



CALL COPENHAGEN
CLIMATE ADAPTATION LIVING LAB



COMPANY PROFILE



About CALL Copenhagen



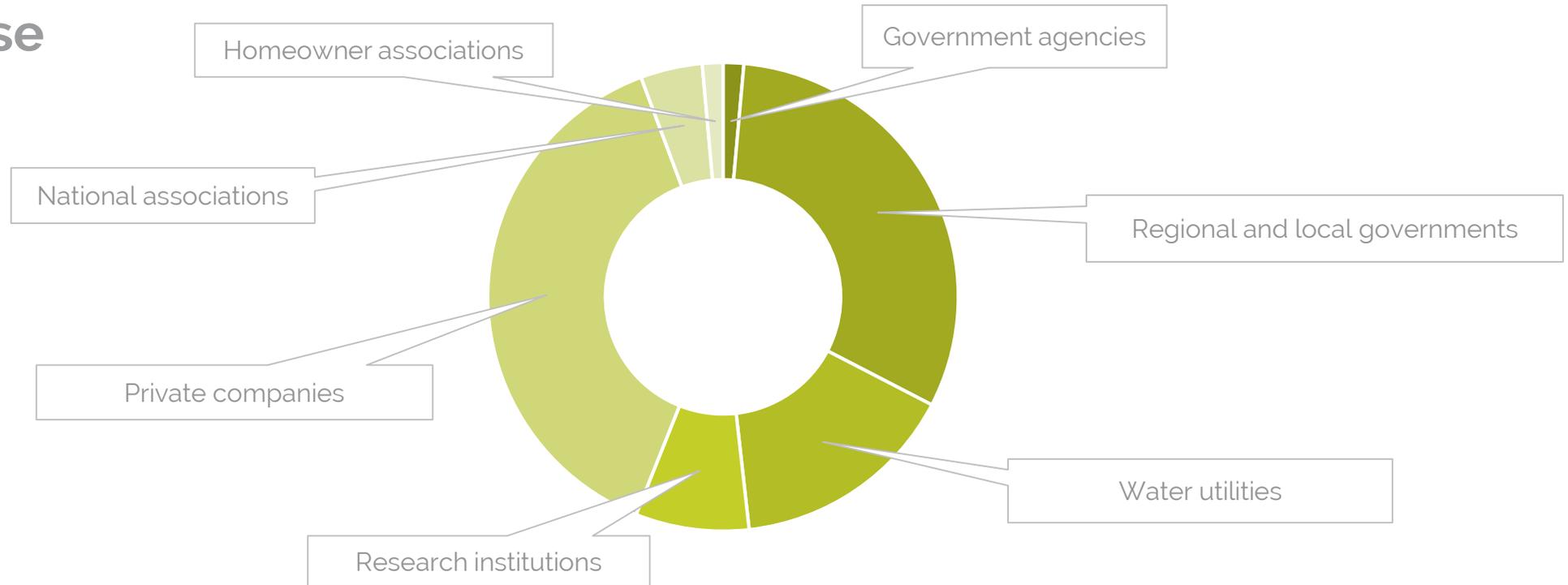
CALL Copenhagen is a not for profit living lab established in 2016 to support a faster and market driven upscaling of sustainable climate adaptation solutions.

CALL Copenhagen is an independent legal entity under Danish law, as a part of the Danish national climate adaptation network, with almost 150 paying members comprising a majority of the most important stakeholders in Danish climate adaptation.

Through its membership base CALL has unique access to the experiences, priorities and needs of the Danish water sector.



Member base



Funding

The living lab is financed by membership fees as well as externally funded projects, and provision of specific services.

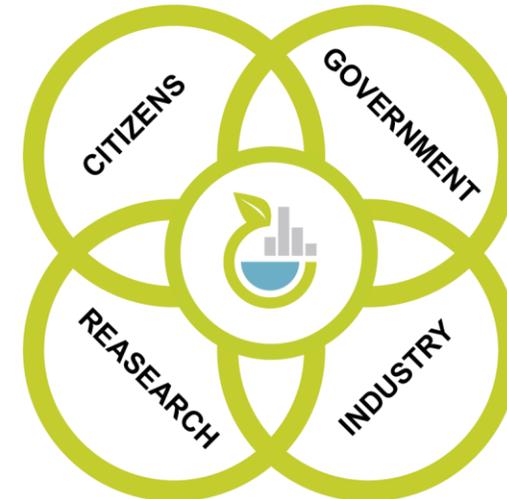
The Climate Adaptation Value Chain



The development of sustainable climate adaptation solutions requires the collaboration between all relevant public and private stakeholders including citizens to solve the often complex problems.

