EMS Annual Meeting: European Conference for Applied Meteorology and Climatology 2018,

3.-7. September 2018; Budapest, Hungary

ES1.8 Cooperation with weather and climate services in developing and emerging countries

Implementation of the GFCS at the national level

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Experiences from assessing the baseline of Climate Services in developing and emerging countries within the context of the CSI project.

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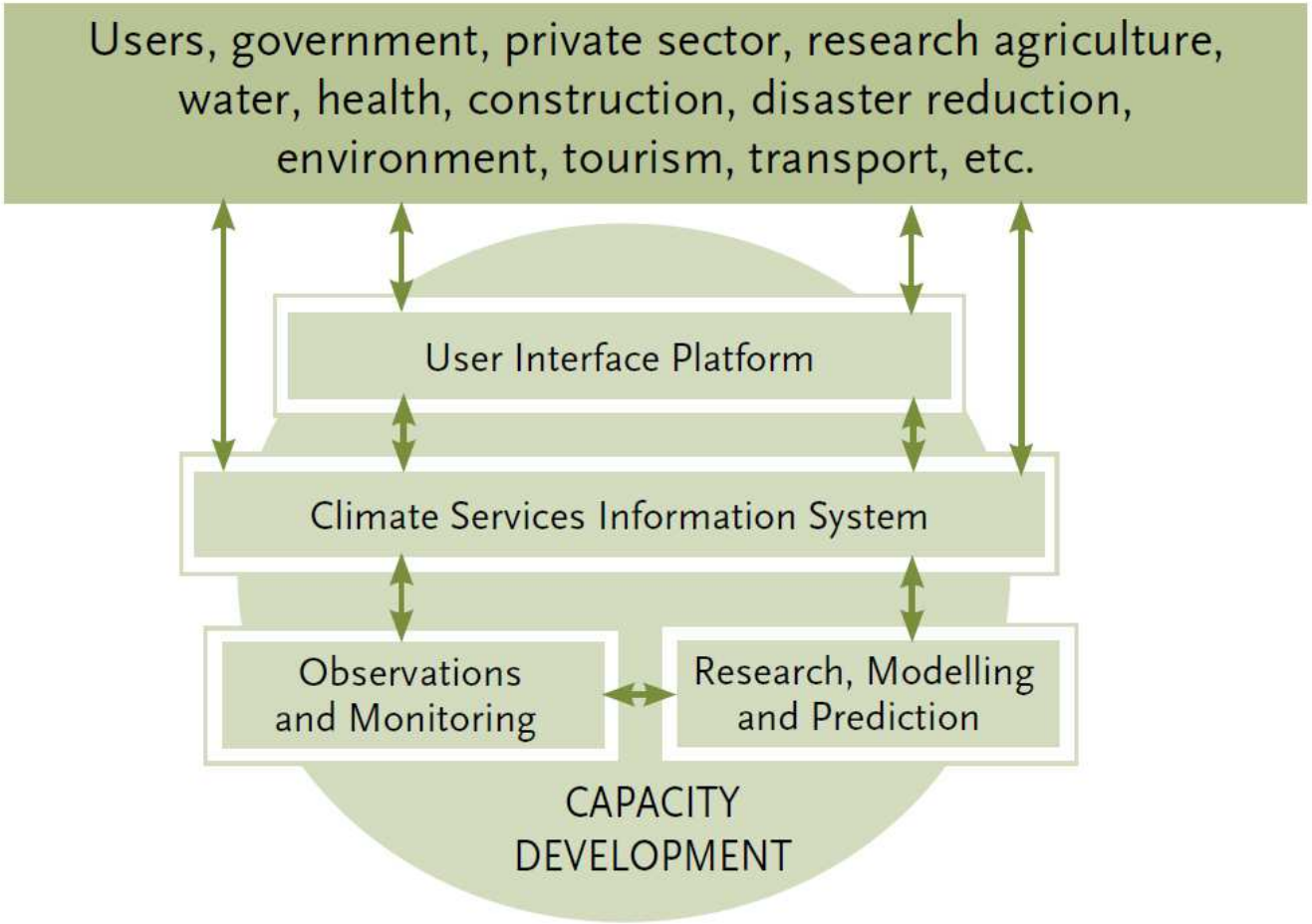
Niklas Baumert (GIZ); Katharina Lotzen (GIZ); Benjamin Hodick (GIZ); Stefan Rösner (DWD)

