



Climate services as a model for deriving value from earth observation for coastal management

How to make better use of climate and observation data?

■ Climate Service Center Germany (GERICS)

- **Founded in 2009** by the German Federal Ministry of Education and Research
- Since June 2014 **scientific organizational entity** of Helmholtz-Zentrum Geesthacht
- Financed by **programme-oriented funding** of Helmholtz Association
- Director is **Dr. Daniela Jacob**
- Based in Hamburg's **Chilehaus**
- **Interdisciplinary team** of natural scientists and socio-economists (approx. 40 staff members)



Chilehaus Hamburg

www.climate-service-center.de
www.gerics.de

The Idea of Climate Services



User:

?

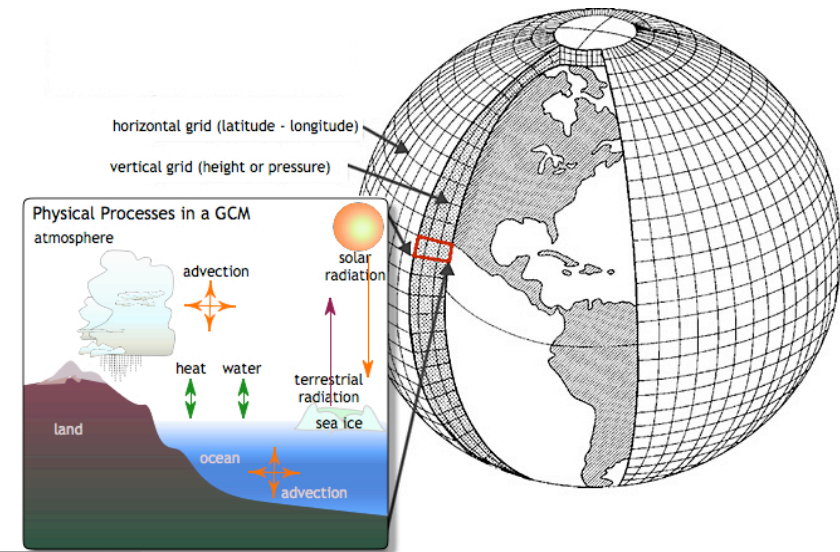
Scientist:

?

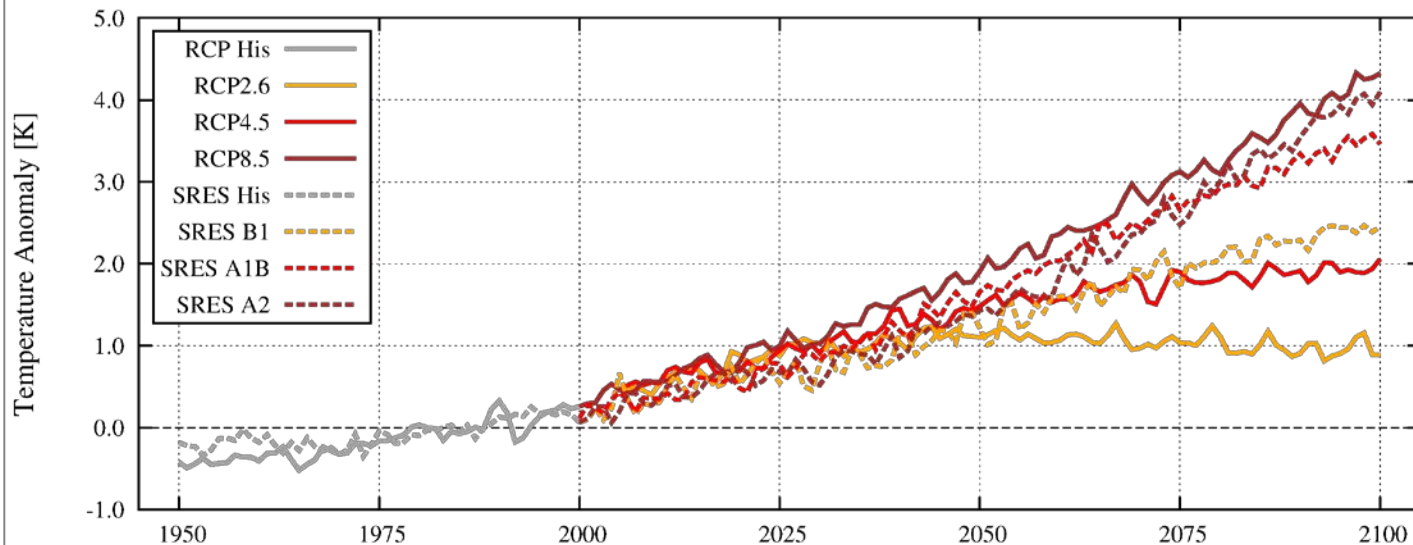


What Can Science Tell Us?

