Copenhagen Climate Adaptation Plan & Clusters as a tool to accelerate implementation

CTCN Webinar
Nicolai Sederberg Rottbøll, CEO Quercus Group
Bo Asmus Kjeldgaard, CEO Greenovation
Nicolai Sederberg Rottbøll

- CEO & founder **QUERCUS GROUP**
- Initiator and director of Copenhagen Cleantech Cluster (CCC)
- Cluster Development experience from Asia, Africa, USA, South-East Europe, and Western Europe
- Green Growth advisor to the Green Growth Collaboration Secretariat, Kenya
Bo Asmus Kjeldgaard

- CEO Greenovation
- Former Mayor of Copenhagen
- Actively involved in developing Copenhagen’s Climate Adaptation Plan
- Involved in green initiatives such as development of wind turbines, harbor bath, super bike lanes, 100,000 more trees, climate adaptation strategy.
The Climate Technology Centre and Network

- Operational arm of the UNFCCC Technology Mechanism
- Consortium of organizations from all regions + Network
- Mission to stimulate technology cooperation and enhance the development and deployment of technologies in developing countries
- Technologies include any equipment, technique, knowledge and skill needed for reducing greenhouse gas emissions and for adapting to climate change effects
- Core services include:
  - Technical assistance to developing countries
  - Knowledge platform on climate technologies
  - Support to collaboration and partnerships
CTCN Technical Assistance

Support to remove barriers to technology transfer
✓ Identification and prioritization of technology
✓ Feasibility analysis
✓ Deployment of technologies
✓ Support to identify funding for scale-up
✓ Support legal and policy frameworks

Country-driven
• Any organization from developing countries can request
• Request endorsed and submitted by the NDE

Fast and easy access to assistance
• User-friendly access: 4-pages submission, in all UN languages
• Appraisal of request within 1-2 weeks and response design within 2-8 weeks

CTCN selects and contracts relevant experts
• Assistance provided through Consortium and Network (value up to 250,000 US$)
• Collaboration with financial organizations to trigger funding
## CTCN Technical Assistance

**Support to remove barriers to technology transfer**
- Identification and prioritization of technology
- Feasibility analysis

<table>
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<tr>
<th>Country</th>
<th>Request Title</th>
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<td>Design of Biodiversity Monitoring Network in the context of Climate Change</td>
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<td>Colombia</td>
<td>National Adaptation Monitoring System</td>
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<tr>
<td>Cote d'Ivoire</td>
<td>Mise en place d'un Système d'Information Environnementale (SIE) capable de guider le choix d'une bonne politique de développement durable et de favoriser une gestion optimale des questions de changements climatiques.</td>
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<tr>
<td>Mali</td>
<td>Renforcement de la mise en œuvre d'actions d'adaptation aux changements climatiques et de Développement propre par les communautés rurales au Mali</td>
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<tr>
<td>Mali</td>
<td>Etude de faisabilité technique et économique pour lever les barrières a l'implantation de technologies de séchage et stockage de gombo, mangue et pommes de terre pour soutenir la sécurité alimentaire</td>
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<td>Namibia</td>
<td>Transformative water harvesting plan for Namibia</td>
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<td>Dominican Republic</td>
<td>A Community based early Warning System in Every pocket from Santo Domingo, D. N.</td>
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<td>Capacity Building in Ecosystem-based Methods and Green Infrastructure for Sustainable Agriculture Intensification and Disaster Risk Management</td>
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<td>Optimiser l'accès de la Guinée aux financements de l'adaptation aux changements climatiques</td>
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<td>Madagascar</td>
<td>Création d'un centre de développement de technologies et d'éducation aux changements climatiques</td>
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<tr>
<td>Ecuador</td>
<td>Alternativas para la implementación de sistemas de aprovechamiento energético a partir de desechos en pequeños y medianas granjas pecuarias</td>
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<tr>
<td>Ecuador</td>
<td>Water desalination solar technologies for supplying drinking water in dry zones of Ecuador</td>
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CTCN Technical Assistance

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Support to remove barriers to technology transfer

- Identification and prioritization of technology
- Feasibility analysis

Water

Agriculture & Forestry

Climate Resilience

Early Warning & Environmental Assessment

Infrastructure, Transport & Urban Design

Marine & Fisheries

Coastal Zones

Human Health

Agriculture & Forestry

Water
Join the Network of the CTCN!

