

Water and Energy Research in Ethiopia

Ethiopia Water and Energy Week

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17-20 June, 2019

Addis Ababa

1. INTRODUCTION

- Ethiopia has a fairly large water and energy resources, but not abundant.
- Verge of water scarcity threshold based on PCWA
- Ensuring efficiency is vital
 - ✓ Surface water resources: 122 BCM
 - ✓ Groundwater resources: 30-40BCM
 - ✓ Irrigation potential over 5-6 million ha
 - ✓ Hydropower potential: 45,000 MW
 - ✓ Other renewable energy resources:
 - Solar
 - Geo-thermal
 - Wind
- These resources are little harnessed for the socio-economic development of the nation
- For developed resources, efficiency and sustainability are low
- Development/practice in the sector often not supported with domestic/local research

2. WATER AND ENERGY RESEARCH IN ETHIOPIA

- Water and Energy Research in Ethiopia is generally at its infancy
- Research in water sector in Ethiopia generally lacks integration and systemic management.
- Lack problem-solving orientation/ and research leadership lacking
- **Universities**
 - Arba Minch Water Technology Institute: A pioneer institute for water education and research
 - AAU, BDU, HMU, MU, HU, JU
 - Mainly Graduate student's research works
 - Not problem-oriented
 - Research fund driven
- **National/international research Institutes/organizations**
 - IMWI
 - FAO

2. WATER AND ENERGY RESEARCH...

- There is weak institutionalization and leadership of research in the sector
- No proper management of research outputs, little linkage and support to development in the sector
- Research undertaken in a fragmented manner
- Largest research mainly by HEI
- However, research in HEI has shortcomings:
 - Poor university-industry linkage
 - Often, not problem-oriented and hence less applicability
 - Low levels of dissemination to stakeholders/end users
 - Undertaken under limited finance

4. SWOT ANALYSIS

Strengths	Weaknesses
<ul style="list-style-type: none"> • Huge commitment of the government , Ministry towards water and energy sector • Exceptional leadership of the sector by professionals in the sector • Measures undertaken by MoWIE to engage senior professionals in capacity building in the sector • Presence of several research undertakings by the MoWIE and other institutions in the sector in uncoordinated manner 	<ul style="list-style-type: none"> • Little experiences in the sector in the past in coordinated research • Inadequate research facilities • Inadequate research human capacity in the public sector
Opportunities	Threats
<ul style="list-style-type: none"> • Lessons to be learnt from other local research institutions • Several global and regional experiences of Research Institutes • Presence of large number of senior professionals with commitment in the sector and with ample experiences • Support from development partners • Expansion of universities and training programs in the sector 	<ul style="list-style-type: none"> • Low government pay scale in Ethiopia- inability to attract seniors • Limitations in finance

