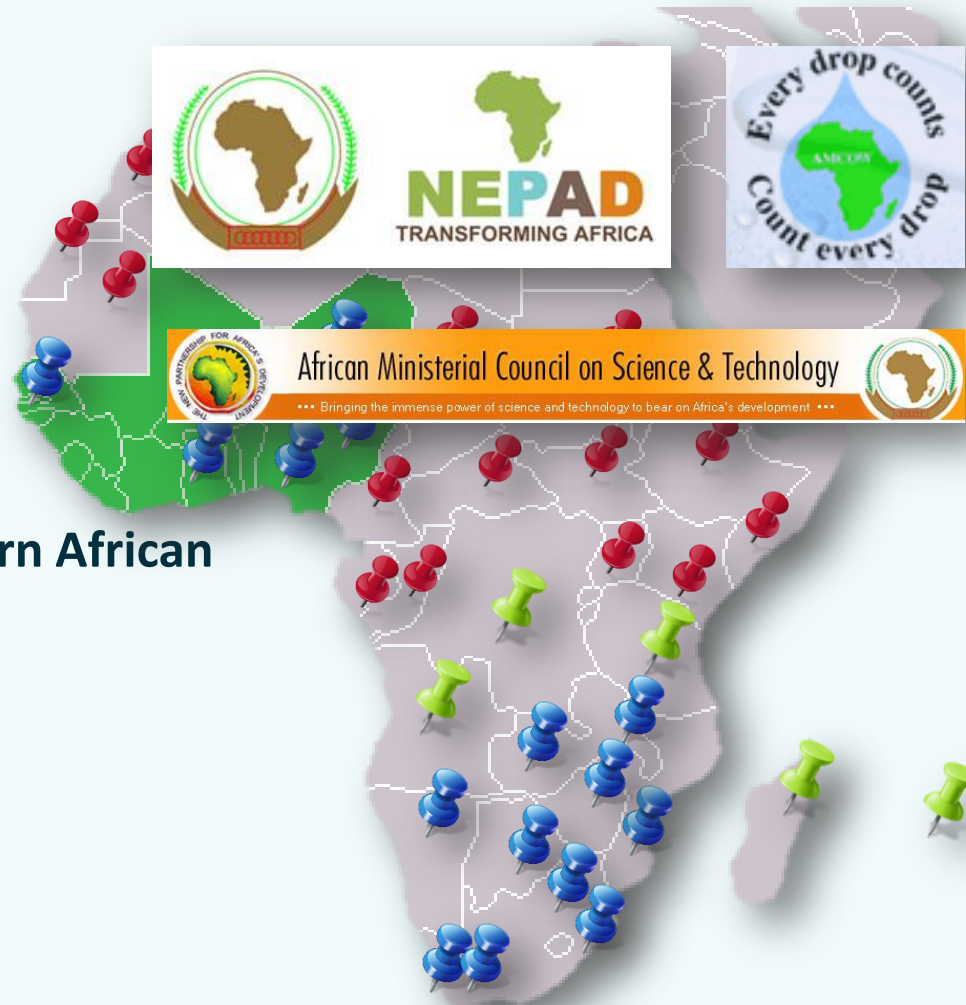


# AU/NEPAD AFRICAN NETWORKS OF WATER CENTRES OF EXCELLENCE



**Presented by: Mr. Nico Elema**

**Programme Manager: AU/NEPAD Southern African  
Network of Water Centres of Excellence**

**Secretariat hosted by the University of  
Stellenbosh, South Africa.**

**[www.nepadwatercoe.org](http://www.nepadwatercoe.org)**

**[info@nepadwatercoe.org](mailto:info@nepadwatercoe.org)**



The AU/NEPAD  
Networks of Water  
Centres of Excellence  
Scientific research  
to achieve Impact  
in the African Water Sector.  
KNOWLEDGE PARTNERS  
ACROSS AFRICA

# Our Mandate - 2006

The African Ministerial Councils on

- Science and Technology (AMCOST)



- and Water (AMCOW)



Authorized the CoE initiative to run under  
NEPAD's Office of Science and Technology

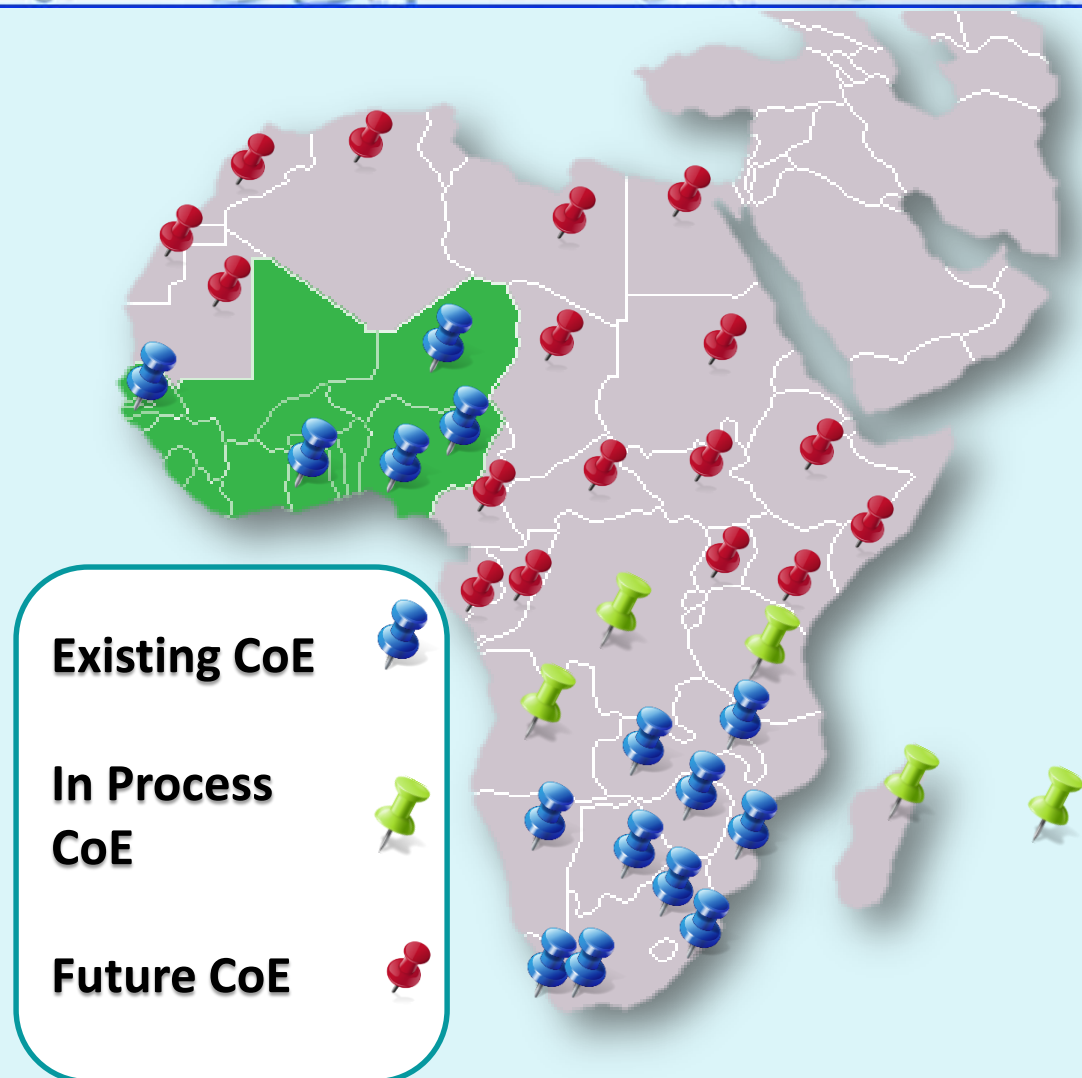
(Cairo Resolution, 2006)





