

Hydropower financing



- **Project financing**
Increasing the role of the private sector
- **Hydropower Preparation Support Facility**
Better project preparation and management of risk
- **Development of the green bonds market**
What could it mean for hydropower?

Increasing role of the private sector

- Historically, hydropower financing was the responsibility of the public sector, raising funds based on their creditworthiness or via concessionary finance.
- Fundamental shift following the decades of electricity market deregulation – finite public funds, with private finance seeking commercial returns.
- Numerous models have been developed to encourage private sector finance and help manage the risk - hydro is highly capital-intensive with a long preparation / construction phase, environmental risks & a project life > 50 years.
- No two projects the same, unlike other forms of generation.

Trends in hydropower financing

Sources of funding

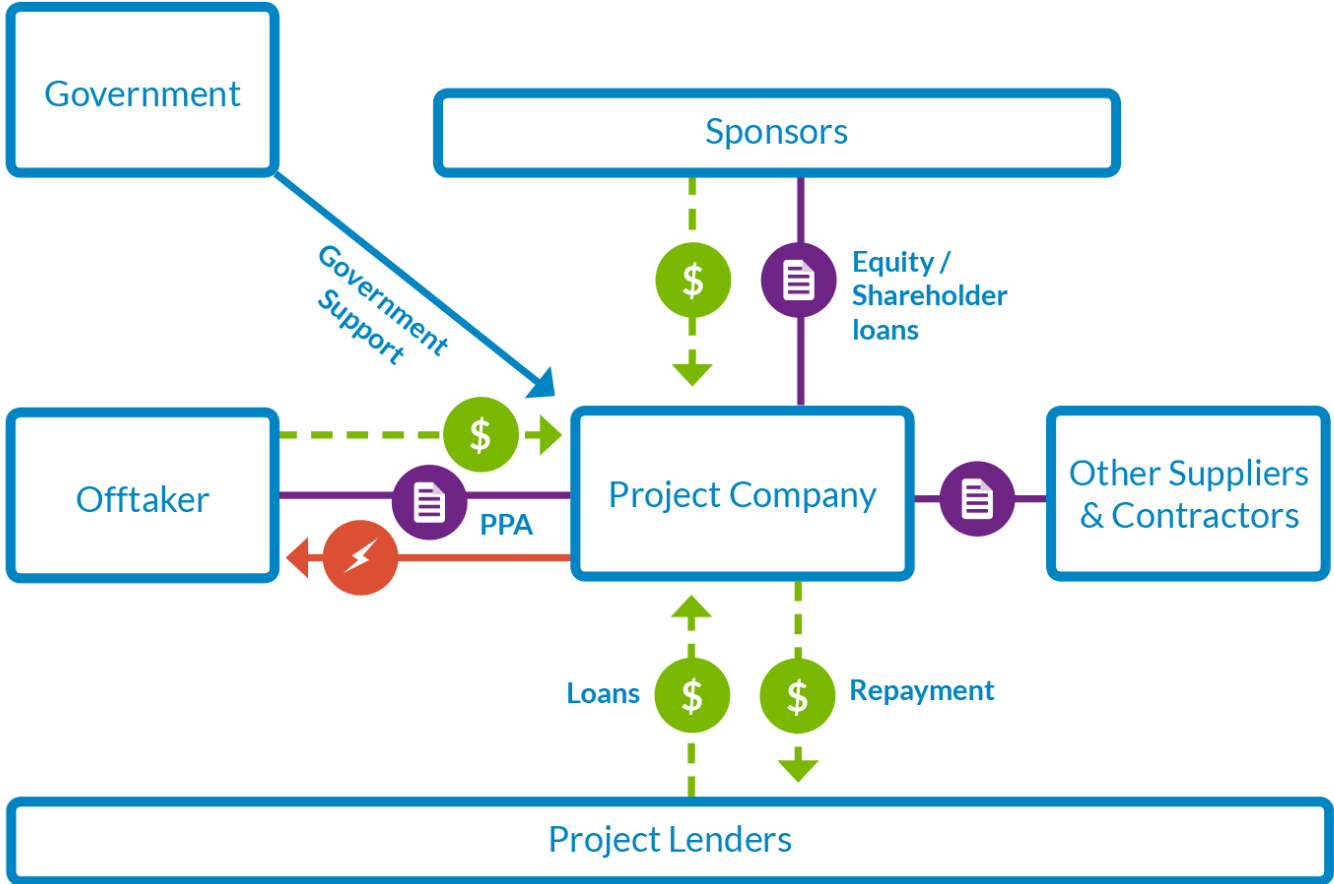
- **Multilateral agencies:** Such as the World Bank, they can provide a range of products from loans, equity stakes and technical assistance to mitigate risk.
- **Host government support:** Governments can take an equity share, provide concessionary finance and various forms of guarantees.
- **Developer financing:** Equity or via the capital markets i.e. bond issuances - the Grand Ethiopian Renaissance Dam and sukuk bonds in Pakistan.
- **International finance:** Notably Chinese investment - Exim Bank of China through the Silk Road Fund - the 720 MW Karot HPP in Pakistan.

