Sustainable Costing and Financing for Equitable Services

Catarina Fonseca

Expert Group Equitable Access to Water and Sanitation, Budapest, 14 September 2017
Where to start?

The easy, the difficult and the unknown
Outline (=> all sources in the slides)

1. Why is costing and finance so important for the equitable action plans?

2. You don’t need to be an economist to talk costs and finance

3. Where to start?
   - The easy
   - The difficult
   - The unknown
1. Why is costing and finance so important for the implementation of equitable action plans?

- We need to know how much money is presently used for reducing geographical, social and economic disparities in access.
- We need to know how much it costs, so we know how much money is needed.
- We need to know how much is the gap so we can find financing solutions.
Reaching the poorest and excluded is a political (financial) decision.

Data from 1990 - 2015

2. You don’t need to be an economist...
Costs and financing: Importance of non-capital expenditure

Capital expenditure

Minor maintenance

Major maintenance

Everything else:
- Regulation
- Policy
- Monitoring
- Institutions and people
- Costs of borrowing

Fonseca et al.
Costs: the accounting names

- CapEx
- OpEx
- Capital Maintenance (CapManEx)
- Direct support
- Indirect support
- Costs of capital
Translation of costs in Russian. Page 40:

http://www.euro.who.int/__data/assets/pdf_file/0015/320505/Tacking-policy-action-SSW-supply-tools-good-practices-ru.pdf?ua=1
Sector evolves…
Effort, costs and institutional requirements also need to change

![Graph showing changes in sector effort, costs, and institutional requirements.](image)
With no change in expenditure: danger zone of stagnation at 60% to 80% coverage

Graph showing:
- Recurrent expenditure and support effort dominates at 0% to 25% coverage.
- Capital expenditure dominates at 25% to 50% coverage.
- Capital maintenance expenditure dominates at 75% to 100% coverage.
- Danger zone at 60% to 80% coverage.
Tanzania: Rural water coverage stagnating and declining

USD 486,357,432
The three Ts: Possible sources of finance for WASH costs

Financing gap

Tariffs

Taxes

Transfers (ODA)

Financing gap

Tariffs

Taxes

Transfers (ODA)
The three Ts: Possible sources of finance for WASH costs

- **Financing gap**
  - CapManEx
  - CapEx
  - OpEx
  - Costs of capital

- **Tariffs**
  - Direct (and indirect) support

- **Taxes**
  - CapEx

- **Transfers (ODA)**
3. Where to start?
The easy
First step: the need to understand existing sources of finance and the value of the assets in place

- GUIDANCE NOTE Public Expenditure Review from the Perspective of the Water and Sanitation Sector, World Bank

- TrackFin: tracking financing to sanitation, hygiene and drinking water, WHO-GLAAS

- Life-cycle costing quick calculator and free online training, IRC

- Asset registry / management tools, IRC
Ethiopia, Omo Region, Ethiopia
Responsible for providing water to 263,262 people in South Ari, Ethiopia => using asset registry tool to start budgeting a maintenance plan
Value of assets and functionality South Ari

Thousands of US$ wasted because of the failure to maintain infrastructure for a fraction of the investment

Using tools available at: https://www ircwash org/tools irc-costing-and-budgeting-tools
Value of assets and prioritisation

Level of Priority to Replace/Repair the Water Point System

- 83% High Priority
- 17% Medium Priority
- Low Priority

Using tools available at: https://www.ircwash.org/tools/irc-costing-and-budgeting-tools
From asset management, to cash flow analysis to understand financing gaps in the future

Using tools available at: https://www.ircwash.org/tools/irc-costing-and-budgeting-tools
Coverage, functionality and country norms
South Ari => CapEx is still very much needed

- Coverage (HH living in villages with schemes): 66%
- Coverage (HH served from the schemes): 55%
- HH served with functional schemes: 31%
- HH served by functional schemes within 1.5 km (if rural) or 500 m (if urban): 25%
The difficult
Mapping funding flows for different costs in Uganda.
Level of difficulty for tracking finance

- Tracking expenditure and matching it with services provided
- Tracking expenditure disaggregated per cost and population group
- Tracking expenditure
- Tracking affordability
- Value for money tracking

Traditional budget tracking
- Tracking budget for IWRM at district level
- Tracking budget for WASH at district level
- Tracking budget for IWRM at national level
- Tracking budget for WASH at national level

Amount of people needed to get info

Level of difficulty (generalisation)
Step 2: Develop a financing strategy that combines population, infrastructure, service levels and costs.
Develop financing strategies for each of the population segments

• How and where will we prioritise investments in new systems?

