



International Cooperation

Sustainability in Hydropower 2023 - Sharing experiences and knowledge

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Chief of staff, NVE

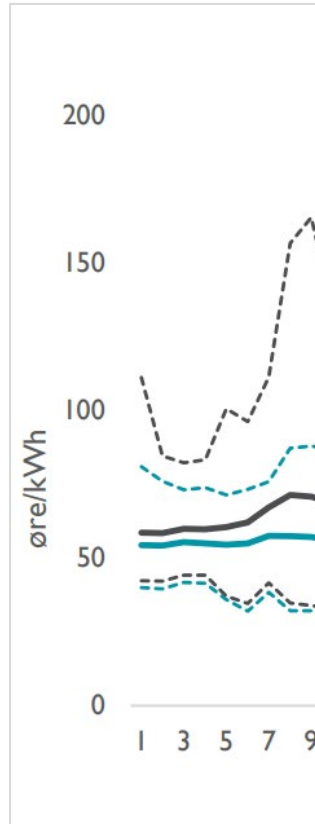
12th of June 2023



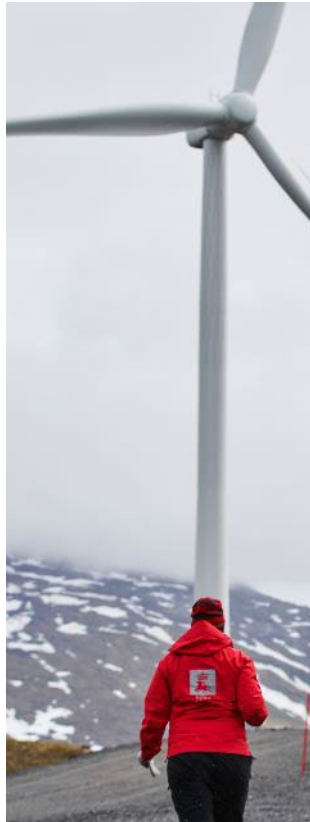


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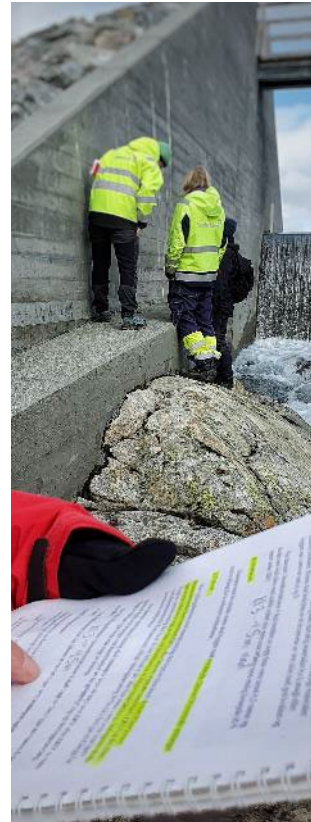
Energy



