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GEOSS APPLICATIONS  
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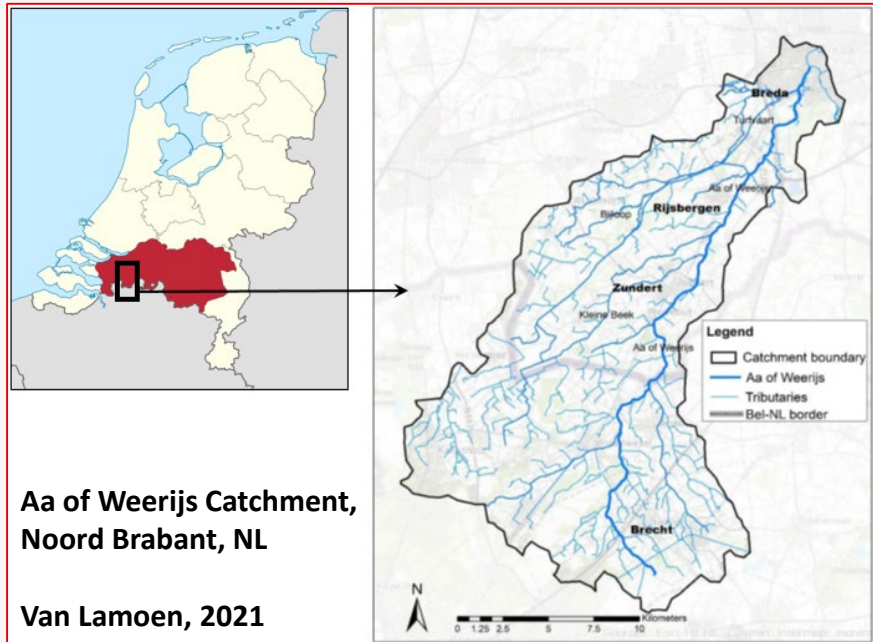
## Co-designing user stories for geodata applications to support climate action in 5 GEO Societal Benefit Areas

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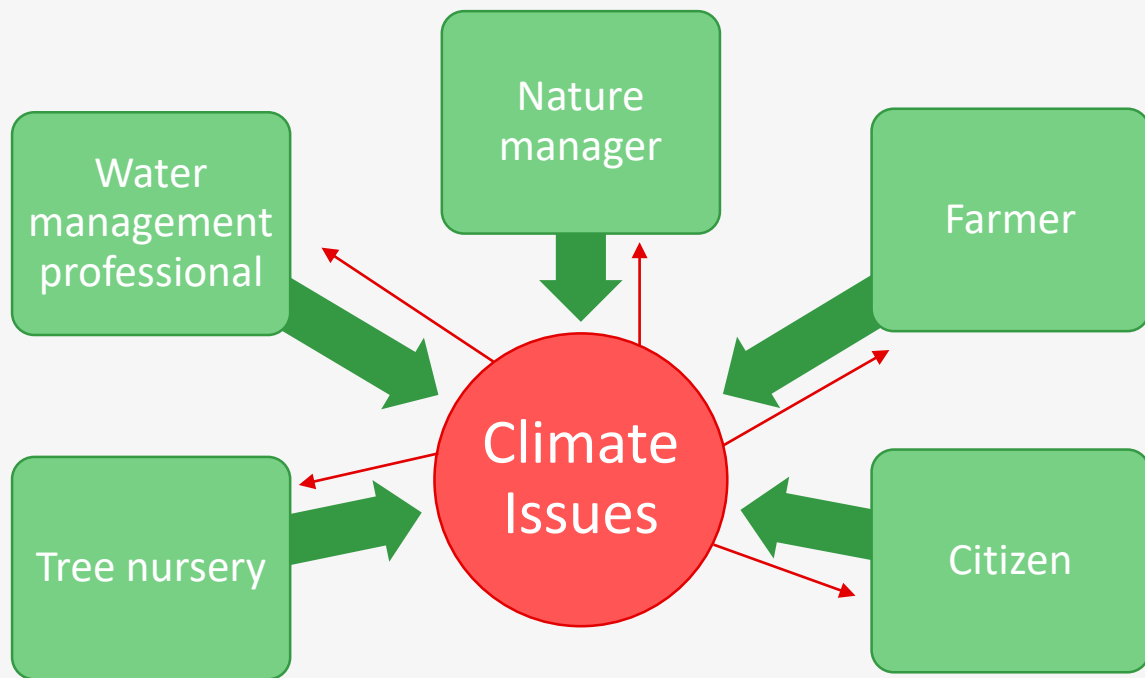
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# Who needs local data?



