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CATALYZING LOW COST GREEN TECHNOLOGIES FOR SUSTAINABLE WATER SERVICE DELIVERY (KENYA)

PUBLIC-PRIVATE PARTNERSHIP POTENTIAL AND RECOMMENDATION

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Terms and Abbreviations

Term/Abbreviation	Meaning
ASAL	Arid and Semi-Arid Land
BWRC	Basin Water Resources Committee
BOO	Build, Own, and Operate
BOTT	Build, Own, Train and Transfer
CAPEX	Capital Expenditure
CBO	Community-Based Organization
CSR	Corporate Social Responsibility
CG	County Government
CIDP	County Integrated Development Plan
DANIDA	Danish Development Cooperation Agency
DMO	Debt Management Office
EPC	Engineering, Procurement and Construction
F/S	Feasibility Study
FCCL	Fiscal Commitments and Contingent Liabilities
GPOBA	Global Partnership for Output-Based Aid
GoK	Government of Kenya
IT	Information Technology
MAP	Market Assistance Programme
MTAP	Medium-Term Arid and Semi-Arid Land Programme
MDB	Multilateral Development Bank
O&M	Operation & Maintenance
OBA	Output-Based Aid
PAYG	Pay As You Go
PO	Private Operator
PSSP	Private Small Service Provider
PPCP	Public Private Community Partnership
PPIAF	Public Private Infrastructure Advisory Facility
PPP	Public-Private Partnership
PPFF	Public-Private Partnership Project Facilitation Fund
RWUA	Rural Water User Association
VFM	Value for Money
WSS	Water and Sanitation Service
WRA	Water Resource Authority
WRUA	Water Resource User Association
WS	Water Service
WSP	Water Services Provider
WASREB	Water Services Regulatory Board
WSTF	Water Services Trust Fund
WWDA	Water Works Development Agency

Table of Contents

Terms and Abbreviations	ii
Table of Contents	iii
List of Figures	v
List of Tables	vi
1. Kenya’s Water and Sanitation Services Public-Private Partnership	1
1.1. National Legal and Institutional Framework.....	1
1.2. National-Level PPP Process	2
1.3. County-Level PPP Process	4
2. Water Services PPPs	1
2.1. Water Services Legal and Institutional Framework	1
2.2. Water Sector PPP Experience and Private Actors	3
3. Finance and Economics	4
3.1. Public Finance.....	4
Government.....	4
International Donor	6
Communities.....	7
3.2. Private Finance	7
Finance Market and Debt Instruments	7
Private Equity.....	7
Tariffs (O&M funding).....	8
4. Enabling Environment and Barriers	8
4.1. Enabling Environment and Barriers	8
Water Resource (availability and quality)	8
Capital Financing.....	9
O&M Cost Recovery	9
Non-Revenue Water (NRW)	9
Sustainability and Reliability.....	9
Capacity/Experience	9
Fiscal Liability Risk.....	9
4.2. Innovative Solutions to Enhance Private Sector Engagement.....	10
Financing Approaches.....	10
Business Model Approaches.....	11

5. PPP Potential and Recommendation	12
5.1. Financing and Funding	12
Financing Capital Expenditure	12
O&M Funding and Management.....	13
5.2. WSS PPP Model Options for Kenya	14
O&M Contract (<i>PPP Act 2013</i> 2nd sch 1, 2)	18
Lease/Concession (<i>PPP Act 2013</i> 2nd sch 3, 4)	18
Build-Operate-Train-Transfer (BOTT)	19
Joint Venture	20
Build-Own-Operate (BOO) (<i>PPP Act 2013</i> 2nd sch 6).....	21
5.3. Additional Recommendation	21
Bibliography.....	23
Annexes	25
Annex 1. Timeline of Legal and Regulatory Framework of PPP in Kenya	25
ANNEX 2: Kenya Budget and PPP Cycles.....	25
ANNEX 3: New PPP Pilot by Kenya MAP: Pilot Public Private Community Partnership (PPCP) Model	26
ANNEX 4: Existing WSS PPP Models in Kenya.....	27
ANNEX 5: Potential Water/Energy Use for Diversified Benefits and Revenue Streams.....	29

List of Figures

- Figure 1: PPP Project Approval Process 3
- Figure 2: Water Related Organizations’ New Titles and Structure under the Water Act 2016 (Act No. 43 of 2016), Source: MWI, 2016 2
- Figure 3: O&M Contract Model 18
- Figure 4: Lease/Concession Model 19
- Figure 5: Build-Operate-Train-Transfer (BOTT) Model 20
- Figure 6: Joint Venture..... 20
- Figure 7: Build-Own-Operate (BOO) Model..... 21

List of Tables

Table 1: Water Sector PPP Potential Actions to Overcome Main Barriers for Water Sector PPPs 10

Table 2: Potential Financial Flows CAPEX (EPC)..... 13

Table 3: Potential Funding Flows (O&M)..... 13

Table 4: PPP Arrangement (Roles & Responsibilities and Risk Sharing)..... 14

Table 5: Division of Roles and Responsibilities in Different PPP Options..... 16

Public-Private Partnership Potential and Recommendation

This section of the feasibility study (F/S) report first outlines Kenya's current conditions for water service (WS) public private partnerships (PPPs) in sections 1-4. Based on this context and the wider F/S, section 5 then summarizes the enabling environment and barriers for WS PPPs, and outlines some innovative practices already underway to overcome them. Finally, section 6 makes suggestions on PPP potential – outlining key WS PPP components, considerations and options for potential structures along with a brief outline of their benefits and risks. The last section will form the basis for stakeholder consultation to fill knowledge gaps and reflect stakeholder interests for selection and development of the final WS PPP model.

1. Kenya's Water and Sanitation Services Public-Private Partnership

Seeing water as both a social and an economic good, the government of Kenya (GoK) has an ambition to make water available to all at market price so that user fees may recover operation costs with some remaining revenue for repairs and facility expansion. Alignment of water sector regulation with Kenya's recent political devolution and PPP regulation development and drive has opened opportunities for WS PPPs to serve water scarce communities in peri-urban areas and arid and semi-arid lands (ASALs) at county and catchment levels. However, lack of experience, trust, financing, and funding at county level are challenges to the initiation, effectiveness and sustainability of WS PPPs.

1.1. National Legal and Institutional Framework

- ✓ To fill in the funding gap of US \$2.1bn for new infrastructure and expansion of existing assets, the Kenya Government focuses on private sector development including PPP.
- ✓ From 2005, a number of Acts and Regulations was adopted to standardize the PPP process and clarify the role of public and private actors involved, making Kenya the top three PPP-ready countries in Africa.

At national level, Kenya is relatively well prepared for PPPs, ranking among the top three PPP-ready countries in Africa [1]. Kenya's national PPP focus is on new infrastructure and expansion of existing assets as an integral element of its private sector development strategy to fill a US\$2.1bn p.a. infrastructure funding gap in order to meet its Vision 2030 goals. It has a clear PPP legislative framework and the World Bank Infrastructure Finance and Public-Private Partnership Program (IFPPP), with a US\$40m credit, has supported creation of a pipeline of bankable PPP projects from 2012-2017, with 72 projects in various sectors, including at county-level, selected by 2016 [2].

Kenya's legislative framework on PPP

Since 2005, Kenya has established a comprehensive legal and regulatory framework for PPPs, which were previously regulated by individual contracts. Legislation includes: the Public Procurement Disposal Act 2005 aimed to combat issues such as lengthy contracting negotiation, insufficient evaluation of affordability or value for money (VFM), unclear tendering process, and generation of numerous litigations. A formal PPP policy was adopted in 2011. The cornerstone of current legislation is the PPP Act 2013, PPP Regulations 2014 to elucidate this Act, and the PPP Amendment Bill 2016 with provisions to recognize county governments as distinct contracting authorities for PPP projects. A timeline of this progress can be

found in Annex 1. PPPs are also regulated by the Public Finance Management Act 2012.

Organizational structure under PPP Act: PPP Committee, PPP Unit, PPP Nodes

The PPP Act 2013 establishes the PPP Committee and the PPP Unit as permanent organizations under the National Treasury. The PPP Committee consists of 13 members: 8 from different ministries, 4 from the private sector appointed by National Treasury Cabinet Secretary (*PPP Act 2013 s 4*) [3]. It aims to assure PPP projects' consistency with national priorities specified in the relevant policy on PPP. It approves PPP project proposals and lists, formulates guidelines, standards, procedures, examines feasibility studies, oversees the entire PPP project implementation process, ensuring approval of any governmental support including from the Project Facilitation Fund (*PPP Act 2013 s 7*).

The PPP Unit is the secretariat and technical arm of the Committee, providing technical, financial and legal expertise. First, it assists the Committee by making recommendations on project approval or governmental support, and by formulating guidelines and standards. Second, the Unit gathers and analyses data on PPP projects for example on identifying Government contingent liabilities or inducing private sector investment to improve PPP implementation. Third, the PPP Unit provides capacity building and assists contracting authorities throughout the PPP process. Finally, it ensures PPP process conformance to relevant laws and regulations, and monitors contingent liabilities and any financial issues (*PPP Act 2013 s 14*).

PPP Nodes are established by each contracting authority to identify, screen and prioritize projects, oversee the management of the projects.

1.2. National-Level PPP Process

- ✓ The PPP Act 2013 is the cornerstone of PPP related legislation.
- ✓ It defines PPP, project procurement process (competitive bidding, non-competitive process initiated by a private party), requirements, types of PPP, dispute resolution mechanism, etc.
- ✓ Some more clarification will be added, once Amendment Bill 2016 of PPP Act is adopted.

The PPP Act 2013 and the Amendment Bill 2016 apply to all PPP project procurement processes, guaranteeing private sector participation in the financing, construction, development, operation, or maintenance of government infrastructure or development projects through concession or other contractual arrangements. The Act defines PPP and establishes the PPP Committee, PPP Unit, and PPP Nodes. It prescribes PPP project cycle and stipulates requirements for each stage.

It provides two methods of PPP procurement. In principle, all projects should be procured through competitive bidding (*PPP Act 2013 s 29(2)*), at the county level initiated by the county government or county corporation which intends to have functions undertaken by it performed by a private party (PPP Amendment Bill 2016 s 2(b)) [4]. However, a contracting authority may consider a non-competitive process initiated by a private party (*PPP Act 2013 s 61*) in cases where there is risk of project disruption, substantial intellectual property cost, or if the intellectual property or other exclusive rights are owned by a single right holder.

Project proposal requirements include, technical requirements identified by the contracting authority or

the PPP unit/nodes through a sector diagnostic study and assessment, examined by a Feasibility study, and laid out as tender conditions (*PPP Act 2013 s 20, 33, 43*). The private party should comply with project agreement legal requirements such as qualification to bid (*PPP Act 2013 s 38*), basic terms and conditions (*PPP Act 2013 s 43(d), 3rd sch*), and project specifications such as service level, performance indicators, safety, security and environment preservation, etc. (*PPP Act 2013 s 43(2)(c)*).

Social, economic and environmental impact will be considered by the contracting authority as well as affordability, value for money and public sector comparator (*PPP Act 2013 s 33(d)*). Finally, fiscal and financial risk and contingent liabilities are examined by the Debt Management Office (DMO) during the F/S report approval stage and later by the negotiating committee.

