



GGRETA

GOVERNANCE OF GROUNDWATER
RESOURCES IN TRANSBOUNDARY AQUIFERS

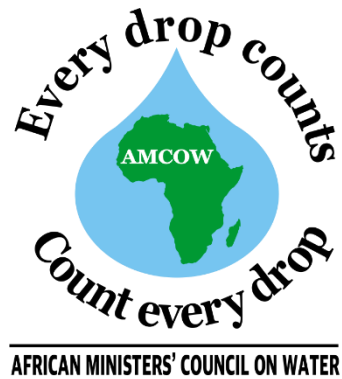
**Online Course on Groundwater Management
in African Lake and River Basin Organizations**

Groundwater Activities at AMCOW

MOSHOOD N. TIJANI, PHD
**AMCOW-GROUNDWATER
AND CLIMATE CHANGE LEAD**

African Ministers' Council on Water

A sub-committee of the African Union specialized technical committee
on Agriculture, Rural Development, Water and Environment.



AMCOW PAN-AFRICAN GROUNDWATER PROGRAM (APAGroP):

AMCOW Agenda for Sustainable Management of Groundwater Resources and Trans-boundary Aquifers in Africa


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PRESENTATION OUTLINES

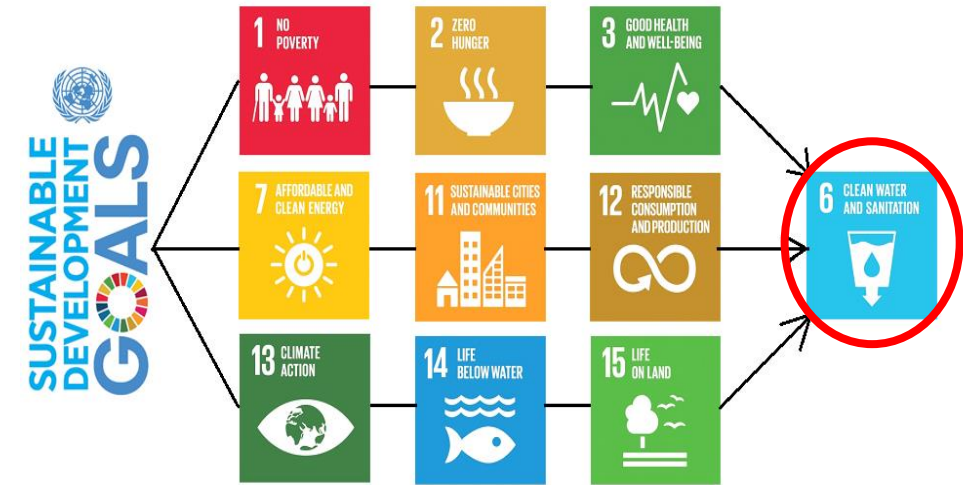


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- I. Introductory BACKGROUND – About AMCOW and APAGroP
 - II. AMCOW's Key Groundwater Activities
 - III. Pan Africa Trans Boundary Water Management
 - IV. Pan Africa Water Quality Programme (PAWaQ)
 - V. AMOW's GW-Education and Cap-Building
 - VI. Summary and Concluding Thoughts
 - VII. WAY FORWARD – Collaboration and Partnership

Introductory Background



- ❖ Water resources are critical to socio-economic growth and improvements of both urban and rural livelihoods in Africa.
- ❖ More importantly, the attainment of 10 out of the 17 SDGs, are clearly directly or indirectly related to Clean Water and Sanitation (SDG-6).
- ❖ Also, the attainment of 8 out of the 17 SDGs, are clearly directly or indirectly related to tackling the menace of CC (CC-Action -SDG-13).



THEREFORE, the strive for water security becomes more critical with:

- ❖ future pressures on water resources at both the supply and demand end and
- ❖ particularly related to population, climate, and land use change.

Introductory BACKGROUND



In Africa, the crucial role of water in achieving socio-economic development is widely recognized.

The Africa Water Vision for 2025 envisage:

An Africa where there is an equitable and sustainable use and management of water resources for poverty alleviation, socio-economic development, regional cooperation, and the environment.

- ❖ Sanitation and Hygiene has historically attracted attention within the framework of WASH;
- ❖ AMCOW's strategy is inclusive integrated water management for water, food and security.

However, despite the enormous surface and groundwater resources in Africa, achieving water security for Africa presents a challenge due to:

- a) Population growth
- b) Rising living standards
- c) Land use change
- d) Climate change

AMCOW Mandate vis-à-vis GROUNDWATER



AMCOW's 2018-2030 Strategy has been prepared with the overarching goal of strategically positioning AMCOW effectively to deliver on its two commitments:

- 1) Assure the dignity of the people of Africa by providing adequate and sustained sanitation services
- 2) Support MS to develop, manage, and utilize water resources to assure water, food and energy security in Africa.

To realise the above mandate and commitments, AMCOW identified **GROUNDWATER** as a priority intervention area in its Strategic Plan 2018 -2030, and by extension Strategic Operational Plan (SOP) 2020 – 2024.

Consequently, for water Security in Africa, Integrated Water Resources Management (IWRM) focusing on both surface and groundwater at national and transboundary levels is required.

ABOUT AMCOW



AMCOW is a Delivery Mechanism on Water and Sanitation for the Specialized Technical Committee (STC) of the African Union (AU) on Agriculture, Rural Development, Blue Economy and Sustainable Environment (ARBE).

The African Ministers' Council on Water (AMCOW) was formed in 2002 in Abuja Nigeria for Political Advocacy and Policy Direction

- **55 Ministers from Member States of the AU**
- **15 Members of Executive Council of Ministers**
 - **25 member of the Technical Advisory Committee**
 - **Executive Secretariat**

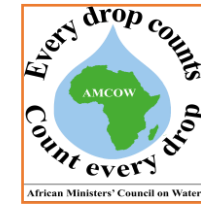
Vision

An Africa where there is an equitable and sustainable use and management of water resources for poverty alleviation, socio-economic development, regional cooperation and environment

Mission

Provide political leadership, policy direction and advocacy in the provision, use and management of water resources for sustainable social and economic development and maintenance of African ecosystems.

AMCOW STRATEGY 2018 – 2030



Strategic Priorities (SP)

SP1

Ensure water security through integrated WRM

SP2

Ensure Safely Managed Sanitation & Hygiene

SP3

Promote water governance and transboundary water cooperation

SP4

Strengthen AMCOW's governance and delivery mechanisms

Cross Cutting priorities (CCP)

CCP1

Enhance water and sanitation resilience to climate change

CCP2

Contribute to adequate and sustainable financing of water and sanitation agenda

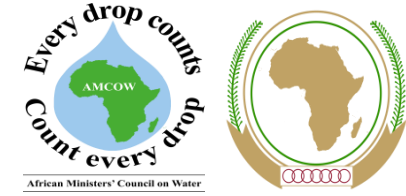
CCP3

Improve monitoring, evaluation and knowledge management systems

CCP4

Strengthen gender equality and youth empowerment in water and sanitation

Overview of AMCOW Strategy 2018-2030

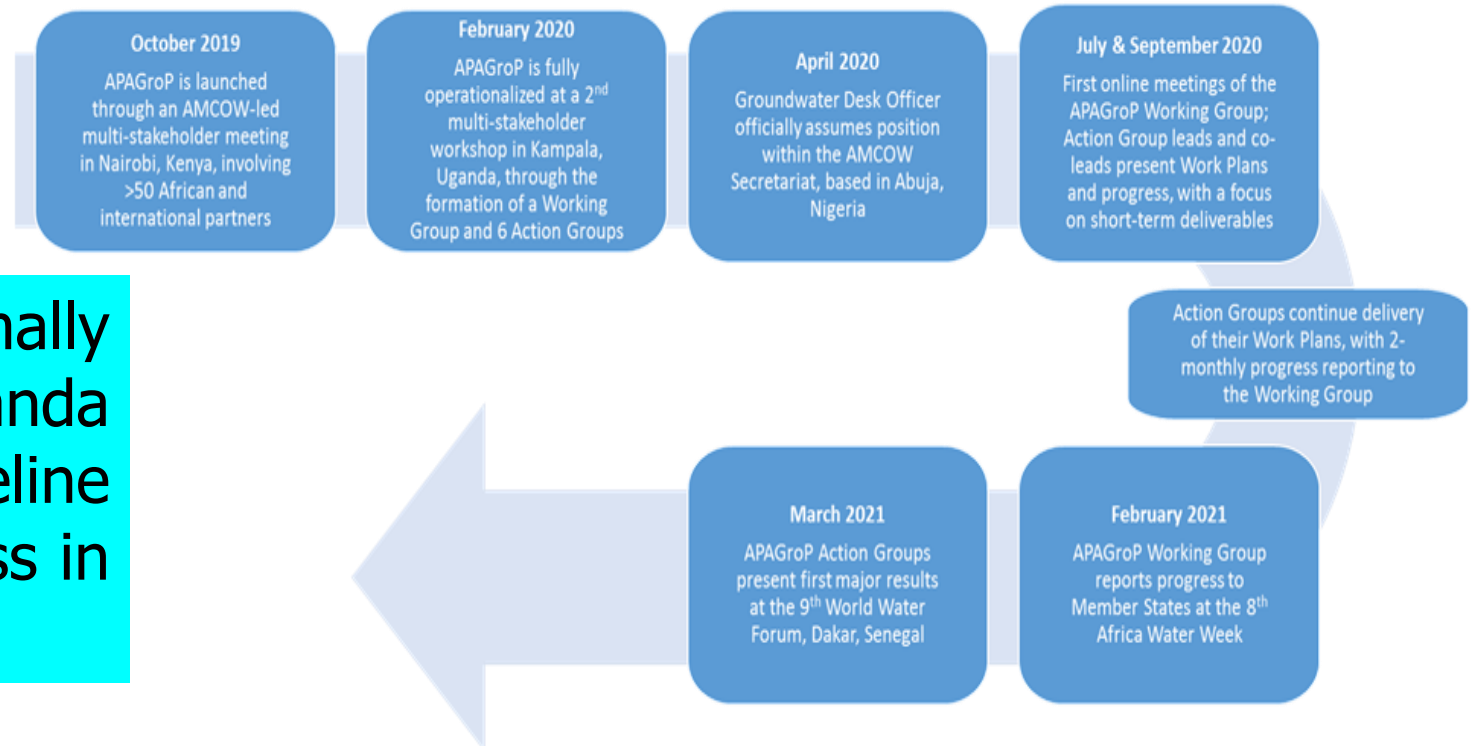


ABOUT AMCOW Groundwater Programme



AMCOW Pan African Groundwater Programme (APAGroP)