Trends in hydropower financing

Example of a hydropower project financing arrangement

- **Public-Private Partnerships (PPPs)** are popular in some countries such as Lao PDR for hydro projects, as its seen as better VfM and allocation of risk.
- **Project financing** is common under PPPs – it's a means of financing a company created specifically to build and operate a project (could be under a BOT or similar model) with limited or no recourse to the company's shareholders.
- Under this arrangement, financing is dependent on the company's future cash flows often set out in a **Power Purchasing Agreement (PPA)** which is struck between the generator and buyer/offtaker – paying an agreed tariff over an agreed period. The PPA can be key to a project's bankability and success.

Project financing structure



Main barriers & risks to investment

Private sector

- **Highly capital intensive** - a lengthy and complex approval process. Significant upfront cost, with no certainty of the project being developed.
- **Political & payment risk** - political instability, uncertain regulatory regime, risk of not being paid, FX fluctuations etc.

Public sector

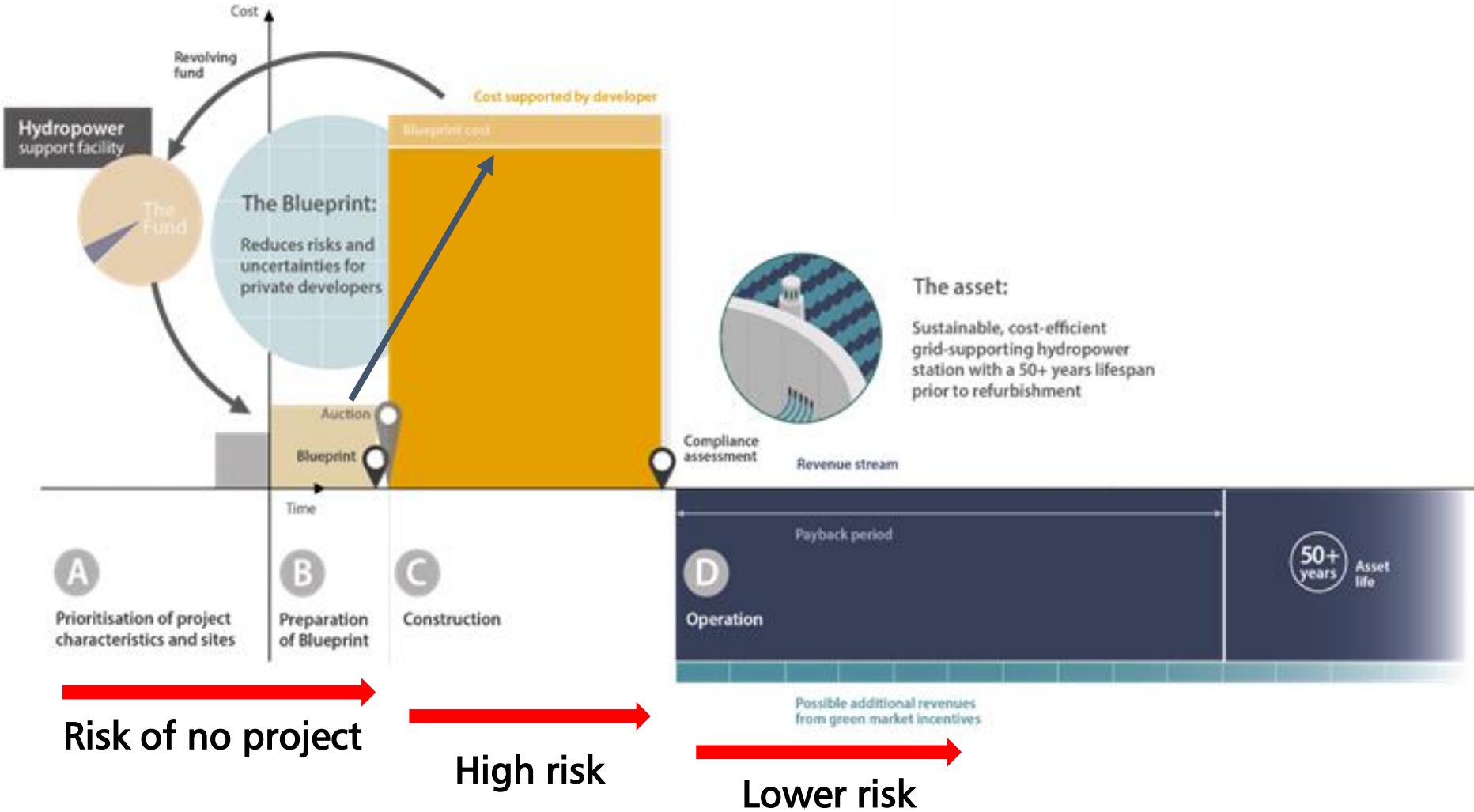
- **Potential lack of control** - projects not being built in the right way, in the right place aligning with a country's wider energy and water requirements.
- **Inflated electricity tariffs** - caused by for e.g. planning, approval and construction delays. Limited no. of interested developers.