# About

**Networks of Higher Education- and Research institutions across Africa, who conduct high-end scientific research on water and related sectors, in order to achieve policy impact with governments.**



# FOCUS AREAS

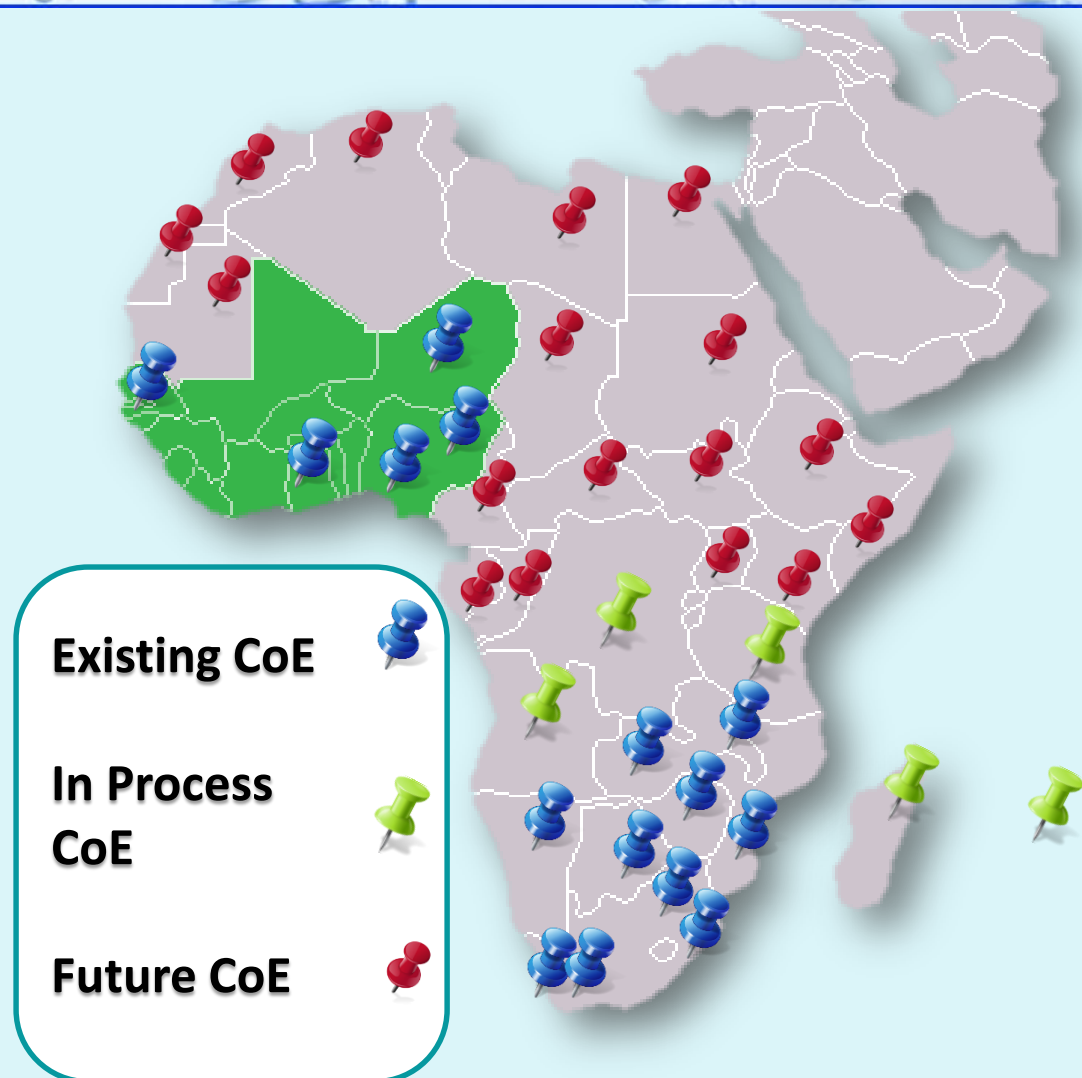
Own activities and support (CAP-NET; GWP; WaterNet etc.)

1. Research and Development (including infrastructure) through innovation;
2. Human capacity development;
3. Research- utilization, -impact and evaluation;
4. Outreach through networking; conferences and workshops;
5. Strategic partnerships and
6. Financial sustainability.