Network members:

- Bid to provide **technical assistance** to meet identified developing country needs and gaps
- And contribute to CTCN **Technology Library**, an online system indexed by category with detailed information on use and provider
How to Use GoToWebinar

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Sustainable cities - Copenhagen Climate Plan

Copenhagen Climate Adaptation Plan & Clusters as a tool to accelerate implementation

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THE FUTURE OF BIG CITIES

CHALLENGES AND CONSEQUENCES OF PASSIVITY
- global warming
- storms
- desertification
- flooding
- unemployment
- urbanization
- traffic/mobility challenges
- poor waste management
- energy insufficiency
...

ACTIVE STAKEHOLDERS
- model for development
- long term strategy
- sustainable development
- green growth
- citizens dialogue
- renewable energy
- stakeholder engagement
- smart city
1. Copenhagen 2025 Climate Plan
2. Copenhagen Climate Adaptation Plan
3. Clusters as an accelerating tool for climate adaptation
4. Topics and ways to keep in touch
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CPH 2025 CLIMATE PLAN

Climate and Green Growth - Putting Visions into Practice
Copenhagen as driver for sustainable innovation

CO2 Neutral

Bo Asmus Kjeldgaard
Greenovation
THE COPENHAGEN STORY

GLOBAL VIEW

Quality of life
- Safe
- Diverse
- Leisure
- Convenience

WORLD’S FIRST CARBON NEUTRAL CAPITAL BY 2025

Sustainability
- Carbon neutral
- Clean air & water

Growth
- Knowledge
- Innovation
- Employment
- Investments

USER INVOLVEMENT
1000 new inhabitants every month

20% increase to 2025

670,000 in 2025
COPENHAGEN AT THE TOP

"Copenhagen, Most Liveable City 2013 + 2014"
MONOCLE

"European Green Capital 2014"
THE EUROPEAN COMMISSION

"Copenhagen, the greenest major city in Europe"
SIEMENS GREEN INDEX

"Copenhagen Named World’s Healthiest City"
CNN, 2014

"Copenhagen - Smartest City in Europe"
BOYD COPEN - SMART CITY INDEX 2012 + 2013

CPH 2025 CLIMATE PLAN
CPH 2025 CLIMATE PLAN

OUR FOCUS

CPH 2025 Climate Plan

- Energy Consumption
  - Retrofitting
  - Low energy in new build
  - Solar panels
  - Smart City

- Energy Production
  - Wind turbines
  - Biomass
  - Geothermal
  - Waste

- Mobility
  - City of Cyclists
  - New fuel types
  - Public transportation
  - ITS
  - Mobility management

- City Administration
  - Buildings
  - Transport
  - Procurement
  - Street Lighting

Greenovation
ENERGY CONSUMPTION

MAJOR GOALS FOR 2025

- 20% reduction in heat consumption
- 20% reduction of electricity consumption in commercial and service companies
- 10% reduction of electricity consumption in households
- Installation of solar cells
ENERGY CONSUMPTION

MAIN INITIATIVES

• Improvement of building structures and conditions
  • Strategy for reducing the energy consumption in CPH
  • New financial and organisational models

• Energy efficient buildings in CPH
  • Model for energy savings in the commercial and service companies

• Dissemination of solar panels
• Smart City, Open data Portal, Copenhagen Connecting
ENERGY PRODUCTION