# Concerns and perspectives on climate issues



**How can we make sure climate services 'work' for everyone?**



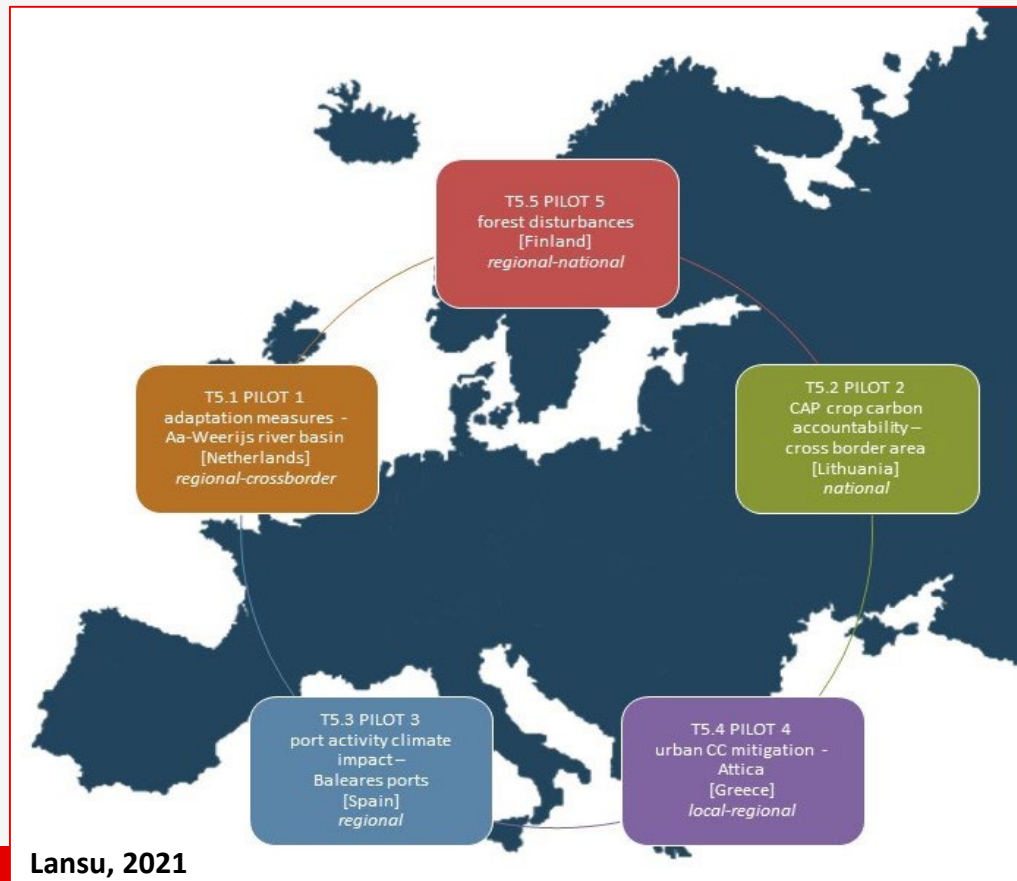
**How should we design climate services?**

# Developing new climate services in 5 SBA's



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Lansu, 2021

## 5 GEO Societal Benefit Areas:

1. Water and Land Use Management
2. Sustainable Agriculture
3. Transport Management
4. Sustainable Urban Development
5. Disaster Resilience

# Goal: bring data closer to practitioners & stakeholders through co-designed climate services



- Co-design approach to application development
- Who are the users of applications and what do they want and need?
- Data collection through online co-design sessions with practitioners and developers

