
Hydropower for Sustainable Development 2011

Magat HEPP, Philippines

Experiences in sustainable Hydropower

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www.snpower.com



Erik Knive, Executive Vice President
SN Power

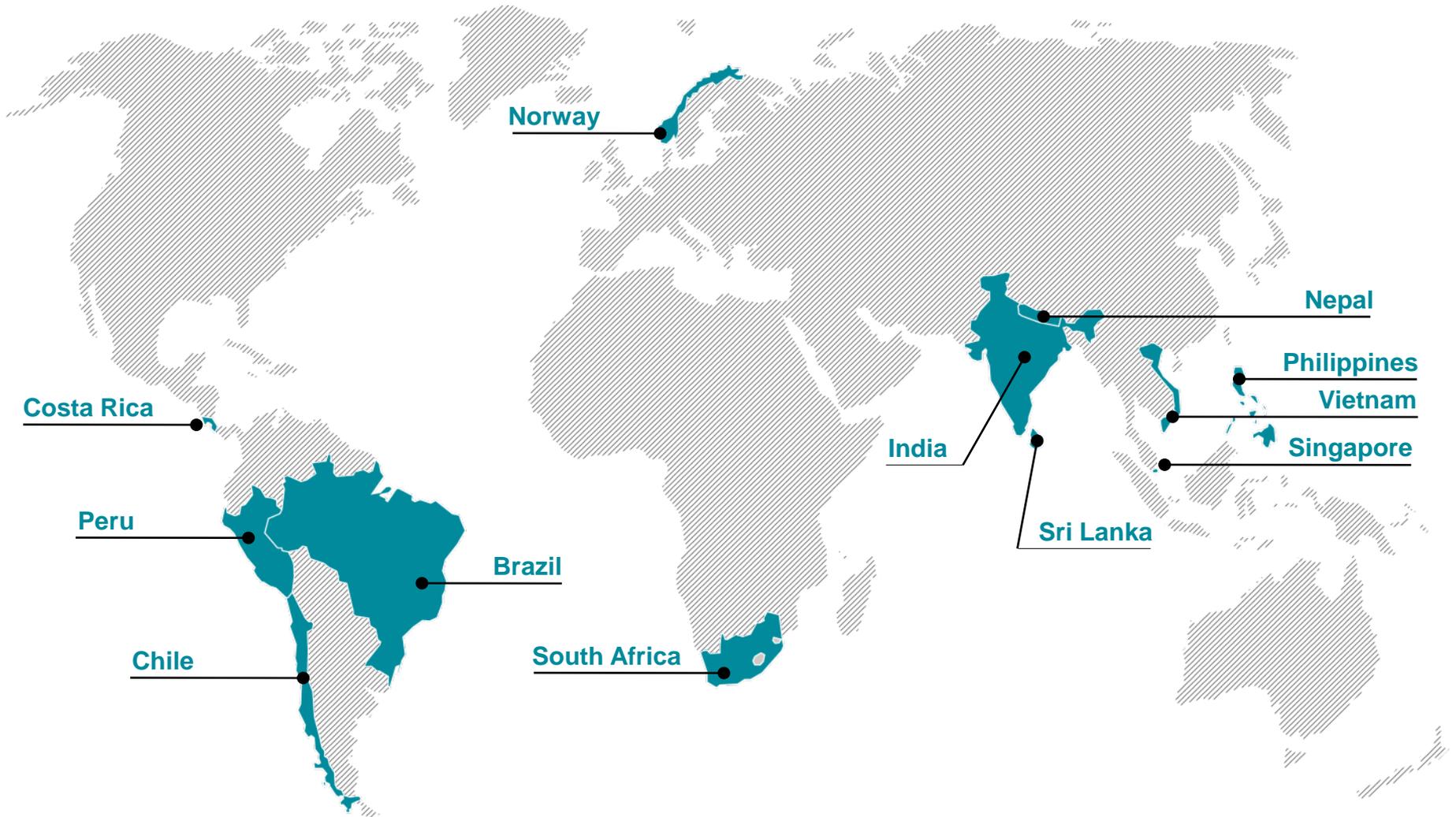
SN Power – Brief Facts

- ▶ Established June 2002
- ▶ Statkraft Group (60%)
 - Capacity: 15 806 MW / Generation 53.4 TWh
 - Operating revenue: 2.9 billion EUR
 - Europe's largest renewable energy company
 - Key player on the European power exchange
- ▶ Norfund (40%)
 - Norwegian Investment Fund for Developing Countries
 - Promote business development and contribute to economic growth and poverty alleviation
- ▶ SN Power's Core expertise
 - Operating in deregulated power markets
 - Greenfield and Brownfield project development
 - Operation and Maintenance of hydropower plants