MAJOR GOALS FOR 2025

• Carbon neutral district heating in CPH
• Electricity production is based on wind and biomass
• Plastic waste is separated
• Biogasification of organic waste
ENERGY PRODUCTION

MAIN INITIATIVES

- 100 wind turbines before 2025; onshore and offshore
- Production of heat and power based on biomass
- Geothermal, heat-pumps and solar heat

- Waste in the energy system
  - New high-tech waste treatment centre
  - Recycling of plastic and organic waste
MOBILITY

MAJOR GOALS FOR 2025

• 75% of all trips in Copenhagen are on foot, by bike or public transport
• 50% of trips to work or school in Copenhagen are by bike
• 20% more passengers use public transport
• 20-30% of all light vehicles run on new fuels
  - electricity, hydrogen, biogas or bioethanol
• 30-40% of all heavy vehicles use new fuels
MOBILITY

MAIN INITIATIVES

• On the way to being the world’s best city for cyclists
  • PLUSnet of cycle tracks with three lanes
  • Cycle Super Highways

• Cars on electricity, hydrogen and biofuels
  • Development and demonstration projects
  • Electric charging points and hydrogen filling stations

• Wider use of public transport
  • Experiments with electricity and biofuels in buses

• Intelligent traffic management improves traffic flow
CITY ADMINISTRATION INITIATIVES

MAJOR GOALS FOR 2025

• Reduce energy consumption in municipal buildings by 40%
• Municipal new buildings meet 2020 Low Energy Class
• Vehicles run on electricity, hydrogen or biofuels
• The energy consumption for street lighting is halved
• 60,000 sq meters solar panels
CITY ADMINISTRATION INITIATIVES

MAIN INITIATIVES

- Energy retrofitting of existing buildings
- New buildings with low energy consumption
- Pilot projects for climate retrofitting and climate-adapted low-energy new buildings
- Installing solar panels on municipal buildings
- Energy efficient street lighting
CPH 2025 CLIMATE PLAN

CARBON NEUTRAL IN 2025

Ambitious but realistic!

1995 - 2016
40% reduction of CO2
CPH 2025 CLIMATE PLAN

STAKEHOLDER INVOLVEMENT

Focus areas and stakeholders contributing to the CPH 2025 Climate Plan.
CPH 2025 CLIMATE PLAN

PARTNERSHIPS AND CLUSTERS

KOBENHAVNS UNIVERSITET
AALBORG UNIVERSITET
SIEMENS
ROCKWOOL
ABB
Power and productivity for a better world™
HENNING LARSEN ARCHITECTS
Schneider Electric
DTU
Technical University of Denmark
COPENHAGEN CLEANTECH CLUSTER
GREENOVATION
QUERCUS GROUP
CPH 2025 CLIMATE PLAN

- 100 windturbines
- 4 powerplants on biomass
- 98 % district heating

- 40 % reduction of energy consumption in own buildings
- All vehicles on new fuels

20 % reduction of heating consumption in buildings in Copenhagen

- 75 % of all trips on foot, bike or public transport
- 20 % increase in public transport
CPH 2025 CLIMATE PLAN

THE ROAD TO COPENHAGEN 2025

COMMITMENT
• Strong political commitment in the City Council
• Financial support to new initiatives

COLLABORATION
• Broad stakeholder involvement
• New partnership models

COORDINATION
• Common business plans

COMMUNICATION
1. Copenhagen 2025 Climate Plan
2. Copenhagen Climate Adaptation Plan
3. Clusters as an accelerating tool for climate adaptation
4. Topics and ways to keep in touch
CPH CLIMATE ADAPTATION PLAN

The opportunity of adaptation

Adaptation

Bo Asmus Kjeldgaard
Greenovation
THE ADAPTATION PLAN

- Inspired by cities like New York, London and Rotterdam
- Work started in 2009
- Plan finally approved by City Council in August 2011
- Impact of future weather in Copenhagen
- An estimated implementation period of 30-50 years
- Focus on opportunities of climate change
THE OPPORTUNITIES OF ADAPTATION

