Grand total (approx)	\$1,610,000/ year
N: B Items with(*) are to be addressed from the UHEP enhancing fund of 249,376,661 ETB in phase I	

Summary of Advocacy financial requirement estimate

No.	SAP Advocacy Activities	Estimated FIN Req. (USD)	Per phase(USD)		Per phase(ETB)	
			Phase 1 (2016-2020)	Phase 2 (2021-2025)	Phase 1 (2016-2020)	Phase 2 (2021-2025)
1	SAP Advocacy 1: Maximise the WaSH performance of the Urban Health Extension Package	35,000	175,000	175,000	4,025,000	4,375,000
2	SAP Advocacy 2: Expand the area of public realm that is kept 'Clean and Green' Implementers (a):property owners, householders, shopkeepers,entrepreneurs,school directors	85,000	425,000	425,000	9,775,000	10,625,000
3	SAP Advocacy 2: Expand the area of public realm that is kept 'Clean and Green' Implementers (b):kebele authorities	1,125,000	5,625,000	5,625,000	129,375,000	140,625,000
4	SAP Advocacy 2: Expand the area of public realm that is kept 'Clean and Green' Implementers (c):The federal authorities	251,000	1,255,000	1,255,000	28,865,000	31,375,000
5	SAP Advocacy 3: Test approaches and generate a record of Best Practice Implementers (c):The municipal authorities/Greenery & Beautification Departments	115,000	575,000	575,000	13,225,000	14,375,000
		1,611,000	8,055,000	8,055,000	185,265,000	201,375,000
Exchange rates: For phase 1, 1 USD=23Birr ; For phase 2 1USD= 25Birr						

Annex 7. IUSH-SAP M&E

Figure 11.1: WASH Monitoring System



Source: Jones 2015, p.3 (adapted by RS)

Figure 11.2: Suggestion for urban WASH data flows and data use by different levels of government