- Possible future changes in the climate system: global and regional climate models
- Multi-model ensembles
- Several emission scenarios in several realizations
- Climate indices, e.g. vegetation period
- Downscaled data: e.g. CORDEX



Projected Temperature Change of the MPI-M Model for SRES and RCP scenarios



Base period for all scenarios: 1971 to 1999

GERICS
Climate Service Center
Germany

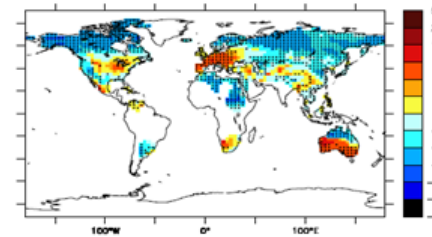


Climate Services : Building an Information System

Interactions with
users/stakeholders

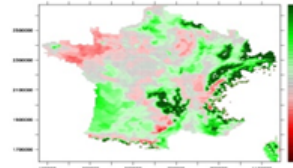


Decision support tools
Dedicated analyses
Support Innovation : eg EIT



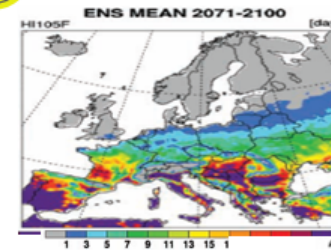
Energy supply
Threshold diurnal
amplitude

Impact studies
Socio-economy, Ecosystems, Health
Develop Interdisciplinarity



Maize yield change

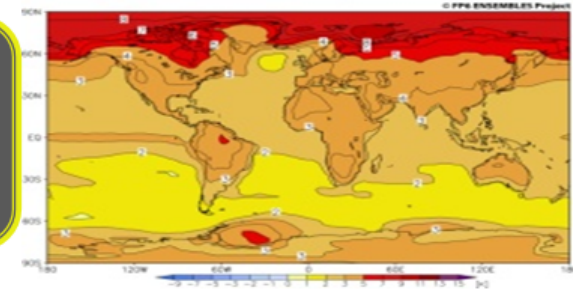
Climate Indicators
Heat waves, drought/floods



Heat index
(ENSEMBLES FP6)