# About

**Networks of Higher Education- and Research institutions across Africa, who conduct high-end scientific research on water and related sectors, in order to achieve policy impact with governments.**





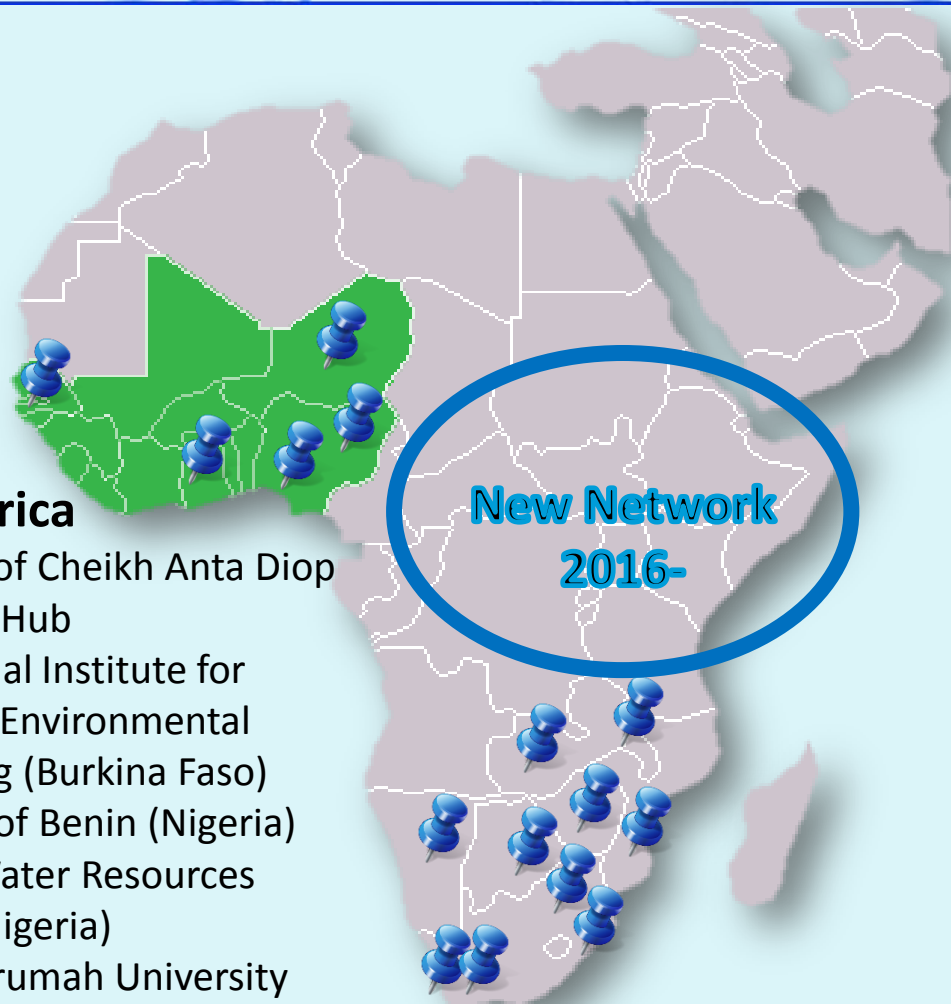
# Current Members

## Southern Africa

- Stellenbosch University (South Africa) – as the Secretariat and hub
- International Centre for Water Economics and Governance in Africa (Mozambique) - Node
- University of KwaZulu-Natal (South Africa) - Node
- University of Western Cape (South Africa) - Node
- University of Malawi (Malawi) - Node
- University of Zambia (Zambia) - Node
- University of Botswana (Botswana) - Node
- The Council for Scientific and Industrial Research, CSIR (South Africa) – Node
- **Namibia Polytechnic (Nam)**
- **National University of S&T (Zim)**

## Western Africa

- University of Cheikh Anta Diop (Senegal) - Hub
- International Institute for Water and Environmental Engineering (Burkina Faso)
- Université of Benin (Nigeria)
- National Water Resources Institute (Nigeria)
- Kwame Nkrumah University for Sciences and Technology (Ghana)



# AMCOW Resolution - 2013

**EXCO/11/2013/CAIRO/17:** EXCO notes the growing human resources shortages to achieve water and sanitation goals in Africa and directs the Secretariat to work with the



**AUC and NEPAD Centres of Excellence to develop a Human Capacity Development Programme** aimed at addressing junior professional and technician level capacity challenges in the water sector. (Decision of the 11th AMCOW Executive Committee of the African Ministers Council on Water (AMCOW) on 6th June 2013 in Cairo, Egypt)

[www.nepadwatercoe.org](http://www.nepadwatercoe.org)