The PPP Act provides 13 types of PPP arrangements (*PPP Act 2013 2nd sch*) by which a contracting authority may enter into a contract with a private party. Other arrangements could be used on approval of the Cabinet Secretary (*PPP Act 2013 s 19*). It also provides a baseline agreement framework to reduce negotiation duration and provide foreseeability for involved parties (*PPP Act 2013 s 3*). The minimum contractual obligations include the nature and scope of works and services, rights and obligations of each party, description of property and utilities, duration, dispute resolution mechanism, etc.

A private party may submit petitions or complaints during the project tendering and agreement process (*PPP Act 2013 s 67*) and project agreements should specify a dispute resolution mechanism such as arbitration or other non-judicial means (*PPP Act 2013 s 62, 63(3), 3rd sch para 18*). This compares well to other countries where a specific dispute resolution mechanism is not regulated.

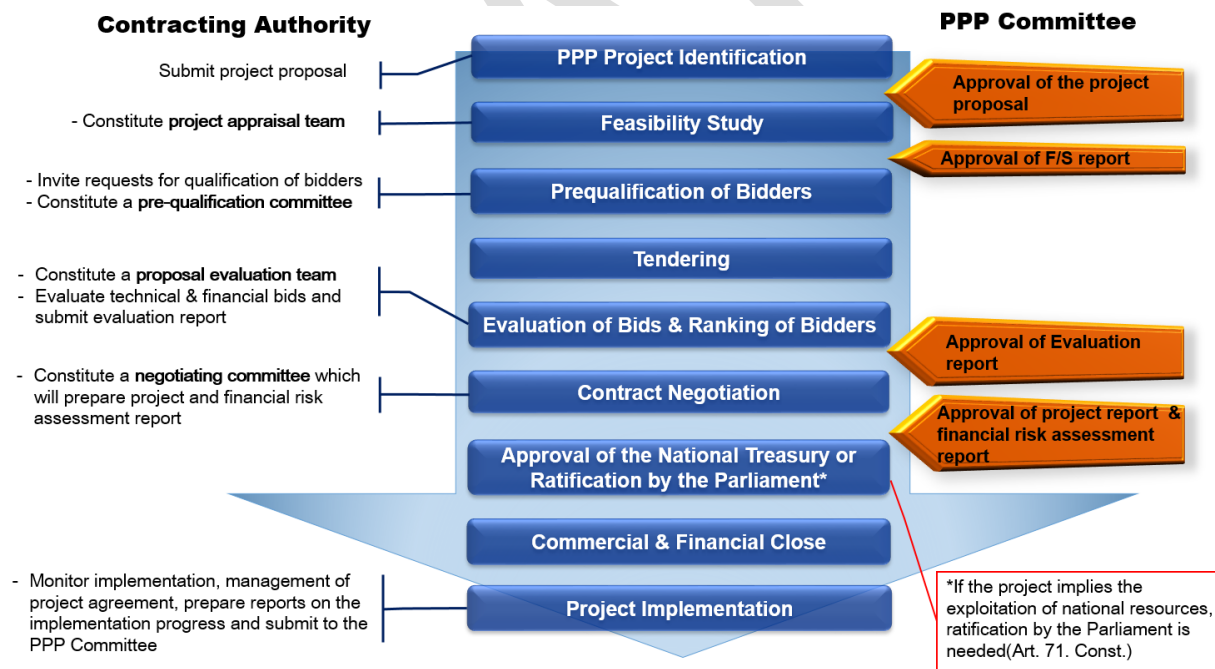


Figure 1: PPP Project Approval Process

1.3. County-Level PPP Process

- ✓ The Amendment Bill of 2016 provides the needs of the Counties to be better reflected in PPP.
- ✓ Role and responsibility of the county government in the PPP arrangement and PPP procedure are set out in the Bill.
- ✓ The yet approved PPP County Government Regulations 2014 and PPP manual will bring further clarity for PPP stakeholders in Kenya.

The PPP Act 2013 is to be amended by the 2016 Bill to recognize county governments as distinct contracting authorities for PPP projects. This Bill also provides for the Cabinet Secretary to make further guidelines to facilitate the manner in which county governments may deal with PPP arrangements, for example, rules for the PPP Unit's relationship with county governments. As a result of the amendments - the PPP committee shall be able to consider not only national PPP priority lists, but also from counties.

The Bill is to provide that a county government may enter into a PPP arrangement and be responsible for management and administration of the project development cycle (PPP Amendment Bill 2016 s 54A (1)). The user department of the county government or county corporations should prepare and submit a project proposal to the PPP Unit for consideration/recommendation – detailing the strategic and operational benefits of entering into the arrangement (PPP Amendment Bill 2016 s 54A(2)). If the PPP Unit recommends developing the project as a PPP, the county government may approve it subject to a detailed feasibility study. For every county PPP, the PPP Committee shall approve: (a) the feasibility study report prepared by the county government; (b) the negotiated commercial, financial and technical terms; (c) any proposed variations to a project agreement (c) (4). County governments shall implement PPPs where the project (a) provides value for money; (b) is determined to be affordable; and (c) ensures appropriate risks are transferred to the private party (5). The Cabinet Secretary may further regulate for better PPP implementation arrangements by county governments, including on: (a) projects they may undertake; (b) contingent liability thresholds that may be approved; (c) management of PPP procurement; (d) negotiation of project terms (PPP Amendment Bill 2016 s 54A(5)).

Though a draft of PPP County Government Regulations 2014 is featured on the PPP Unit website, the final document does not appear to have been published yet, nor does the PPP manual. Approval and dissemination of these new texts will help to enforce legal certainty for PPP stakeholders in Kenya.

2. Water Services PPPs

2.1. Water Services Legal and Institutional Framework

- ✓ The new Water Act 2016 recognizes shared responsibility of county government with national government on water services with a user pays principle.
- ✓ Different organizations participate under the Water Act 2016: Water Sector Trust Fund, Water Services Regulatory Board, Water Works Development Agencies, Water Service Providers, National Water Storage Authority, Water Resources Authority, Basin Water Resources Committee, and Water Resources User Associations.
- ✓ The enabling legal environment for the involvement of county government in water PPP is established by County Governments Act 2012 and Water Act 2016.

Under the Water Act 2002, resource management was separated from water and sanitation service (WSS) delivery – with institutional separation of policy, regulatory, asset holding and operational functions. This allows county governments and other public agencies to engage private companies in both WS infrastructure and delivery. The new Water Act 2016 harmonizes the legal framework of the Water Act 2002 with the 2010 Constitution’s devolution of water services to counties, in recognition of their shared responsibility with national government, with the aim of “devolution of functions to the lowest appropriate level” with a user pays principle [5].

Effective implementation of the act will require designation of National Public Water Works, Water Works Development Associations, and a plan for transferring assets, liabilities and staff of current agencies to new agencies and development of subsidiary legislation [5]. Figure 2 outlines the provisions made in the Water Act 2016 in terms of water resource management and services institutional framework.

Institutional framework in water sector

In relation to Water Services under the 2016 act, The Water Sector Trust Fund (currently the Water Services Trust Fund, WSTF) is to provide conditional and unconditional grants to counties to assist financing of water services development and management in marginalized or underserved areas. This includes community initiatives for sustainable water resource management, as well as water service development in rural areas considered not commercially viable for licensed Water Services Providers (WSPs); under-served poor urban areas, as well as research on water resources management and water services, sewerage and sanitation.

The Regulatory Board (currently the Water Services Regulatory Board, WASREB) functions have been retained from the 2002 Act as, among other tasks, setting water service provision and asset development standards; issuing WSPs licenses, approving county tariffs. It is also to develop a model memorandum and articles of association for all water companies applying to be WSPs. Furthermore, it monitors facility design, construction and operation and management (O&M), advises the Cabinet Secretary on financial support for WSPs; monitors implementation of the Water Services Strategy (2007-2015); establishes a complaints mechanism; inspects water works/services; regulates asset development including business, investment and financing plans for efficiency, effectiveness and realization of the right to water services, and makes recommendations on water provision to marginalized areas. Water Works Development Agencies (WWDAs, formerly Water Services Boards) develop, maintain and manage national public water

works until they are transferred to a county government, authority, joint committee or a WSP. They also provide technical services and capacity building to county governments. A WSP is defined in the Act as a company, public benefits organization or other providing water services and develop county assets for the licensed service area. WSPs are ultimately the responsibility of the county governments.

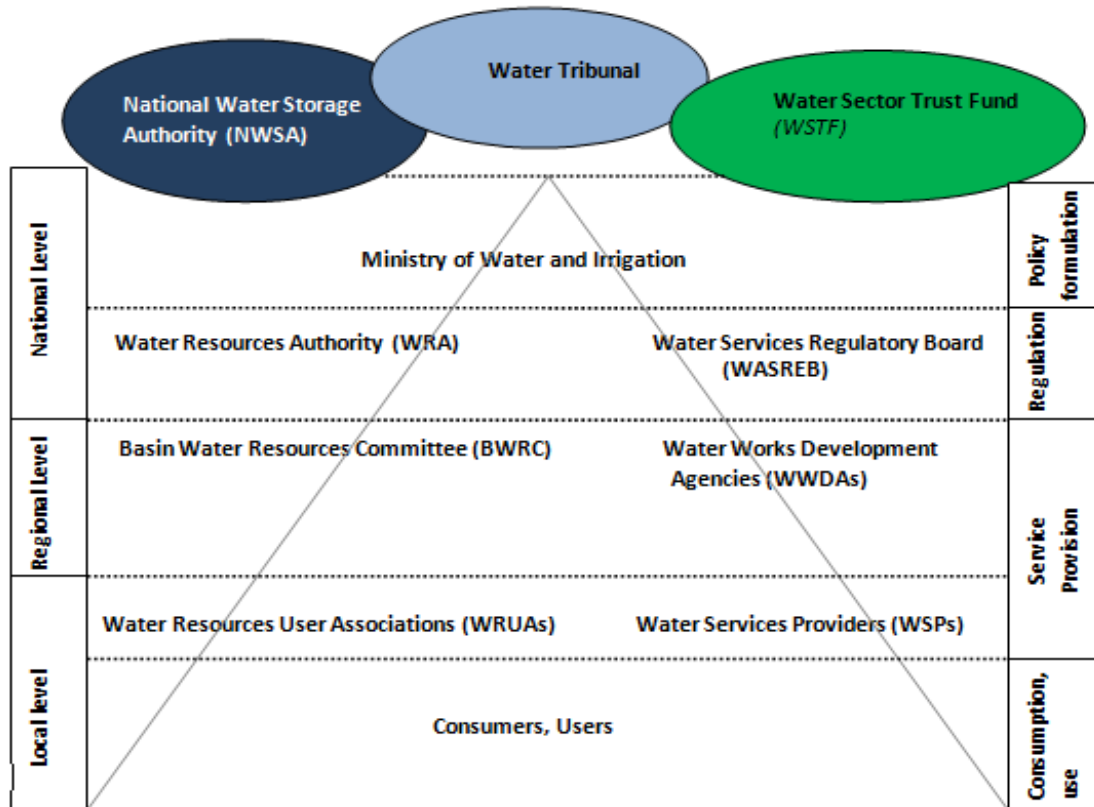


Figure 2: Water Related Organizations’ New Titles and Structure under the Water Act 2016 (Act No. 43 of 2016), Source: MWI, 2016

In relation to Water Resource Management, the Water Resource Authority (WRA) is mandated to protect, conserve, control and regulate water resource use through the National Water Resource Management Strategy (2006-2008), formulate/enforce standards, procedure and regulation for water resource management and use of water resources. It also plans and issues water abstraction permits and sets and collects permits and water use fees. Basin Water Resources Committee (BWRCs, formerly Catchment Area Advisory Committees) will manage water catchments and facilitate establishment of Water Resource User Associations (WRUAs) at the sub-basin level to manage water resources and resolve water related conflicts. A National Water Harvesting and Storage Authority is to be established.