Climate projections
Global models
downscaling

Climate Observations



From: Sylvie Joussaume



The development of a market for Climate Services

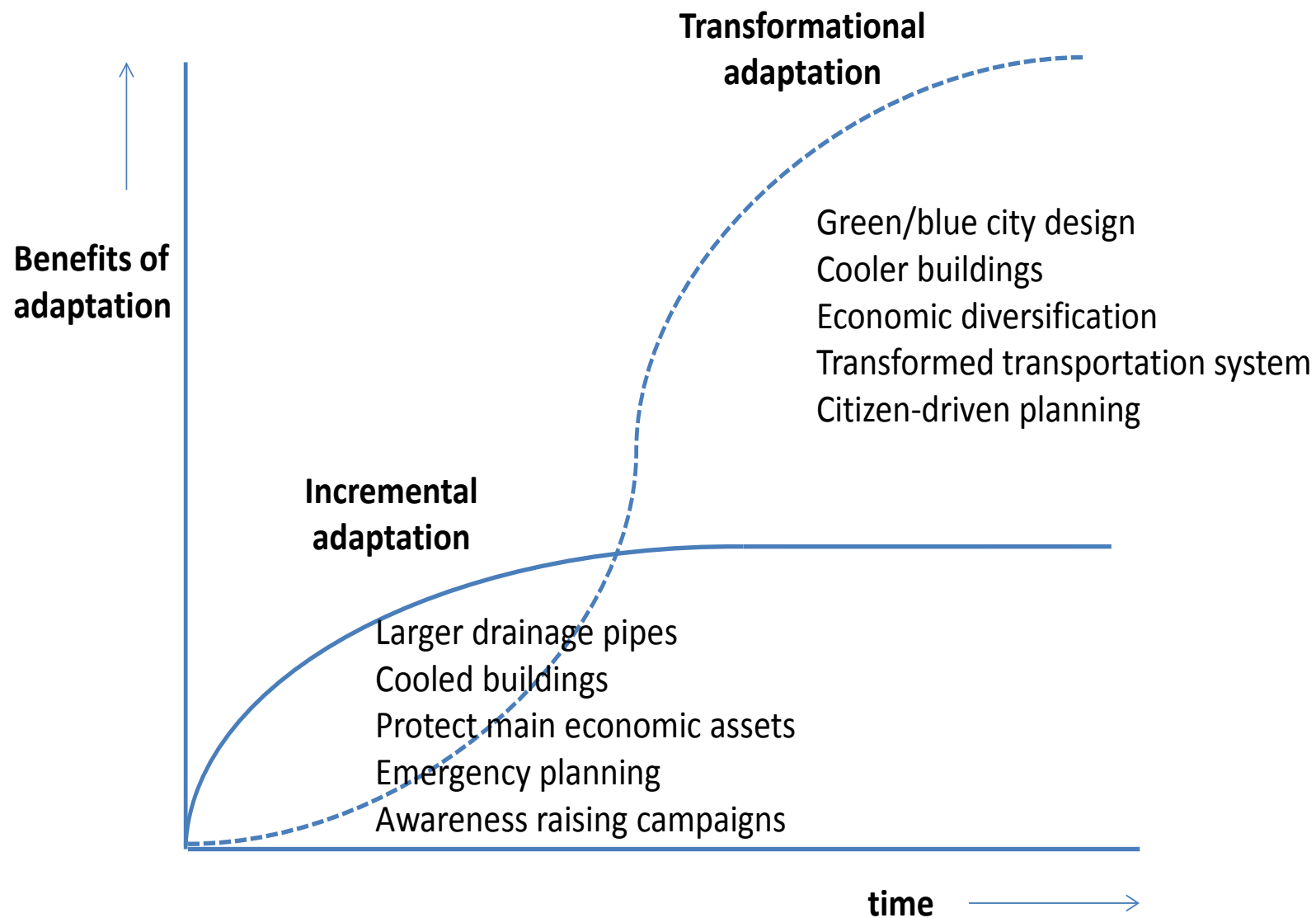
Climate Services

A Roadmap on Climate Services

<http://bookshop.europa.eu/en/a-european-research-and-innovation-roadmap-for-climate-services-pbKI0614177/>

The transformation of climate-related data – together with other relevant information – into customised products such as projections, forecasts, information, trends, economic analyses, assessments (including technology assessments), counselling on best practices, development and evaluation of solutions and any other service in relation to climate that may be of use for the society at large.