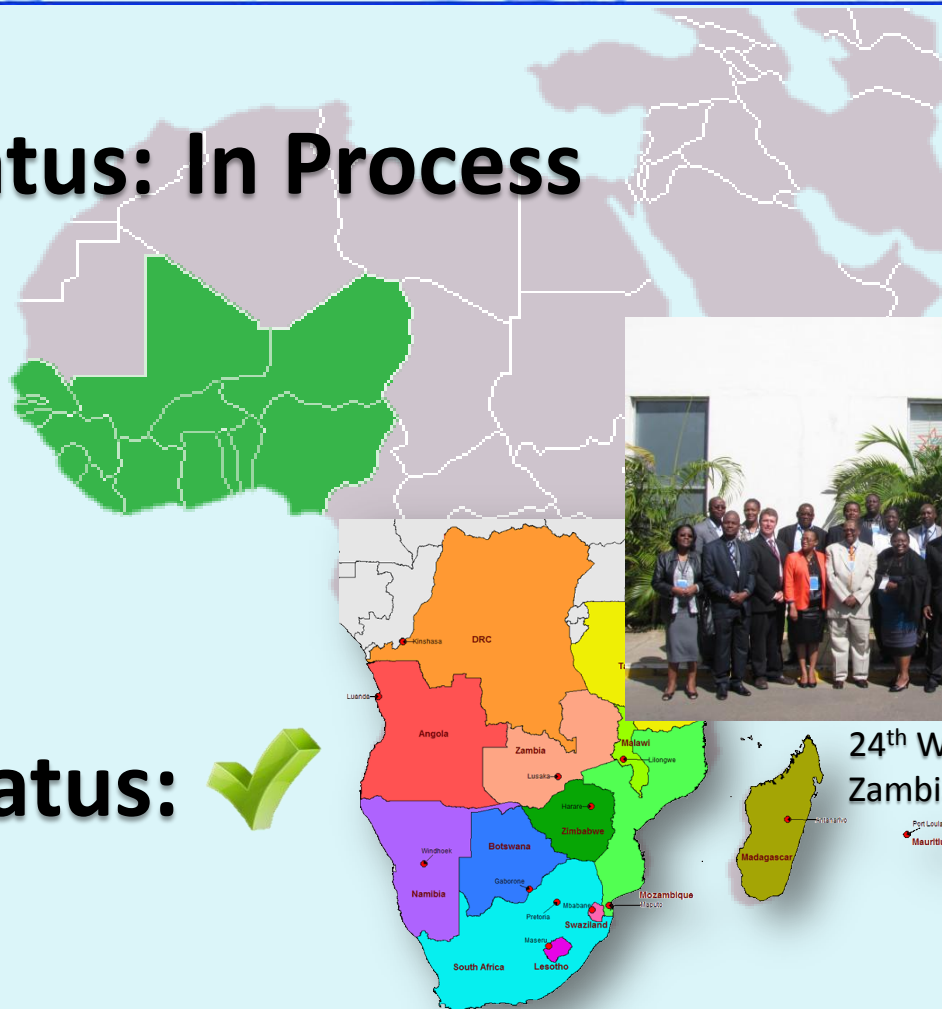
# INSTITUTIONALISATION Regional



**Status: In Process**



**Status:**




**24<sup>th</sup> WRTC Meeting, Lusaka, Zambia, May 2013**



# Regional support SADC Water



SADC Water Division (at the SADC Water Resources Technical Committee meeting in Lusaka, Zambia, 7 May 2013) and subsequent ratification at the SADC ministers meeting as follows:

- Approve the AU/NEPAD SANWATCE Business Plan (Section 5.2.9.7);  **WARFSA-II**  
Water Research Fund for Southern Africa
- Approve the proposal for AU/NEPAD SANWATCE to be the implementing agent for the Water Research Fund for Southern Africa (WARFSA 2.0), a programme of SADC Water Division (Section 5.2.9.8).
- Collaborate with WaterNet

# Regional support SADC S&T



During the **June 2014 meeting of the SADC Minsters responsible for Science, Technology and Innovation, Education and Training, held in Maputo, Mozambique**, ministers

- noted and supported the activities of the AU/NEPAD SANWATCE and
- called upon Member States to nominate institutions to form part of the regional Network





**water & sanitation**

Department:  
Water and Sanitation  
**REPUBLIC OF SOUTH AFRICA**

# **SA DWS activities 2016**

# SA-DWS activities 2016

## **Knowledge Management**

A catalogue of water sector related human resources and also high-end research infrastructure within the ten institutions of the AU/NEPAD Southern African Network of Water Centres of Excellence.

# SA-DWS activities 2016

## SADC Research Agenda

Supporting the current SADC process to develop a SADC-wide research agenda.

Support for the development of the Payback-Eco Framework: a Framework for the measurement of research impact in the water sector.



# SADC Research Agenda

Two focal areas,

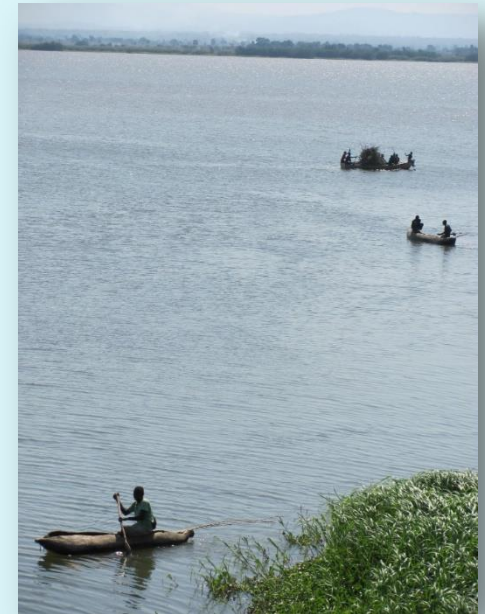
1. Infrastructure for Health, Livelihoods and Economic Development, and
2. Water Resource Management and Environment



# SADC Research Agenda

## FOCAL AREA 1: Infrastructure for Health, Livelihoods and Economic Development

- 1. Theme 1: Development and sustainable implementation of resilient water infrastructure (4 topics)**
- 2. Theme 2: Innovation in affordable and appropriate technologies and innovative approaches and practices (2 topics)**
- 3. Theme 3: Sustainable water institutions (4 topics)**
- 4. Theme 4 : The human right to water (4 topics)**



[www.nepadwatercoe.org](http://www.nepadwatercoe.org)



# SADC Research Agenda

## FOCAL AREA 2: Water Resource Management and Environment

1. Theme 1: Assessment of surface and groundwater resources (4 topics)
2. Theme 2: Operational rules for effective water resources management (2 topics)
3. Theme 3: Impact of urbanisation on water resources (2 topics)
4. Theme 4: Water governance and Institutional arrangements (1 topic)
5. Theme 5: Ecosystems (3 topics)
6. Theme 6: Water and land (2 topics)



