

# DANISH CENTRE FOR ENVIRONMENT AND ENERGY

**Strategy 2016-2020**



AARHUS  
UNIVERSITY

DCE - DANISH CENTRE FOR ENVIRONMENT AND ENERGY



# DANISH CENTRE FOR ENVIRONMENT AND ENERGY

## Strategy 2016-2020

### VISION

DCE is nationally and internationally known and renowned for its research-based expertise within the fields of environment, nature, energy and climate and for providing high quality research-based advisory services and knowledge transfer and transition of wide reach in society and high significance for the beneficiaries.

### MISSION

The research-based advisory services by DCE within the fields of environment, nature, energy and climate support the implementation of national and international policies and the global transition towards a greening of the economy in close collaboration with authorities, NGOs, the private sector, universities and other research organisations. The collaboration is based on independence and high quality research.



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# 1 PREFACE

One of the goals of the University of Aarhus is to ensure that research contributes to solving the societal challenges in collaboration with stakeholders. Three national centers were established in 2011 responsible for collaboration with authorities and the private sector providing research-based advisory services within key topics.

DCE – Danish Center for Environment and Energy in faculty of Science and Technology was established as the central entry point for Ministry of Environment and Food as well as other parties requiring research-based advise within the topics environment, nature, energy and climate.

The organizational framework of DCE consists of the DCE center unit, an established working relationship with Department of Bioscience and Department of Environmental Science, a close collaboration with DCA – Danish Center for Agriculture and Food and the related university Departments, whereas collaboration with other research groups at AU is more on an ad hoc basis.

This strategy 2016-2020 was developed by the DCE center unit. Coordination and discussions were held with Department of Bioscience and Department of Environmental Science to make sure the strategies and priorities are consistent in achieving the main goals related to the research-based advisory services in the future. The strategy was also coordinated with DCA.

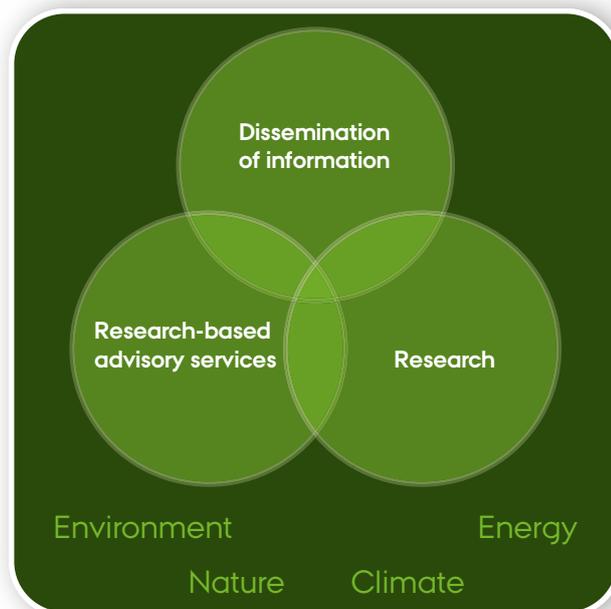
## 2 VISION AND MISSION

### 2.1 Vision

DCE is nationally and internationally known and renowned for its research-based expertise within the fields of environment, nature, energy and climate and for providing high quality research-based advisory services and knowledge transfer and transition of wide reach in society and high significance for the beneficiaries.

### 2.2 Mission

The research-based advisory services by DCE within the fields of environment, nature, energy and climate support the implementation of national and international policies and the global transition towards a greening of the economy in close collaboration with authorities, NGOs, the private sector, universities and other research organisations. The collaboration is based on independence and high quality research.



### 3 EXECUTIVE SUMMARY

DCE is the organisational framework for collaboration and knowledge transfer between AU and society in relation to advisory services within the transdisciplinary fields: environment, nature, energy and climate. The organizational framework of DCE consists of the DCE center unit, an established working relationship with Department of Bioscience and Department of Environmental Science, a close collaboration with DCA – Danish Center for Agriculture and Food and the related university Departments, whereas collaboration with other research groups at AU is more on an ad hoc basis.

DCE coordinates and provide quality assurance of the research-based products and advisory services to ministries and other parties requesting the services. DCE ensures that the advisory services are holistic, involves all necessary disciplines and competences, are consistent over time and based on the best possible analyses drawing on the entirety of the research expertise of University of Aarhus. DCE publishes scientific and technical reports, memos and briefs and a regular newsletter.

The strategy for 2016-2020 focuses on three main areas:

1. strengthening the high quality research-based advisory services through improved knowledge transfer based on research prioritized by relevance for implementation of environmental policy and greening of the economy;
2. improved dissemination and use of the knowledge base through increased cooperation with local authorities, the private sector, NGOs and knowledge institutions;
3. improved utilization of international networks and partnerships to strengthen the knowledge base.

## 4 ORGANISATION

DCE is the organisational framework for collaboration and knowledge transfer between AU and society in relation to advisory services within the transdisciplinary fields: environment, nature, energy and climate. DCE is responsible for the implementation including quality assurance, administration and coordination of framework agreements within these fields involving the Ministry of Environment and Food, Ministry of Energy, Utilities and Climate, Government of Greenland, European Environment Agency and the EU. Public institutions also including local authorities benefit from the advisory services, but collaboration also exists with NGOs and private companies such as national and international consulting engineers and various industrial enterprises.

The DCE framework entails a holistic view on the advisory services involving as broad a range of expertises as required to produce the best possible input for societal decision making. Clients and the public can expect research based information and advice characterized by consistency and uniqueness ensured through the coordination and quality assurance by DCE unlike individual university researchers providing their individual expert opinions.

