Federal Democratic Republic of Ethiopia

IUSHSAP-IG

INTEGRATED URBAN SANITATION AND HYGIENE STRATEGY ACTION PLAN -IMPLEMENTATION GUIDELINES

APRIL, 2017

ADDIS ABABA

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Contents

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
IUSHSAP	Integrated Urban Sanitation and Hygiene Strategy Action Plan
IUSHSAP-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 M&E	Water Supply Sanitation and Hygiene Monitoring and Evaluation
WEEE	Waste electrical and electronic equipment
WMS	Welfare Monitoring Survey
WRDF	Water Resources Development Fund
WSUP	Water Supply and Sanitation for Urban Poor

1. Introduction

1.1 Background

This document, **Integrated Sanitation and Hygiene Strategy Action Plan - Implementation Guidelines (IUSHSAP-IG),** is intended to be read in conjunction with the **Integrated Sanitation and Hygiene Strategy Action Plan - Actions (IUSHSAP-A)** which contains specific actions to be carried out under the Integrated Urban Sanitation and Hygiene Action Plan (IUSHSAP)

The **IUSHSAP-IG** gives further important information, intended to benefit users of the SAP, on how to apply the SAP as well as further information gathered since the Situation Analysis and the Strategy were issued. Both documents may be understood to comprise the **Integrated Urban Sanitation and Hygiene Strategy Action Plan (IUSHSAP).**

These Implementation Guidelines, **IUSHSAP-IG**, may be elaborated further following acceptance of the SAP and preferably following consultation between the five government ministries listed above (but also including the Ministry of Finance and Economic Development), WRDF and potential external financiers such as AfDB, JICA, DFID, UNICEF, WB, USAID, AUSAID, etc. It is also understood that EIB is a potential contributor to WRDF loan facility.

It should be emphasized that investment in sanitation in Ethiopia is essential for the country to meet its development objectives. As an illustration, it has been estimated that for every US$1 invested, achieving the universal sanitation access in the non-OECD countries would result in a global return of over US$10[1]. It is clear that achieving the IUSH Strategy Targets will not

[1]Economic Aspects of sanitation in developing countries by Hoang Van Minh and Hung Nguyen-Viet (an article posted on the US national library of medicine ,institute health website)

only save lives and improve health, particularly for the most vulnerable (children, poor and marginalized), but will also provide a foundation for economic growth that will help Ethiopia achieve middle income status by 2025.

1.2 The SAP explained

Refer to IUSHSAP-A for main text.

Crucial to large city and town development is how to dispose of and treat sewerage, particularly from new high rise dwellings and commercial premises. Sewerage and waste water treatment construction for 6 large towns and planning for a further 30 towns has been included under GTPII, as described in **Sub-section 2.3**below. Current average per capita water consumption is less than 30 l/p/d in most cities and towns, even in Addis Ababa, so that the GTPII also includes plans to increase reliable water supply in these towns to 100l/p/d including allowance for NRW and all requirements for industry and commerce. It is clear that only in those towns that will have a good water supply by 2020 could be considered for new, or expansion of existing, centralised sewage systems under GTPII.

The original Strategy targets included 200 decentralized liquid waste units (or decentralised waste water treatment systems DEWWATS) within the 2016-2020 timeframe (see **Sub-section 2.2**). Under the SAP this target has been reduced to 33 DEWWATS within the 2016-2020 timeframe (see **Sub-section 10.1** following introduction of centralised WWTPs under GTPII. The criteria around DEWWATS design, installation, operation and re-use of treated effluent are at an early stage. This will be a clear challenge for municipalities and utilities and it will be necessary, as part of master planning and feasibility studies (**Section 4**) and technical and business development (**Section 6**), to explore and evaluate possible business models around decentralised waste water treatment.

GTPII also includes construction of standard solid waste landfills and

provision of solid waste management services in cities having 20,000 or more population. The SAP presents a strategy to improve urban waste management (**Section 7**).

The details of how this required funding will be provided by internal budgets, from federal and regional grants, from IFI grants and from loans will be one of the functions of the National and Regional WASH Steering Committees. Expanding on this, funding may come from various sources, but perhaps in order of priority:

1. Utilities revenues
2. The municipalities themselves
3. Loans, such as through the WRDF
4. Regional governments
5. Federal government budgets
6. Grants, from development partners, such as through a Sanitation Fund or through OWNP
7. NGOs
8. Communities

"Loans" are high on this list since they are generally a more reliable source of funding than grants or annual government budgets. However, loans can only be accessed if there are robust business plans in place that can generate revenues, including guaranteed subsidies, which exceed the combined operation and maintenance costs for water and sanitation. The surplus can be used to pay interest on the loans as well as capital repayments.

1.3 Who should use the SAP?

It is strongly recommended that the draft SAP should be reviewed by existing and potential funders towards sanitation, in addition to federal and regional

government ministries, since they will likely have views on, for instance, the roles that institutional development (**Section 3**), thorough master planning (**Section 4**), advocacy (**Section 5**), service delivery mechanisms (**Section 7**) and monitoring and evaluation (**Section 11**) can play in putting "bankable" financially and environmentally sustainable projects on the table.

In order to link the SAP with the Strategy, approved in November 2015, each section or sub-section of this document starts with a table summary (in blue type) of the most relevant strategy components references to sub-sections included under Section 6 of the Strategy document. It is recommended that these tables are utilised to stay focused on, and not deviate from, what was included in the Strategy and endorsed by all five ministers.

The immediate application of recommendations contained in **Section 4**, master planning, is essential in order to get a string of environmentally and financially sustainable projects in line for, and to attract, funding. In order to understand the level of funding required for urban sanitation in Ethiopia over the next 10 years, then reference should be made to **Sub-section 10.1**.

Keeping of records on sanitation costs over the years has been sporadic at best. Also, since very few new sanitation projects have been initiated and appropriate technology and sustainable business models have not been developed, then there is little information on what individual systems will actually cost at town level. The master planning will therefore necessarily be based on best available technical knowledge, on voluntary informal sharing and on projected gradual changes on management structures and systems and take up of services.

Hence, in parallel with the master planning and roll out of new sanitation (and water) projects, then WaSH sector institutional/ economy of scale change processes need to be initiated (**Section 3**) alongside research and development related to new and appropriate technology and business models (see **Sub-section 4.4** and **Section 6**). The policies related to formal institutional changes need to be initiated at high level (top-down approach) but significant drive is anticipated to come from individual and groups of municipalities and utilities able to see the benefits with regard to investment

and service delivery (bottom-up approach).

Although **Section 6**, 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 business models will be longer term, will involve national and international universities and development bodies with the results shared through national and regional fora (**See Sub-section 6.6**).

Similarly, **Section 7,**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 bureaux either alongside or independent of master planning and applications for funding: This is because improvement in service delivery is the "raison d'etre",or core interest, of municipal and utility providers and such improvement should be a motive in itself without the "carrot" of development money (**Section 10**) and technical assistance (**Sub-section 4.10**).

All stakeholders should be interested in and be involved with monitoring and evaluation (**Section 11**) since without accurate, clear and concise feedback on the benefits gained from investment and progress towards achieving targets then there will be low investor confidence and low motivation at municipal and utility level for further initiatives and reforms.

2. Strategy Components and Targets

Refer to **Integrated Sanitation and Hygiene Strategy Action Plan - Actions (IUSHSAP-A)** for:

2.1 Strategy Components

2.2 Strategy objectives

2.3 Specific targets in GTPII

3. Institutional Arrangements (implementation modality, management and operations)

Table 3.1: Relevant sub-sections of the IUSHS:

Strategy sub-sections	*Summary extracts from Strategy Component*
6.2.2 and 6.2.3 Faecal Sludge Management (FSM) and (Domestic) Liquid Waste Management (LWM)	SMMEs may be contracted to take faecal sludge (and liquids) to decentralized transfer stations where primary treatment, such as bio-digestion, may take place. Secondary treatment, such as drying beds designed to kill pathogens and render the sludge suitable for safe land application, should ideally also be located locally within or close to the town to reduce costs. The equipment needed for FSM, whether manual or mechanical, should be developed for the specific conditions in the towns and should be based on a **business case supported by financial analysis.**
	The services can be provided either directly by the water and sewerage utilities or by delegated community based SMMEs and private entrepreneurs. The wastes should be collected and treated in a way that maximizes financial sustainability, re-use and meets environmental and health and safety criteria and in alignment with municipal planning.
	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 in terms of financial sustainability, community acceptance, health and safety, operations, **inter-department cooperation** (for instance, between the operator of the plant and users of treated products) and economic value.
6.2.4 Sharing of solid and liquid waste management services and delegated service delivery	**Solid and Liquid waste management will benefit from sharing of resources and services between several towns,** whereby economies of scale are achieved, for instance: □ For SWM, through (a) having one fleet of secondary collection vehicles able to serve many towns and (b) having one well run disposal site including resource recovery at scale □ For FSM and LWM, through (a) having common vacuum trucks (b) having overall management of centralized or decentralized FSM and liquid waste treatment sites within the cluster of towns and (c) organizing resource recovery and re-use at scale

6.2.4 Sharing of solid and liquid waste management services	Voluntary informal sharing of resources and facilities may be considered as an efficiency measure agreed informally between municipalities and utilities. **Longer term, formal clustering may be considered, but still done on a voluntary basis. Service Management Contracts (SMCs) would be signed between the asset owners, such as an "Association of Municipalities", and the "mandated operators" charged with delivery of services.** Incentives will be offered in terms of technical assistance to put in place required arrangements, help to prepare proposals for funding bids and fast tracking project implementation and uptake of services.
6.2.4 Delegated service delivery	**There are many advantages for the large operators to delegate some of their services to financially and physically ring-fenced 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 will 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 establishing a clear profit motive in order to both promote and deliver services. It will be advantageous to include employee incentive schemes in both SMCs and DSMCs to drive efficiency and improved levels of service. For instance, staff might receive a monetary bonus or other incentive for achieving high KPI scores in water and sanitation provision.
	Generally large private operators should only be considered once systems have been fully installed and financial sustainability has been clearly demonstrated, since private operators are not able to receive International Financial Institution (IFI) grant money and since private companies will be risk averse and likely to pass risk to customers in increased charges. **It is envisaged that a sanitation operator serving several adjacent towns would be publically owned.** In this way, charges can be controlled to ensure affordability but at the same time minimising outside subsidy for both CAPEX and OPEX.
6.2.6 Linkage between Water Supply and Sanitation	Water supply and (faecal) sanitation are inseparable and should be dealt with in an integrated manner There is generally greater consumer willingness to pay for a good water supply than for sanitation services. **This gives the potential for fertile technical and economic benefits of linking water supply and sanitation services.** Linking water supply and faecal sanitation services also give scope for economy of scale and cross-subsidy at the local level.
	However, most towns in Ethiopia have scarce water supplies, either through lack of water resources or through lack of installed capacity, or both. Sustainable exploitation of available water resources (supported by hydro geological capacity building), use of water saving facilities within buildings coupled with **local delegation of service delivery** (for instance, to achieve customer satisfaction and low levels of NRW) are all considered to be key complementary activities to achieve adequate, affordable and universal sanitation access and good hygiene practices.

6.4 Emergency urban sanitation	**The principle is that strong urban service providers, meeting both financial and environmental sustainability criteria, will be resilient to natural and manmade disasters and will be better able to mobilise for nearby emergency work.** Drought contingency may need to be a standard provision, such as in currently drought affected pastoral areas. There may also be potential for collaboration between urban service providers to provide support services to Government, UNHCR and UNICEF etc. working in nearby refugee areas, for instance.
6.9 Institutional arrangements for the implementation of the IUSHS	The main responsibilities for a proper sanitation service delivery are as follows: □ Liquid waste and faecal sludge management managed under the town water utilities. **The water utilities are expected to revise their structure and staffing plan to undertake their role** □ Solid waste management and drainage management, at town level, will remain the function of municipalities that may have a dedicated Solid Waste Management Agency/unit or process that fits to the level of the town. □ The institution responsible for SWM is expected to work closely with the water utility and health office
	□ The Strategy allows for outside Technical Assistance to help municipalities and utilities to come up with sustainable projects and management/ operational structures of such a quality that will attract Government and IFI grants and eventually more reliable long-term loans □ **Any possible institutional options that help improve the management of urban sanitation, such as Service Management Contracts, Delegated Management to private sector and micro enterprises and sharing/ clustering between service providers will be acceptable** □ The engagement of small scale micro-enterprises and private sector operators in liquid and solid waste management is to be promoted as part of job creation schemes
	• Hygiene promotion and communication is expected to be primarily the role of the health sector mainly delivered by competent UHEPPs • To maximize the impact and gradually improve the quality of facilities and services, and identify critical challenges, the health sector UHEP is expected to work closely in the community with local administrations, water utilities and SWM units • **Service delivery promotion is also expected to be driven by the service providers themselves motivated by financial sustainability as well as by regulation and professional intent**

Section 3of the SAP, Institutional Arrangements, meets the requirements of the Strategy Components as summarised in **Table 3.1**above. The Section also addresses all Targets ST1 to ST11 inclusive (as listed in **Sub-section 2.2**).

It 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, which is completely different subject from clustering (call it the "micro-level"): The clustered utility may delegate supply zones or activities for all the good reasons cited. The DSMC (see example **Annex 3.4**) 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 WASH 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.

Historically, water projects have received higher attention and are better funded, but by tying water and sanitation (including SWM) then, among other things, it will promote sanitation as an integral and indispensable WASH component and something that is essential for economic growth of Ethiopia.

There will be exceptions to this principle of tied funding; some towns have already completed their water projects and new funds should be aimed primarily at sanitation; in some cases funders are only interested in either water or sanitation, or in some cases just solid waste management.