GFCS GLOBAL FRAMEWORK FOR CLIMATE SERVICES



The CSI project – context of Climate Service baseline assessment (1/2)

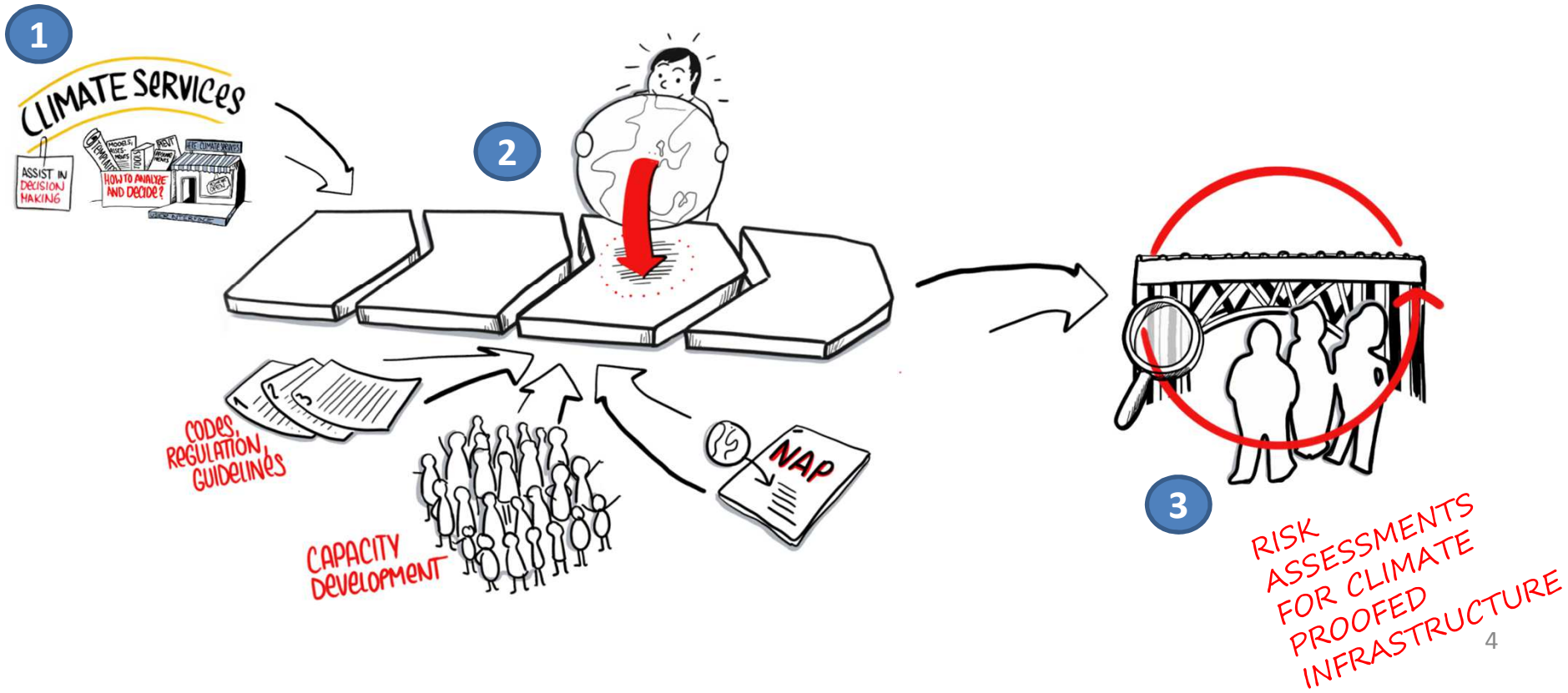
Objective: *Partner countries are increasingly using national Climate Services in the planning and climate risk assessment of infrastructure investments.*

Duration: 3 years (03/2017 – 02/2020)

Volume: € 5.3 Million

The CSI project – context of Climate Service baseline assessment (2/2)

1. Enhancing the provision and use of Climate Services
2. Integration into planning and national strategies
3. Piloting climate risk assessment for infrastructure
4. International exchange of experience and knowledge management