Analysis



Consession



Supervision

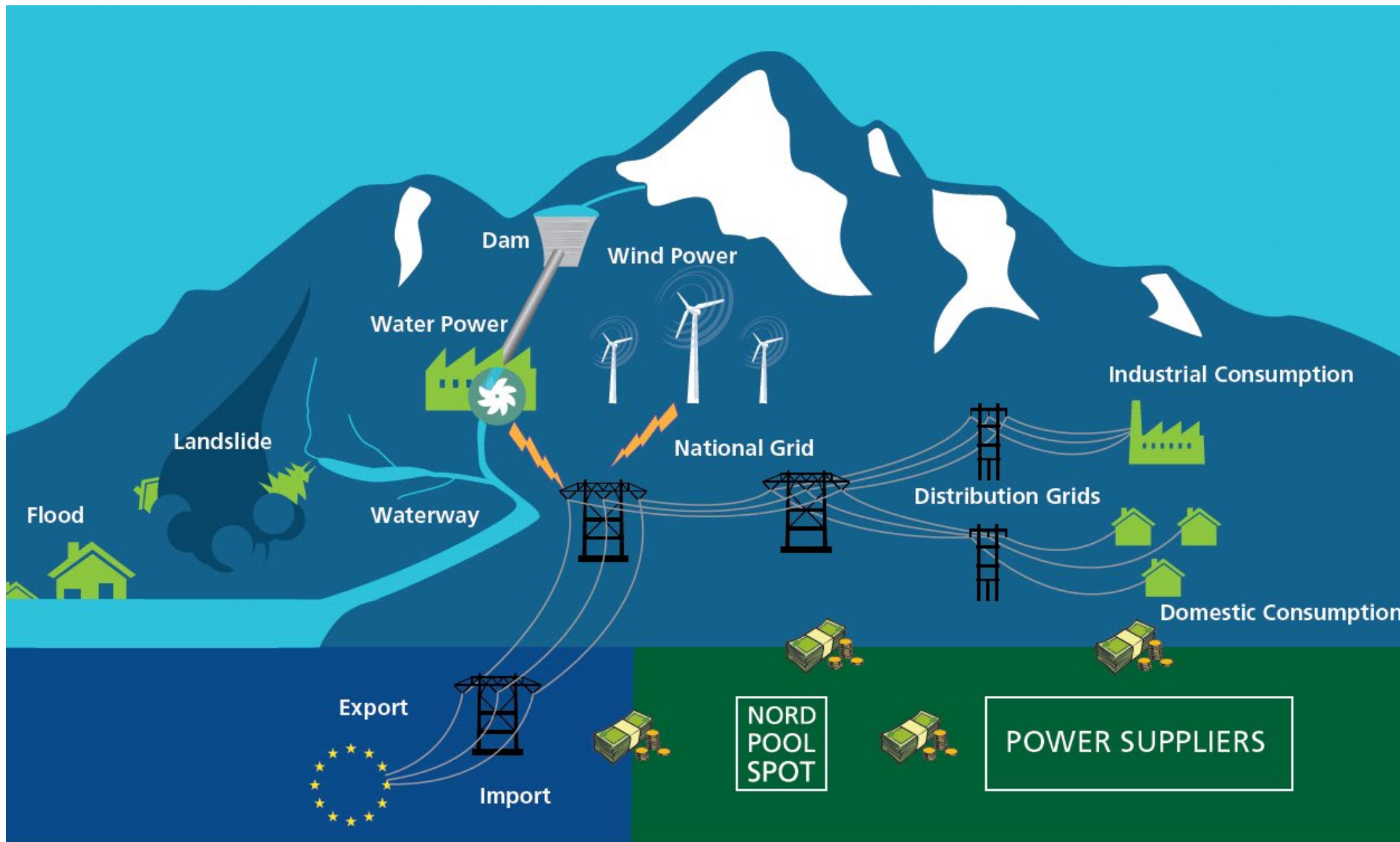


Preparedness



Regulation
(RAE)