An example from African country, Zambia, where annual ranking of clustered publically owned commercial service providers is carried out and achievement are recognised at national level: It is noteworthy that utility "MWSC" has achieved revenue levels at 134% of operation and maintenance costs which has put it in a position to borrow from the European Investment

Bank, a far more reliable source of funding than NGO, IFI or government grants. In this particular example, there is a National Regulator in place, but, although desirable, such competition should not be dependent on a regulator. Each Regional WASH Coordination Office and WASH sector Bureaux shall consider how best to organise competition between individual or clustered municipalities, and how to reward corporate and individual achievements. See also **Sub-section 6.6.**

4. Sustainability Master Planning

Table 4.1: Relevant sub-sections of the IUSHS:

Strategy sub-section	*Summary extracts from Strategy Component*
6.2.6 Linkage between Water Supply and Sanitation	**Water supply and (faecal) sanitation are inseparable and should be dealt with in an integrated manner.** There is generally greater consumer willingness to pay for a good water supply than for sanitation services. This gives the potential for fertile technical and economic benefits of linking water supply and sanitation services. Linking water supply and faecal sanitation services also give scope for economy of scale and cross-subsidy at the local level.
	However, most towns in Ethiopia have scarce water supplies, either through lack of water resources or through lack of installed capacity, or both. **Sustainable exploitation of available water resources** (supported by hydrological and hydro geological capacity building), use of water saving facilities within buildings coupled with local delegation of service delivery (for instance, to achieve customer satisfaction and low levels of NRW) are all considered to be key complementary activities to achieve adequate, affordable and universal sanitation access and good hygiene practices.
6.4 Emergency urban sanitation	The principle is that strong urban service providers, meeting both financial and environmental sustainability criteria, will be resilient to natural and manmade disasters and will be better able to mobilize for nearby emergency work. **Drought contingency may need to be a standard provision**, such as in currently drought affected pastoral areas. There may also be potential for collaboration between urban service providers to provide support services to Government, UNHCR and UNICEF etc. working in nearby refugee areas, for instance.
6.5 Capacity building	Technical assistance will be provided to municipalities and water and sanitation utilities which wish to harness the benefit from economies of scale and sharing of limited resources, expertise and procurement and which take on full responsibility for sanitation. Such applicants will be invited to submit proposals for institutional development and submit applications for funding towards sanitation. Guidelines for this change process and submission of applications will be prepared as part of the SAP. **The technical assistance will entail a significant element of capacity building**
6.7 Crosscutting Issues	Equity, Gender, Environment, Health and Safety, Private sector engagement, Community engagement and ownership and Sustainability, as detailed in the Strategy, all need to be included in the SAP approaches.

6.8 Sanitation financing and tariff setting	It is anticipated that efficiency measures, labour intensive appropriate technology and business planning should make operation of the upstream sanitation chain(solid waste door to door collection and pit latrine and cesspool emptying) and local FSM operations financially viable in the short term, provided that there are in place **appropriate, affordable tariffs and charges**, coupled with effective revenue collection and utilization of funds. However, capital intensive public toilets, SWM transfer stations, secondary long distance transport, proper solid waste disposal, decentralised waste water and faecal sludge treatment, and sewage conveyance and treatment will take longer to achieve full cost recovery.
	Sanitation operational costs will likely exceed direct revenue for some time and it is expected that **subsidies will be required** from other sources. SLF, or more localized forms of cross-subsidy, could be used to support downstream parts of the sanitation chains and reduce tipping and treatment costs. Low gate feesfor tipping and treatment charges should be coupled with carefully policing to reduce illegal dumping and consequential negative environmental and health impacts.
	Allocation of funds for urban sanitation to single or (voluntarily) clustered towns should be made available taking into account **quality of funding bids** and the **motivation to implement the necessary management and operational improvements required** to achieve sustainable service delivery. The funding application should have a high standard of preparation of programs and projects and the preparation has to have **economic, social, financial and tariff studies** included. In order to achieve this, the Strategy includes provision of Technical Assistanceto assist municipalities.
	All integrated urban sanitation programs are expected to perform **financial analyses of all potential options** in order to balance service delivery options (each with its own cost) against customer affordability, willingness to pay and expectations around value for money. Based on outcomes of the financial analysis, a **business plan** shall be proposed for individual parts of the sanitation chains that might be carried out by a single mandated operator or group of operators. The business plan will be based on the least cost option that fulfils the objective of sustainable services, complies with health and environmental targets and meets minimum customer expectations
	Demonstration of **financial sustainability,** which may include cross-subsidy from water revenue to sanitation service provision, is very important to **attract funding**: • For instance, the Water Resources Development Fund (WRDF) was established to finance water resources and sanitation projects which are ready to be financed under the "cost recovery" principle • To be eligible for financing, the sanitation project will be expected to be financially viable and economically sound • BoFEDs and the private sector might support (preferably sharing or clustered) municipalities and town water utilities with proposal preparation, so that they can qualify for loans from WRDF

	Tariffs for solid waste collection may be levied directly at the point of collection or may be recouped along with other municipal charges. **Discretionally tariffs** (for areas where sustainable tariffs have been introduced) may be best managed through delegation of operations to local community based operators who have more intimate knowledge of needs and hardship.

4.1 Introduction

Section 4 of the SAP, Master Planning, meets the requirements of the Strategy Components as summarised in **Table 4.1** above. It also addresses all Targets ST4 to ST11 inclusive (as listed in **Sub-section 2.2**).

4.2 Socio-economic analysis

As general guidance, socio-economic survey should consist of the following activities[2]:

- **Collection of data through survey questionnaires:** the questionnaires should be presented to randomly sampled residents and should be designed to generate, for instance, per capital water demand figures[3]; ranges in household income levels (to determine ability to pay); information on willingness to pay and the linked indicator of satisfaction with existing service levels[4]; sanitation and hygiene behaviours and attitudes; responsibility and willingness for community participation; etc. The questionnaires should be sufficient, along with other sources of information, to generate the required "outputs" (see below[5]). Note that surveys should be incorporated with baselines and regular surveys, as recommended in **Section 11**.

[2]Who will gather data?
[3]Can be included in national WASH inventory, conducted every few years, last one in 2014 by MoWIE
[4]Can be assessed in socio-economic survey. I suggest quesitons based on wealth assessment along the lines of the DHS wreath index for Ethiopia (http://www.dhsprogram.com/Publications/Publication-Search.cfm?ctry_id=65&c=Ethiopia&Country=Ethiopia&cn=Ethiopia)
[5]Surveys should be incorporated with baselines and regular surveys recommended in section 11.
Several surveys will be conducted (e.g. by MoH, MoWIE at municiapal level), but data should be consolidated, checked and managed by municipal WASH Office.

Several surveys will be conducted (e.g. by MoH, MoWIE at municipal level), but data should be consolidated, checked and managed by municipal WASH Office

- **Documentation gathering and review:** secondary data collection and review involves gathering and reviewing relevant documentation on similar previous studies done in similar socio-economic, geographical and political areas

- **Focus Group Discussions (FGDs):** this is a participatory method that gathers information aimed at arriving at consensus factors that affect the community; this approach qualifies and transcends individual opinions to wider communal facts. These discussions should involve more than one category of interviewees: For instance, FGDs might be carried out at Kebele and Katana administration levels but this should be complimented by randomly selected community members including elders, the disadvantaged, proprietors of commercial premises, informal sector workers, etc.

- **Data collection through in-depth interviews:** In-depth group and one-to-one interviewees should include utility heads, municipal planning departments, health departments, commercial and industrial management as well as Regional WASH Coordination Office and Regional WASH sector Bureaux heads etc.

Household surveys and FGDs should aim to include balance in terms of gender, disadvantaged (e.g. ethnic or religious minority, extremely poor), age, owner/tenant, mother/father, education levels, etc. The survey questionnaires yield "quantitative" data while FGDs and in-depth interviews yield "qualitative" data which will, in turn, aid interpretation of the quantitative data.

Outputs from the socio-economic survey work should be presented in tabular and chart form and should, as far as possible, include results on[6]:

[6]Questions should focus more on water, sanitation and hygiene as well as waste removal. I have added a few suggestions, but that's a non-exhaustive list. It will be up to the municipalities, to decide what information exactly they want to gather. In any case, I recommend to check what data is already collected in HIMS and National WASH Inventory.

(Note that this a non-exhaustive suggested list, but it should conform with what data is already collected in HIMS and National WASH Inventory (See also **Section 11**):

- Household occupancy
- Age of respondents
- Education attainment
- Occupation
- Sex distribution
- Ethnic/ religious distribution
- Marital status and sex of household heads
- Persons per household
- House ownership (tenant/ owner) and wealth assessment as per comment above
- Households with children
- Under 5's in household
- Sources of drinking and non-potable water
- Household expenditure
- Daily expenditures on water and daily water consumptions, disaggregated by purpose (drinking + cooking, personal hygiene, laundry, cleaning, other)
- Type of waste collection service used

- Weekly expenditure on solid waste collection
- Expenditure on fecal waste collection
- Proportion of household expenditure spent on water, solid waste and fecal waste disposal
- Walking time to water sources
- Gender roles and responsibilities with respect to water supply, solid waste and fecal waste disposal
- (Can be compared with per capita water demand included in national WASH inventory, conducted every few years, last one in 2014 by MoWIE)
- Fecal disposal system (OD, pit latrine, pour flush to tank, full sewerage)
- Pit latrine and tank emptying frequency and cost
- Who is emptying the pit and customer satisfaction with price
- Customer satisfaction with service levels.This can be assessed in socio-economic survey with questions based on wealth assessment along the lines of the DHS wreath index for Ethiopia
- Any seasonal factors affecting waters supply and waste removal (dry/ rainy season etc.?)
- Open question on, who, in the respondents view, can provide the best service for faecal and solid waste removal
- Willingness to pay versus ability to pay (based on household income[7]) This will need to be broken down into separate questions for water, solid/ faecal waste removal

[7]This will need to be broken down into separate questions for water, solid/ faecal waste removal, probably giving respondents options to choose from in the answer; also, ask whether they would rather spend money on other things like education, TV, mobile phone, care… that give you an idea of real willingness to pay.

- Ask whether respondents would rather spend money on other things like education, TV, mobile phone, care, in order to give a better idea of real willingness to pay

4.3 Cross-cutting factors

Voluntary Clustering (**Section 3**) 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. In this regard to preparedness for tackling manmade and natural disasters, the Disaster Risk and Response Management (DRRM) document prepared by the government shall be consulted. All manmade and natural disasters that lead to emergency situations shall all be considered, such as Flood, Drought, AWD (Acute Watery Diarrhoea), Migration, etc.

4.4 Appropriate and affordable technology

Worldwide developments in sanitary engineering technology have concentrated in recent decades or more and more sophisticated systems to cope with small footprints, due to increasing land cost and land unavailability in rapidly growing urban areas, and to comply with necessary increasingly stringent environment discharge controls for sewage and industrial effluents. There are three immediate effects of such technological advances: (1) Systems become very expensive to operate, a cost which might be unaffordable to consumers in many countries, (2) The systems rely on continuous reliable power supply, something currently not available in most Ethiopia urban areas, which means standby generators need to be installed, increasing further the operating costs, and (3) The required technological skills and local supply chains may not be in place to ensure reliable operations.

As stated in the **IUSHSAP-A**, this has certainly been the experience in Ethiopia and many other African countries to date. However, the urgent need to develop and use a range DEWWATS technical options on a large scale in Ethiopia, due to its medium rise housing policy, satellite housing

and industrial and commercial centres, country wide 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 (see **Sub-sections 1.2, Sub-section 2.2**and **Section 3**) 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.

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 master planning, inter-relationship agreements and contracts shall be drawn up between owners, operators and the users of recycled liquids and solids.

According to briefings given by AWSSA, until 2014 or so nobody in the sector was talking about DEWWATS in Ethiopia. The first clear study that attempted to recommend DEWWATs was the study conducted by Z&A P.ANTONAROPOULOS & ASSOCIATES S.A. in association with TROPICS CONSULTING ENGINEERS PLC (sponsored by AAWSSA) in 2014. See extract below.

"*A comparative analysis of the available wastewater treatment technologies, for the accommodation of the population in Ethiopia as undertaken by Z&A P.ANTONAROPOULOS & ASSOCIATES S.A. in association with TROPICS CONSULTING ENGINEERS PLC (sponsored by AAWSSA) in 2014, has revealed MBBR and EAAS to be comparatively suitable for areas with < 20,000P.Es. Moreover, the analysis has recommended conventional activated sludge system (CAS) and Moving bed biological reactor (MBBR) for 40,000-50,000P.E range while Conventional activated sludge system (CAS) has been recommended for 80,000-100,000 PE range*"

Appropriate and affordable Technology for solid waste collection also should be addressed. For instance small capacity motorized vehicles and communal solid waste container that do not require much effort to discharge wastes.

4.5 Economies of scale, sharing and delegation

The case for sharing between large and small towns was established at Strategy stage, has been further verified during in depth discussions with selected towns (See notes on town visits carried out in November 2014 as part of, and appended to, the Situation Analysis which has been clearly articulated in **Section 3**.

4.6 Formative Research

4.7 Financial analysis

Caution should be exercised when carrying out net present value (NPV) comparative option analyses which include long term operational costs; since this might lead to a decision to build a low capital cost project at the expense of high long term running costs (such as power consumption); usually a misguided decision particularly where grant or low interest loans are available.

Financial analysis for large projects is a specialist engineering discipline in its own right but for smaller scale delegated management operations quite simple models can be built, for instance to demonstrate to a small private or community operator that they can make a reasonable income while at the same time ensuring affordable and equitable tariffs. **Annex 4.5** is an example of a simplified model, in this case used for delegated water supply to 40,000 population area.

