# C2C UNESCO

# Center for Integrated and Multidisciplinary Water resources management, Greece

**http://www.keody.auth.gr/**

**cimwrm_unesco@auth.gr**

Director:Prof. Elpida Kolokytha
School of Civil Engineering
Aristotle University of Thessaloniki

# Aristotle University of Thessaloniki

## C2C UNESCO Center for Integrated and Multidisciplinary Water resources management

AUTh is honored to host the first and only UNESCO Water Center in Greece.
Officially the Center has been **approved by the Hellenic Parliament, 8 June 2018** (Law 4545 / A' 99/08.06.2018), and put into force officially.

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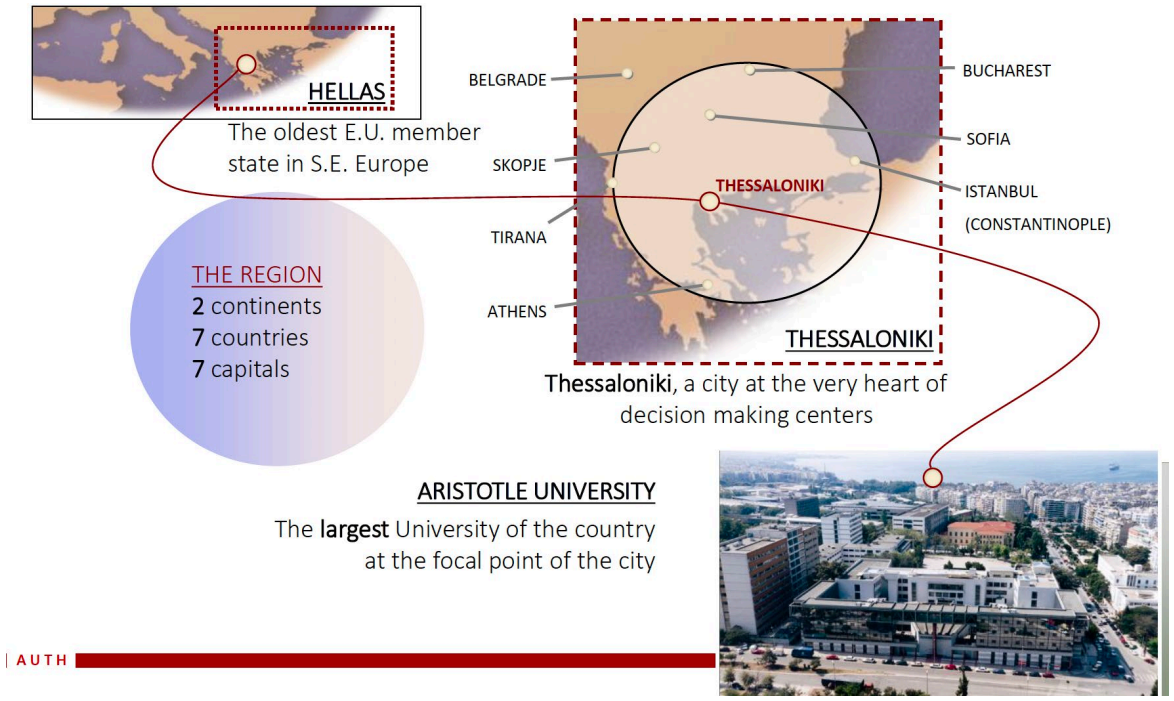


| | |
|---|---|
| 86.000 | students |
| 1.628 | faculty |
| 1.139 | staff |
| 11 | faculties |
| 41 | schools |

# The AUTh Unesco cat. II Water Center for Integrated and Multi-disciplinary Water Resources Management (CIMWRM)

Aims at the development of integrated and multidisciplinary approaches for:

Education

Research

Capacity building

Policy advice activities

Knowledge transfer

on water related issues with a particular focus on transboundary water systems management.

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# Water Research in Aristotle University: A Multidisciplinary Approach

Schools and Departments involved in Water Research programs

- CIVIL ENGINEERING
- BIOLOGY
- GEOLOGY
- AGRICULTURE
- CHEMISTRY
- FORESTRY & NATURAL ENVIRONMENT
- RURAL & SURVEY ENGINEERING
- MEDICINE
- MEDIA/JOURNALISM
- ECONOMICS & LAW
- INFORMATICS
- SPATIAL PLANNING & DEVELOPMENT
- HISTORY AND ARCHEOLOGY

WRM Groundwater & Surface Hydrology

Ecosystem Biodiversity

Climate Change – Drought - Floods

Urban Water Policy

Transboundary Rivers

Irrigation

Water infrastructures Adaptation & Mitigation

AI, Modelling: Simulation & Optimization

Data Process: GIS, Telemetry and AMS

Water quality

Water Education

Ancient Hydrotechnologies

ARISTOTLE UNIVERSITY OF THESSALONIKI

**550 research projects in the last 25 years**

**13 Departments of Aristotle University assure an integrated multidisciplinary and transdisciplinary addressing of regional/international water challenges**

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# MAJOR CONTRIBUTION OF THE CIMWRM

- EDUCATION (undergraduate courses/master degrees/PhDs/Master theses etc. e-courses
- RESEARCH (research projects)
- INTERNATIONAL ACTIVITIES

(webinars, seminars, online courses, training, consultant work, mentoring, special sessions)

- REGIONAL ACTIVITIES
- PUBLICATIONS
- (books, journals, conferences, e-proceedings, special issues)

# IHP2022-2029

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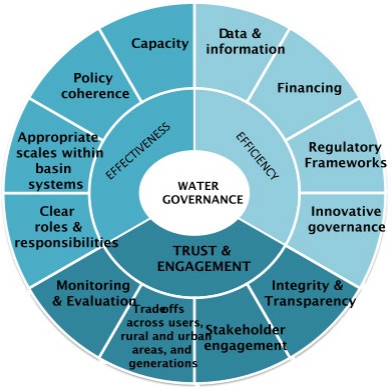
# CIMWRM activities relevant to the IHP-IX