AMCOW convened the first GW workshop in **October 2019** in Nairobi, Kenya where several experts and representatives of financiers and Member Countries discussed on issues around Africa's GW development and management.



Later, **APAGroP** was formally launched in Kampala Uganda during the series of sideline meetings at the AfWA Congress in **February 2020.**

APAGroP: Aim and Goals



❖ APAGroP's principal aim is to leverage on science and reassert to influence groundwater policy and practice in Africa. The goals are:

G1



❖ To promote sustainable management and utilization of groundwater resources for water security and resilience.

G2



❖ Promotion of appropriate technologies and practice in groundwater development and management.

G3



❖ To improve the policy and practice of Groundwater in Africa for better lives and livelihoods.

The APAGroP is to provide continental leadership in sustainable utilization of groundwater for:

Water Security

Food Security

Safe Water Supply

Water Resiliency

APAGroP: Other Objectives and Focus



Other Specific Objectives are:

- ❖ To promote sustainable management and utilization of groundwater resources for water security and resilience,
- ❖ To promote appropriate technologies and practice in groundwater development and management,
- ❖ To improve the policy and practice of Groundwater in Africa for better lives and livelihoods.
- ❖ To demonstrate benefits of GW development and thus make GW represented in the continent's major strategic water programs.
- ❖ To promote information and knowledge sharing, and make GW knowledge from pilot accessible to decision-makers and
- ❖ To make African Union and Political Heads (presidents, ministers) of member states gain access to GW knowledge and information to improve in-country programs.

WHY Groundwater ?

- ❖ Globally, there are increasing dependency on groundwater, from both national and transboundary aquifers for agricultural and domestic water supply.
- ❖ The potential of groundwater with respect to domestic and irrigation water supply in parts of rural Africa is high with up to 70% contribution in some cases.
- ❖ At least 320 million people in Africa lack access to safe water supplies. Developing groundwater resources is the only realistic way of meeting this need across Africa
- ❖ There are increasing dependence of many urban centers on groundwater (especially in Sub-Sahara Africa) in ensuring access to clean drinking water.
- ❖ 75 % of the African population dependant on groundwater for basic water supply (UNECA et al., 2000).
- ❖ Groundwater-irrigated farming contributed to at least 40% of the world's food production and 70-80% of smallholder irrigated farming / food production in Africa.

Why Groundwater?



- ❖ The volume of water stored underground in Africa is estimated to be 20 times more than the freshwater stored in rivers and lakes.
- ❖ Groundwater demands are set to increase in the future (due to population increase, climate change, irrigated agriculture and industrial demands)
- ❖ GW is also a key resource for climate resilience, environmental protection and tackling poverty and improving socio-economic conditions of the populace.

Water Security

It provides inexpensive off-grid distributed water supplies to both rural and urban populations in Africa

Food Security

It is also a relatively cheap source of water for small scale agriculture and livestock production

Safe Water Supply

It is naturally protected from contamination, thus generally of good quality with little / no treatment in most cases

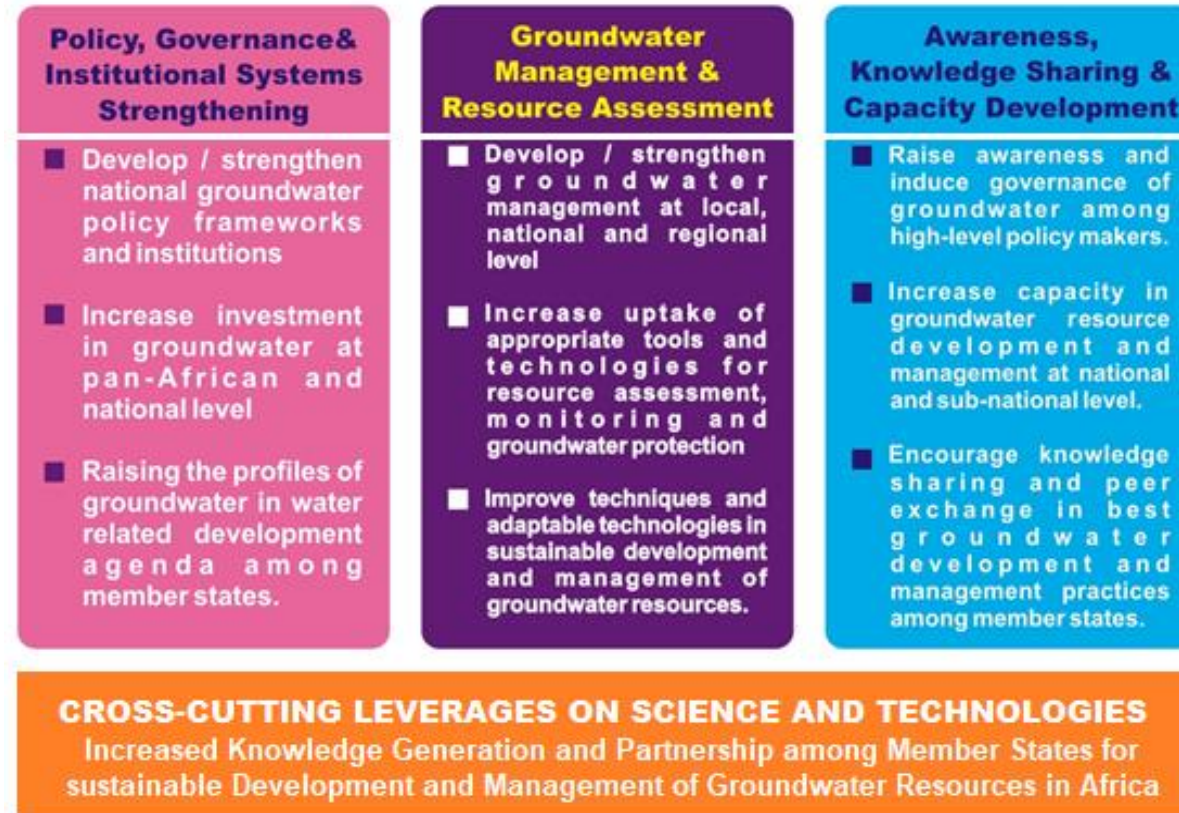
Water Resiliency

It is often resilient to drought, acting as a natural buffer against rainfall variability and Climate Change