• What is the role of individual solutions and self-supply?

• What’s the strategy for the replacement and expansion of systems?

• What’s the role of the local institutions and what are the activities that they need to lead to ensure sustainability?
In reality… (75 respondents to 2016 WHO-GLAAS)

### Financial planning framework for WASH

<table>
<thead>
<tr>
<th>Framework</th>
<th>Countries using framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>National annual budgeting process</td>
<td>43%</td>
</tr>
<tr>
<td>Sector development or investment plans/agenda</td>
<td>35%</td>
</tr>
<tr>
<td>Multi-year/medium-term budget/expenditure framework</td>
<td>11%</td>
</tr>
<tr>
<td>Tariff law/policy</td>
<td>3%</td>
</tr>
<tr>
<td>No financial plan</td>
<td>8%</td>
</tr>
</tbody>
</table>

### Level of implementation (number of countries, urban sanitation*)

<table>
<thead>
<tr>
<th>Insufficient</th>
<th>Partial</th>
<th>Consistent</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
<td>12</td>
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<tr>
<td>13</td>
<td>5</td>
<td>8</td>
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<td>4</td>
<td>0</td>
<td>4</td>
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<tr>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
The unknown
Can you (as a country) afford it?
## Definitions: MDGs and the SDGs

<table>
<thead>
<tr>
<th>MDG</th>
<th>SDG</th>
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</thead>
<tbody>
<tr>
<td><strong>Basic access</strong></td>
<td><strong>Safely managed access</strong></td>
</tr>
<tr>
<td><strong>Drinking water</strong></td>
<td></td>
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<tr>
<td>• Within a 30-minute</td>
<td>• On premises</td>
</tr>
<tr>
<td>round trip</td>
<td>• Available when needed</td>
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<tr>
<td></td>
<td>• Free from contamination</td>
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<tr>
<td><strong>Sanitation and hygiene</strong></td>
<td></td>
</tr>
<tr>
<td>• Hygienic separation of</td>
<td>• Not shared with another household</td>
</tr>
<tr>
<td>excreta from human</td>
<td>• Proper disposal and treatment of waste</td>
</tr>
<tr>
<td>contact</td>
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</tbody>
</table>

*Note: MDG = Millennium Development Goal; SDG = Sustainable Development Goal.*

*a. Formerly known as “improved” under the MDGs.*
Higher service levels, higher costs => only investment in infrastructure PER YEAR

Variations in Baseline Costs for Annual Global Capital Costs

- Lower Basic WASH: $13.8 billion per year
- Baseline Basic WASH: $28.4 billion per year
- Upper Basic WASH: $46.7 billion per year
- Lower Safely managed service, water and sanitation: $60.9 billion per year
- Baseline Safely managed service, water and sanitation: $86.9 billion per year
- Upper Safely managed service, water and sanitation: $122.8 billion per year
- Lower Achieving SDG targets 6.1 and 6.2: $74.3 billion per year
- Baseline Achieving SDG targets 6.1 and 6.2: $113.7 billion per year
- Upper Achieving SDG targets 6.1 and 6.2: $165.8 billion per year

Note: Safely managed sanitation costs are for safe excreta management alone; they exclude latrine costs. WASH = water, sanitation, and hygiene; SDG = Sustainable Development Goal.

Guy Hutton and Mili Varughese, 2016
Can you afford it? Macro economic perspective

Global Costs of Achieving Different Service Levels as a Percent of GDP_140 under Economic Growth Rates of 0 to 5 Percent

Note: Safely managed sanitation costs are for safe excreta management alone; they exclude latrine costs. GP = gross product; WASH = water, sanitation, and hygiene; SDG = Sustainable Development Goal.