Illustration of NVEs working areas



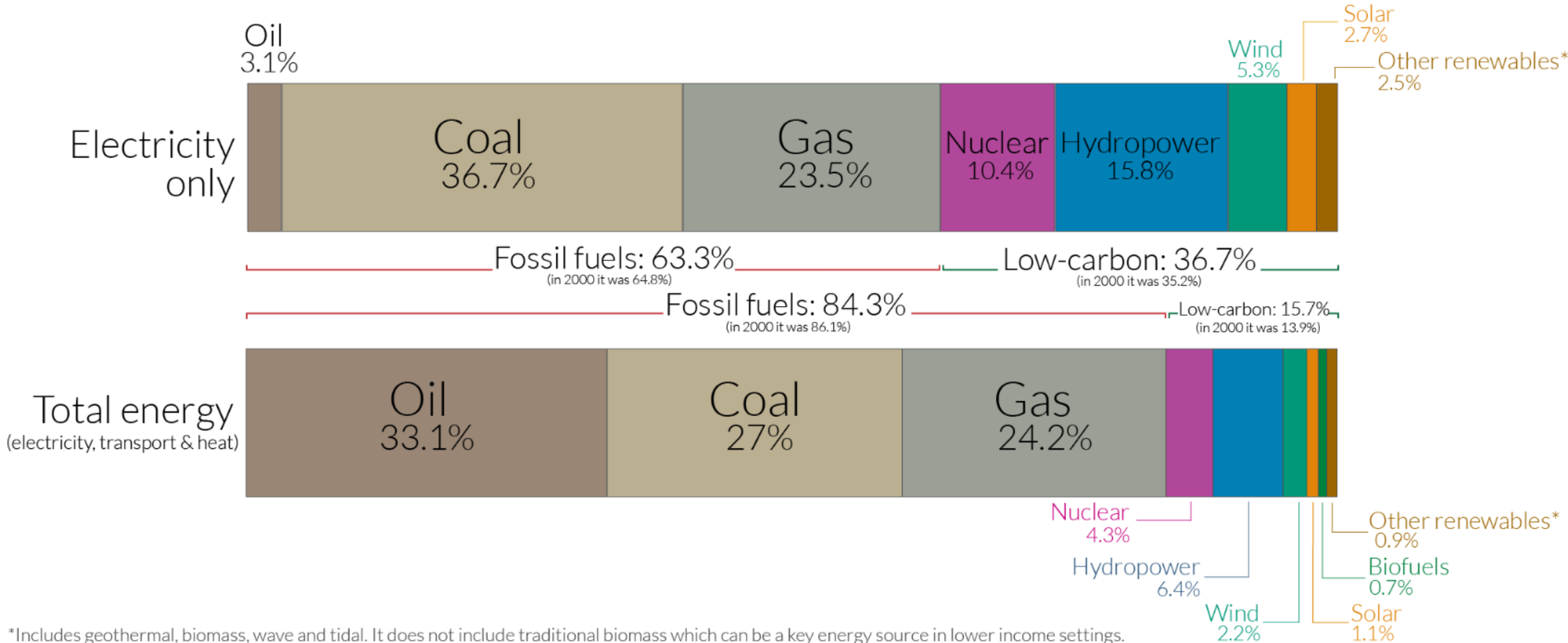


Institutional cooperations

✚ = previous cooperations

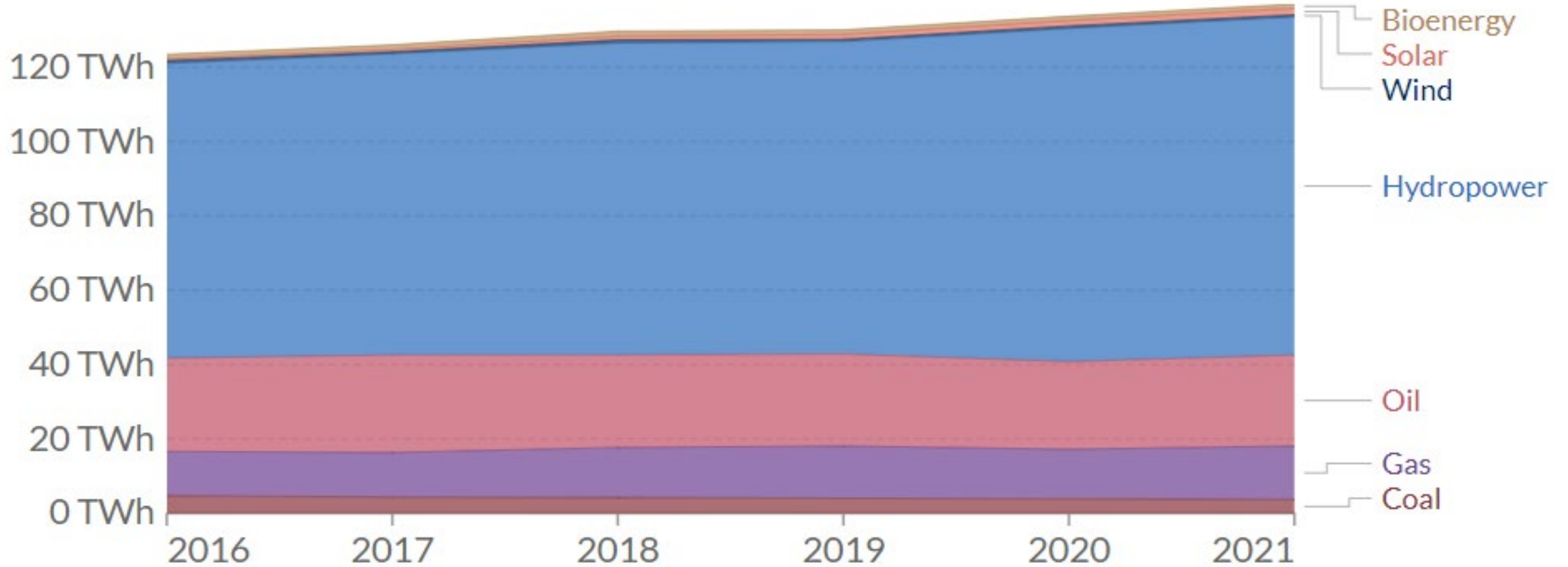


Global energy mix – 2019 figures



*Includes geothermal, biomass, wave and tidal. It does not include traditional biomass which can be a key energy source in lower income settings.

