Water for Growth and Development: Sharing Experiences

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Presentation

- Centrality of Water
- Some Common Understanding
- Water for Growth and Development
  - Water Sector Policies
  - Treaties and Conventions
  - Geo-politics of Water
  - Institutional Arrangements
  - Infrastructure Development
  - Payment for Water Services
  - Science and Technology of Water
  - Flood Management
  - Human Resources
- Summary
- Comments and Questions

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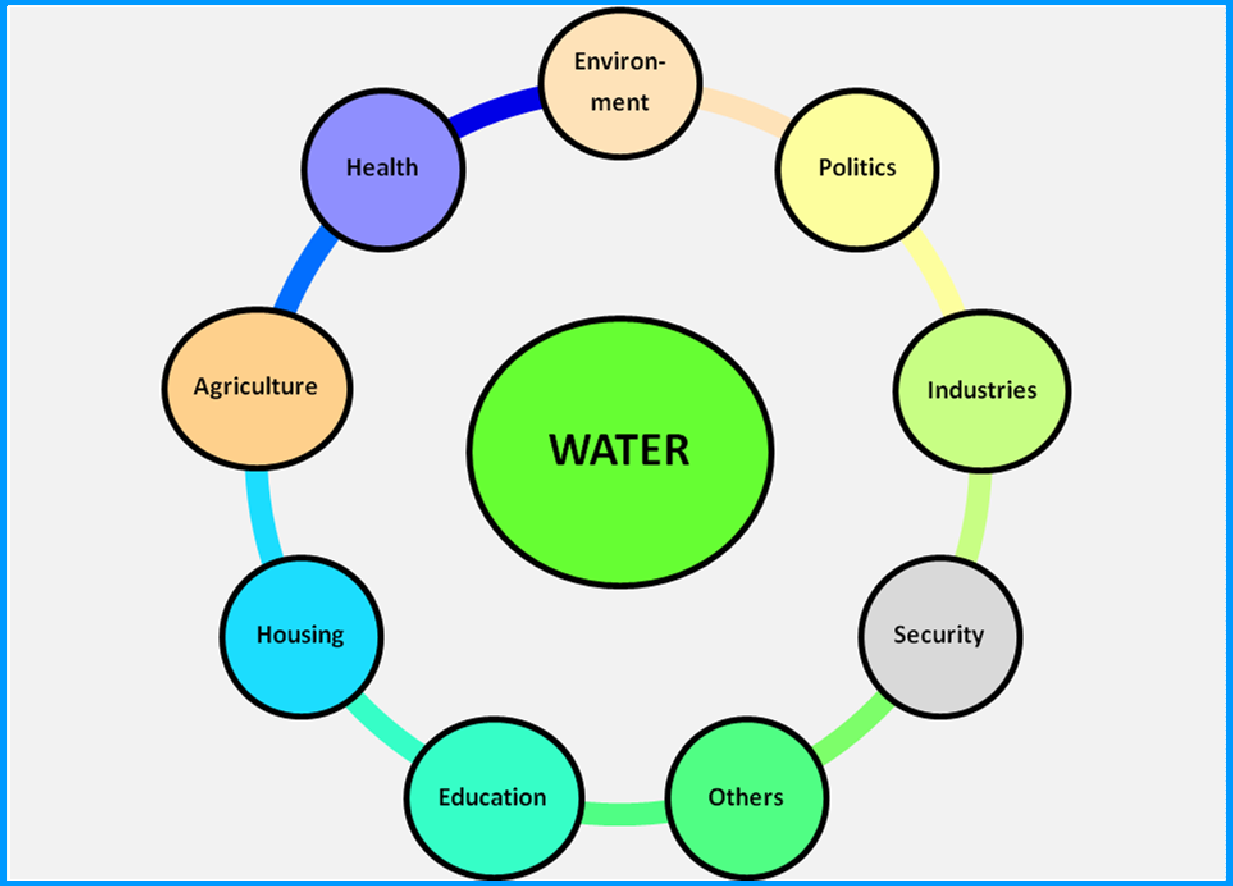
Centrality of Water to Growth and Development



Common Understanding (1)

- Rain – drops falling under gravity
- Rain has no Economic Value
- But, when Rain is Processed and becomes Water, it then Appreciates in Value
- Access to Water: Quantified Definition
  - Quantity, Quality, Distance, Cost, Period
  - 25l/person/day; Class B; 0.1 km from Home, R1.0/m^3 , (2008)

Common Understanding (2)

- Access to Water $\neq$ *f* {Increase in Rainfall}
- Access to Water $=$ *f* {Developed Infrastructure}
- Payments is for Water Services
- Water is Finite – Sources Limited
- Water as a Resources – ROI must be High