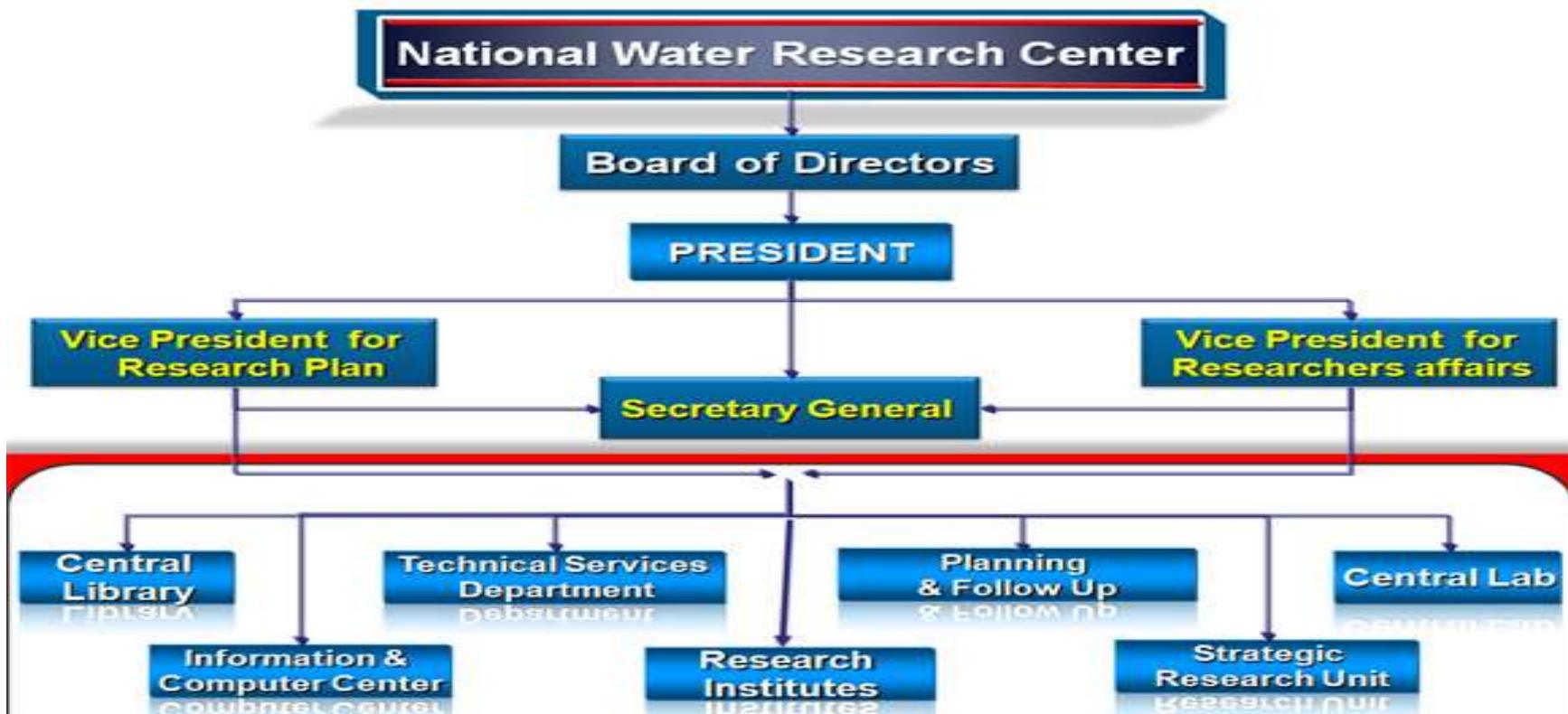
INITIATIVES IN THE PAST TO ESTABLISH NATIONAL WATER AND ENERGY RESEARCH INSTITUTION

- **2002:** Proposal documents for establishment of National water research center by the then Science and Technology Commission
- **2013-2014:** The above document was reviewed and updated, and a revised document “Detailed Strategy: Ethiopian Water Research Institute” was prepared by the MoWIE and Jeanine Finley, Fulbright-Clinton Fellow, Ethiopia 2013/14
- **2018-2019:** Water and Renewable Energy Research Institute Establishment document and *Researchable issues and list of research outputs by Research and Development Directorate of the MoWIE: On the process of approval*
- **2019:** Advisory Group is working on a Bankable Proposal for implementation of a National Water and Energy Research Institute

GOOD EXAMPLES

Egypt: National Water Research Center (NWRC)

- A pioneer institution water research
- Established in 1975 within the Ministry of Water Resources and Irrigation (MWRI).
- 12 research institutes
- Comprehensive research plan serving **on-going projects** and **national development plans**