The organizational framework relates to the entirety of AU, but based on the required expertise and current collaboration with authorities, an established working relationship with Department of Bioscience and Department of Environmental Science comprises the main constituents. A close collaboration exists with DCA - Danish Center for Agriculture and Food and the related university Departments, whereas collaboration with other research groups at AU is more on an ad hoc basis. The advisory services provided by DCE are research based and primarily provided by staff members within the academic employment structure, i.e. members with a research education. The Department of Environmental Science includes research groups on environmental chemistry, microbiology, atmospheric environment and systems analysis including approx. 130 staff members of which about 70 are employed within the university's academic employment structure. The Department of Bioscience includes research groups on botany, zoology, marine and freshwater ecology, genetics, evolution, microbiology, zoophysiology, ecophysiology, population ecology, ecotoxicology, bioinformatics, wildlife biology, biodiversity, terrestrial ecology and the arctic environment and has approx. 480 members of staff including approx. 340 scientists within the university's academic employment structure.

DCE is led by a director with reference to the dean of Faculty of Science and Technology and is organized as a center unit with 12 employees and the Department of Bioscience and Department of Environmental Science as the units delivering the products for the research based advisory services. The employees in the DCE center unit have scientific, juridical, economical and journalistic skills and their tasks include managing contracts, coordinating the work, helping secure consistency and quality of the provided services to authorities and other clients and performing dissemination including publishing a number of publication series.

The work is organized with division of responsibilities for the main tasks of the DCE center unit between the employees according to their skills and with reference to the director. The main responsibilities are:

- Negotiation and implementation of the framework agreements with authorities and organisations on DCE's research-based advisory services in particular the agreements with the Ministry of Environment and Food
- Coordination of the advisory services provided by DCE including coordination of requests, support to planning and responses, and quality assurance of products,
- Coordination of the DCE tasks of the national monitoring program on aquatic environment and nature (NOVANA) including a.o. the annual monitoring summary, and coordination of involvement in development and use of environmental databases and related IT systems.
- Support to fund raising in relation to advisory services including overview of funding possibilities, support to establishment and maintenance of national and international collaboration networks and partnerships and support to development of offers and contracts
- Juridical and economical advice and consultancy within the DCE framework in particular on proposals and contracts
- Development and maintenance of the DCE quality system and quality assurance of products
- Representation of DCE in national and international networks
- Dissemination of results and findings from the research-based advisory services delivered by DCE including development and maintenance of the DCE web site, coordination and release of publication series and coordination with the authorities and press handling

The work within the center unit is coordinated through weekly meetings held as video-conferences and as physical meetings approx. twice a year. The work within the DCE framework is coordinated at meetings every second week. These meetings have participation by the head of department and deputy head of department from Department of Bioscience and from Department of Environmental Science and the DCE center unit represented by the director and the staff member responsible for the framework agreement between The Ministry of Environment and Food and Aarhus University.

## 4.1 Physical conditions



The DCE center unit is located in Roskilde, Kalø and Silkeborg at the same premises as Department of Bioscience and Department of Environmental Science. This means that there is close contact on a daily basis between the employees in the DCE center unit and the employees of the university Departments within the DCE framework. The director has offices in both Roskilde and Silkeborg. One employee has basis in both Kalø and Silkeborg and the rest are located either in Roskilde or Silkeborg.

## 5 CULTURE AND VALUES



The culture and values in the DCE center unit is greatly influenced by the type and characteristics of the activities and the organisational structure, which implies extensive collaboration internally as well as externally. High quality is a trademark for the work. Achieving the goals requires involvement of several disciplines, establishing ownership by the research groups and developing a certain degree of consensus. The field of work is diverse, has many stakeholders, high values at stake and a variety of interest groups expressing strong opinions. Integrity, impartiality, independence and credibility are values of great importance to provide added value and be successful in complying with the DCE Mission.

The culture is characterized by ambition and creativity in finding solutions, perseverance and continuous focus on tasks requiring a systematic approach and a professional way of tackling disagreements and problems. Respecting difference in professional expertise's and opinions and being able to collaborate in a cross-disciplinary environment are regarded as important competences.

The work is characterized by extensive delegation to individuals or teams of staff with associated responsibility for implementation of the activities. It requires a high degree of information exchange, coordination and attention to the risk of activities being left behind. The distribution of tasks is discussed with and among the staff and decided considering competence and interest. Continued training is valued to further develop the individuals and the DCE center unit.

## 6 NATIONAL AND INTERNATIONAL POSITION

DCE provides advisory services and knowledge based on high quality research and thus contributes to national and international community development, including providing the knowledge base for political decisions by the Danish Parliament, ministries, municipalities and the EU. The collaboration involves mainly public institutions but private companies also benefit from the DCE advisory services.

### 6.1 DCE themes on environment, nature, energy and climate

DCE covers a range of subjects within environment, nature, energy and climate divided under three main headings:

#### Theme A: Protect, conserve and enhance natural capital



1. Nature and terrestrial ecosystems
2. Fresh water ecosystems
3. Marine ecosystems
4. Air pollution pressures on biodiversity and ecosystems
5. Land use management

Nature capital covers the natural ecosystems of the terrestrial, fresh water and marine water environment. A major part of the EU legislation within the environmental field aims at protecting, maintaining and improving the natural capital including the Water Framework Directive, the Marine Strategy Directive the Habitat Directive, the Bird Protection Directive and the Air Quality Directive. Research, advisory services and monitoring help ensuring the knowledge base, which supports achievement of national environmental goals and goals of directives and conventions.

#### Theme B: Development towards a sustainable society



6. Environmental economics
7. Environmental policy and regulation
8. Environment and resource flows

In Denmark as well as in Europe, the aim is to support the transition towards an economy that utilizes all resources efficiently, decouples the economic growth from energy and other resource consumption and the associated environmental pressures, reduces green-house gas emissions, increases competitiveness through improved efficiency and innovation and promotes energy security. Research, advisory services and monitoring help ensuring the knowledge base, which supports achievement of national environmental goals and goals of directives and conventions.

