



WATEC

AARHUS UNIVERSITY CENTRE FOR
WATER TECHNOLOGY

STRATEGY

2018–2022

PREFACE

The strategy for WATEC – Aarhus University Centre for Water Technology has been conceived, prepared and written in collaboration between the members of WATEC's steering committee consisting of relevant representatives from each department involved.

The strategy includes important input from WATEC's advisory board, which consists of representatives from other universities as well as significant Danish industrial stakeholders, regions and water supply companies with international knowledge and experience.

The strategy is also the result of feedback and experience accumulated over the past year.

We would like to thank everyone who has contributed.

October 2018
Niels Peter Revsbech
Head of Centre

INTRODUCTION

About the centre

WATEC- Aarhus University Centre for Water Technology was established in July 2017 and is one of the seven strategic centres at the faculty "Science and Technology" at Aarhus University. The centres aim at joining research competences within specific fields of study with a focus on contributing solutions to the UN's sustainable development goals.

WATEC contributes to several of these goals, particularly the objective "Clean water and sanitation". Globally, clean water is without doubt the most restrictive natural resource. Danish expertise and research in water technology is internationally outstanding in many aspects of the water cycle. By establishing WATEC as a strategic research initiative, AU intends to support this unique position and contribute with new technological breakthroughs for the benefit of society.

Core research areas

WATEC consists of a number of leading researchers from

- ◆ The Department of Agroecology
- ◆ The Department of Bioscience
- ◆ The Department of Geoscience
- ◆ The Department of Engineering
- ◆ The Department of Environmental Science
- ◆ The Interdisciplinary Nanoscience Center (iNANO).

Members of WATEC conduct research in the following important areas: Treatment of water and wastewater for micro contaminants, mapping of water resources, modelling of water transport, ecological modelling, restoration of lakes and watercourses, the establishment of constructive wetlands and nitrate filters in the landscape, sensor development, as well as socio-economic environmental assessments.

Organisation

Board: WATEC's Board of Directors consists of the Dean and department heads from the departments involved. Niels Christian Nielsen, Dean of Science and Technology, Aarhus University, is Chairman.

The Centre management and steering committee: The daily management of the Centre is performed by Niels Peter Revsbech (Head of Centre). The Head of Centre is also the Chairman of the Steering Committee, which consists of academic staff from the departments involved in the Centre.

Advisory Board: WATEC's advisory board consists of representatives from international universities and representatives from major Danish industrial operators, as well as regions and water supply companies with international knowledge and experience.

The strategy

This strategy identifies four strategic priorities that constitute WATEC's core activities in the coming years:

Research

Knowledge sharing

Educational activities

Collaboration with the business community.

The strategy describes a number of initiatives and specific objectives, which, in combination, constitute WATEC's guidelines in its work of creating research and technological breakthroughs within the water area for the benefit of society.

WATEC'S MISSION, VALUES AND VISION

MISSION

WATEC will develop sustainable water management and technology, contribute to graduate and postgraduate education and facilitate research at the highest level for the benefit of society and industry.

CORE VALUES

WATEC is based on each researcher's excellent competences and knowledge within aquatic research. WATEC wishes to bring these competences into play through mutual respect, trust and enthusiasm. WATEC wants to develop a culture that is characterised by collaboration, dialogue and innovation across the departments involved.

VISION

WATEC strives to be an internationally highly recognized research centre delivering breakthrough water technologies to society and industry.

STRATEGIC OBJECTIVES

RESEARCH



Research is the basis of all work in WATEC. The diverse research competences within the involved departments justify the Centre.

Members of WATEC conduct research in the following important areas: Treatment of water and wastewater for, micro contaminants, mapping of water resources, modelling of water transport, ecological modelling, restoration of lakes, reservoirs and watercourses, the establishment of constructed wetlands and nitrate filters in the landscape, sensor development, as well as socio-economic environmental assessments.

An important task for WATEC is to support, but also further develop this sublime foundation of knowledge and research.

Therefore, in the period 2018-2022 WATEC will particularly focus on:

- ◆ Establishing research facilities within the field of piped water at pilot-scale water that support research and teaching in, among other things, process technology. Such a facility would also be an ideal site for testing new sensor technology.
- ◆ Selecting and setting up at least four major strategic interdisciplinary research collaborations within WATEC, of which the first is defined as:

“New organization for integrated mapping, modelling and uncertainty estimation in surface and subsurface soil structures, water flow and transport of chemicals.”
- ◆ Recruiting top researchers at all levels including professors in “sustainable water management” “treatment” and “wastewater treatment”.



KNOWLEDGE SHARING

WATEC acknowledges the need to gather interdisciplinary competences and expertise through internal knowledge sharing in order to increase improve and strengthen the innovative drive needed to ensure major scientific technological breakthroughs. Similarly, optimal knowledge sharing with leading external stakeholders must be ensured.

With five very different departments, and competences gathered under the WATEC umbrella, cohesion itself and the desire for collaboration are a prerequisite for making this possible. For this reason, WATEC constitutes the foundation for knowledge sharing and interdisciplinary collaboration.

Therefore, in the period 2018–2022 WATEC will particularly focus on:

- ◆ Facilitating internal interdisciplinary research collaboration, e.g. through jointly funded Ph.D.'s and postdocs.
- ◆ Gathering and establishing a model for best practice regarding collaboration under the auspices of WATEC.
- ◆ Ensuring that researchers are aware of each other and each other's competences.
- ◆ Ensuring WATECs visibility at the involved departments by means of seminars, visits and visible branding of WATEC.
- ◆ Ensuring a clearly communicated model for access to and requirements for WATEC grants for researchers involved in WATEC.
- ◆ Establishing partnership agreements with external partners in Danish private companies, industrial organisations and utility companies for mutual exchange of information.
- ◆ Strengthening relations with Danish and international leading research groups.