- **1. CIMWRM MAIN ACTIVITIES REGARDING WATER ECONOMICS**
- - **Economic valuation of Water Resources**:
- Assessing the economic contribution (benefits) of water to different sectors of the economy (e.g. agriculture, industry, tourism), as well as to human welfare. By understanding the economic value of water, policymakers can make informed decisions regarding water allocation, pricing and investment in water-related infrastructure.
- - **Assessing the effectiveness of economic instruments for water policies**
- Developing sound water policies that consider economic aspects (e.g. cost-recovery mechanisms, pricing mechanisms, economic incentives for efficient water use, etc). By incorporating economic principles into water governance cities/regions/countries are able to promote sustainable water management practices and ensure the equitable allocation of water resources
- - **Economic assessment of the cost of water-related disasters**
- Estimating the economic implications/costs of water-related disasters (e.g. droughts, floods) is likely to support research and capacity building to develop strategies for disaster risk reductions (e.g. prioritize investments in resilience measures and allocate water to minimize economic impacts of disasters)

# CIMWRM activities relevant to the IHP-IX


- **2. CIMWRM MAIN ACTIVITIES REGARDING WATER GOVERNANCE**
- - **Capacity building of stakeholders in water governance**
- Design of training programs and workshops to enhance the knowledge and skills that are necessary for effective water governance. Capacity building of policymakers, local communities and water managers on areas related to water laws (legal framework), policy analysis, stakeholder engagement, etc. Evidence-based decisions are very crucial in order to enhance the resilience of societies.
- - **Assessing the effectiveness of participatory water governance in achieving sustainable water management goals**
- Analyzing participatory mechanisms (e.g. stakeholder engagement and local community involvement) by means of qualitative interviews, surveys, and document analysis. Strengths and weaknesses of the participatory approach, key challenges, recommendations for improving participatory water governance practices.
- **- Investigating the socioeconomic implications of water governance reforms on socially vulnerable groups**
- Examining (through surveys, interviews and case studies) the effects of policy changes, legal frameworks, and institutional arrangements on the access, use, and management of water resources by vulnerable groups. Exploring the social, economic, and cultural consequences of water governance reforms, offering insights for policymakers seeking to address the socioeconomic disparities in water management.



# CIMWRM activities relevant to the IHP-IX

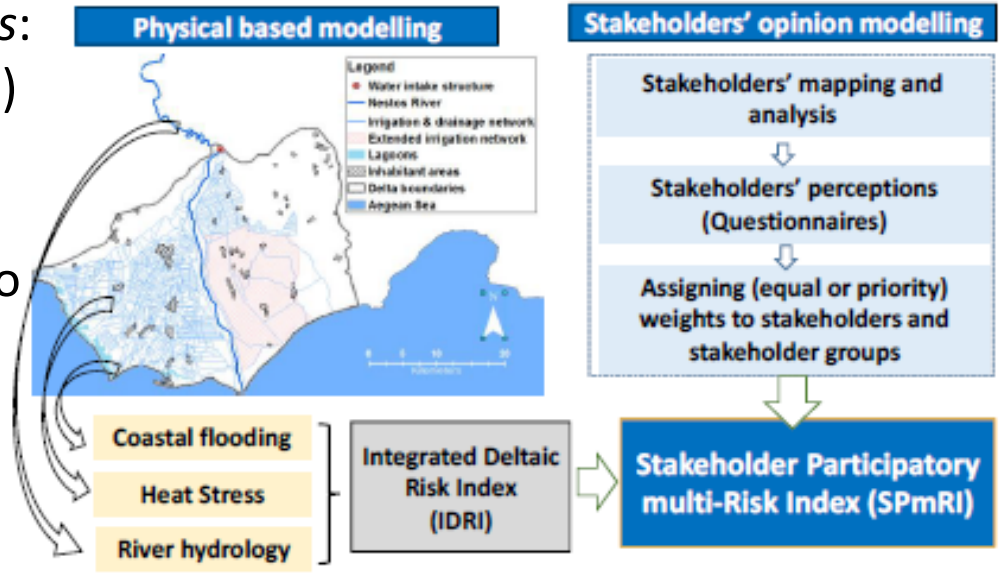
- **3. CIMWRM MAIN ACTIVITIES REGARDING WATER AND HUMAN SETTLEMENTS**
- - **Integrated urban water management**
- Sustainable urban development should focus on the relationships between energy, water and land use. IUWM explores these relationships and provides a framework for planning, designing and managing urban water systems, enabling stakeholders to predict the impacts of interventions. IUMW is associated with water economics as it seeks to improve economic efficiency of water services as well as to change consumer (water users') behavior.
- **- Circular economy and urban water**
- Exploring technologies and policies for water reuse and recycling of wastewater. Exploring the role of water utilities in accelerating the circular economy transition of the water sector


# CIMWRM activities relevant to the IHP-IX

- **3. CIMRRM MAIN ACTIVITIES REGARDING WATER AND HUMAN SETTLEMENTS**
- **- Climate change resilient cities**
- Water and climate in cities under global changes. Studying the vulnerability of urban areas to increased flooding, sea level rise and change in precipitation patterns.
- - **Integrating water management into urban planning through NbS**
- Exploring innovative approaches such as green/blue infrastructure, urban drainage systems and urban wetlands to enhance water management, reduce flooding and improve the urban environment. Economic valuation (e.g., ecosystem service valuation) can be used to estimate the economic benefits of such interventions


