



## MF Case 8: Copenhagen, Denmark Copenhagen Climate Adaptation Plan

Copenhagen is the capital of Denmark with 550 000 inhabitants. The need for an adaptation strategy was identified by the City of Copenhagen in 2009. The Adaptation Plan pursues a general green approach with a focus on green and blue areas i.e. green spaces and water bodies. The key challenges were

- Extreme precipitation (primary risk)
- Sea-level rise (primary risk)
- Overheating as a result of the heat island effect, heat waves and higher mean temperature

The Adaptation Plan suggested 9 projects for implementation regarding the two main risks, and 17 more projects for related risks and to overheating. The following calculation was made:

Cost of Damages over the next 100 years:

- Sea: 2-2.6 bill Euro
- Rain: 2-2.1 bill Euro.
- Total: 4-4.7 bill Euro.

Cost of adaptation measures:

- Sea: 530 mill Euro
- Rain: 800 mill - 1.1 bill Euro
- Total: 1.3 - 1.6 bill Euro
- Savings: 2.6 - 3.2 bill Euro.

### Funding Sources

Because Copenhagen city does not have severe financial problems, the municipality is in the position to support a great number of projects from the budget. However, since these are large amounts the following prioritizations were made to conceptualize the proceedings:

- Projects with a sound economic background will be put forward first. This would include e.g. energy savings measures
- Projects need to be phased and the conversion will happen gradually. Vehicles and machinery s will not be replaced before time and buildings will not be renovated before it is necessary

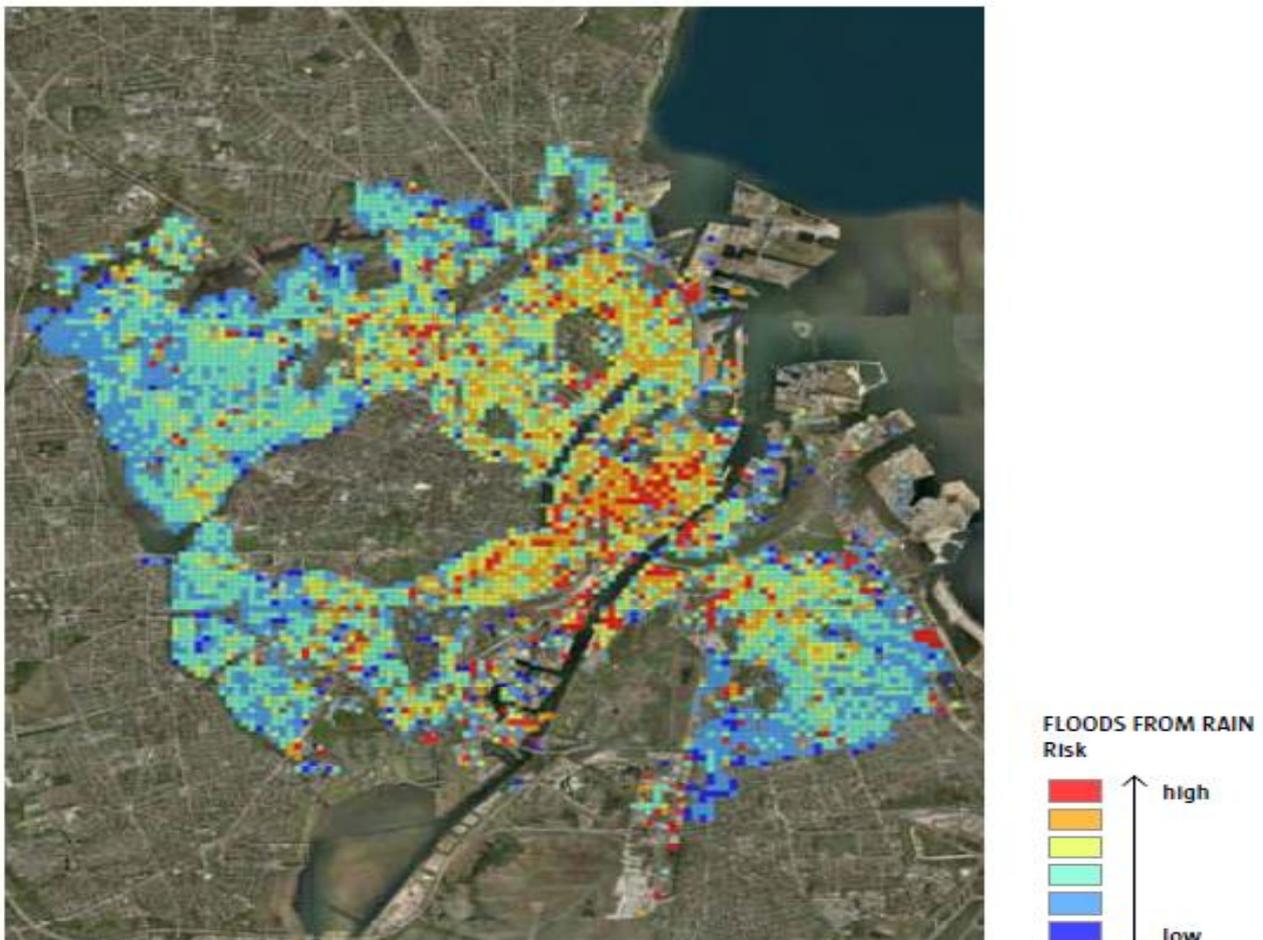
- Switching to green technology will be done gradually to allow new technical ideas to be integrated
- The initiatives are multipurpose and not limited to CO<sub>2</sub> reduction only.

