



Graduate Training in the Global South: Collaboration with the Pan African University - Institute of Water and Energy Sciences (PAUWES)



 Pan African University
Institute of Water
and Energy Sciences



Université Abou Bekr
Belkaid, Tlemcen, Algérie





➤ Pan African University (PAU) and PAU-Institute of Water and Energy Sciences (including climate change) PAUWES

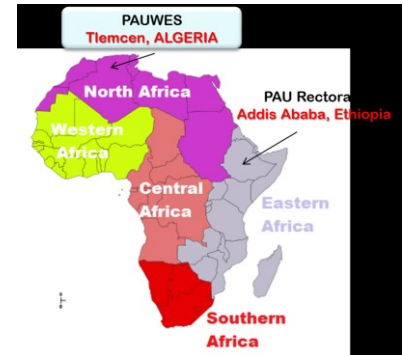
- ✓ Vision and Structure of PAU
- ✓ PAUWES
- ✓ Support from Germany to PAUWES (and PAU)

➤ Funding institution

- ✓ BMZ (GIZ-DAAD), KfW
- ✓ BMBF

➤ German Higher Education Consortium

- ✓ Center for Development Research (ZEF)
- ✓ Institute for Technology and Resource Management in T & ST (ITT)
- ✓ United Nations University (UNU) - EHS





➤ PAUWES: Phase II (DAAD-HEC/Phase 2)



➤ PAUWES-WASCAL cooperation



➤ Water and Energy Security for Africa (WESA)



➤ Risk Assessment and Adaptation Strategies for Sustainable Urban Resource Supply in Sub-Saharan Africa (RARSUS)



➤ Extended RARSUS- Focus on Sustainable Energy Supply in Mali (RARSUS-SEMALI)





- The **Pan African Vision** is the guiding **idea** of **PAU**: “An integrated, prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in the global arena.”
- **Concept of PAU** by the **African Union Commission (AUC)** in **2008** and **launch of PAU** in **2011**
- **Major features of PAU:**
 - **platform** for establishing **five Centers of Excellence** (hubs) in **research** and higher **education**,
 - **providing** highly **qualified professionals** for scientific, economic, political, social and cultural sectors as a contribution to meet the **developmental needs** of the continent under its **own power**,
 - **networking** in a twofold sense: **PAU’s** structure consisting of **hubs**; **link to African and international scientific community**
- Currently **three hubs** established (planned at final stage: five); **PAUWES** on the way





Thematic Areas, Lead Thematic Partners (LTP) and **host**

Water & Energy Sciences (including Climate Change) (**PAUWES**)

LTP: Germany

University of Tlemcen (UoT),
ALGERIA



PAU Rectorate

Addis Ababa, Ethiopia

Life & Earth Sciences
(**PAULESI**)

LTP: India

University of Ibadan,
Ibadan, **NIGERIA**



Basic Sciences, Technology & Innovation (**PAUSTI**);
LTP: Japan

Jomo Kenyatta University of
Agriculture & Technology
Nairobi, **KENYA**



Governance, Humanities and
Social Sciences (**PAUGHSS**)