Electricity production by source, Low-income countries

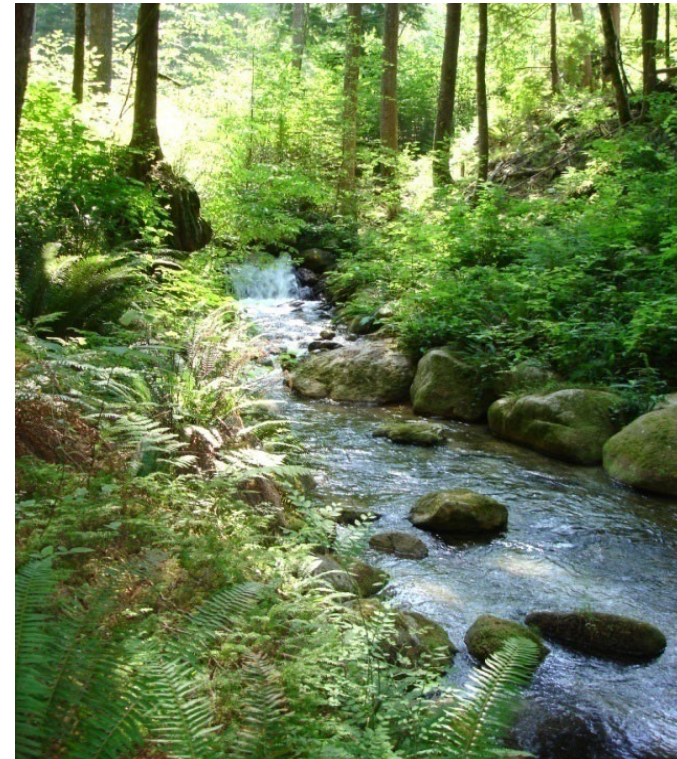


Source: Our World in Data based on BP Statistical Review of World Energy (2022); Ember (2023)

Note: 'Other renewables' includes waste, geothermal, wave and tidal.

Premise for sustainable hydropower

- A good legislative framework and administration with power to enforce relevant licensing conditions
- Protection plans for watercourses
- Dam safety regulations
- Environmental supervision, follow up during construction and operation
- European water framework directive