# Modeling stakeholders' opinion in physical based models

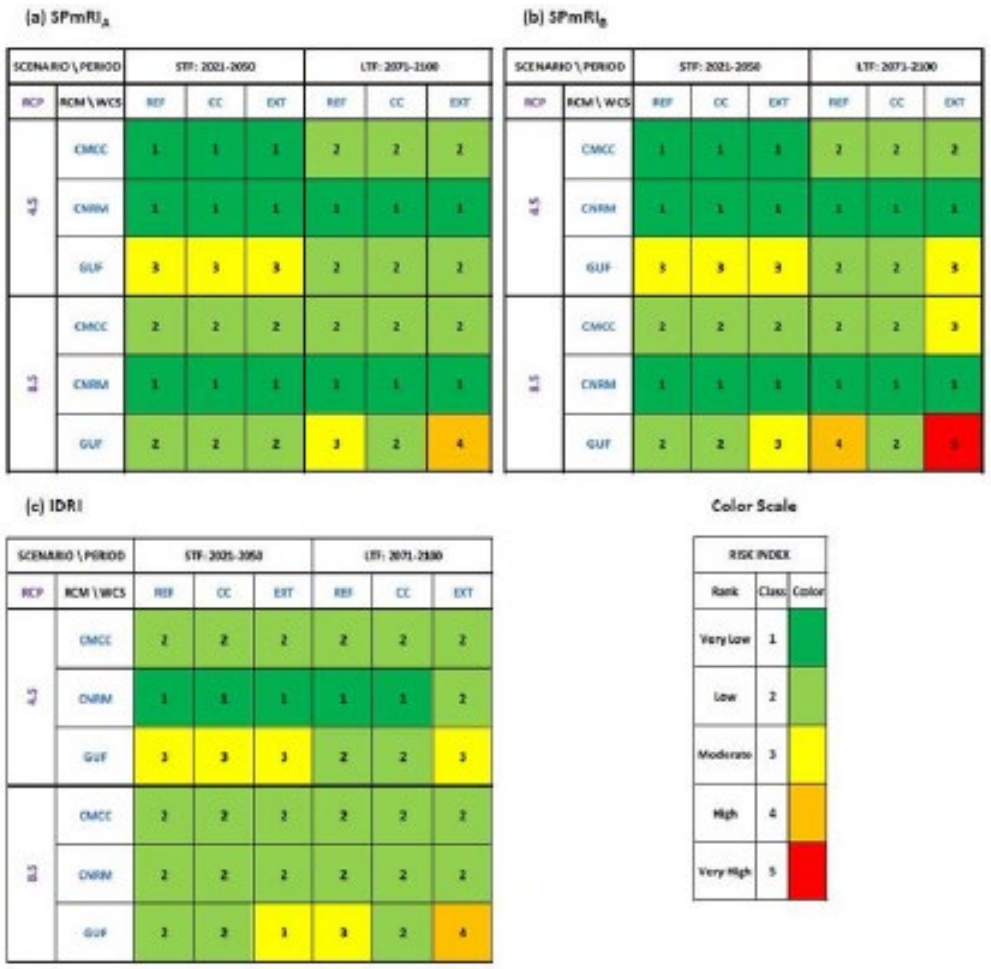
A. *Stakeholders' mapping and analysis*: Preliminary interviews aiming to (a) identify the stakeholders and categorize them into groups (and sub-groups), and (b) give weights to these groups (and sub-groups) according to their importance/ influence on the delta's management;




A. *Exploring stakeholders' perceptions*: Structured questionnaire for (a) assessing stakeholder groups' perception on climate change impacts, as well as, on the relevant hazards and the associated risks in the study area, and (b) assigning stakeholder-based weights to each individual index (CFRI, WSRI and HSRI);

B. *Constructing a stakeholder-based risk assessment model*: Development of a participatory decision-making tool in the form of the proposed SPmRI approach.

# Modeling stakeholders' opinion in physical based models




In: Katirtzidou, M., **Skoulikaris Ch.**, Makris, Ch. Mpaltikas, V., **Latinopoulos, D.**, Krestenitis Y. (2023). Modeling stakeholders' perceptions in participatory multi-risk assessment on a deltaic environment under climate change conditions. *Environmental Modelling & Assessment*. https://doi.org/10.1007/s10666-023-09890-5.

# CIMWRM&SDGS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# Environmental Protection and Sustainable Development

Dr Nicolaos P. Theodossiou, Professor
Director of the Postgraduate Program
"Environmental Protection and Sustainable Development"

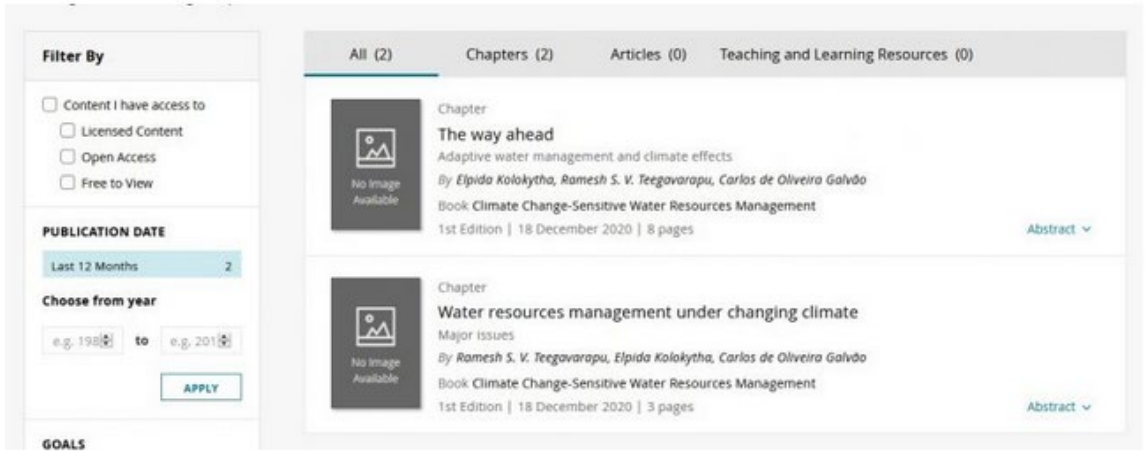
Email: niktheod@civil.auth.gr
URL: http://niktheod.webpages.auth.gr