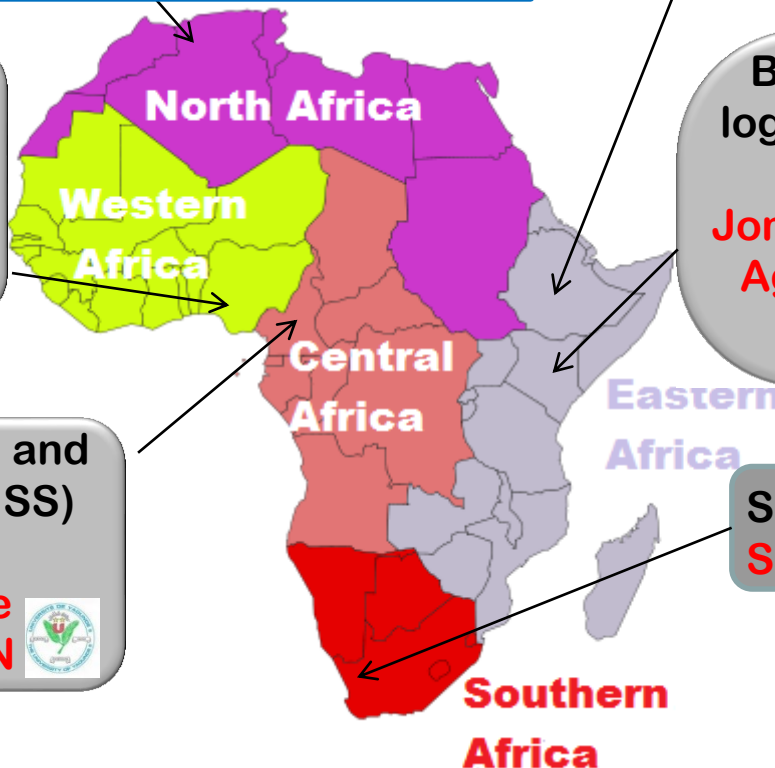
LTP: Sweden

University of Yaounde
Yaoundé, **CAMEROON**



Space Sciences

SOUTHERN AFRICA





Courses offered:

- **Master of Science (MSc) in Water: Engineering and Policy Track**
- **Master of Science (MSc) in Energy: Engineering and Policy Track**

Special emphasis on Water and climate change & Energy and Climate change nexus topics

Joint degree: Pan African University and the University of Tlemcen

Students comes from different African countries (representing Africa). All masters students receive scholarships

Students are expected to work in Africa after completion of their masters degree



PAUWES/ ZEF – UNU - ITT Project: overall context/process and major actors

ZEF



Pan African University
Institute of Water and Energy Sciences

hosted and supported by



Université Abou Bekr Belkaid, Tlemcen, Algérie

Trilateral Memorandum of Understanding between AUC, Algeria and Germany (June 2013); financial support by BMZ

Technical cooperation by providing coordination and management support in Tlemcen (PAUWES) and Addis Ababa (PAU; AUC)

Financial cooperation in terms of support to establishing the infrastructure of PAUWES and providing stipends for students

Providing support to establishing/further strengthening of scientific structures at PAUWES (academic staff, curricula, networking) with Higher Education Cooperation as an instrument in that context (DAAD call)





Supporting the research projects at PAUWES
PhD research agenda for PAUWES
Initiative to bring PAUWES & WASCAL together

BMZ Funding (via DAAD)

- ✓ PAUWES Phase II
- ✓ RARSUS (e-learning)
- ✓ RARSUS-SEMALI (e-learning)

BMBF Funding

- ✓ WESA
- ✓ RARSUS (Research Part)
- ✓ RARSUS-SEMALI (Research Part)
- ✓ PAUWES-WASCAL Cooperation



PAUWES/ZEF-ITT-UNU Cooperation Project: partners, skills, objectives, approach

ZEF

Partner

Major contribution

objectives/approach

**Technology
Arts Sciences
TH Köln**



Institute for Technology and Resources Management in the Tropics and Subtropics

research & educational experience in energy & water sectors (and nexus), **MSc-programs** water and **energy**, e-learning tools, **laboratories** at TH Cologne, link to practice, networks

Strengthening **educational** and **research capacities** at **PAUWES**

- ✓ developing and sharing **educational** resources (including: e-learning materials)
- ✓ **support** teaching (laboratory-Courses, Summer Schools,...)
- ✓ facilitate **research agenda** / initiatives & establishing PhD Pro
- ✓ linking **networks** of the partners and extending (**scientific landscape & practice**)



**UNITED NATIONS
UNIVERSITY**

UNU-EHS

Institute for Environment and Human Security

e-learning platforms and tools, research and education on climate change (and its impact on environment, people; risk), **entrepreneurship** skill, **UN-networks**



zef

Center for Development Research
University of Bonn



UNIVERSITÄT **BONN**

(interdisciplinary) research projects on water and related resources; management of (large) **research cooperations**, educational modules; **PhD-Program**; networks



