

# HYDROPOWER AND ITS FUTURE ROLE

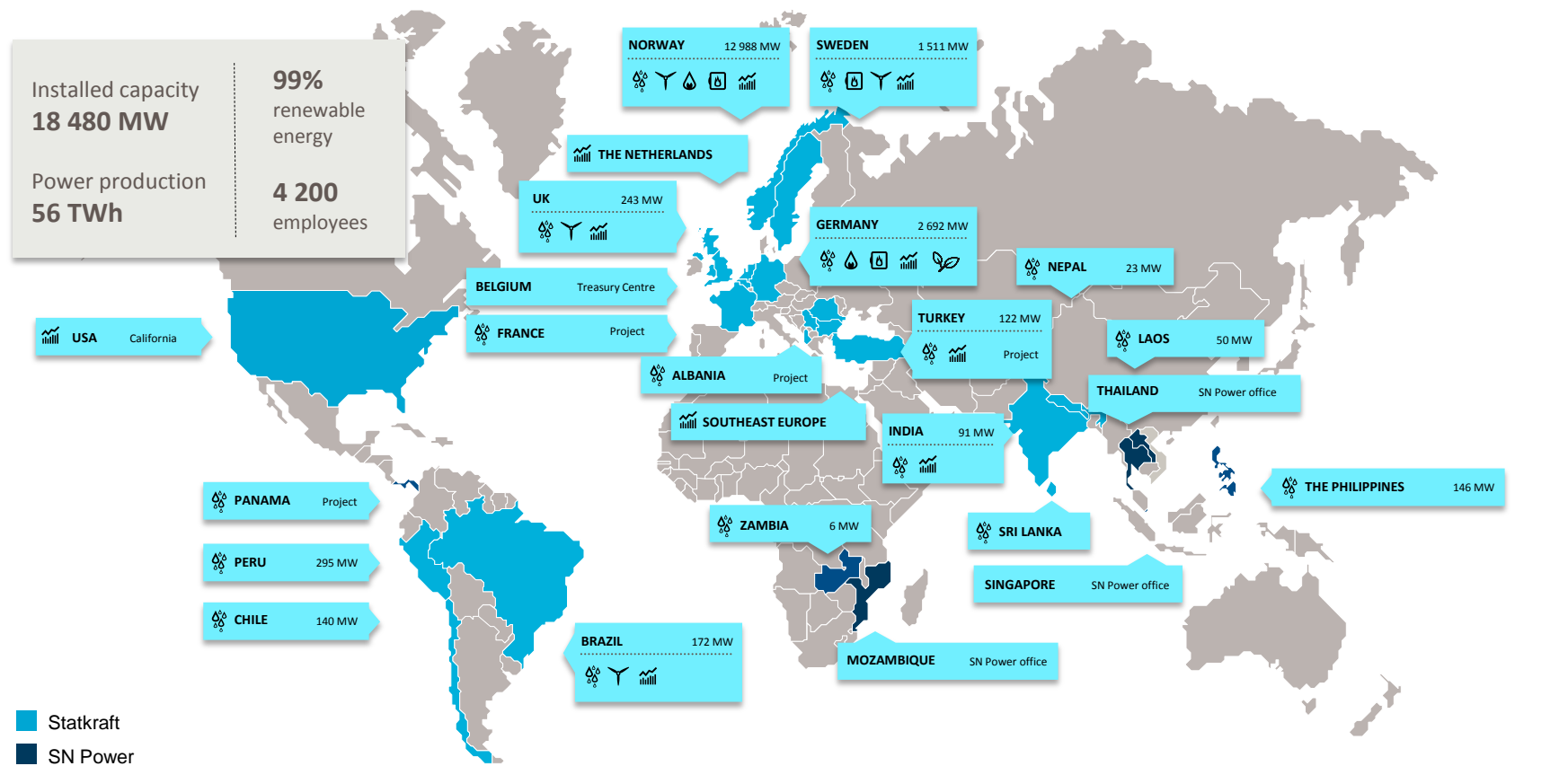
## *HYDROPOWER DEVELOPMENT IN SOUTH- EAST EUROPE*