4.8 Tariff structures and phasing

The Ministry of Water have set tariffs for water supply based on progressive blocked tariffs comprising of 5 tiers. The first tier is allocated to low-income houses with water consumption lower than $5m^3$. However, the current overall water tariff revenues in most cases do not meet maintenance costs:

This may be due to inefficient equipment, non-cost effective operational procedures and systems, sub-economic tariffs, poor cost recovery due to low service levels (principally shortage of water) resulting in low willingness to pay, and in some cases possibly due to low revenue collection resulting from poor management systems and equipment.

Cost recovery of sanitation services, both FSM and SWM, is very poor. This is partly due to a low awareness or concern about sanitation, something to be vigorously addressed under the SAP: See, for instance, **Section 5** on advocacy and **Sections 1** and **Section 3** where it is recommended that new water projects be conditional on inclusion of sanitation in equal measure with water investment. It is also due to the fact that sanitation is regarded as a public service rather than as a business and all that implies in terms of cost-efficiency, management, promotion, customer satisfaction, etc.

A review of five towns **(Annex 1)** carried out in preparation for, and to further inform, the SAP revealed that vacuum trucks used to desludge cesspits and septic tanks charge based on volume but that these charges are not consistent. Also private operators generally charge considerably more that utility and municipality operators: This results in utility and municipality vacuum trucks suffering from poor maintenance and lack of spare parts, and high numbers "out of service" which further results in higher charges from private companies able to profit from a "seller's market".

One town (**Annex 1**) has set tariffs for household, water points, government institutions, industry and commercial institutions whereby the households are subsidised through higher tariffs set for non-domestic users. However, it is important not to lose sight of the two primary functions of industrial and commercial tariffs, charges and penalties which are (1) to ensure environmental protection and (2) to provide financial sustainability.

4.9 Funding bids

Voluntary informal sharing and later formal clustering (**Section 3**) is anticipated to significantly increase the strength of funding bids through

higher efficiency and related higher income to operational costs ratio. This will in turn increase customer willingness to pay and to use the service; thus improving the overall financial sustainability of service delivery and increasing investor confidence, whether on a grant or loan basis.

4.10 Technical assistance

The specific policy, institutional context and characteristics of the IUSHS and this SAP; that is, the pursuit of highly ambitious targets, the relative size and complexity of the sanitation programme, introduction of new roles and responsibilities at all levels, the existence of capacity gaps in implementation partners at all levels, the absence of a robust regulatory and monitoring framework and the promotion of new contracting modalities, technologies and construction methods in the Sanitation sector, make the provision of relevant and timely Technical Assistance (TA) an important element in effective SAP implementation, especially during the initial 5 year period but probably also beyond this period.

5. Promotion and Advocacy

Table 5.1: Relevant sub-sections of the IUSHS:

Strategy sub-section	*Summary extracts from Strategy Component*
6.1 Advocacy, Raising Sanitation & 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.

6.9 Institutional arrangements for the implementation of the IUSHS	**Hygiene promotion and communication is expected to be primarily the role of the health sector mainly delivered by competent UHEPPs .**To maximize the impact and gradually improve the quality of facilities and services, and identify critical challenges, **the health sector UHEP is expected to work closely in the community with local administrations, water utilities and SWM units**. Service delivery promotion is also expected to be driven by the service providers themselves motivated by financial sustainability as well as by regulation and professional intent.

5.1 Introduction

Section 5 of the SAP, Promotion and Advocacy, meets the specific requirements of the Strategy Components as summarised in **Table 5.1** above**.**

5.2 High Level Advocacy

No amount of written documentation on strategy and actions can bring about change by itself. Urban sanitation needs high level "champions" at both federal and regional levels. Preferably this should be a technically orientated individual or organisation with extensive knowledge of the water and sanitation sector and what is needed to implement and maintain financially and environmentally sustainable water and sanitation systems.

Examples of High Level Advocacy include for instance: (1)The leading water and sanitation sector reformist in Romania in the early 2000's was the head of the local International Water Association and ex-government water specialist who managed to persuade government of the needs and also to mobilize national and international funding; (2) The leading organisation in Zambia that sets targets, monitors achievements and promotes competition between the eleven regional public water utilities is the National Regulator, NAWASCO (See **Annex 3.4**).

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

Local level promotion should address to communities, schools, youth and women associations, Faith Based Organizations, community organizations like "Edires", homeless citizens.

5.4 Promotion of Service Delivery

6. Technical and Operational Development

Table 6.1: Relevant sub-sections of the IUSHS:

Strategy sub-section	*Summary extracts from Strategy Component*
6.2.2 and 6.2.3 Faecal Sludge Management (FSM) and (Domestic) Liquid Waste Management (LWM	All towns and cities have a mixture of pit latrines, septic tanks and cesspits. Very few have sewerage systems. Although properly designed latrines and septic tanks can be enforced through the building codes, it is difficult to force improvements to existing installations to make them hygienic, environmentally safe and easy to empty so that enforcement needs to be complemented by Advocacy packages. **Use of vacuum trucks may not be applicable and a range of financially sustainable business options for sludge (and liquid) collection, treatment and re-use need to be evaluated, including labour intensive technologies**
	Primary SMMEs may be contracted to take faecal sludge (and liquids) to **decentralized transfer stations**where primary treatment, such as bio-digestion, may take plac. Secondary treatment, such as **drying beds**designed to kill pathogens and render the sludge suitable for safe land application, **should ideally also be located locally within or close to the town** to reduce costs. The equipment needed for FSM, whether manual or mechanical, should be developed for the specific conditions in the towns and should be **based on a business case supported by financial analysis**
	Recent construction of **medium rise buildings** in large towns and cities has seen large cesspits installed to service individual or clusters of such buildings. Emptying these tanks may be difficult due to low availability of public vacuum trucks and high cost of private vacuum trucks. Sewerage may not be an option due to low availability of flushing water, land-take and cost. In these and in other developments such as government buildings, hospitals, universities, housing estates, office blocks, etc., **use of decentralized waste (water) treatment systems (DEWWATS), with safe re-use of the solid and liquid products, is being considered**
	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** in terms of financial sustainability, community acceptance, health and safety, operations, **inter-department cooperation**(for instance, between the operator of the plant and users of treated products) and economic value

6.6 Technical innovation, Research and Development	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. This requires close collaboration with universities and research institutes in the country. Sanitation facilities have not been provided for a significant minority, the differently-abled. Similarly, there has been little attention given to gender needs, specifically MHM. There is a need to explore, and **evaluate low cost options for sanitation facilities** located within private, public, communal, commercial and institutional buildings to cater for gender and vulnerability requirements
	Ethiopian cities and towns are all "water stressed", for one reason or another, and there is rarely enough water to operate conventional sewerage which relies on a very high water to solids ratio **This has resulted in proposals to use cost effective decentralized waste water treatment** systems based on research and replication and through a bottom up demonstration approach. However, development of decentralized waste water treatment (systems, (DEWWATS), with the associated ambition to provide safe products for re-use, is just one link in the sanitation chain
	Other parts of the sanitation chain (related to DEWWATS) require equal, if not more attention **An immediate and obvious task is how to convey treated liquid effluent from point of production within built up areas to the intended point of use,** which may be in green spaces and parks also located within or between built up areas. This throws up some significant **technical and land allocation issues related to pumping, pipelines, open conduits, co-use of storm drains, storage, etc.** It will also need agreements to be in place, based on unambiguous contractual arrangements, for the sharing of costs and benefits between stakeholders
	Finding **cost effective ways of emptying pit latrines**(used by the majority of urban residents) and small household (usually leaky) cesspools is an important part of the strategy. As regards solid waste management (SWM), the technologies for the operation of large waste disposal sites are well documented. **Professional expertise**(related to SWM) such as hydrogeological, hydro-chemical, civil engineering, environmental health, mechanical engineering and project management inputs and, of course, capital for initial construction and mechanical equipment and a revenue stream to pay for the sustainable maintenance and operations costs will be required

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**above. 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**above).

6.2 Manually operated systems

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 unsustainable. Manually operated desludging systems with the use of small motorized pumps or gulpers (See also **Sub-section 4.4**) could be introduced to Ethiopia by building on the lessons learned in other parts of Africa.

It is considered that the cultural barriers to using manually operated sludge pumps and sealed transportation drums OWNP OpenWASH training manuals, could be tackled, first, through visits to locations where such appropriate technology is operating successfully (as recommended under sharing good practice, **Sub-section 6.6**) and, second, through setting up demonstration projects within Ethiopia. Another key to success would be the demonstration of health and safety of the crew as well as attractive remuneration packages clearly tied to productivity.

FSM transfer stations may involve primary treatment of faecal wastes through anaerobic treatment or through other technology developed under DEWWATS research. These stations will be within built up areas and must be capable of passing ESIA requirements. 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. Where drying beds are remote from transfer station or point of sludge generation, then the high cost of vacuum trucks for transfer has to be factored into the business models.

The low impact on residents in terms of health and safety and odour related to the construction of local transfer/ primary treatment and small engineered drying beds within or on urban boundaries (to reduce transport costs) can also be established through demonstration projects. Side by side with manually operated desludging system, the use of donkey and horse pulled carts for transporting sealed containers of sludge to the transfer/ primary treatment stations shall be promoted wherever appropriate.

6.3 Centralized treatment

It should be emphasized that centralized systems rely on constant reliable large quantities of water being available to flush toilets and keep solids moving in the sewers. MoWIE have indicated that water supply systems should include for provision of at least 60 l/c/d to allow for flushing. It should be noted that "provision of at least 60 l/c/d" 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.

6.4 Decentralized treatment

It is understood that various sophisticated DEWWATS technologies such as use of membranes and and compact aeration systems, which all require high energy input and high maintenance costs, are being introduced or trialled in Addis Ababa (Sub-section 4.4) This level of technology may be necessary in large cities where open spaces have been built on (often in contravention of planning laws[8]). However, where space is available, such as in many new condominial developments, commercial parks and in medium sized towns, then less mechanised systems should be researched and trialled. These might include multi-chamber septic tanks, up-flow gravel filters, reed beds, aerated ponds, and, where ground and hydrogeological conditions permit, soakaway trenches.

[8]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

A checklist for design of DEWWAT systems should include: ownership of the systems; operational 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 consents; environmental and H&S impacts; etc. use of drains, among other transfer routes, as conduits for delivering treated liquid effluent to point of use.

Faecal Sludge Management FSM 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 sludge pumps 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 and can be covered by formative research approaches including demonstration of practices and understanding of benefits. The emphasis need to be on appropriate planning of business options for interested community based organizations and private entrepreneurs and companies.

As it is discussed above, Decentralized treatment technologies require open space especially in condominium sites. Therefore, MoUDH should ensure the availability of open spaces during design and implementation period. Moreover the choice of the decentralized treatment technology should consider the availability of smaller space in addition to other criterion.

6.5 Business models

"Water is business, sanitation is a service" is a general, and understandable, perception but it is a perception that needs to change if the goals of the Strategy (**Sub-section 2.2**) and the aspiration of GTPII (**Sub-section 2.3**) are to be met. Sewerage in Europe only manages to achieve financial and environmental sustainability through sewerage tariffs that are 120% of

water tariffs and under very strict environmental protection enforcement; even then it suffers failures and non-compliance. Achieving financial and environmental sustainability in the Ethiopian context will be a challenge given the poor starting point in terms of infrastructure, services and attitude (this latter to be addressed under the SAP through promotion and advocacy, see **Section 5**).

In many places around the world, pilot projects are set up to test technology but they may be too small to adequately test the business case, something that is often far more difficult than the technology to get right. "Demonstration projects" need to be of a size that will model reasonably accurately the business including infrastructure, management and equipment costs, etc.

This is not to say that the technology is unimportant – it is critical to pitch the level technical sophistication and service delivery levels just right to balance the books under the financial analysis; see **Sub-section 4**on master planning above for more detail on this.

As stated in the **IUSHS-**A, most importantly, the demonstration project needs 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

It is expected that technical and vocational training institutions, including universitiescould play an important role in addressing the documenting and sharing of good practice. As noted in **Sub-section 6.1**, 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. This requires close collaboration between municipalities, utilities, as well as Regional WASH Coordination Offices and Regional WASH sector Bureaux, with universities and research institutes in the country. These proposed meetings on sharing of good practice offer such fora for this collaboration to flourish.

1. Note on definitions

It is important to make the distinction between Good Practice and Best Practice. What is required are practices that are "good enough" to enable the delivery of acceptable levels of sanitation services and infrastructure. The very best practice may very well be more than is required to meet the required targets and not financially justifiable. For the sake of managing expectations it is important to make this distinction and to ensure that all who are involved understand the difference and what is realistically achievable. To provide an acceptable level of service, it is not necessary to be offering the best in the world!

2. Overview

For examples of good practice (GP) to be shared it is essential that the chosen examples are appropriately analysed and understood. For others to be able to replicate these examples they will need to appreciate fully what was achieved, how it was achieved, what the critical factors were that lead to success, what were the drivers for success, etc. The methodology included in **IUSHSAP-A** sets out an approach by which this can be achieved.

It should be noted however that the approach is proposed as an efficient method for sharing "one to many" i.e. of sharing and disseminating a single example with a wide group of interested parties. Where "one to one" sharing is required alternative approaches may be more efficient and more affective.

Other issue to consider

Who to work with?