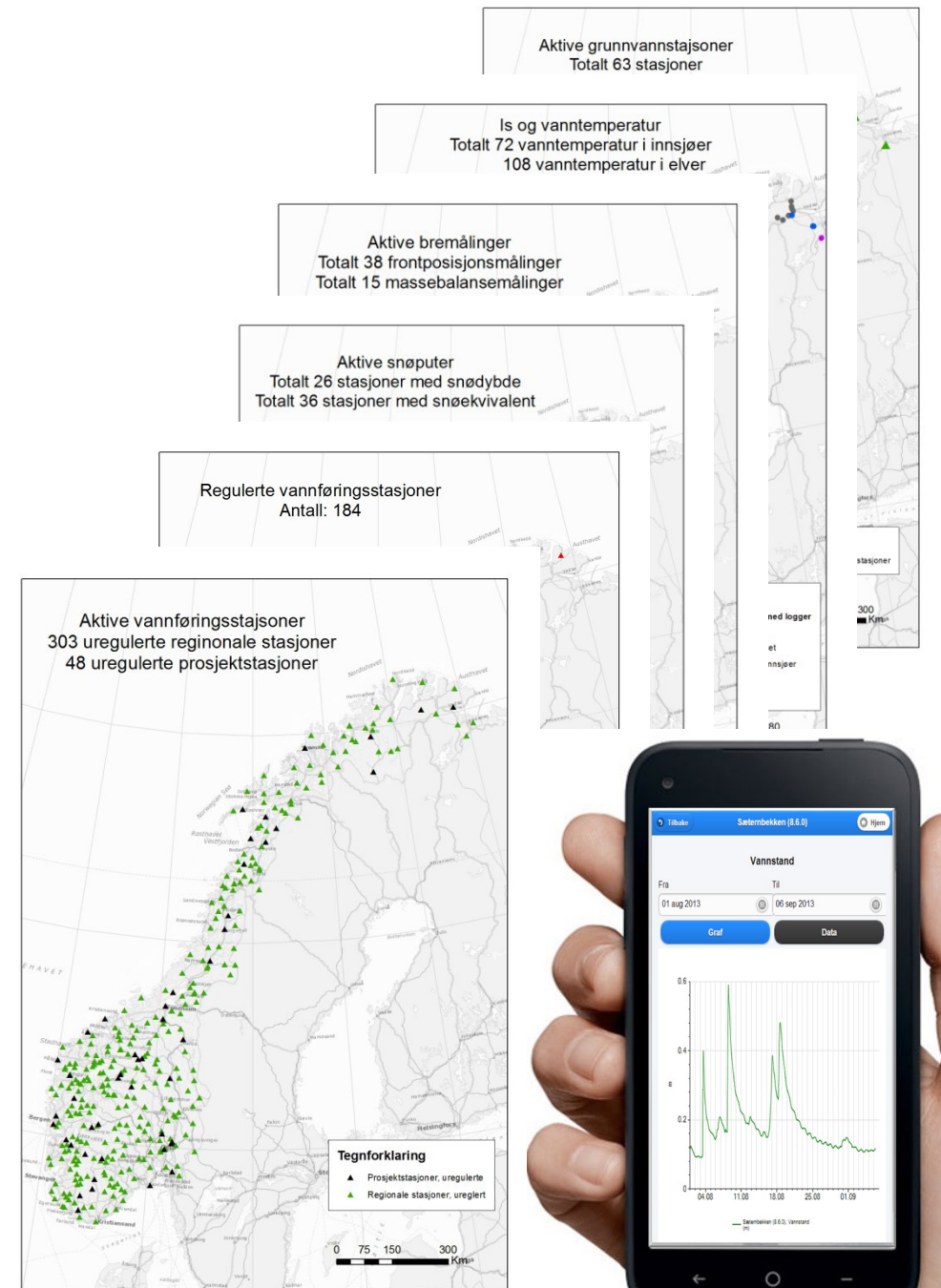


Hydrological data



The basis for water resources management,

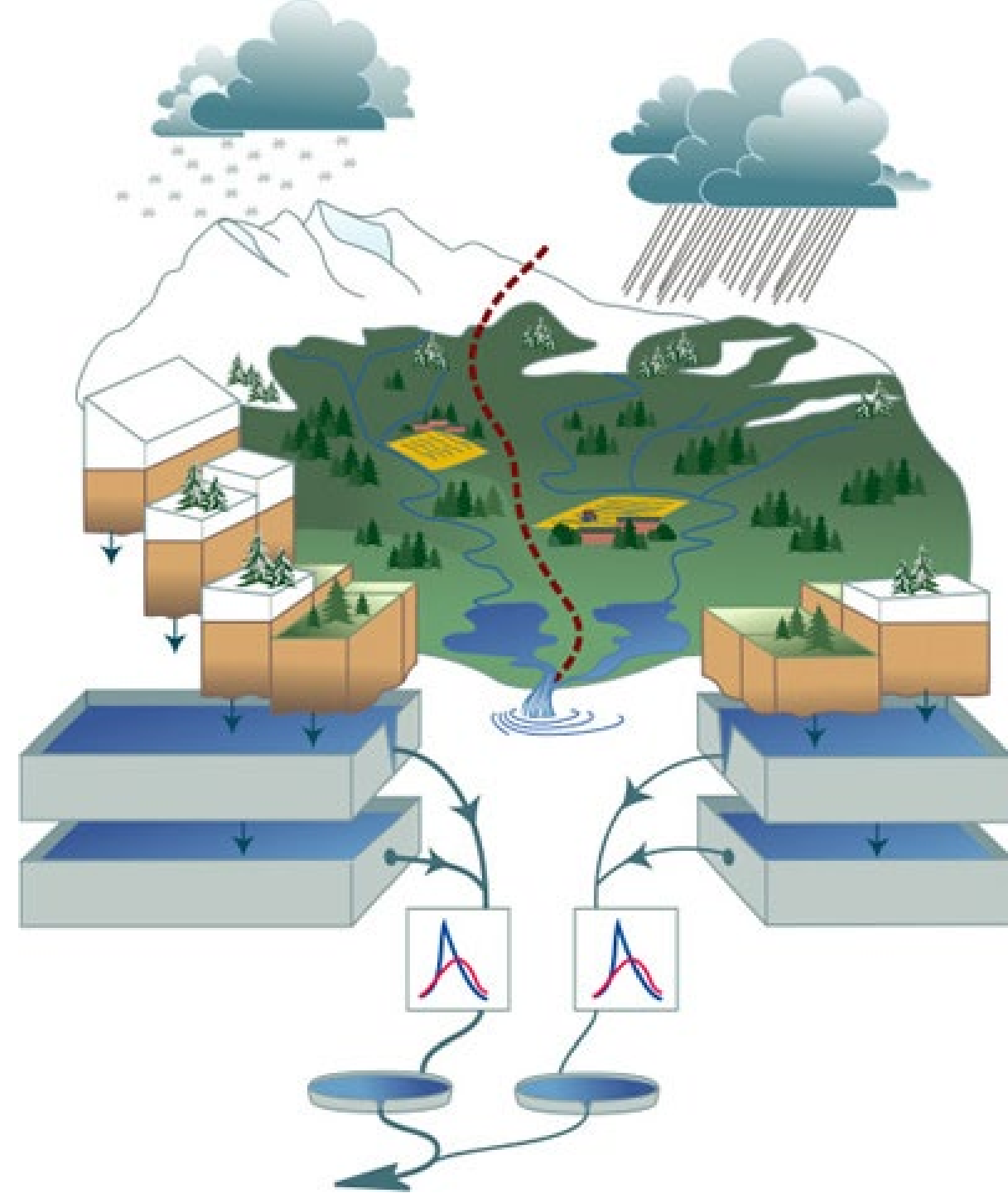
- Water level and river flow
- Groundwater and soil moisture
- (Snow, ice and glaciers)
- Water temperature
- Sediment measurements