Guy Hutton and Mili Varughese, 2016
GDP per capita, PPP (current international $), 1990-2016

Achieving only the SDG targets 6.1 and 6.2

=> Construction only

=> Per person

=> Per year

<table>
<thead>
<tr>
<th></th>
<th>2016 GDP per capita $</th>
<th>3% GDP</th>
<th>6% GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>41,500</td>
<td>1,245</td>
<td>2,490</td>
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<tr>
<td>Azerbaijan</td>
<td>17,000</td>
<td>510</td>
<td>1,020</td>
</tr>
<tr>
<td>Ukraine</td>
<td>8,000</td>
<td>240</td>
<td>480</td>
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</tbody>
</table>

Tariffs + public finance = not fast enough, not the amounts required... bring in private finance

Funding sources ("3Ts")

**Tariffs**
User fees for services provided and households' investment for self-supply

**Transfers**
Transfers from external sources, such as international donors (ODA grants), foundations, NGOs, remittances

**Taxes**
Domestic taxes levied by local and central governments and provided as grants or subsidies

Repayable financing

**Concessional finance**
Provided by development agencies with a grant element (e.g. "soft loans")

**Private finance**
Provided by private sector financiers at market rate (vendor finance, microfinance, loans, bonds, equity)

Key
- Private funds
- Mixed public and private funds
- Public funds

https://openknowledge.worldbank.org/handle/10986/27948
We don’t know…
Water project segmentation, financing options (work in progress)

- National, municipal or commercial loans, equity
- Bonds, equity
- ODA Development Funds
- Micro loans
- No credit rating
- High risk
- Decentralised providers
- No formal providers

### Project size, USD, log scale

- AAA: Low risk Utilities
- BB/BBB: Medium risk Utilities, Decentralised providers
- C: No credit rating

<table>
<thead>
<tr>
<th>Project Size (USD)</th>
<th>100,000,000</th>
<th>10,000,000</th>
<th>1,000,000</th>
<th>100,000</th>
<th>10,000</th>
<th>1,000</th>
<th>100</th>
<th>10</th>
<th>1</th>
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</thead>
</table>
In which of these countries would you be happy for your pension fund to invest in the WASH sector?

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Bangladesh</th>
<th>Benin</th>
<th>Cambodia</th>
<th>Ethiopia</th>
<th>Ghana</th>
<th>India</th>
<th>Indonesia</th>
<th>Kenya</th>
<th>Madagascar</th>
<th>Malawi</th>
<th>Mozambique</th>
<th>Nepal</th>
<th>Philippines</th>
<th>Rwanda</th>
<th>Senegal</th>
<th>Tanzania</th>
<th>Uganda</th>
<th>Zambia</th>
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<tbody>
<tr>
<td><strong>Strong</strong></td>
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<td><strong>Moderate</strong></td>
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<td><strong>Weak</strong></td>
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</table>
Criteria to attract additional private and public finance to the WASH sector

WASH sector-specific
- Clear institutional roles AND legal framework that defines asset management
- Non-revenue water ratios
- Cost recovery ratios
- Benchmarking of service providers

Financial sector-specific
- Domestic bank financing and other non-grant financing to WASH
- Credit rating / worthiness of utilities
- Bond market

Financing WASH: how to increase funds for the sector while reducing inequities, 2017
Only 5 out of 19 have no major constraints to attract private funding.

### Table: Financing WASH: how to increase funds for the sector while reducing inequities, 2017

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<th>Madagascar</th>
<th>Mali</th>
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<tr>
<td>Institutional and legal framework</td>
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<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Non revenue water ratio</td>
<td>26%</td>
<td>29%</td>
<td>7%</td>
<td>23%</td>
<td>52%</td>
<td>42%</td>
<td>30%</td>
<td>42%</td>
<td>34%</td>
<td>29%</td>
</tr>
<tr>
<td>Cost recovery ratio</td>
<td>1.4</td>
<td>1.96</td>
<td>2.57</td>
<td>1.15</td>
<td>1.16</td>
<td>0.55</td>
<td>1.39</td>
<td>0.97</td>
<td>ND</td>
<td>1.15</td>
</tr>
<tr>
<td>Credit rating / worthiness of utilities</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
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<td>Red</td>
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<th>Zambia</th>
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<tr>
<td>Institutional and legal framework</td>
<td>Green</td>
<td>Green</td>
<td>ND</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Non revenue water ratio</td>
<td>33%</td>
<td>46%</td>
<td>ND</td>
<td>43%</td>
<td>41%</td>
<td>33%</td>
<td>56%</td>
<td>35%</td>
<td>51%</td>
</tr>
<tr>
<td>Cost recovery ratio</td>
<td>1.07</td>
<td>1.13</td>
<td>ND</td>
<td>2.4</td>
<td>0.082</td>
<td>1.39</td>
<td>0.77</td>
<td>1.36</td>
<td>1.11</td>
</tr>
<tr>
<td>Benchmarking of service providers</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Domestic bank financing / non-grant financing to WASH</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
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</table>
Final message: Investing in the enabling environment is as important as investing in infrastructure