Experience is that for the dissemination phases of such an initiative then peers of the participants should be engaged to deliver training workshops and seminars. The fact that participants are hearing about such ideas and are able to discuss them with people who they see as their equals and who they respect as people who understand their role and the challenges that they face contributes hugely to the way in which the messages and lessons being shared are received. This also helps to avoid the mind-set that is

often encountered when trying to share advice and good thinking in that people can turn away and say "…but it's different here", "…that won't work here because…". There will for sure be local factors that influence such discussions but generally people are not as unique as they think they are and there will be a lot of issues and challenges that are common. (See also **Sub-section 7.7** on capacity building.)

Who to target?

Identifying the appropriate level which should be targeted for sharing of GPs is an important judgement and different approaches may be required for personnel at different levels. However, it will be important to ensure that Directors and Senior Managers are aware of the essential information surrounding the different examples and are seen to be supportive. It is often the manager level that is actually responsible for driving change at the middle and lower levels. However when organising workshops and training events, it is very easy for them to say they are too busy to attend the whole event and to send junior staff in their place. Whilst it is important for junior staff also to understand the GPs they can be left frustrated if they feel that the decision makers are not on board or don't understand.

Levels of support required?

For any initiative such as the one described to succeed, there must be declared support from the highest levels and from regulators and influencers such as central government ministries and other national and regional bodies (see **Sub-section 5.2**). Opportunities should be identified at an early stage to get regulators (where they exist) and ministries directly involved in the process and wherever possible for them to be leading it. As a minimum any requests being made to bodies at the city level should be done with the expressed authority of the relevant central government body.

Under the SAP it is proposed that the drivers for change will be the National and Regional Steering Committees which will be responsible for promoting the IUSHS and all SAP Activities to municipalities and urban WASH utilities. In turn, change is expected to be led in part by initiatives from voluntary clustering of municipalities and WASH service providers (**Section 3**) ,

who may be eligible for Technical Assistance (**Sub-section 4.10**) to help carry out master planning and management and operational changes, based on good practices. This is expected to lead to "bankable" projects able to attract Regional, National and IFI funding, including loans. The TA would be expected to provide support and networking for the sharing of GP.

Levels of sharing GP

Ethiopia is a vast country with varying ethnicity, geographical conditions and WASH practices. There is already some limited informal clustering of large and small towns where ideas will be shared (**Section 3**). The next level up would be sharing and meetings at Regional levels. It is also understood that there are yearly or twice yearly meetings between water and sanitation utilities at the National level.

All three levels could be used for sharing of good practice: For instance, at the cluster level, the large town laboratory staff can train small town staff to test water samples regularly for bacteria and chlorine residual. At the Regional level, it might be appropriate to share financial models that can be used by SMMEs to improve solid waste collection and pit emptying services. At the National level, critical research can be shared on Decentralised Waste Water Treatment Systems (to serve condominium medium rise developments) that are financially, operationally and environmentally sustainable.

What will motivate adoption of GPs?

Having a clear understanding of what will motivate or incentivise decision makers at the city level and structuring interventions to connect in some way directly to those motivations will help considerably to achieve success of the intervention. The ultimate motivator for many is funding. Creative ways could be sought to link the adoption of good practices to funding streams (See **Section 4** on master planning). Strategies such as the city ranking initiative in India can also work well to generate interest, reward success and stimulate a sense of competition between cities.

7. Service Delivery

7.1 Introduction

Service Delivery is of key importance to the Strategy and hence it has a whole section devoted to it, even though this repeats some of what is stated in other sections: The target audiences for service delivery are the (possibly clustered) municipalities and utilities, so this **Section 7** is dedicated to this audience. Probably most important is that service providers are motivated to do their job and serve their customers as best they can irrespective or outside assistance.

7.2 Solid Waste Management

Table 7.2.1: Relevant sub-sections of the IUSHS:

Strategy sub-section	*Summary extracts from Strategy Component*
6.2.1 Solid Waste Management (SWM) Service Delivery and Hazardous Waste Handling (HWH)	Household, institutional and commercial producers of solid waste should **separate organic, plastic bottles and metal wastes** using three different storage containers. This will be achieved through provision of the necessary containers by the public and private sector service providers. For **primary collection** from household to common collection bin or waste collector trucks **use of small, medium and micro enterprises (SMMEs) may be continued but various measures need to be put in place**: • **Contractual arrangements** such that SMMEs are fully accountable for cost effective service delivery • **Cost recovery** is raised from the current extremely low level to one of full operational cost recovery • It may also be appropriate for street sweeping to be handled by the SMMEs doing house to house collection in the same area
	A significant portion of the waste produced in Ethiopian cities and towns is organic so **composting should be promoted. Recycling** of metals, plastics, glass and paper has been done by the **informal sector:** This practice **should be strengthened** and expanded by training, technical and financial support as well as by linking the collectors to recycling companies, such as those producing furniture and clothing made from recycled plastics

	It is expected that both haulage (related to secondary collection and transportation) and final disposal will benefit **from economy of scale** through provision of services based on sharing between nearby large and small towns. Training and business planning and health and safety **should not be compromised just because a town is small.** So also **safety and environmental impact at the final disposal site should not be compromised.** The advantages for services based in sharing of resources and services between large and small towns become clear
	Land fill sites need careful planning; sanitary land fill needs **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, but the primary issues are **water and environmental pollution, health and safety, and operational efficiency.** A high standard of operational management is required to ensure strict control of 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
	Hazardous solid waste that includes health care waste, e-waste and industrial waste will be **handled separately from municipal waste** so as to reduce the risk of irreversible pollution from heavy metals, hazardous health care waste, etc. **Regulations will be enforced**; and financial penalties and high disposal charges will be implemented to encourage **in-factory processing and recycling of industrial wastes,** on the "polluter pays" principle
	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 (liquid) wastes** generated must receive **treatment at the production facilities** prior to disposal in a facility or 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
6.5 Capacity building	Basic training/orientation has to be organized at town level for all operational staff. **Training/orientation materials on health and safety, handling of waste, segregation of waste, adoption of technology and basics of regulation and enforcement should be developed** at the federal level or by regional responsible institutions. Medium and short-term training aimed at generating technical and professional staffs and leadership will be organized with different educational institutions. Technical and vocational training institutions are expected to play an important role in addressing the technical gaps

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** above. The Sub-section also addresses Targets ST6 and ST7 (as listed in

Sub-section 2.2above).

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 will enable the Ministry of Urban Development and Housing (MoUDH) to meet the ambitious standards set out via Proclamation (513/2007). However, both the targets set under the Strategy (**Sub-section 2.2**) and plans included under GTPII (**Sub-section 2.3**, **Sub-section 9.1** and **Sub-section 10.1**) as well as ongoing projects recognise that full compliance will take some time. One of the most critical factors, as discussed below, is how to finance and maintain SWM final disposal sites, given the poor recent history where six out of 9 new engineered disposal sites have now reverted to open dumps.

As with all aspects of sanitation, there is a need for advocacy and to raise the sector profile with regards to SWM. Greenery/beautification ambitions for towns and cities have been seen as possible avenues both for awareness raising and for fund raising. A beautification campaign linked to the beautification arm of the MoUDH and other city-wide initiatives on Clean/Green Cities shall be developed as part of the master planning to be carried out by individual and clustered municipalities and utilities (**Section 4**). As stated in **Sub-section 6.4**, 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, needs to be stopped[9].

It is considered (**Section 3**) that informal sharing by, and eventual formal clustering of, municipalities to improve SWM through economy of scale and sharing of skills and other resources has the potential to greatly improve financial and environmental sustainability.

There is a need to reduce waste at source through improved waste segregation and composting using the concept of "3Rs" (Reduce Reuse Recycle). The waste shall be segregated into organic, recycling and non-

[9]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

recycling waste. It is expected that the smaller towns will have a higher proportion of organic waste suitable for composting as compared to larger towns, so for smaller towns localised small scale manual composting or organic waste and small scale recycling initiatives shall be set up by SMMEs and with support from MFIs.

For larger towns the private sector can be involved in collection, transport and recycling of waste at settlement level. Support will be required for business planning (**Sub-section 6.5**) for SMMEs including: technology development, costing, financial modelling, delegated service management contracts, price setting and customer liaison, etc. It is also important that the role of the large informal sector engaged in SWM and recycling, such as *Korealias*, is recognised and included in business planning, H&S training and capacity building, as a cost effective means towards both sanitized towns and job creation. Municipalities and regional bureaux 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. Reference may be made to Section 11 of the guidelines provided by the National Urban Solid Waste Management Standards (2014) which highlights best practice for recycling. Good 3Rs examples from around Ethiopia, for instance, those involving initiatives such as the processing the organic fraction of solid waste in at least two towns, should be shared formally and informally within and between regions (**Sub-section 6.6**). Regional bureaux 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. Once DEWWATS (**Sub-section 4.4**and **Sub-section 6.4**) are installed then drains, among other transfer routes and depending on master planning and environmental impact considerations, may be used as conduits for delivering treated liquid effluent to point of use; under these conditions it will be essential to ensure that drains are kept free of solid

waste. Promotion and advocacy approaches to ensure that this happens are covered in detail in **Sub-section 5.3**.

All primary collection, sorting and recycling of waste should be financially sustainable and demonstrated through master planning (**Section 4**). However, 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. Municipalities may use resources generated from various revenues and taxation to subsidise direct revenues from solid waste management service delivery. The master planning exercise should include for generation of revenues, at full cost-recovery levels, from upstream activities at household, industrial, commercial and institutional levels and allow for subsidies further down in the sanitation chain where costs of equipment and environmental protection are high and to avoid illegal tipping outside of disposal sites.

Secondary stage SWM**,** such as management of transfer stations and secondary transportation, may be performed by SMMEs or private contractors depending on the size and number of clustered municipalities and local conditions. This shall involve business planning which includes economy of scale considerations, secondary separation, storage and re-use routes, cost recovery based on financial modelling, delegated service management contracts, tendering, cross subsidies, labour conditions, H&S, community liaison, etc.

Individual and clustered municipalities shall, as part of master planning (**Section 4**), develop plans for safe final processing and disposal**,** including business planning, economy of scale factors, cost recovery based on financial modelling (**Sub-section 4.7**), daily management of tipping and plant movements, environmental protection, community participation, H&S of workers and public, delegated service management contracts (**Section 3**) for SMMEs or private enterprises, tendering, tertiary separation storage and re-use routes, cross subsidised gate fees to avoid illegal dumping, etc.

Discussions with the MoUDH have highlighted that, in addition to enforcement, operation and maintenance at landfill sites is a key challenge. Out of the nine landfill sites established at Bishoftu, Dire Dawa, Kombolcha, Mekele, Addis, Dilla, D/markos, Adma and Hawassa only Mekele, Kombocho

and Dire Dawa are functioning as landfill sites. The others have reverted to open dump sites.

A key challenge noted is that these sited were constructed with donor funding which includes capex but obviously not on-going operation and maintenance costs; these costs have to be secured though tariffs and charges as well as through cross-subsidies from other municipal or utility revenues. Such operational costs shall be included in master planning exercises that include financial analysis and appropriate and affordable business models (See also **Section 4** and **Sub-section 6.5**).

7.3 Hazardous Waste Management

Table 7.3.1: Relevant sub-sections of the IUSHS

Strategy sub-section	*Summary extracts from Strategy Component*
6.2.1 Solid Waste Management (SWM) Service Delivery and Hazardous Waste Handling (HWH)	**Hazardous solid waste** that includes health care waste, e-waste and industrial waste will be **handled separately from municipal waste** so as to reduce the risk of irreversible pollution from heavy metals, hazardous health care waste, etc. **Regulations will be enforced**; and financial penalties and high disposal charges will be implemented to encourage **in-factory processing and recycling of industrial wastes, on the "polluter pays" principle**
	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 (liquid) wastes generated must receive **treatment at the production facilities or centralized treatment facility** prior to disposal in a facility or in a manner approved by the municipal authority/ MoEFCC 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

6.10 Regulation enforcement	Good regulation of urban sanitation and hygiene requires enforcement capacity. Public urban sanitation and hygiene sector actors, especially those at the city/town level need to be **aware of the existing regulations,** its enforcement and follow up mechanisms at all levels. Enforcement of existing regulation has to be addressed through **negotiated agreements with individual industries and staged mitigation**, applying the polluter pays principle, backed by clear threat of penalty through legal enforcement institutions

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**above. The Sub-section also addresses Targets ST8 and ST9 (as listed in **Sub-section 2.2**above).

It should be recognized that getting industries in particular to carry out full on-site treatment will be difficult due to commercial and often political reasons. For instance, imposition of harsh penalties might force an already struggling industry to close down. The loss of jobs to a small urban community, the effect on the local and possibly national economy and the political backlash would be unacceptable. Hence change will need a transition period, but with a fully agreed (by all parties) and documented transition plan, enforceable under threat of severe penalty. Such agreed transition plans are common worldwide; it is far better to achieve change through agreement rather than solely through enforcement.

A major argument for industries to "clean up their act", one that has been demonstrated through economic analysis many times, that may be used in negotiation is the economic benefit of resource recovery. For instance, reducing the amount of costly (polluted) water discharged to drains and instead treating and recycling it can save a lot of money. Similarly, recovering heavy metals such as cadmium and lead can also result in significant production costs and raising the industry's competitive edge. Organic vegetable wastes can generally be turned into something useful; co-composting with human fecal waste (See **Sub-section 7.4**below) for instance under controlled conditions will produce a valuable and marketable soil conditioner.

