

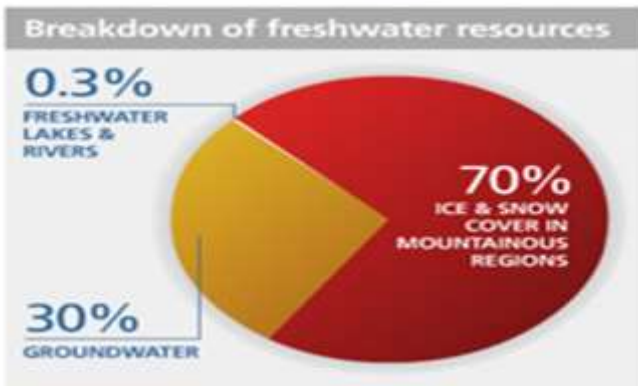
Water Quality Monitoring and Management in Ethiopia

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Outline

- Introduction
- Existing Situation
- lessons
- Challenges
- Way forward
- Discussion points

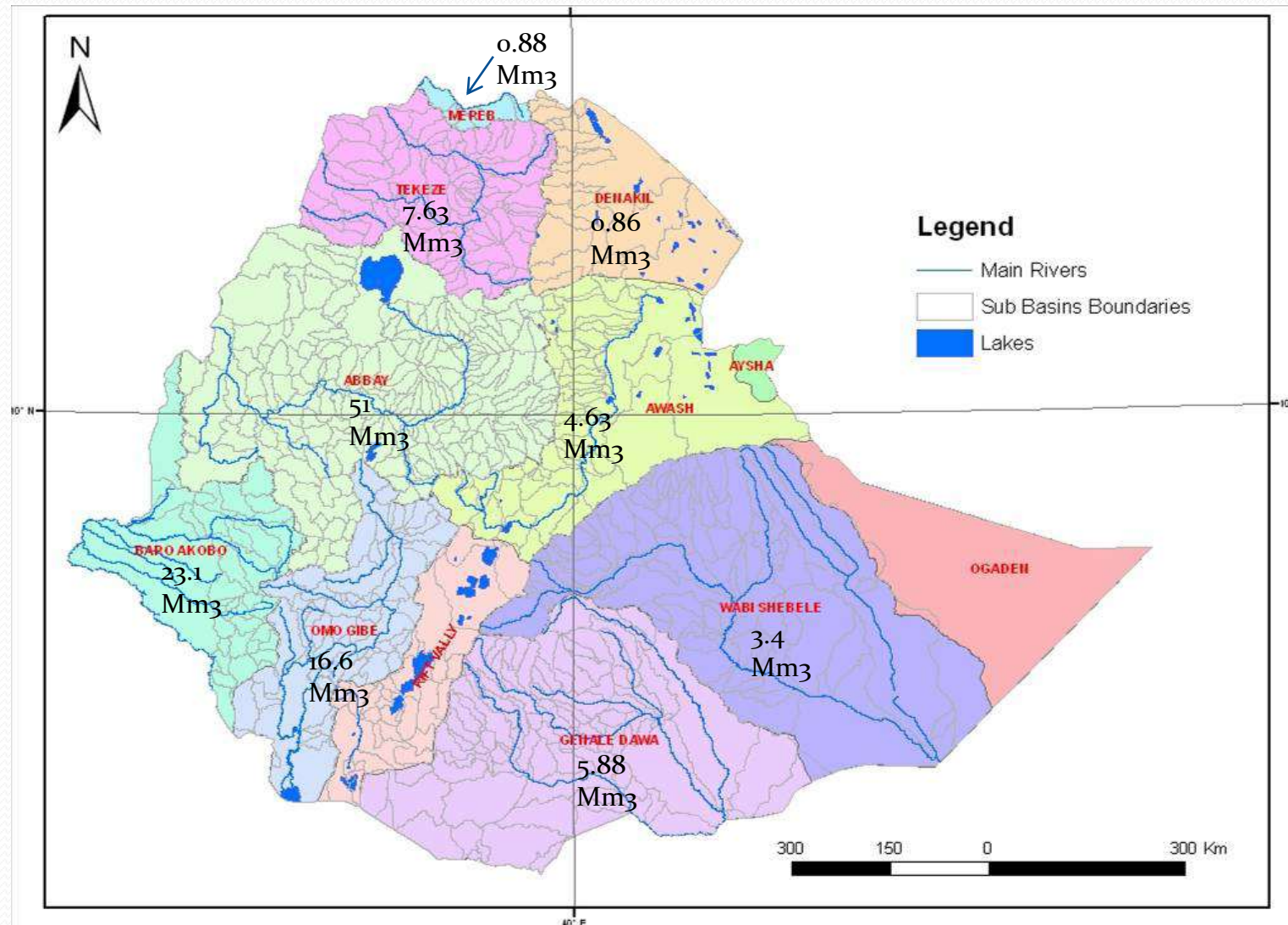
1. Introduction



- Water is life – and life on earth is linked to water
- Development processes lead to the beginning of the problem Now, Water Quality & safety is a world wide issue
- **Water quality** describes the condition of the water, including chemical, physical, and biological characteristics
- **The water quality management system** is a very important aspect to bring a sustainable development

Introduction ...

all developmental activities rely to river basin development



Introduction...

- Results of different ad hoc studies conducted in the country show as level of contamination is high
- Around 12 institutions are involved in water quality activities including (MoWIE) and (MoH)
- However, continuous, systematic, comprehensive and a surveillance activity water quality monitoring is lacking in the country

2. Existing Situation of Water Quality Monitoring and Management

Ethiopian Water Quality monitoring and Safety related policies and initiatives /Enabling Environment /

- Constitution of the Federal Democratic Republic of Ethiopia (FDRE)
- The FDRE Health Policy (1993) and related Strategies
- The FDRE, Agriculture Sector Policy and Investment Framework (ASPIF-2010)
- The FRDE National climate change Adaptation Program of Action (NAPA 2007)
- The FDRE Water Resources Management Policy
- Water Safety Plan Strategic frame work
- The Compulsory Ethiopian Standard Drinking water specification (CESDWS 2013)

Why Monitoring, assessment & Management are needed?


- Evaluate risks to the population & protection of human health
- Compliance with standards & guidelines
- Situation analysis/impact assessment
- Environmental change & long term trends of the water resources development
- Rapid detection of faults & failure
- Prioritization of remedial actions
- Improve and adequate quality of service