Ayşe Kolat

Istanbul, 21 January 2016



# Statkraft's global presence

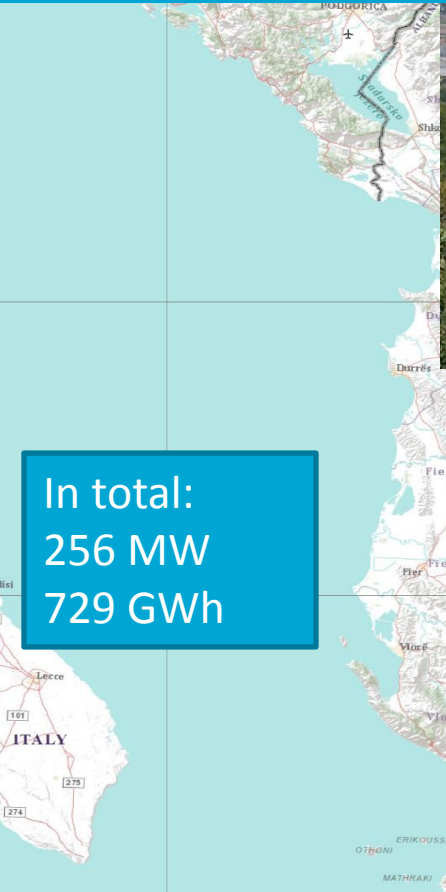


# Statkraft Portfolio in Turkey

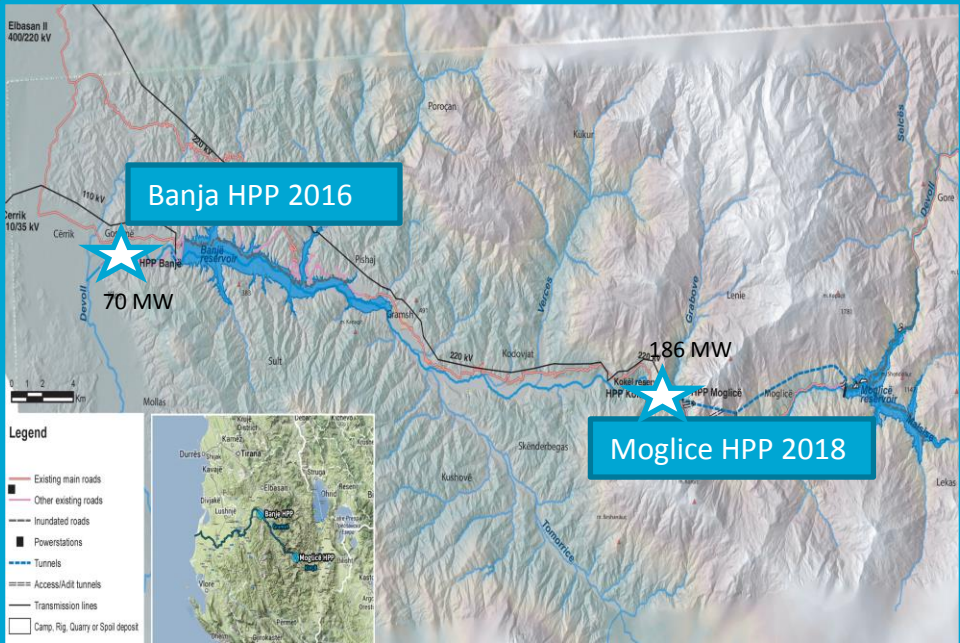




# OVERVIEW DEVOLL



In total:  
256 MW  
729 GWh



# A journey from Nordics to SEE

- ▶ Ongoing development potential
- ▶ Water availability – regional variations in climate change impact
- ▶ More favourable power prices and growing demand
- ▶ Different uses of water – needs and priorities
- ▶ River basin management – or lack of it
- ▶ Geology – sedimentation handling, landslides, lessons in boring a tunnel
- ▶ Environmental impact assessment – E flows and fish passes
- ▶ Social impact studies – regulations vs voluntary work
- ▶ Free market vs controlled vs non-existent
- ▶ One stop shop vs.....
- ▶ Renewables incentive schemes – a guarantee for financing

# Devoll ESM Planning based on international best practice:

Required by Albanian law:

- Strategic Environmental Assessment
- Environmental and Social Screening
- Environment and Social Impact Assessment (ESIA)



Recommended by International best practice:

- DHP Sustainability Policy
- ESIA Planning Report
- Pre-feasibility Study
- Environmental and Social Scoping
- Strategic Environmental Assessment
- Environment and Social Impact Assessment (ESIA)
- Entitlement Matrix
- Environment and Social Management Plans
- Grievance Redress Mechanism Policy
- Annual Implementation Plans