### Theme C: Safeguard the citizens from environment-related pressures and risks to health and well-being



9. Air pollution
10. Risk assessments of environmental pressures and new technologies
11. Climate change impacts and adaptation

Water and air pollution and chemicals in the environment continue to be some of the most important environmental issues for European citizens. The World Health Organisation (WHO) estimates that environmental pressures cause 15-20% of all deaths in Europe. According to OECD, urban air pollution will be the primary environmental cause of deaths globally in 2050. Research, advisory services and monitoring help ensuring the knowledge base, which supports achievement of national environmental goals and goals of directives and conventions

Some of the key products include:

- Air emission inventory for Denmark
- Green-house gas emission inventory for Denmark and Greenland
- Analysis, quality control and reporting of data including monitoring data for nutrient loads to air and water, air quality, nature and biodiversity, fresh and marine waters.
- The Danish Red List

## 6.2 DCE Status

DCE has since the start in 2011 succeeded in becoming a well-known brand for research based environmental advisory services among the main players within the area in Denmark- the ministries, the municipalities, the agricultural sector, environmental NGO's and the private sector. DCE has been able to maintain and widen this position (maintain from the time as the National Environmental Research Institute) which is due to – beside a high scientific level – a clear, independent and stringent organization, a high level of quality assurance and a strict focus on timely delivery. The Faculty of Science and Technology with DCE, the Department of Bioscience and the Department of Environmental Science is Denmark's leading research environment on applied environmental research.

DCE has since the start in 2011 been able to create a platform for environmental information including a frequent newsletter with a high number of subscribers, three publication series and a Danish web site frequently visited. The production of research results is high – e.g. in 2014 in addition to the about 375 scientific papers, nearly 100 scientific reports and a similar number of memos, notes etc. – all publications, which have been subject to the quality assurance described for DCE products, which via the DCE quality system is comparable to an accredited advisory service. DCE is responsible for the annual reporting of all activities and for the production of an annual work program, which presents the main focus areas for research and advisory services within the environmental area for the coming year.

DCE has been able to maintain the position as the scientific focal point for the national monitoring program NOVANA. DCE with the two Departments: Bioscience and Environmental Science are responsible for the scientific basis of the monitoring program e.g. defining relevant monitoring parameters or sampling methods. DCE is responsible for the reporting of the program – both at the specific level (marine, fresh water, terrestrial environment, air pollution) and for the summary report about the general status of the environment, which is presented at the political level to the parliament and to the public. The data from the national monitoring program is frequently the basis for international projects and/or peer reviewed articles.

DCE has extensive experience and plays a central role in connection with international cooperation acting as national or AU representative in a number of international organizations and networks such as HELCOM, OSPARCOM, NORMAN and working groups under the Water Framework and Habitat directives and environmental scientific networks such as PEER, Euraqua and AlterNet. DCE has extensive experience with European and international discussions and national responsibility for data and reporting tasks. In this way, DCE keeps informed about development of thoughts and up-coming policies and also collect information about tenders from e.g. the EU, which is useful for consortia creation for tenders. On top of this, the DCE unit is also actively partner in a number of international projects for e.g. HELCOM and the EU commission.

DCE has as the central unit for research based advisory services the responsibility to support research development, which is requested by the ministries, first of all the Ministry of Environment and Food. In this context a particular role is to keep a holistic and transdisciplinary focus, exploit synergies between the various disciplines in order to offer competitive advisory services. To support such targeted research, the DCE unit is granted “seed money”, which can be allocated to e.g. relevant research projects, projects addressing upcoming environmental issues or to upgrade research expertise for certain scientific areas, where the demand for research based advisory services is high and expected to remain high in the coming years.

## 7 SWOT ANALYSIS

### 7.1 Strengths and weaknesses

The DCE brand is generally well-known and respected for its research based environmental advisory services. The research basis is relevant for society, documented through international peer review publications and scientific reports and oriented towards practical application in solving environmental problems. The quality assurance, analysis and reporting of monitoring data are vital to the environmental management supporting ministries, local authorities and societal sectors based on natural resources. The quality system ensures systematic quality control of products, which in connection with a focus on a holistic approach means that the advisory services with regards to consistency and uniqueness stand out from opinions provided by individual researchers. University policies on publication of data and information and the Danish law on access to public information contribute to a broad based recognition of the independence and impartiality of the research and advice. Long-term research programs supported by the continuous framework agreements have resulted in well-established research groups with broad based collaboration nationally and internationally. Participation in international projects, membership of various European scientific and policy related networks and working groups allow DCE to be aware of the forefront of discussions within the environmental field.

The DCE construction is relatively new, it is based on a matrix structure idea and is not straight forward to integrate within a classical university structure based on individuality, freedom of research topic and self-promotion. The decision making processes are somewhat cumbersome, refocusing and flexibility to adjust to client needs and requests are difficult to practice and branding of DCE can appear confusing, which makes promotion of DCE to current and future clients difficult. The roles and responsibilities of parties within the DCE framework including those involved on a more ad hoc basis are not formulated in a clear-cut way. The DCE core of tasks: research based advisory services are not traditional core university tasks, which means that the understanding of the nature of the work, the required flexibility and prioritization and the administrative needs e.g. concerning an economic model supporting the framework agreements and allowing for the necessary prioritization, are difficult to realize. Integration of the sector research modality of work with the traditional university thinking is not easy because some of the tasks are quite different. Understanding and recognition of those inherent differences may be needed rather than complete harmonization and this calls for changes to the ingrown routines and practices across the board.

The greening of economy approach taken by many countries including the European and also Denmark has a strong focus on green technology particularly in times of economic crisis. In the past the main focus within environmental science was on status and development of environment and nature itself leaving DCE with a relatively limited experience and focus on technologies. Much of the collected data, methodologies and research results are extremely relevant for development and implementation of green technologies and this has become a more prominent part of the activities partnering with the private sector though with room for improvement in the future.