The existing situation articulated in the following ways;-

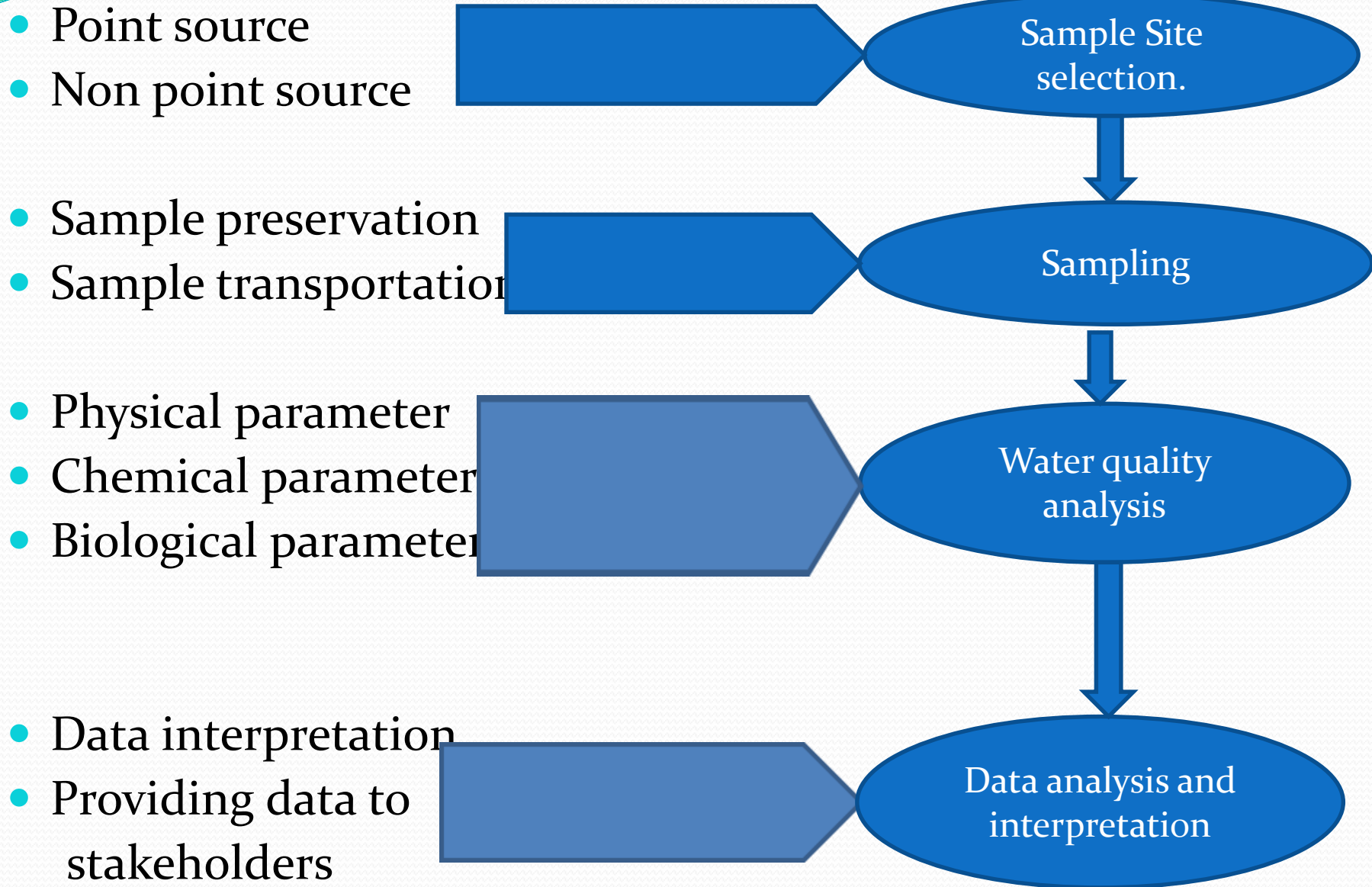
Existing situation...

1. Monitoring on Water bodies at National level

- ❖ Awareness for Stakeholders in some extent ..
- ❖ Ad hoc Water sample collection and quality analysis on the field based on stake holder request and purpose based
- ❖ Conduct measuring basic physico chemical parameters (like PH, EC, TDS, turbidity, alkalinity, Hardness, fluoride, Sulphate, nitrate & phosphate) and Biological parameter (fecal coliform, E.coli) seldom for some water bodies
- ❖ Conducting water quality analysis on pilot areas like koka reservoir, Tana lake, ... in collaboration with Eco-hydrology activities.

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- ❖ Some Physico-chemical water quality data is being collecting and entering to data base from 212 hydrological station
 - ❖ Sediment load analysis at Hydrological station
 - ❖ Defined sampling sites for four basins /Awash, Abay, Rift,and Tekeze/
 - ❖ Provide data and technical support for researcher, basin experts and stakeholders

Basic flow chart shows water quality Monitoring.



Existing situation...

2. Monitoring on Water supply systems

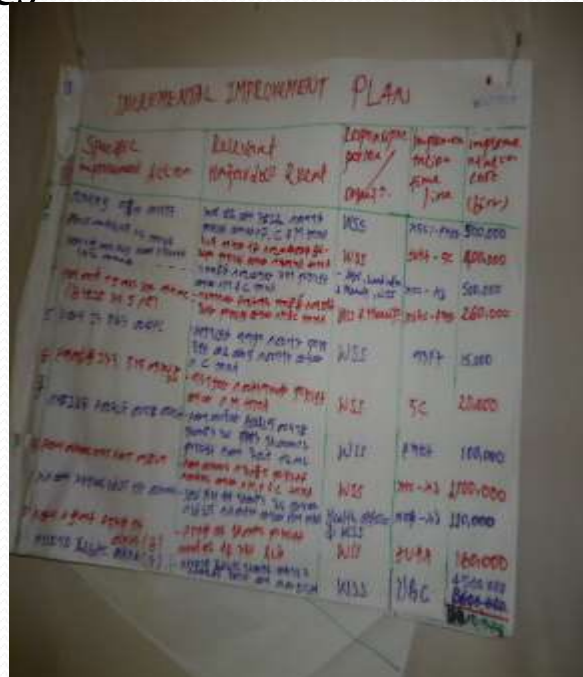
Using Climate Resilient Water Safety Plan /CR-WSP/ tools