**Université Abou Bekr
Belkaid, Tlemcen, Algérie**



African Union Commission



Ministère de l'Enseignement Supérieur
et de la Recherche Scientifique



Implemented by:

giz KFW DAAD



Funded Joint Proposals

ZEF

Research

Networking

Capacity building

Water and Energy Security in Africa (WESA)



DAAD-HEC Phase 2



WASCAL – PAUWES Cooperation



Adapation Strategies of Urban Supply Systems (RARSUS)



RARSUS-Extended: SEMALI





Second Phase of the DAAD (GIZ/BMZ)-funded Cooperation PAUWES – ZEF/ITT/UNU (Jan 2017 – Aug 2018)

Building on the established **partnership**, utilizing joint **experience** and **focusing** on:

- ✓ Targeted support to PAUWES **MSc Programs** (Summer Schools, modules, e-learning materials)
- ✓ Strengthening **integration** of PAUWES into the African/International **research/capacity building landscape** (conferences at PAUWES, link to WASCAL)
- ✓ Supporting **MSc-Theses** (specific training, link to projects) and preparing joint **research initiatives**
- ✓ Utilizing **synergisms** with further **projects** of the ZEF-ITT-UNU-**Consortium** related to **PAUWES**





Achievements (Selected)

ZEF

Achievement (all partners)	Number	Reach-out
Summer Schools (water, energy, climate change)	7	243 students (plus 15 staff)
Lab Courses (water, energy)	4	74 students (plus 12 staff)
Internships	8	
Master Theses	12 students supervised (14 supported)	
Workshops	2 (plus 3 internal)	260 students, scientists, decision-makers, admin, companies
E-learning materials/tools	7 E-experiments, 20 lectures/webinars, educational movies	
Participation in research agenda setting	2 Workshops by BMBF (co-chairs): Research to practice conference in 2018	
Research (capacity building) initiatives	4 joint research (capacity building & research) proposals successfully funded	



WASCAL – PAUWES Cooperation

ZEF

Starting-point

WASCAL-PAUWES: thematic overlap (water, energy, climate change) and **complementary capacities** (research - education)

Objectives

Exchange of teaching modules & experiences

Diversifying and specifying the teaching programs

Internationalization & enhancing **networks**

Strengthening **research-based/linked** learning/education

Approach

Workshops on water and energy

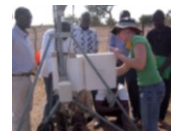
Research-based **internships** at WASCAL-Competence Center

Exchange of teaching materials and **staff**

Summer School: utilizing findings & **consolidate coop** (MSc-PhD)

GRP Climate Change & Water in Cotonou

MRP Climate Change & Energy in Niamey



Federal Ministry of Education and Research



zef
Center for Development Research
University of Bonn



Pan African University
Institute of Water and Energy Sciences



Water and Energy Security in Africa (WESA) ZEF

Time period: Nov 2016 – Dec 2019



PAUWES research agenda
(BMBF support)

first **PAUWES (UoT) graduates**
(PhD Program)



ITT

ZEF

UNU

PAUWES

UoT

Research focus
on energy

Research focus on water (modeling,
management, governance)

Research focus on water and
energy (students, labs)

Research on water, energy, food, health and climate change nexus

Outreach program

(Pilot-) project for im-
plementing PAUWES
research agenda

Strengthen PAUWES /
UoT's integration into re-
search/education **networks**

Supporting infra-inst-
staff **developing** of
PAUWES

Students as
,agents of
change'



6 students selected (**2** additional support from Algerian government)

PhD Thesis supported by ZEF:

- Modeling the Impacts of Land Use Change and Climate Change on Hydrological Responses (Water Balance) and Sediment Yield in the Upper Tekeze-Atbara River basin, Ethiopia
- Comparison of hydrological models performance in data scarce condition in Algeria.