- The need to reach out to the political side with numbers
- The need for CSOs, NGOs, regulators, journalists to talk finance confidently
- An analysis for reaching the SDGs in Europe?
- Keep asking the hard questions on finance: Who is benefiting? What measures are in place to track if the poorest and most excluded are being served?
Costs and financing: Importance of non-capital expenditure

Capital expenditure

Minor maintenance

Major maintenance

Everything else:
- Regulation
- Policy
- Monitoring
- Institutions and people
Key Resources (all hyperlinked)

- WHO/UNICEF Joint Monitoring Programme, 2017
- UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS), 2017
- The Costs of Meeting the 2030 Sustainable Development Goal Targets on Drinking Water, Sanitation, and Hygiene, World Bank, 2016
- Financing WASH: how to increase funds for the sector while reducing inequities, 2017
- Easing the transition to commercial finance for sustainable water and sanitation, 2017
- Universal water and sanitation: how did the rich countries do it?, 2015
- Roadmap to universal WASH district level, 2017
Thank you!

Спасибо!

Any questions please reach me at:

fonseca@ircwash.org
Definitions: GDP, PPP, real

GDP per capita is a measure of a country's economic output that accounts for population. It divides the country's gross domestic product by its total population.

That makes it the best measurement of a country's standard of living. It tells you how prosperous a country feels to each of its citizens.

To compare GDP per capita between countries, you must use the purchasing power parity GDP. That creates parity, or equality, between countries by comparing a basket of similar goods. It's a complicated formula that values a country's currency by what it can buy in that country, not just by its value as measured by its exchange rates.

If you want to compare GDP per capita over time, then you must use real GDP per capita. That removes the effects of price changes.
In finance, a **bond** is an instrument of indebtedness of the bond issuer to the holders. The most common types of bonds include **municipal bonds** and **corporate bonds**.

The *holder* of the bond is the lender (creditor), the *issuer* of the bond is the borrower (debtor), and the *coupon* is the interest. Bonds provide the borrower with external funds to finance long-term **investments**, or, in the case of **government bonds**, to finance current expenditure.

The bond is a debt **security**, under which the issuer owes the holders a debt and (depending on the terms of the bond) is obliged to pay them **interest** (the *coupon*) or to repay the principal at a later date, termed the *maturity* date.[1] Interest is usually payable at fixed intervals (semiannual, annual, sometimes monthly).
Definitions: Credit worthiness of a service provider

Creditworthiness is a measure of a borrower’s ability and willingness to service its debt obligations, which is more likely to occur when they recover 150 percent or more of their operating costs and have good debt service coverage ratios.

To be creditworthy, the utility must demonstrate a reliable stream of positive cash flow from operations as well as sufficient cash reserves in the case that future cash flows are not sufficient. It is important that the evaluation of creditworthiness be based on the entire capacity of the utility and not just on analysis of the individual project.

Concurrently, the creditworthy utility must have a plan to handle contingent or implicit charges, which may include unexpected cost increases and foreign exchange losses.
Economic returns of water and sanitation investments

The projected global (average) economic return on universal access to water supply and sanitation is $4.3 for every $1 invested (WHO 2012), and is higher for sanitation than for water.

The link between access to improved sanitation and reduction in mortality for children under age 5 is clear. Countries with higher sanitation access have lower mortality rates.
How did rich countries do it?

United States:

• National and local governments as driving force with public finance
• Water companies municipally owned
• From 1840 **municipal bonds** were the major source of finance for investment.
• In big cities, **property taxes**, tariffs and connection charges

United Kingdom:

• Before 19th century small private providers
• 20th century major municipalities created public utilities
• Sewerage systems financed by public finance via **commercial or central government loans**

How did rich countries do it?

South Korea:

• Political priority
• Aid from US in 1960s for massive infrastructure investments (17% water coverage)
• Tax and tariffs for maintenance
• Central government transfers to local service providers
• Tariffs not enough for sewerage, liquor tax was used
Other examples

- India: national tax for sanitation and major drive from prime minister
- South Africa: equitable shares
- Uganda: VAT and tax reforms
- Madagascar: surcharge on water bills
- Botswana: tax revenue from mining industry
- Netherlands: water financing facilities

http://www.publicfinanceforwash.com/resources
What is a water financing facility?

https://www.ircwash.org/blog/financing-universal-access-role-water-financing-facilities