**Hydropower  
Sustainability**  
Assessment Protocol



**EQUATOR  
PRINCIPLES**



**Statkraft**

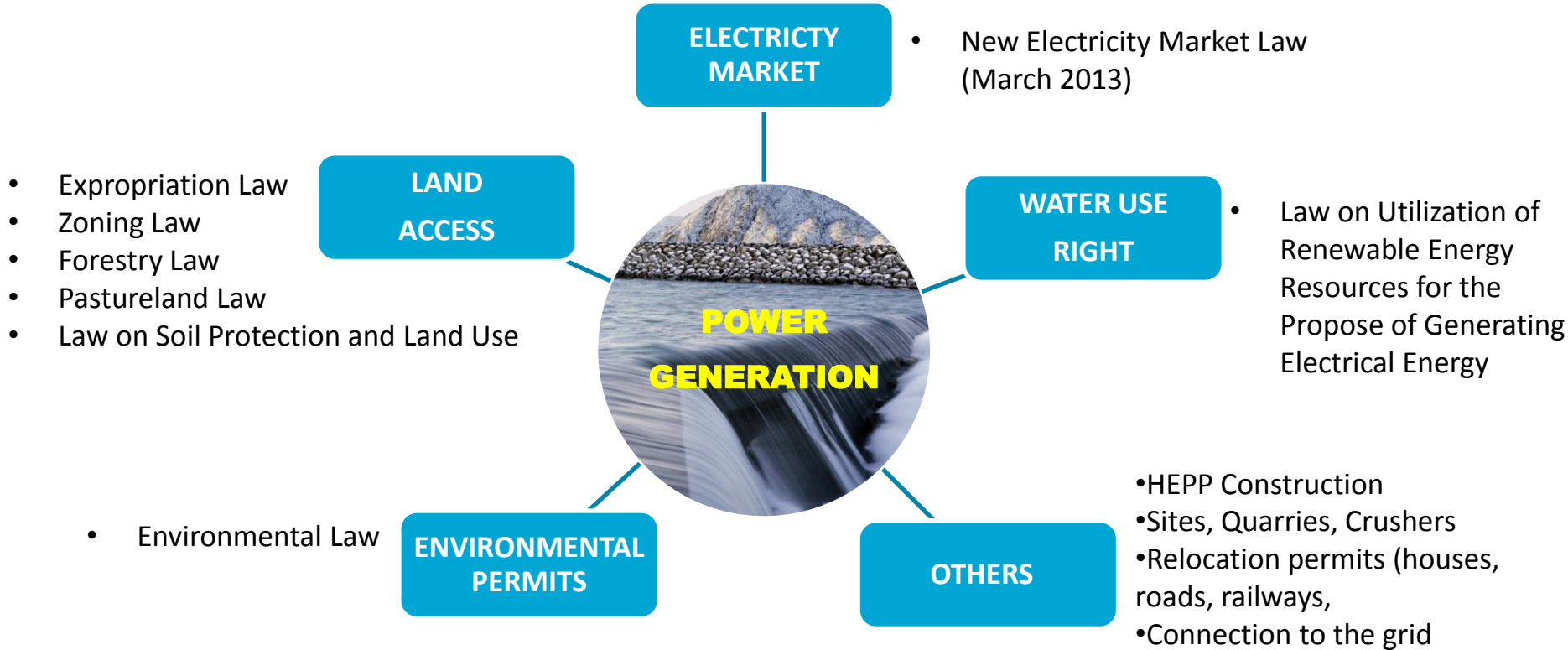


# Turkey - Diversified stakeholder universe

- ▶ EPDK (EMRA)
- ▶ Ministry of Energy and Natural Resources
  - TEİAŞ - Transmission
  - EÜAŞ - Generation
  - DG ENERGY AFFAIRS
  - DG MINING AFFAIRS
  - DG INTERNATIONAL AFFAIRS
- ▶ Ministry of Water and Forestry
  - **DSİ - State Hydraulic Works**
  - DG Forestry
  - DG Nature Protection and National Parks
- ▶ Ministry of Environment and Urbanization
  - DG EIA
- ▶ Ministry of Finance
  - General Directorate of National Real Estate
- ▶ Parliament
- ▶ General Staff