Regulation framework for water PPP with emphasis on the involvement of county government

PPP elements of the Water Act 2002 are also reflected in the National Water Services Strategy 2007-2015, which includes the 9th key principle of “Public-Private Partnerships promoted to develop capital projects where feasible” as well as improving service provision performance by transferring operation to private entities delegation of operation of public/communal outlets to individuals linked to formalized providers

by contract; obtaining economies of scale by clustering and establishing commercially-oriented providers operating under private sector principles.

At county level, the Constitution of Kenya 2010 devolves water service authority to level of the 47 newly established counties (Constitution of Kenya 2010 4th sch) and the County Governments Act 2012 gives power to enter into partnership with private organizations in accordance with the PPP Act (2013) for any work, service or function for which it is responsible in its jurisdiction (*County Government Act 2012 s 6(3)*) [6], [7]. The Water Bill 2016 recognizes county governments or county corporations as the contracting authorities for PPP projects, giving them power to enter into PPP arrangements and to manage and administer the overall project development cycle. A county government may issue an invitation to bid or consider privately initiated proposals in certain circumstances relating to urgency and unavailability of other firms to carry out the work. Private entities may also enter into direct agreement with lenders to finance PPP projects.

Under the recent legislation, county governments have started forming contracts with private entities without national government participation. However, these WSPs often lack project development skills, and devolution can create loopholes that may compromise PPP efficiency.

2.2. Water Sector PPP Experience and Private Actors

- ✓ Kenya has PPP experiences in short term affermage/lease WSS for O&M while the performance of these PPPs is limited due to difficulty to collect revenues from users.
- ✓ Through several pilot projects such as Kenya Market Assistance Programme(MAP), useful guides and operation models were identified while additional context-specific considerations are required for peri-urban and ASAL WS PPP models

Historically, urban WSPs have mostly been local authority-owned utilities established as commercialized, publicly owned companies, while efforts have been made to transform community-managed rural projects into formally recognized WSPs [8]. Similar to other Sub-Saharan African countries, Kenya has adopted short term affermage/lease WSS PPPs with companies/community associations taking on O&M but making minimal upfront capital investment. This model sees public/donor-funded construction of facilities by private companies or communities, which remain in public ownership with 1-3 year leases granted to communities and/or companies for O&M.

WSS infrastructure construction tenders have been routinely placed by WWDAs, including for water pans with prices ranging fairly widely, between KShs 1.97 million and KShs 9.37m¹. However, extremely limited O&M PPPs were found for water pans in target counties, likely because limited and low quality water supply had not presented opportunities to collect revenues from users.

There are several recent donor pilot projects for WS PPPs such as Kenya Market Assistance Programme (MAP)² sustainable WSS Public Private Community Partnership (PPCP) models for 12 water. The pilots blend subsidy with market finance to avoid private firms' borrowing at high market interest rates

¹ Example of North Victoria WSB water pan development tenders in 2015-2016 for earthworks and construction of VIP washrooms, a cattle trough, fencing and planting grass on dam embankments.

² Dutch development organization SNV's work with Kenya Markets Trust to UKAID, MOFA Netherlands and Gatsby.

(currently capped at 14% but rising to up to 21% in the past), which would in turn drive up tariffs. Leases have been formed with 11 private operators (POs) such as small businesses (e.g. petrol stations and shops) to manage water points. Community groups monitor performance, ensuring efficiency, quality, outreach and consumer rights. WASREB approves the water tariffs and enforcement framework, considering affordability and cost recovery. The model aims to: 1) transform rural water user associations (WUAs) into water companies, separating governance/executive roles, 2) engage private firms in lease/management contracts, and 3) create urban PPP models to incentivize lower non-revenue water (NRW) and grow customer base for quality water [9]. The model is outlined in Annex 3.

Other models in operation identified by MAP include 1) delegated management of O&M and revenue collection for bulk water supply; 2) lease operator O&M and rehabilitation investment for community supply; 3) co-management between the community-based owner and the day-to-day private operator; 4) maintenance service contract where the community operator contracts a private enterprise and 5) professional Management contract where the community owner contracts a professional manager and team for services [9]. Details and diagrams of these models can be found in Annex 4.

Such models are a useful guide of possibilities in Kenya, but context-specific considerations are required for peri-urban and ASAL WS PPP models which will cater to a small scale, often low income users. Most existing technology points in target areas are “isolated and managed by self-regulated community management committees” tasked with technology O&M, revenue collection and addressing user concerns, with quality varying greatly from project to project.

Companies now active in WSS PPPs in target counties include Grundfos, Davis and Shirtliff, Go Solar Systems, Epi-centre Africa and Bobs Harries Engineering Ltd. The initial field mission suggests that while private companies are willing to take on O&M but not make initial investments.

3. Finance and Economics

3.1. Public Finance

Government

- ✓ The Kenya Water Master Plan 2030(2014) cites as available government budget of KShs 592.4 for water and sanitation and a shortfall of KShs 1.2tr to achieve the goal of making WSS available to all.
- ✓ Kenyan government supports around 46% of capital costs of the projects which comes from county government and various national funds such as WSTF, PPPF and the Kenyan Equalization fund.

County governments devise long and medium term development plans to establish fiscal and economic priorities, and estimate overall revenues and expenditure in County Fiscal Strategy Papers (*Public Finance Management Act 2012 s 125*) [10]. National and county governments prepare budget review and outlook papers proposing the coming year’s sector distribution then finalize budget policy statements through sector hearings [11].

The Kenya Water Masterplan 2030 (2014) cites a KShs 592.4bn available government budget for water and sanitation - a shortfall of KShs 1.2tr on the estimated KShs 1.7tr investment and rehabilitation needed to achieve the Kenya Vision 2030 National Development Plan goal of making WSS available to all.

Kenyan government funding supported capital costs in 46% of the projects surveyed with an average contribution of 76% of each project's costs. This may come from county government budgets as well as various national funds (e.g. WSTF, PPPF and the Kenyan Equalization fund). The Government procurement system applies if dams are being financed by a public agency/out of public funds.

The **WSTF** (est. 2005) results-based grant scheme channels GoK/donor funds³ to projects in areas with inadequate WSS to assure availability/accessibility for all under the WSTF strategic plan 2014-19. It provides (un)conditional grants to Kenyan counties for 1) community sustainable WRM initiatives; 2) rural areas' water services considered commercially unviable; 3) Water services in under-served poor urban areas (*Water Act 2016*) [12]. Its four main financing and operation mechanisms are:

- 1) Rural WSS – through community based organizations and water utilities, targeted at ASALs
- 2) Urban WSS – through water service providers in low income areas
- 3) Sub-catchment protection – through WRUAs for communities, especially in ASAL areas
- 4) Result Based Aid – commercial bank project loans for WSPs and community based organizations (CBOs), who receive a percentage of the loan amount back on successful implementation

The WSTF aims to invest KShs 16.6bn (US\$163m) by June 2019, and is also currently managing a total allocated budget to invest in ASAL counties of around KShs. 5bn for 2016-2020 invested in by the Kenyan government and various donors via the Thematic Programme for Green Growth and Employment in Kenya 2016-2020, outlined in the following section.

The **PPP Project Facilitation Fund (PPFF)** established in 2015 under the PPP Act 2013 provides grants, donations, project levies or tariffs, project success fees, appropriations-in-aid to the State Department responsible for finance matters. Funds can be used for project preparation, PPP Unit activities, project viability gap financing, transaction advisor's retainer fees, and as a source of liquidity to meet any contingent liabilities arising from a project. It can support: recoverable land acquisition costs; PPP consultancy services (e.g. sector diagnostics and partnership strategy studies); project proposals and feasibility studies; project tender processes including advertisements; marketing and communications; project structuring and preparation of tender documentation; transaction and associated advisory services; other project preparation approved by the PPP Committee.

The **Kenyan Equalization Fund** prescribed under Article 204 of the constitution of Kenya to provide access to basic services, including water, in marginalized counties. The government had allocated KShs 12.4bn including KShs 97m for Isiolo water and sanitation project and KShs 70.9m for borehole projects in 2016/17 among priority projects [13]. However there have been issues over the implementation of the fund [14].

In line with the impact and risk assessments stipulated in the PPP Act, the PPP Unit has adopted the Framework for Managing Fiscal Commitments and Contingent Liabilities (FCCL) Management Framework, which manages and evaluates risk and advises on FCCL of government projects including PPPs. It requires contracting authorities to carry out feasibility studies on technical, procurement and PPP options, assessing the cost and risk allocations between parties and also to produce a project risk and financial assessment report testing affordability, VFM and stress tests on capital limits. The government controls

³ Supported by the World Bank through the Kenya Output-Based Aid (OBA) Fund for low-income areas, the German Development Corporation (KfW)'s Aid on Delivery (AOD) programme - expected to support access to \$16 m (KShs 1.6 billion) of debt and enable provision of water and sanitation to 30,000 households. Utilities meet 20% of project costs up front and borrow 80% through a loan from domestic banks. A 40% grant is paid on achieving the targets. Some counties have also been supported by USAID's Development Credit Authority (DCA).

and bears the risks for a major portion of the life of PPP assets, which is generally longer than the contract period that built them [15].

Post-devolution, there is need for monitoring and reporting on activities outside of central government, including new counties' inherited assets, liabilities and fiscal frameworks. Though information is provided on major tendered projects, there is need for disclosure of total financial obligation and systematic cost benefit analysis [16]. A project company or private party is required to submit audited financial accounts to the contracting authority or the PPP Unit within six months of each financial year end (*PPP Act 2013* s 69).

International Donor

- ✓ Bilateral and multilateral donors supported water projects by channeling the fund through WSTF and the PPF which takes up of 48% of the capital costs of projects surveyed.
- ✓ Thematic Programme Green Growth and Employment in Kenya 2016-2020 was funded by different bilateral and multilateral donors, including DANIDA with KShs 1,050m contribution.
- ✓ The use of Output-Based Aid (OBA) by multilateral donors to deliver subsidies without disincentivizing cost efficiency in a number of programmes are notable.

Kenya has a long history of receiving water-aid through bilateral and multilateral donor-supported projects, in addition to donor funds channeled through the WSTF and the PPF described in the above section. Donors supported capital costs in 48% of the projects surveyed with an average contribution of 80.5% of each project's costs.