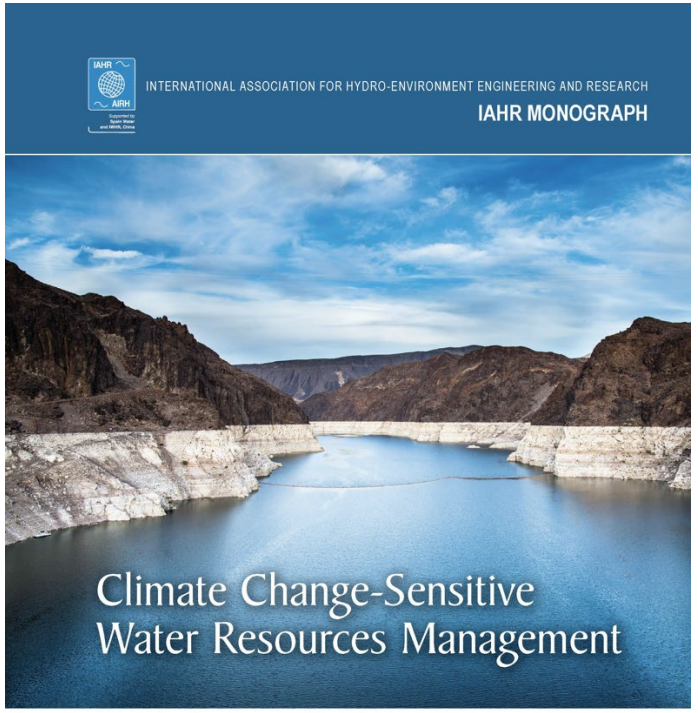
# CONTRIBUTION TO SDG6

Excerpts from two chapters from a recent book on “Climate Change-Sensitive Water Resources Management” are included in Sustainable Development Goals **online** (a world’s **biggest specialist library** created by Taylor and Francis to support United Nation’s Sustainable Development Goals initiative and help university researchers, faculty, and students understand and address humanity’s biggest challenges.

Link: SDG Online


*(C) Taylor and Francis



# SELECTED PROJECTS

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# Balkan project to support Mediterranean countries to reach their SDG6 related targets improving their environment and supporting their development

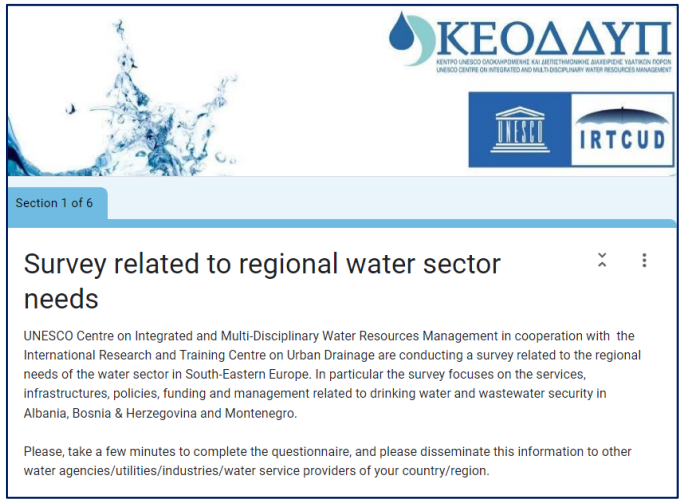
## *1st phase (2023)*

- Comprehensive review on services, infrastructure, policy, funding and management related to drinking water and wastewater security in Albania, Montenegro and Bosnia & Herzegovina
- Identification of countries' priorities on drinking water and wastewater security
- Analysis or national/regional training needs in the water sector aiming to design Life-Long-Learning (LLL) courses

## *2nd phase (2024)*

- Organization of LLL courses to increase the skills of water managers and users in all three countries
- Main target groups: public servants from competent authorities, water utilities and land reclamation organizations.

**Project partner IRTCUD -** International Research and Training Centre on Urban Drainage (Serbia)



# Balkan project to support Mediterranean countries to reach their SDG6 related targets improving their environment and supporting their development

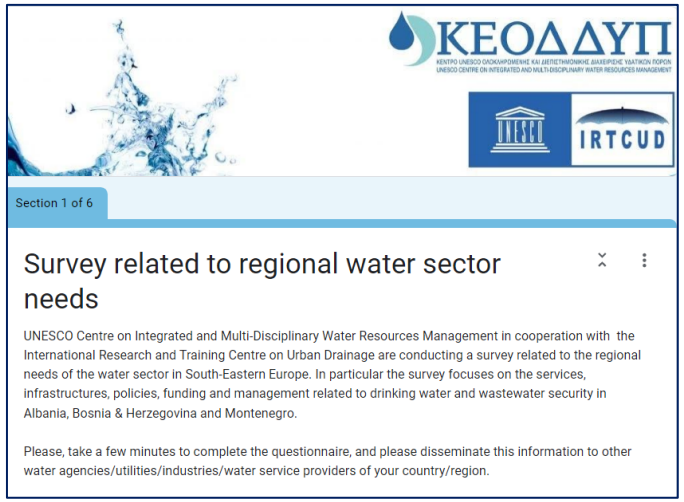
***The project is is in line with the UNESCO IHP programme in the following priority areas and expected outputs:***

**2.6** Capacities of decision makers, and water managers and key water sector institutions strengthened allowing them to take advantage of new technologies and research to enhance better decisions, design and implementation of integrated and efficient water policies

**4.8** Development and sharing of methodologies and tools in mainstreaming global changes within water management by the scientific community supported for improved planning by decision makers at all levels.

**5.5** Capacities of the scientific community and decision makers strengthened on new frameworks and tools, to underpin water governance and build resilience

**Project partner IRTCUD -** International Research and Training Centre on Urban Drainage (Serbia)



First European Urban Initiative – Innovative Actions (EUI-IA)

# NatUR-W: Nature-based Urban regeneration through water: Integrating the water cycle in urban re-naturalization

| Partner | |
|---|---|
| Partner | Country |
| PP 1 - Lorca City Council | ES |
| PP 2 - SingularGreen | ES |
| PP 3 - INDRESMAT | ES |
| PP 4 - NBSCLIMATE | ES |
| PP 5 - Aristotle University of Thessaloniki, UNESCO Center on Integrated and Multidisciplinary Water Resour | EL |

- **Project duration:**
- **Start date: 1/3/2024**
- **End date: 31/07/2027**
- **Total budget of CIMWRM: €187,000**

The aim of NatUR-W is to address urban challenges brought by a situation of energy poverty and climate change.