Hydropower Preparation Support Facility

How can we reduce hydropower's high risk profile for both the public and private sector?

- Establishment of a support facility dedicated to fund, nurture and develop sustainable project blueprints, for a specific country or region.
- The blueprints would obtain the necessary approvals and with government involvement, projects would have the best strategic fit within existing systems.
- Blueprints would be auctioned to the private sector, with the funds raised returned to the facility to plan for future projects.
- Redresses the risk-reward balance and should encourage more private sector participation.

Hydropower Preparation Support Facility



Hydropower Preparation Support Facility

Not reinventing the wheel

- Similar concepts already exist – NEPAD Infrastructure Project Preparation Facility (IPPF), Sustainability Energy Fund for Africa (SEFA), Clean Energy Financing Partnership Facility (CEFPPF), Asia Pacific Project Preparation Facility (AP3F) and the Geothermal Risk Mitigation Facility for Eastern Africa (GRMF).
- However:
 - Little focus specifically on multipurpose hydropower development in key regions which meets the sector's needs and requirements; and
 - They are often grant based, not a revolving fund which can be unpredictable.

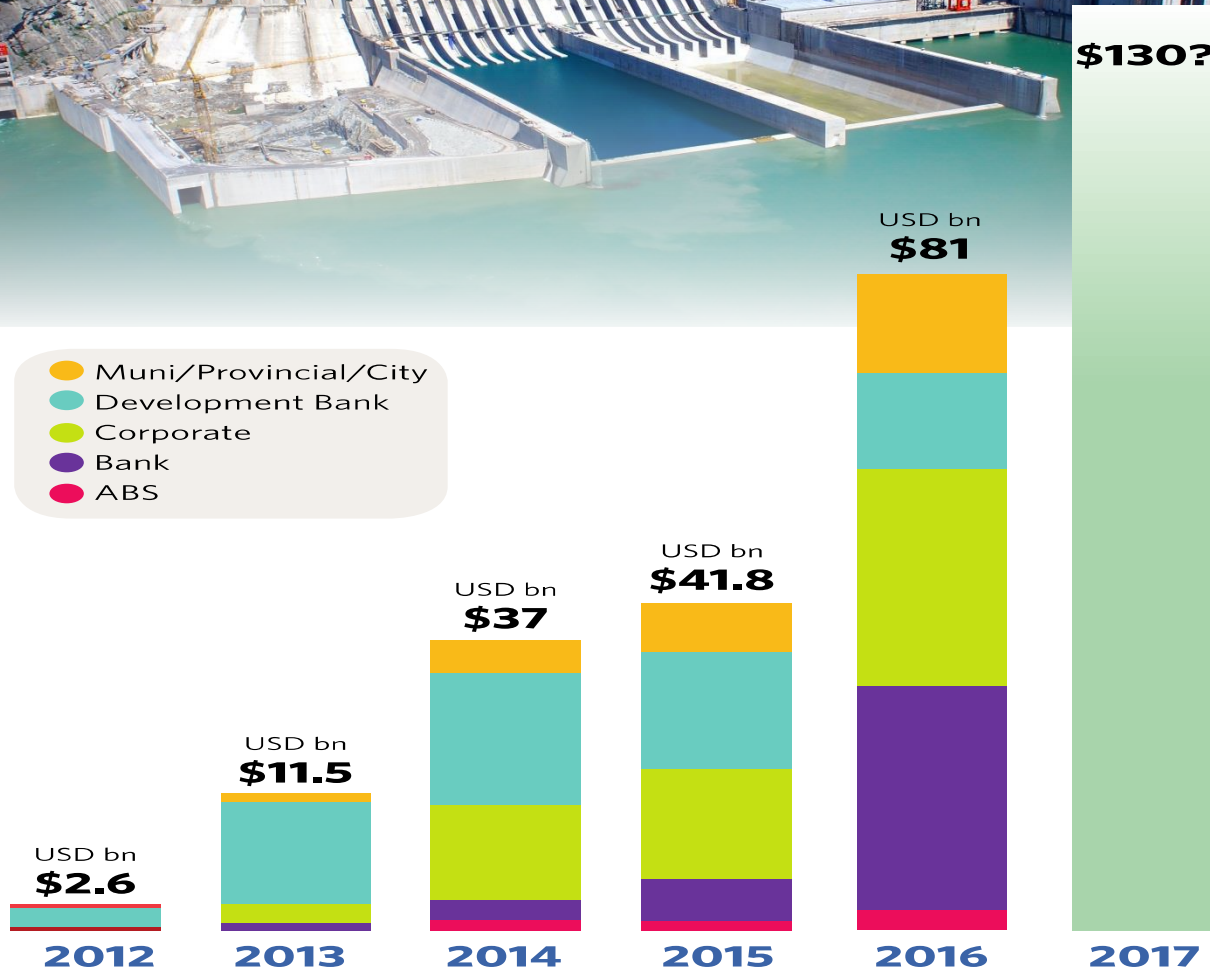
Hydropower Preparation Support Facility

Progress & next steps

- Positive discussions with governments, private sector lenders and financial institutions such as the World Bank Group, Ugandan Government and AfDB.
- After receiving strong support for the facility at the World Hydropower Congress, a steering committee is to be formed to help its establishment.
- The steering group will focus on how the facility will be funded, structured and where it could operate within.