7.4 Faecal Sludge Management

Table 7.4.1: Relevant sub-sections of the IUSHS:

Strategy sub-section	*Summary extracts from Strategy Component*
6.2.2 and 6.2.3 Faecal Sludge Management (FSM) and (Domestic) Liquid Waste Management (LWM)	All towns and cities have a mixture of pit latrines, septic tanks and cesspits. Very few have sewerage systems. Although properly designed latrines and septic tanks can be enforced through the building codes, it is difficult to force improvements to existing installations to make them hygienic, environmentally safe and easy to empty so that enforcement needs to be complemented by Advocacy packages. Use of vacuum trucks may not be applicable and **a range of financially sustainable business options for sludge (and liquid) collection, treatment and re-use need to be evaluated, including labour intensive technologies**
	Pit latrines need to be emptied on a regular basis dependent on the number of users so as to avoid overflow: Full pits may drive users to open defecation or may result in illegal dumping of pit contents **Septic tanks, which comprise baffled tank with soakaway, need to have solids removed on a regular basis dependent on the number of users. Cesspits are enclosed tanks where all solids and liquids have to be removed on a weekly or monthly basis dependent on the number of users**. In practice, household cesspits are likely to be illegally constructed as "leaky" so as to reduce prohibitive costs of tankering all liquids along with the solids
	All urban dwellers should have access to and use of safe and hygienic sanitation facilities and arrangements so that no one defecates in open places. In order to achieve this goal, construction of **communal and public latrines** will be required. The aim is that one communal latrine should not be used by more than, in principle, five households (this does not meet SDG requirements but is a practical first step)
	Primary SMMEs may be contracted to take faecal sludge (and liquids) to decentralized transfer stations where primary treatment, such as bio-digestion, may take place. Secondary treatment, such as **drying beds** designed to kill pathogens and render the sludge suitable for safe land application, **should ideally also be located locally within or close to the town** to reduce costs. **The equipment needed for FSM, whether manual or mechanical, should be developed for the specific conditions in the towns and should be based on a business case** supported by financial analysis
	The services can be provided either directly by the water and sewerage utilities or by **delegated community based SMMEs and private entrepreneurs.** The wastes should be collected and treated in a way that maximizes financial sustainability, re-use and meets environmental and health and safety criteria and in alignment with municipal planning

	Recent construction of **medium rise buildings** in large towns and cities has seen large cesspits installed to service individual or clusters of such buildings. Emptying these tanks may be difficult due to low availability of public vacuum trucks and high cost of private vacuum trucks. Sewerage may not be an option due to low availability of flushing water, land-take and cost. In these and in other developments such as government buildings, hospitals, universities, housing estates, office blocks, etc., use of **decentralized waste (water) treatment systems (DEWWATS), with safe re-use of the solid and liquid products, is being considered**
	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** in terms of financial sustainability, community acceptance, health and safety, operations**, inter-department cooperation**(for instance, between the operator of the plant and users of treated products) and economic value
6.2.4 Sharing of solid and liquid waste management services and delegated service delivery	Solid and Liquid waste management will benefit from **sharing of resources and services** between several towns, whereby economies of scale are achieved, for instance: □ For SWM, through (a) having one fleet of secondary collection vehicles able to serve many towns and (b) having one well run disposal site including resource recovery at scale □ **For FSM and LWM, through (a) having common vacuum trucks (b) having overall management of centralized or decentralized FSM and liquid waste treatment sites within the cluster of towns and (c) organizing resource recovery and re-use at scale**
6.6 Technical innovation, Research and Development	**Ethiopian cities and towns are all "water stressed",** for one reason or another, and there is rarely enough water to operate conventional sewerage which relies on a very high water to solids ratio This **has resulted in proposals to use cost effective decentralized waste water treatment** systems based on research and replication and through a bottom up demonstration approach. However, development of decentralized waste water treatment (systems, (DEWWATS), with the associated ambition to provide safe products for re-use, is just one link in the sanitation chain

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**above. The Sub-section also addresses Targets ST3, ST4 and ST5 (as listed in **Sub-section 2.2**above).

It should be noted that this **Section 7**cross-references to **Sub-section 6.5**where guidance is given on development of business models (see both

IUSHSAP-A and –IG documents). Also as stated, business models are part and parcel of sustainability master planning; see 4.1, 4.4, 4.7, 4.10, 5.4, etc.

There are currently only very few well managed sludge drying beds in a few towns like Kombolcha, Diredawa and Hawassa though the latter was is poorly located on top of mount Tabor. This situation needs to be rapidly improved as spelt out in this SAP since sludge treatment, reuse and environmentally safe disposal is a major cost component of sewage treatment anywhere in the world.

The low impact on residents in terms of health and safety and odour related to the construction of local transfer/ primary treatment and small engineered drying beds within or on urban boundaries (to reduce transport costs) can also be established through demonstration projects. Side by side with manually operated desludging system, the use of donkey and horse pulled carts for transporting sealed containers of sludge to the transfer/ primary treatment stations shall be promoted wherever appropriate.

7.5 Liquid Waste Management

Table 7.5.1: Relevant sub-sections of the IUSHS

Strategy sub-section	*Summary extracts from Strategy Component*
6.2.1 Lquid Waste Management (LWM) Service Delivery and Hazardous Waste Handling (HWH)	**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 (liquid) wastes generated must receive treatment at the production facilities prior to disposal in a facility or in a manner approved by the municipal authority or MOEFCC.** 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
	All towns and cities have a mixture of pit latrines, septic tanks and cesspits. **Very few have sewerage systems.** Although properly designed latrines and septic tanks can be enforced through the building codes, it is difficult to force improvements to existing installations to make them hygienic, environmentally safe and easy to empty so that enforcement needs to be complemented by Advocacy packages. **Use of vacuum trucks may not be applicable and a range of financially sustainable business options for sludge (and liquid) collection, treatment and re-use need to be evaluated, including labour intensive technologies**
6.2.2 and 6.2.3 Faecal Sludge Management (FSM) and (Domestic) Liquid Waste Management (LWM)	**Pit latrines need to be emptied on a regular basis dependent on the number of users so as to avoid overflow**: Full pits may drive users to open defecation or may result in illegal dumping of pit contents Septic tanks, which comprise baffled tank with soak away, need to have solids removed on a regular basis dependent on the number of users. **Cesspits are enclosed tanks where all solids and liquids have to be removed on a weekly or monthly basis dependent on the number of users. In practice, household cesspits are likely to be illegally constructed as "leaky" so as to reduce prohibitive costs of tankering all liquids along with the solids**
	All urban dwellers should have access to and use of safe and hygienic sanitation facilities and arrangements so that no one defecates in open places. **In order to achieve this goal, construction of communal and public latrines will be required.** The aim is that one communal latrine should not be used by more than, in principle, five households (this does not meet SDG requirements but is a practical first step)

6.2.5 Drainage	Drainage in the majority of the towns is limited to highway road sides. **In towns with undulating landscapes, local streams are often used as drains. The drains do not only carry rain water but also sewage/grey water from septic tanks and overflowing cesspits**, as can clearly be observed in Addis Ababa and other large cities, as well as from overflowing pit latrines. **This represents one of the biggest challenges as drains are often conveying wastes from different sources mixed up with rainwater.** It means that **particular attention needs to be given to localized sewage treatment and faecal sludge management** as described earlier
6.6 Technical innovation, Research and Development	**Ethiopian cities and towns are all "water stressed", for one reason or another, and there is rarely enough water to operate conventional sewerage which relies on a very high water to solids ratio** This has resulted in proposals to use cost effective **decentralized waste water treatment systems** based on research and replication and through a bottom up demonstration approach. However, development of decentralized waste water treatment (systems, (DEWWATS), with the associated ambition to provide safe products for re-use, is just one link in the sanitation chain

Sub-section 7.5 of the SAP, Liquid Waste Management, meets the requirements of all Targets ST4 and ST5 (as listed in **Sub-section 2.2**).

7.6 Institutional sanitation (schools, offices, health facilities)

Table 7.6.1: Relevant sub-sections of the IUSHS

Strategy sub-section	*Summary extracts from Strategy Component*
6.2.2 and 6.2.3 Faecal Sludge Management (FSM) and (Domestic) Liquid Waste Management (LWM)	**All urban dwellers should have access to and use of safe and hygienic sanitation facilities and arrangements so that no one defecates in open places** In order to achieve this goal, construction of **communal and public latrines** will be required. The aim is that **one communal latrine should not be used by more than, in principle, five households (**this does not meet SDG requirements but is a practical first step)

6.3 Institutional sanitation (including government offices and schools) and commercial premises	**School sanitation would be expected to fall under the Ministry of Education at regional level, health centre sanitation under the Ministry of Health at regional level and local government offices under local government structures.** It is the responsibility of these bodies to access funding (possibly through coordination with municipal funding applications) and to ensure compliance with guidelines and with environmental and health and safety regulations
	Responsibilities of government establishments are to ensure that sanitation facilities include child, gender and differently-abled (CGD) friendly water, toilet and hand washing (with soap station) facilities including menstrual hygiene management (MHM) areas. Properly established communication platforms and channels should be provided to raise awareness, particularly to adolescents on MHM issues. The schools must have waste pit facilities for compostable and non-compostable wastes within the school premises. **Responsibility of these government establishments also include religious places, markets, bus stations, prisons and food and drink establishments** (which should be obligated to keep their premises in a clean and hygienic condition

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**above. The Sub-section also addresses Targets ST1, ST2, ST3, ST5 and ST8 (as listed in **Sub-section 2.2**above).

Raising the awareness around, and condition of, sanitation facilities in schools and public offices, and even in health facilities where staff should be only too aware of the serious negative health effect of poor sanitation, particularly for the sick, children and vulnerable, is a very urgent target to be addressed by the SAP. Given the very poor starting point with teachers and even WASH utility managers seemingly unconcerned about the facilities that students and staff have to use, the transition will not be easy.

However, in terms of the country economy including absentee sickness and educational performance (particularly among girls) effort and investment in facilities (**Sub-section 10.1**) but even more in advocacy and promotion (**Section 5**) will yield, according to some sources, a "return" of up to 10 times the investment[10].

[10]Economic Aspects of sanitation in developing countries by Hoang Van Minh and Hung Nguyen-Viet (an article posted on the US national library of medicine ,institute health website)

Facilities located at religious place are the responsibility of the mosques/ churches/ temples to comply with building regulations, to provide for hygienic and safe operations and to ensure full cost recovery. Similarly, food and drink establishments are responsible for the facilities that they provide. It is to be noted (**Sub-section 5.3**) that areas around religious establishments and cafes are usually free of solid waste and toilets and wash facilities are often clean and acceptable. Obviously neither religious places nor commercial outlets want to lose either congregation or clients, and regard the areas inside and outside as their own "house" just as the majority of Ethiopian householders will keep her kitchen and toilet area spotless.

7.7 Capacity Building

Table 7.7.1: Relevant sub-sections of the IUSHS

Strategy sub-section	*Summary extracts from Strategy Component*
6.1 Advocacy, Raising Sanitation & Hygiene Profile, Behavioural Change Communication and Promotion of Service Delivery	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
6.2.4 Sharing of solid and liquid waste management services	Voluntary informal sharing of resources and facilities may be considered as an efficiency measure agreed informally between municipalities and utilities. Longer term, formal clustering may be considered, but still done on a voluntary basis .Service Management Contracts (SMCs) would be signed between the asset owners, such as an "Association of Municipalities", and the "mandated operators" charged with delivery of services. **Incentives will be offered in terms of technical assistance to put in place required arrangements, help to prepare proposals for funding bids and fast tracking project implementation and uptake of services**

6.5 Capacity building	**Technical assistance** will be provided to municipalities and water and sanitation utilities which wish to harness the benefit from economies of scale and sharing of limited resources, expertise and procurement and which take on full responsibility for sanitation. Such applicants will be invited to submit proposals for institutional development and submit applications for funding towards sanitation. Guidelines for this change process and submission of applications will be prepared as part of the SAP **The technical assistance will entail a significant element of capacity building.**
	All responsible institutions are expected to allocate budgets for capacity building. Extra resources required for such capacity building, outside of regional or municipal budgets, might be included as requests from individual, or preferably groups of, municipalities for technical assistance under competition for central and international funding**. Capacity building may include system development, financial analysis, procurement of facilities, operations, training of staff and development of leadership programs**
	Comprehensive assessment of the capacity of mandated institutions to deliver services and priorities identified (and capacity building) plans should be endorsed by the city and town administrations as part of a **comprehensive development plan for the mandated service providers**. **National fora for sharing of best practice will be promoted under the SAP** and can also be exploited for promotion of capacity building methods that work best in Ethiopia. Multi-regional and multi-town training sessions and workshops may also be organised
	Basic training/orientation has to be organized at town level for all operational staff. Training/orientation materials on health and safety, handling of waste, segregation of waste, adoption of technology and basics of regulation and enforcement should be developed at the federal level or by regional responsible institutions. **Medium and short-term training aimed at generating technical and professional staffs and leadership** will be organized with different educational institutions. **Technical and vocational training institutions are expected to play an important role in addressing the technical gaps**
	Universities could help in organizing tailored training for sub professionals and professionals. The proposed national Sanitation Steering Committee should identify universities to be "**centres of excellence**" on different aspects of sanitation management and link with regions and towns. **The National Steering Committee should develop operational modality of the training and possible financing mechanisms**

6.9 Institutional arrangements for the implementation of the IUSHS	**The Strategy allows for outside Technical Assistance to help municipalities come up with sustainable projects and management/ operational structures** of such a quality that will attract Government and IFI grants and eventually more reliable long-term loans. Any possible institutional options that help improve the management of urban sanitation, such as Service Management Contracts; Delegated Management to private sector and micro enterprises; and sharing/ clustering between service providers will be acceptable. The engagement of small scale micro-enterprises and private sector operators in liquid and solid waste management is to be promoted as part of job creation schemes.