The proposed solution will develop NatUR-W Plans to implement innovative, inclusive, sustainable and self-sufficient Nature-based Solutions (NbS) that integrate the natural water cycle of the area to improve the energy efficiency of social housing and public buildings and regenerate the urban area.

**Main role of CIMWRM:** engagement, governance and replication processes through specific training and tools.

# Public consultation – transfer of know how

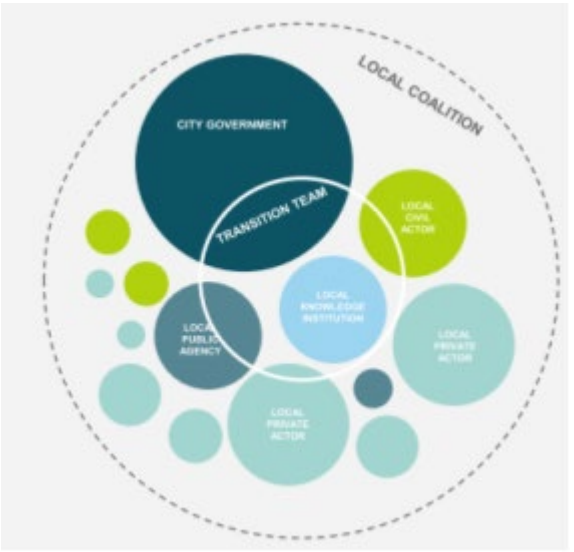
NET ZERO CITIES
EU MISSION PLATFORM | CLIMATE NEUTRAL AND SMART CITIES

**Municipality of Thessaloniki – Net zero cities**

**Building a multi-actor transition team for climate neutrality**

CIMWRM participated in this workshop in order to bring its know-how and experience on Nature-based-Solutions and blue infrastructure projects.

This will be an ongoing procedure aiming to jointly define goals and actions for a climate-neutral Thessaloniki by 2030, starting with the drafting of the City Climate Contract

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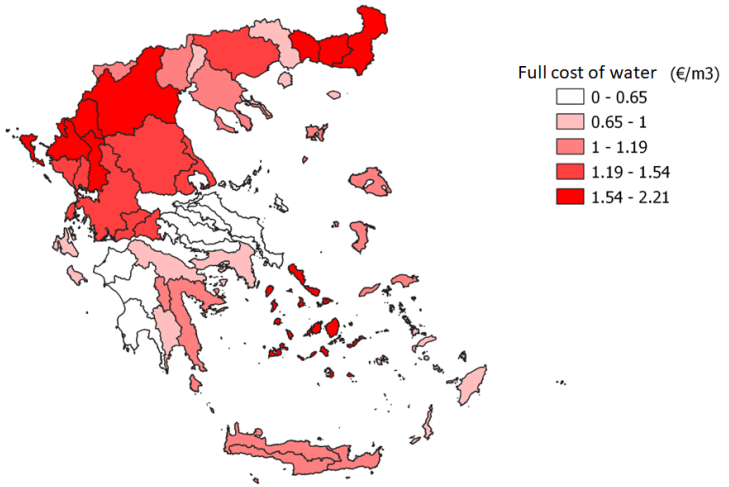
# Public consultation – transfer of know how

**(LIFE19 GIE/GR/001127)**

**The aim of this project** is to improve the financial security provisions, according to the Environmental Liability Directive (ELD) 2004/35/EC, through the implementation of environmental risk assessment. On the basis of this assessment, further financial security instruments will be produced or developed to identify, prevent and remedy environmental damage

CIMWRM participates in the project's meetings (seminars) and in a stakeholders' consultation forum in order to bring its know-how and experience on how to estimate the environmental damage to water resources: (1) as resource costs (surface water, groundwater) or (2) as losses on ecosystem services (e.g. wetlands)



In cooperation with INWEB UNESCO CHAIR

The wider objective of the SWARM project is **to improve the quality of higher education in Water Resources Management (WRM) field,** strengthen its relevance for the labor market and society, **enhancing the level of competencies and skills of experts for WRM in WB partner countries -** Serbia, Kosovo, Bosnia and Herzegovina and Montenegro- by developing new competence-based and improving existing **master curricula** in line with EU trends.

In order to:

improve the level of competencies and skills in HEIs by developing new and innovative master programs in the field of water resources management in line with the Bologna requirements and national accreditation standards

design and implement new laboratories in WB and

to develop and implement LLL courses for professionals in the water sector in line with the EU Water Framework Directive.

# Internationalising Master Programmes in Agriculture via English Medium Instruction / IMPROvE_AGRO (2020-2024)


IMPROvE_AGRO is a multi-country ERASMUS+ project, aiming at strengthening cooperation between the EU, and three partner countries (PC), namely, Kazakhstan (KZ), Mongolia (MN) and Russia (RU), addresses two common pressing needs:

- to modernize and internationalize curricula in Higher Education (HE), and
- to radically improve the situation in Agriculture and Forestry (A&F) by providing qualified graduates.