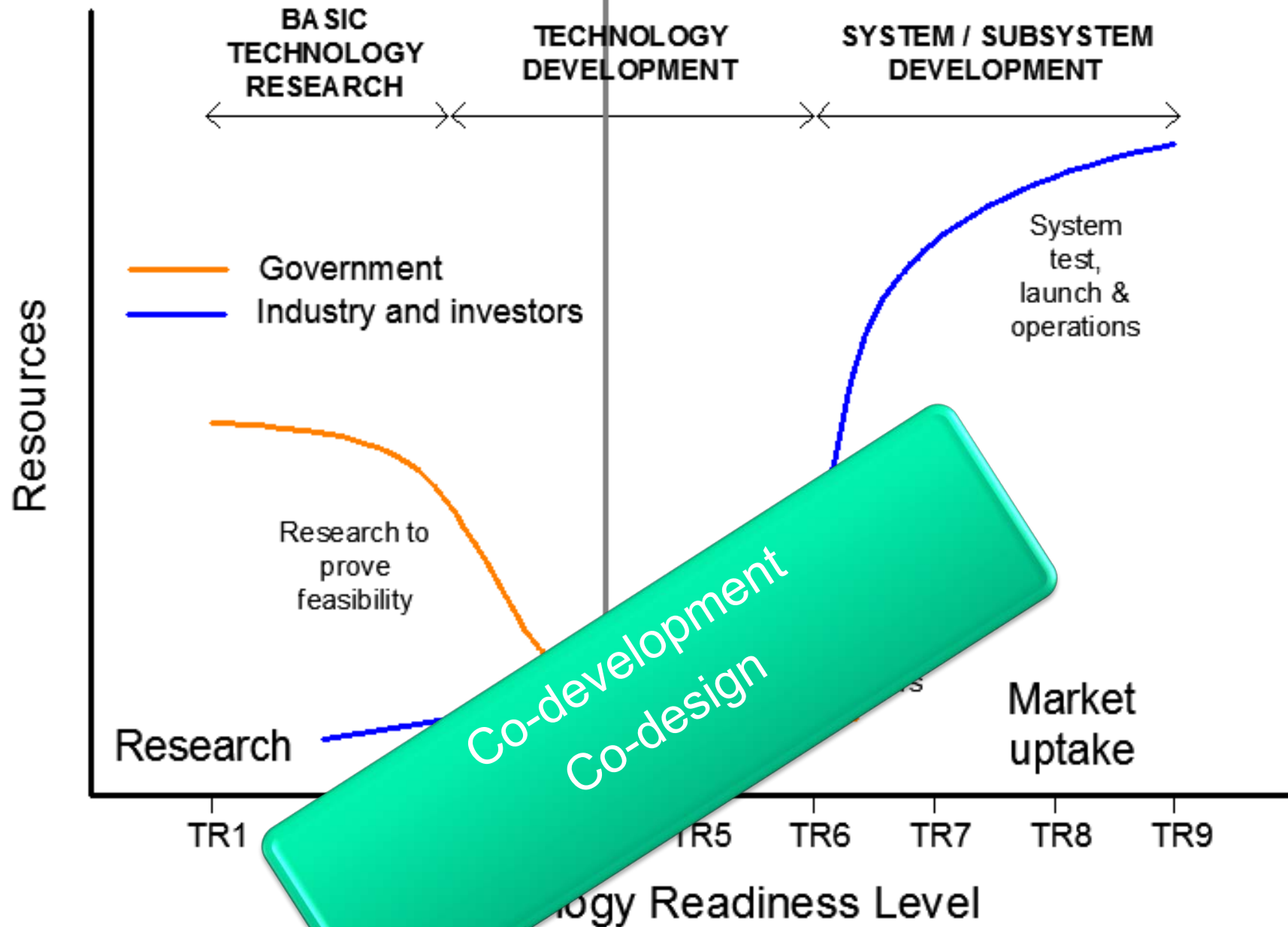
Regional priority challenges



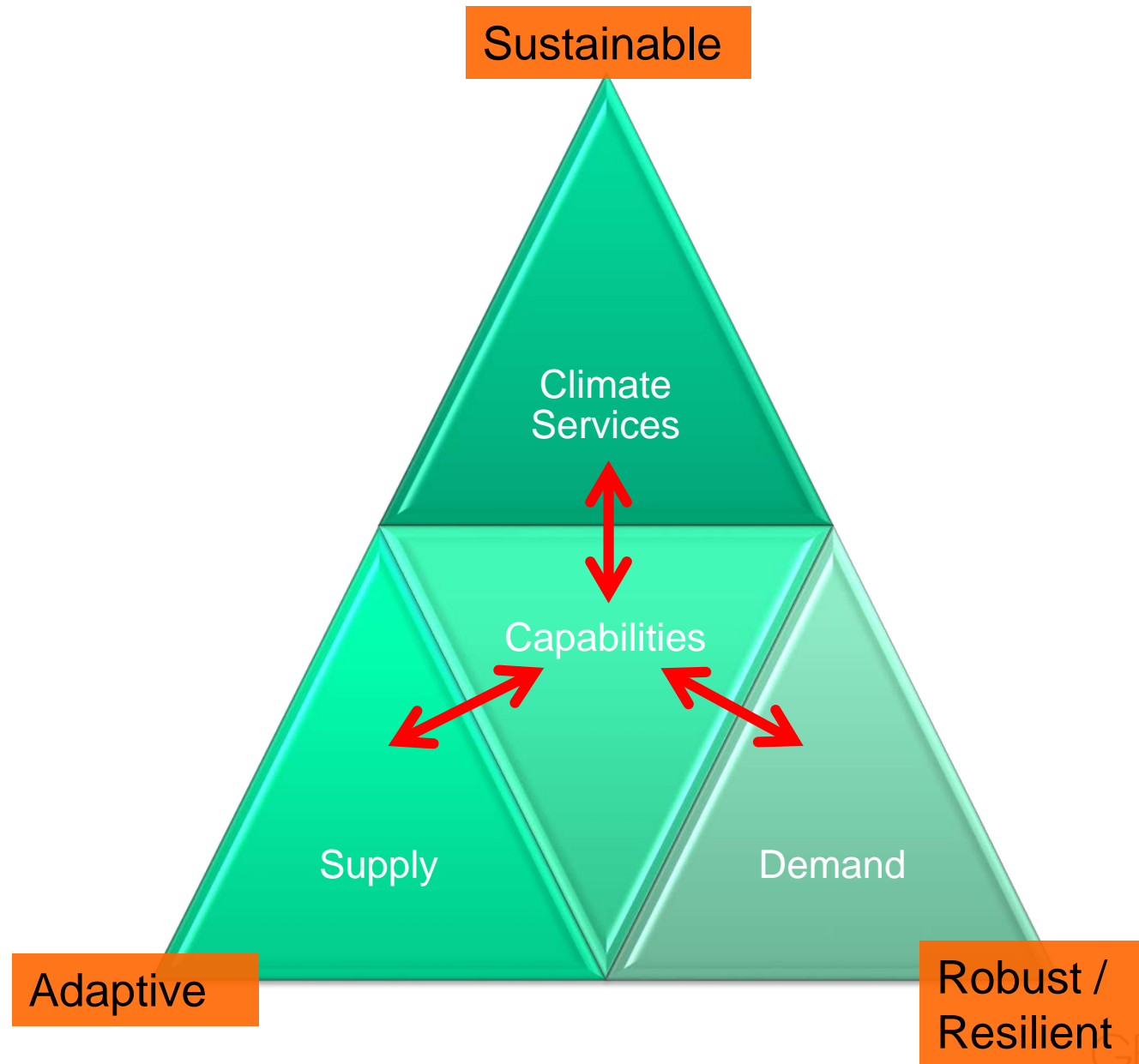
Courtesy of Rob Swart

■ How CS support DM for adaptation?

- Providing more informed decisions in relation to risks, opportunities and response management
- Analysing the demand side taking into account that
 - The potential is largely untapped;
 - Community and infrastructure insufficient to support development;
 - And services are primarily supply-driven and to some degree user informed
- Moving to **user-driven and science informed** services
- Enabling the growth of a "market of CS" including different domains of society (public and private sector entities)