For Thematic Programme Green Growth and Employment in Kenya 2016-2020 has received KShs 1,050m from Danish Development Cooperation Agency (DANIDA), KShs 3,750m from other development partners (EU, Sweden, Finland and IFAD) and KShs 600m from the Kenyan government for water related investments managed by the WSTF. The project includes the target of enhanced WRM and investment for marginalized communities' improved water access in ASAL counties, including Isiolo County. Its fifth output is enhanced experience for promoting water provision PPPs in ASALs, seeking pilot models through corporate social responsibility (CSR) activities, green technology application for increased water service coverage and sustainable drylands productive opportunities, for example [17]. It aims to partner with county governments on projects identified in their County Integrated Development Plans (CIDPs) as well as on monitoring and evaluation, resources for programme support and management and sustainability. It is also focused on "small and medium sized investments", community involvement and reaching the poorest segment of society and implementing climate proofed infrastructure using green technologies. It was to support WRUAs' sub-catchment management plans for protection and conservation of water resources. WSTF was to engage with ASAL governments to identify priority needy areas and interventions, increasing knowledge on alternative private sector led delivery mechanisms [17].

DANIDA has also funded a two phase Medium-Term ASAL Programme (MTAP) in 6 counties⁴. The second phase (MTAP2 2010-2016) had a budget of KShs 945m aimed at direct investment in water, county/community level planning for natural resources and economic development and private sector

⁴ Wajir, Marsabit, Tana River, Lamu and Isiolo

development and investments⁵. It aimed to help communities plan and manage their natural resources at a local level, championing green growth issues including water investments and private sector investment opportunities, among others. Technical assistance is currently underway to strengthen Kenyan WS PPPs such as through the MAP programme discussed in the above section.

Donors are increasingly incorporating Output-Based Aid (OBA) to deliver subsidies without disincentivizing cost efficiency. For example, the World Bank Water and Sanitation Program (WSP), Public Private Infrastructure Advisory Facility (PPIAF) and the Global Partnership for Output Based Aid (GPOBA) pilot output-based subsidy program for small scale water providers in 2006, funding market-based infrastructure finance for 21 CBO water providers in rural and peri-urban areas to link and build capacity of CBOs and microlenders [8]. The current WS PPP models should learn lessons from and build on such work.

Communities

Project beneficiaries contributed to capital finances at 17.5% of surveyed technology points, covering an average of 19.5% of total costs. Based on this, each household would be required to contribute around KShs 11,800 for development of 30,000m³ water pan and KShs 4,300⁶ for a borehole fitted with solar pumping. As many rural Kenyans earn less than KShs 200 per day, this represents at least 2 months income in co-contribution (cash/in kind) for the technologies considered under this project.

3.2. Private Finance

- ✓ Concessional loans from MDBs, risk mitigation tools and policies of the GoK are in place to ensure project financing.
- ✓ Contrary to the past tendency, the private investment in climate sector and renewable energy is growing.
- ✓ Tariff issues and financial management capacity of small WSPs hinders financing of water infrastructure repair.

Finance Market and Debt Instruments – Multilateral development banks (MDBs) have offered international concessional finance to support WS PPPs by providing credit lines to domestic financiers for WS PPP includes domestic banks and microfinance institutions. Furthermore, the GoK has made available various risk mitigation tools such as Partial Credit Guarantees, Subsidies, Credit Ratings, technical assistance and letters of comfort/support. Kenya's PPP policy compensates foreign investors if a project is terminated due to political instability or other unavoidable circumstances. For example, as of 2015, the Kenya Commercial Bank has signed a US\$ 3m development credit authority guarantee for water financing [18]. Based on the above analysis, financing and subsidies for capital investment will likely remain necessary in at least the medium term.

Private Equity – Private equity has been little invested in water pans and solar/wind pumping systems to date, but bottom of the pyramid investment funds are emerging. For example, the Green Climate Fund-supported KawiSafi Ventures fund for investment in-country technology companies in off-grid communities as well as Green Energy Access Programme, an investment fund to provide financing for

⁵ GoK will input 20-30 % of the budget including staff costs, office facilities and running costs

⁶ Cost of borehole and solar pumping depends on depth and yield

decentralized energy service companies for off-grid and mini-grid systems for rural households and communities and renewable energy for industrial players.

Tariffs (O&M funding) – Following project establishment, tariffs are the main revenue source for Kenyan WSS O&M and finance servicing [8]. WASREB offers detailed guidelines and approval mechanisms for WSP tariff setting to cover justified costs to first achieve O&M cost recovery, and later total cost recovery [5]. However, Water Service Provider (WSP) collections have not tended to reflect real operation cost. Low tariffs, reliance on poor customers, perceived low collection potential and small WSPs’ lack of financial management systems and creditworthiness has led to a lack of county-level O&M funds [8]. Such issues have seriously hindered financing of water infrastructure repair, especially in rural areas.

4. Enabling Environment and Barriers

4.1. Enabling Environment and Barriers

- ✓ A pilot national level program on water sector PPPs, with local level focus on management of PPP viability gap funding is recommended.
- ✓ Challenges to water services PPP viability in Kenyan rural and peri-urban areas are related to water resource and quality; capital financing; O&M recovery; capacity and experience, and sustainability.

National PPP and WSS legal and institutional frameworks are being specified to the county level, permitting cooperation between local public actors and the private sector, though formal experience in these aspects is still scarce. Some national funds for marginalized areas’ water services are available, and donors are piloting innovative water sector PPP models. Target county governments (Isiolo, Embu, Homabay, Baringo) have included water pan and borehole construction in their 5-year plans (2013-2017) and have indicated general intention to leverage PPPs. Future plans can directly link PPP ambitions to these activities to form project pipelines for water sector PPPs and integrate them into counties’ budget management system. It would be helpful to establish a pilot national level program with local level focus to manage water sector PPP viability gap funding, especially for underserved areas. Capacity building for county and catchment level actors can enable efficient initiation and management of water service PPPs – as well as support for private actors to enable their successful and sustainable participation.

Potential for expansion of private-sector led water services in rural and peri-urban areas is clear given that poor Kenyans are currently severely underserved, generally pay more and travel farther for water than users in other areas [19]. Though there are several challenges/bottlenecks that may hinder effective water sector PPP implementation, several already established and potential strategies may be enhanced, scaled up or implemented for the first time. Targeted financing mechanisms for water supply and irrigation will also be necessary for the implementation of new PPP business models.

Specific challenges to water services PPP viability in Kenyan rural and peri-urban areas are related to: water resource and quality; capital financing; O&M recovery; capacity and experience, and sustainability. Local level capacity and experience and macro-level risk are further considerations.

Water Resource (availability and quality) – Limited and changing water supply patterns exacerbated by climate change and environmental degradation limit water resource availability, further damaged by rapid siltation, water evaporation and pollution at small dams/pans, while boreholes may be unavailable

or saline. Water harvesting and storage activities must ensure reliable resource supply to reduce resource risk for private sector service providers.

Capital Financing – Public (donor and government) funding may remain necessary as even where water sector PPPs have potential to generate sustainable internal revenues, a lack of available capital for infrastructure construction may cause a viability gap in project construction. Commercial interest rates may be high as lenders view water sector projects as risky and conditions in target areas may not be seen as attractive for increased private sector capital investment. The common \$10,000 budget limit for water projects has proved too small for sustainable projects – with cost cutting often occurring on water installation planning and design, and precluding the inclusion of innovative green technologies.

O&M Cost Recovery – Currently, less than 5-10% of private WSPs are in rural areas and low skilled communities are often without maintenance support/budget from national government. On the other hand, private sector involvement is reputed to lead to high tariffs, yet services have not succeeded in collecting fees to cover costs of operations, leading to questions over the self-sufficiency potential of the sector (Kenya 2007). Only 29% of Kenya's 31 small⁷ and 37% of 19 medium utilities⁸ achieved O&M cost recovery in 2014/15. The average tariff of small suppliers charging an average of 61 KSh/m³ with costs of 98 KSh/m³, and medium suppliers charging 67 KSh/m³ with a cost burden of 74 KSh/m³, leaving utilities relying on “unpredictable and unsustainable subsidies to finance operations” [20]. Inefficiencies and non-revenue water (NRW) block cost recovery and subsequently create need for high tariffs. Full O&M cost coverage is deemed achieved when a utility recovers 150% of O&M. Financial management and technological maintenance capacities must be raised, while a user base with willingness and ability to pay must also be cultivated.

Non-Revenue Water (NRW) – inefficiencies are seen as a main reason for high tariffs (and a lack of cost recovery from them) with water sometimes drawn from public supply lines and sold to under-supplied citizens at high cost. Some 47% of water classified as “unaccounted” is diverted through these means [20].

Sustainability and Reliability – The private sector can play a key role in linking communities to financial management, technical expertise and spare parts needed to maintain projects. Hiring of qualified private sector actors, community training, and standardization of technologies as well as enhanced follow-up, monitoring and control activities can combat these issues. Increased Urban WSPs' commercial supply of spare parts and repair services to rural facilities could also help to address this issue (Kenya 2007, p20).

Capacity/Experience – County governments, communities and private sector actors must all be supported to increase their capacity and experience for successful water PPPs. There is need to strengthen WRUAs and also increase work with registered WSPs. As the main executors of remote projects in poor areas, communities require capacity building on financial management, project implementation and simple technology maintenance. Community representatives must also be trained to consider needs of all of the population, including women, youth and the poor.

Fiscal Liability Risk - Kenya faces potential contingent fiscal liability arising from government guarantees for PPPs engagement, which have not been explicitly stated in budget documents. Existing PPPs of around 5.7 percent of GDP should be fully disclosed with risk management from the National Treasury, however these are not reported nor covered by the National PPP Act. Disclosure of rights, obligations and other

⁷ Those catering for less than 5,000 people.

⁸ Those catering for 5,000-9,999 people.

exposures under existing and planned PPPs should be reported at least annually, including at sub-national government level, including reporting on expected annual receipts and payments over the life of contracts. Assessment of the fiscal implications of contracts should be carried out within a framework maintained by the PPP Unit and fiscal implications of new PPPs should be properly managed and disclosed under the PPP Act.

Table 1: Water Sector PPP Potential Actions to Overcome Main Barriers for Water Sector PPPs

Barriers		Enabling Environment
Water resource (availability and quality)		<ul style="list-style-type: none"> - Professional planning and design - Cost effective water storage and purification technologies - Distinction of water per use (domestic, irrigation and livestock)
Non-Revenue Water		<ul style="list-style-type: none"> - Monitoring (through technologies and frameworks), including by communities with effective reporting procedures - Results-based payment contracts for project developers/WSPs
Capital Financing		<ul style="list-style-type: none"> - Innovative finance mechanism – blending public finance (donor/government), concessional loans, private finance and community contribution (in cash/kind) where appropriate
O&M Cost Recovery		<ul style="list-style-type: none"> - New business models enabled through technologies for: Income generation; clustering; innovative payment systems; - Increasing tariffs through education of users on benefits of paying for quality water; increasing user base
Sustainability and Reliability of Technologies		<ul style="list-style-type: none"> - Training/capacity building of community managers - Dedicated WSTF repair fund for publicly owned rural technologies - Contracted regular follow-up (maintenance visits by technology providers) - Standardization of technologies - Community water technology insurance scheme
Capacity for PPPs	Lack of Experience	<ul style="list-style-type: none"> - Experience: Training of county, WRUA and private sector stakeholders in new business models; knowledge sharing from successful WSPs (e.g. from urban areas)
	Lack of Private Sector Actors	<ul style="list-style-type: none"> - Division of labor: 1) fostering formation of local community companies for basic tasks on individual projects at local level, and 2) clustering these projects for large companies' occasional technical (profitable) tasks at county level
Fiscal Liability Risk -		<ul style="list-style-type: none"> - Sub-national government level reporting on expected annual receipts and payments over the life of PPP contracts

4.2. Innovative Solutions to Enhance Private Sector Engagement

Financing Approaches

- 1) **Output-based/progress linked finance** by making concessional loan/grant disbursements conditional on demonstrated delivery of infrastructure/services in low income areas, public

fundes can incentivize high performance and efficiency.