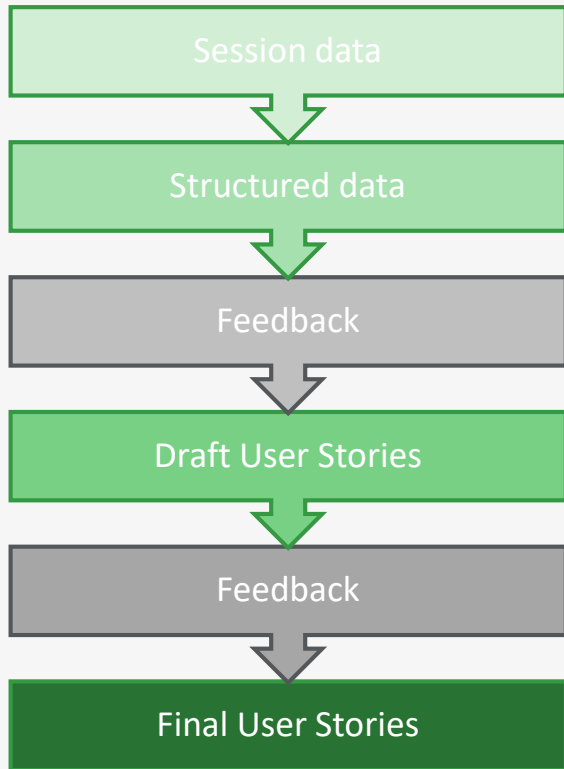
User	Climate Change Challenge	Goal	Core Task
<p>Urban planners</p> <p>Administrative authorities (e.g. prefectures, municipalities)</p>	<p>intense phenomena like rain, flooding</p> <p>Goal is more on CC mitigation, so that green infrastructure and connection to adaptation measures.</p> <p>photo-voltaic, urban mobility, air quality, connected green parks</p> <p>programme exist on energy warming / urban flooding system (not in EIPFEE)</p> <p>extreme weather events: heat waves, high temp.</p> <p>co-benefits of adaptation and mitigation actions.</p> <p>greening areas by parks, gives co-benefits (CC adaptation / mitigation effects)</p> <p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p> <p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p>	<p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p> <p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p> <p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p>	<p>to develop urban structures, green infrastructures, green roofs, walls</p> <p>collect data for common use places / green places</p> <p>coordinate plans at different scales</p> <p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p> <p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p>
<p>Energy providers / distributors (e.g. PPC/PPCR, ITO)</p> <p>Ministry of Environment &amp; Energy</p>	<p>decarbonising</p> <p>is that cheaper to focus on rural and on importing energy?</p>	<p>to develop scenarios that could cover the larger need on energy by mobility to enlarge</p> <p>to develop totally new concepts as smart grids</p> <p>transmission and spatial distribution had to be more efficient on small scale</p> <p>to demonstrate citizens as both users and producers of their energy</p> <p>to co-design the use of land for PV, compatible use (rural areas)</p>	<p>to develop scenarios that could cover the larger need on energy by mobility to enlarge</p> <p>to develop totally new concepts as smart grids</p> <p>transmission and spatial distribution had to be more efficient on small scale</p> <p>to demonstrate citizens as both users and producers of their energy</p> <p>to co-design the use of land for PV, compatible use (rural areas)</p>
<p>citizens as energy providers</p> <p>Ministry of Health</p> <p>Ministry of Environment &amp; Energy</p>	<p>air quality change/accidents</p> <p>heat waves; mitigation co-benefit air q</p>	<p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p> <p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p>	<p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p> <p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p>

Co-design user stories

## Explore application functionalities

User	Functionalities
<p>URBAN PLANNERS</p> <p>Urban planners</p> <p>Administrative authorities (e.g. prefectures, municipalities)</p>	<p>adaptation synergies with green infra</p> <p>screening for feasibility, space usage</p> <p>dissemination effectiveness to meet targets</p> <p>SCALE? NAT - REGIONAL - LOCAL</p>
<p>ENERGY PROVIDERS / DISTRIBUTORS (e.g. PPC/PPCR, ITO)</p> <p>Ministry of Environment &amp; Energy</p>	<p>feasibility? cost?</p> <p>feasibility? cost?</p> <p>feasibility? cost?</p> <p>feasibility? cost?</p> <p>feasibility? cost?</p> <p>feasibility? cost?</p>
<p>citizens as energy providers</p> <p>Ministry of Health</p> <p>Ministry of Environment &amp; Energy</p>	<p>feasibility? cost?</p> <p>feasibility? cost?</p> <p>feasibility? cost?</p> <p>feasibility? cost?</p> <p>feasibility? cost?</p> <p>feasibility? cost?</p>
	<p><b>Necessary Functionalities</b></p> <p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p> <p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p>
	<p><b>Optional Functionalities</b></p> <p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p> <p>to demonstrate low carbon life to convince users from retailers to urban level</p> <p>to demonstrate adaptation and mitigation benefits</p>

# Processing data: developing user stories



User

CC  
Challenge

Goals

Core  
Tasks

The central user in User Story P5.1 is the **Water Professional**. This concerns *professionals working for the regional authority, as well as hydrologists*. Both are **primary stakeholders** in pilot 5. This user is dealing with various challenges related to **changing water resources**, with **drought** being the most important one. These challenges are also associated with **longer and hotter summers**. At the regional level, issues surrounding **depleted water resources** are experienced. Other challenges include **over-sulphated soils** and **water quality issues due to severe rain and drainage**. A challenge related to these issues is the **changing of water use types** (e.g., irrigation).

