The challenge in cities of low income countries on water utility asset management

Starting the dialogue process

Policy, service levels, asset register and water demand forecasting



Session 1: Water as a key challenge in Asia and Europe – "The case for cities"

Water Utility Asset Management

Starting the dialogue process

Policy, service levels, asset register and water demand forecasting



Water Supply and Sanitation Sector (WSSP): Project ADB Loan 3041/Grant 0363-LAO



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- 1. Past situation (1995): an infrastructure problem
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- 6. How to do water utility asset management in a low income country?
- 7. For example, if start on water demand long-term forecasting to help investment planning....
- 8.very difficult to predict what future assets will be...
- 9. Future outlook for Laos water sector reform on water utility asset management and investment planning?





1) PAST SITUATION (1995)

AN INFRASTRUCTURE PROBLEM (lack of infrastructure; lack of investment funding)

5 urban centres with water supply system (Nam papa)

2. CURRENT SITUATION (2018)



AN ASSET MANAGEMENT PROBLEM

(expanding urban water supply infrastructure in cities and towns)



More than 120 urban centres with water supply system (Nam papa)

17 provincial water utilities + 1 Capital City water utility

(all state enterprises)

5 urban centres with water supply system (Nam papa)

1995

EME

3. Beginning the dialogue process, 2018



Figure 1: Asset Management Explanation Structure

Understand and Define Requirements

· Develop policy

ADB

Asian Development Bank

- · Define levels of service
- Define indicators
- · Forecast demand
- Understand asset base (register)
- Assess asset condition
- Identify asset and business risk

Develop Asset Life-Cycle Strategies

- Financial and funding strategies
- · Capital works strategies
- Maintenance strategies and plans
- Operational strategies and plans
- · Decision-making techniques

Asset Management Enablers

- · Asset management teams
- Asset management plans
- Info systems
- Asset management service delivery
- · Quality management
- · Continuous improvement

Source: The New Zealand Asset Management Support Group. 2011. International Infrastructure Management Manual. New Zealand. www.nams.org.nz/pages/273/international-infrastructure-management-manual-2011-edition.htm

4. Where to start the dialogue?



 Identify asset and business risk

5. What are we doing already on this topic?



Financial sustainability

Short term (1 to 3 years)

- Corporate planning
- Service agreements
- Financial modelling
- Tariff reviews
- Rights and duties
- Organisation and human resources
- Service performance against key performance indicators
- Records of operational data
- Balance sheet and income statement analysis after audit (no cash flow statements yet)

Asset records

 Separate document at each water utility on basic list of physical assets



But....



6. How to do water utility asset management in a low income country?

How to do water utility asset management in a low income country?



- Lack of skilled personnel on asset management
- Lack of computing hardware (particularly at district level)

How to do water utility asset management in a low income country?



Water Demand Forecasting

Understand and Define Requirements

- Develop policy
- · Define levels of service
- Define indicators
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Develop Asset Life-Cycle Strategies

- Financial and funding strategies
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Demand Forecasting Summary

Knowledge Portals: Water Efficiency: Demand Forecasting

Projects & Reports (18) Webcasts (4) Case Studies (0) Web Tools (1)
Water utilities employ demand forecasting

at different time scales and for different purposes. Weekly demand forecasts are used for distribution system operations, whereas long-term demand forecasts are used for revenue projections and capital planning. The initial steps in forecasting demand are to 11 determine the goal of

Advanced Treatment Asset Management

Contaminants of Emerging

Disinfection By-Products

Distribution System Management

Energy Management

Source Water Protection and

Climate Change

Concern

Microbials

Management

Utility Finance

Utility Management Water Efficiency Water Supply Diversification he forecast, 2) evaluate the data and resources available, and 3) choose a forecast approach.

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Fact Sheet

Long-term water utility demand forecasts are used for revenue projections and capital and corporate planning

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Source: WRF (2017) Improving the Accuracy of Short-Term Water Demand Forecasts, WRF Webcast, August 29, 2017 http://www.waterrf.org/resources/webcasts/Lists/PublicWebcasts/Attachments/91/WRF4501FinalB.pdf



WSAA (2003) Water Services Association of Australia, Urban Water Demand Forecasting and Demand Management https://www.waterportal.com.au/images/hostedcontent/WSAA Occasional Papers/200307 WSAA Occasional Paper 9 PP 025 Urban Water_Demand_Forecasting.pdf In: WATER, ENGINEERING AND DEVELOPMENT CENTRE (WEDC) and SWITCH, 2011. Water demand management in the city of the future. Selected tools and instruments for practitioners. Loughborough: WEDC, Loughborough University. Page 10. https://dspace.lboro.ac.uk/dspace-jspui/bitstream/2134/31596/2/W3-1_GEN_MAN_D3.1.4_WDMCOF.pdf



But....





Mekong River, Vientiane, 20 August 2018

Close to flood level. Very high turbidity (2000 NTU). Water source for Vientiane Capital City.



Mekong River, Vientiane Same location. Dry season level (November to April) River rises and falls approx. 12m between dry and rainy season



8.very difficult to predict what future assets will be needed for water supply system





8.very difficult to predict what future assets will be needed for water supply system...





Kaoliow WTP, Vientiane (NPNL, 2018),

...affects investment planning...

9. Future outlook for Laos water supply sector reform on water utility asset management and investment planning?

Water utility asset management serving sustainable operation

Károly Kovács

President European Water Association (EWA) Hungarian Water Association (HWA)

https://erranet.org/wp-content/uploads/2016/08/Kovacs_Water-utility-asset-management_Water-WS-2016.pdf

BUDAPEST WATER SUMMIT, 29-30 November, 2016

www.erranet.org

9. Future outlook for Laos water supply sector reform on water utility asset management and investment planning?



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Thank you for your attention & Welcome to Laos