- 2) **Innovative water tariff and payment systems** to ensure both financial sustainability and affordability for all, including low income users.
- 3) **Financing mechanisms** (Private and Public) that are targeted to the rural water sector (both general supply and irrigation specific, targeted to filling the capital expenditure (CAPEX) viability gap for certain problem areas (e.g. professional planning, adequate construction costs and repairs especially to be targeted). Address the “missing middle” between commercial and microfinance through bundling projects to increase project size.
- 4) **Fund the core activities through public/private investments and use community funds** to “go the last mile” and invest beyond the primary product (e.g. in irrigation system).

Business Model Approaches

- 1) **Sustainable business model:** Moving away from least-cost logic to a life-cycle costing approach to ensure that all infrastructure and service costs (including repairs and expansion) are fully accounted for. The roles and responsibilities of private and public sector actors for covering these costs and executing activities must be clearly delineated from the outset.
- 2) **Clustering technology can enable private sector participation by:**
 - Providing economies of scale and pooling O&M risks.
 - Establishing a competitive environment for private operators.
 - Grundfos Lifelink’s integrated revenue management system of clustered water projects to track consumption and allow “Smart Key” credit transactions, while monitoring technical performance and necessary repairs. The system is serving 42 boreholes rehabilitated with pumps, solar PV, 10m³ storage tanks and a prepay system on a 10-year service contract since 2012.⁹
 - Similarly, Davis and Shirliff’s iDayliff mobile monitoring solution allows customers to monitor and control water pumping equipment from their phones, speeding the repair process in case of a breakdown. The company has also obtained finance for solar technologies through loans guaranteed by donors for lighting in the health sector for example.
- 3) **Income generating additional technologies to be briefly discussed:** pay per use phone/battery charging at solar/wind technology point
- 4) **Delegated management model:** Kanyathiang Water Supply Project in HomaBay runs 11 kiosks and 8 schools for a total of 1,900 users, under delegated management as an alternative to the common community based management model. In this model, private operators are contracted to provide services funded by government, donors and beneficiaries, while the government retains ownership. .
- 5) **Stakeholder involvement:** participatory processes on technology choice and other project aspects such as manageable levels of community contributions can boost sustainability of water

⁹ Total installation cost was KShs 3.5 m, and Grundfos levies KShs 216,000 annually in O&M fees by obtaining revenue of KShs 20,000 per month per KShs 100/m³. However, it should be noted that community members were dissatisfied that Grundfos retains revenues for capital recovery, with a lack of local Grundfos representatives and lack of control over system development during the contract life. Further, though end-users could load credit onto water cards through local vendors or mobile platforms, slow replacement of lost cards led to lack of access to water services.

points especially if livelihoods aspects are well considered. Inclusion of youth and women is especially important as these vulnerable groups have often been excluded from decision-making processes and thus often from the benefits that projects can bring. Community ownership of technology-point related businesses should be considered, versus the benefits of fostering participation of individual entrepreneurs, as this feasibility study's research found that group income projects tended to disincentivize performance in comparison to those of individualized entrepreneurs.

- 6) **Innovative finance models** could include centralized repair insurance fund for communities to increase the capacity for occasional repairs. Other models may include micro-franchising of technology projects with a well-defined but adaptable model that can be applied by entrepreneurs to different situations.

5. PPP Potential and Recommendation

5.1. Financing and Funding

- ✓ Estimated capital expenditure for the technology options from the feasibility study ranges from KShs 4.85m to 18.71m depending on the combination of the technologies and the County. This could be co-financed by combining different financing tools from various stakeholders.
- ✓ Around 70% of cases, the average monthly maintenance costs of water pan O&M in target areas were less than \$1,000. For these O&M costs, novel options, such as establishment of a government run central/regional dedicated repair fund, a citizens' cooperative repair fund, a micro-insurance scheme, could be considered.

Financing Capital Expenditure — Baringo's Option 1: <Borehole + Solar Pump> would cost approximately KShs 4.85m, while adding a distribution network as the second most preferred option in Embu would raise the cost to KShs 11.25m. The technology combination of <Water Pan + Solar Pump + Treatment Filter + Distribution Network> would cost KShs 18.71m in Baringo and KShs 11.25 m in Embu. Private capital investment in engineering, procurement and construction (EPC) water services may continue to be low given that cost recovery has been low to date – therefore the balance between financing streams that encourage in the private sector should be considered.

These capital expenditures of the WSS technologies may be publicly funded through the WSTF, the national government equalization fund for underserved areas, or county government budgets under each county's five year development plan. Grants or loans from bilateral donors, MDBs, and microfinance institutions are option for community driven enhancement of projects if the correct group loan products can be developed.

Communities have typically contributed substantially to CAPEX costs relative to their capacity. Commercial interest rates on loans from Kenyan banks have been reduced in the past with donor guarantees. Private investment by companies planning to earn money from the supply of water through water pans to bottom of pyramid markets should also be encouraged.

Table 2: Potential Financial Flows CAPEX (EPC)

Type	Source	Nature
Nat. Public	WSTF	(Non)conditional grant/results based aid
	National govt.	Equalization fund
	County funding	Under 5-year development plan
Intl. Public	Bilateral donor	Loan/grant/RBA*
	MDBs	Loan/grant/credit lines
	Microfinance	Community microloan
Nat. Private	Kenyan banks	Commercial loan / Maji fund credit line
	Private investment	Equity investment
	Community contribution	Cash/in-kind labor

O&M Funding and Management — This feasibility study found that average monthly maintenance costs of water pan O&M in target areas were less than \$1,000 in 68% of cases and between \$1,000 and \$5,000 in 16% of cases. In most cases, O&M was paid by the community (58%) either from water sales revenue or direct contributions, sometimes by the government (19%) in the form of subsidies (e.g. from WSTF, counties, and the national government) and very rarely by donors (2%). The GoK has expressed desire to move away from public funding of O&M to revenues obtained from user fees, while mindful of some low-income users' inability to pay. User fee payment method options may assist on matching water payment to user's income patterns such as seasonal fluctuations (e.g. of flat rate, pay as you go, or pre-pay).

The role of the private sector and licensed water service providers in rural and peri-urban water provision was limited (5.7% each). Widening service access and quality as well as creation of additional revenue streams must also be considered, potentially driven by additional technology options outlined above (e.g. irrigation and phone charging), to enhance the viability of PPPs. Equipment maintenance and repair should be given special consideration within O&M.

Novel options for payment of this may include establishment of a government run central/regional dedicated repair fund, a citizens' cooperative repair fund, a micro-insurance scheme that will cover the cost of repairing or replacing equipment. Private sector re-investment of revenues in maintenance and repairs should also feature in projects that perform above break-even point.

Table 3: Potential Funding Flows (O&M)

Type	Source	Nature	Prevalence found in F/S
Nat. Public	WSTF	(Non)conditional grant	18%
	National govt	Equalization fund	
	County funding	Under 5-year development plan	
Intl. Public	Bilateral donor	Grant	2%
	MDBs	Grant	

Private	User fees	Flat rate / prepay / PAYG	20%
	Private investment	Re-investment, creation of repair/expansion fund	4%
Communities	Community/cooperative funds	Payment for one-off repairs or regular maintenance	37%
Innovations	Centralized dedicated repair fund	Can be funded by various sources and administered by WSTF	Novel options
	Repair insurance fund	Contributed by communities	

5.2. WSS PPP Model Options for Kenya

- ✓ Suggested options for water pans and borehole PPPs in Kenya's ASAL peri-urban areas are O&M, lease or concession contracts, Build-Own-Train-Transfer (BOTT) and joint ventures, and Build-Own-Operate (BOO).

Aside from financial flows, the roles of actors for all other areas of project execution must be set for the construction of the PPP models. Suggested options for water pans and borehole PPPs in Kenya's ASAL peri-urban areas are – O&M (*PPP Act 2013 2nd sch 1, 2*), lease or concession contracts (*PPP Act 2013 2nd sch 3, 4*), under which water facility ownership remains with the public sector. Furthermore, Build-Own-Train-Transfer (BOTT) and joint ventures are options under which facility ownership will vary between company and community –e.g. public ownership of the water resource and/or the water pan/borehole itself and private ownership of the technology. Finally Build-Own-Operate (BOO) (*PPP Act 2013 2nd sch 6*) is an option where companies carry out every stage of the project with the only public sector involvement being regulatory. The WSP carrying out O&M could be public, such as Rural Water User Associations (RWUAs) or Private Small Service Providers (PSSPs), or larger companies.

Table 4: PPP Arrangement (Roles & Responsibilities and Risk Sharing)


Owner	EPC	O&M (May be WSP)	Repair*	PPP Type
Public (CGs, WWDAs)	Private contractor	Contractor	Contractor	O&M contract (<i>PPP Act 2013 2nd sch 1, 2</i>)
	Community	Lessee	Lessee	Lease (<i>PPP Act 2013 2nd sch 3</i>)
		Lessee	Lessee	Concession (<i>PPP Act 2013 2nd sch 4</i>)
Public/Private	Private contractor	Company → community	Company	Build-Own-Train-Transfer (BOTT)
		Mix	Mix	Joint venture
Private	Private contractor	Private WSP	Private WSP	Build-Own-Operate (BOO) (<i>PPP Act 2013 2nd sch 6</i>)

* Equipment breakdown main named challenge (19%)

The division of roles and responsibilities in different PPP options described above and in Table 5 are presented in the order of most to least public involvement.