- Focus on urban spaces
- Green and blue urban spaces
- Developing a concept for the integration of water in the urban space
- Green adaptation – using the synergies to create green corridors and hopefully increase biodiversity
- Synergies – it saves time and money
FUTURE WEATHER IN COPENHAGEN

- Warmer
- Wetter
- Wilder
JULY 2011 - THE CITY IS VULNERABLE

- 150 mm rain in 2 hours
- Damages close to 1 billion euro
- Damages to critical infrastructure
- A game changer for the city
- Development of a Cloudburst management Plan
THE GAME CHANGER

• High political attention - national and local
• More speed - and “to hell with uncertainties”
• Change in legislation - new finance mechanisms to enable surface solutions
FOLLOWING THE NATURAL FLOW OF WATER AND CREATING A NEW INFRASTRUCTURE
7 WATER CATCHMENTS IN THE CITY
TYPES OF SOLUTIONS

- Cloudburst boulevards – transporting water
- Retention boulevards – delaying water
- Central delays – for storing water
THE IMPLEMENTATION PLAN

• 300 projects
• Investment of 1.5 billion USD
• 20 years construction time
• Sound business case
COOPERATION AND CO-CREATION

- HOFOR – Greater Copenhagen Utility
  Close partnership in all aspects

- Citizens
  Will be involved in all the projects.
  Partnerships on private land
- Organisations

- Other municipalities
  Key as water does not respect administrative boundaries

- Local committees and neighbourhood regeneration
  Local anchoring – and local cooperation with local knowledge
Adaptation the Copenhagen way interferes a lot with different planning AGENDAS:
- When engineers meet architects
- When planners meet the environmentalists
- And they all meet the economists
- And then we haven’t even mentioned the legal experts…

We have to work a little bit for sweet music to appear.
SKT. KJELDS – A CLIMATE QUARTER IN COPENHAGEN

- Residential neighbourhood with 15,000 residents
- Local regeneration and adaptation go hand in hand
- Urban planning, refurbishing buildings and improving urban spaces
- Involving the public in the development of the neighbourhood
THE STORM WATER STRUCTURE OF THE NEIGHBOURHOOD
TAASINGE SQUARE [Tåsingepladsen] – THE FIRST WATER PARK
TAASINGE SQUARE [Tåsingepladsen] – THE FIRST WATER PARK
ENGHAVEPARKEN
ENGHAVEPARKEN
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CLUSTERS AS AN ACCELERATING TOOL FOR CLIMATE ADAPTATION

Nicolai Sederberg Rottbøll

QUERCUS GROUP
CLUSTERS AS AN ACCELERATING TOOL FOR CLIMATE ADAPTATION

“There are many market opportunities in this cluster project. Not only in the EU but also in the rest of the world, and it can mean great job creation for other European countries”

- Commissioner Johannes Hahn
THE CASE OF Copenhagen Cleantech Cluster

1. Context of the Copenhagen Cleantech Cluster
2. How we built up CCC
3. A few useful tools
WHAT IS A CLUSTER

“[Clusters are] geographic concentrations of inter-connected enterprises, specialised suppliers, service providers, firms in related industries, and associated institutions in particular fields that compete but also cooperate.”

Michael Porter, Harvard Business School
WHY A CLUSTER APPROACH

“Clusters drive innovation, productivity and competitiveness through collaboration between business, research institutions and public authorities.”
WHY CCC?