APAGroP – Strategy and Focus

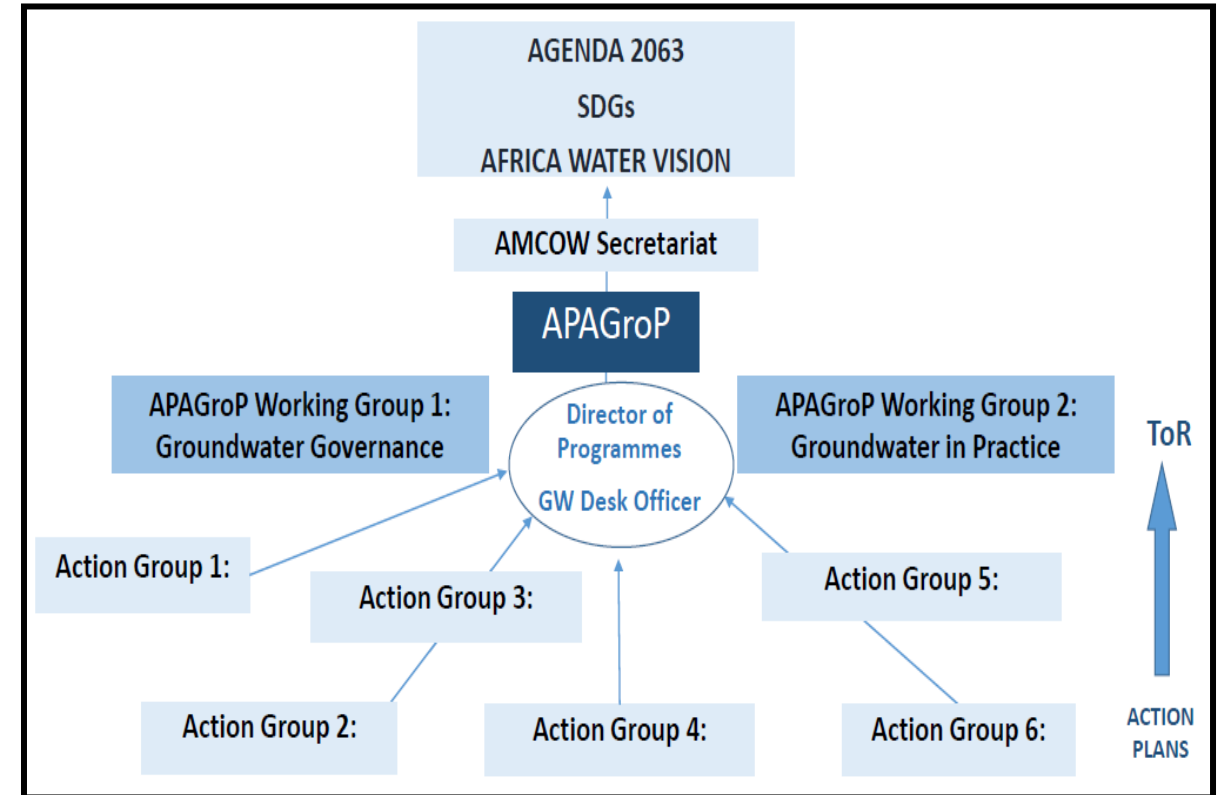
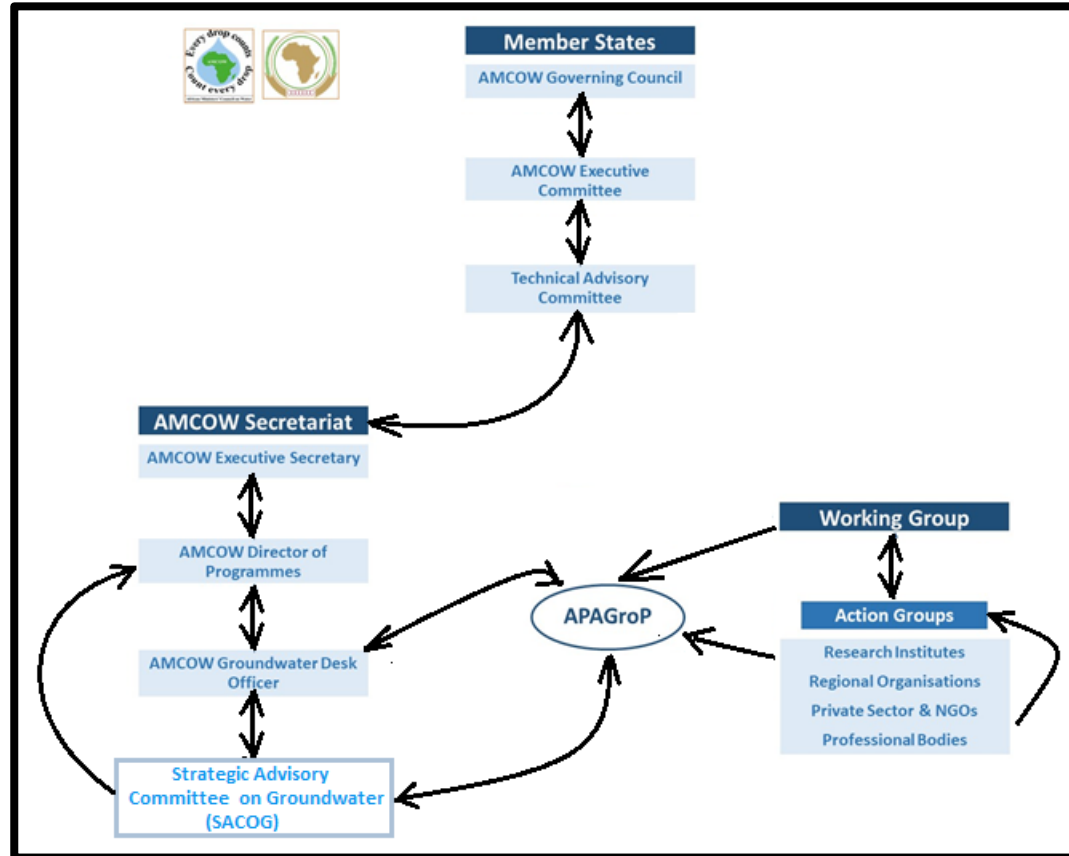
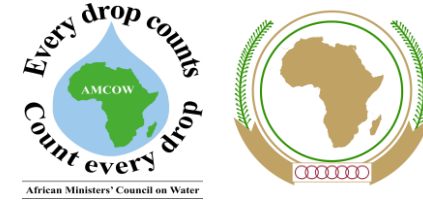


APAGroP is thus meant to develop programs and initiatives for improving the policy and practice of Groundwater in Africa for better lives and livelihoods.



Thematic pillars of APAGroP and cross-cutting leverage on science and practice.

APAGroP: Operational Structure



APAGroP: Expected Benefits to Member States



For the 55 AU Member States

R1



Mapping of GW resources for sustainable management and utilization to enhance water security and resilience in Africa.

R2



Capacity development for groundwater practitioners to improve sustainable use of groundwater resources.

R3



A community of practice established for championing best practices, knowledge and information sharing on groundwater.

R4



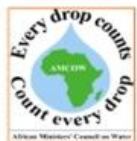
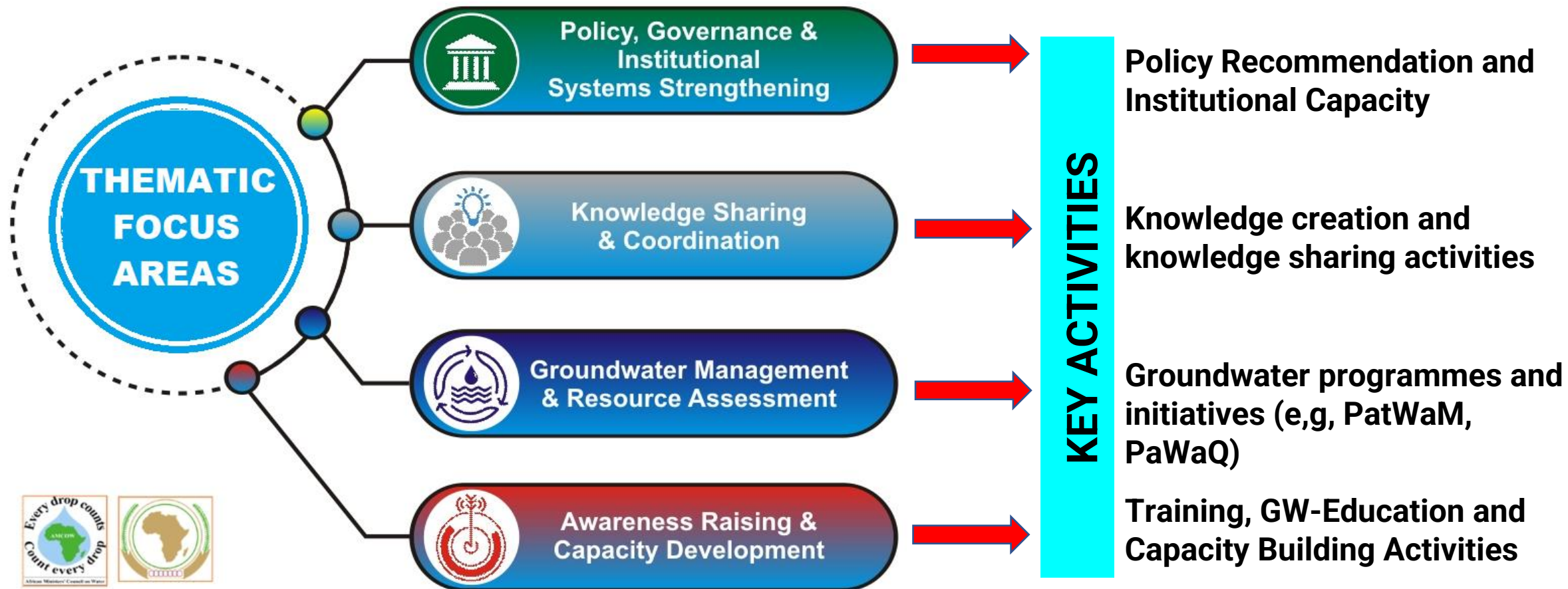
Appropriate technologies and partnership to drive best groundwater practice amongst member countries.

R5



Awareness creation to secure and retain high level political commitment on GW policy and practice across the continent.