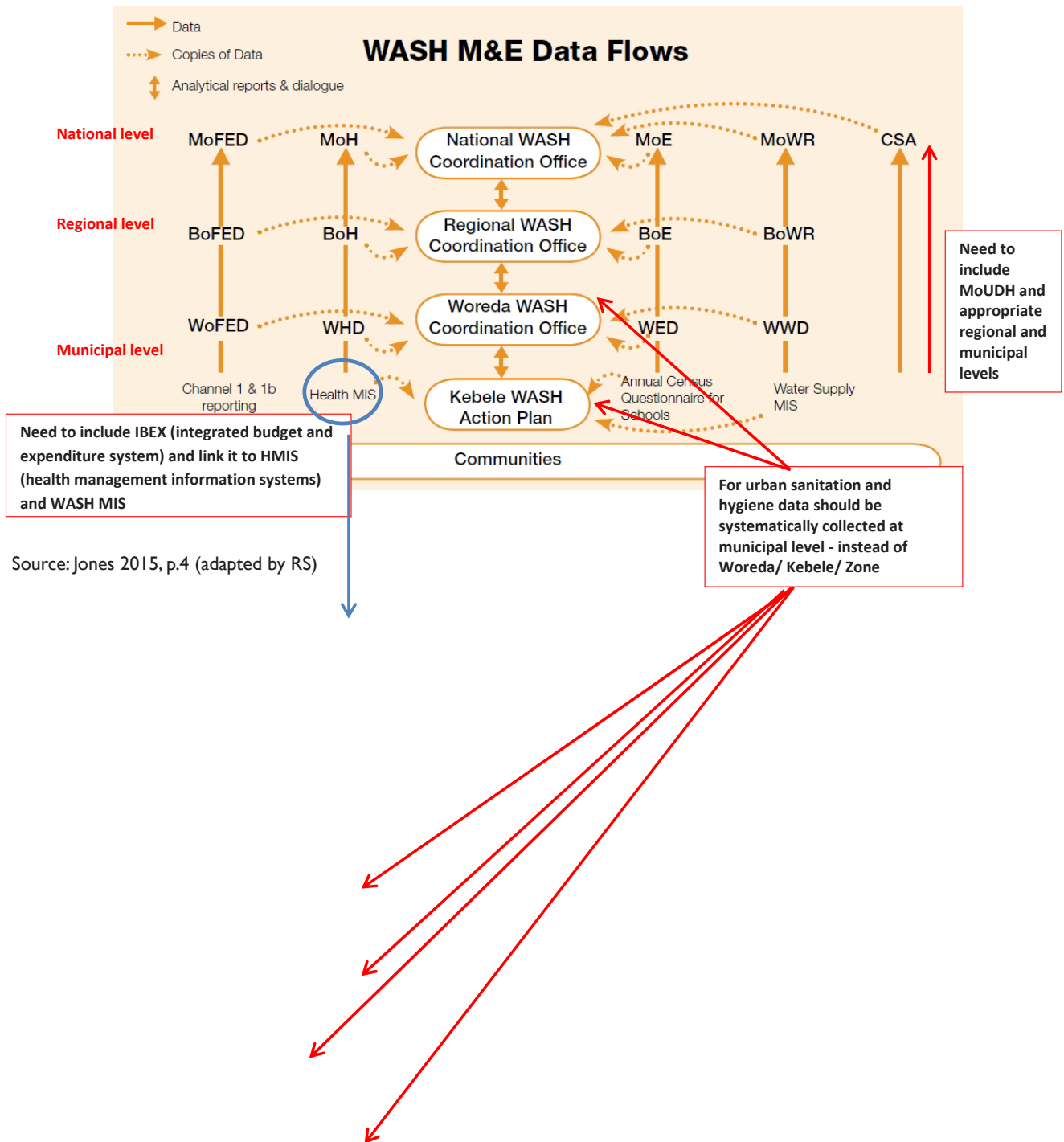
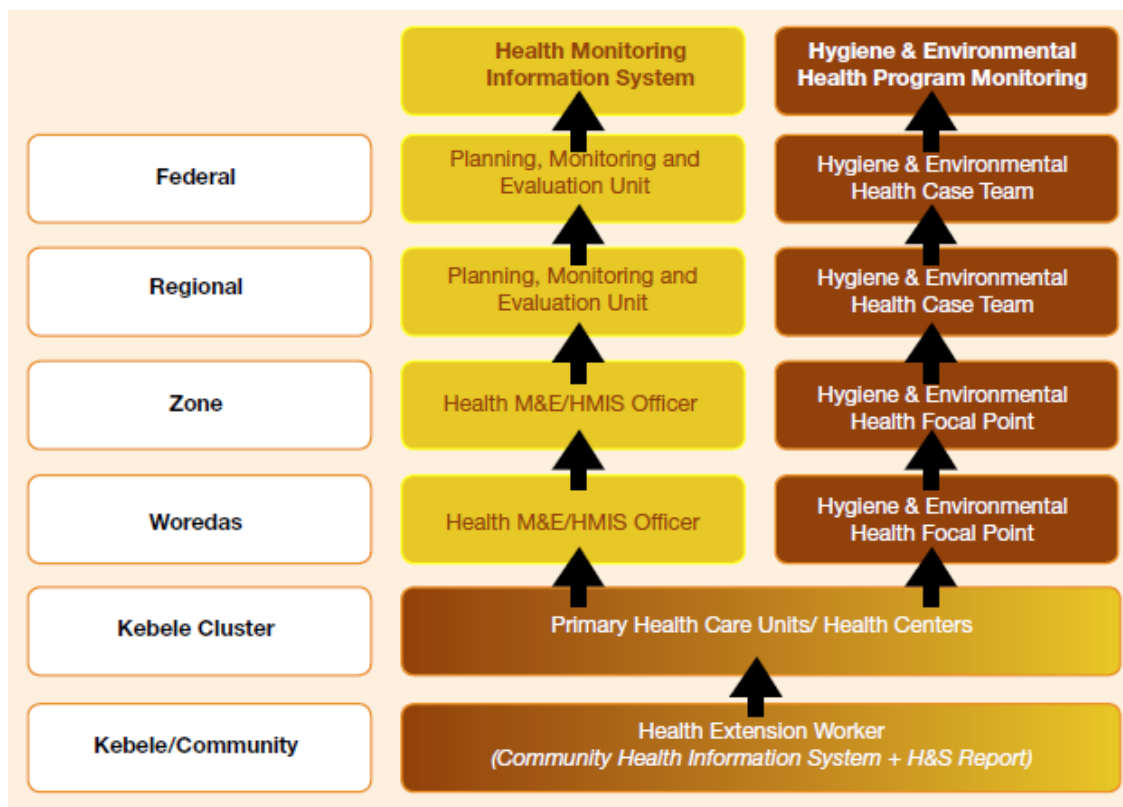