## 7.2 Opportunities and threats

DCE can draw on the disciplines and expertises of the entire university in the implementation of framework agreements, which has been demonstrated within specific areas, but may foster more opportunities in the future. One example is engagement of engineering expertise in development of green technology solutions in collaboration with the private sector. Another is further collaboration with humanity disciplines in development of local solutions. Initiatives at faculty level to increase collaboration with businesses may facilitate the collaboration with the private sector and a stronger focus on green technology through coordination, information sharing and learning across Departments and Centers. Further marketing and exposure of DCE and DCE products and expertises towards the private sector is necessary to create the expected collaboration. Existing networks and partners, various clusters and platforms e.g. the State of Green platform and organisations developing CSR activities would present opportunities for this. Phd scholarship in collaboration with the private sector is another option to increase the collaboration.

The long-term focus and well-established research groups within the DCE topics is a strong foundation for furthering research and development of relevance to authorities at all levels as well as the private sector. The research focus needs to be continuously adjusted and sharpened to maintain relevance and usefulness of the results. Increase collaboration with national and international research groups and organisations could be one option to strengthen DCE research fields. This may require prioritization and increased flexibility to deliver according to societal needs as reflected in the framework agreements.

DCE is engaged in a range of international networks related to the research based advisory services. It is however not exploited systematically with respect to which network to enter, how to use them for research collaboration and collaboration on international advisory activities. DCE has started to engage in international advisory activities, but it is expected that possibilities for expansion exist here. A more systematic approach to the international networking and partnership with better and broader use of the networks would be an important step.

The current focus in the society on economic growth and job creation with less focus on environmental sustainability and in addition the requests for ever increasing implementation efficiency increase the pressure on research funding for environment related topics and funding of the framework agreements. It slowly undermines the involved, long-term established research groups and this uncertainty and apparent lack of priority from the public authority side reduces the attractiveness of the work and may affect quality of the work.

Declining or failing funding of research within the fields “environment” and “nature” is another issues of concern for the research-based advisory services. The focus on development of technology in research funding cover some of the environment topics, but research funding on subjects such as nature and biodiversity is getting more sparse.

## 8 STRATEGY 2016-2020

The strategy has three main areas:

1. Strengthening the high quality advisory services through improved knowledge transfer based on strategic research prioritized according to relevance targeted at supporting environmental policy implementation and greening of the economy.
2. Increased cooperation with authorities including local authorities, the private sector, NGO's, universities and other research organisations to diversify and further develop the exploitation of the continuously developing knowledge base.
3. Increased international collaboration through targeted and improved exploitation of international networks and partnerships

For each area, the priority efforts are presented below related to three types of activities: research, advisory services and private sector collaboration. The latter was chosen to ensure a focus on increased engagement with the private sector.

## 8.1 Strengthening the high quality advisory services

**Strengthening the high quality advisory services through improved knowledge transfer based on strategic research prioritized according to relevance targeted at supporting environmental policy implementation and greening of the economy.**

### Research

To continuously develop the research basis for the advisory services DCE center unit will:

- promote strategic research of relevance for its subject areas and maintain insight into the development of the research agendas at national and European level;
- identify knowledge gaps and research needs and develop research strategies in collaboration with the research groups for selected topics of relevance for environmental management and greening of the economy;
- prioritize the use of research funds within its framework contracts to secure the relevance, strength and credibility of the research base.

### Advisory services

The DCE center unit will:

- strengthen quality by supporting increased scientific publication and continuous attention to implementation, development and improvement of the quality system for advisory services
- improve coordination with collaboration partners e.g. other universities
- develop methods and processes to improve the knowledge transfer from researcher to end-user
- exploit synergies across disciplines and subject areas to strengthen quality and coverage of the advisory services

### Private sector collaboration

The DCE center unit will:

- promote a broader concept of innovation within the research groups to assist them in developing successful research proposals
- support an increasing research collaboration with the private sector e.g. through networking activities and matchmaking events
- support the private sector committees at department and faculty level

## 8.2 Increased national collaboration

**Increased cooperation with authorities including local authorities, the private sector, NGO's, universities and other research organisations to diversify and further develop the exploitation of the continuously developing knowledge base.**

### Research

To continuously develop the research basis for the advisory services the DCE center unit will:

- support collaboration between AU and other universities, research organisations and other research partners e.g. NGOs and the private sector to increase efficiency in exploitation of knowledge e.g. through alignment of research activities to address societal challenges

### Advisory services

The DCE center unit will:

- improve the processes and procedures and the understanding of roles and responsibilities within its framework contracts both internally and externally
- customize the knowledge transfer addressing local authorities including increased dissemination of results, services and products targeted at local authorities
- promote the use of DCE products and services for the private sector e.g. through networking activities, engagement in relevant clusters of companies and CSR related activities.

### Private sector collaboration

The DCE center unit will:

- strengthen the DCE institutional network including agencies, associations, NGOs and research organisations through expansion for the private sector
- increase involvement in private sector networks and partnerships e.g. public private partnership arrangements relevant for the research themes focusing on greening of the economy
- disseminate information on research competences, methods and results targeted at the private sector

## 8.3 International collaboration

**Increased international collaboration through targeted and improved exploitation of international networks and partnerships.**

### Research

To continuously develop the research basis for the advisory services the DCE center unit will:

- Review if necessary adjust the current participation in institutional research networks to make sure the prioritized research topics are represented according to relevance and value
- Improved exploitation of international networks e.g. PEER, Alter-net, Euraqua to identify research partners and fund raising opportunities
- Collaborate with the fund raisers at department level

### Advisory services

The DCE center unit will:

- Improve the collaboration with public authorities as well as the efficiency of participation in international activities related to directives, conventions etc
- Increase international collaboration on advisory services a.o. targeted at EU institutions
- Identify opportunities and promote synergies between international activities, research and advisory services to further develop the knowledge base