AMCOW's Key Groundwater Activities





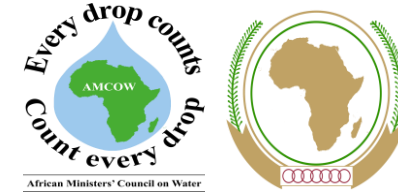
AMCOW Contribution Transboundary Groundwater and Aquifer Management: ***Pan African Transboundary Water Management (PATWaM)***

Facts and Need for TB-Groundwater/ Aquifer Management



- ❖ Seventy-two (72) TBAs have been mapped in Africa and these underlie 40% of the continent, where 33% (381 million) of the population lives, often in arid or semi-arid regions.
- ❖ Only eleven (7) TBAs have been subjected to more detailed studies, while cooperation has been formalised for only seven TBAs in Africa, most in North Africa and the Sahel zone.
- ❖ Of the forty-seven mainland African countries, only Sierra Leone and Equatorial Guinea have no known TBAs.
- ❖ Currently, more than 2 billion people are affected by water shortages in over 40 countries, mostly in Africa.
- ❖ Estimated 2.4 billion people will live on the African continent, compared to the current population of 1.1 billion by 2050 with the attendant increase in the demand for water

AMCOW and Lake/River Basin Organizations (L/RBOs)



- ❖ L/RBOs offers great potential for Africa's development (hydropower, agriculture and industrialization).
 - ❖ Agenda 2063, the Africa We Want
 - ❖ African Water Vision 2025,
 - ❖ SDGs 2030
- ❖ AMCOW recognizes L/RBOs as important building blocks for effective management of water at the regional and continental levels for development

Therefore, WRM within the framework of Transboundary Water Cooperation at the L/RBOs level can offer an important means:

- ❖ to manage transboundary waters in an equitable and sustainable way
- ❖ to ensure sustainable conjunctive water use and transboundary aquifer management
- ❖ to maintain peace and security within the riparian member states.

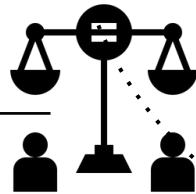
Aim and Objectives of PATWaM

To advance transboundary water cooperation through...

1) Promoting **peace** and sustainable water resources development



2) Promoting **equal participation** and **mutual trust** across the riparian borders while building necessary **networks** and **collaborations**



AIM

3) Promoting **social and economic well-being**... and the ability of future generations to **meet their water needs**



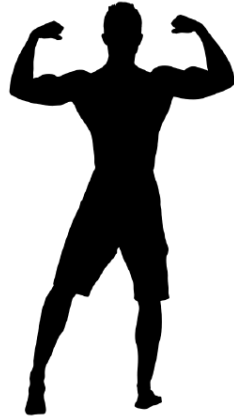
4) Promoting **cost-efficient benefits** that protect both public health and the environment as a means to improve the life and livelihoods of the citizens of the member states



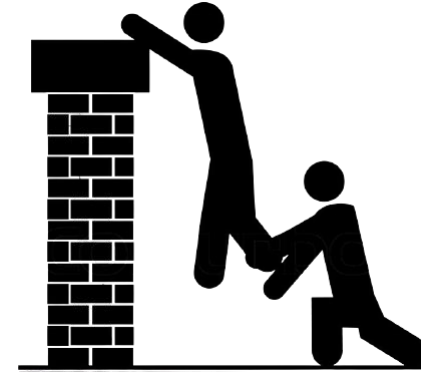
5) Addressing the concerns about the impacts of **climate variability** and **climate change** on water resources



Key Segments of PATWaM

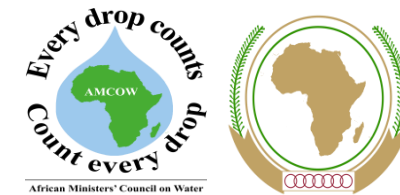


On **surface water**: Enhance **institutional capacity** of the riparian member states with respect to transboundary water management and cooperation



On **groundwater**: Raise the profile of groundwater aquifer management within the framework of integrated water resources management (IWRM) approach of the L/RBOs

PATWaM Coordination Cycle and Activities



1 PATWaM rolled out by AMCOW Secretariat



2 Facilitate greater understanding and cooperation among the riparian member states



3 Pilot regional case studies of selected transboundary water organizations

KEY ACTIVITIES

Conduct Stakeholders Involvement through the inception phase

Conduct Gap Analyses & Needs Assessments

Undertake Targeted Advocacy for Decision Makers and Training Support for LRBOs in Africa

Development of Action Plans for TB-Water and Aquifer Management Strategies

Development of Guidelines, Tools and Standards

Focal Areas of PATWaM

This programme will focus on capacity strengthening with respect to Policy, Legal and Institutional frameworks of surface and groundwater management at national and transboundary levels within the Lake/River Basin Organizations (L/RBOs) in Africa, while leveraging on science and data-based evidence to create cooperation and partnership across the riparian borders.

1

ASSESSMENT

Assess the exiting frameworks and capacities

2

STRATEGIC PLAN

Develop medium and long-term strategic plans

3

NETWORKING

Strengthen stakeholder and partners networks

4

COORDINATION

A coordination platform for TB water managt.

Data-driven Decisions in Transboundary Groundwater Management



The focus of the action plans will be on integrated Surface water and TB Groundwater Management. The thematic action plans will involve activities on:

- ❖ Strategy towards addressing the capacity strengthening in legal, policy and regulatory frameworks of TB water and aquifer management at national and transboundary levels of the L/RBOs.
- ❖ Development of hydrological and hydrometeorological monitoring of the drainage system within the L/RBOs.
- ❖ Development of strategy for sources area protection and water quality monitoring process both at upstream and downstream levels across the transboundary borders.
- ❖ Aquifer delineation and hydraulic characterization as well as water level and recharge monitoring process.
- ❖ Development of protocol and legal framework for water sharing and related catchment cooperation agreements for effective integrated TB water and aquifer management.



AMCOW PAN-AFRICAN WATER QUALITY (PAWaQ) PROGRAMME

Groundwater quality and protection issues

- ❖ **Focus is made on (Ground)water access**
(in terms of quantity)
- ❖ **Urban groundwater pollution:**
 - ❖ Sanitation
 - ❖ Land use, and planning
 - ❖ Uncontrolled urbanisation
- ❖ **Groundwater natural quality occurrence**
 - ❖ Fluoride, arsenic etc
- ❖ **Source (ground)water protection**
 - ❖ Microbiological water quality
 - ❖ (Uncontrolled) Mining activities
 - ❖ Agricultural fertilizers and pesticides



Pan Africa Water Quality Initiative

- ❖ As part of AMCOW mandate, water security in terms of both quantity and quality are considered critical.
- ❖ AMCOW acknowledges the centrality of water resources as a critical tool for economic growth and overall sustainable development.
- ❖ AMCOW is therefore developing a program - the AMCOW Pan-African Water Quality Programme in conjunction with IWMI.
- ❖ The ultimate goals are:
 - ❖ creation of a strong, water quality data base and a self-driven water quality and pollution control initiatives in Africa through PAWaQ
 - ❖ promotion of a collective action to ensure protection of water quality and enhance water security in Africa.

Scope of AMCOW PAWaQ Programme



- ❖ Current and emerging key issues (technical, environmental, financial, social and institutional/policy) faced by the Water Quality sectors in urban and rural Africa
- ❖ The general analytical capacity of countries (including Government, private sector, NGOs) on water quality aspect
- ❖ Interrogate Water Quality related initiatives launched in past years in Africa, including their approaches and successful levels
- ❖ Identify key international players in the Water Quality sector and establish appropriate collaboration mechanisms
- ❖ Clear transformational aim, with a set of good fit regional interventions on water quality monitoring and pollution control
- ❖ Take stock of ongoing African and international initiatives with direct or indirect links to Water Quality, and to promote North-South learning.

Current PAWaQ Activity: Online Survey



- ❖ As part of a background study to support the envisaged Pan African Water Quality, AMCOW in conjunction with IWMI is conducting an assessment of water quality monitoring status across African countries.
 - ❖ In the first two phases of this project, a situation analysis of water quality monitoring in Africa will be carried out and will describe efforts to manage deteriorating water quality.
 - ❖ In the latter three phases, research innovations that could advance water quality management in Africa will be considered and stitched into the design of a new PAWaQ.
- ❖ Key outcomes of the PAWaQ will be to enable the establishment of monitoring and management of water quality that will be adopted by all member states.
- ❖ The programme will also enable Africa to participate in the World Water Quality Alliance (WWQA), where it can be used to enable further scrutiny of a multitude of water quality issues.
- ❖ The programme will also provide a continent-wide initiative to collect and to provide data to larger repositories for pollution monitoring and control.

Scope of the PAWaQ Online Survey



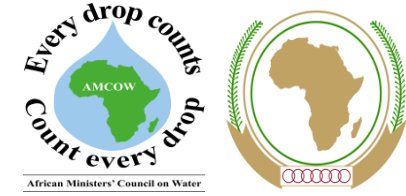
The scope of the questionnaire covers four broad areas:

- ❖ Assessment of the human capacity for water quality monitoring, water quality testing and data interpretation
- ❖ Assessment of laboratory water testing capacity with respect to availability and state of water testing equipment
- ❖ Assessment of the key water pollutants and pollution sources at county level
- ❖ Assessment of the initiatives and measures currently deployed against water pollution and to mitigate risks from polluted waters.



AMCOW Contribution to Groundwater Education and Cap-Building

Why GW Education and Cap-Building in Africa?



Why GW Education in Africa?

By 2025, 60% of the world population (>5 billion), will be living in cities and mostly in Africa; thus (ground)water knowledge and expertise are required.

Groundwater is the largest freshwater reservoir in Africa with about 20 times more than the freshwater lakes and rivers; the need for proper management.

Growing population and increasing competing demands for groundwater for WASH, small holder agriculture and other industrial uses in Africa.