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

7.8 Informal Sector

Table 7.8.1: Relevant sub-sections of the IUSHS

Strategy sub-section	*Summary extracts from Strategy Component*
6.2.1 Solid Waste Management (SWM) Service Delivery and Hazardous Waste Handling (HWH)	**Household, institutional and commercial producers of solid waste should separate organic, plastic bottles and metal wastes using three different storage containers.** This will be achieved through provision of the necessary containers by the public and private sector service providers. For **primary collection** from household to common collection bin or waste collector trucks **use of small, medium and micro enterprises** (SMMEs) may be continued but various measures need to be put in place: • Contractual arrangements such that SMMEs are fully accountable for cost effective service delivery • Cost recovery is raised from the current extremely low level to one of full operational cost recovery • It may also be appropriate for street sweeping to be handled by the SMMEs doing house to house collection in the same area
	A significant portion of the waste produced in Ethiopian cities and towns is organic so composting should be promoted. **Recycling of metals, plastics, glass and paper has been done by the informal sector: This practice should be strengthened and expanded by training, technical and financial support as well as by linking the collectors to recycling companies, such as those producing furniture and clothing made from recycled plastics**

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

As has been observed in visits by consultants in November 2014, the working conditions and negative health impacts suffered at solid waste dump sites, for instance, are appalling. The workers may include the most vulnerable and poor members of society. There is a lack of recognition, guidance on health and safety, fair payment mechanisms and support offered to this informal sector. The TWG advised that there is a need to "capacitate Korealias to take part in the realization of the 3Rs principle as a means towards both sanitized towns and job creation".

7.9 Private Sector

Table 7.9.1: Relevant sub-sections of the IUSHS

Strategy sub-section	*Summary extracts from Strategy Component*
6.2.1 Solid Waste Management (SWM) Service Delivery and Hazardous Waste Handling (HWH)	Household, institutional and commercial producers of solid waste should separate organic, plastic bottles and metal wastes using three different storage containers. **This will be achieved through provision of the necessary containers by the public and private sector service providers**. For primary collection from household to common collection bin or waste collector trucks use of small, medium and micro enterprises (SMMEs) may be continued but various measures need to be put in place: • **Contractual arrangements such that SMMEs are fully accountable for cost effective service delivery** • Cost recovery is raised from the current extremely low level to one of full operational cost recovery • **It may also be appropriate for street sweeping to be handled by the SMMEs doing house to house collection in the same area**
	A significant portion of the waste produced in Ethiopian cities and towns is organic so composting should be promoted. Recycling of metals, plastics, glass and paper has been done by the informal sector: **This practice should be strengthened and expanded by training, technical and financial support as well as by linking the collectors to recycling companies, such as those producing furniture and clothing made from recycled plastics**

6.2.2 and 6.2.3 Faecal Sludge Management (FSM) and (Domestic) Liquid Waste Management (LWM)	Pit latrines need to be emptied on a regular basis dependent on the number of users so as to avoid overflow: **Full pits may drive users to open defecation or may result in illegal dumping of pit contents** **Septic tanks, which comprise baffled tank with soakaway, need to have solids removed on a regular basis dependent on the number of users.** Cesspits are enclosed tanks where all solids and liquids have to be removed on a weekly or monthly basis dependent on the number of users. In practice, household cesspits are likely to be illegally constructed as "leaky" so as to reduce prohibitive costs of tankering all liquids along with the solids
	Primary SMMEs may be contracted to take faecal sludge (and liquids) to decentralized transfer stations where primary treatment, such as bio-digestion, may take place. Secondary treatment, such as drying beds designed to kill pathogens and render the sludge suitable for safe land application, should ideally also be located locally within or close to the town to reduce costs. **The equipment needed for FSM, whether manual or mechanical, should be developed for the specific conditions in the towns and should be based on a business case supported by financial analysis**
6.2.4 Sharing of solid and liquid waste management services and delegated service delivery	Solid and Liquid waste management will benefit from sharing of resources and services between several towns, whereby economies of scale are achieved, for instance: □ **For SWM, through (a) having one fleet of secondary collection vehicles able to serve many towns and (b) having one well run disposal site including resource recovery at scale** □ **For FSM and LWM, through (a) having common vacuum trucks (b) having overall management of centralized or decentralized FSM and liquid waste treatment sites within the cluster of towns and (c) organizing resource recovery and re-use at scale**

6.2.4 Delegated service delivery	**There are many advantages for the large operators to delegate some of their services to financially and physically ring-fenced 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 will sign a **Delegated Service Management Contract (DSMC) w**ith the delegated operators
	The main advantage of a DSMC relates to the **physical and financial ring-fencing of services and establishing a clear profit motive in order to both promote and deliver services**. It will be advantageous to include **employee incentive schemes** in both SMCs and DSMCs to drive efficiency and improved levels of service. For instance, staff might receive a monetary bonus or other incentive for achieving high KPI scores in water and sanitation provision
	Generally large private operators should only be considered once systems have been fully installed and financial sustainability has been clearly demonstrated, since private operators are not able to receive International Financial Institution (IFI) grant money and since private companies will be risk averse and likely to pass risk to customers in increased charges. It is envisaged that a sanitation operator serving several adjacent towns would be publically owned. In this way, charges can be controlled to ensure affordability but at the same time minimising outside subsidy for both CAPEX and OPEX

7.10 Community Based Enterprises

Table 7.10.1: Relevant sub-sections of the IUSHS:

Strategy sub-section	*Summary extracts from Strategy Component*
6.2.1 Solid Waste Management (SWM) Service Delivery and Hazardous Waste Handling (HWH)	Household, institutional and commercial producers of solid waste should separate organic, plastic bottles and metal wastes using three different storage containers. This will be achieved through provision of the necessary containers by the public and private sector service providers. For **primary collection** from household to common collection bin or waste collector trucks use of **small, medium and micro enterprises (SMMEs) may be continued but various measures need to be put in place**: □ **Contractual arrangements** such that SMMEs are fully accountable for cost effective service delivery □ **Cost recovery** is raised from the current extremely low level to one of full operational cost recovery □ It may also be appropriate for street sweeping to be handled by the SMMEs doing house to house collection in the same area
	A significant portion of the waste produced in Ethiopian cities and towns is organic so composting should be promoted. **Recycling of metals, plastics, glass and paper has been done by the informal sector: This practice should be strengthened and expanded by training, technical and financial support as well as by linking the collectors to recycling companies**, such as those producing furniture and clothing made from recycled plastics
6.2.2 and 6.2.3 Faecal Sludge Management (FSM) and (Domestic) Liquid Waste Management (LWM)	All urban dwellers should have access to and use of safe and hygienic sanitation facilities and arrangements so that no one defecates in open places. In order to achieve this goal, construction of **communal and public latrines** will be required. The aim is that one communal latrine should not be used by more than, in principle, five households (this does not meet SDG requirements but is a practical first step)
	The services can be provided either directly by the water and sewerage utilities or by **delegated community based SMMEs and private entrepreneurs**. The wastes should be collected and treated in a way that maximizes financial sustainability, re-use and meets environmental and health and safety criteria and in alignment with municipal planning

6.2.4 Delegated service delivery	There are many advantages for the large operators to **delegate some of their services to financially and physically ring-fenced 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 will 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 establishing a clear profit motive in order to both promote and deliver services.** It will be advantageous to include **employee incentive schemes** in both SMCs and DSMCs to drive efficiency and improved levels of service. For instance, staff might receive a monetary bonus or other incentive for achieving high KPI scores in water and sanitation provision
6.7 Crosscutting Issues	Equity, Gender, Environment, Health and Safety, Private sector engagement, **Community engagement and ownership and Sustainability,** as detailed in the Strategy, all need to be included in the SAP approaches
6.8 Sanitation financing and tariff setting	It is anticipated that efficiency measures, **labour intensive appropriate technology and business planning** should make operation of the upstream sanitation chain (solid waste door to door collection and pit latrine and cesspool emptying) and local FSM operations financially viable in the short term, provided that: • there are in place appropriate, affordable tariffs and charges, coupled with effective collection and utilization of funds However, capital intensive public toilets, SWM transfer stations, secondary long distance transport, proper solid waste disposal, decentralised waste water and faecal sludge treatment, and sewage conveyance and treatment will take longer to achieve full cost recovery

8. Regulation and Enforcement

Table 8.1: Relevant sub-sections of the IUSHS

Strategy sub-section	*Summary extracts from Strategy Component*
6.1 Advocacy, Raising Sanitation & Hygiene Profile, Behavioural Change Communication and Promotion of Service Delivery	**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
6.2.2 and 6.2.3 Faecal Sludge Management (FSM) and (Domestic) Liquid Waste Management (LWM)	All towns and cities have a mixture of pit latrines, septic tanks and cesspits. Very few have sewerage systems. **Although properly designed latrines and septic tanks can be enforced through the building codes, it is difficult to force improvements to existing installations to make them hygienic, environmentally safe and easy to empty so that enforcement needs to be complemented by Advocacy packages.** Use of vacuum trucks may not be applicable and a range of financially sustainable business options for sludge (and liquid) collection, treatment and re-use need to be evaluated, including labour intensive technologies
6.10 Regulation enforcement	**Good regulation of urban sanitation and hygiene requires enforcement capacity**. Public urban sanitation and hygiene sector actors, especially those at the city/town level need to be aware of the existing regulations, its enforcement and follow up mechanisms at all levels. **Enforcement of existing regulation has to be addressed through negotiated agreements with individual industries and staged mitigation, applying the polluter pays principle, backed by clear threat of penalty through legal enforcement institutions**
	Equally important, but not enforced, are the **regulations developed by the signatory Ministries indicating that the owners of houses/ institutions are required to invest in improved sanitation facilities and/or services and adopt improved hygiene behaviours**. To address these and related challenges currently existing, the following actions are required:
	Conduct mapping of the existing regulations on urban sanitation and hygiene and take action on the gaps and overlaps within the existing regulations. Agree on enforcement mechanisms and responsible institutions to enforce those regulations at the lower level. Organize awareness creation events for urban sanitation and hygiene sector actors and for the community on the existing regulations and enforcement mechanisms such as the polluter pays principle

The Constitution of the Federal Democratic Republic of Ethiopia places greater emphasis on Environmental Protection and Management of the immediate environment thereby guarantying citizens to live in a healthy and clean environment. The specific articles that enshrine the rights of citizens are the following:

Article 92.1:- "Government shall endeavour 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.

Pursuant to the provisions of the Constitution, Ethiopia has different policies, regulations and proclamations related to Environmental Protection & Management, Sanitation & Hygiene focusing on but not limited to Solid Waste , Liquid Waste &, Hazardous Waste Management, Construction & Use of Sanitation Facilities, etc.

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.

As stipulated in the IUSHS with reference to Regulation and Enforcement, the IUSHSAP focuses on the following areas as effective enforcement of the various proclamations pertaining to the IUSH.

9. Finance

9.1 GTPII

For 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 local communities and urban utilities. Refer to **Section 2.3.**

9.3 Sanitation levy fund

The 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. Operational costs will likely exceed direct revenue for some time and it is expected that subsidies will be required from other sources, such as through a sanitation levy fund (SLF) or more localized forms of cross-subsidy.

9.4 Micro-finance

The Association of Ethiopian Microfinance Institutions (AEMFI) is a non-for-profit governmental association of MFI's in Ethiopia. Part of the scope of AEMFI is to facilitate training, knowledge management, workshops, monitoring and technical assistance. There is scope to link the core activities of AEMFI to TVET for further enhancing capacity building for MFIs. AEMFI is well placed to co-ordinate activities between the existing 30 odd MFI's in the country and promote scale up of MFI services under the MFI Proclamation Number 40/1996.

There is scope to fund public latrine construction and maintenance through group funded schemes. There are currently projects run with Dutch NGO WASTE in Adama for funding public toilet construction. This is under

ROSA programme where WASTE has set up revolving fund for CAPEX. Youth groups apply for a loan to build public latrines and then manage them. In Adama, partners include NGO, Adama administration who approve implementation plans and OCSSCO. Use this model as exemplar and scale up in other regions. WASTE NGO also offers loans via OCSSCO to HH's for improving their toilets. Women Youth Groups identify toilet units which need work and apply for a loan for individual households.

Ownership of fixed and moveable assets needs to be defined in any service management contract (SMC) between municipality and utility and in any delegated service management contract (DSMC) between the utility or the municipality and delegated operators and suppliers. Generally, water and sanitation constructed facilities (fixed assets) are owned by the Municipalities on behalf of the Government, while the mandated public service providers operate those assets on behalf of the owners under contract agreements. The operators normally own moveable assets and consumables such as trucks, treatment chemicals, etc. Depreciation or replacement costs of fixed assets will need to be covered by utility tariffs and subsidies and retained by municipalities in a holding account.

9.5 Subsidies and cross subsidies

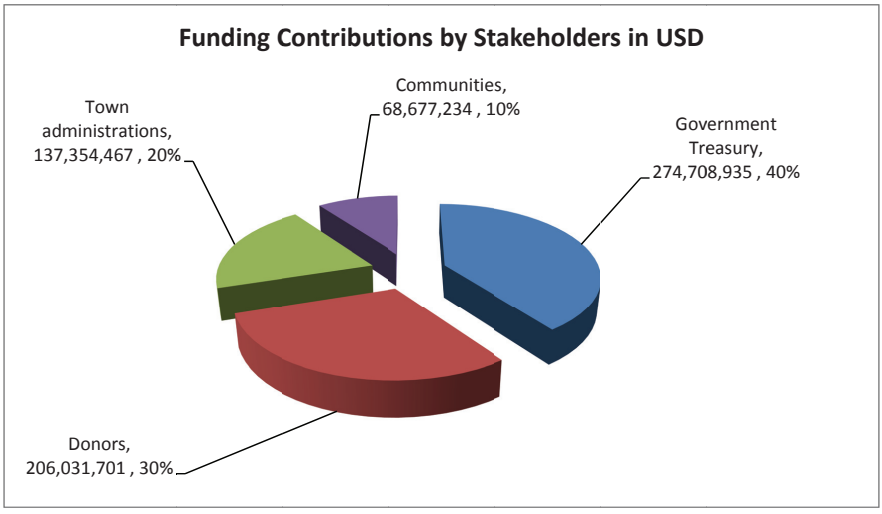
10. Basket Funds

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

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 10.3** below.

