



Prospects of Floating Solar Power Plant in Bangladesh

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Vision of power Division

- ▶ Provide quality electricity to all with a affordable price by 2021
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Bangladesh Power Sector: At a Glance

Total Area: 147,570 km²

Population : 166.37 Million

Generation Capacity : 7,753 MW

Total Consumers : 29.0 Million

Transmission Line : 10,680 Ckt. km

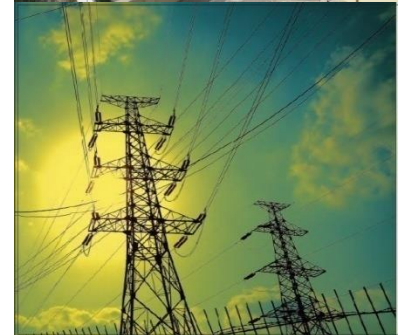
Distribution Line : 4,46,000 km

Distribution Loss : 9.98 %

Per Capita Generation: 433 kWh

Source: <http://powercell.gov.bd/>

Access to Electricity : 90%



Renewable Energy in Bangladesh

Technology	Total (in MW)
Solar	284.62
Wind	2.90
Hydro	230
Biogas to Electricity	0.68
Biomass to Electricity	0.40
Total (in MW)	518.60



Source: <http://sreda.gov.bd>

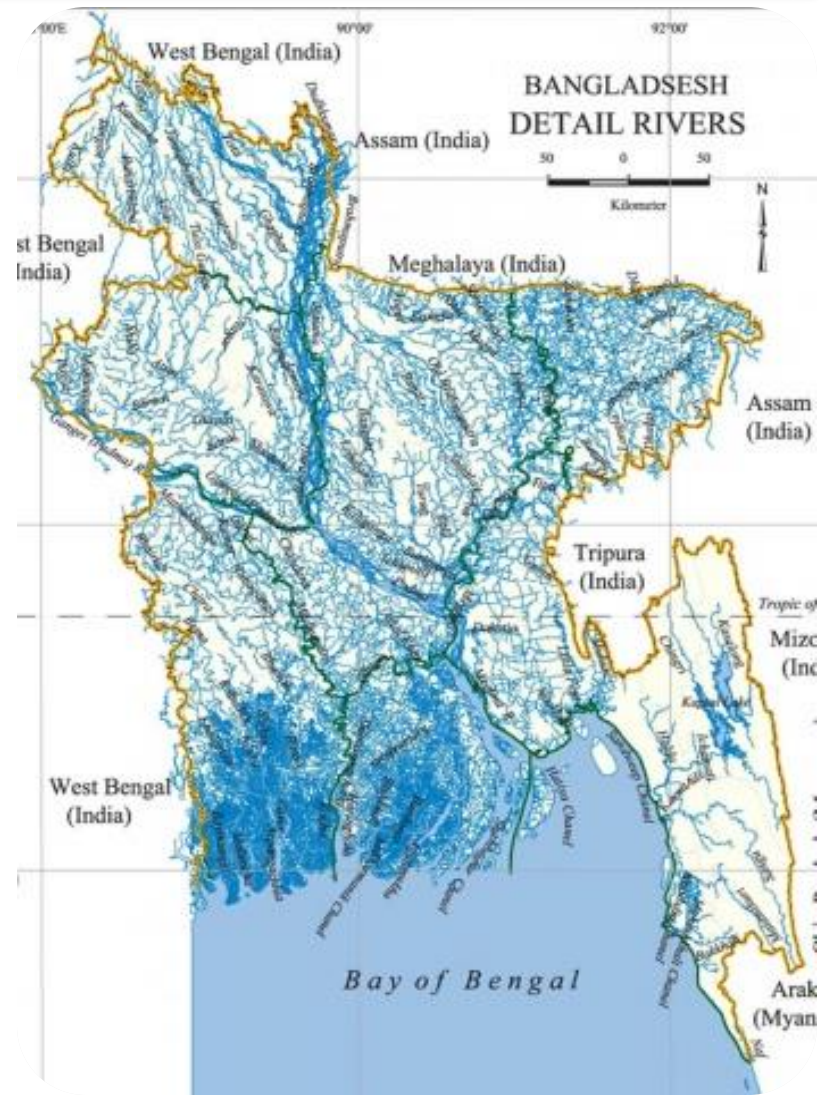
Upcoming Solar IPP (Land Mounted)