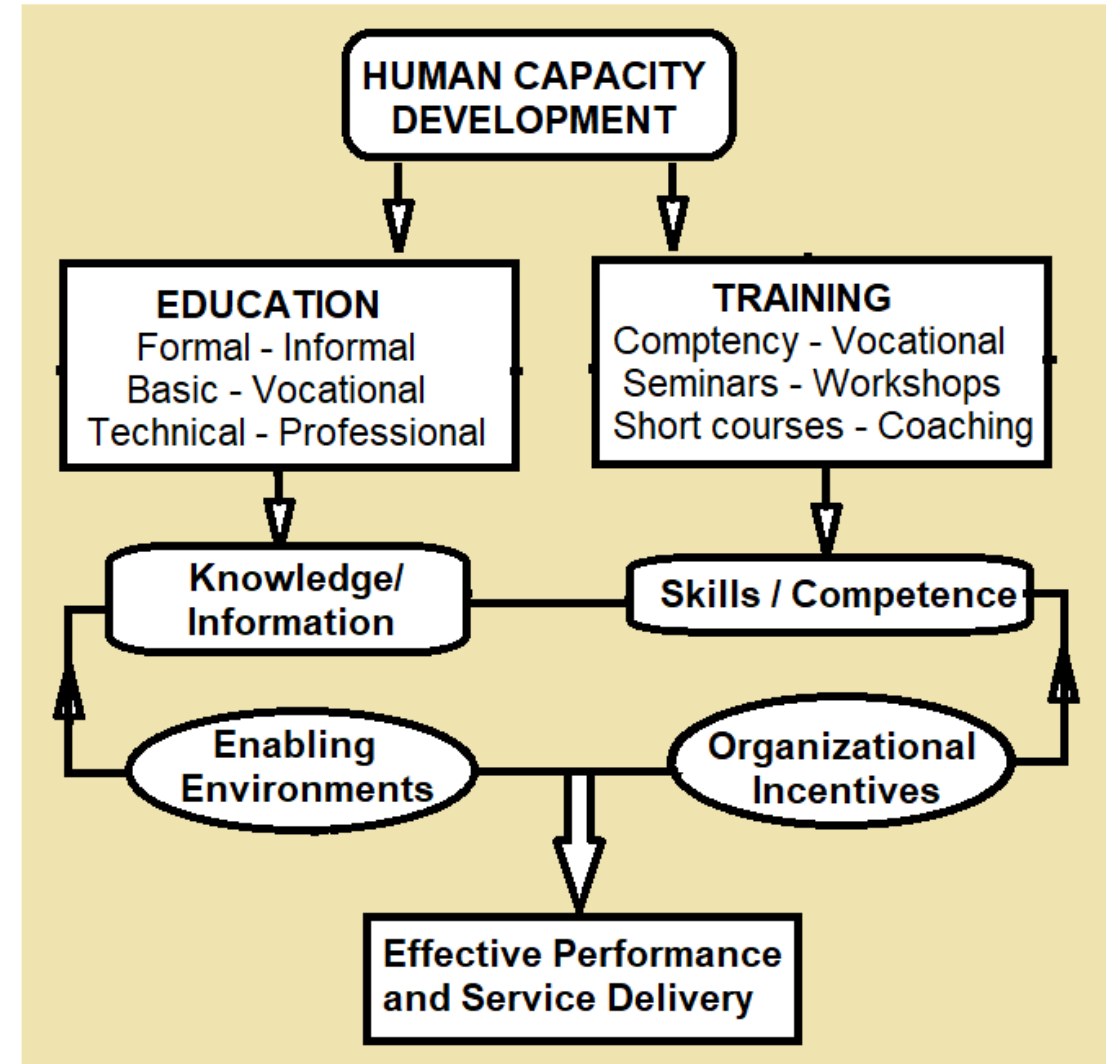
Growing urbanization and the increasing risks of over-exploitation and contamination through human activities and land-use changes.

Inadequate technical, financial, and institutional capabilities in groundwater project and related infrastructures development.

Groundwater plays a huge role in adaptation; hence the need for innovative and proactive management approach in the face of climate change.

Concept of Human Capacity Development

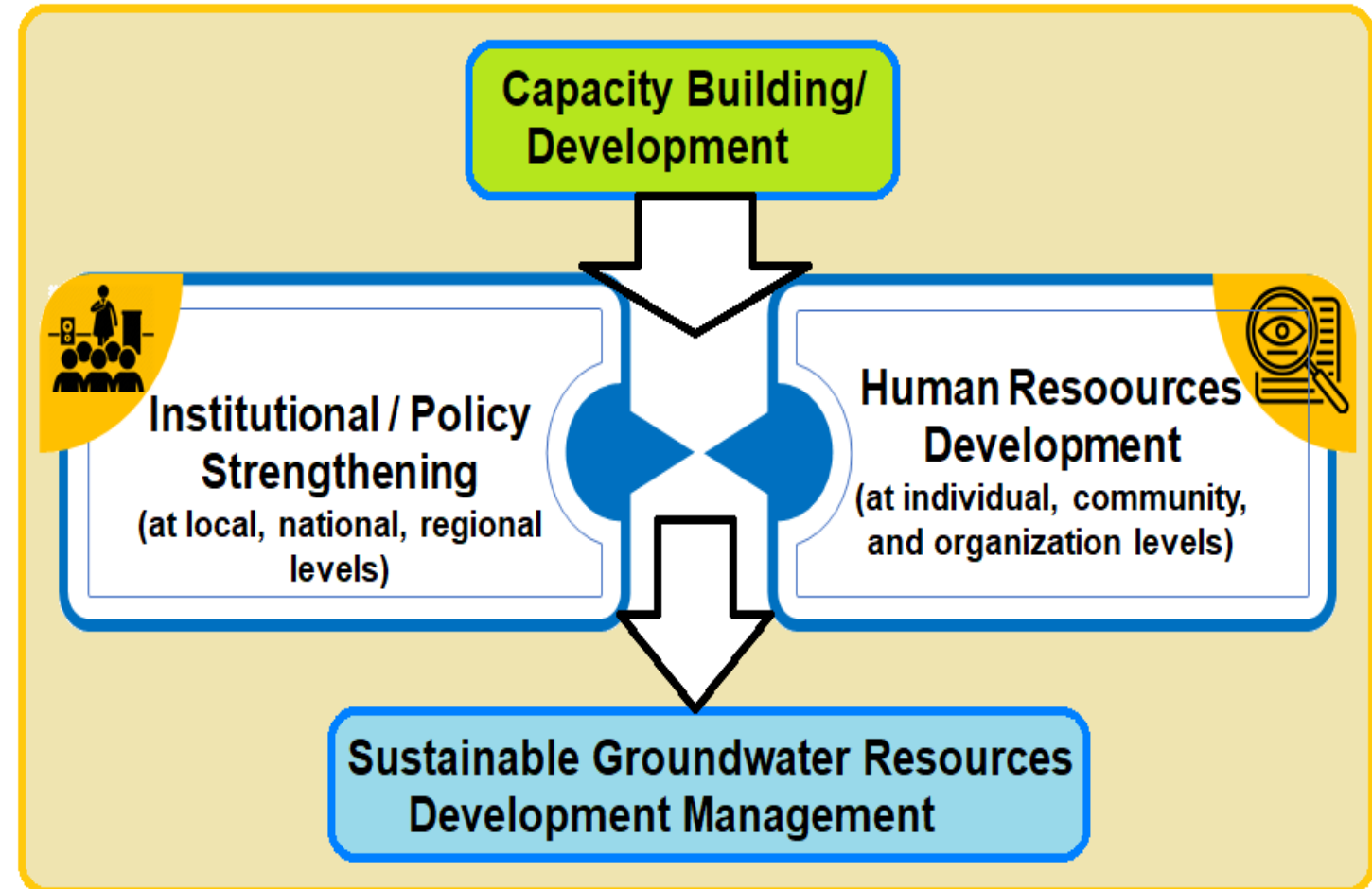
❖ The potential for human resources development in the water sector depends to a great extent on the educational and related resources in the country;



Concept of Capacity Building

- ❖ Hence, **SDG-6** targets are dependent on capacity development as outlined in **SDG 6a**

“Expand international cooperation and capacity-building support to developing countries in water- and sanitation related activities and programmes”.



AMCOW Contribution to Cap-Building in Sustainable GW Management in Africa



Arising from the above key importance of water security and within the framework of AMCOW mandate to:

Support MS to develop, manage, and utilize water resources to assure water, food and energy security in Africa,

AMCOW identified **GROUNDWATER** as a priority intervention area in its Strategic Plan 2018 -2030, and by extension Strategic Operational Plan (SOP) 2020 – 2024.