CALL Copenhagen helps members specify and prioritize their key problems and take part in specific innovation projects.

We bring problem owners and innovative technology providers together with science resources and drive them through the necessary steps from development to marketing. From climate adaptation problem to marketable solution.

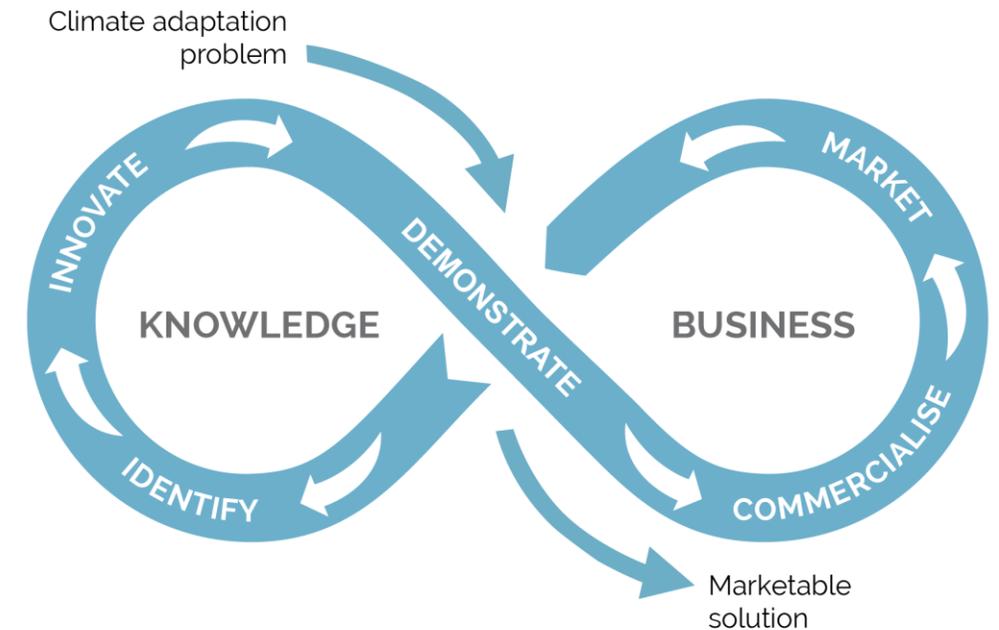




Our Services

The living lab works to:

- **Identify** market potential and specify innovation needs
- Team up **innovative** members and partners and facilitate innovation actions
- **Demonstrate** solutions in full scale and document the effects of new solutions
- Develop implementation strategies and viable business models (**commercialise**)
- Disseminate knowledge and results and promote solutions in new and existing **markets**



The Cloudburst Valve

The Cloudburst Valve is a simple solution for homeowners to install themselves. It is activated only during intense rainfalls and discharge the rain water from the roof to the surrounding terrain instead of the sewer, where the capacity is too limited to handle the large and sudden amounts of water.

CALL role and contribution

Full scale demonstration has proved it possible to decouple 40-50 % of roof surfaces in sururban areas, which takes enough pressure off of the sewer system to avoid it from overflowing in many cases.

CALL Copenhagen has helped problem owner and solution provider

- Identify the market barriers and opportunities
- Set up and facilitate a full scale demonstration and documentation project
- Develop a viable business model and implementation plan
- Disseminate results and promote the solution

Results

A system prototype including sales, installation and maintenance procedures has been demonstrated and validated in an operational urban water drainage environment in collaboration with the local water utility company.

The technology is proven capable of increasing the de facto capacity of the surrounding sewer system at a lower cost.

In a Danish context further business model innovation is necessary to overcome regulatory framework conditions challenging the water utility ownership of privately installed system components.



www.callcopenhagen.dk/cloudburstvalve

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Catchment Monitoring

A system is tested to monitor the hydrological functionality and capacity of the catchment to support the collaborative impact assessment of 1) sea water level rise 2) increased rainstorm frequency and intensity and 3) summer droughts and changed precipitation pattern. The catchment spans 8 different local governments, 3 water utilities, rural and urban areas, and lack of capacity is a source of conflict among the different end-users.

CALL role and contribution

In close collaboration with industry partners, a novel monitoring system has been installed to provide real-time measurements of all important water flows and bodies in the catchment including riverine discharge, precipitation, storm water drainage flow and groundwater levels.