In addition to public funds the city cooperates with the private sector e.g. Copenhagen Energy, Copenhagen Properties and housing and insurance companies. Private partnerships are formed and business cases created, where the private sector contributes finance, but is also allowed to make a profit. Many of these models are still in the planning process.

**Lessons learned:**

- Copenhagen is not allowed to issue green bonds. The mayor of the city initiated with the local government a discussion to allow Green bonds to be issued by Copenhagen.
- Many financing models come up as the result of discussion involving the private sector and the general public.
- The adaptation plan was linked to the longer-term Agenda 2015, which objective is to turn Copenhagen into a carbon neutral city by 2025. This helped to put the adaptation targets into perspective

**The Risk of Floods in the event of Heavy Rain**



Source: [http://en.klimatilpasning.dk/media/568851/copenhagen\\_adaption\\_plan.pdf](http://en.klimatilpasning.dk/media/568851/copenhagen_adaption_plan.pdf)

## References

Further information/sources: The full adaptation report:

[http://en.klimatilpasning.dk/media/568851/copenhagen\\_adaption\\_plan.pdf](http://en.klimatilpasning.dk/media/568851/copenhagen_adaption_plan.pdf)

Agenda 2025 with good economic leads: [http://kk.sites.itera.dk/apps/kk\\_pub2/pdf/983\\_jkP0ekKMyD.pdf](http://kk.sites.itera.dk/apps/kk_pub2/pdf/983_jkP0ekKMyD.pdf)

Financing the adaptation plan: [http://resilient-cities.iclei.org/fileadmin/sites/resilient-cities/files/Webinar\\_Series/Webinar\\_Presentations/Leonardsen\\_financing\\_adaptation\\_in\\_Copenhagen\\_ICLEI\\_sept\\_2012.pdf](http://resilient-cities.iclei.org/fileadmin/sites/resilient-cities/files/Webinar_Series/Webinar_Presentations/Leonardsen_financing_adaptation_in_Copenhagen_ICLEI_sept_2012.pdf)

## Credentials

Authors: Ute Zimmermann, Zhuo Yao and Michael Lindfield – with Florian Steinberg.

Edited by: Florian Steinberg