Figure 10 - 1: Funding Contributions by Stakeholders in USD for Phase 1 (2016-2020)



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 the Consolidated WaSH Account and or establishing a separate basket for sanitation.

In line with this, the Water Resources Development Fund shall set up 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.

The analysis of the financial resources to augment the water supply services was not included in the TOR for this assignment. However, as guidance only (due to the differing nature of aquifers and differing water demand condition in the country), a broad overall estimation of the financial requirements for water can be obtained by multiplying the unit costs used for the planning of the OWNP by the number of urban residents obtained from CSA projections.

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

A note of caution should perhaps be raised with reliance funding baskets. Most IFIs, bilateral funding agencies and individual corporate and CSR funders have their own strict and often immovable requirements on disbursements, repayment schedules, reporting, monitoring, audit, etc. Getting disparate funders to agree to common conditions around funding baskets is often difficult and may result in important funding potential being unavailable. Hence, the possibility for bilateral funding as per the current One WASH Plus programme should be retained: The bottom-up approach described in this SAP through master planning and competition (**Section 4**) has therefore been conceived to allow for bi-lateral as well as basket funding approaches.

There has been an expectation to date that capital for the required sanitation investment can be obtained for seablefuture from grants. However, the scale and period of investments required are such that this assumption may well be invalid, it will need for the WASH sector to "get its house in order" so that it can raise the required capital itself. As stated in **Section 1,** loans are generally a more reliable source of funding than grants or annual government budgets. However, loans can only be accessed if there are robust business plans in place that can generate revenues, including guaranteed subsidies, which exceed the combined operation and maintenance costs for water and sanitation. The surplus can be used to pay interest on the loans as well as capital repayments.

10.3. Water Resources Development Fund

10.4. Sanitation Fund

One option that is favored by some in the sanitation sector requires the establishment of standalone Sanitation Fund. Experts that promote the One WaSH National Programme (OWNP) often argue that this option might weaken the OWNP concept. Therefore, this option is believed to require discussion and building a consensus among the concerned ministries, as well as potential funding partners, following the launching of IUSHSAP. Once consensus is built and ways for establishing strong link with the CWA, a vibrant Sanitation Fund can possibly be put in place.

As the way forward at the initial stage of IUSHSAP implementation, the OWNP Steering Committees at the federal and regional levels[11] shall take the low prevailing attention[12] being given to sanitation into consideration in

[11] The One WaSH Steering Committees shall immediately include MoUD&H 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.
[12] 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

their effective management of the Sanitation Fund as a major component of the CWA. At a later stage the possibility of establishing a Sanitation Fund as a standalone basket fund (but keeping in mind uncertainties related to funding baskets in general) could be explored and introduced. Such steps shall not only improve investment on sanitation but shall enable the country to achieve IUSHSAP as well as GTP II targets.

10.5 Application procedures

10.5.1 Overall procedures

Towns/clustered towns need business plans and to demonstrate the ability to provide match funding. All integrated urban sanitation programmes are expected to carry out master planning (**Section 4**) to perform financial analyses of potential options in order to balance service delivery options (each with its own cost) against customer affordability, willingness to pay and expectations around value for money. The financial analysis will include operational costs as well as capital costs and potential subsidies. Based on outcomes of the financial analysis, a business plan template will be proposed for individual parts of the sanitation chains that might be carried out by a single mandated operator or group of operators. The business plan will be based on the least cost option that fulfils the objective of sustainable services, complies with health and environmental target and meets minimum customer expectations.

The following application procedures shall be followed to get access to capacity building and construction funds:

10.5.2. Capacity Building Fund from the Consolidated WaSH Account

1) A town or voluntary cluster of towns could apply for funding from the sanitation fund that shall be a major component of consolidated WaSH account once they prepare a preliminary sanitation business plan

2) The application shall be supported by putting a certain amount (say 5% of what is required for constructing sanitation facilities indicated in the business plan) of money in a closed account as a sign of readiness to undertake the study, design and construction of sanitation facilities

10.5.3. Sanitation Basket Fund through Water Resources Development Fund

1) This requires assurance of readiness by the Regional WaSH Coordination offices based on the capacity built as a result of the Capacity Building support indicated under **10.6.1.**

2) Getting access to fund further requires the covering of 30% of the finance required for undertaking study, design and construction of Sanitation facilities. The water fund shall only give 70% of the requirement through on lending in order to reach as many towns as possible.

11. Monitoring and Evaluation

Table 11.1: Relevant sub-sections of the IUSHS

Strategy sub-section	*Summary extracts from Strategy Component*
6.11 Monitoring and Evaluation	Eleven targets have been suggested in Section 5 of the Strategy towards access to sanitation (See Sub-section 2.3 above)
	The Strategy includes an additional target to establish an effective and reliable sanitation data base and monitoring system by 2016. M&E systems need to be able to track progress and to report against each of the eleven targets listed in Sub-section 2.3It is also considered that M&E should take due account of, and track progress against, the targets set within the new SDGs

11.1 Introduction

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

11.3 M&E Framework for Strategy Components and Sanitation Targets

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

12. SAP Oversight and Management[13]

12.1. Initial Strategic Action

IUSHSAP's organization and the roles and responsibilities of stakeholders shall be described in detail in the WASH Implementation Framework signed by the ministries of Water and Energy, Health, Education, Ministry of Environment and Forestry and Finance and Economic Development signed in April 2013[14]. Doing so requires complete revision, inclusion of MoUDH and MoEF as signatories in such a way IUSHSAP becomes an integral part of the framework. To realize this, MoUDH and MoEF shall join the WaSH National Steering Committee for facilitating the integration of solid, liquid and fecal sludge management that fall under different sectors.

In a broader sense, IUSHSAP as an integral part of the One WaSH National Program shall be implemented as a joint effort between Government, development partners, NGOs, training institutions, the private sector, community members and other stakeholders.

12.2. Fundraising

As regards to fundraising by development partners, it shall be in the form of Sanitation Basket Fund that shall be under the existing Consolidated WASH Account for the purpose of cost effectiveness, efficient organization and management (But subject to caution on funding baskets given in Section 10).

12.3. Oversight and Management at Federal Level

A National WASH Coordination Office (NWCO) shall be responsible for coordinating the planning and implementation of the Program at federal level, which shall consist of preparing a consolidated annual Urban Sanitation Plan as one of the components of the WASH plan along budget and

[13] Note: To be further elaborated based on the requirements of the TWG
[14] WASH Implementation Framework (WIF), signed by the four ministries in April 2013.

periodic reports. The NWCO shall report to the existing National Steering Committee and supported by the National WASH Technical Team[15]. The National WaSH Technical Team shall strongly be supported by the existing Sanitation and Hygiene Technical Working Group (TWG) that shall fully dwell on sanitation in such a way high attention can be given to sanitation. Implementation of the Programme shall be coordinated by NWCO and implementation shall be the responsibility of WASH Program Management Units (WPMUs) in the ministries of Water and Energy, Urban development and housing, Health, Education and Finance and Economic Development.

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

Each region shall decide what, if any, specific WaSH structures are required at the zonal level and what their functions and responsibilities shall be in areas where voluntary town clusters are established. In larger and special zones where town clusters are to be established, it is likely that zonal structures shall replicate those at the regional level. Zonal structures shall play an important intermediary role between the region and the towns for planning, monitoring, reporting, disseminating information and providing technical assistance. In regions with very active zonal offices like in SNNPR, there shall be a Zonal WASH Coordination Office and Zonal WASH Management Team with similar functions as their regional counterparts.

At town levels, planning and implementation of the Program shall be overseen by a Regional WASH Coordination Office which shall report to a Regional WASH Steering Committee[16] and be supported by a Regional WASH Technical Team. Implementation at regional level shall be managed

[15]The chairmanship of the steering committee at the federal level could be as per the recommendation of a higher body like the prime Minister's office or the parliament for ensuring hierarchy and follow up. Another option could be rotation of the chairmanship among the ministries once MoUD&H is included in the steering committee and establishing strong follow up link with the prime minister office or the parliament

[16]The chairmanship of the steering committee at the regional level should be as perthe recommendation of the regional council for ensuring hierarchy and follow up. Rotation of chairmanship among the bureaus byestablishing strong follow up link with the regional council could be another option

by WPMUs in the bureaus of Water Resources, Urban Development and Housing, environment and forestry, Health, Education and Finance and Economic Development.

In towns, planning and implementation of the Program shall be coordinated by a dedicated WASH Team consisting of members from the water, urban development, health, education and finance offices. In towns which are woreda capitals, agriculture, women's affairs and NGO representatives shall also be included. The WASH team shall report to a WASH Steering Committee appointed by the Woreda Cabinet or Town Board.

At kebele level WASH activities shall be coordinated by a Kebele WASH Team (KWT) with assistance from the TOWN WASH Team (TWT). Annual Kebele WASH plans shall be approved by the Kebele Chairman and Council, and Health Extension Workers shall work with the Health Development Army to support communities in construction of latrines and to promote safe hygiene practices using the urban tailored CLTSH approach or appropriate approach to be launched by UHEP.

At community level, WASH Committees (WASHCOs) consisting of elected community members shall be formed to undertake planning, O&M and in some cases construction of improved water supply and sanitation facilities. It is important that women are well-represented and are elected to serve as officers in WASHCOs. WASHCOs shall be assisted to obtain legal status or formal recognition to strengthen their management and accountability. Members of the Health Development Army shall work with HEWs to promote sanitation and hygiene among households.

12.5 Programme

Following acceptance of the SAP it will be the task of those responsible for Oversight and Management to prepare a plan to roll out the SAP. Tentative suggestions on how and when this might be "kick started" over an initial three-year period are indicated below and an example Project Plan, as illustration only, is included.

Integrated Urban Sanitation and Hygiene Strategy Action Plan – suggested approach to roll out over first three years 2016/19	Q 4 16	Q 1 17	Q2 17	Q 3 17	Q4 17	Q 1 18	Q 2 18	Q 3 18	Q 4 18	Q 1 19	Q 2 19	Q 3 19
3. **Institutional Development**												
Identify bilateral agencies to support with planning and technical assistance												
Appoint consultants C1 to work at both national and regional levels												
Establish platform for sharing of good/best practice												
Hold national workshop on institutional development through sharing of good/best practice												
Catalogue existing sharing and delegation arrangements and perceived benefits												
Summaries to inform Master Planning												
Capacity building at town and regional levels												
4. **Master Planning**												
Identify bilateral agency to support with planning and technical assistance												
Appoint consultants C3, C4, etc. to work in each region in coordination with C1 and C2												
Establish rules of competition for funding bids at national level and at regional level												

Integrated Urban Sanitation and Hygiene Strategy Action Plan – suggested approach to roll out over first three years 2016/19	Q 4 16	Q 1 17	Q2 17	Q 3 17	Q4 17	Q 1 18	Q 2 18	Q 3 18	Q 4 18	Q 1 19	Q 2 19	Q 3 19
Hold national workshop on master planning through sharing of good/best practice												
Invite outline proposals from utilities and municipalities in each region												
Rank outline proposals and offer TA to selected bidders												
Provide regional based TA to assist master plans/ feasibility studies												
Submit proposal 1 for funding												
Submit proposal 2 for funding												
Submit proposal 3 for funding												
Etc.												
Project implementation 1												
Project implementation 2												
Project implementation 3												
Etc.												
Capacity building at town and regional levels												
5. **Promotion and Advocacy**												
MOH to adopt and develop UHEP improvements												

Integrated Urban Sanitation and Hygiene Strategy Action Plan – suggested approach to roll out over first three years 2016/19	Q 4 16	Q 1 17	Q2 17	Q 3 17	Q4 17	Q 1 18	Q 2 18	Q 3 18	Q 4 18	Q 1 19	Q 2 19	Q 3 19
Consider role of UCLTS based on international assessment												
Hold national workshop on promotion and advocacy through sharing of good/best practice												
Consolidate recommendations to inform Master Planning												
Regular monitoring and improvement to UHEP												
6. **Technical and Operation Development**												
Identify bilateral agency to support with technical and operational development												
Appoint consultants C2												
Identify working partners inside and outside Ethiopia and establish agreements and contracts												
Catalogue existing best practice throughout regions												
Hold national workshop on technical and operational development through sharing of good/ best practice												
Provide TA to Ethiopia institutes to assist with R&D												

Integrated Urban Sanitation and Hygiene Strategy Action Plan – suggested approach to roll out over first three years 2016/19	Q 4 16	Q 1 17	Q2 17	Q 3 17	Q4 17	Q 1 18	Q 2 18	Q 3 18	Q 4 18	Q 1 19	Q 2 19	Q 3 19
7. **Service Delivery**												
Improve revenue generation for SWM through taxation, increased fees and tariff multipliers based on property value												
Improve revenue generation for water and sanitation through universal metering, provision of adequate service levels and through cross subsidies												
Improve waste segregation and composting through reduction of waste at source												
Prepare inventories of formal and informal recycling industries; link informal sector with accessible recycling industries												
improve roles and business planning of informal sector and SMMEs engaged in SWM and recycling and sanitation services												
Enforce regulations and implement financial penalties and high disposal charges to encourage in-factory processing and recycling of industrial wastes												