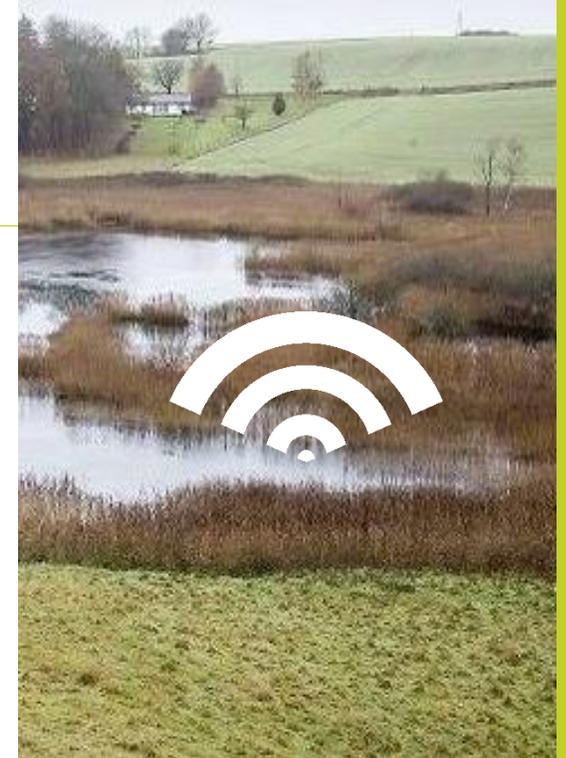
CALL Copenhagen has helped problem owners and technology providers

- Set up a public-private innovation partnership
- Facilitate a full scale demonstration and documentation project
- Test and develop next level water management methodologies and technologies
- Demonstrate a more cost-efficient, integrated catchment monitoring system

Results

A system prototype is demonstrated and validated in an operational catchment environment in collaboration with the regional government and the adjacent local governments and water utilities.

With the system's joint data platform CALL has been able to facilitate cross-border collaboration and development of sustainable water management strategies.



www.callcopenhagen.dk/catchment

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Multi-beneficial solution monitoring

An inner city square in Frederiksberg, Copenhagen is redesigned into a complex climate adaptation solution with parking as well as large storm water retention capacity underground, permeable tiles and recreational facilities to prevent flooding, improve air quality and mitigate heat island effect. However, the actual effect of the solution is not tested and documented.

CALL role and contribution

In close collaboration with industry partners, a novel monitoring system is developed and installed to provide real-time measurements of all important water flows and bodies in the urban catchment including water content of permeable tiles, water volumes in reservoir, precipitation and discharge from the reservoir.

CALL Copenhagen has helped problem owners and technology providers

- Set up a public-private innovation partnership
- Facilitate a full scale demonstration and documentation project
- Inform the development of next level water management methodologies and technologies

Results

The monitoring system is installed and measurements are ongoing.

Furthermore, a novel control system is being developed to control the discharge in collaboration with the three downstream utilities in order to enable the full potential of a smart and sustainable urban drainage system.

The systems are based on open API's utilizing a city-wide wireless communication infrastructure.



www.callcopenhagen.dk/llp

Rain Gauge Test Facility

Accurate monitoring of precipitation is the key to defining design conditions for control and regulation of flow as well as warning systems. Precipitation can be monitored using a range of methodologies that describe the type of precipitation (snow, size of raindrops), spatial distribution (radar) and precipitation intensity.

CALL role and contribution

To gain a better understanding of the advantage of different methods of precipitation monitoring, CALL has established a test facility where various types of equipment for precipitation monitoring can be tested and validated against state of the art technology.

CALL Copenhagen

- Has made agreements with leading manufacturers on equipment installation at the CALL facility
- Operates and maintains the equipment and has developed a database for the results that are shared with the manufactures and other interested parties

Results

The facility includes a local area weather radar (Furuno), high accuracy rain gauge (Ott Pluvio), standard tipping bucket (Lufft), automated weather station (Lufft) and a disdrometer (Ott).

The facility is currently used in two development projects from Germany and Italy:

- 1) Development of a digital disdrometer based on a microphone technology
- 2) Development of algorithms to quantify the rain intensity based on images and videos.



www.callcopenhagen/raingaugetest

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THE DOOR IS OPEN

Climate adaption is one of the largest, societal development projects in history. It's a hugely complex challenge as well as a great opportunity.

CALL Copenhagen brings stakeholders together to find the best possible solutions.

We seek collaboration with all stakeholders who wish to push for a sustainable climate adaptation.

We are a point of contact for anyone with a climate adaption problem or solution in need for a partner or a demonstration site.



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CALL Copenhagen is founded by the Capital Region of Denmark (Region H), the City of Copenhagen (Københavns Kommune) and the Greater Copenhagen Utility (HOFOR)

www.callcopenhagen.dk