SL No.	Particulars	No. of Projects	Capacities (MW)
1.	PPA Signed	6	532
2.	LOI Issued	10	483
3.	Under examination	02	35
Total		18	1050

Prospects of Floating Solar Plant in Bangladesh

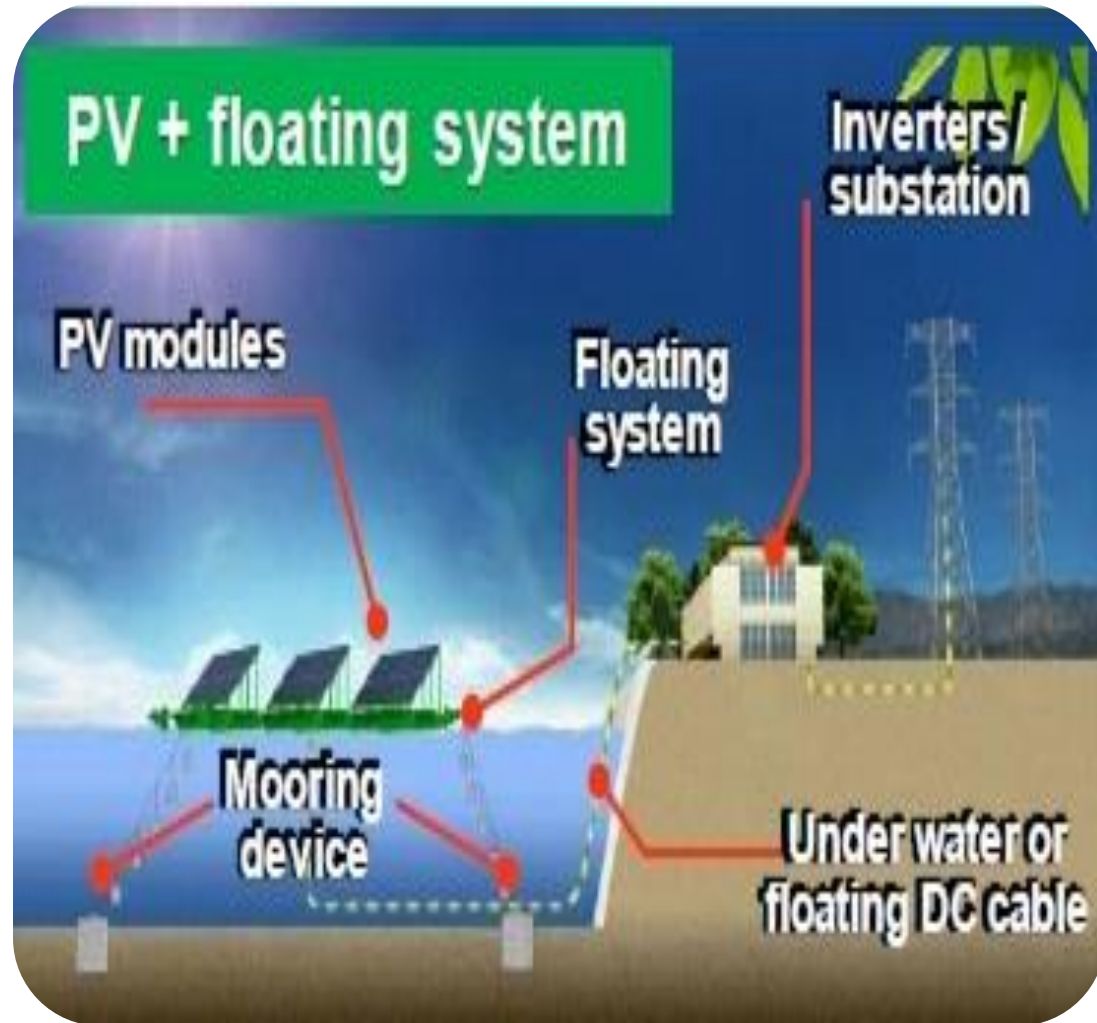
- ▶ **River:** 7,497 million hectars
- ▶ **Beels and haors:**1,142 million hectars
- ▶ **Estuaries and mangrove swamps:** 6, 102 million hectars
- ▶ **Millions of Small Ponds & Big Ponds**