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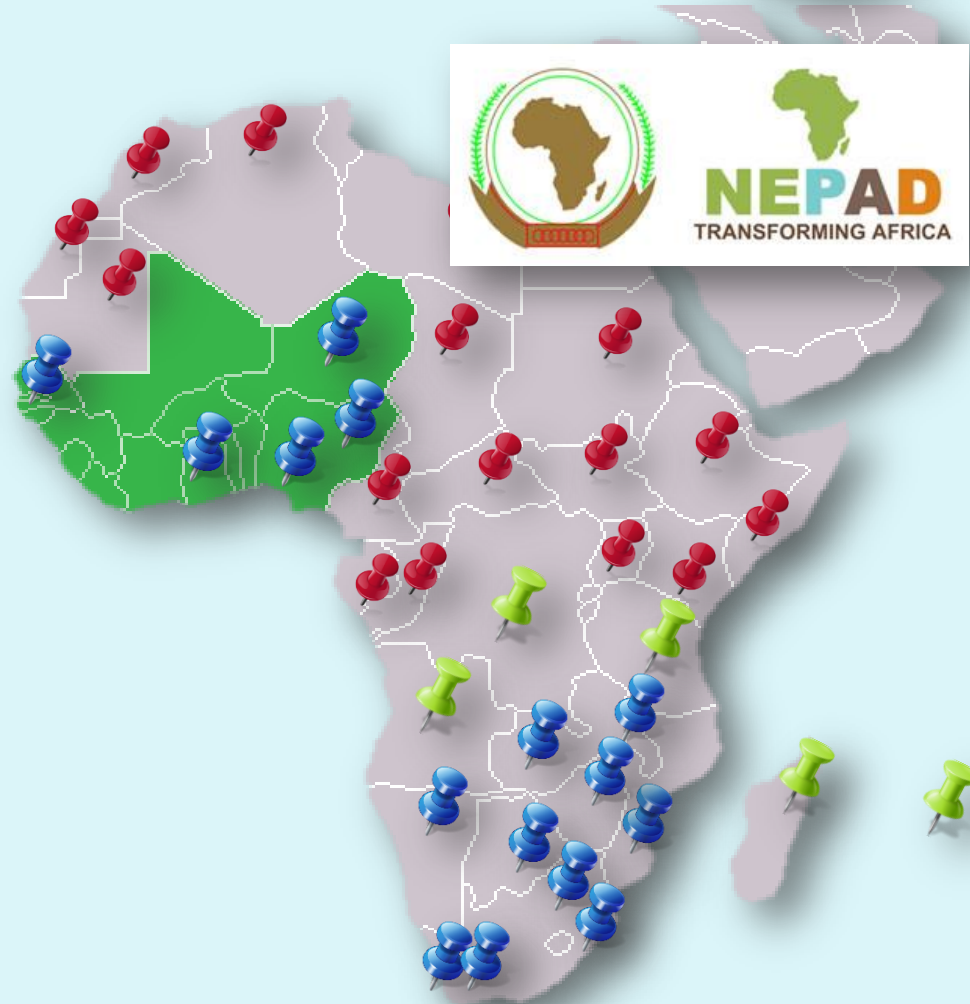
# SA-DWS activities 2016

## Once-off student support

Support for student registration fees at the annual WaterNet/WARFSA/GWP-SA symposium.



# EUROPEAN COMMISSION SUPPORT FOR THE AU/NEPAD AFRICAN NETWORKS OF WATER CENTRES OF EXCELLENCE



# THE AFRICA-EU STRATEGIC PARTNERSHIP

## A Joint Africa-EU Strategy



### *Development of Knowledge-based Societies*

**85. Africa and the EU will strengthen their cooperation and support to bridge the digital divide and promote the development of an inclusive Knowledge Economy, including through the implementation of the outcome of the World Summit on Information Society and relevant AU/NEPAD programmes.**

# THE AFRICA-EU STRATEGIC PARTNERSHIP

## A Joint Africa-EU Strategy (Continue)



### *Development of Knowledge-based Societies*

87. In parallel, similar efforts will be made to address the scientific divide and **increase Africa's research capacities**. Inadequate technical capacity of Africa will be upgraded through **the establishment of specialised networks in regions and sub-regions**, which need to focus on identified priorities so as to underpin economic growth and sustainable development of the African continent. In this respect, **Africa and the EU will promote the strengthening of collaborative links** between African regional and sub-regional partnerships and European partners, **in order to contribute to the sustainability of established centres and networks of excellence**.



# THE AFRICA-EU STRATEGIC PARTNERSHIP

## A Joint Africa-EU Strategy (Continue)



### ***“Joint Africa-EU Strategy Roadmap 2014-2017”***

*established at the 4th EU-Africa Summit, held in **Brussels on 2-3 April 2014**, the Heads of State and Government of the EU and Africa, the President of the European Council, the President of the European Commission, the President of the AU and the Chairperson of the AUC:*

- *Explicitly stated the need for the **EU to support the development of the Centres of Excellence in Africa** in the framework of priority area 3 “Human development”;*
- *Included **water amongst the strategic priorities for cooperation** and urged actions in the water sector to ensure, through institutional strengthening, sustainable and efficient management of water resources, contributing to growth, peace and security in the framework of priority area 4 “Sustainable and inclusive development and growth and continental integration”;*
- ***Affirmed the will to strengthen African capacity** to monitor environment in the framework of priority area 5 “**Global and emerging issues**” including **water resources** through GMES/MESA EU programmes.*



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# EC Phase II Project

## 4 clusters of activities:

Enlargement of the network to Central and Eastern Africa

Knowledge and data management for water security and climate change -> water security atlas

Regional databases on climate variability impact on water resources management

Implementation of the AMCOW declaration on junior professional and technician at regional and national level, 3 regions + 14 countries

Pilot applications in 3 countries



# EC Phase II Project

## Western African CoE Network members

- University of Cheikh Anta Diop (Senegal)- Hub
- International Institute for Water and Environmental Engineering (Burkina Faso)
- University of Benin (Nigeria)
- National Water Resources Institute (Nigeria)
- Kwame Nkrumah University for Sciences and Technology (Ghana)

## Southern African CoE Network members

- Stellenbosch University (South Africa) – Hub
- International Centre for Water Economics and Governance in Africa (Mozambique)
- University of KwaZulu-Natal (South Africa)
- University of Western Cape (South Africa)
- University of Malawi (Malawi)
- University of Zambia (Zambia)
- University of Botswana (Botswana)
- The Council for Scientific and Industrial Research, CSIR (South Africa)

## Eastern and Central Africa

- Selection to be carried out 2016-2017







# EC Phase II Project

Implementation of the AMCOW declaration on junior professional and technician at regional and national level, 3 regions + 14 countries

- **1 Establish the common sector priorities for higher education institutions at regional level in Western, Southern, Central and Eastern Africa**
- **2 Establish a national Human Capacity Development Programme addressing junior professional and technician level capacity challenges in all the NEPAD CoE Countries**

# EC Phase II Project

## Pilot applications in 3 countries

Implement the Human Capacity Development Programme addressing junior professional and technician level capacity challenges in one country per region in collaboration with relevant institutions and fostering sustainable capacity development approach





# Water Research Fund for Africa



- 100 projects per year
- Seed funding of 25 proposals for proof of concept project development
- Funding of 10 major collaborative, multi-disciplinary basin wide projects per year

**\$10 million per year/EURO 9,1 mil per year**

**5 year: \$50 mil/EURO45,4 mil**



# Water Research Fund for Africa

But where do we start  
with the Water  
Research Fund for  
Africa?