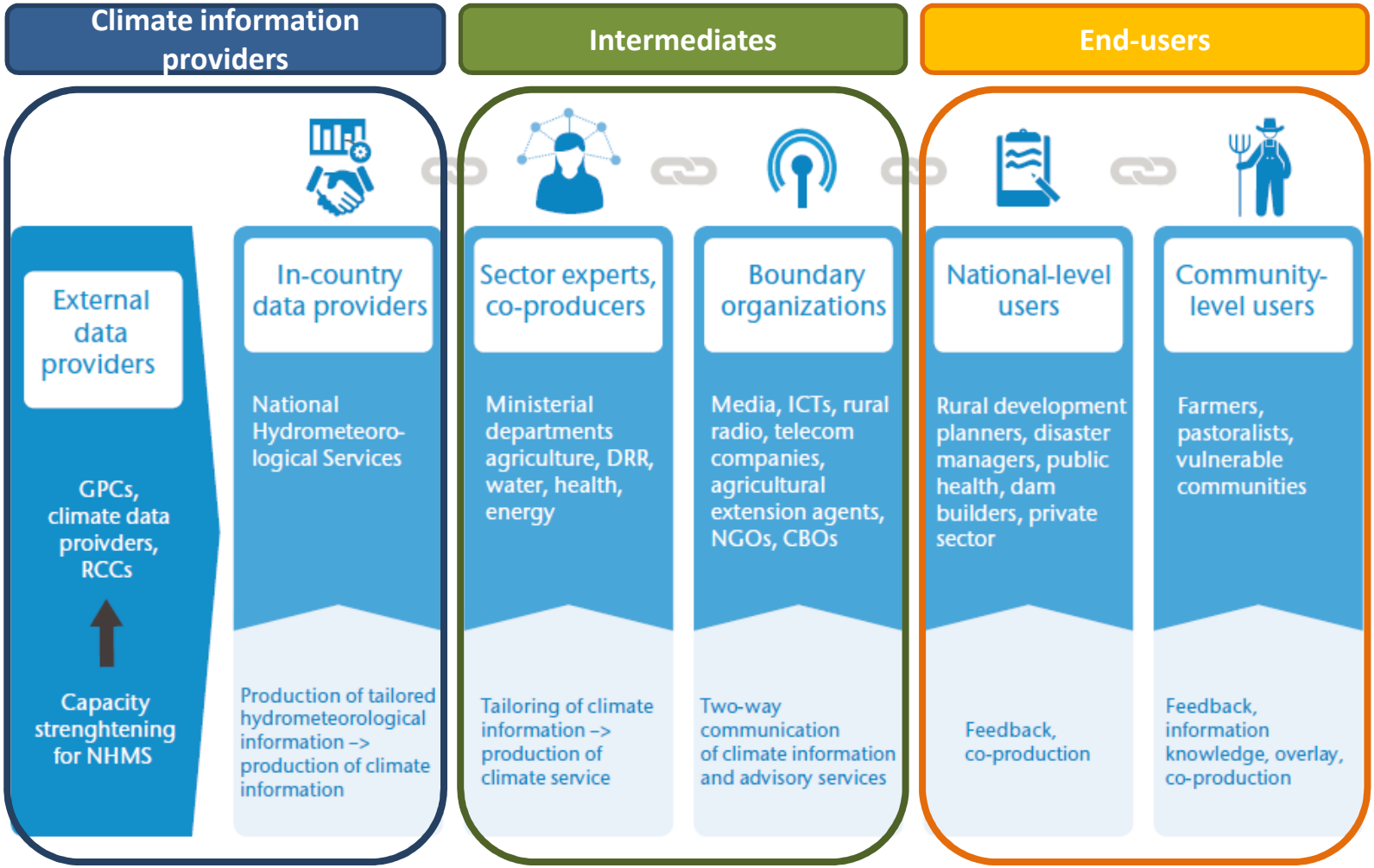
Climate Services – conceptual approaches and assessment methodology (1/4)

Definition

"Transformation of **climate-related data** — together with **other relevant information** — into **customized products** such as projections, forecasts, information, trends, economic analysis, assessments (including technology assessment), 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. As such, these services include **data**, **information** and **knowledge** that **support adaptation, mitigation and disaster risk management**" (EU 2015).