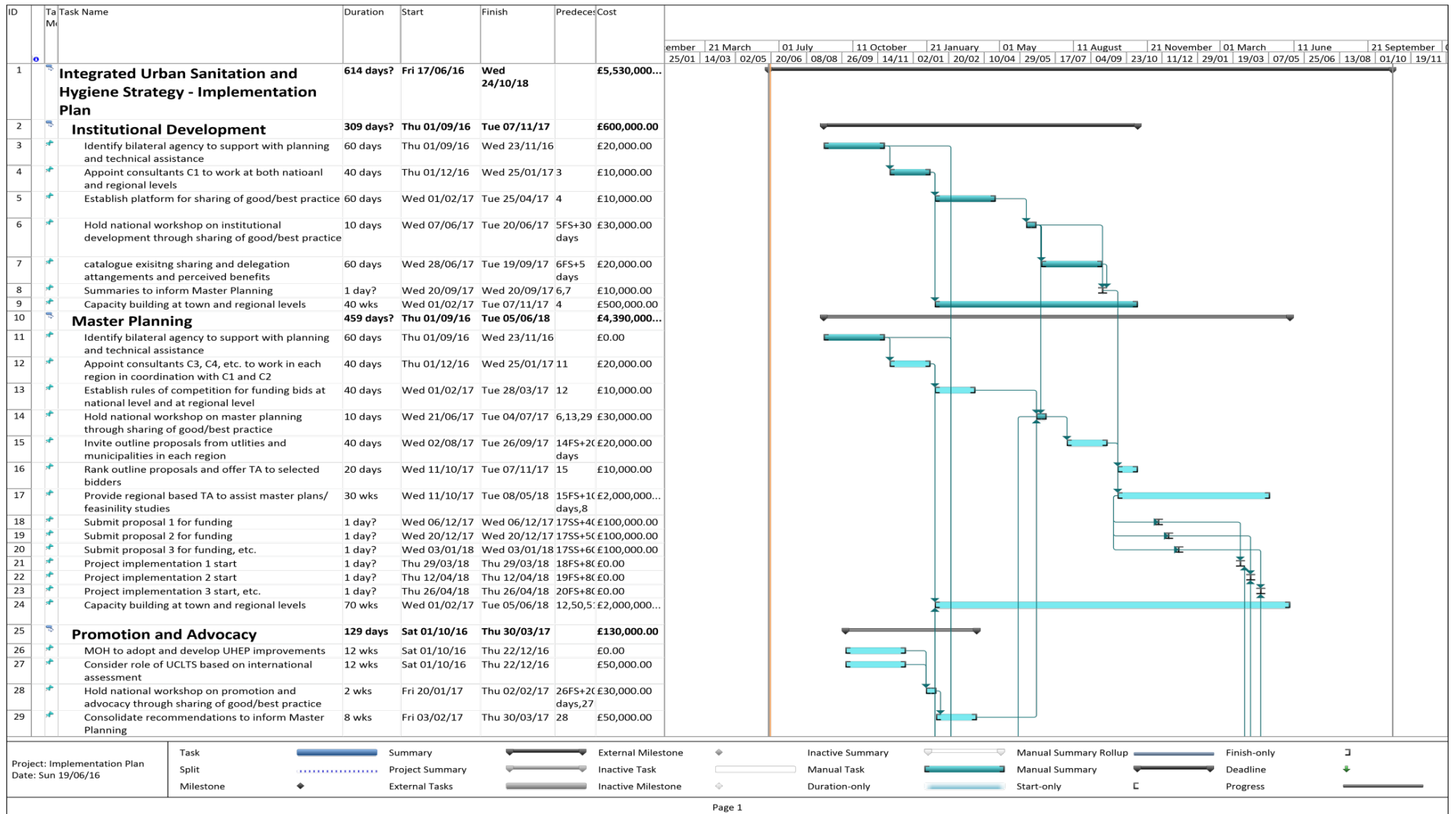