Common Understanding (3)

It is a Fact that Growths have always taken place without Development

Development – Nature and Level of Services Provided*

How Europe Under-development Africa

Walter Rodney

Water for Growth and Development

1. Water Sector Policies
2. Treaties and Conventions
3. Geo-politics of Water
4. Institutional Arrangements
5. Infrastructure Development
6. Payment for Water Services
7. Science and Technology of Water
8. Flood Management
9. Human Resources

Develop, Implement and Review Water Sector Policies

- *Resource Management*
- *Provision of Services*
- *Flood Management*
- *Harmonize Water Policies & Interventions with Activities in Sectors*
  - *Land Use ; Energy, Mining; Provincial and Local Authority Acts; Environment*

Treaties and International Conventions

Community of Nations

- *Historical Treaties Amongst Neighboring Countries - Utilization of Water Resources*
- *International Convention on Shared Water Courses – UN Convention 1997*
- *SADC Protocol on Shared Water Courses - Ratified by all Members 2000*
- *Managing the Relationships*

Geo-politics of Water

Water Knows No Political Boundaries

- *Multi-national River Basins and Aquifers*
- *Equitable Resources Management : Win-Win*
- *Up- and Down-stream Activities in a Watercourse*
- *Water Wars*
  - *Scarcity; Non-accessibility; Pollution*

Institutional Arrangements

Setting-up, Empowering, Ensuring Functionality

- *Policy Administrators*
- *Water and Sanitation Utilities*
- *Provincial and Local Authorities*
- *Academic Institutions*
- *Research Institutions*
- *Partnership with Key Stakeholders*

Water for Growth and Development

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Water Supply Infrastructure

Access to Water = *f* {Developed Infrastructure}

- **Planning**
- **Financing**
- **Development**
- **Operations and Maintenance**

Water Supply Infrastructure - Planning

- ***Planning Horizon***
  - ***Short - vs. Med- vs. Long-term***
- ***Always - Integrated Approach***
- ***Pro-active vs. Reactive to Needs***
- ***Maximize Benefits to All from Such Interventions***
- ***Create a Buy-in Culture***
- ***<u>Piggyback</u> on Big Industries***

Water Supply Infrastructure - Development

- *Settle for the Best Technical Solution*
  - *No Short cuts*
  - *Seek the Engineering Kingdom first*
- *Use Appropriate Technologies*
- *Consider Post Commissioning Costs*
  - *Operations and Maintenance Costs*
- *Management of Contracts*
- *Management of the Procurement Processes*
- *Always Consciousness of the Cost*

A Good Engineering Project MUST have a Human Face

Water Supply Infrastructure - Finance

PROJECT = TECHNICAL PROPOSAL + FINANCIAL VIABILITY

- *Explore all possible Financing Options*
- *Complete Costing to be established in time*
- *De-politicize Technical and Financial Matters*
- *Maximize Benefits to all from Such Intervention*
- *Always be Consciousness of the Cost*

Water Supply Infrastructure - Operations and Maintenance

We Built, But We Cannot Maintain

- *O&M Strategy to be established in time (before tendering and procurement)*
- *Capacity Building in O&M Skills*
- *Ensure Best Practices in Operations*
- *Ensure Best Practices in Maintenance*
- *In case of skills shortage – O&M Contract*

Payment for Water Services (1)

$$COST_{WATER} = CAPITAL + OPS \& MANT + X_{1-n}$$

$$CAPITAL >> OPS \& MANT + X_{1-n}$$

Capital Costs Determines Project Financial Viability

Payment for Water Services (2)

$$\text{TARIFF}_{WATER} = \text{CAPITAL} + \text{OPS \& MANT} + X_{1-n}$$

- Investigations
- Designs
- Construction
- Installations
- Tender Agencies
- Project Management
- Commissioning
- Finance

- Payroll
- Raw Water
- Electricity
- Chemicals
- Telecommunication
- Levies
- Fuel and Lubrication
- Vehicles Maintenance

- % Profit / Over-Recovery
- Funds
  - Subsidy
  - Research
  - Environment
  - Capacity Building

Payment for Water Services (3)

TARIFF $_{WATER}$ = CAPITAL + OPS & MANT + X_{1-n}

- ***Principles of Setting Water Tariffs***
- ***Cost Recovery Principles***
- ***Customer (s) Identification & Segregation***
- ***Principles for Subsidization***
- ***Role of a <u>REGULATOR</u>***

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Payment for Water Services (2)