### Private sector collaboration

The DCE center unit will:

- Strengthen collaboration with the private sector to identify and engage private sector partners for international projects

## 9 PLAN OF ACTION

The specific actions behind the priority efforts of three main areas of the DCE strategy are:

### 1. Strengthening the high quality advisory services

- 1a. Facilitate at least one matchmaking event each year (Brainnovation Day) within an area of interest to stakeholders
- 1b. Facilitate knowledge gap and synergies analysis process in collaboration with departments and MFVM
- 1c. Discuss new priorities within the framework contract in alignment with department strategies
- 1d. Fund the writing of 2-3 scientific publications from advisory tasks
- 1e. Continued focus on the quality assurance

### 2. Increased national collaboration

- 2a. Invite private sector representatives to the DCE 'Advisory Board' and/or network meetings
- 2b. Build new section directed at the private sector on the DCE website (in collaboration with departments)
- 2c. Be a pro-active partner in the MFVM service check and streamlining of AU framework contracts
- 2d. Produce and promote more Fact sheets in collaboration with local authorities – and identify a viable business model
- 2e. Plan and carry out a national 'scoping workshop' within one or more fields relevant to MFVM
- 2f. Continue active participation in the planning of the 'Natur og Miljø' conference
- 2g. Continued focus on communication strategy i.a. improvement of DCE website and newsletter.

### 3. International collaboration

- 3a. Analyse benefits of existing networks and adjust memberships (Alternet, Euraqua, PEER)
- 3b. Analyse potential new networks and apply for membership
- 3c. Coordinate international activities across DCE/departments (quarterly meetings/status)
- 3d. Work closely with the ST fundraiser network
- 3e. Plan 'Science for the Environment Conference 2017' in a scientific area of relevance to the international research community as well as businesses and authorities
- 3f. Improve the English DCE website

Details of the action plan are provided in the DCE Strategy Cards in Annex A.

## 10 KEY PERFORMANCE INDICATORS

The success of the action plan above is measured by the following Key Performance Indicators (KPI's):

1. Increased attraction of external funding related to DCE advisory services
2. Increased number of peer reviewed publications related to DCE activities
3. Number of PhD thesis published within the DCE subject area
4. Increased number of scientific and technical reports, memos and briefs related to DCE activities
5. Increased collaboration with the private sector
6. Increasing EU funding
7. Increased knowledge and visibility of DCE
8. Strengthening quality of the research based advisory services
9. Research funding for the DCE related research topics is maintained

The details including objectives, goal and way of measuring of the 9 KPI's are included in Annex B.

# 11 ANNEXES

## Annex a DCE Strategy cards

Vision	
Nationally and internationally known and renowned high quality research-based advisory services of wide reach and high significance.	
Mission	
The research-based advisory services support policy implementation and a global greening of the economy.	
Stakeholders	
National and international authorities; private sector; NGO's; universities and research organisations; colleagues; employees.	
Outcome areas	Strategic focus area
Research	Research basis for DCE advisory services is continuously developed
Talent development	–
Education	–
Public sector advice	High quality of the advisory services including improved and streamlined planning and implementation processes and procedures Identification and exploitation of new opportunities through collaboration nationally and internationally Dissemination and promotion of DCE products and services targeted at the public sector
Private sector collaboration	Strengthened private sector engagement Dissemination and promotion of DCE products and services targeted at the private sector
Strategic requirements	
–	
Values	
–	

Research			
Research basis for DCE advisory services is continuously developed			
Strategic goals	Critical success factors	Measureable goals	Initiatives 2016-2020
Strategic research of relevance to the DCE field of work.	AU research groups focus on DCE field of work.	<p>Research strategies for 1-2 topics developed each year.</p> <p>Research funding within the DCE field of work relative to annual turnover maintained (KPI 9).</p> <p>*The 'Science for the Environment' conference was dropped due to lack of timely resources in the departments. DCE is instead supporting smaller conferences held by the departments.</p>	<p><b>2016:</b> Select one thematic area and develop a process together with the relevant departments to identify knowledge gaps and develop research strategies to potentially resolve gaps. <b>Done</b></p> <p>Prioritize the use of available funds to address identified needs (e.g. seed money). <b>Done</b></p> <p>Promote research needs to relevant agencies. <b>Done</b></p> <p>Plan the 4<sup>th</sup> 'Science for the Environment' conference to be held in 2017. <b>Conference dropped*</b></p> <p><b>2016-2020:</b> Facilitate at least one matchmaking event each year (Brainnovation day) within an area of interest to DCE stakeholders. <b>Done and ongoing</b></p> <p><b>2017: Conference dropped</b> 4<sup>th</sup> 'Science for the Environment' conference held.</p> <p><b>2017-2020:</b> Select 1-2 thematic areas annually to identify knowledge gaps and develop research strategies together with the relevant departments to potentially resolve gaps. <b>Done</b></p> <p>Prioritize the use of available funds to address identified needs (e.g. seed money). <b>Done</b></p> <p>Promote research needs to relevant agencies.</p> <p><b>2018: Conference dropped</b> Plan the 5<sup>th</sup> 'Science for the Environment' conference to be held in 2019.</p> <p><b>2019: Conference dropped</b> 5<sup>th</sup> 'Science for the Environment' conference held.</p> <p><b>2020: Conference dropped</b> Plan the 6<sup>th</sup> 'Science for the Environment' conference to be held in 2020.</p>