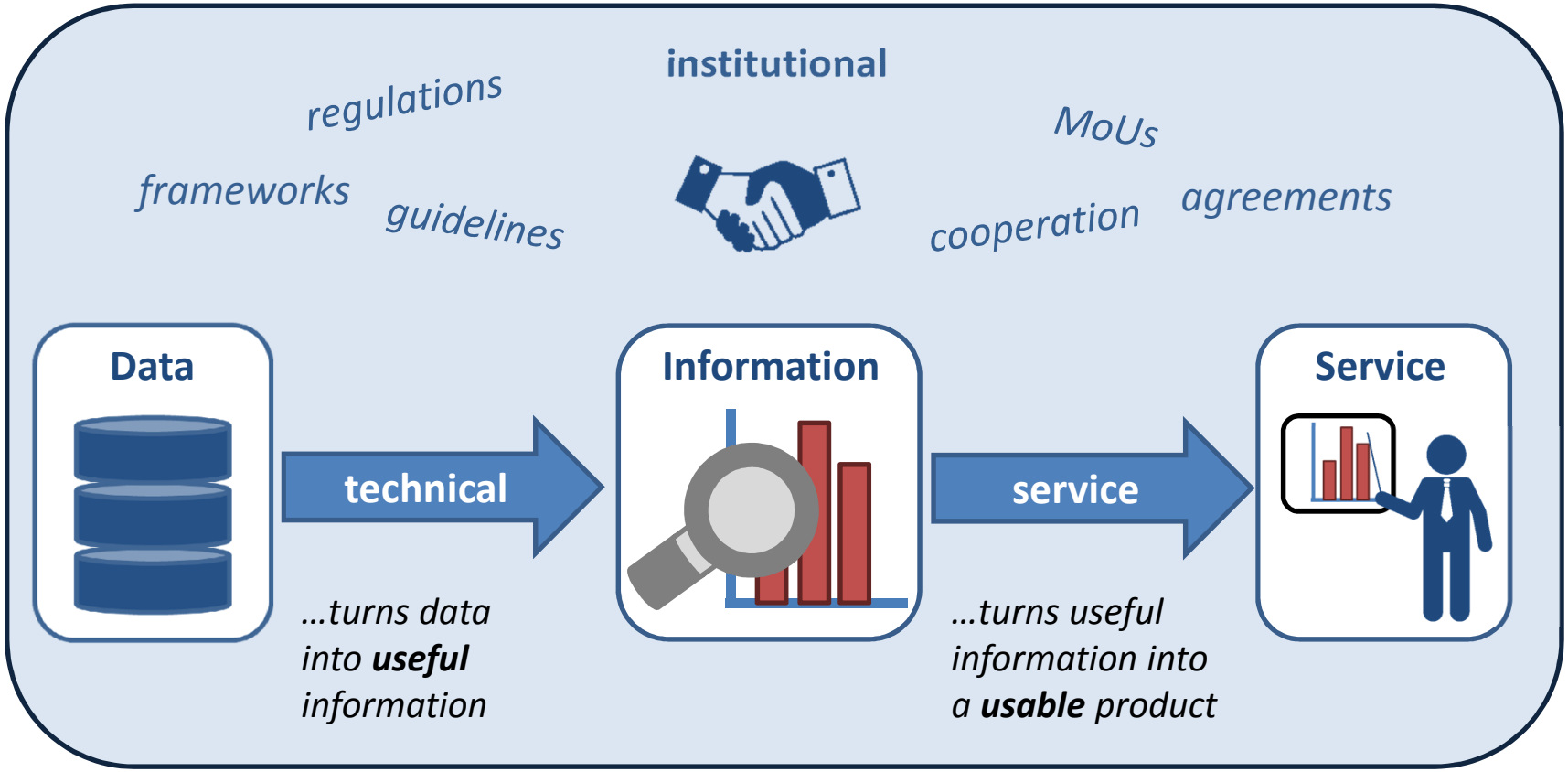
Climate Services – conceptual approaches and assessment methodology (2/4)