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Table 5: Division of Roles and Responsibilities in Different PPP Options



Types of PPP	Design-Build Design-Bid- Build	Service Contract	O&M contract	Leasing	Build-Own-Transfer (BOT), Build-Own- Operate-Transfer (BOOT), Build- Transfer-Operate (BTO)	Concession	Build-Own-Operate (BOO) / Divestiture
Transferred responsibility	Design, construction	Management of service contracts and investment	Asset operation and management	Commercial risk, certain types of repairs and rehabilitation	Design, construction and operation	Design, construction, operation and finance	
Construction	Public	Public	Public	Public	Private	Private	Private
Ownership	Public	Public	Public	Public	Private → Public	Private → Public	Private
O&M	Public	Public	Private	Private	Private	Private	Private
Who pays	Public	Public	Public	Public	Public	Public off-taker/Users	Public off-taker/Users
Compensation terms	N/A	Unit prices	Fixed fee basis or incentive basis	Tariff revenues	Fixed part variable related to production parameters	Public subvention, tariff revenues	Public subvention, tariff revenues
Pros	<ul style="list-style-type: none"> Potential to accelerate construction program Suited to capital projects with small operating requirement 	<ul style="list-style-type: none"> Allows public agencies to benefit from the particular technical expertise of the private sector, manage staffing issues, and achieve potential cost savings 	<ul style="list-style-type: none"> Encourage potential private sector involvement in the sectors undergoing transition from public to private where the sector has little PPP experience provide opportunity to test the waters in potentially risky markets with limited risk exposure for private companies 	<ul style="list-style-type: none"> Generates independent revenue streams Improves operation and commercial efficiency Develops local staff 	<ul style="list-style-type: none"> Adoption of whole life costing approach with tailored design for construction equipment and materials, pre-established long-term maintenance program and estimates of associated cost Promotes private sector innovation and improved value for money Provide a means for cash-constrained facilities to fund investment while remaining under public sector control 	<ul style="list-style-type: none"> Adoption of whole life costing approach Promotes private sector innovation and improved value for money Attracts private sector or finance and debt finance discipline Improves operational and commercial efficiency Increases level of demand risk transfer and encourages generation of third party revenue 	<ul style="list-style-type: none"> Attract private capital Encourage improvements in operational and management efficiency Protecting the public consumers as well as assets of national significance
Cons	<ul style="list-style-type: none"> Increase operational risk 	<ul style="list-style-type: none"> Cannot address underlying management 	<ul style="list-style-type: none"> Cannot improve service coverage or encourage 	<ul style="list-style-type: none"> Potential conflict between public body and 	<ul style="list-style-type: none"> May require guarantees 	<ul style="list-style-type: none"> More complicated and longer tendering process 	<ul style="list-style-type: none"> Constitutional and legislative issues to overcome

	<ul style="list-style-type: none"> Limited incentive for whole life costing approach to design Does not attract private finance 	<p>High cost issues affecting poorly run organizations</p>	<p>Energy tariff reform</p> <ul style="list-style-type: none"> Insufficient control over budgetary resources, staff policy etc. 	<p>the private operator</p>	<ul style="list-style-type: none"> Not necessarily improve efficiency of ongoing operations Does not attract private finance and commits public sector to providing long term finance 	<p>Process</p> <ul style="list-style-type: none"> Contract management and performance monitoring systems required Funding guarantees may be required Cost of re-entering the business if operator proves unsatisfactory 	<p>come since it involves assets of national significance</p>
<p>Examples</p>	<p>Small operating requirement which will be under the public sector</p>	<p>Toll collection, installation, maintenance and reading of meters in the water sector, waste collection, provision and maintenance of vehicles or other technical systems</p>	<p>Security, cleaning and catering for school, building-maintenance services, Operation and maintenance of power plant</p>	<p>Public transport and water sectors</p>	<p>Wastewater treatment plants or mass transit systems Electric power generation</p>	<p>Railways, water supply and waste-water treatment network</p>	<p>Privatization of state motorway authorities or water resources</p>

O&M Contract (PPP Act 2013 2nd sch 1, 2) — Under the O&M contract model, the county government (CG) or WRUA is project developer, directing public funds for EPC through a hired contractor (or potentially through community manual labor in certain cases of small water pans) and retaining ownership. Private contractor carries out O&M and collect tariffs from users, with funds from user fees managed by the government/WRUA.

This model leaves control and financial burden for the project with public actors. Performance management contracts make use of private sector expertise for technology care and financial management but does not transfer risk to private actors. Performance-based payment contracts can help ensure quality of private service but require monitoring structures to be put in place.

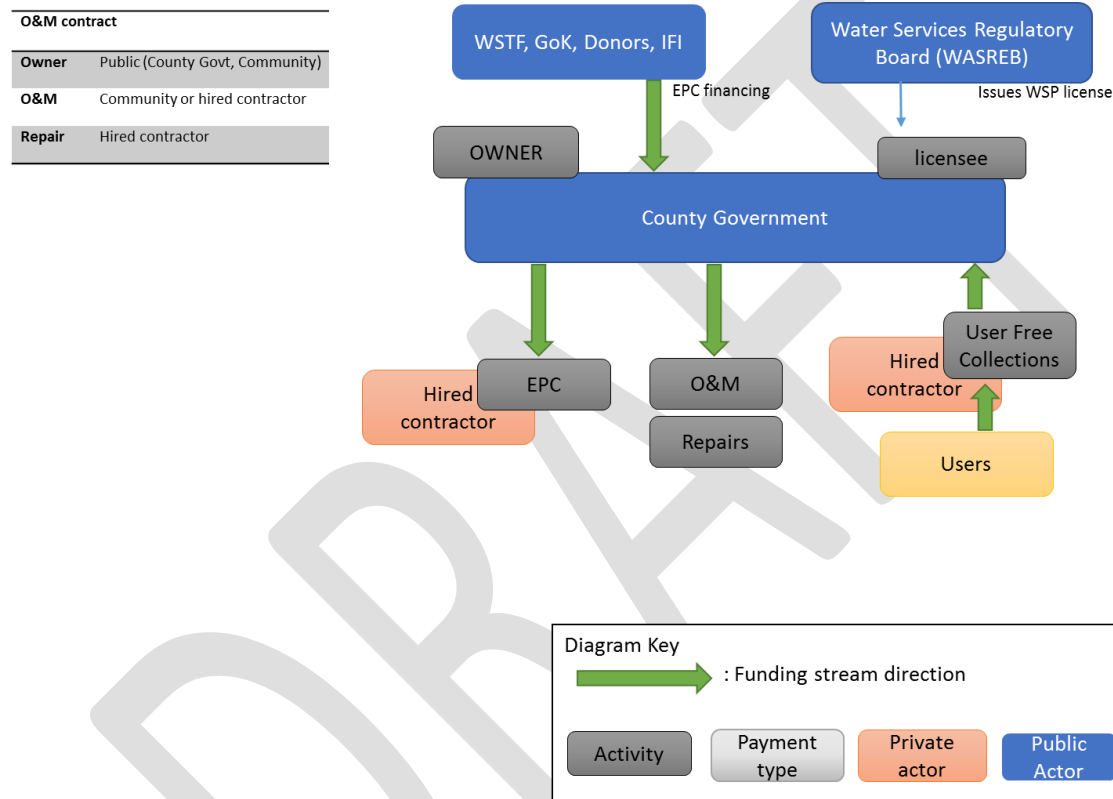


Figure 3: O&M Contract Model

Lease/Concession (PPP Act 2013 2nd sch 3, 4) — Under the lease/Concession model, the CG is a project developer, directing public funds for EPC through a hired contractor (or potentially through community manual labor in certain cases of small water pans) and retaining ownership. However, unlike the above O&M contractor model, the private firm leases the facilities/right to offer water service from CG/WRUA and manages funds from user fees for O&M/repairs.

This model places the resource risk and user fee collection risk on the private sector and has potential to place more responsibility on the private sector to undertake investments and work to both maintain and improve facilities, funded by retained revenues from user fees. This model may also require an additional public subsidy mechanism as user fees have not typically covered O&M, and therefore may render limited funds for service improvement or extension. In cases of little to no willingness/ability to pay for water this will be the most likely PPP option as it can operate in cases of full public subsidy with no user fee collection.

Lease/Concession	
Owner	Public (County Govt, Community)
O&M	Company
Repair	Company

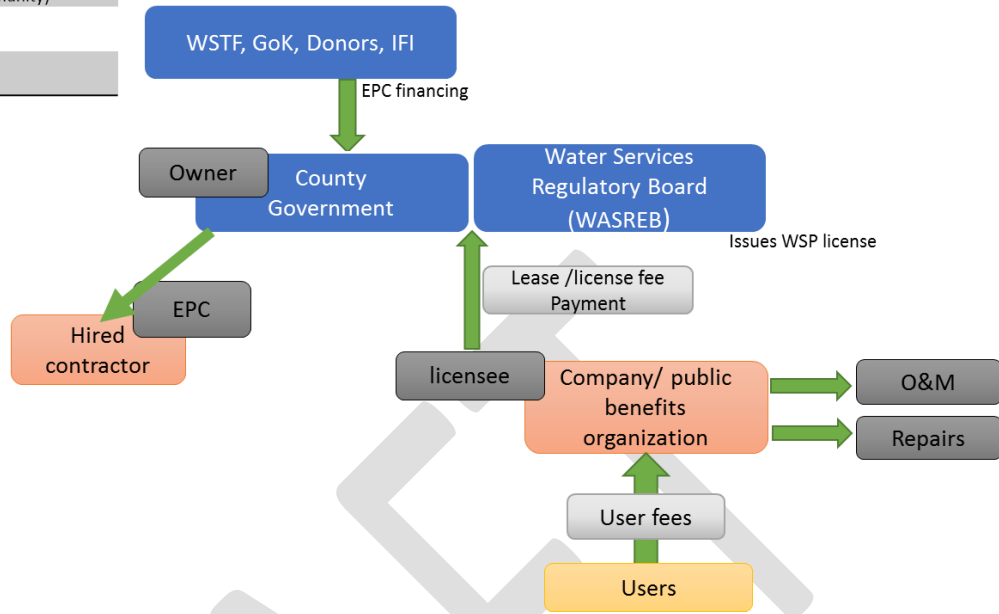


Figure 4: Lease/Concession Model

Build-Operate-Train-Transfer (BOTT) — Under the Build-Operate-Train-Transfer (BOTT) model, the county government or WRUA is project developer, directing public funds for EPC through a hired contractor, retaining ownership of the works. The O&M/revenue collection is initially conducted by a private firm which trains the community user association to be operator and conduct basic maintenance. Then, users take over O&M and management of user fees for basic maintenance/repairs while the private firm carries out larger/more technical repairs for a fee.

Participation of experienced private sector actors in this model can help build rural communities O&M capacity through training – especially in remote areas where continued company involvement is not attractive. However, a sustainable mechanism for continued access to private expertise for repairs must be devised from the start. Remote monitoring technologies as used by Grundfos and Davis and Shirlif could be explored.

Build-Operate-Train-Transfer (BOTT)	
Owner	County Govt, community
O&M	Private company then transferred to Community after training
Repair	Private company

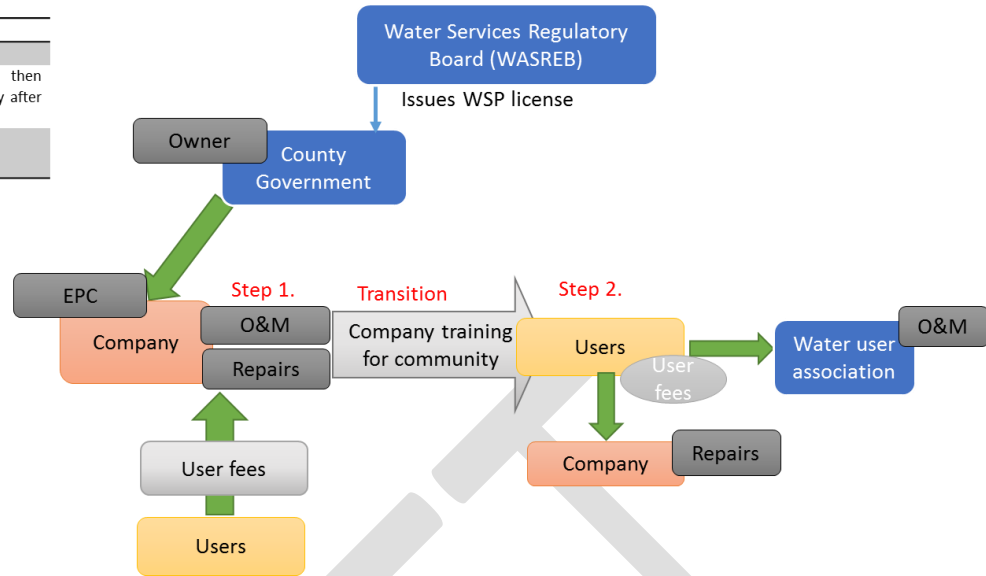


Figure 5: Build-Operate-Train-Transfer (BOTT) Model

Joint Venture — Under the Joint Venture model, the county government or WRUA and private company are joint project developers as both fund EPC and retain proportional joint ownership of the project. O&M and repair duties may be shared between them with R&R clearly laid out in a contract from the outset.