Research			
Research basis for DCE advisory services is continuously developed			
Strategic goals	Critical success factors	Measureable goals	Initiatives 2016-2020
Improved strategic approach to knowledge generation.	National and international collaboration including the private sector.	DCE is represented in relevant networks and partnerships focusing on policy science dialogues.  Private sector engagement has increased (KPI 5).	<b>2016:</b> Review current engagement in national and international re-search networks and partnerships including public private part-nerships engaging in policy science dialogue. <b>Done</b>  <b>2017:</b> Develop a strategy for DCE approaches to and engagement in policy science dialogues in collaboration with relevant de-partments to increase efficiency in exploitation of knowledge e.g. through alignment of research activities to address societal challenges. <b>Done</b>  <b>2018-2020:</b> Implement the strategy for DCE policy science dialogue to-gether with the relevant departments. <b>Ongoing</b>
Efficient exploitation of relevant international research networks.	Prioritization and flexibility of research groups.	The share of EU funding relative to annual turnover for the DCE field of work increases by app. 2% annually (KPI 6).	<b>2016:</b> Review and if necessary adjust participation in institutional research networks . <b>Done</b>  Establish well-functioning working relationships with fund raisers at department level on DCE participation in institutional research networks. <b>Done and ongoing</b>  <b>2017-2020:</b> Engage departments including fundraisers in activities of the institutional research networks e.g. by prioritization of available funds to support the engagement. <b>Ongoing</b>

Public sector advice			
High quality of the advisory services including improved and streamlined planning and implementation processes and procedures			
Strategic goals	Critical success factors	Quantitative goals	Initiatives 2016-2020
Increased scientific publication within the DCE field of work.	Continued priority for involved departments and research groups.	The research basis for the DCE activities is documented through peer review and the number of publications per annual turnover is continuously increased (KPI 2).	<p><b>2016-2020:</b> Support (financially and otherwise) writing of 2-4 scientific publications annually based on advisory activities. <b>Done</b></p>
An up-to-date and well-functioning DCE quality system for advisory services.	The quality system is well-known and implemented by all participants in the advisory service activities including at department level.	<p>The DCE quality system for advisory services always follows the current ISO 9001 standard.</p> <p>All advisory service products from DCE products have documented quality assurance according to the DCE quality system (KPI 8).</p>	<p><b>2016:</b> Follow-up on the development of the relevant ISO standard and draft a plan for updating if necessary. <b>Done</b></p> <p>Review, formulate and agree on quality assurance procedures (within the DCE quality system framework) for common products with DCA. <b>Done</b></p> <p><b>2016-2020:</b> Disseminate changes to the quality system through various channels such as: news feeds at relevant intranet sites; participation in the 'public sector advisory group' at Department level; presentation at section head meetings and at Department meetings. <b>Plan made</b></p>

## Public sector advice

## High quality of the advisory services including improved and streamlined planning and implementation processes and procedures

Strategic goals	Critical success factors	Quantitative goals	Initiatives 2016-2020
<p>Research based knowledge provided upon request timely and consistent.</p>	<p>Efficient internal and external coordination.</p>	<p>Key clients and collaborating partners (internal and external) express satisfaction on DCE performance.</p>	<p><b>2016:</b>            Be a proactive partner in the MFVM 'service check' and streamlining of AU framework contracts. <b>Done</b></p> <p>Discuss the new priorities within the MFVM framework contract in alignment with Department strategies.  <b>Done</b></p> <p>Draft short and concise paper on 'roles and responsibilities' for participants in public sector advice.</p> <p>Identify potential partners for DCE (advisory services within the fields of environment, nature, energy, climate) across the faculty and investigate the potential for strengthening of quality and benefits through alignment.</p> <p>Review current approaches to training of researchers in public sector advice across universities in DK and selected international universities in collaboration with DCA. <b>Done</b></p> <p><b>2017:</b>            Develop and launch training course for participants in public sector advice in collaboration with DCA. <b>Developed</b></p> <p><b>2018:</b>            Run training course for new staff involved in public sector advice according to needs. - <b>2019</b></p> <p><b>2016-2020:</b>            Work closely with the 'public sector advice' groups at department level and at faculty level. <b>Done and ongoing</b></p>

Public sector advice			
Identification and exploitation of new opportunities through collaboration nationally and internationally			
Strategic goals	Critical success factors	Quantitative goals	Initiatives 2016-2020
Diversify and further develop the exploitation of the continuously developing knowledge base.	Knowledge products and research practices can be aligned with new demands.	Funding from Danish authorities is subject to 2% efficiency cut annually. The percentage of gearing of the funds is increased by 25 % point from 150% (2013) to 175 (2020) (KPI 1).	<p><b>2016:</b> Produce and promote more 'Factsheets' targeted at local authorities and develop a viable business model in collaboration with relevant departments. <b>Idea tested but dropped*</b></p> <p>Analyze benefits of existing networks and potential for new networks and adjust the memberships accordingly (national and international). <b>Done</b></p> <p>Improve English DCE website to attract more international collaboration. <b>Ongoing</b></p> <p><b>2016-2020:</b> Continue active participation in planning of the annual conference arranged by the Danish local authorities: 'Nature and Environment'. <b>Done</b></p> <p>Monitor tenders relevant to the DCE field of work and support Departments in bidding and contracting nationally and internationally. <b>Done</b></p> <p>Coordinate international activities (networks etc.) across DCE/ Departments through regular meetings. <b>Ongoing</b></p> <p><b>*Idea discussed with with local authorities but a business model could not be agreed upon</b></p>