Climate Value Chain



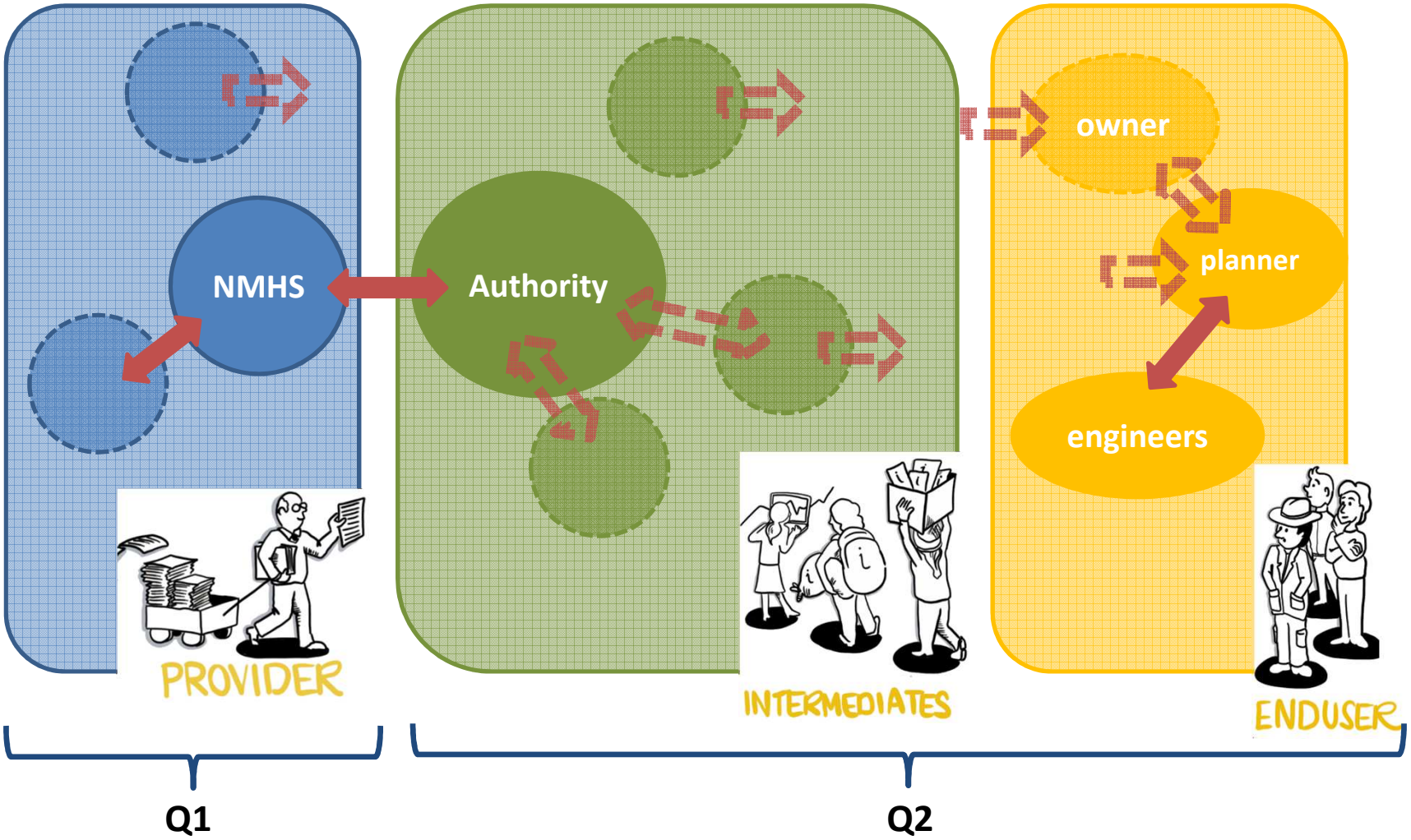
Climate Services – conceptual approaches and assessment methodology (3/4)