World leader in construction, operations and maintenance of hydro-power plants



SN Power Global Organization



Balancing hydropower & water management

- ▶ SN Power supports and respects that hydro projects and dams should manage water for several interests: flood control, irrigation, recreation, drinking water, as well as generating renewable energy
- ▶ Hydropower is a mature and flexible technology with virtually no emissions and efficiency reaching 95%
- ▶ Globally, only 19% of hydropower potential has been developed and numerous developing countries, many in Africa, have huge untapped potential
- ▶ When done right and responsibly, hydropower has mutual societal and economical benefits as illustrated by Magat

Responsible hydropower entails sustainable and multiple use of the water



SN Power – our Philippine experience

- ▶ **Since 2006: 1.2b USD invested with Aboitiz Power**
 - Magat: 380 MW / 920 GWh; in operation
 - Binga: 125 MW / 370 GWh; in operation, undergoing stepwise rehabilitation
 - Ambuklao: 100 MW; under rehabilitation
- ▶ **SNAP among largest renewable producers in the Philippines**
 - Several awards for best project finance of merchant plant (2007) and project finance of Brownfield (2008)
 - 1% of net income after tax invested annually in CSR
- ▶ **Deregulation of power market (2006) has resulted in**
 - Increased FDI; IFC estimates SNAP's US\$1.2b investment paved way for additional US\$ 6b invested in power sector;
 - Reduced government debt;
 - Stable and sustainable electricity tariffs

SN Power has been instrumental in developing the deregulated power market in the Philippines



Magat – multipurpose dam with challenges

► Priorities of Magat multipurpose dam for Luzon region

- Irrigation water: 85 000 hectares of agricultural lands
- Flood control: Reservoir storage capacity 933 Mm³
- Important power supplier: 360 MW / 910 GWh

► Before SN Aboitiz Power takeover in 2006

- Run by National Power Corporation (NPC); solid knowledge, but lack of capital and resources
- Aged dam owned by National Irrigation Authorities (NIA)

► Challenge of multipurpose → multi-stakeholders

- NIA owns and maintains dam, and dictates water release
- PAGASA controls spillway when risk of flood
- NPC employees run power component
- Two Provinces share tax income

Magat 360 MW HEPP (1983);
350 km Northeast of Manila in
Isabela and Ifugao Provinces



Magat – key success factors

▶ Commercializing Magat and close stakeholder cooperation → increased revenue for all

- SNAP fulfills the Government's water payment to NIA
- NIA contracts dam Operation and Maintenance to SNAP
- SNAP pays business tax to local government

▶ Rule Curve is necessary and ensures:

- Stable supply of water and power
- Safe, predictable spilling during rain and floods

▶ Result

- Increased productivity through rehabilitation and optimized Operation and Maintenance
- Increased power output and security of supply to power grid
- Increased tax revenue to local government
- Mutual beneficial relationship



Magat priorities: 1) irrigation management; 2) flood control; 3) fully merchant hydro electric power plant

Key Messages

Erik.Knive@snpower.com



- ▶ Water is essential to life and water is scarce, especially in the developing world
- ▶ Hydropower, when done right and responsibly, has mutual societal and economical benefits
- ▶ Close cooperation between stakeholders of conflicting interests can optimize revenue for all
- ▶ Rule Curve is key for stable and safe output
- ▶ Ability for power producer to think new and adapt to local operational challenges is key for multi-stakeholder success

Key Messages

Erik.Knive@snpower.com



- ▶ Focus on the local requirements, and satisfy these, the growth correlation is clear and documented.
- ▶ Deregulate and decouple own market first and establish independent TSO and Regulator as step one.
- ▶ Establish credible local power pool now (essential).
- ▶ Lift smaller Hydro projects 50-300 MW now, faster and complex enough, also gives experience and accelerates growth and local industry .
- ▶ Involve/ use the private sector as investors (IPP) they have been and are key to economic development.
- ▶ There is enough private capital as long as conditions are adequate.
- ▶ True Project Finance enables many project with relatively little equity (70/30-80/20), no drag on government balance sheet.
- ▶ Government should have other priorities than power ownership in a developing economy. Some PPP possible, where required.
- ▶ Don't make all the same mistakes we did the first time around such as excessive bureaucracy and overreaching.