Regional Challenges - Capabilities – multidirectional influences

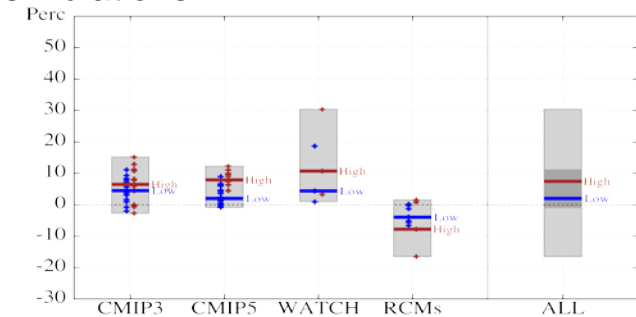




Products...

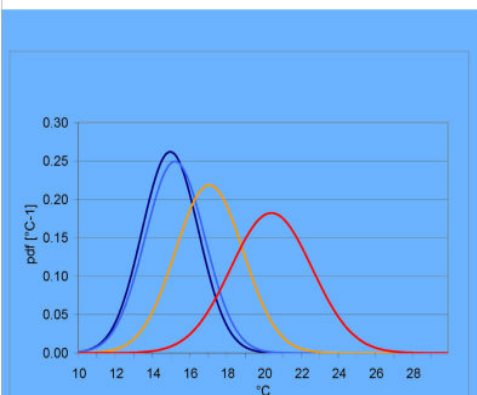
Analyses, syntheses, information, products, methods, tools and capacity building based on **state-of-the-art knowledge of climate research**

Analysis based on ~100 climate change simulations



Collection of frequently used statistical methods

Statistische Verfahren in der Auswertung von Klimamodell- und Impaktmodelldaten
eingesetzt in KLIMZUG und anderen Projekten sowie Institutionen, die sich mit Klimafolgen befassen