# Strenghthening the UNESCO AFRICA PRIORITY by Networking

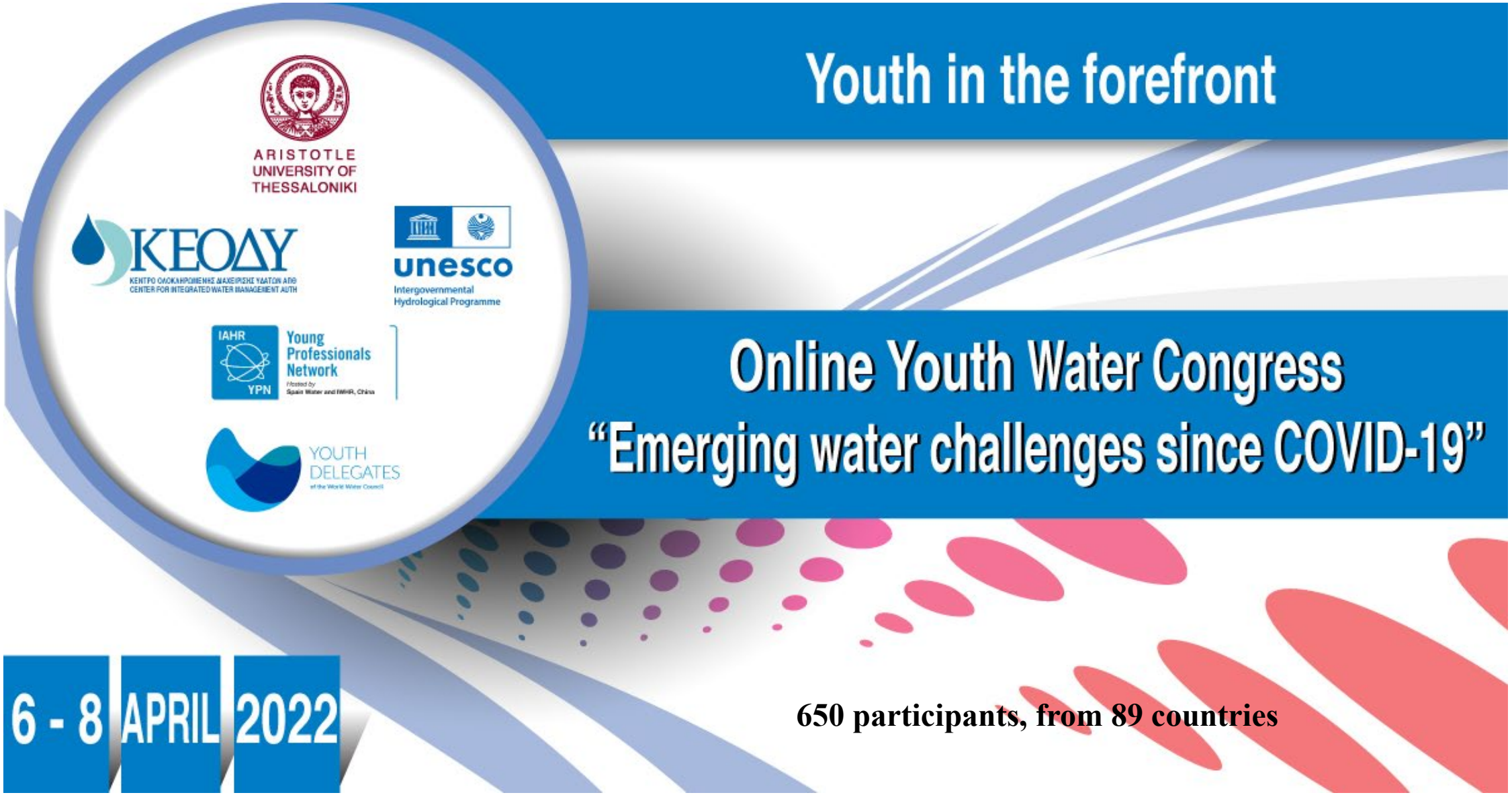
The Pharo Foundation
*Unlocking Africa's potential*

Online trainning courses in SOMALILAND and Ethiopia

On Hydrology, Hydraulics and Water Resources Management

MARCH-2023

# INTERNATIONAL ACTIVITIES




**650 participants, from 89 countries**

Approximately **650 participants, from 89 countries** attended and viewed the Conference virtually.

More than **50 presentations** were made on various themes such as **the threats of water-related disasters** which remain as imminent now as before COVID-19,, the digital based communication and cooperation, such **the role and the capacity of adaptation and recovery from extreme events** as **web-based collaborative engineering**, **the protection and management of groundwater resources**, crucial against poverty, sustainable development and certainly descicive factor to increase the resilience of the societies and economies to climate change. **Water-related issues of inclusiveness** were also included in the discussions.

Invited speeches were delivered by **17 mentors from 15 countries**, **3 experts** participated in the roundtable discussions and Keynote speeches on Groundwater Resources and Water as a good and as a risk within the context of Climate Change and COVID 19 triggered interesting discussions.

All the material from the conference can be found in :
https://www.keody.auth.gr/2022/05/16/youth-in-the-forefront-before-and-after-world-water-forum-online-youth-water-congress-emerging-water-challenges-since-covid-19/

GWYN

Groundwater Youth Network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# Engaging and Connecting Youth

A side event presented by Groundwater Youth Network (GWYN) and AUTh-CIMWRM 6 Dec 2022