- ***Affordability vs. Unwillingness to Pay***
- ***Unwillingness***
  - ***Entitlement***
  - ***Political Promises***
- ***No Free Water Services* (vs. Conservation)**
- ***Balancing Service Provision with Water a Basic Need***
- ***Subsidization is a* MUST**

Science and Technology of Water

Water Sector is *Science-led* and *Tech. Driven*

- ***Water-focused Curriculum***
- ***Decisions guided by sound Scientific Principles – cognizant of the Politics***
- ***Emphasize: Research – Development – Application -- IWRM***
- ***Explore Non-traditional Water Sources***
  - ✓ ***Surface and Ground Water***
  - ***Recycled Water, Artificial Recharge, Water Banking, Desalination***

Flood Management

Wanting Water , but not in Excess

- *Flooding Events - Threats Water Supply*
  - *Destruction of Infrastructure*
  - *Disruption of Access to Water*
- *Floods can be Managed – Success?*
  - *Policies*
  - *Geo-politics of Water*
  - *Treaties*

Human Resources Capacity

Shortage of Skilled and Experienced Human Resources - Major Threat

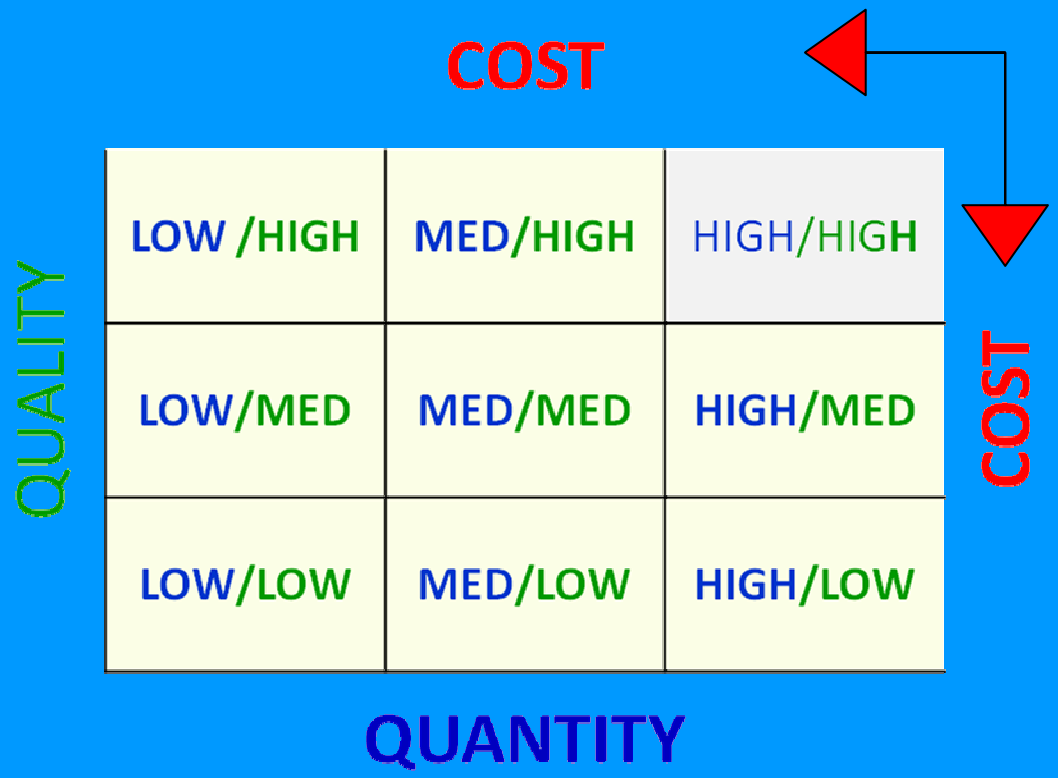
- ***Planning and Investment***
- ***Institutional Weaknesses***
- ***Remuneration – Retain & Continuity***
- ***National Policies on HR Development***
- ***Regional Approach and Collaboration***

Water Q-Q Matrix (Ideal)

QUALITY			
	LOW /HIGH	MED/HIGH	HIGH/HIGH
	LOW/MED	MED/MED	HIGH/MED
	LOW/LOW	MED/LOW	HIGH/LOW

QUANTITY

Water Q-Q Matrix + Cost



Summary

Water is a Vehicle for Realizing Growth and Development

In Making Water Supply a Reality – all Aspects to be Considered and the Process Must be Inclusive


THANK YOU

Q-Q Matrix (Reality)

QUALITY			
	LOW /HIGH	MED/HIGH	HIGH/HIGH
	LOW/MED	MED/MED	HIGH/MED
	LOW/LOW	MED/LOW	HIGH/LOW

QUANTITY