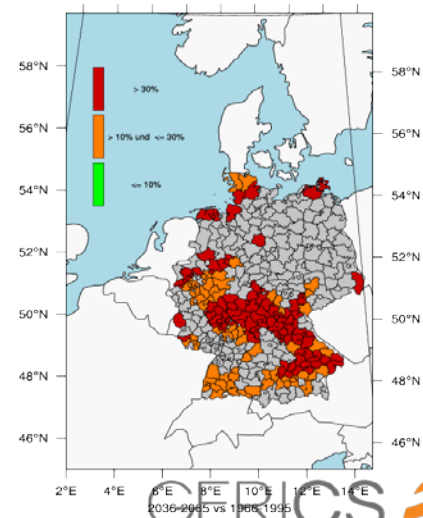


Synthesis of expert knowledge

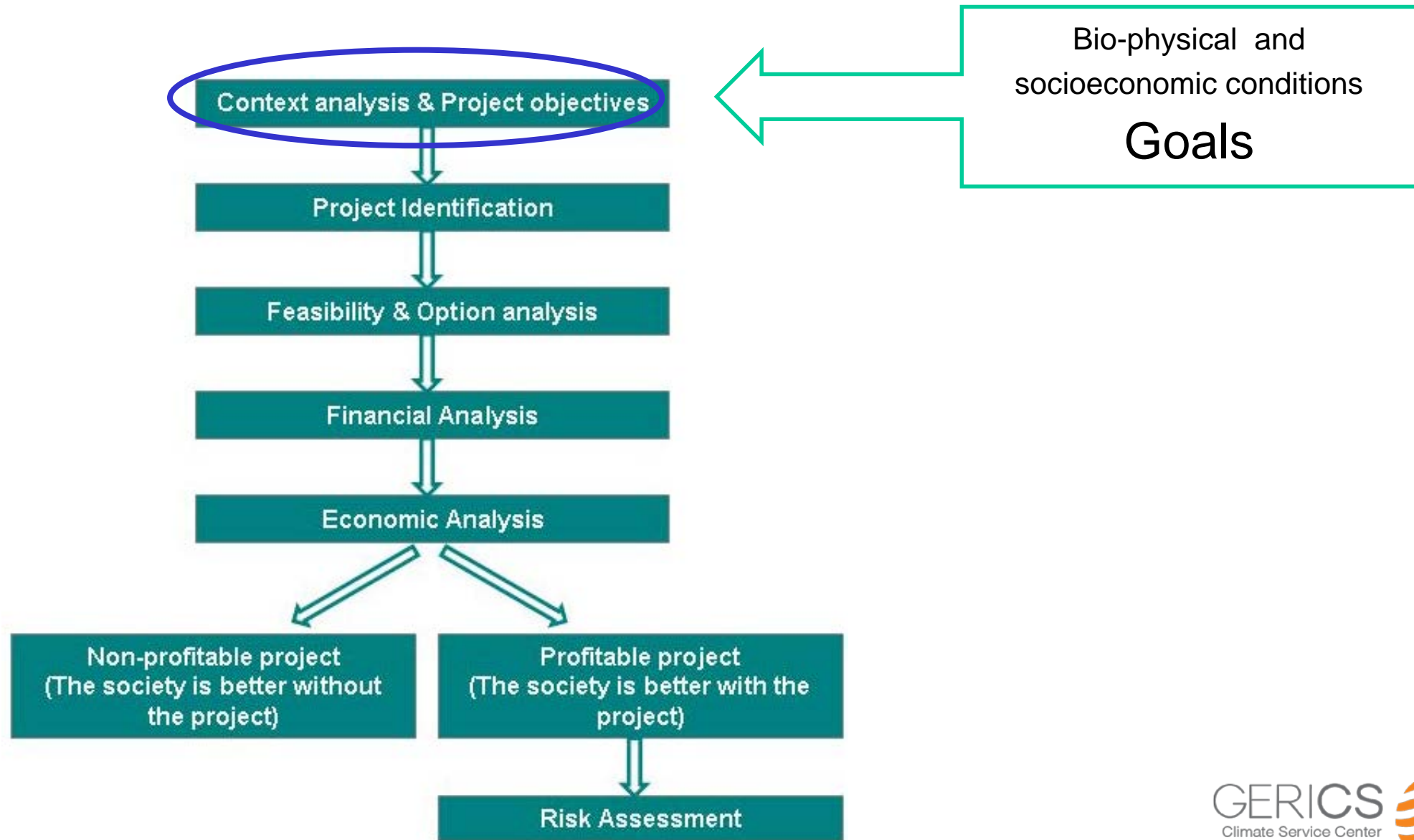


User-tailored products

Zunahme: Tage mit > 25mm Niederschlag [%]
0° 2°E 4°E 6°E 8°E 10°E 12°E 14°E 16°E



■ Prioritization tool for adaptation measures





Objective: to provide information based on state-of-the-art knowledge on projected regional climate changes in order to enable cities to make decisions including the challenges of climate change.

Aim: to create win-win solutions for a sustainable urban design while integrating adaptation measures at the same time to reduce future investments resulting from a non-climate proof urban development.