This model requires initial capital investment by the private sector, which companies have demonstrated limited appetite for in Kenya’s rural and ASAL areas to date.

Joint Venture	
Owner	
O&M	Private/Public
Repair	

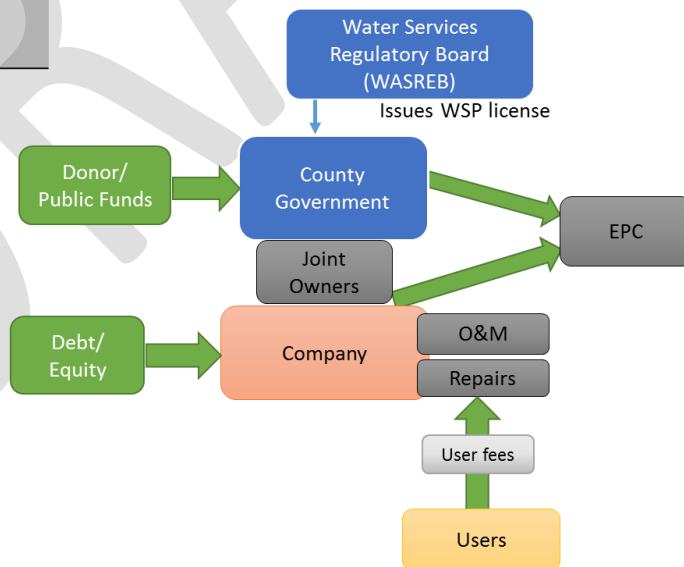


Figure 6: Joint Venture

Although Joint Ventures are not officially recognized as PPP arrangements under the PPP Act 2013 and are governed by contract law, these can nevertheless be useful models for counties and private sector engagement and will be considered as a potential model for the next stage.

Build-Own-Operate (BOO) (PPP Act 2013 2nd sch 6) — Under Build-Own-Operate (BOO) model – the private sector actor (or actors) carry out all functions and the county government and other relevant public agencies play an oversight function, with potential for public subsidies such as grant support or tax incentives. This model may not be suitable for poorest areas given that private sector actors may require larger returns since they are shouldering most risks and upfront costs under this model.

According to the PPP Act, under the BOO model, the company: “Designs, finances, constructs, operates and maintains the infrastructure facility and provides services”, and therefore this model places most responsibility and risk on the private sector – as a partially or fully invested project. It requires high certainty on the private sector’s part of water resource availability and user fee collectability.

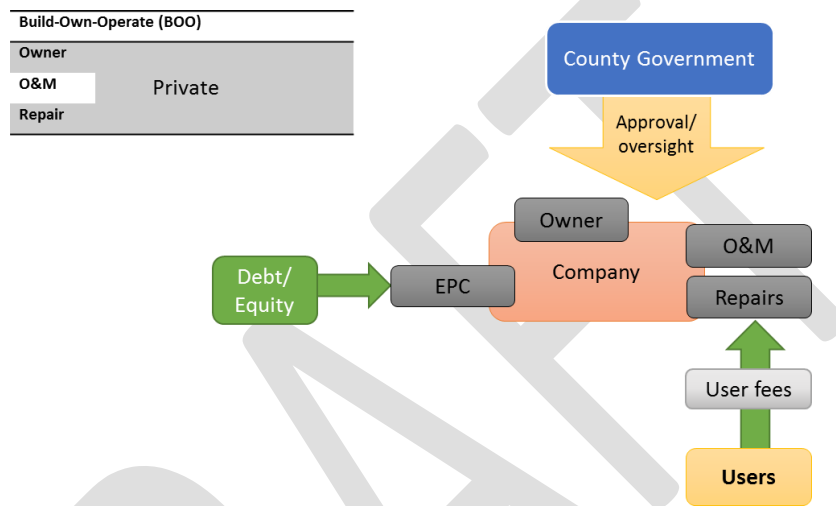


Figure 7: Build-Own-Operate (BOO) Model

It is important to note that all PPP models listed above have potential to support multiple uses of water (i.e. livestock, irrigation, and household use) as well as side businesses using excess electricity generated (e.g. phone charging kiosks, powering homes or community support). These potential uses are outlined in the table in Annex 6. Thus, though water users are mentioned as a uniform group in the above models, sub-models capturing diverse water and energy usage and their corresponding income streams will be elaborated upon for the final PPP model devised following the stakeholder consultation.

5.3. Additional Recommendation

- ✓
- ✓

The PPP business is fundamentally based on revenue structure, so it is usually suitable for large scale projects. WSS projects are often accompanied by tariff hikes for private investment so a large part of the

project should be invested by national budget and the acceptance of local residents for rate hikes is also very important.

Assessing the business potential of the private investment project is absolutely part of the collection of money and profit and loss. The cost benefit analysis of this report takes into account intangible benefits to profits, so it is possible to assess the feasibility of the project, but it is not a business possibility and can be judged by the internal rate of return (IRR) analysis including CAPEX and O&M.

The PPP models presented above are difficult to be suitable for poor areas and it is realistic to create profit structure in O&M based on technologies including water pan, solar or wind. However, appropriate technologies (including modified and/or clustered technologies) should be recommended depending on the region.

Private sector involvement in improved water pans and borehole sites is being facilitated by new legislation and regulations but financing mechanisms and PPP business model arrangements must be established for successful and sustainable instigation. Public subsidies of EPC remain necessary and even of O&M in poorest and most remote, however innovative mechanisms such as clustering of projects and services, use of IT for billing and monitoring of technology functionality, plus use of results based aid for financing have indicated positive results to date. Boosting fee collection potential by extending user base, boosting water resource availability and quality as well as enabling additional income generating activities can make water PPPs more attractive to private partners. A life-cycle costing approach should be taken to project identification and design, and financing and implementation mechanisms for repairs built into PPP contracts in order to ensure project sustainability.

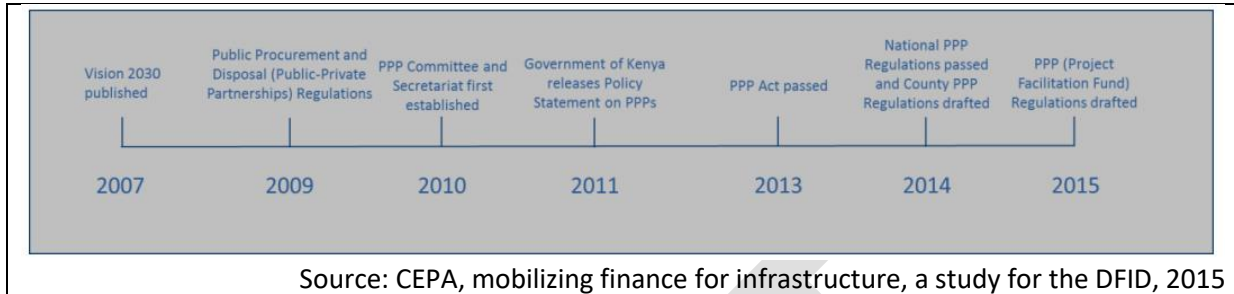
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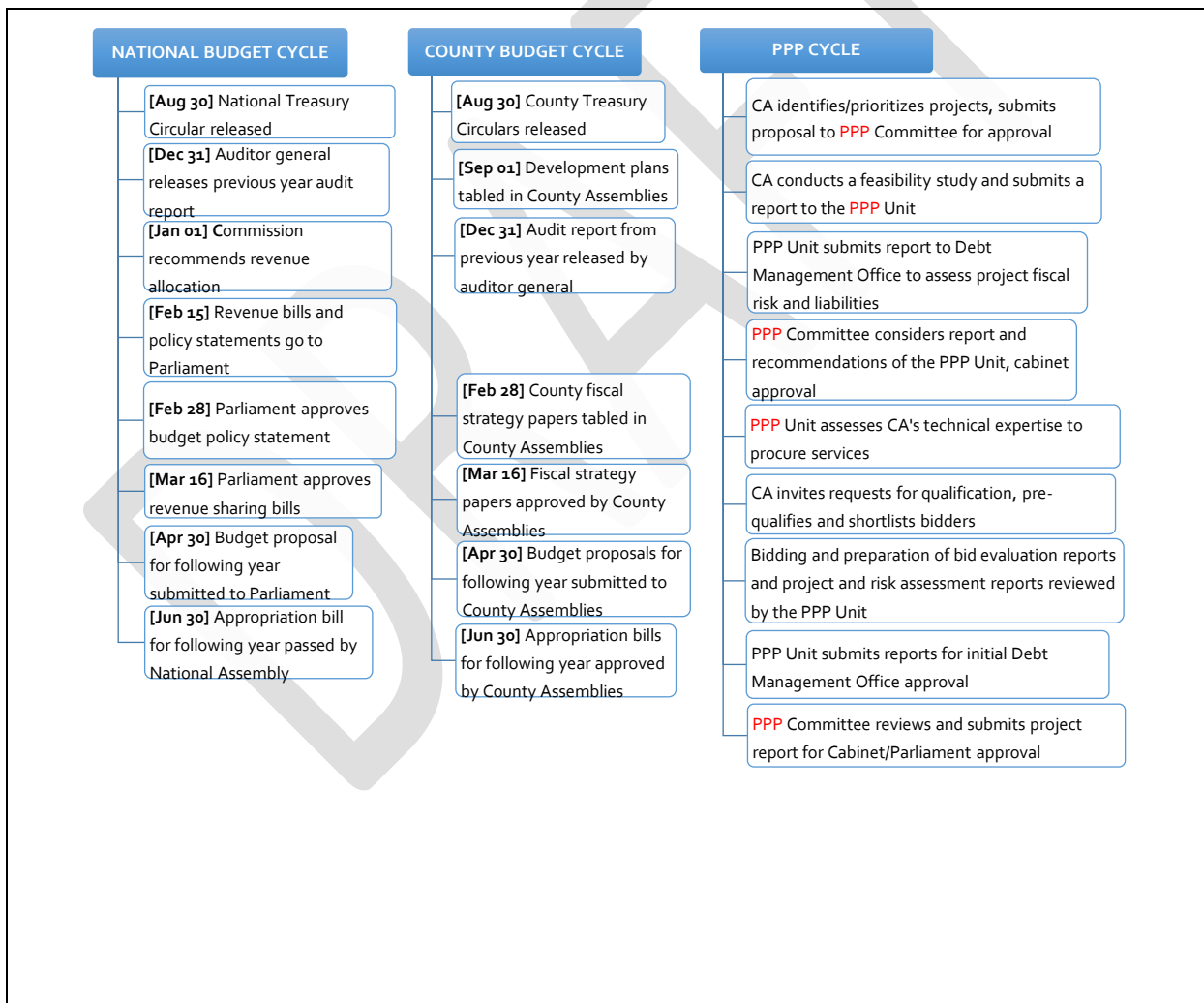
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Annexes