Climate Service dimensions



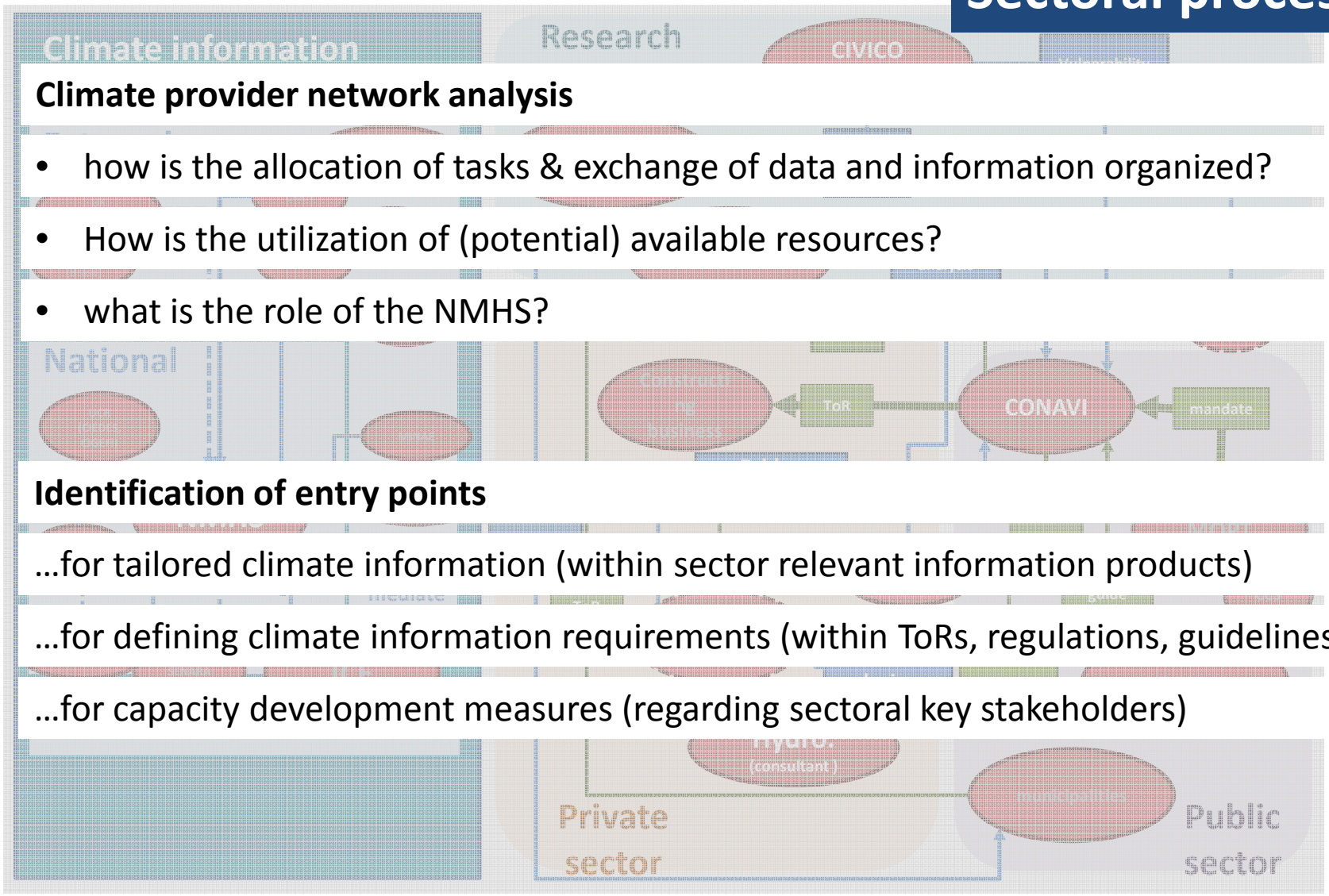
Climate Services – conceptual approaches and assessment methodology (4/4)

Baseline assessment



Baseline assessment – key results and added value (1/4)

Sectoral processes



Climate provider network analysis

- how is the allocation of tasks & exchange of data and information organized?
- How is the utilization of (potential) available resources?
- what is the role of the NMHS?

Identification of entry points

…for tailored climate information (within sector relevant information products)