Public sector advice			
Dissemination and promotion of DCE products and services targeted at the public sector			
Strategic goals	Critical success factors	Quantitative goals	Initiatives 2016-2020
Smooth and efficient transfer of knowledge to end users.	Dissemination activities reach target groups.	DCE is known and renowned for research based advisory services within its subject areas: environment, nature, climate and energy. This is reflected in frequent reference in Danish media. Annual increase by 5% (KPI 7).	<p><b>2016:</b> DCE communication strategy is drafted including e.g. improved targeting of the newsletter, targeted information for the private sector and improvement of the DCE website particularly the English version. <b>Done</b></p> <p>Establish a working relationship with the faculty communication network. <b>Done</b></p> <p>Draft principles and procedures for communication and stakeholder involvement for research based advisory services within the DCE framework. <b>Done</b></p> <p>Design training courses on 'freedom of speech', engagement in communication and debate. <b>Done</b></p> <p><b>2017-2020:</b> Implementation of DCE communication strategy. <b>Done and ongoing</b></p> <p>Conduct training courses on 'freedom of speech', communication and debate. <b>Done</b></p> <p>Maintain DCE website including English website. <b>Ongoing</b></p>
Increased access to data and data services products collected and developed as part of the research based advisory work and research activities by DCE.	Collaboration partners agree on public access.	DCE data and information is used and regarded as the key source to environmental data within its subject areas: environment, nature, climate and energy.	<p><b>2016:</b> Draft principles and procedures for public access to information including improved access to data and data services and products. <b>Done</b></p> <p>Draft DCE data strategy involving relevant departments. <b>In process</b></p> <p><b>2017:</b> Improve DCE website to provide easy access to data and data services. <b>Done and ongoing</b></p> <p><b>2017-2020:</b> Implement DCE data strategy. <b>Awaits strategy</b></p>

Industrial collaboration			
Strengthened private sector engagement			
Strategic goals	Critical success factors	Quantitative goals	Initiatives 2016-2020
Strengthen the DCE institutional network at national level involving the private sector.	The DCE knowledge base is regarded as sufficiently relevant for the potential private partners to motivate the involvement.	The DCE network is extended with more private sector partners.  DCE is represented in relevant networks and partnerships with the private sector.	<p><b>2016:</b> Invite private sector representatives to the DCE 'Advisory Board' and/or network meetings. <b>Done</b></p> <p>Review current participation in networks and partnerships with private sector engagement and explore new potential networks. <b>Done</b> Adjust network activities accordingly. <b>Done</b></p> <p><b>2017-2020:</b> Annual meeting with strategic private partners to identify and prioritize needs and requests for research and advisory services and identify potential partners for cooperation. <b>Done and ongoing</b></p> <p>Design and implement a new form of meeting with the DCE Advisory Board bringing in more focus on making use of their sectoral knowledge and bringing together the different stakeholders in joint development and co-creation of innovative themes and approaches for research as well as modes of collaboration with the outside world. <b>Done and ongoing</b></p> <p>Engage in activities of selected networks related to e.g. green growth, CSR etc. <b>Done and ongoing</b></p>
Attract project collaboration with private sector partners.	The researchers from the DCE departments become aware of the potential research opportunities in private sector collaboration and vice versa.	Collaboration of all forms with the private sector is increased. The goal is 5% increase annually (KPI 5).	<p><b>2016-2020:</b> Work closely with the 'industrial collaboration' groups at department level and at faculty level. <b>Done and ongoing</b></p>

Industrial collaboration			
Strengthened private sector engagement			
Strategic goals	Critical success factors	Quantitative goals	Initiatives 2016-2020
Identify and engage private sector partners for international projects.	Potential private sector partners see benefits of international research collaboration.	<p>Collaboration of all forms with the private sector is increased. The goal is 5% increase annually (KPI 5).</p> <p>DCE funding for EU per mio DKK annual turnover increases by 2% annually (KPI 6).</p> <p>The share of research funding within the DCE field of work is maintained (KPI 9).</p>	<p><b>2016:</b> Draft a list of priority topics lacking private partners for research projects together with the departments. <b>Done</b></p> <p><b>2017:</b> Conduct pilot project: Identify potential partners for research projects within a selected area (aligned with Horizon2020 calls or Danish research priorities) and arrange matchmaking event. <b>DCE supports departments</b></p> <p>Explore meetings and events of networks and partnerships to identify potential partners for research projects. <b>Done and ongoing</b></p> <p><b>2018-2020:</b> Evaluate outcome of pilot project and design further activities. <b>DCE supports departments</b></p>
Promote a broader concept of innovation in research groups.	The DCE related research groups engage further in private sector related approaches.	Collaboration of all forms with the private sector is increased. The goal is 5% increase annually (KPI 5).	<p><b>2016-2020:</b> Work closely with the faculty level 'industrial collaboration group' in designing training and assistance facilities for promotion of innovation and entrepreneurship among students as well as university staff. <b>Ongoing</b></p>

Industrial collaboration			
Dissemination and promotion of DCE products and services targeted at the private sector			
Strategic goals	Critical success factors	Quantitative goals	Initiatives 2016-2020
Increased visibility of DCE.	The DCE knowledge base is regarded as sufficiently relevant for the potential private partners.	DCE is known and renowned for research based advisory services within its subject areas: environment, nature, climate and energy. This is reflected in frequent reference in Danish media. Annual increase by 5% (KPI 7).	<p><b>2016:</b> Build new section on the DCE website targeted at the private sector. <b>Done</b></p> <p><b>2016-2017:</b> Engage private sector partners in planning of the 4<sup>th</sup> 'Science for the Environment' conference. <b>Conference dropped</b></p> <p><b>2017-2020:</b> Maintain and further develop private sector targeted DCE website. <b>Ongoing</b></p> <p><b>2018-2019:</b> Engage private sector partners in planning of the 5<sup>th</sup> 'Science for the Environment' conference. <b>Conference dropped</b></p> <p><b>2020:</b> Engage private sector partners in planning of the 6<sup>th</sup> 'Science for the Environment' conference. <b>Conference dropped</b></p>