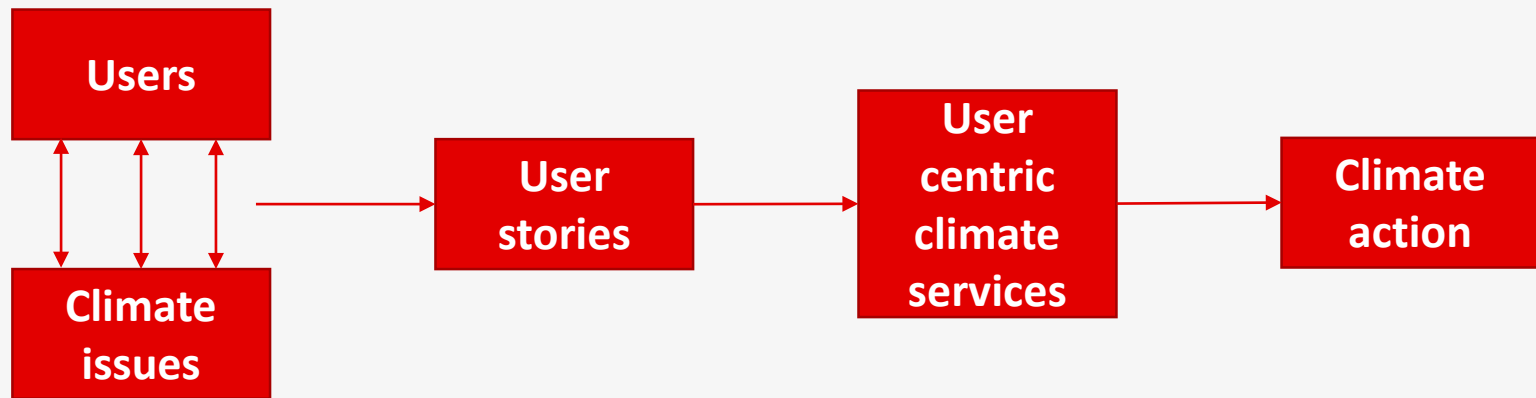
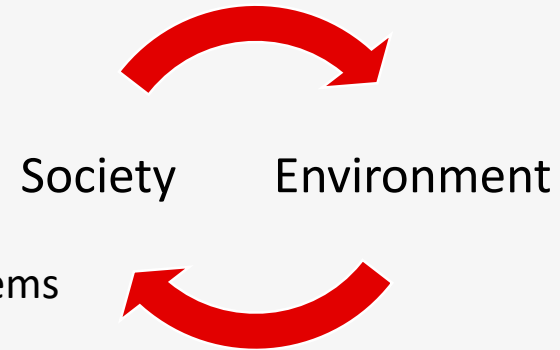
The user strives for **advance warnings** and to **be prepared for water problems**. Furthermore, the user wishes to **be prepared for changes in water use** that will inevitably result from the climate change challenges. More generally speaking, the user aims to **adjust the water management to future water uses and climate conditions**.

In order to achieve these goals, the user must **take climate change and drought into consideration** and **take steps to be better prepared for drought**, which is a relatively new challenge in Finland. The user must also **discuss with other parties what specific measures must be taken**. The user furthermore needs to **incentivize utility companies to prepare for drought**, including measures that these companies must take with regards to their pipe lines. The user must also **consider drought mitigation plans of municipalities**. As of yet, only one municipal plan exists, but more will be developed for the areas that are most prone to the climate change challenges.



# Embedding new climate services in socio-ecological systems

- ~~'Environmental problems'~~ -> issues are socio-ecological
- Climate services must
  - Provide **accurate & up-to-date** data
  - Be **contextualized** -> local (cross-border) socio-ecological systems
  - Be **designed for users**



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