Risk Assessment and Adaptation Strategies for Sustainable Urban Resource Supply in Sub-Saharan Africa (RARSUS)

ZEF

Time period: Jan 2017 – Dec 2019

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DAAD



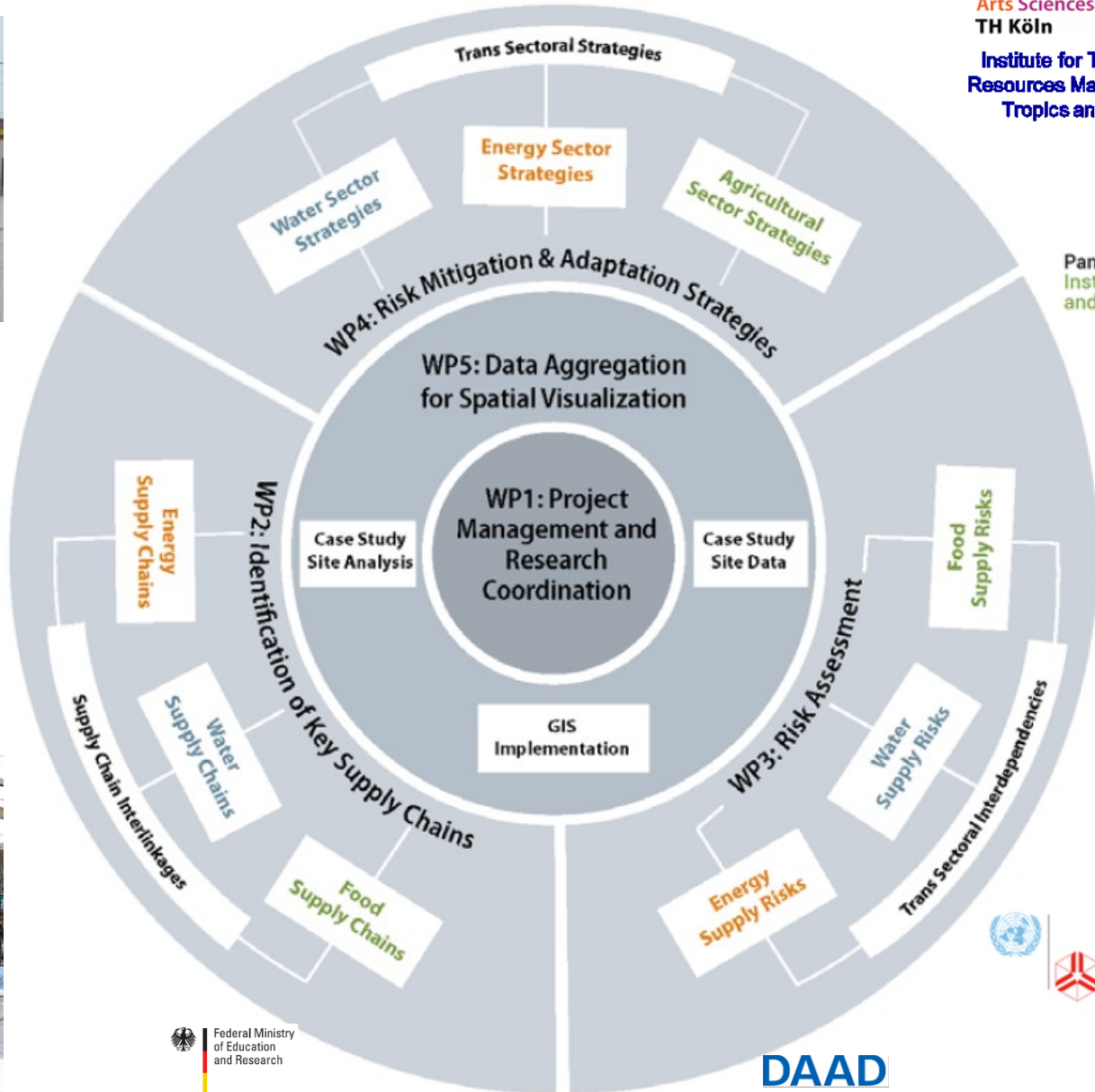
WATER



ENERGY




FOOD





Time period: September 2017 – Dec 2019

- ✓ Extension of RARSUS project in Bamako, Mali 
- ✓ Focus on Sustainable Energy Supply and Agriculture in Mali
- ✓ ZEF contribution in research on urban and peri-urban agriculture





Thank You