Source: <http://en.banglapedia.org/index.php?title=Wetland>



Floating Solar Plant: Technology

- ▶ Solar PV Modules
- ▶ String and Mounting Structure
- ▶ Floating system for structural support
- ▶ Anchoring and Mooring system to adapt the change in water level
- ▶ Underwater or floating cable connection to power grid



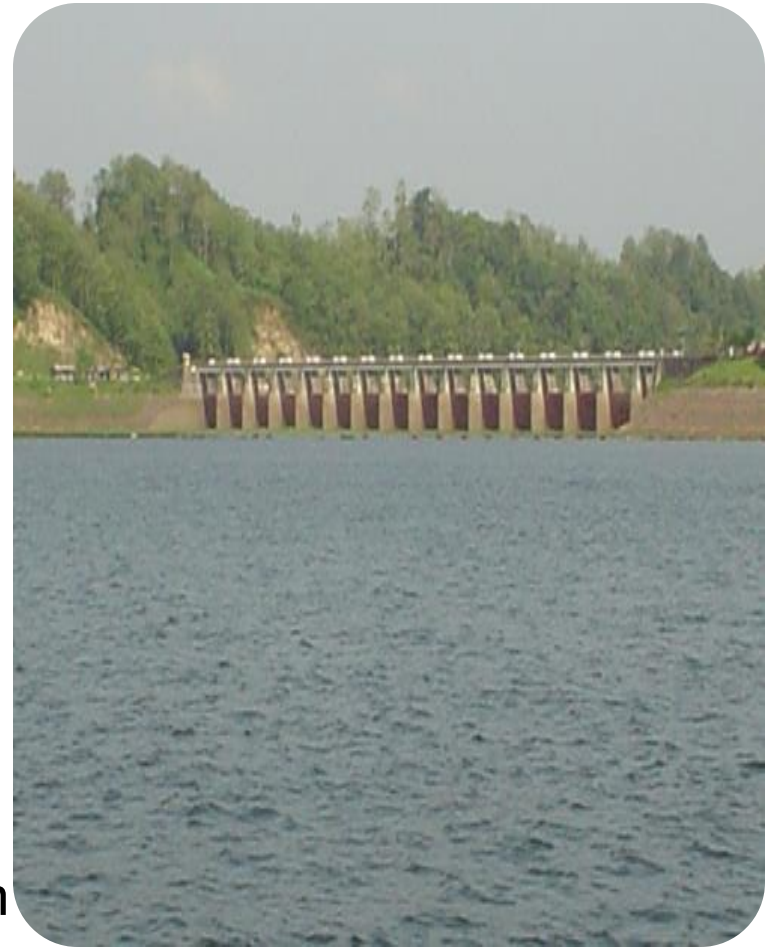
Floating Solar Plant: Benefits

- ▶ Use of water bodies
- ▶ Alternate use of Land
- ▶ Higher yields (15% more) due to the cooling effect of water
- ▶ Power in remote char and water locked areas
- ▶ Clean energy production



Prospects of Floating Solar Plant in Bangladesh

- ▶ **Kaptai Dam/ Lake, Rangamati:**
- ▶ **Prospect:**
 - **Water body:** 3,000 Sq. Km
 - **Potential:** 500MW can be possible by using 1% of land
 - Prospect of feasibility study for setting up 50MW plant under ADB's TA project
- ▶ **Challenges:**
 - **Environment:** Impact on water ecosystem
 - **Navigation:** Effect on navigation route in the lake



Prospects of Floating Solar Plant in Bangladesh (Cont.)

- ▶ **Muhuri Dam, Feni: Proposed Capacity : 25 MW**
- Teesta Barrage, Lalmonirhat**
- ▶ **Megnah–Dhonagoda Dam, Chandpur**
 - **Proposed Capacity : Feasibility Study required**
- ▶ **Many Ponds and Beels to establish Floating Solar Plant;**
- ▶ **Shrimp culture Field may be a good option for Floating Solar Plant;**
- ▶ **Solar Pond System can be a good field for piloting..**