## Annex b DCE KPIs 2014-2020

Objective	KPI	KPI goal	KPI result	KPI objective
<b>1. Financing:</b> <i>Increased attraction of external funding related to advisory services</i>	Spending on external funding for DCE related activities in percentage of basic funding from MFVM (gearing)	<b>2014: 163 %</b> <b>2015: 154 %</b> <b>2016: 149 %</b> <b>2017: 160 %</b> <b>2018: 165 %</b> <b>2019: 170 %</b> <b>2020: 175 %</b>	KPI-basis: 149 % 2014: 138 % 2015: 201 % 2016: 181 % 2017: 205 % 2018: 2019: 2020:	Funding from Danish authorities is subject to 2% efficiency cut annually. The percentage of gearing of the funds is increased by 25% from 150% to 175%.
<b>2. Publications:</b> <i>Increased number of publications</i>	Number of peer reviewed publications related to DCE activities per mio. DKK turnover	<b>2014: 1,06</b> <b>2015: 1,20</b> <b>2016: 1,25</b> <b>2017: 1,30</b> <b>2018: 1,35</b> <b>2019: 1,40</b> <b>2020: 1,45</b>	<b>KPI-basis: 1,17</b> 2014: 1,26 2015: 1,12 2016: 1,33 2017: 1,27 2018: 2019: 2020	The research basis for the advisory services is documented through peer review and continuously increased (app. 4% annually)
<b>3. Talent mass:</b> <i>Number of PhD thesis</i>	Number of PhD thesis published within the DCE subject area. Running 3-year average.	<b>2014: 14</b> <b>2015: 15</b> <b>2016: 16</b> <b>2017: 17</b> <b>2018: 18</b> <b>2019: 19</b> <b>2020: 20</b>	<b>KPI-basis: 10</b> 2014: 12 2015: 16 2016: 14 2017: 12 2018: 2019: 2020:	The talent mass is continuously developed within the DCE subject areas: environment, nature, climate and energy. Increase by 1/3 until 2020.
<b>4. Public sector consultancy:</b> <i>Increased number of consultancy publications</i>	Number of consultancy publications (scientific reports and memorandums to government agencies and institutions) registered in PURE as <i>Consultancy</i> for DCE per mio. DKK turnover	<b>2014: 0,8</b> <b>2015: 0,85</b> <b>2016: 0,9</b> <b>2017: 0,95</b> <b>2018: 1,05</b> <b>2019: 1,0</b> <b>2020: 1,05</b>	<b>KPI -basis: 0,8</b> <b>2014: 0,73</b> <b>2015: 0,79</b> <b>2016: 0,59</b> <b>2017: 0,51</b> <b>2018:</b> <b>2019:</b> <b>2020:</b>	The research base is used to the benefit of society. Transparency and documentation of the engagement is prioritized resulting in increasing number of publications per mio. DKK turnover (app. 5% annually).

<b>5. External collaboration:</b> <i>Increased collaboration with the private sector</i>	Number of DCE related projects involving private sector partners	<b>2014: -</b> <b>2015: 95</b> <b>2016:100</b> <b>2017: 105</b> <b>2018:110</b> <b>2019: 115</b> <b>2020:120</b>	<b>KPI-basis: 90</b> <b>2014: -</b> <b>2015:</b> <b>2016:</b> <b>2017:</b> <b>2018:</b> <b>2019:</b> <b>2020:</b>	Collaboration of all forms with the private sector is increased. The goal is 5% increase annually.
<b>6 EU-funding</b> <i>Increasing EU funding</i>	DCE funding annually from EU increases per mio. DKK turnover	<b>2014: 8,8%</b> <b>2015: 7,4%</b> <b>2016: 6,0%</b> <b>2017: 7,1%</b> <b>2018:7,5%</b> <b>2019: 8,0%</b> <b>2020: 8,5%</b>	<b>KPI-basis: 7,3%</b> <b>2014: 8,5%</b> <b>2015: 5,7 %</b> <b>2016: 3,3 %</b> <b>2017: 5,6 %</b> <b>2018:</b> <b>2019:</b> <b>2020:</b>	Research funding from EU is important for development of the DCE research base. The share of EU funding increases by app 2% annually.
<b>7 Branding</b> <i>Increased knowledge and visibility of DCE</i>	Number of DCE hits recorded by Infomedia	<b>2014: 940</b> <b>2015: 990</b> <b>2016:1000</b> <b>2017: 1050</b> <b>2018:1100</b> <b>2019: 1150</b> <b>2020:1200</b>	<b>KPI-basis: 900</b> <b>2014: 990</b> <b>2015: 1012</b> <b>2016: 1600</b> <b>2017: 1400</b> <b>2018:</b> <b>2019:</b> <b>2020:</b>	DCE is known and renowned for research based advisory services within its subject areas: environment, nature, climate and energy. This is reflected in frequent reference in Danish media. Annual increase by 5%.
<b>8. Quality</b> <i>Strengthening quality of the research based advisory services</i>	All advisory service products from DCE have documented quality assurance according to the DCE quality system.	<b>2014: 80%</b> <b>2015: 85%</b> <b>2016: 90%</b> <b>2017: 95%</b> <b>2018:97%</b> <b>2019: 99%</b> <b>2020:100%</b>	<b>KPI-basis: 75%</b> <b>2014: -</b> <b>2015: 90.4 %</b> <b>2016:</b> <b>2017:</b> <b>2018:</b> <b>2019:</b> <b>2020:</b>	Focus on implementation of the DCE quality system.
<b>9. Funding for strategic research</b> Research funding for the DCE related research topics is maintained	Spending on research funding (internal and external sources) for DCE related research topics relative to annual turnover is maintained.	<b>2014: 0,4</b> <b>2015: 0,4</b> <b>2016: 0,4</b> <b>2017: 0,4</b> <b>2018: 0,4</b> <b>2019: 0,4</b> <b>2020: 0,4</b>	<b>KPI-basis: 0,4</b> <b>2014: 0,4</b> <b>2015: 0,6</b> <b>2016: 0,5</b> <b>2017: 0,6</b> <b>2018:</b> <b>2019:</b> <b>2020:</b>	Strategic research within the DCE field of work is available to maintain the research-base of the advisory services. The share of research funding is maintained over the years.



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