# Strict local regulatory requirements





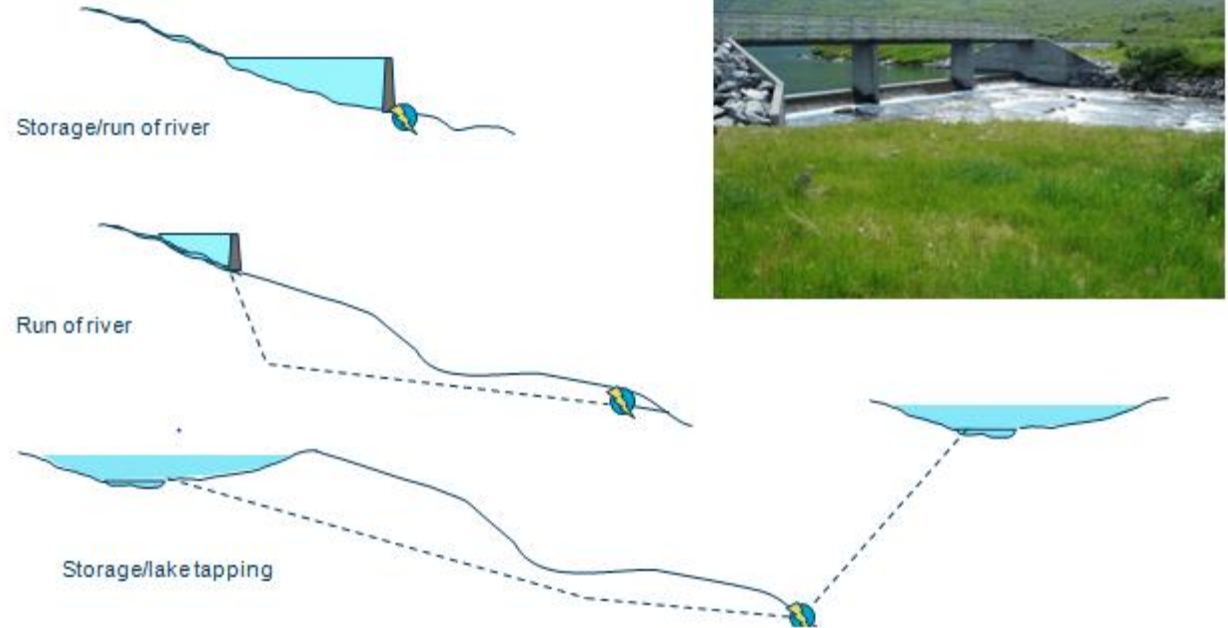
# Around liberalisation and privatisation

- ▶ Power production is now for private players to invest in
- ▶ But only for the very serious, patient, strong and adaptable ones
- ▶ Numerous permitting obligations according to legislation
- ▶ Commitments made in permit applications and full legal and regulatory responsibility as license owner
- ▶ And Statkraft's commitment to international standards in sustainability

<b>MAIN FACILITY PERMITS</b>	
	Generation License
	Feasibility Approval
	Water Usage Right Agreement
<b>POWER PLANT PERMITS</b>	
	Land Access
	Expropriation
	Public Benefit Decision
	Private Land
	Public Legal Entity (Article 30)
	Treasury
	Unregistered Treasury Land
	Forestry Land
	Drilling Works & Access Road
	Material Dumping Areas
	Meteorological Station
	HEPP Reservoir Area
	HEPP Dam Construction
	HEPP Material Dumping Site & Access Road
	Explosive Magazine
	Mine Operations
	Site Construction & Access Road & Material Dumping Site
	Mine Operation Enlargement
	Mine Operation Enlargement
	Mine Operation Enlargement
	Road Enlargement & Material Dumping Site
	Ozpınar Bypass Road
	Spillway and Crest Access Road Enlargement
	General Staff Approval
	Environmental
	Environmental Impact Assessment
	Wetland Permit
	Soil Protection Plan Approval
	Excavation Waste Disposal Permit
	Temporary Facility Permit
	WWTP Design Approval
	Construction Permits
	Preliminary Project Approval
	Final Project Approval
	Temporary Acceptance
	Final Acceptance
	Final Acceptance (DSI)
	Gauging Stations
	Minimum Flow Report
	Downstream Water Use Right Report
	Ecosystem Report
<b>TRANSMISSION LINE</b>	
	EIA Approval
	Land Access
	Grid Connection Agreement
	Project Approval
	Temporary Acceptance
	Final Acceptance
	Handover
	Grid Usage Agreement
<b>MINING LICENSES</b>	
<b>GSM for MINING LICENSES</b>	
<b>OPERATION PERMITS</b>	
	Capacity Report for HEPP
	Workplace Open and Work Permit (GSM)

# Optimisation Through Design Alternatives

Elaboration of different schemes for optimization and minimization of social & environmental impact.