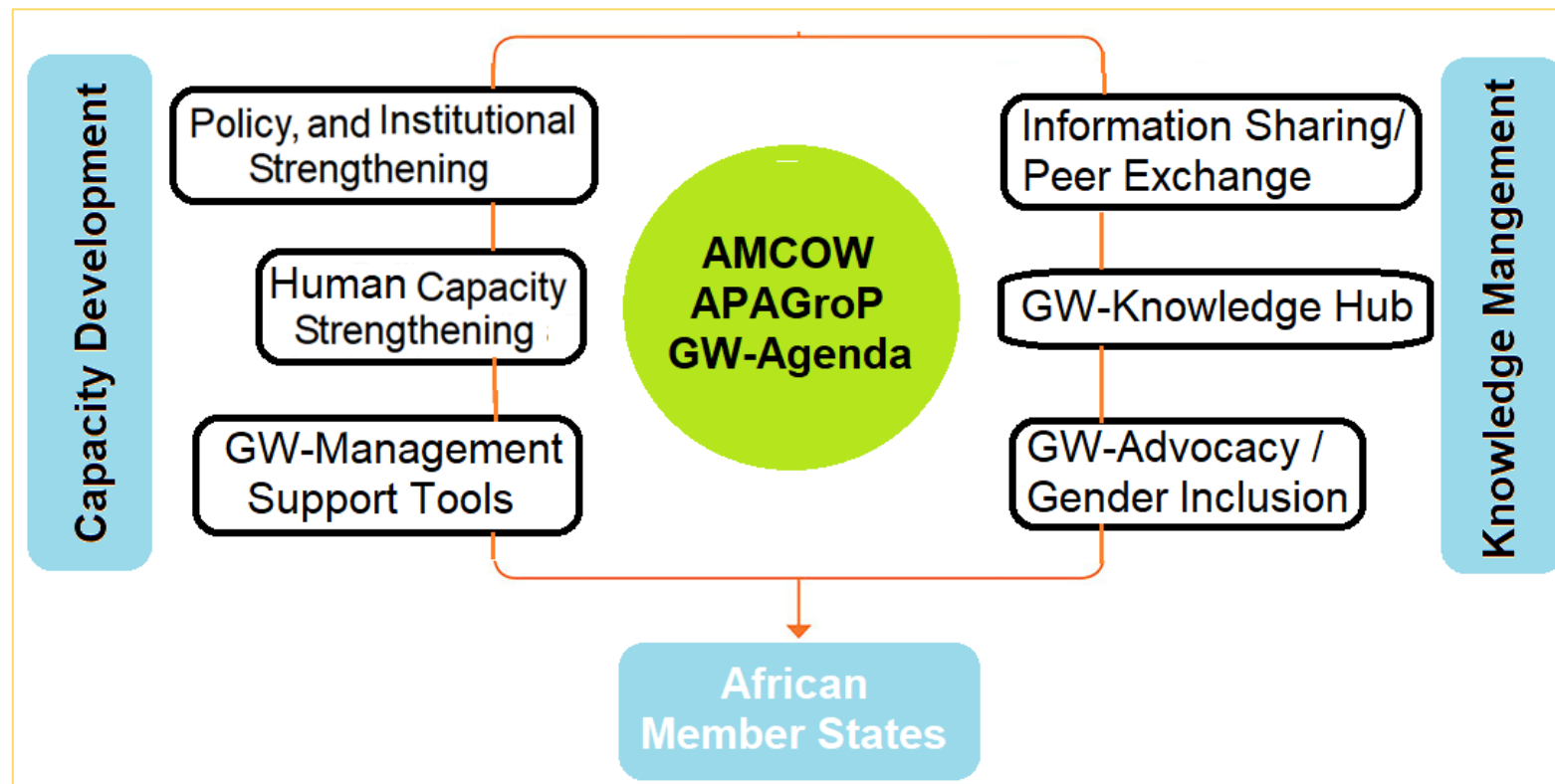
Therefore, the rollout of APAGroP as Africa's flagship groundwater intervention is intended to:

- ❖ enhance human capacity development and information exchange among the Member States through Capacity building and knowledge sharing.
- ❖ Facilitating exchanging the knowledge, experience and best practices in GW-development and management the among the member states.

AMCOW Contribution to Cap-Building



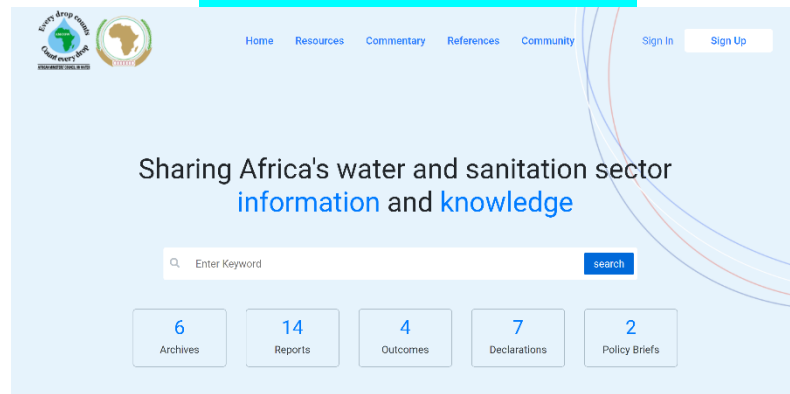
On the basis of the fact that successful **capacity development** implies **effective human capability** and **better institutions** that ensure sustainable management of groundwater resources:



AMCOW Knowledge Management Activities



AMCOW Library



Featured Resources



Knowledge Hub of Hubs



Knowledge creation and Digitization



AMCOW Key Priority Areas in Cap-Building



Within the framework of AMCOW mandate and by extension Strategic Operational Plan (SOP) 2020 – 2024 to:

Support MS to develop, manage, and utilize water resources to assure water, food and energy security in Africa,



Policy and Governance Implications



RECOMMENDATIONS

Education and capacity building wrt groundwater resilience under climate change, at different education levels.

National Water Education and International cooperation in co-creation of groundwater knowledge

Promoting open peer-to-peer learning between national governments in order to improve capacities and education on groundwater resources in Africa.

Increasing financing of research collaboration in groundwater and groundwater data sharing in Africa.

Remote E-learning Tools: As an cost-effective emerging teaching and capacity building tools in face of pandemic

Encouraging multi-disciplinary training involving all water-related practitioners (environ'talists, economists, engineers, social scientists.

Creation of short courses on water management for policy-makers, at senior managers without technical water backgrounds;



SUMMARY AND CONCLUDING THOUGHTS

***AMCOW / APAGroP:
Collaborations and Partnership
Data driven Groundwater Decision,
Way Forward and
Policy Recommendations***

Stakeholders and Groundwater Networks and Target



- ❖ Member States (and their Key Implementing Institutions)
- ❖ Regional Platforms and Institutions (RECs, L/RBOs, Transboundary Aquifer Management Frameworks, etc)
- ❖ Consumptive Sectors (Agric, Water Supply, etc) through appropriate Platforms
- ❖ Research Organizations and Institutions of Higher Learning (IHL)
- ❖ Private Sector (Linking Research to Action and Industry)
- ❖ Donor Agencies (e.g SIDA, AfDB etc) and Civil Society Organizations (CSOs)
- ❖ International Bodies and Organizations (UNESCO-IHP, IWMI, BGS, BGR etc)
- ❖ Gender Participation and Youth involvements

FOCUS and Expected OUTCOMES



The overall intent of AMCOW Groundwater Programme is to highlight the social, economic, and environmental dimensions of groundwater with respect to improved livelihood and overall socio-economic development of Africa, while

focusing on the underlying science, governance, and finance within the framework of the need for sustainable utilization and management of groundwater

OUTCOMES

R1



Increased understanding of the strategic and vital roles of groundwater in ensuring water and food security in Africa.

R2



Promotion of groundwater profile at the highest level of governance and political agenda in Africa.

R3



Promotion of appropriate strategies for integration of groundwater agenda into the transboundary water management.

R4



Increased understanding of groundwater policy and governance challenges in Africa within the framework of IWRM.

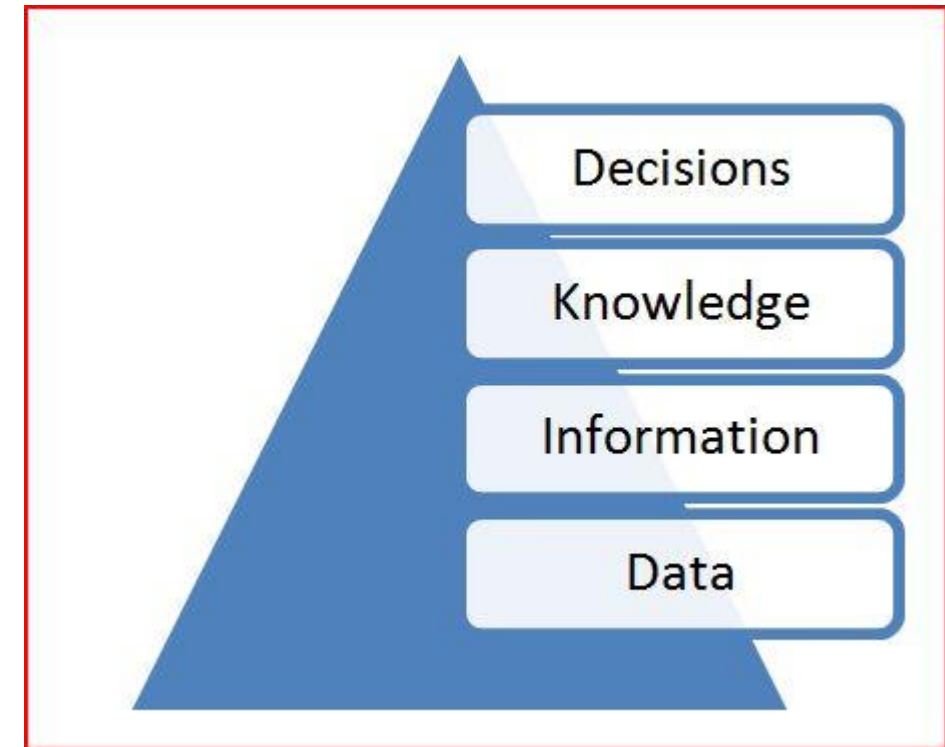
WAY FORWARD: Need for Data Driven Decision Making