- ❖ Developed and disseminated National Strategic framework, Urban and Rural Water supply Implementation guidelines
- ❖ Completed ToR and preparatory work to conduct Vulnerability and Adaptation Assessment of Water Sector to Climate Change in Ethiopia.
- ❖ Given Capacity building training at all level for responsible bodies

Existing situation...

❖ Cascaded CR-WSP Team trainings

- ✓ Developed Incremental improvement plan based on risks identified / assessed
- ✓ Established baselines data & done Water quality testing in all pilot implementation sites

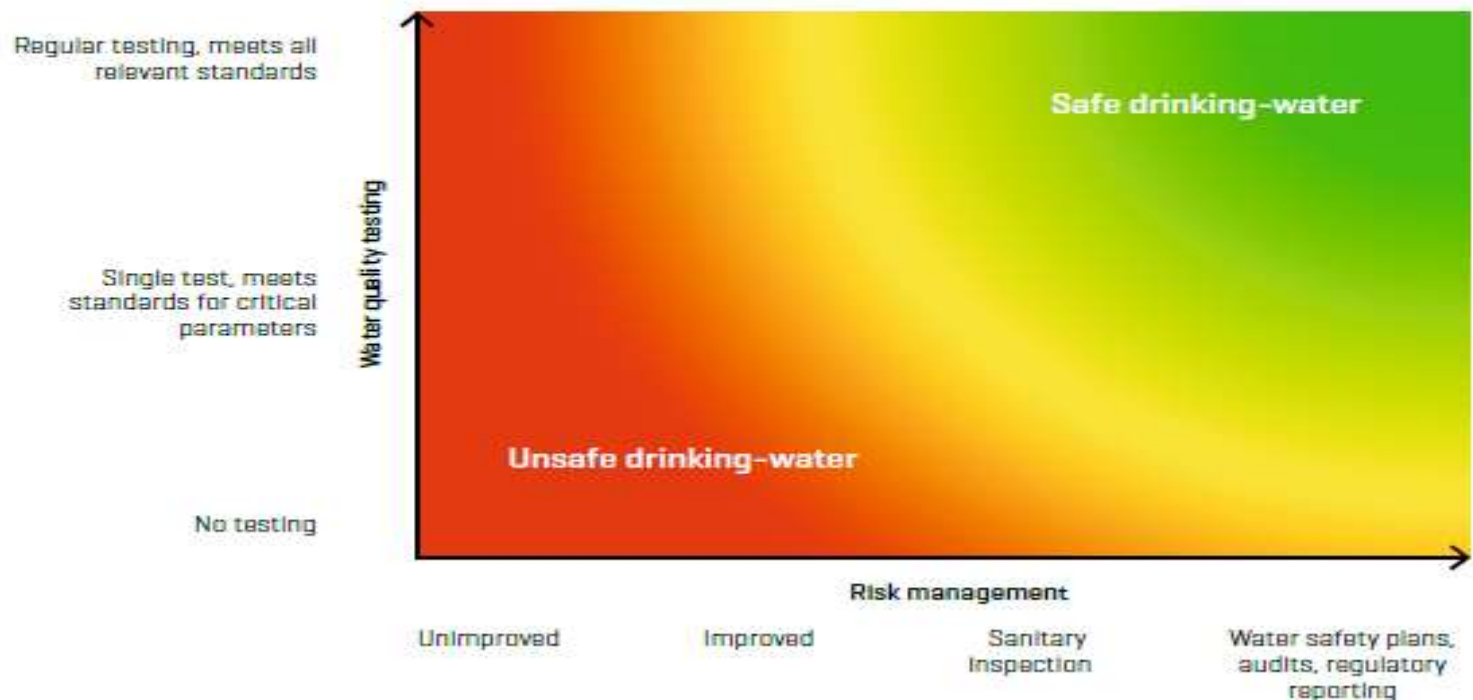


| SPECIFIC IMPROVEMENT ACTION | LOCATION / INFRASTRUCTURE | ESTIMATED COST / PRICE | IMPLEMENTATION TIME / PERIOD | IMPLEMENTATION COST (KES) |
|--------------------------------------|---------------------------|------------------------|------------------------------|---------------------------|
| 1. Supply of water to the community | Water supply point 1 | 100,000 | 1 month | 100,000 |
| 2. Supply of water to the community | Water supply point 2 | 150,000 | 1 month | 150,000 |
| 3. Supply of water to the community | Water supply point 3 | 200,000 | 1 month | 200,000 |
| 4. Supply of water to the community | Water supply point 4 | 250,000 | 1 month | 250,000 |
| 5. Supply of water to the community | Water supply point 5 | 300,000 | 1 month | 300,000 |
| 6. Supply of water to the community | Water supply point 6 | 350,000 | 1 month | 350,000 |
| 7. Supply of water to the community | Water supply point 7 | 400,000 | 1 month | 400,000 |
| 8. Supply of water to the community | Water supply point 8 | 450,000 | 1 month | 450,000 |
| 9. Supply of water to the community | Water supply point 9 | 500,000 | 1 month | 500,000 |
| 10. Supply of water to the community | Water supply point 10 | 550,000 | 1 month | 550,000 |



Now, the following Approach is demanded

Monitoring of water safety should include both water quality testing and risk management



Existing situation...

- With the support of WHO/DFID project 29 water supplies implementing CR-WSP
- Improvement actions include both soft components and WASH infrastructure improvements



Existing situation...

3. Activities on Standard preparation and control management

- Developed a draft ToR to review and develop harmonized water quality standards for irrigation, industrial effluent and any water bodies