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# INTERACTIONS

CAPACITY DEVELOPMENT


7 DEC 2022

# INTERACTIONS

## UNESCO Chair on Sustainability - Univ. Politècnica de Catalunya

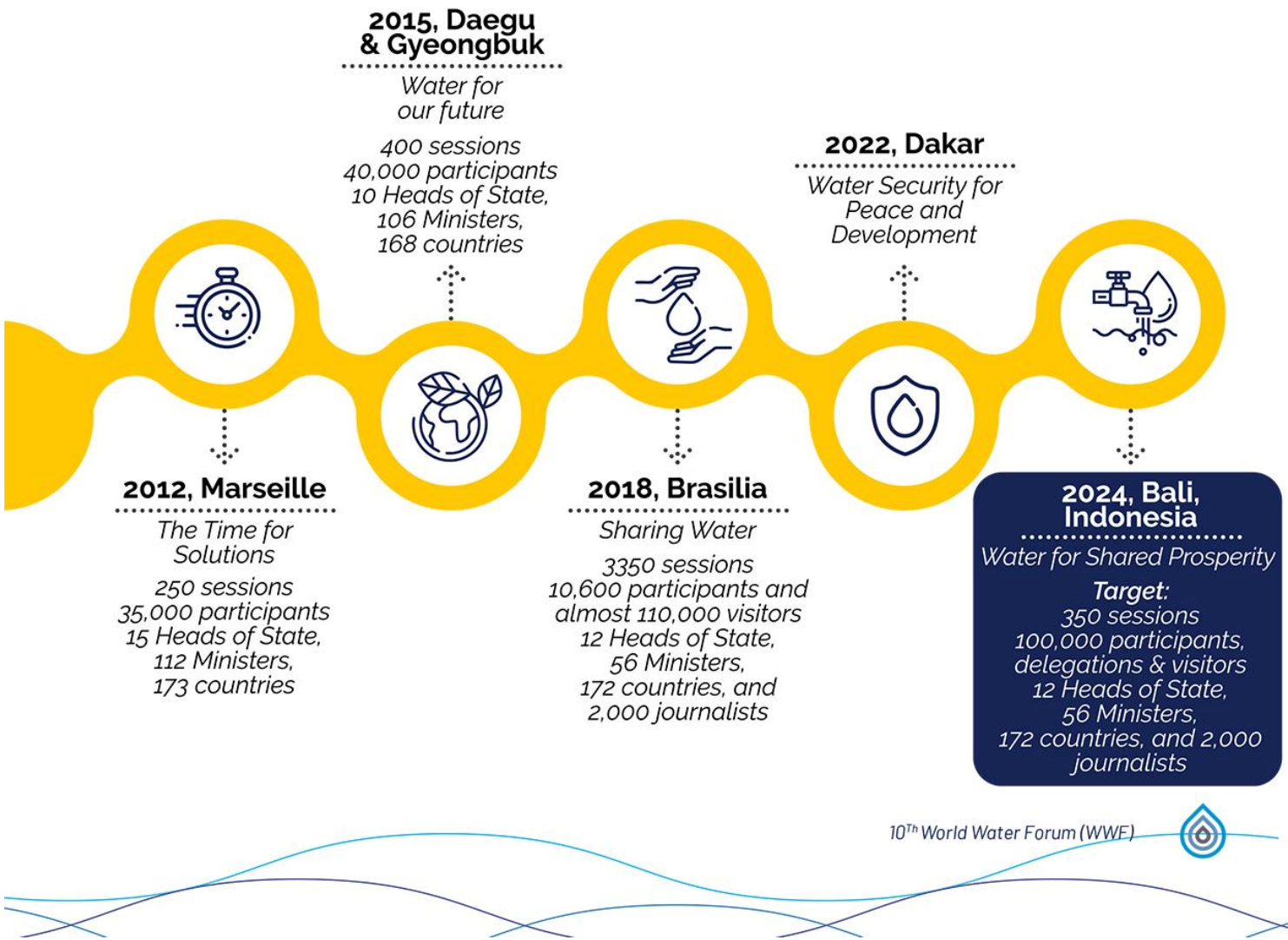

**February 16 to 17 2023**

**Ancestral Hydrotechnologies as a Response to the Climate, Health and Food Emergency in the Mediterranean "Use of Cultural Heritage to Rescue the Future"**

https://www.unescosost.org/post/hidrotecnolog%C3%ADas-ancestrales-como-respuesta-a-emergencia-clim%C3%A1tica-y-alimentarias-en-el-mediterr%C3%A1neo


**Figure 1** | Stone Age wells: (a) Palaikastro town in eastern Crete Island (Greece) and (b) the entrance to the well in Mycenae (with permission of A.N. Angelakis).

K.Voudouris




**Co-organization of a cross-cutting session**

**CC15** The role of science for building capacity and dialogue across transboundary basins

18-26 May 2024

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# The Alliance EPICUR

- Start: 2019 - **Inspired** by the conference of President Emmanuel Macron, Paris, Sept. 2017
- EPICUR belongs to the first generation of European university alliances, co-funded by the European Commission in November 2019.
- Epicur is composed of **9** higher education institutions from **7** different European countries.
- EPICUR is a place where all students, teachers, staff and researchers can acquire a broad, unlimited and **interdisciplinary** academic perspective strongly rooted in **European traditions**, **regardless** of their nationality, mother tongue, cultural or socio-economic **background**.