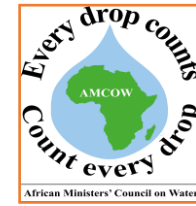
- ❖ Reliable and adequate **Data** vis-à-vis informed **GW Decisions** are crucial to sustainable development and managt. of GW-Resources in Africa.
- ❖ This leads to common issues at all levels of the groundwater ***D-I-K*** pyramid. THUS in the need for data-driven and science-based decision making.
- ❖ The flow from DATA to INFORMATION to KNOWLEDGE to informed DECISIONS requires different types of capacity:

Types of Capacity needed

- 1) Technical & Training capacity
- 2) Financial capacity / Donor support
- 3) Institutional support /capacity
- 4) Governance support / capacity



Data Driven Groundwater Decisions



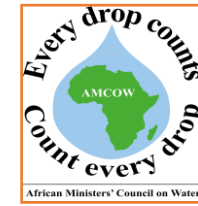
- ❖ GW data requires collection and usually quality-assured and organised into a database
- ❖ GW data may be relevant at local, national, or international level (e.g. Uganda's Water Information System or IGRAC's GW Information System)
- ❖ GW data should be categorised, analysed and brought together with other types of data to produce INFORMATION

- ❖ **Types of data:**

- 1) Geophysical and remote sensing data
- 2) Drilling logs (lithology and thickness),
- 3) Well completion records and pumping test data,
- 4) Groundwater levels and abstraction data,
- 5) Yield and functionality data,
- 6) Water quality data
- 7)etc.,

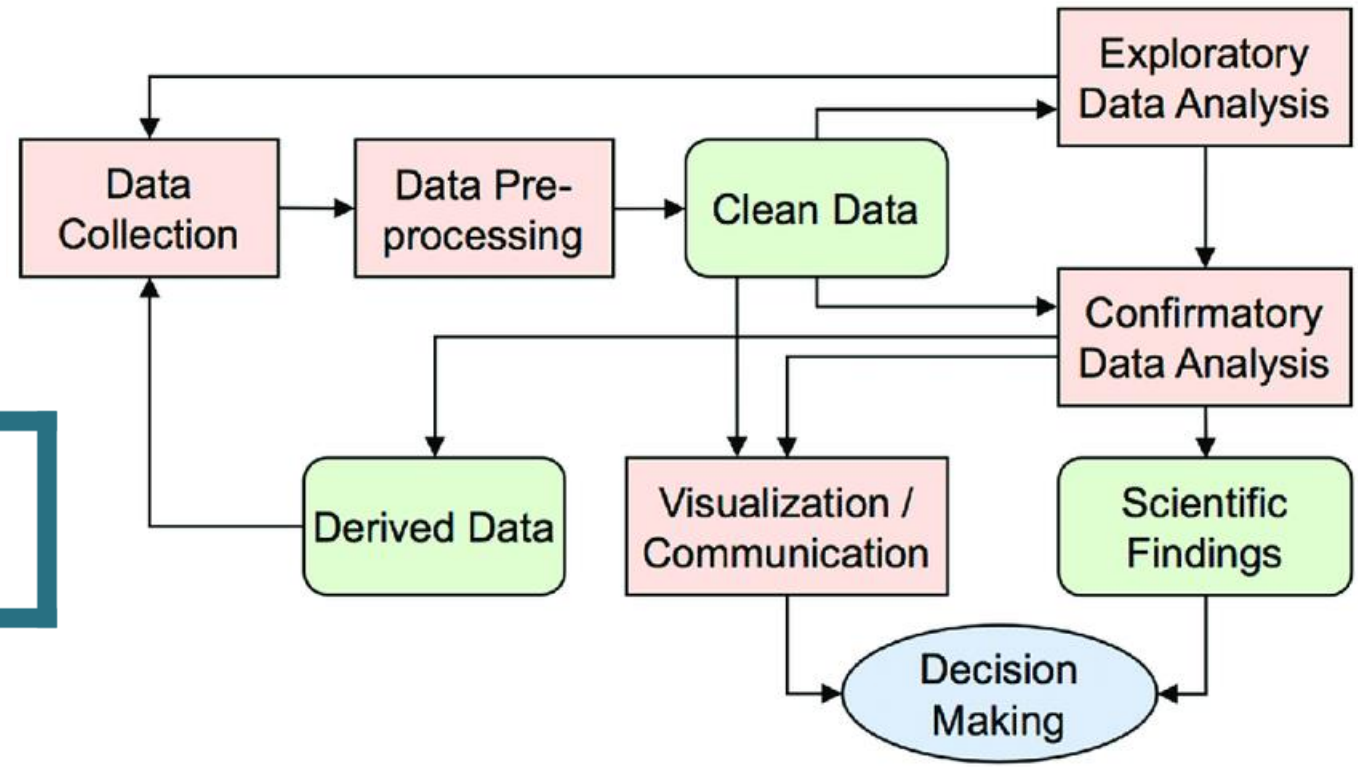
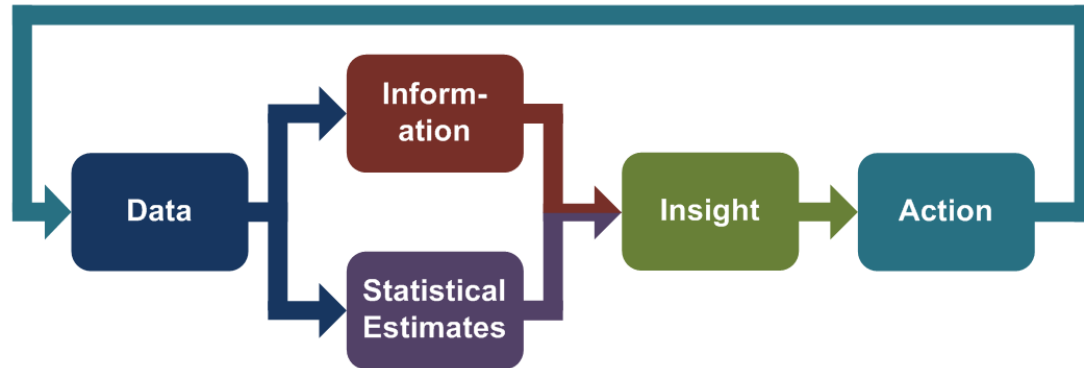
Reliable and adequate **GW Data** vis-à-vis informed **GW Decisions** are crucial to sustainable development and management of GW-Resources in Africa.

WAY FORWARD: GW Data & GW Decisions



This leads to common issues at all levels of the groundwater D-I-K pyramid

- 1) Data collection – missing data, poor quality data, fragmented data
- 2) Data analysis and
- 3) Data interpretation
- 4) Data storage/management

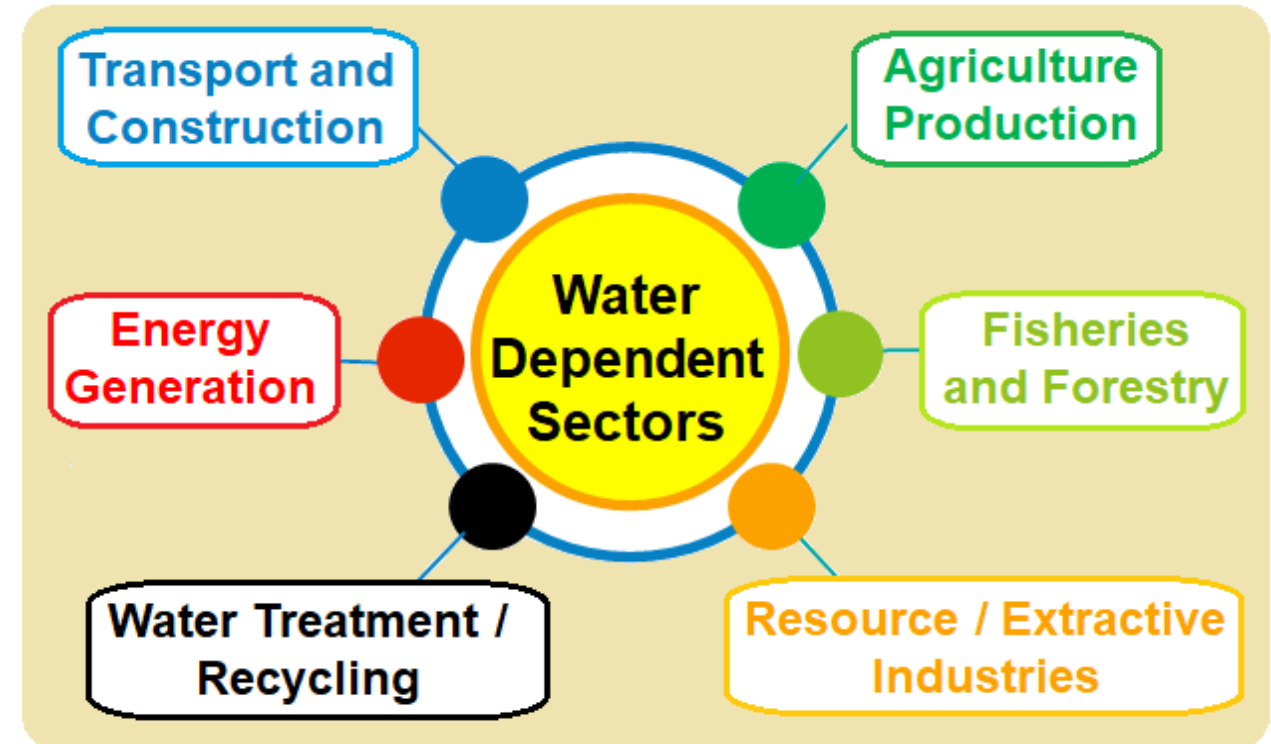


WAY FORWARD: Need to unlock finance for GW Infrastructure



- ❖ Water permeates all aspects of life on Earth and sustains all forms of life, livelihoods and well-being and contributes to the sustainability of ecosystems.
- ❖ Water is an essential component national development that creates and maintains jobs in all sectors of the economy (primary & secondary production sectors and services sector (UNDP, 2006; OECD, 2012);

In other words, **half of the global workforce** is said to be employed in water and natural resource-dependent industries (ILO, 2013).