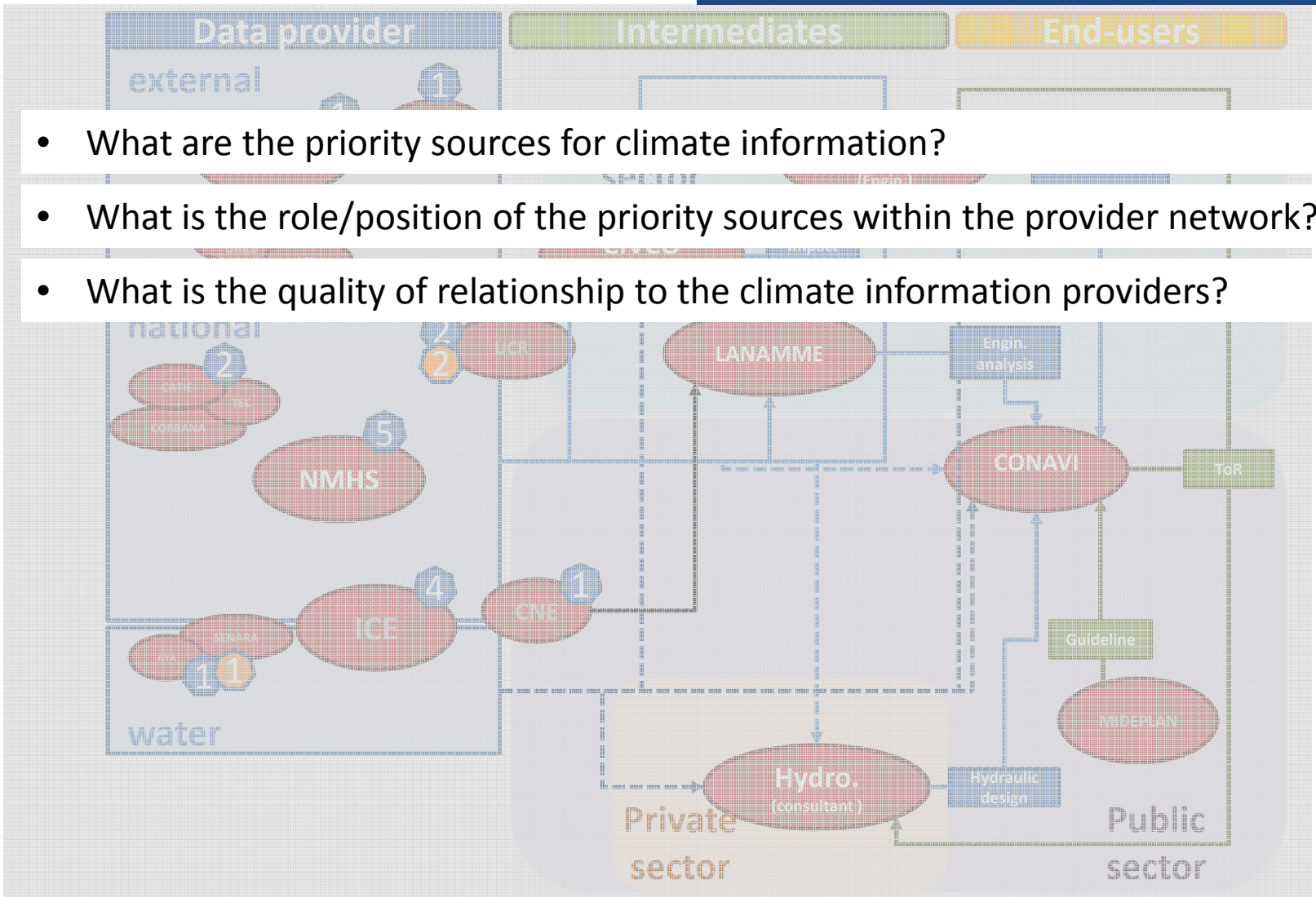
…for defining climate information requirements (within ToRs, regulations, guidelines, etc.)

…for capacity development measures (regarding sectoral key stakeholders)

Baseline assessment – key results and added value (2/4)

Climate information pathways

- What are the priority sources for climate information?
- What is the role/position of the priority sources within the provider network?
- What is the quality of relationship to the climate information providers?



Baseline assessment – key results and added value (3/4)