# Water Research Fund for Southern Africa WARFSA 2.0

Presented by: Mr. Nico Elema  
Programme Manager: AU/NEPAD  
Southern African Network of Water  
Centres of Excellence

[www.nepadwatercoe.org](http://www.nepadwatercoe.org)  
[info@nepadwatercoe.org](mailto:info@nepadwatercoe.org)







# WARFSA History



Phase 1 and 2 late 90's to mid 2000s.  
Previously Managed by Institute of Water and Sanitation Development (IWSD)

- WARFSA has funded 69 of 242 proposals received from 10 continental SADC countries, benefiting some 70 separate researchers.
- WARFSA supported five annual symposia in affiliation with WaterNet and GWP-SA.
- WARFSA is an affiliate program of the SADC Water Division (SADC WD).

# Ch 6: Knowledge Produced

## WARFSA

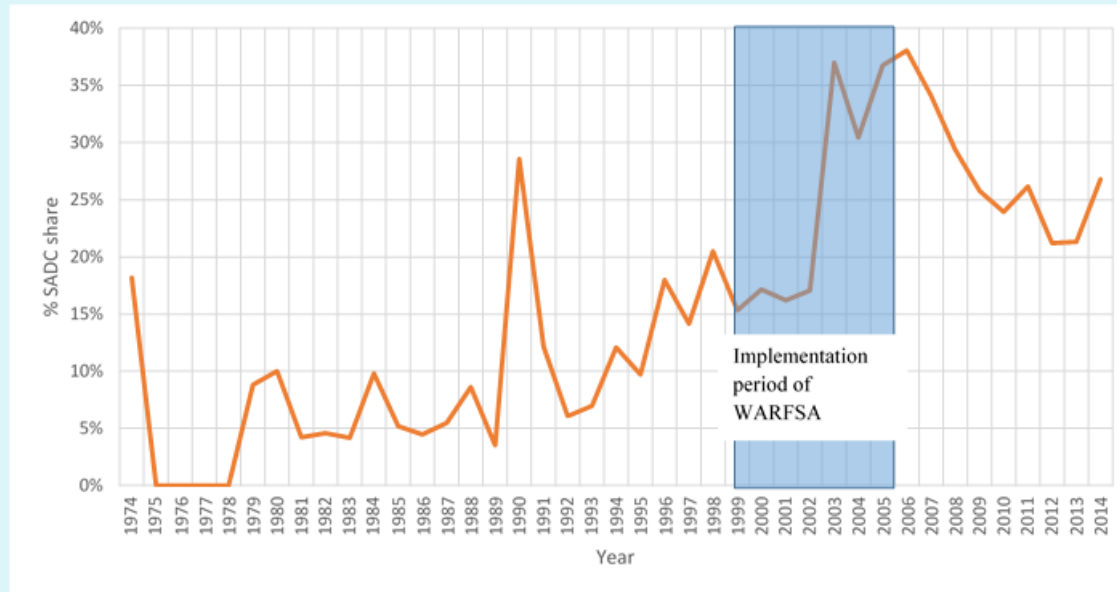


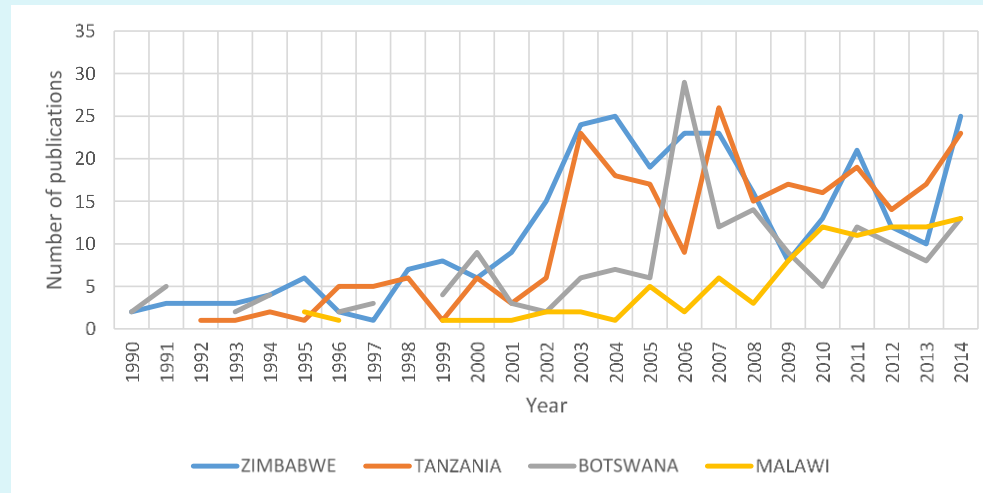
Figure 1: WARFSA implementation period in relation to the SADC-ExSA as share of SADC water resource publications

226 research outputs were identified, which were also searched against International Citation Indexes, which include the Thomson Reuters™ Web of Science™ Core collection database and ScienceDirect™ database. Through this process, 86 research outputs (39%) were verified in these Citation Indexes. The balance of research outputs were not reflected in the Thomson Reuters™ Web of Science™ or the ScienceDirect™ databases, but in Google Scholar or Google Search.