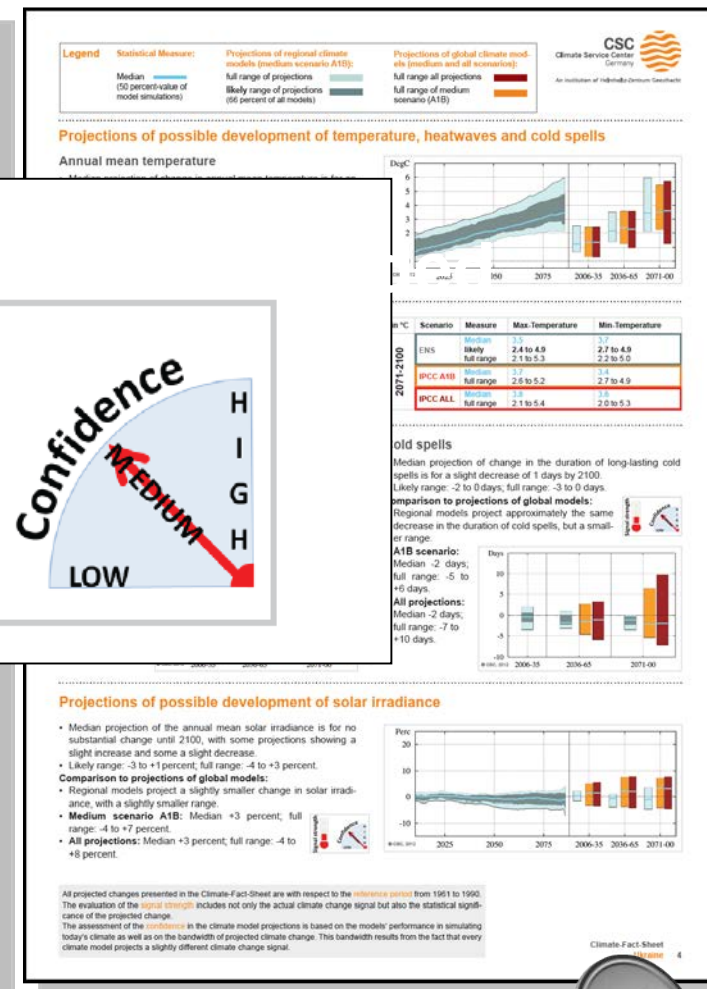
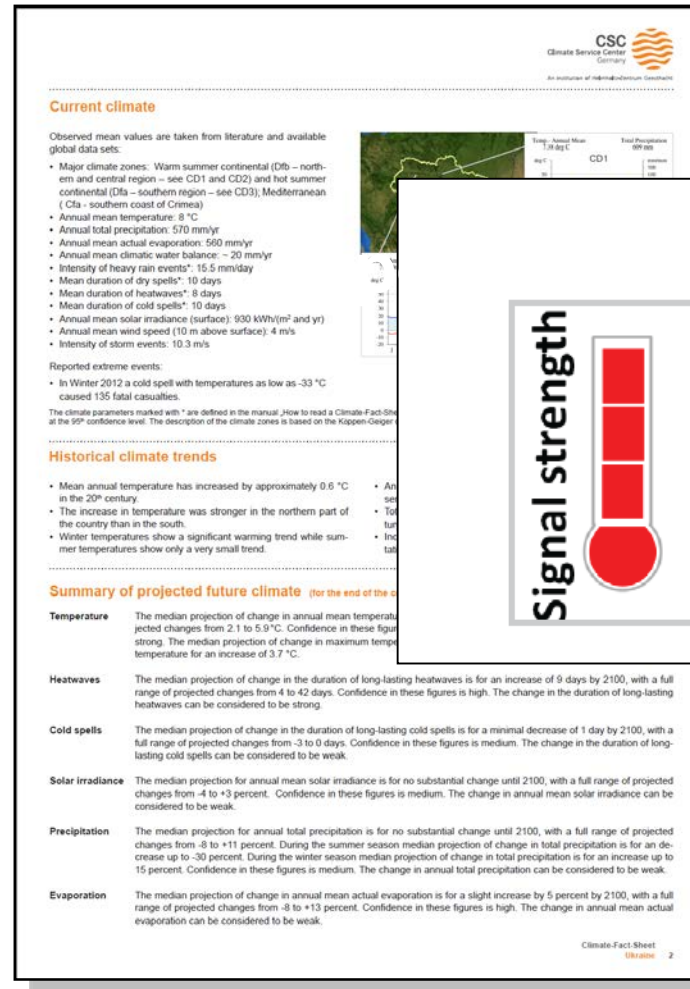
Setup: interdisciplinary approach with focus on the sectors water management, health and living conditions, infrastructure, urban planning and communication.