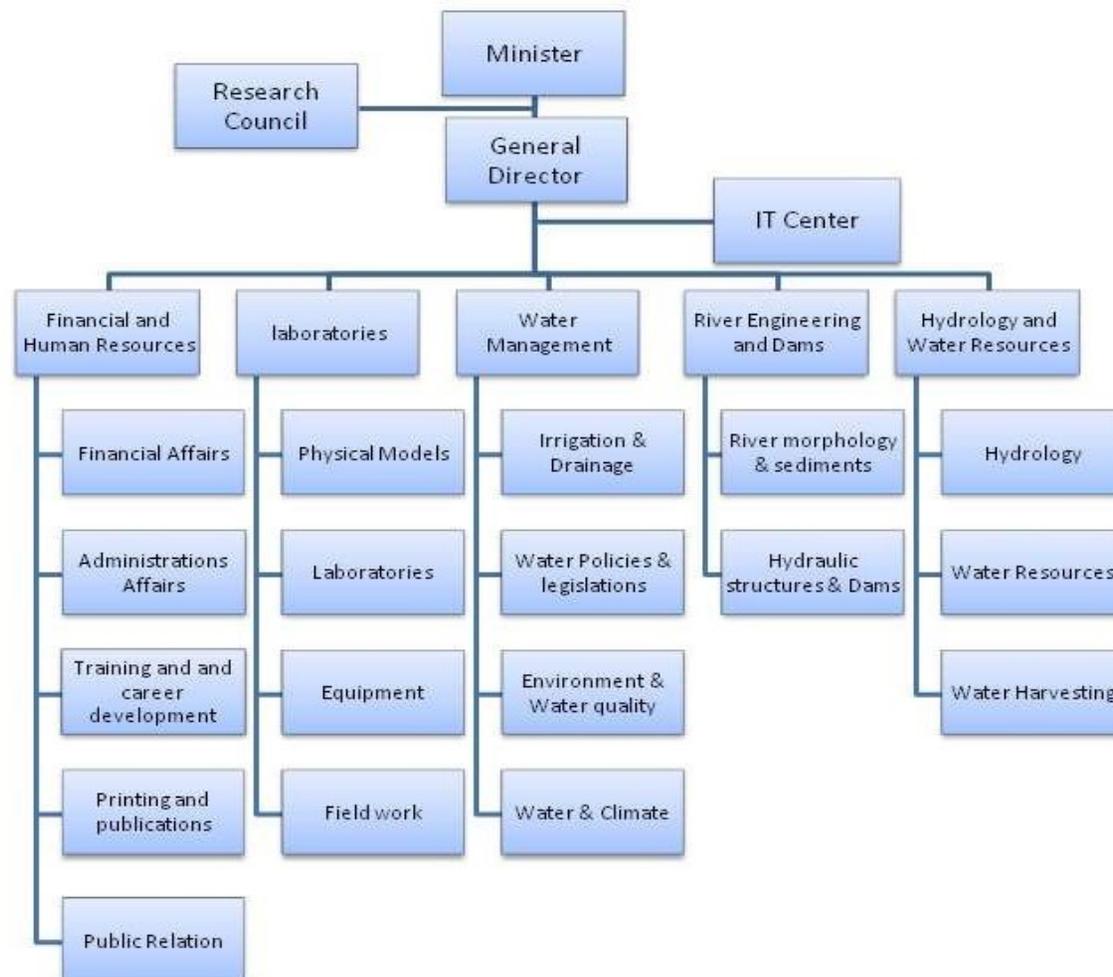


Research Institutes- NWRC-Egypt



Sudan- Hydraulic Research Centre (HRC)

- a pioneer center for water research in Sudan
- established in 1976 with support from UNDP
- under the MoWRE



- Over the years, HRC has established a reputable record of research achievements
 - river training,
 - sediment transport and management,
 - irrigation engineering and management,
 - water resources planning and management.
- Solving real-life problems

NATIONAL WATER AND ENERGY RESEARCH INSTITUTION IN ETHIOPIA

Need for establishing national Water and Energy Research Institute :

- Addressing complex and emerging water and energy related challenges
- Knowledge generation and knowledge management to support
- Make informed decisions in development and management of resources
- Synergizing research efforts
- Solve real-world problems in project studies before, during and after implementation
- Up-to-date data and information systems

Thank you!