# Ch 4: SADC Water Sector - review

## Knowledge and innovation products

### SADC-ExSA



**Figure 1: Water Resource research output of top 4 SADC-ExSA countries (1990-2014)**  
Source: Thomson Reuters™ Web of Science™

Between 1990 and 2000, relatively few water resource research were undertaken in the SADC-ExSA institutions, with only institutions in Zimbabwe consistently publishing research papers in this period. In line with Increase 2, in the early 2000s, water resource research outputs substantially increased in research institutions in Zimbabwe and Tanzania, with increases following in research institutions in Botswana in the mid-2000s (followed by a decline in output in these institutions during the latter part of 2000s) and an increase in institutions from Malawi

# Ch 6: Knowledge Produced

## WARFSA



### Knowledge and innovation products

#### Number of knowledge outputs by type

Knowledge and innovation type	Count	% of 226
Scientific journal publications	106	47%
Conference proceedings	94	42%
BSc/ Mphil/ MSc/ MA/ PhD/ Post-Doc	74	33%
Technical reports	13	6%
Book chapters	6	3%
Policy document	5	2%

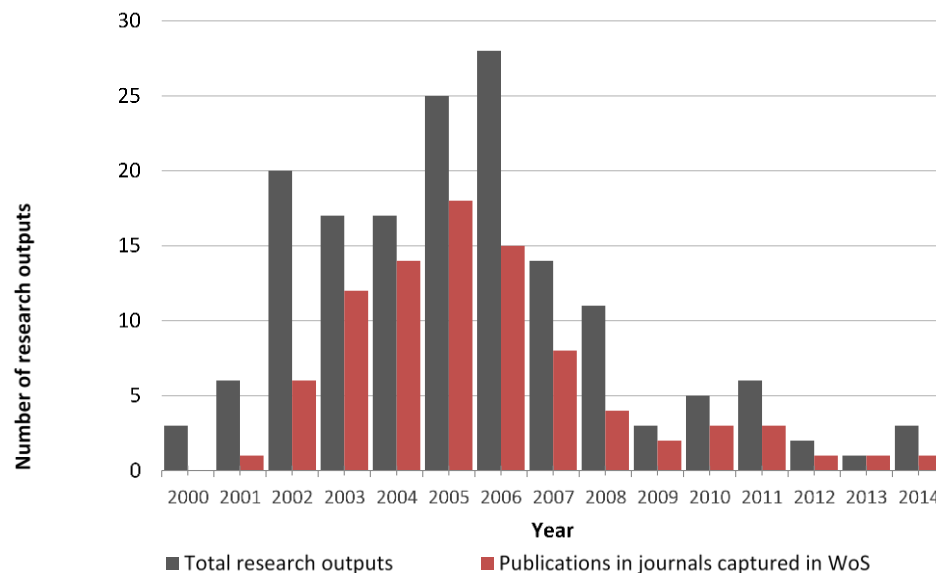


# Ch 6: Knowledge Produced

## WARFSA



### Knowledge and innovation products



**Figure 1: WARFSA research outputs published in scientific journals vs total research output**

Source: Thomson Reuters™ Web of Science™

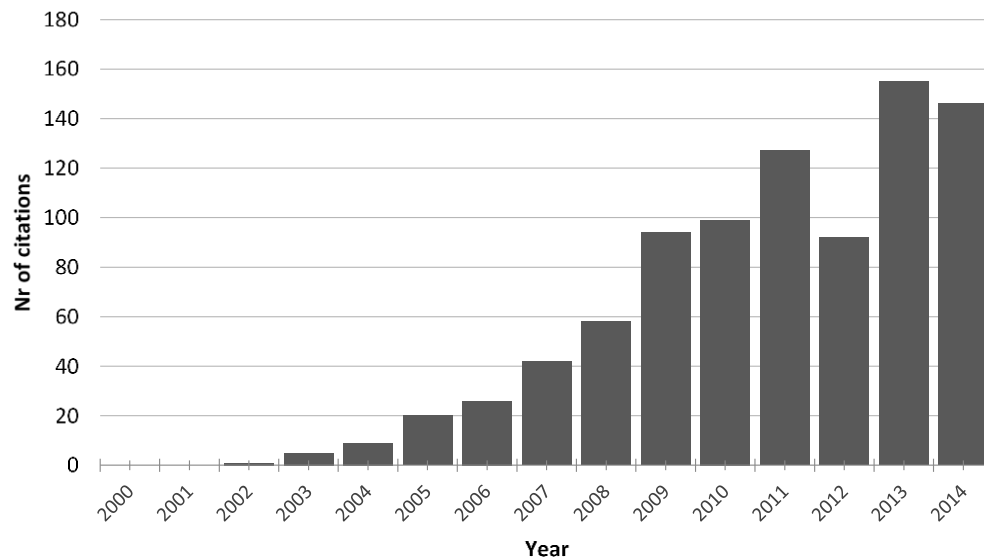
in 2002, more research outputs were produced which does not reflect in the WoS database. This can be attributed to a relative greater number of research outputs such as technical reports, local conference proceedings, research dissertations, book chapters, and policy documents captured in local research databases and project reports and not reflecting in the international citation databases

# Ch 6: Knowledge Produced

## WARFSA



### Knowledge and innovation products



**Figure 1: WARFSA Citations per year**

Source: Thomson Reuters™ Web of Science™)

93,5% of all publications being cited. This is quite high, given that 77,4% of water resource papers in the SADC-ExSA countries have been cited since 1970. The top 10% of cited papers (12 articles) have been cited 34,1% times, the top 20% being cited 52,9% of the time and the top 50% (45 articles) of papers being cited 81,8% of the time

#### **Distribution of WARFSA publication citations**

	Top 10%	Top 20%	Top 50%	93,5%
% of total citations	34,1%	52,9%	81,8%	100,0%

Source: Thomson Reuters™ Web of Science™)

# Ch 6: Knowledge Produced

## WARFSA



### Benefits derived from current and future research use

#### Project PI role in WARFSA research outputs

PI role in research output	Phase 1	Phase 2
Co-author	23%	28%
No author or co-authorship	2%	0
Unknown	19%	29%
Lead author	56%	43%

Project PIs were less the lead author in research outputs in Phase II, than in Phase I, and subsequently co-authored more outputs in Phase II. This would suggest that more opportunities were provided to less-established researchers in the WARFSA programme, as the programme developed.