WAY FORWARD: Benefits of Investments in Water Sector



- ❖ The BIG QUESTION is how do we improve groundwater resources management without: a) Capacity Building and Training
b) Public and Private Investments

HENCE, the need for ***political will*** and ***recognition of investments*** in both capacity and infrastructural development in groundwater sector ***as good business***.

Moving Forward: Policy Recommendations



FINANCING OF KNOWLEDGE BASE

Development of knowledge base at national and regional levels (with global partnerships for effective capacity development in groundwater management).

TECHNOLOGY TRANSFER

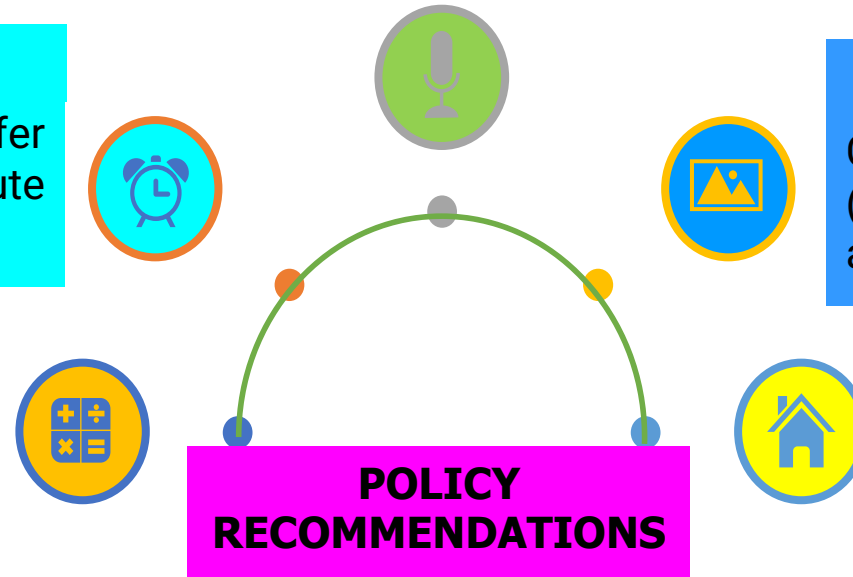
Technology and know-how transfer as an “agent of change” to contribute towards transformation.

ALL LEVEL INVOLVEMENT

Capacity Development at all Levels (individual, community, organization and institutional levels).

TRANSFORMATIONAL

Transformational Capacity Development with sustainability plan over time within countries and regions.



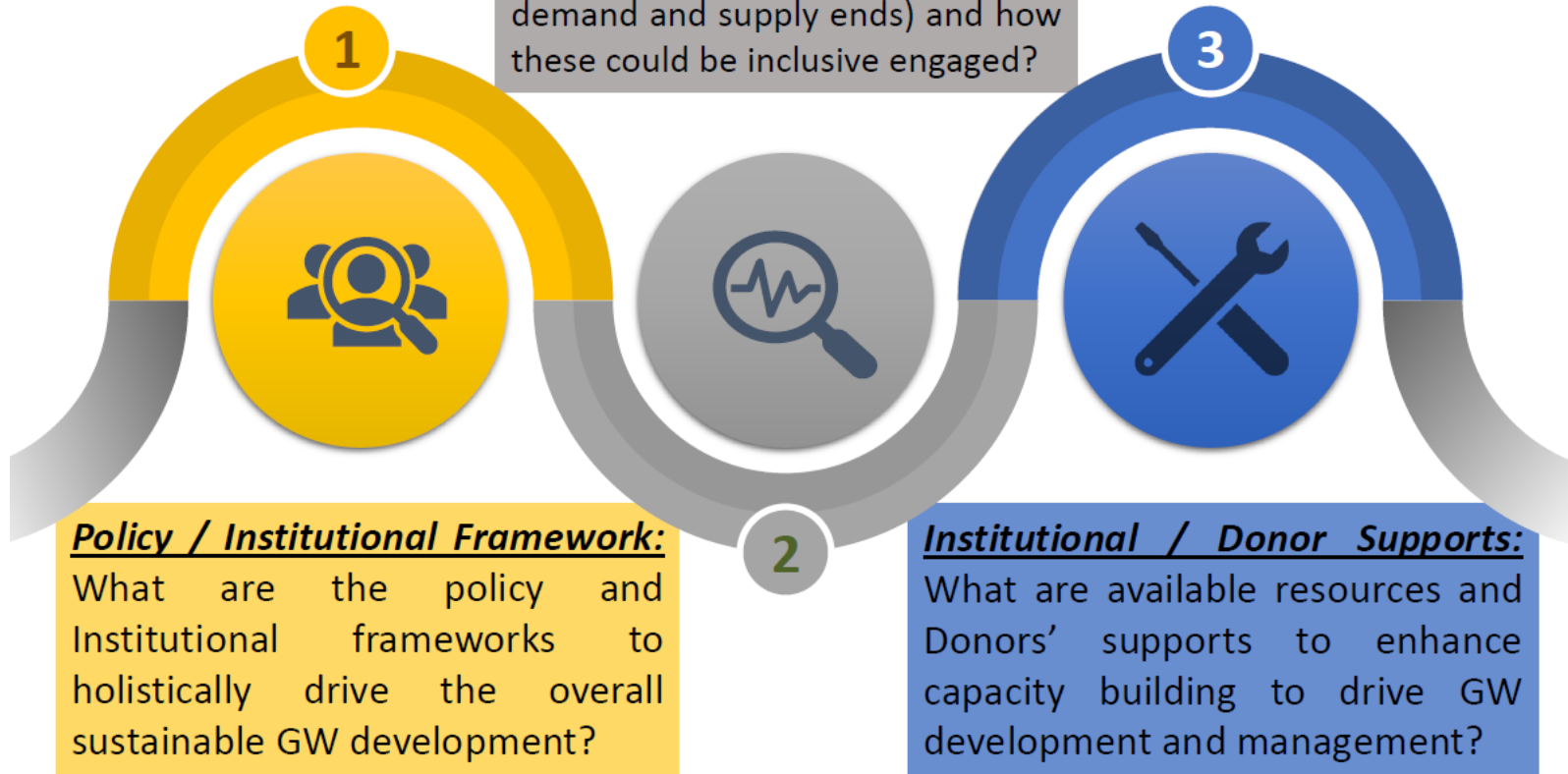
PARTNERSHIP AND SUPPORT

National Govts. and External Development Partners (EDPs) (involvement, support and collaboration)

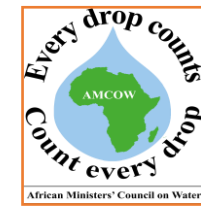
WAY FORWARD: Collaborations & Supports

Stakeholders and GW-Network

Collaborations: Who are the different stakeholders (at both demand and supply ends) and how these could be inclusive engaged?



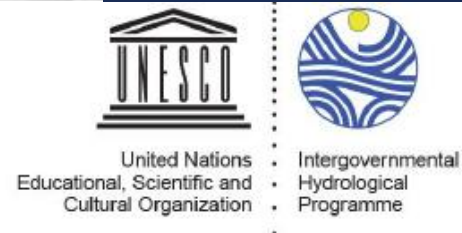
AMCOW-UNESCO SYNERGY on Groundwater Programme



- ❖ This UNESCO facilitated workshop is quite timely and worthwhile for sustainable groundwater governance.
 - ❖ The workshop is in line with the core objective of the flagship programme of AMCOW i.e. APAGroP regarding capacity building in GW-development and management.
 - ❖ Hence, the Workshop is expected to contribute to:
 - a) Better appreciation of the concepts and principles of effective groundwater governance in transboundary water catchment areas.
 - b) Capacity building in respect of both national and international legal dimensions of groundwater governance and transboundary cooperation.
 - c) Synergy between the domestic (national) and international water law in order to avoid or prevent conflicts in transboundary water catchment areas.
- ❖ Therefore, this training workshop of the GGRETA project aimed at improved groundwater management and governance at the local, national and transboundary levels can be regarded as timely and as investment in the right direction.



THANK YOU FOR YOUR ATTENTION



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