Integrated Urban Sanitation and Hygiene Strategy Action Plan – suggested approach to roll out over first three years 2016/19	Q 4 16	Q 1 17	Q2 17	Q 3 17	Q4 17	Q 1 18	Q 2 18	Q 3 18	Q 4 18	Q 1 19	Q 2 19	Q 3 19
Prepare contracts between owners, operators and the users of recycled liquids and solids for management of decentralised waste water treatment systems												
Implement appropriate technology for emptying pit latrines and construct FSM transfer stations that incorporate treatment of fecal wastes												
Introduce full environmental compliance, full cost recovery for both O&M and loan repayments and ensure a minimum gross water supply availability of 100l/p/d for all conventional sewerage schemes												
Extend training to both in-house staff and workers and also to SMMEs												
Extend and formalize existing informal sharing between large and small towns												
implement formal contracts for all delegated service provision and specialist services including Informal Sector, Private Sector and CBEs												
8. **Regulation and Enforcement**												

Integrated Urban Sanitation and Hygiene Strategy Action Plan – suggested approach to roll out over first three years 2016/19	Q 4 16	Q 1 17	Q2 17	Q 3 17	Q4 17	Q 1 18	Q 2 18	Q 3 18	Q 4 18	Q 1 19	Q 2 19	Q 3 19
Apply building control on rigorous, regular and consistent basis to ensure that WASH and SWM construction fulfils minimum standards												
Apply deterrent sanctions and regulatory enforcement alongside appropriate instruments such as guidance, toolkits and checklists												
Improve scope and effectiveness of the Ministry of Forestry and Environment to monitor of environmental compliance with regard to sanitation facilities												
9. **Finance**												
Investigate and apply mechanisms to raise a Sanitation Levy Fund exclusively used to support the FSM/LWM from on-site latrine to final disposal												
Promote co-operative bank/MFI financing for solid and liquid waste projects including access to finance for youth groups to set up enterprises												
Review tariffs for water supply following master planning and associated financial analysis												
Improve collection of revenue through improved billing and collection systems in utilities												

Integrated Urban Sanitation and Hygiene Strategy Action Plan – suggested approach to roll out over first three years 2016/19	Q 4 16	Q 1 17	Q2 17	Q 3 17	Q4 17	Q 1 18	Q 2 18	Q 3 18	Q 4 18	Q 1 19	Q 2 19	Q 3 19
Apply direct subsidies to the downstream end of the sanitation chain in order to make services delivery cost effective					■		■		■		■	
10. **Basket Funds**												
Establish sanitation fund within CWA	■	■	■	■	■	■	■	■	■			
Establish bilateral funding agreements for TA		■	■	■								
Establish bilateral funding agreements for Construction				■	■	■		■		■		■
11. **Monitoring and Evaluation**												
Include indicators for urban sanitation infrastructure and hygiene in the 2nd National WASH Inventory (NWI) which is planned by CSA for 2016	■											
Fully integrate IUSHSAP into the ONWNP M&E system	■	■										
Feed data from ministry and CSO surveys into a centralized monitoring database managed by the WASH Coordinator Office as baseline data for the IUSHSAP		■	■									

Integrated Urban Sanitation and Hygiene Strategy Action Plan – suggested approach to roll out over first three years 2016/19	Q 4 16	Q 1 17	Q2 17	Q 3 17	Q4 17	Q 1 18	Q 2 18	Q 3 18	Q 4 18	Q 1 19	Q 2 19	Q 3 19
Establish responsibilities at municipal ministry level for data collection and checking and transfer to central database												
Routine collection and processing of data												
Mid-term evaluation (early 2021) in order to assess progress towards achieving Sanitation Targets												
Design impact evaluation framework that focuses on selected SDGs that are most relevant to urban sanitation and hygiene												
Conduct an independent impact evaluation at 10 year period In order to evaluate the overall IUSHSAP and SDG impact												
12. **SAP Oversight and Management**												
Ratify new WASH MOU including sanitation												
Define roles of National WASH Steering Committee												
Define roles of Regional WASH Steering Committees and Bureaus												

Annex 1. Financial and related Data Extracted from 5 towns Baseline Data

1. Introduction

Collection of baseline data in the 5 towns was suggested at the end of 2015 when the IUSHS was finalized in order to verify the data compiled earlier from various sources like the 8 towns integrated water supply and sanitation project, the 11 towns visited at the situation analysis stage of IUSHSAP preparation.

2. Limitations of the collected data

The data have limitations in terms of capex and opex. The water utilities have global data on income and expenditure but no breakdowns that allow the determination of capex and opex costs.

Moreover Unit costs of public latrines obtained from some of the towns are for dry pit latrines and are not recent as well.

Similarly, Some Small Micro Enterprises (SMEs) consulted came up with unrealistically low incomes and highly inflated Expenditures.

A financial system that allows the determination of capex and opex costs of utilities and acceptable income and expenditure of SMEs shall therefore be put in place in the future.

3. Financial and related Data Extracted from 5 towns

3.1. Harar Town-category 2 town

3.1.1. Water Tariff

I.No	Region	Town	0-5m3	6-10m3	10-30m3	>30m3
1	Harari	Harar	5	9	13	26

3.1.2. Desludging Service

- Households pay 400 Birr per trip for 8m3 vacuum truck

- Commercial institutions pay 600 Birr for 8m3 vacuum truck

3.1.3. Income and Expenditure

Annual Income of the utility 25,000,000 BIRR

Annual Expenditure 176,371,327.67 Birr due to ongoing project

3.2. Dire Dawa Town- category 2 town

3.2.1 Water Tariff

Water Tariff Grade	Consumption category	Government and Non Governmental Institutions Water Tariff(ETB)	Households(ETB)
Grade 1	0-5m3	5.25	3.50
Grade 2	6-10m3	6.13	4.38
Grade 3	11-15m3	7.88	6.13
Grade 4	16-20m3	8.75	7.00
Grade 5	>20m3	11.38	9.63
	Water Point	15.75	4.38

Water Tariff Grade	Consumption category (ETB)	Commercial Institutions (ETB)
Grade 1	0-10m3	8.75
Grade 2	11-15m3	11.38
Grade 3	16-20m3	12.25
Grade 4	>20m3	14.88
	Hydrant	21

Water Tariff Grade	Consumption category	Industries (ETB)
Grade 1	0-20m3	11.38
Grade 2	21-25m3	12.25
Grade 3	26-30m3	14.88
Grade 4	>30m3	17.50
	Hydrant	21

3.2.2. Desludging Service

- Households pay 300 Birr per trip for 8m3 vacuum truck
- Commercial institutions pay 500 Birr for 8m3 vacuum truck

3.2.3. Payment for Garbage collection with the water bill

Water consumption range	Households	Industries
Those who consume 1-10m3 water /month pay	17 Birr/month	100Birr/month
Those who consume 11-20m3 water /month pay	20 Birr/month	300Birr/month
Those who consume >20m3 water /month pay	25 Birr/month and more	500Birr/month

3.2.4. Shower fee

2 Birr per shower

3.2.5. Income and Expenditure

Annual Income of the utility 43,720,195 BIRR for 2015/16 fiscal year

Annual Expenditure 22,938,181 Birr for 2015/16 fiscal year

3.3. Kombolcha Town-Category 2 town-in Amhara Region

3.3.1. Water Tariff

Water consumption range(m3)	Households (ETB)	Water Point(ETB)	Governmental institution (ETB)	Industry (ETB)	Commercial institutions (ETB)
0-5	35	1.50	4.5	5	4.5
5.1-110	3.25	1.50	5	5.5	5
10.1-15	3.25	1.50	5.5	6.5	5.5
15.1-25	4.25	1.50	6	7.5	6
25.1-40	5.5	1.50	6.5	8.5	6.5
>40	6	1.50	7	9	7

3.3.2. Desludging Service

Households pay 300 Birr per trip for 8m3 vacuum truck

Commercial institutions pay 400 Birr for 8m3 vacuum truck

3.3.3. Income and Expenditure

Annual Income of the utility 12,175,916.25 BIRR for 2015/16 fiscal year

Annual Expenditure 8,443,954.62 Birr for 2015/16 fiscal year

3.4. WolaitaSodo Town-Category 2 town-in SNNPR

3.4.1. Water Tariff

I.No	Region	Town	1-5m3	6-10m3	11-25m3	26-40m3	>40m3
1	SNNPR	WolaitaSodo	3.79	6.63	8.51	9.47	10.47

3.4.2. Desludging Service

- 550 Birr per trip for 10m3 vacuum truck
- 750 Birr for surrounding towns

3.4.3. Income and Expenditure

Annual Income of the utility 9,869,744.20 BIRR for 2015/16 fiscal year

Annual Expenditure 8,863,351.17 Birr for 2015/16 fiscal year

3.5. Wolisso-Category 3 town-In Oromya Region

3.5.1. Water Tariff

I.No	Region	Town	0-2m3	3-5m3	6-8m3	9-11m3	>11m3
I	Oromya	Wolisso	4.60	5.20	5.8	6.4	7.00

3.5.2. Desludging Service

- Households pay 575.65 Birr per trip for 8m3 vacuum truck
- Commercial institutions pay 633.15 Birr for 8m3 vacuum truck
- Private vacuum trucks from Addis Ababa charge 900 Birr per trip previously

3.5.3. Income and Expenditure

Annual Income of the utility 5,880,918.49 BIRR for 2015/16 fiscal year

Annual Expenditure 3,485786.83 Birr for 2015/16 fiscal year

4. Unit Costs of Sanitation Facilities

It has been known that Drop and store type dry public toilets with 4 seats costed Birr 150,000-300,000 in the past. Costs of other facilities are not clearly known by the offices visited due to high turnover and poor documentation.

5.Summary

Town	Town category	Annual Income (2015/16)	Annual Expenditure (2015/16)	Water Tariff(ETB)	Desluding Service	Garbage Collection Service	Shower service
Harari	2	25,000,000	176,371,327.67	5 Birr-26Birr/m3	400-600 Biir/trip		
Diredawa	2	43,720,195	22,938,181	3.50 Birr-21Birr/m3	300-500 Birr/trip	17-25 Birr for households and 100 Birr -500 Birr for industries	2 Birr/ single Shower service
Kombolcha	2	12,175,916.25	8,443,954.62	1.50 Birr-7Birr/m3	300-400 Birr/trip		
Wolaita Sodo	2	9,869,744.20	8,863,351.17	3.79 Birr-10.47Birr/m3	550-750 Birr/trip		
Wolisso	3	5,880,918.49	3,485786.83	4.60 Birr-7Birr/m3	575.65-633.15 Birr/trip		

Note:

a) *There is a big disparity of income and expenditure among similar category towns (Harari, Diredawa,Kombolcha and WolaitaSodo in this case).The reason for Diredawa and Harari being higher in income has to do with population, status of the towns and presence of considerable number of industries and institutions*

b) *Kombolcha and Diredawa have appropriately designed and constructed sanitary landfills and sludge drying beds. However the sanitary landfill sites are now almost converted to dumping sites due to poor management.The exemplary good management ofKombolcha city presented at the situation analysis stage doesn't no more exist.*

c) *A pilot project in waste reduction by 500 households was going on in Diredawa but not found cost effective*

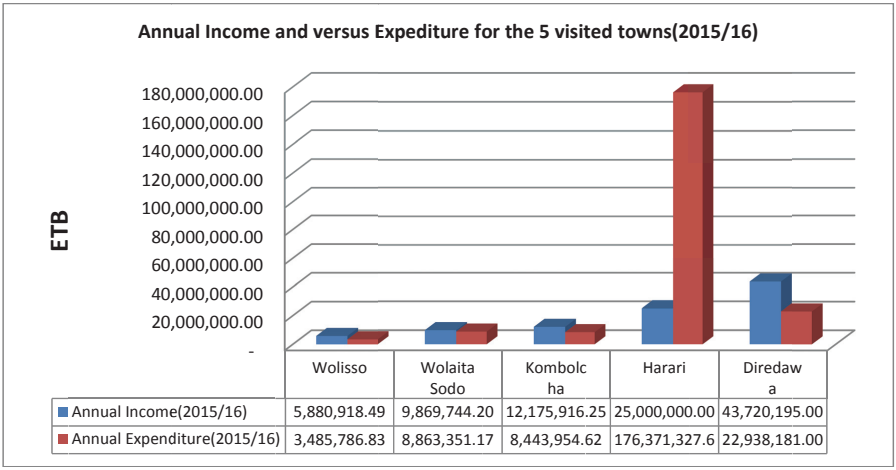
d) *A Dutch based NGO by the name Waste is assisting households to improve their latrines at a modest rate of 11,000 per latrine*

e) *Acute upper respiratory infections and diarrhea are among the dominant top causes of morbidity justifying the need for implementing IUSHSAP*

f) *Women or youth Groups collecting waste reveal less than 1000 Birr/month income per individual while they report 1000Birr plus corresponding expenditure.The feedback the team found was found to be unrealistic. It looks that they are hiding their income since they suspect that they will be deprived of support in the future.A system that will help to clearly know their income and expenditure shall be put in place.*

g) *Almost all towns agree with the idea of supporting nearby towns as far as they are in a position to provide support*

6. Comparison Graph of the Income versus Expenditure of the 5 visited towns



	Wolisso	Wolaita Sodo	Kombolcha	Harari	Diredawa
Annual Income(2015/16)	5,880,918.49	9,869,744.20	12,175,916.25	25,000,000.00	43,720,195.00
Annual Expenditure(2015/16)	3,485,786.83	8,863,351.17	8,443,954.62	176,371,327.6	22,938,181.00

Note: Expenditure in Harari became very high due to ongoing investment on a project for providing water to surrounding satellite villages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