Used & required CS products

Provider	Product type	Provided product	Used product		Required product
IMN	Climate data	Station-based time series for atmospheric ECV's & derived variables (*temperature, humidity, radiation, precipitation, wind speed, wind direction, atmospheric pressure and dew temperature*)	Station data: T, RR, wind (daily min., max.; hourly); Observed & Re-analysis ECV data		
IMN	Climate statistics, diagnostics & monitoring	Examples (among others): Climate Atlas (maps climate normals for rain, temperature, sunshine [61-90]); isohyet maps (daily); monthly bulletins; ENSO bulletin; scientific publications; satellite images; ephemerides; tides; *climate analysis and summaries on demand*	average isohyet maps; Intensity-duration-frequency analysis; Summaries of climatic data per year		
IMN	Regional Climate Conditions	Regional climatologies; monthly bulletins; climatology of airport locations; Reports: Atlas of watersheds of Costa Rica; *services on demand*			Patterns of climate behavior in different areas
IMN	Statistics on climate extremes / hazards	Weather warnings; monitoring of the Turrialba volcano (ash dispersion); reports and studies on climate variability/climate events/ENSO events and impacts; *services on demand*	Storm records		
IMN	Tailored climate statistics	*Services on demand*	Rainfall indices by region		Data processed for average and extreme events, rain or flow
IMN	Climate statements for sectors	Reports on specific events and support material for aeronautics			
ICE, SENARA, AYA	Hydrological data & information		Station data flow (max.; mean; min); Correlation analysis of precipitation and flow (averages and extreme events); Analysis of individual extreme events		
IMN/ others	Impact information on terrestrial systems	Reports and studies on climate variability/climate events/ENSO events and impacts	Map of flood zones		Landslide hazard map
IMN/ others	Impact information for specific sectors	Reports and studies on climate variability/climate events/ENSO events and impacts	Statistics of events and effects on the National Road Network		
IMN/ others	Vulnerability/risk information	Reports on hydro-meteorological risks for specific regions; analysis of the current risk of the water sector	Hazard vulnerability maps		Risk and vulnerability maps of national roads to climate events
IMN	Long-range forecasts and outlooks (seasonal – decadal)	monthly and seasonal (3-month) predictions on rainfall (national and cantonal scale); climate outlooks (6 month, annual; regional scale); outlooks on canicula days an Indian summer; ENSO bulletin;			
IMN	Climate change projections	precipitation, average temperature, maximum temperature and minimum temperature, for the period 2011-2100 [30 a periods; 1 RCM; scenario A2&B2]; report on regionalized climate change scenarios for Costa Rica	Projections of climate change (RCM)		
IMN/ others	Climate change impacts	Reports on climate change impacts on the agricultural production in CR; availability of water resources in CR; effects of climate variability and change on human health in CR.	Projection models of discharge, floods and landslides		
IMN/ others	Climate change vulnerability/risk information	Reports on climate change consequences for food security in CR; vulnerability and adaptation of infrastructure to climate change; climate change risks of water sector in CR; vulnerability of the water system to climate change.	Hazard vulnerability maps		Risk and vulnerability assessments of national roads to climate events
IMN/ others	Further education on climate (change) issues (methods & awareness)	Educational material and information: atlas of clouds; climatological atlas; storms; hurricanes, UV-index; Meteorological instruments; Meteorological glossary; weather, climate and climate variability in CR; ENSO; climate change, -risks, -impact, -mitigation, -adaptation and research and development capacities; *Talks on demand*			Training and exchange on development and analysis of impact projections
IMN/ others	Further education for decision-making support	Reports on integration of activities and studies of vulnerability and adaptation to climate change; adaptation of water resources to climate change in CR; identification and prioritization of measures to adapt the water system to Climate Change in CR; importance of the Costa Rican agricultural sector in mitigating global warming			

Baseline assessment – key results and added value (4/4)

Key findings from Costa Rica (examplary)

- Most used products: little tailored data products
- Most required products: tailored and sectoral aggregated information products
- „Restricted access“ and „unaware of existance“ as major reasons of limited use
- Potential sectoral expert has restricted access to climate information
- Basic climate services are not available (no hydrological service does exist)
- Intermediates are often not considered explicitely as Climate Service providers
- Intermediates do often not adopt/perceive their role as climate information provider

=> Major work of value-adding has to be done by users

=> Project-specific value-added products are lost for the sector

Conclusions (1/2)

Good practices & lessons learned

Good practices: The consideration of **conceptual approaches of the „Climate value chain“ & the „dimensions of CS“** in the baseline assessment reveales valuable information for the identification of **entry points for capacity development** measures to enhance the provision and use of Climate Services.

Good practices: The cooperation with a **development agency** facilitates access to expertise on **development cooperation** and **institutional networks** within the countries.

Lessons learned: The instituional and service dimension provide the opportunity to escape from the **tough-terminating cliché “lacking capacities”.**

Lessons learned: the **National Climate Service** is not (necessarily) represented by the NMHS.

Conclusions (2/2)

Challenges

Challenge #1: comprehensive but focused assessment of the 5 pillars of the GFCS
=> getting detailed information with manageable and acceptable effort

Challenge #2: comprehensive but focused assessment of the value chain
=> detailed vs. general information; challenge of up-scaling

Challenge #3: complexity of assessment framework
=> comprehensive concept vs. straightforward and focused data collection

Challenge #4: transfer of assessment approach to Climate Service governance systems
=> No easy to apply template available

Thank you!

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