



How do decision makers manage uncertainties when climate-proofing urban planning

Niels Bent Johansen
Chief R&D Officer
Copenhagen Energi A/S

A Decision Maker

- can makes decisions based on gut feeling rather than the documented information
- can have a hidden agenda
- can make decisions based on non-relevant criteria
- So the decision maker is a source of uncertainty in the decision process.

Paradox in urban planning



- We plan structures with lifetimes of more than 100 years
- Our planning horizon is often not more than some 30 years
- It is "known unknown" what the demands are for the urban structures during the last 70 years of the lifetime
- Climate Change adds "unknown unknowns" to this uncertainty.

This will
happen

Daily?

1 in 10 years?

1 in 100 years?

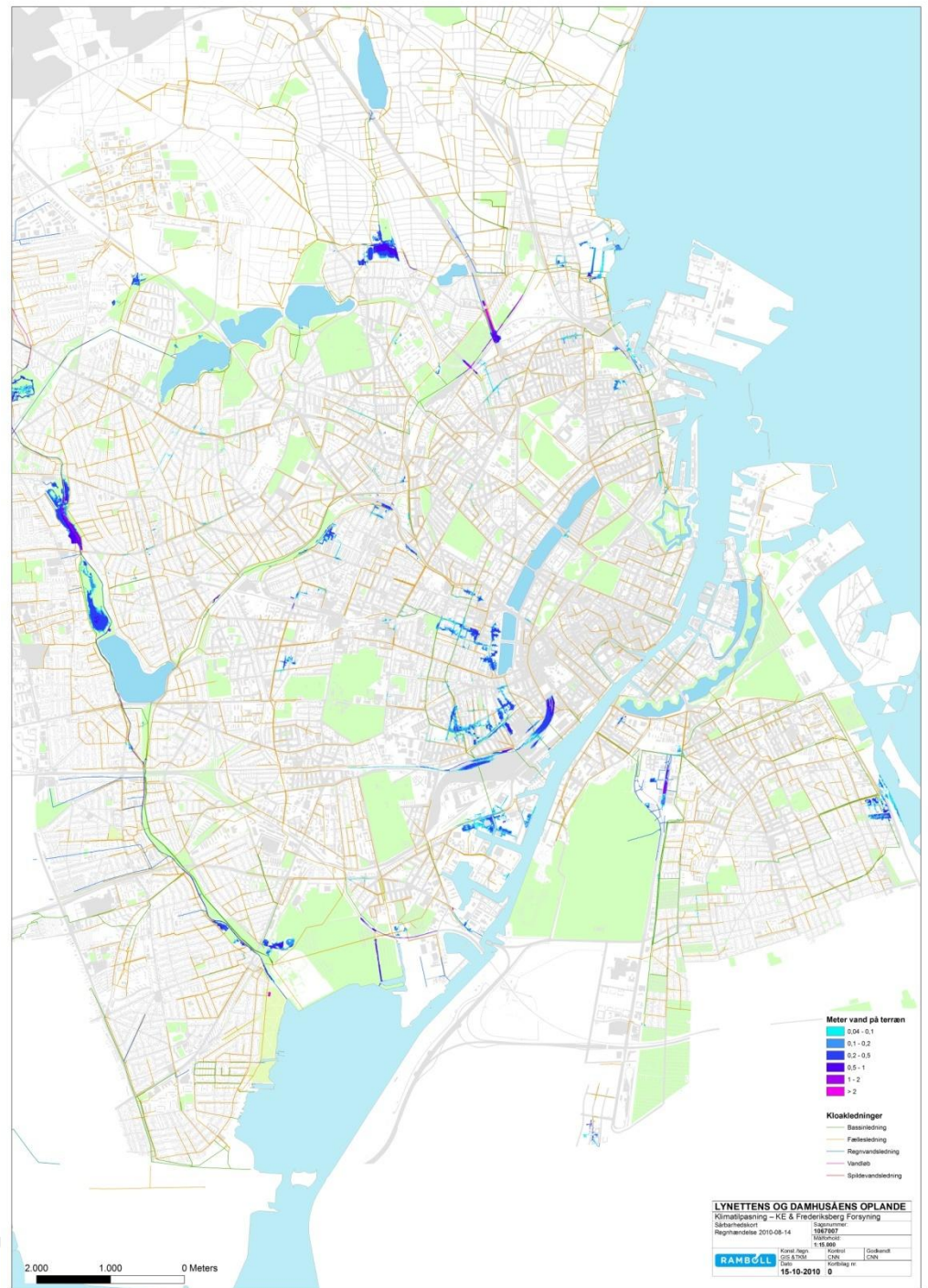
1 in 1000
years?

Do nothing for
flooding by rain:
Potential NPV of loss
2 bill. €



Estimate vulnerability

Flexible solutions with low vulnerability



Strategy for Climate Proofing in Urban Planning



- **Flexible, no-regret solutions, if none can be found then wait and improve decision basis**
- **Sustainable Adaption (or as close as we can get)**
- **Synergy with other planning objectives**
- **Mainstreaming climate change in all municipal planning and implementation**
- **Transparent information to citizens**
- **Learn from others**
- **Co-operate with scientific community**
- **Continuesly improve plan by iterations between implementation and planning**