Water Supply for Metro Manila

Mark Tom Mulingbayan
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Diverts water from Angat River through tunnels to Bicti and aqueducts to La Mesa

Provides 97% of Metro Manila’s water supply

UMIRAY DIVERSION DAM (MWSS)
UMIRAY – ANGAT TUNNEL

IPO DAM (MWSS)
ANGAT RESERVOIR (NPC)

NOVALICHES DIVERSION WEIR

LA MESA RESERVOIR

2400 MLD
BTP 1
BTP 2
LMTP 1
LMTP 2

40% MWCI

1600 MLD
BTP 1

60% Maynilad

Provides 97% of Metro Manila’s water supply
• 97% of Metro Manila’s water supply comes from Angat.

• Metro Manila water demand has grown since privatization of MWSS operations in 1997.

• Most of the ‘new water’ supply in the last 16 years actually came from Non-Revenue Water (NRW) reduction.

• Water crisis within the next 5 to 10 years if no new water sources will be developed.
Keeping up with the growing demand

- 2013 Laguna Lake (RPWSIP) 50MLD
- 2017 175MLD
- 2019 275 MLD
- 2022 500MLD
- 2028 500MLD
- 2033 500MLD
1 Water Infrastructure Dev’t., and Resource Management and Protection

2 Sewerage and Sanitation

3 Water Efficiency

4 Business Continuity

5 Business Plan Review

6 Partnership Building

7 Communications and Knowledge Management Plan

WATER SECURITY LEGACY

1. Water Source Master Plan
2. Water Distribution Infrastructure Plan
3. Protection of Water Infra: ANGAT Rehab/Rehab of Raw Water Conveyance
4. Watershed Management and Protection
5. Sewerage & Sanitation policies & coverage targets
6. Recommendations
   - Water Communications
   - Water Information Management
   - Climate Change Integration
   - Promising Technologies
   - Skills/Organizational Strengthening
7. PPP Parameters
8. Institutional Linkages/Network Building
9. Review of Business Plans, Targets and Compliance
10. Asset Review
11. Rate Rebasings
MWSS - New Water Sources

Interim New Water Sources

Long-Term New Water Sources

WATER DIVERSION

NEW DAMS

GROUNDWATER?

LAGUNA LAKE PROJECTS
Water Tariff model
Full cost recovery

Water Tariff = \( f(CAPEX\ recovery, OPEX\ recovery) \)

- CAPEX and OPEX related to the service of abstraction from source, conveyance, water treatment and distribution
- Does not incorporate value of ecosystem services (provisioning & regulating) that provided the raw water in the first place
Water Tariff model with raw water price

Water Tariff

\[ = f(\text{CAPEX recovery, OPEX recovery}) + \text{raw water price} \]
Recall the Dublin Principles…

- Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.

- Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels.

- Women play a central part in the provision, management and safeguarding of water.

- Water has an economic value in all its competing uses and should be recognized as an economic good.
Fundamental issues on raw water pricing

- Water is a human right. Shouldn’t it be free?
- How is the intrinsic value of the water determined?
- Is raw water price applicable only to water extracted? What about uses of water *in situ*?
- How is water quality considered in the valuation?
- Is raw water price based on how much it costs to manage the water source/ecosystem effectively? How about valuating other ecosystem services?
- Who should be charged? To whom should it be paid?
LLDA valuation approach

\[ RC = \frac{MC + AE}{WC} \times \text{multiplier} \]

- \( RC \) = raw water charge
- \( MC \) = management cost; a percentage of LLDA annual budget
- \( AE \) = annual expenditures; total annual costs in implementing LLDA’s work plan
- \( WC \) = water consumption
- Multiplier based on the nature of the water use (e.g. domestic, industrial...)
What is the basis for choosing 10% as a multiplier for MC?

Is all the AE directly related to the work plan for managing the quantity and quality of the lakewater itself? Is this amount actually being spent annually?

What is the basis for the WC? Does this pertain to all the water that is in the lake and passes through the lake in one year, or just the total water extracted in one year? Is this applicable to all lakewater users, present and future?

What is the legal or scientific basis for the multiplier?
Moving Forward

- Agree on the fundamental issues first before working on the numbers
- Adopt a science-based methodology
- Involve all water users / beneficiaries
- Develop key performance indicators for whoever collects the fees