# EPICUR alliance in numbers

## 9 Partner universities

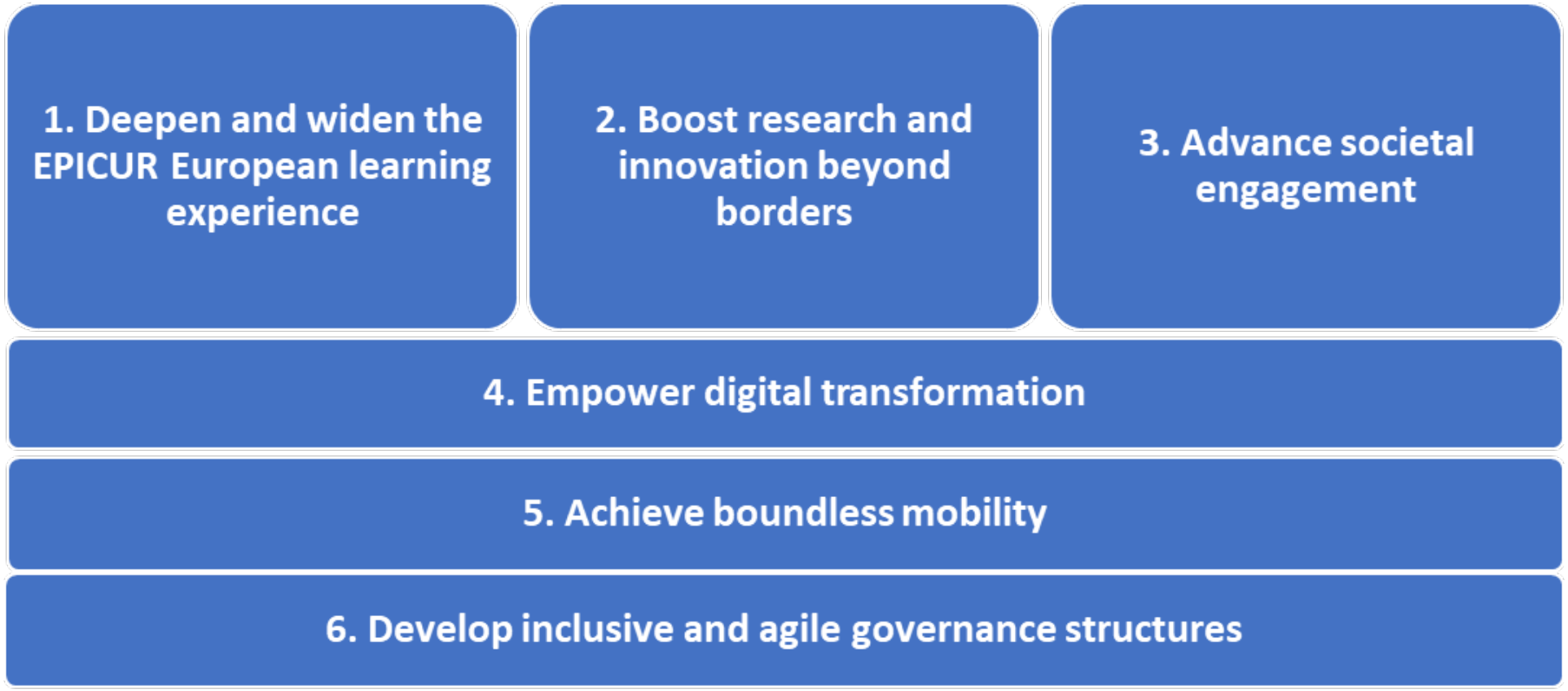
**334 000**
Students

**43 000** Staff
incl. 21 000 academics

**118**
Faculties

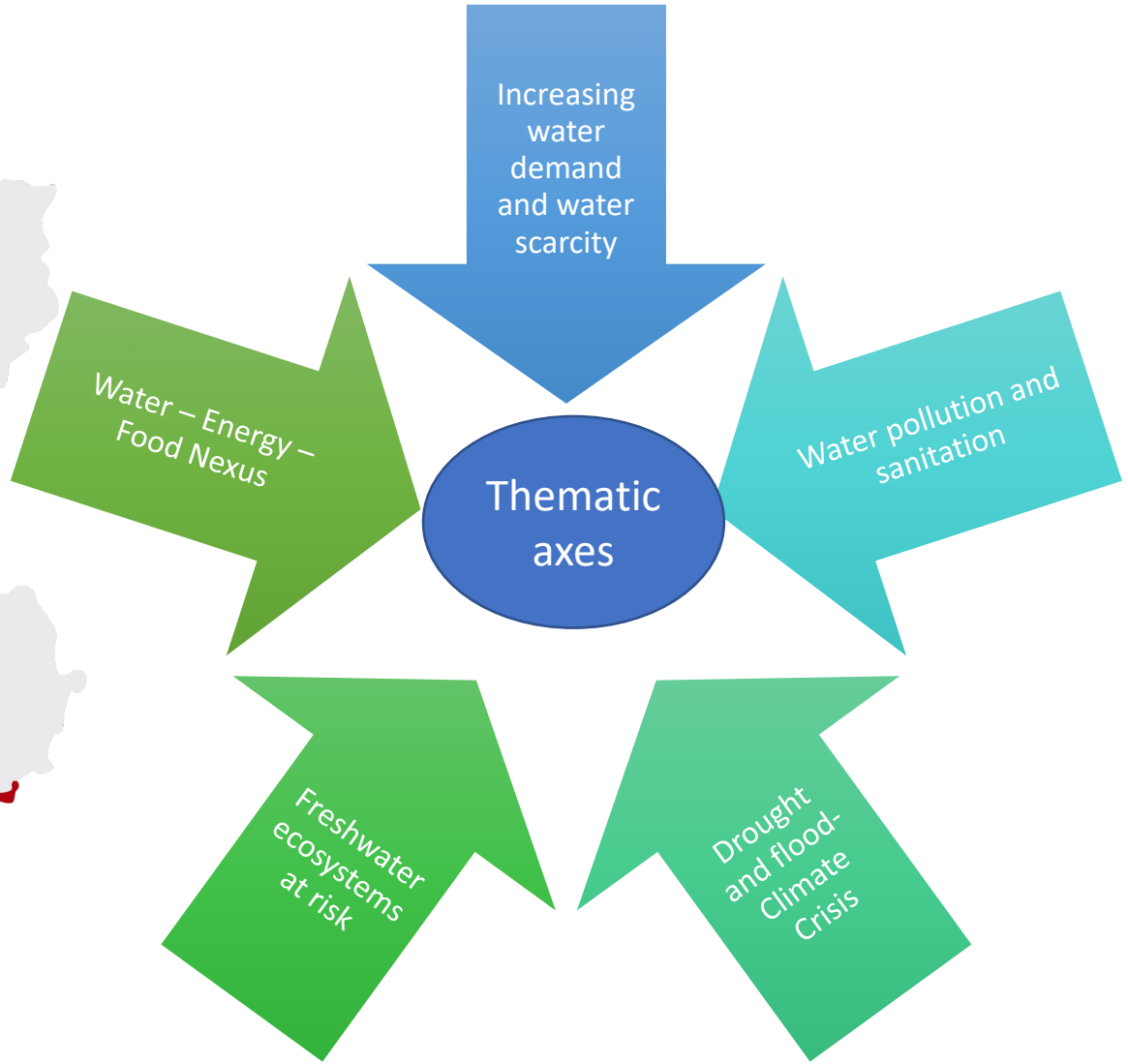
**156**
Research groups

# EPICUR Mission



# EPICUR Proposed Course Title: Global water challenges

EPICUR
EUROPEAN UNIVERSITY


Features:

- Multidisciplinary approaches: Hydrological, Ecological and Socio-economical aspects
- Language: English
- Students from 9 European Universities
- Duration: 1 semester

# THANK YOU

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