# While ensuring sustainability in Turkey

## Mitigating Social Impacts

- Regular consultations with impacted communities & Grievance Mechanism
- Inclusive stakeholder dialogue
- Livelihood restoration programs
- Local development and community assistance initiatives
- Protecting local cultural heritage



Etektrofikasyon Sampling



Cast Net sampling



Length measurements of Capoeta damascina

Gill net sampling



Gill net sampling



Length measurements of Garra rufa

## Mitigating Environmental Impacts

- Waste and pollution control
- Biodiversity and ecosystem protection - Extensive surveys and measures
- Environmental flows
- Fish passes and weirs
- Rehabilitation of affected areas
- Reforestation

# And Albania

Before ...

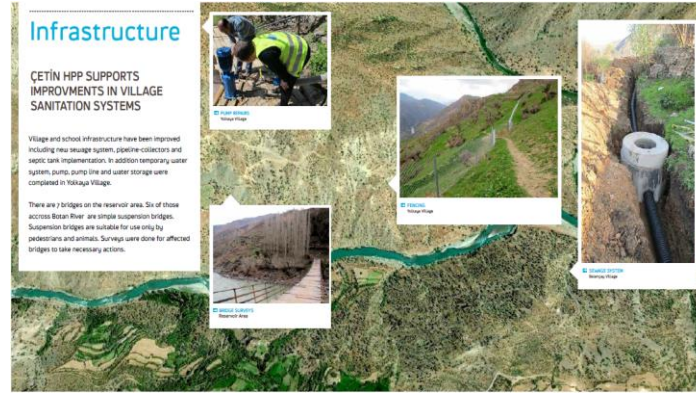


...And  
after





# Through management at project level



## Education

ÇETİN HPP CARES ABOUT EDUCATION



### SUPPORTING LIBRARIES

About 14,000 books were donated to Pervari School Libraries and this had been planned in collaboration with Cemal Kartal, Project Coordinator at Pervari Subgovernorship. Mehmet Caklan Pervari District Director of National Education presented a plaque to Çetin HPP on behalf of Duran Eryılmaz Subgovernor of Pervari in appreciation for supporting school libraries in their district.



# Where communication is key

## Regional & Local Authorities

- ▶ Governor & subgovernors
- ▶ Mayors, Village Heads
- ▶ Law Enforcement
- ▶ Legal entities (village etc.)

## Project Affected People

- ▶ Landowners, property owners (house, barn etc.)
- ▶ People with usage rights
- ▶ People residing in the vicinity of the project and are affected by dust, noise, traffic etc.
- ▶ Villagers who use current project areas for grazing







# THANK YOU

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**Statkraft**  
PURE ENERGY

[www.statkraft.com](http://www.statkraft.com)

# Statkraft Road Works

Before ...



...And  
after





# Stakraft's Future Water Availability Project -2015

## Climate change

What are expected changes in precipitation, discharge, temperature etc. and their impact on our production in our current and future plants? Forecasts and assessments should be at the lowest possible and practical scale.

Related Fields:  
Meteorology, Hydrology,  
Production planning

Changes supply

## Society growth

How is the country or region expected to grow in terms of economy and population? What effect will this have on power demand, water consumption (domestic, agricultural, industrial, energy sector)?

Related fields:  
Policy, Public Affairs,  
Environment

Changes demand

## Regulatory actions

How will new policies impact our business? What are the priorities for water allocation? Which energy policy is tracked (renewable/hydropower share)? Regulatory changes in water law (environmental flows) expected?

Related fields:  
Legal, Public Affairs,  
Environment

Changes management

► Analysis of Global Climate Models, and observations suggest that future temperatures are likely to increase over Turkey by 0.6°C in the annual mean between 2010 and 2050 over time and a decline is expected in total precipitation\*

\*Norwegian Met Report 10/15 on Kızılırmak