EDUCATIONAL ACTIVITIES

Academically strong, interesting, relevant and up-to-date educational courses are a foundation for continuous recruitment of talent within the water area, both for the University, the surrounding society and business and industry.

Therefore, a significant part of WATEC's activities is to ensure relevant educational activities within water areas. It is particularly important for WATEC to engage in collaborations with industry and utility companies in order to target research based degree programmes to the needs of the water industry. Integration of the Centre's competences and knowledge into relevant Bachelor's and Master's degree programmes is, thus, important.

Therefore, in the period 2018-2022 WATEC will particularly focus on:

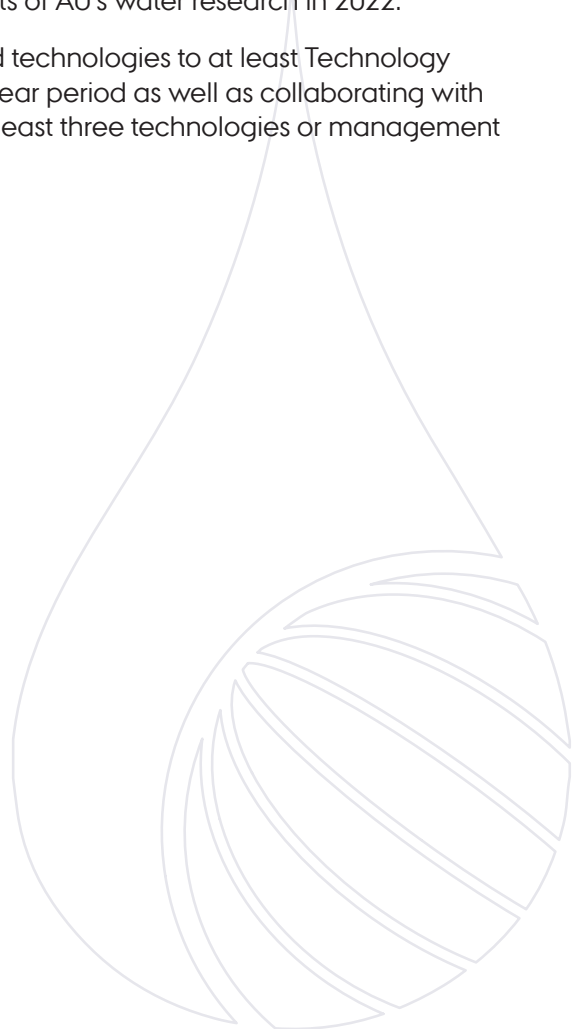
- ◆ Developing and hosting at least one international AU Summer University Class in collaboration with leading Danish businesses in water technology.
- ◆ Supporting WATEC-researchers' desire to develop and establish supplementary educational courses.
- ◆ Implementation of a Master's degree programme within the field of water technology involving all relevant competences and departments in and around WATEC.
- ◆ Collaborating with universities in Denmark and abroad with regard to education in the field of water management and water technology.
- ◆ Collaborating with businesses, utility companies and other sectors that want and show interest in establishing educational opportunities within the water industry.
- ◆ Strengthening talent development through the establishment of Ph.D. and post-doc programmes.



WATEC will ensure access to research and collaboration for national and international industrial partners and business sectors with the aim of developing technologies and solutions to societal challenges related to water.

Therefore, in the period 2018–2022 WATEC will particularly focus on:

- ◆ Establishing a way for the business community to access academic strengths in WATEC.
- ◆ Entering into strategic partnerships with businesses and utility companies.
- ◆ Securing platforms for matchmaking and dialogue between WATEC researchers and external partners from industrial and utility companies, e.g. through annual meetings and other relevant activities.
- ◆ Promoting opportunities for Industrial Ph.D.'s in water technology.
- ◆ Hosting innovation programmes for Ph.D. students in collaboration with other stakeholders in Science and Technology.
- ◆ Establishing WATEC membership in the Danish Water Association and participating actively in the International Water Association's (IWA's) conference in Copenhagen in 2020.
- ◆ Examining possibilities of developing a concept related to "AU House of WATER", which can be applied to significant parts of AU's water research in 2022.
- ◆ Taking at least three WATEC developed technologies to at least Technology Readiness Level 5 within the first five-year period as well as collaborating with the business community to establish at least three technologies or management solutions at an industrial level.



PREREQUISITES FOR IMPLANTATION OF THE STRATEGY

It is a clear prerequisite for WATEC's future success, including implementation of the strategy, that there is a centre administrator. Funding for this will eventually be secured using 10% of the overhead from WATEC related grants. However, in 2019 there will not be sufficient consumption on new WATEC grants to cover this payroll cost. The employment contract for WATEC's centre administrator expires on 1/8 2019. It is therefore necessary to find alternative funding for this payroll cost.

In addition, it is an important prerequisite to appoint that the WATEC employed professor will work across departments and spearhead the establishment of the water technology programme.



CONTACT INFORMATION

WATEC

Aarhus University – Centre for Water Technology
Centre Director and Professor Niels Peter Revsbech

E: revsbech@bios.au.dk

P: +4587156538

M: +4523382187