The toolbox offers a large variety of different modules, including water management, to provide a city specific consultancy



Summarizing climate change information

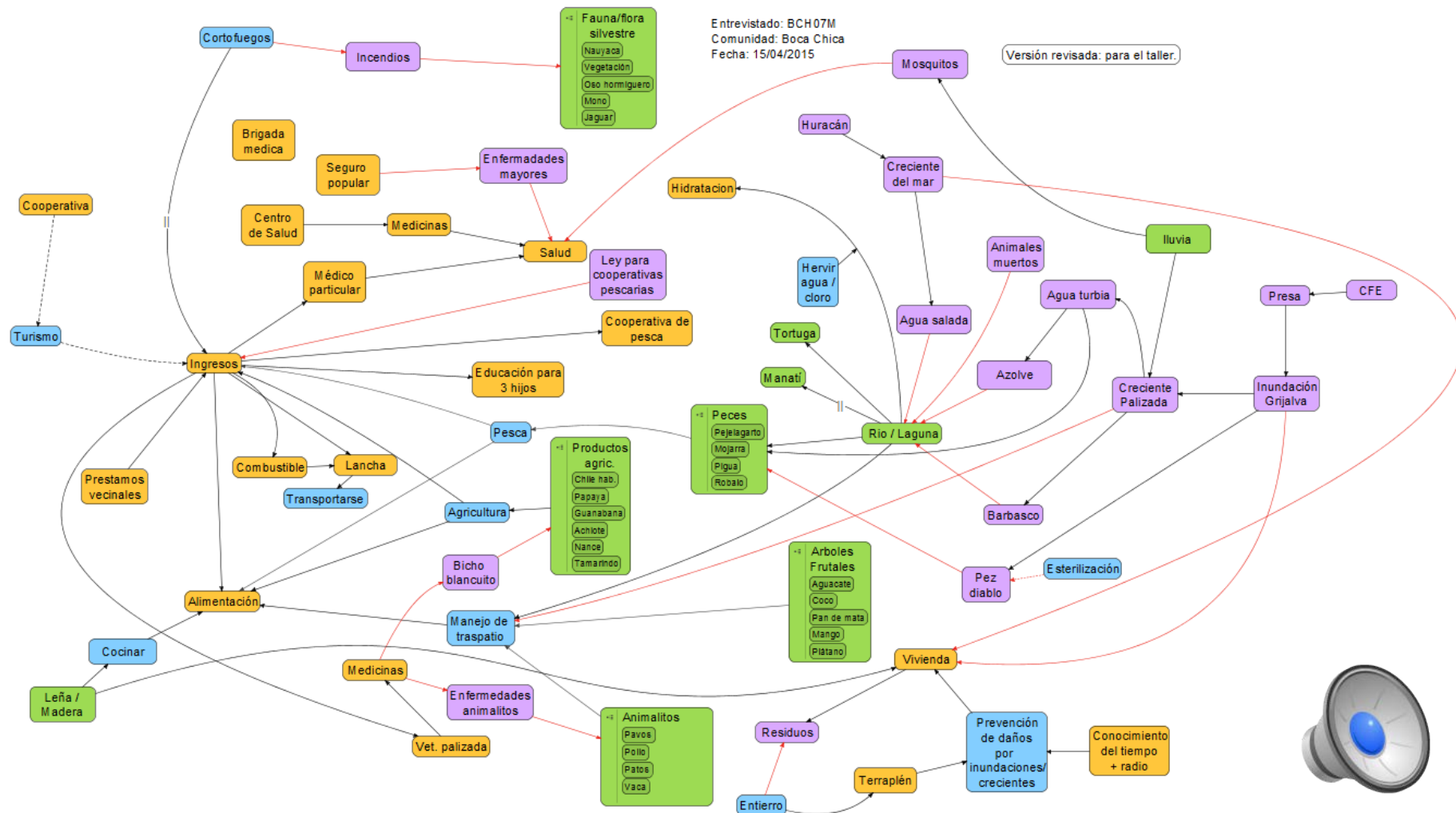
Example pages of the Climate-Fact-Sheet for the Ukraine



Aim:



Co-design of system dynamic models for decision support





Thank you for your attention!

Contact:

Prof. Dr. Maria Mañez
Climate Service Center
Department Economics and Policy
Fischertwiete 1
20095 Hamburg

maria.manez@hzg.de
www.climate-service-center.de