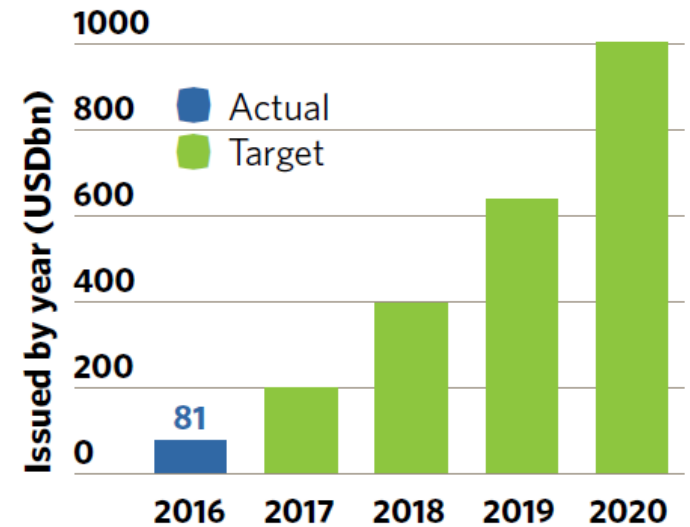
Climate bonds

Growth of the market



Importance of this growing market for hydro

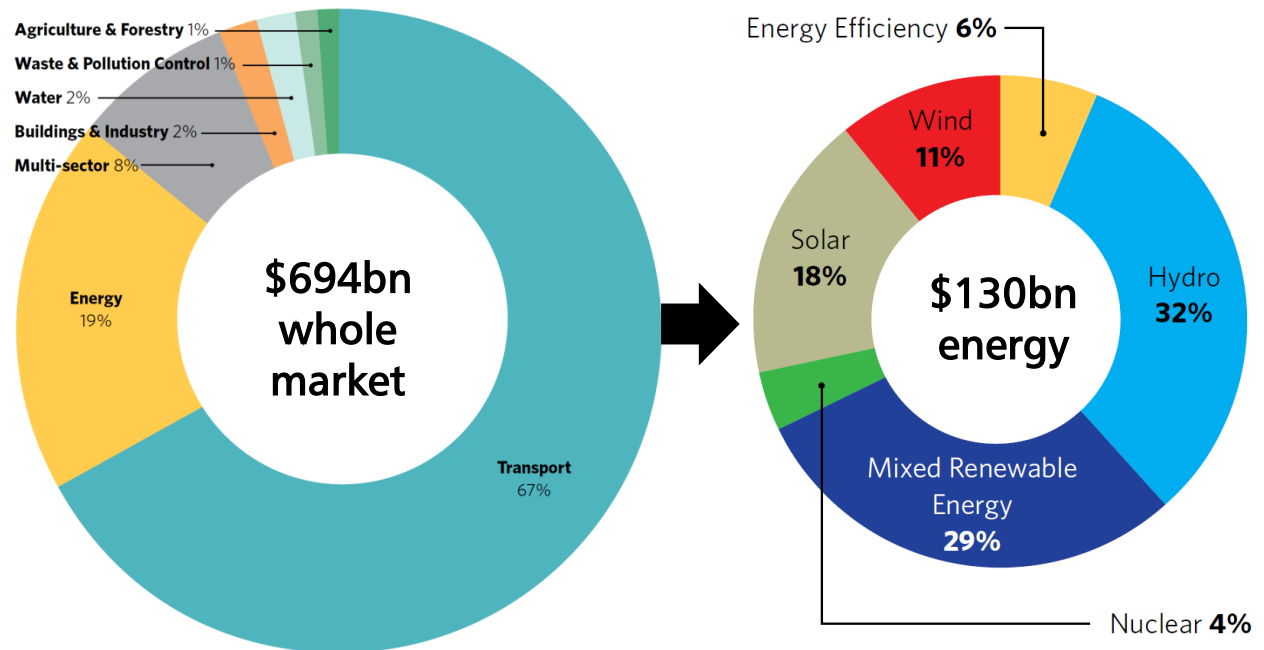
- Presents a new funding source for hydro financing but as certified standards become the norm, it is critical to ensure all hydropower are eligible to access the market.
- Climate Bonds Initiative believes that the market needs to be delivering \$1 trillion of investment per year by 2020 to be compatible with the Paris Agreement.
- IHA involved in the CBI's Technical Working Group developing criteria for climate-compatible hydropower.



Climate bonds

\$694bn climate-aligned bonds outstanding

- Energy is the second largest theme with \$130bn outstanding.
- Hydropower represents 32% or \$42bn of that.
- Excludes large hydro projects with reservoirs in tropical zones.



Components of the Climate Bonds Standard

- **Mitigation** - intended to provide transparency over the impact that the use of proceeds will have on GHG emissions, and the degree of mitigation that will be delivered over the operational lifetime of the project.
- **Resilience & Adaptation** - assesses how climate change will impact on the project and what plans are in place to monitor and address such impacts.
- **Social & environmental considerations** - any bond issuing entity seeking certification is expected to be aware of and adhere to best practice or standards related to a number of social and environmental considerations.

Timeline for hydropower criteria

- Draft criteria to be published by mid-2017 which will be open for industry consultation.
- The working group will revisit the criteria following feedback from industry and other stakeholders.
- The Climate Bond Standards Board will then review the criteria before they can be used by the market – likely early 2018.



Climate
Bond
Certified

Hydropower financing



Thank you

Any questions?