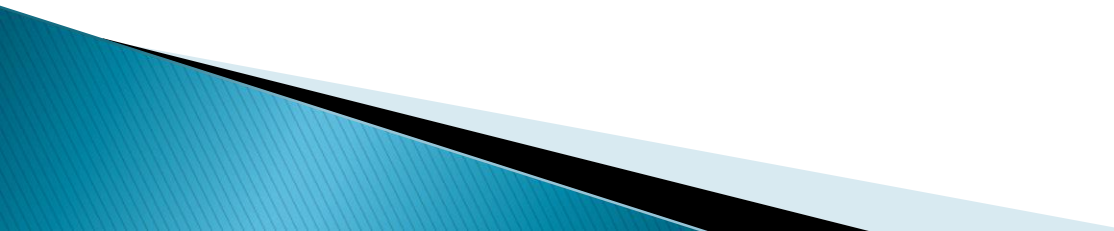
Challenges

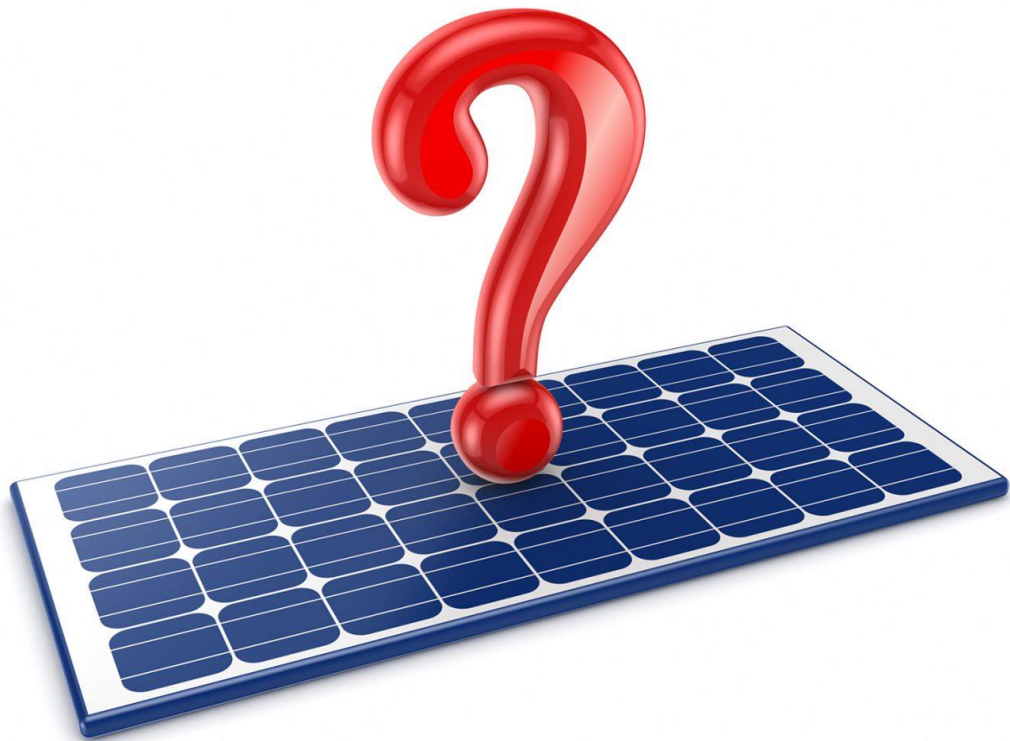
- ▶ **Effect on fisheries:** Impact on fish and other live bodies in water should be considered;
- ▶ **Impact on aquatic ecosystems:** Effect on the water environment is a greater concern;
- ▶ **Infrastructural Arrangement:** Long distance of substation and transmission line an obstacle;
- ▶ **Durability:** Ensuring systems durability against adverse condition is a major concern;
- ▶ **Safety & Security:** For plant and Personnel is important

Challenges

- ▶ **High cost:** Cost for establishing floating solar plant is relatively higher than establishing land based solar plant
- ▶ **Investment:** Attract the investors for IPP models power plant
- ▶ **Appropriate technology:** Selection of perfect technology is important
- ▶ **Proper site selection:** Appropriate site for establishing plant is an important issue.
- ▶ **Capacity development:** manpower development in this sector is key factor

Way Forward

- ▶ Pilot Projects can be undertaken to gather experience on floating solar;
 - ▶ Required necessary policy formation align with aquatic environment for setting up floating solar plant;
 - ▶ An attractive business model should be developed to attract the Investors.
 - ▶ A new model for Solar Pond System may introduced like SHS
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Thank You