Hydrological modelling

To predict, e.g.:

- Runoff
- River flows, including flood forecasting & droughts
- Climate change effects
- Extreme floods, low flow indices
- Storm water runoff





Safety of Hydropower Dams and Water Ways



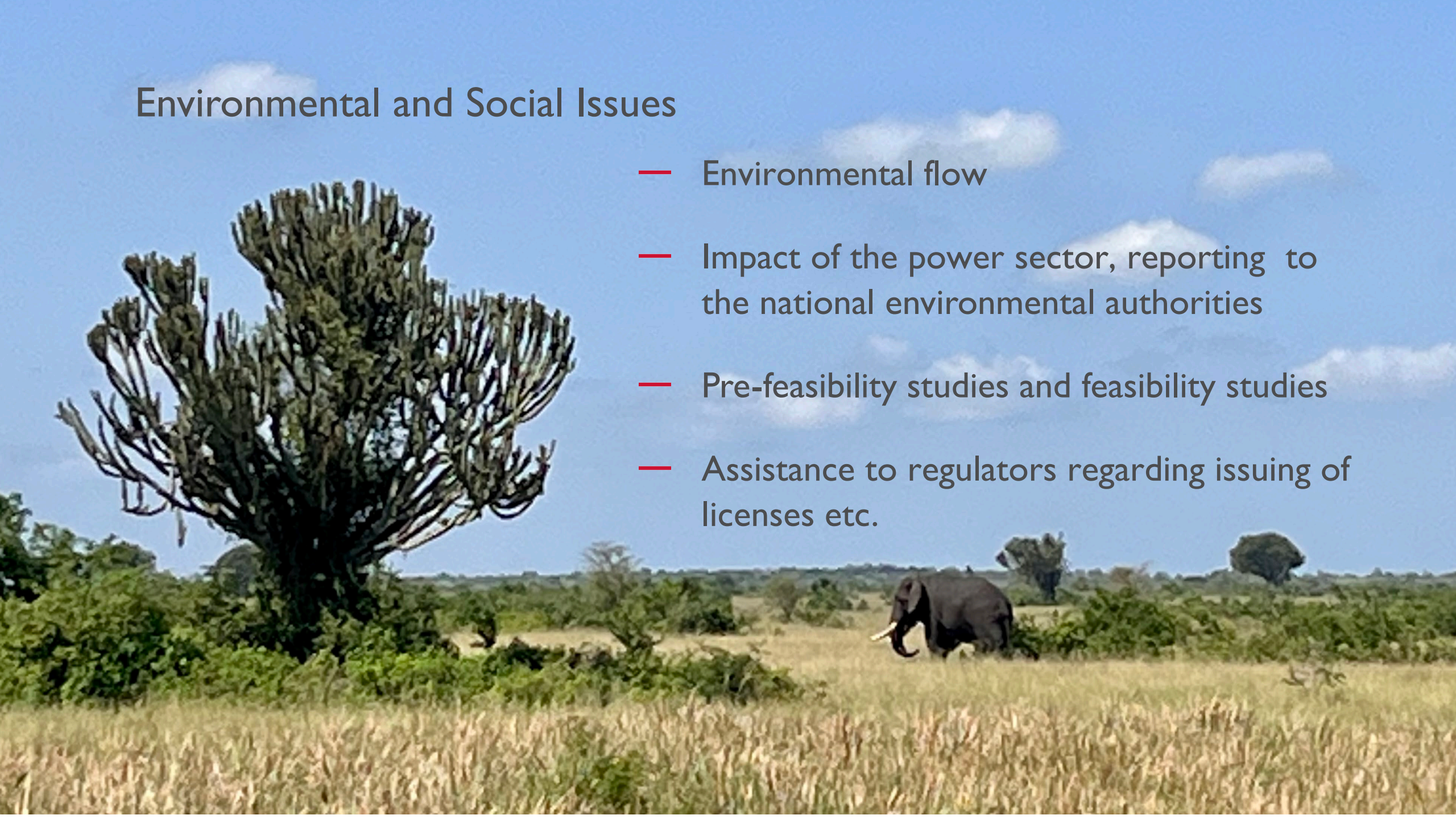


Dam and Water Ways Safety Topics

- Classification of dams and other hydraulic structures
- Hands on training and skills development
- Development of enforcement framework for dam safety, including guidelines/regulations;
- Development of tools to monitor and enforce the guidelines/regulations
- Dam and water ways breach analyses

Environmental and Social Issues

- Environmental flow
- Impact of the power sector, reporting to the national environmental authorities
- Pre-feasibility studies and feasibility studies
- Assistance to regulators regarding issuing of licenses etc.





Ministry of Energy - MIREME

- Development of legislation
- Energy Analysis
- Education

Energy regulator - ARENE

- Capacity building and strategic advice
- Data collection and development of tariff model
- Development of communication strategy



Uganda



Energy regulator - ERA

- Technical and economic regulation of power industry
- Data collection and tariff review
- Social and environmental conditions in connection with development and production from hydro
- Capacity building



NEPAL



- Chosen as EFD (Energy for Development)
- Planning phase now
- Ambition: Support capacity in connection with the green shift

- Establishment of weather stations
- Data about snow and glacial melting in the Himalayas
- Data for environmental impact assessments

Regional member countries

We are an intergovernmental institution set up by our eight RMCs, whose governments support us and provide us strategic guidance.



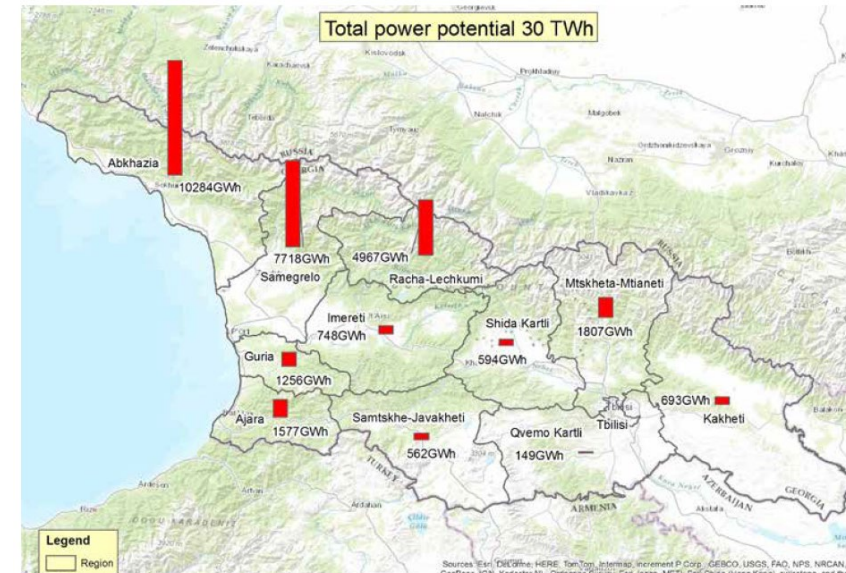


Challenges





NVE also benefit







THANK YOU FOR YOUR ATTENTION



NVE

<https://www.nve.no/international-cooperation/>