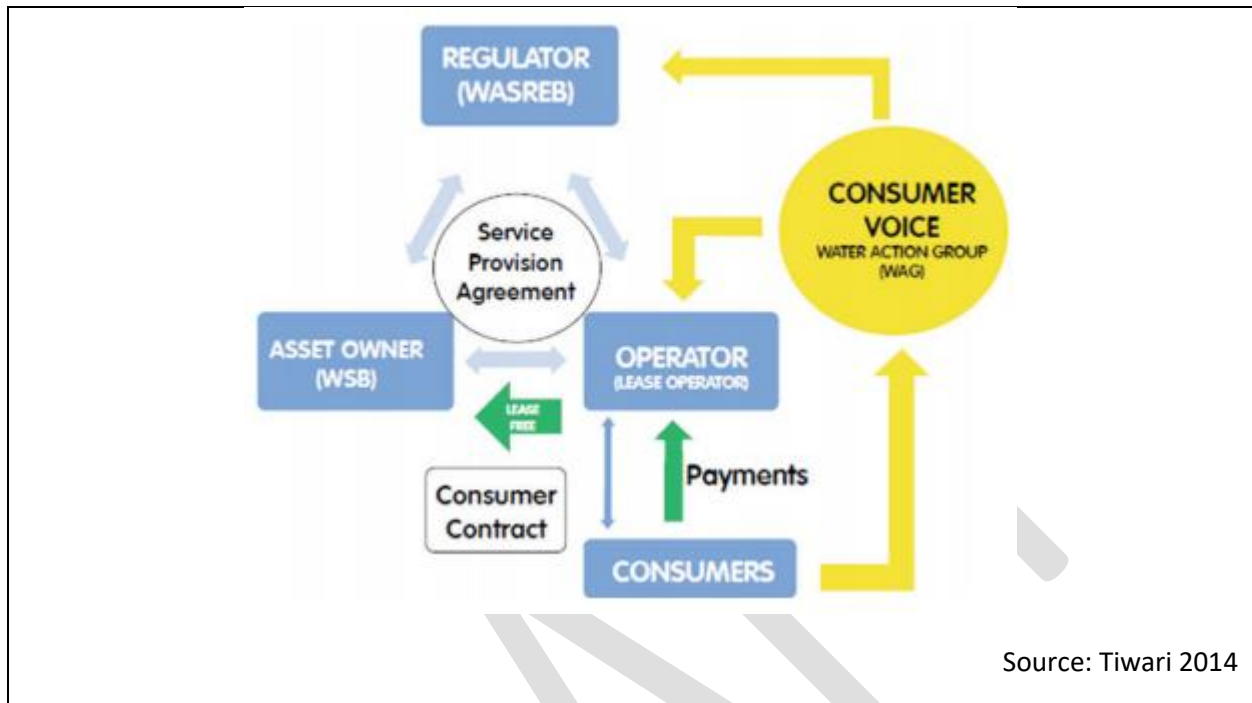
Annex 1. Timeline of Legal and Regulatory Framework of PPP in Kenya



ANNEX 2: Kenya Budget and PPP Cycles

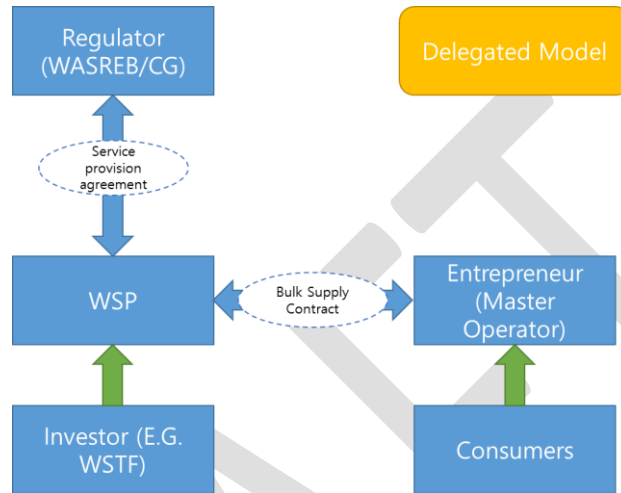


ANNEX 3: New PPP Pilot by Kenya MAP: Pilot Public Private Community Partnership (PPCP) Model



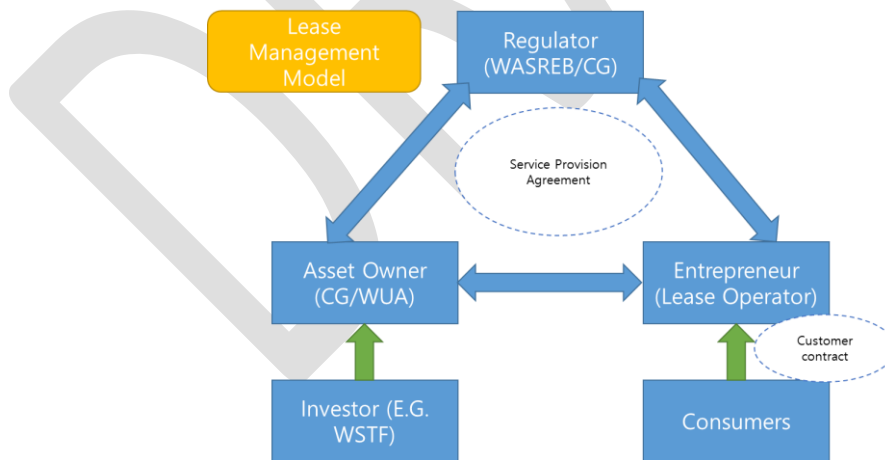
ANNEX 4: Existing WSS PPP Models in Kenya

Delegated Management PPP Model (DMM): WSP is licensed to provide O&M and revenue collection for bulk water supply. In Manyatta informal settlement, Lake Victoria South Water Services Board (LVSWSB) licensed Kisumu Water Company covered 87% O&M in 2015/16 and projected 104% coverage in 2016/17 through increased tariffs.



Source: Kenya Markets Trust 2016

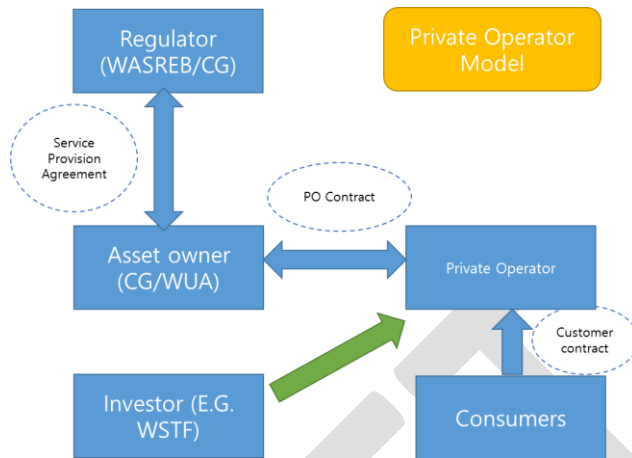
Lease Operator Model - Community group/WUA owns the assets and oversees the private leaseholder, which is responsible for WS O&M, making minor investments over a 5-10 year contract. This model is being used in Kakamega Town, Kakamega County.



Source: Kenya Markets Trust 2016

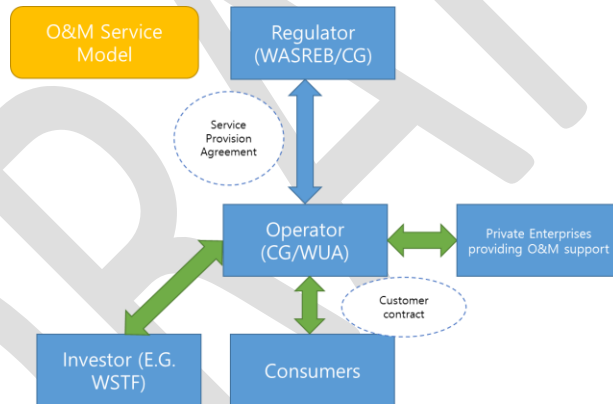
Private Operator (PO)/Co-Management Model – A community-based water services enterprise (e.g. the WUA) develops and oversees assets while the private operator is contracted to run WSS on day-to-day basis for 3-5 years. Manyatta Bm in Wandiege District, Kisumu ran this model since 2001

serving 10,000 people through household connections, kiosks and institutions. Annual revenue base is over KShs 12m (\$115,384).



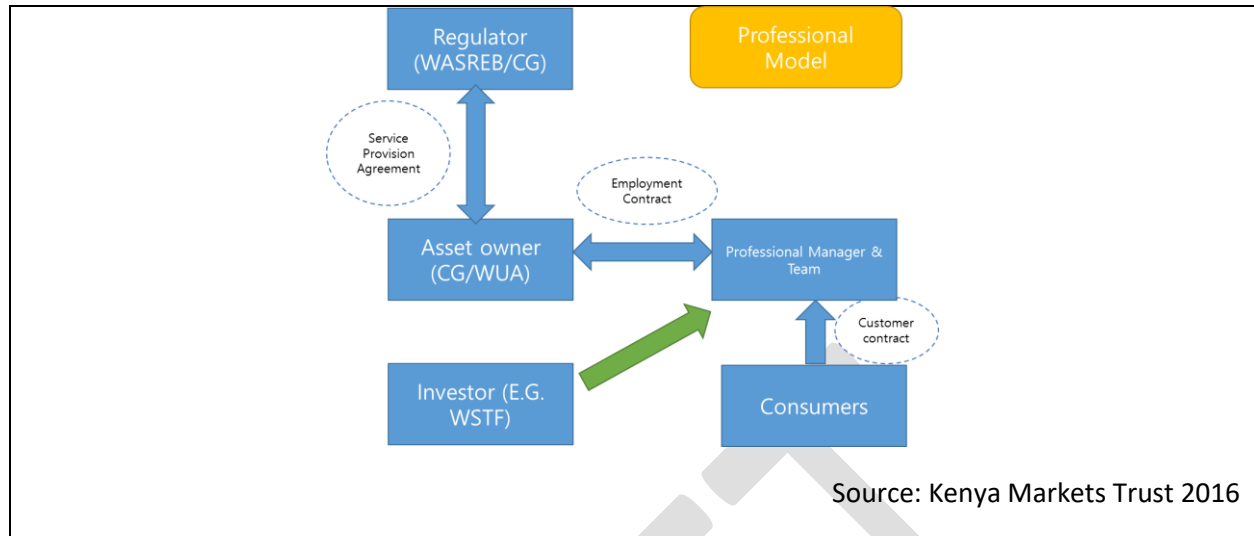
Source: Kenya Markets Trust 2016

Operations and Maintenance (O&M) Service Contract – the CG or a WSP/WUA is operator but contracts a private enterprise for preventive, corrective, reactive maintenance.



Source: Kenya Markets Trust 2016

Professional Management (PM) model - the CG/WASREB licensed WSB/WUA is asset owner, and contracts and supervises a private professional manager and team. The Nandi-Tachasis Water Project (TACHWACO), in Tinderet Ward, Nandi County from September 2015 to February 2016 had an estimated budget of KShs 5,082,000 (\$48,865).



ANNEX 5: Potential Water/Energy Use for Diversified Benefits and Revenue Streams

Generation	Consumption	
Water	Livestock	
	Irrigation	
	Household	Drinking
		Other
Electricity	Phone Charging Kiosk	
	Household	
	Community Support	Community-based institutions
		Small/Micro-enterprises