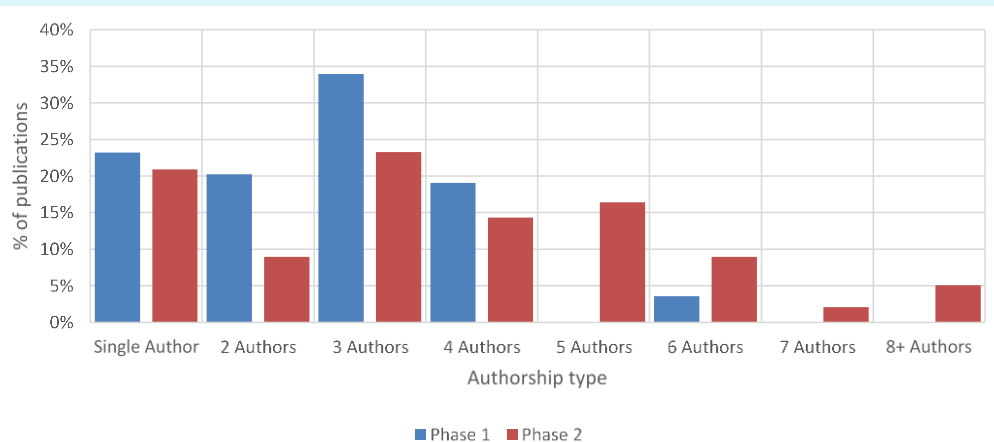


Figure 1: WARFSA research co-authorship.

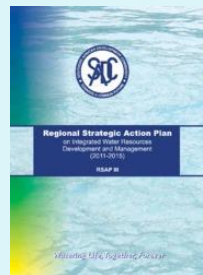
Single authorship publications declined in Phase II of the WARFSA programme. This is the same for research collaborations with two to four authors per publication. In Phase II of the programme, more papers were produced with five or more authors than in Phase I, with one publication (a book chapter) having a total of 17 authors. This would suggest that larger groups of researchers participated in research projects, as the WARFSA programme developed.





# WARFSA 2.0

## 2014 moving forward





# WARFSA 2.0



## Outputs - Research

- Funding of 20 Research projects per year (\$50,000 each)
- Seed funding of 5 proposals for proof of concept project development (including small pilots) per year (\$5,000)
- Funding of 2 major collaborative, multi-disciplinary basin wide projects per year (\$100,000)





# WARFSA 2.0



## Outputs – Ops support

- Daily management and support
- Board; Scientific Committee; Finance Committee and Management committee support (flights and accommodation) – meet 2x per year
- 3 workshops in 3 countries just before calls

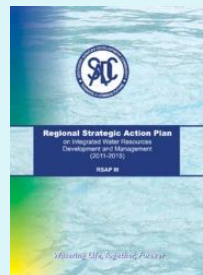




# WARFSA 2.0

## Outputs – Promotion and implementing

- Promotion
- WaterNet/WARFSA/GWP-SA Symposium (\$20,000)
- Audit





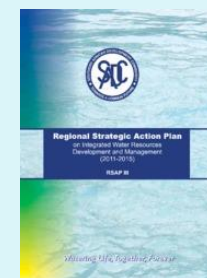


# WARFSA 2.0

## Dissimination



- 10 Policy briefs per year
- Bi-annual International conference
- In-country promotion of results





# FUNDING WARFSA 2.0



Based on a 5% bi-annual escalation

## Year 1-5

	Year 1	Year 2	Year 3	Year 4	Year 5	Total Year 1-5
<b>Research</b>						
Sub-total	\$ 1 408 750.00	\$ 1 408 750.00	\$ 1 479 187.50	\$ 1 479 187.50	\$ 1 553 146.88	\$ 7 329 021.88
<b>Capacity Development</b>						
Sub-total	\$ 199 400.00	\$ 199 400.00	\$ 209 370.00	\$ 209 370.00	\$ 219 838.50	\$ 1 037 378.50
<b>Promotion and Implementing Research</b>						
Sub-total	\$ 45 000.00	\$ 20 000.00	\$ 47 250.00	\$ 21 000.00	\$ 49 612.50	\$ 182 862.50
<b>Dissemination and Utilisation of Results</b>						
Sub-total	\$ 80 000.00	\$ 50 000.00	\$ 84 000.00	\$ 52 500.00	\$ 88 200.00	\$ 354 700.00
<b>Long Term Plan</b>						
Sub-total	\$ 80 000.00	\$ 10 000.00	\$ 114 000.00	\$ 10 500.00	\$ 88 200.00	\$ 302 700.00
<b>GRAND TOTAL</b>	\$ 1 813 150.00	\$ 1 688 150.00	\$ 1 933 807.50	\$ 1 772 557.50	\$ 1 998 997.88	\$ 9 206 662.88



# FUNDING WARFSA 2.0



Based on a 5% bi-annual escalation

## Year 6-10

	Year 6	Year 7	Year 8	Year 9	Year 10	Total Year 6-10
<b>Research</b>						
Sub-total	\$ 1 553 146.88	\$ 1 630 804.22	\$ 1 630 804.22	\$ 1 712 344.43	\$ 1 712 344.43	\$ 8 239 444.17
<b>Capacity Development</b>						
Sub-total	\$ 219 838.50	\$ 251 830.43	\$ 251 830.43	\$ 264 421.95	\$ 285 421.95	\$ 1 273 343.24
<b>Promotion and Implementing Research</b>						
Sub-total	\$ 22 050.00	\$ 52 093.13	\$ 23 152.50	\$ 54 697.78	\$ 24 310.13	\$ 176 303.53
<b>Dissemination and Utilisation of Results</b>						
Sub-total	\$ 55 125.00	\$ 92 610.00	\$ 57 881.25	\$ 97 240.50	\$ 60 775.31	\$ 363 632.06
<b>Long Term Plan</b>						
Sub-total	\$ 11 025.00	\$ 92 610.00	\$ 46 076.25	\$ 97 240.50	\$ 12 155.06	\$ 259 106.81
<b>GRAND TOTAL</b>	<b>\$ 1 861 185.38</b>	<b>\$ 2 119 947.77</b>	<b>\$ 2 009 744.64</b>	<b>\$ 2 225 945.16</b>	<b>\$ 2 095 006.88</b>	<b>\$ 10 311 829.82</b>

10 Year total: \$19, 58 mil



# WARFSA 2.0

## Resource Mobilisation

# BUT

Resources need to be mobilised before the programme can begin

- SADC country support?
- Donor support?





# THANK YOU

## NEPAD NETWORKS OF WATER CENTRES OF EXCELLENCE

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[www.nepadwatercoe.org](http://www.nepadwatercoe.org)



National Water  
Resources Institute,  
Nigeria