NEED FOR A COORDINATING BODY

Cleantech revolution
The next big industrial

International focus on Copenhagen

Lack of coordination between initiatives and players

Great political will

OVERVIEW needed
DENMARK HAS A LONG HISTORY OF SUSTAINABLE GROWTH

![GDP, energy use and CO2 emissions in Denmark](chart)

Index 1990=100

- **GDP 2010 fixed**
- **Gross energy use, corrected**
- **CO2 emissions**
FIRST MOVER

1974 - creates the world’s first environmental protection law

1978 - the first country to install wind turbines

1985 - a complete ban on nuclear power

1991 - opens the world’s first offshore wind farm

2013 - opens the world's largest wind turbine R&D test facilities

Today, wind provides 34% of Denmark’s electricity consumption … the highest level of wind power integration in the World

2020 - wind will provide 50% of the electricity supply
ACTIVITIES AND DECENTRALIZED ORGANISATION

INTERNATIONAL OUTREACH
Knowledge transfer
Collaboration

MATCHMAKING
Partnerships & Networks

FACILITATION
Communication & Coordination

TEST & DEMONSTRATION
Proof of concept

INNOVATION & ENTREPRENEURSHIP
Support for start-ups

Risø DTU
National Laboratory for Sustainable Energy

COPENHAGEN CAPACITY

SCION DTU

Symbion

DHI

KØBENHAVNS UNIVERSITET

energymAP
Your webguide to climate solutions

QUERCUS GROUP
MISSION AND GOALS

MISSION

• Increased growth for new and existing companies, while attracting foreign companies to the cluster

GOALS

• 1,000 new jobs
• 30 new research & innovation collaborations
• Collaborate with 15 international clusters
• Growth and momentum of 25 entrepreneurs
• Host a minimum of 200 events
• Create a self-sustaining organisation that can fly on its own without EU-funds after 5 years
SOME OF THE RESULTS

• 15 new companies established
• 64 new research collaborations
• 38 new company partnerships
• Attracting 12 international companies
• Supporting 126 entrepreneurial businesses
• New projects among cluster stakeholders amounting to 100+ mil. DKK
• Self-sustaining organisation (CLEAN)
TOOLS

APPROACH TO CLUSTER DEVELOPMENT

1. Know your cluster
2. Manage your stakeholders
3. Vision, Mission and Goals
4. Define your activities
5. Organise your cluster
6. Finance your cluster
7. Communicate your cluster
8. Evaluate your cluster
STRATEGIC FOCUS

- Research and networking
- Cluster expansion
- Policy action
- Innovation and technology
- Commercial cooperation
- Education and training
STRATEGIC DILEMMAS

- Services
- Political activist
- Outside-in
- Branding
- Business
- Focus

- Development
- Pacifist
- Inside-out
- Network
- Technology
- Diversity
WRAP-UP

1. Context of the Copenhagen Cleantech Cluster
2. How we built up CCC
3. A few useful tools
1. Copenhagen 2025 Climate Plan
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4. Topics and ways to keep in touch
HOW CAN WE HELP IN THE AREA OF SUSTAINABILITY?
WE CAN HELP

MAPPING – analysis and reports
STRATEGY – sustainable city, green growth, better quality of life
COMMUNICATION with stakeholders
BUSINESS FIELD TRIPS TO COPENHAGEN
IMPLEMENTATION PLAN
DECISION MAKING
CLIMATE PLAN

Do not hesitate to:
• CALL +45 27152000
• SEND AN EMAIL: bo@greenovation.com
WE CAN HELP

CLUSTER DEVELOPMENT
GREEN GROWTH POLICY FORMULATION
CLEANTECH MARKET ANALYSIS
FACILITATION OF INNOVATIVE PARTNERSHIPS

Do not hesitate to:
• CALL +45 29 49 45 61
• SEND AN EMAIL: nicolai@quercus-group.com
THANK YOU & LET’S KEEP IN TOUCH!

Nicolai Sederberg Rottbøll
+45 29 49 45 61
nicolai@quercus-group.com
Website: www.quercus-group.com
Linkedin: www.linkedin.com/company/quercus-group
Twitter: www.twitter.com/QuercusGroup

Bo Asmus Kjeldgaard
+45 27152000
bo@greenovation.dk
Website: http://www.greenovation.dk/english/