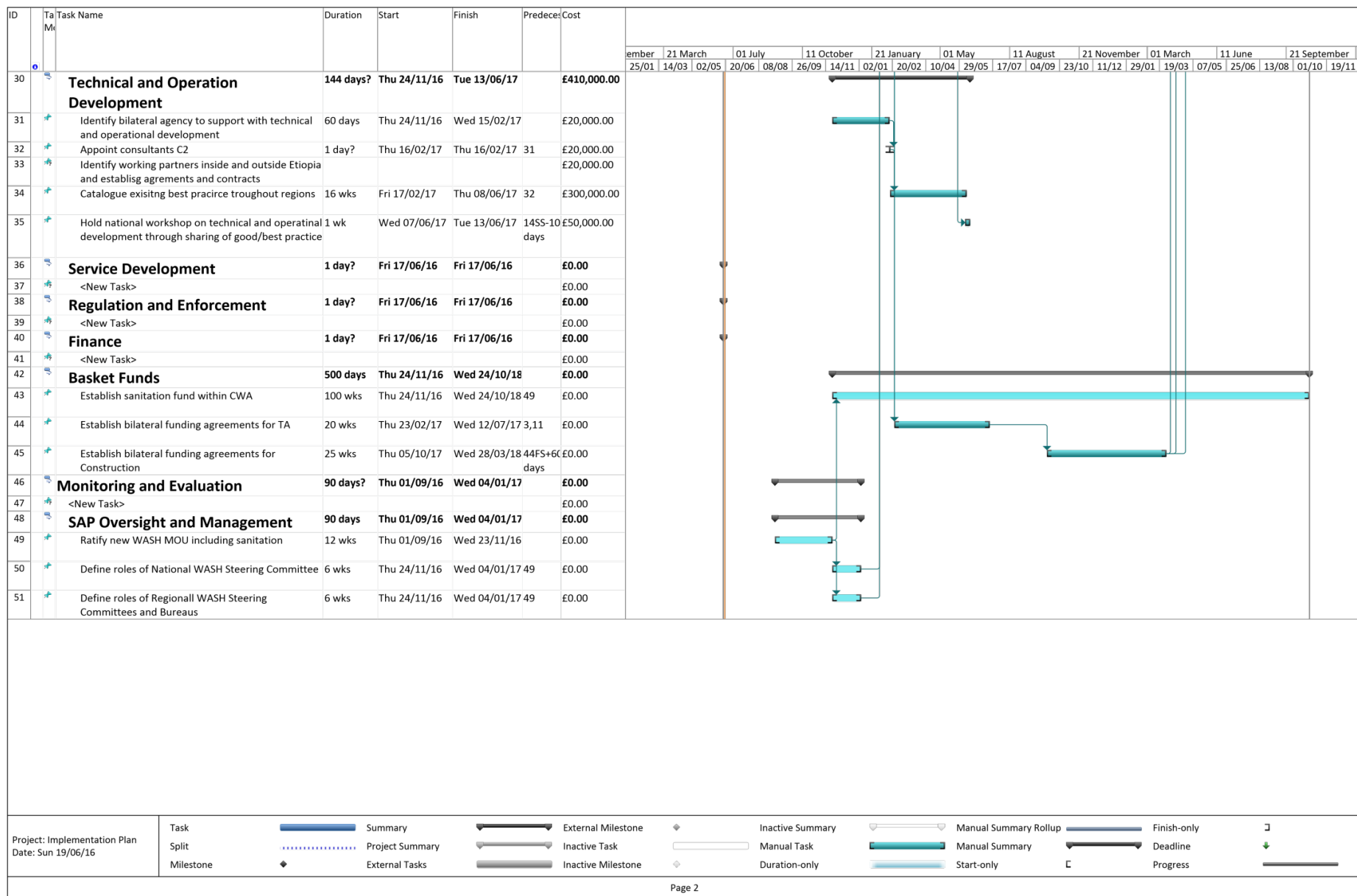
Figure 11.3: Data flow in HMIS and Hygiene & Environmental Health Program Monitoring System



Source: Jones 2015, p.4 (adapted by RS)

Annex 8: Example Project Plan for the SAP





A large teal circular graphic element, partially cut off at the top and right edges, with a white border. It contains the text 'IUSHS' and 'SAP-A' in white.

IUSHS
SAP-A