- Developed a draft ToR to review and standardize laboratory capacity at Federal and Regional level
- Designed action plan for pollution control management

Lesson

- Awareness creation and comprehensive technical training on Water quality monitoring for higher official /decision makers, experts, and, technician at all level is essential
- Suppliers now considering CR-WSPs as part of their water supply operation and management system tools
- Universities are taking up Water Safety Plan as research thematic area
- Convincing and getting buy in of some experts/officials that water bodies quality monitoring is as good as water supply coverage.
- Integrated Water shade management

Challenges

- Less attention on Water Quality and pollution control
- Awareness gap at all level
- Limited capacity
 - ❖ lack of professional on water quality
 - ❖ Knowledge gap at all level
 - ❖ Limited institutional capacity
- Multi-sector involvement
- Weak implementation of Regulatory activates /Role & responsibility confusion among the regulatory and service provider/
- Regulator & surveillance authority capacity & readiness WQS Monitoring &Evaluation

Challenges ...

- Absence of harmonized standards for controlling effluent discharge ,irrigation & industrial water
- Gaps on interpretation of water quality data and information generation.
- Lack of established reference water quality laboratory
- Gaps of coordination/integration between different Stake holders
- Low Community involvement on water quality/ safety in terms of risk factor identification & mitigation
- In general systematic & comprehensive water quality/safety management is lacking .

Way forward

- Implementation of comprehensive and systematic water quality monitoring & management approach
- Make sure Risk of Contamination & Pollution managed as integral part of the improved drinking water supply ongoing operation
- Building Capacity at all level.
 - Supplier
 - Regulators
 - community
 - Etc...
- Strengthen Multi-sectoral involvement/integration

Points for Discussion

- Mechanisms on improving multi-sector integration
- Issues to improve the enforcement of regulatory activities?
Who, what, how ...set clear role & responsibility
- Utilization of research out puts for operational purpose?



Thank you!