Title of Seminar:

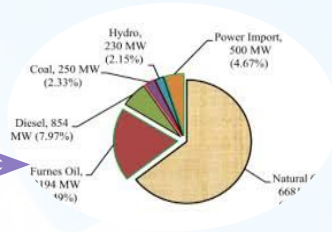
Prospects of Wind Energy in Bangladesh

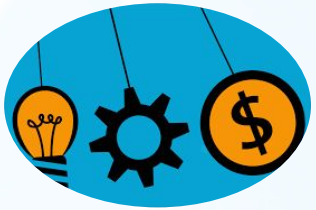
Exam protocol of **MNF-Eco-115** : **Planning and Construction of a Wind Farm**

Module Teacher:
Dr. Philipp Schmagold, Ebert Erneuerbare Energien Wind GmbH & Co. KG

Prepared by
Razeeb Sarker

- Study Area
- Market Share
- Wind energy
- Challenges to Wind energy
- Conclusion





Geographical Location:

Average Latitude: 23.5° N
Average Longitude: 90.5° E

Mountainous regions(India,Tibet, Nepal, Bhutan) to the North

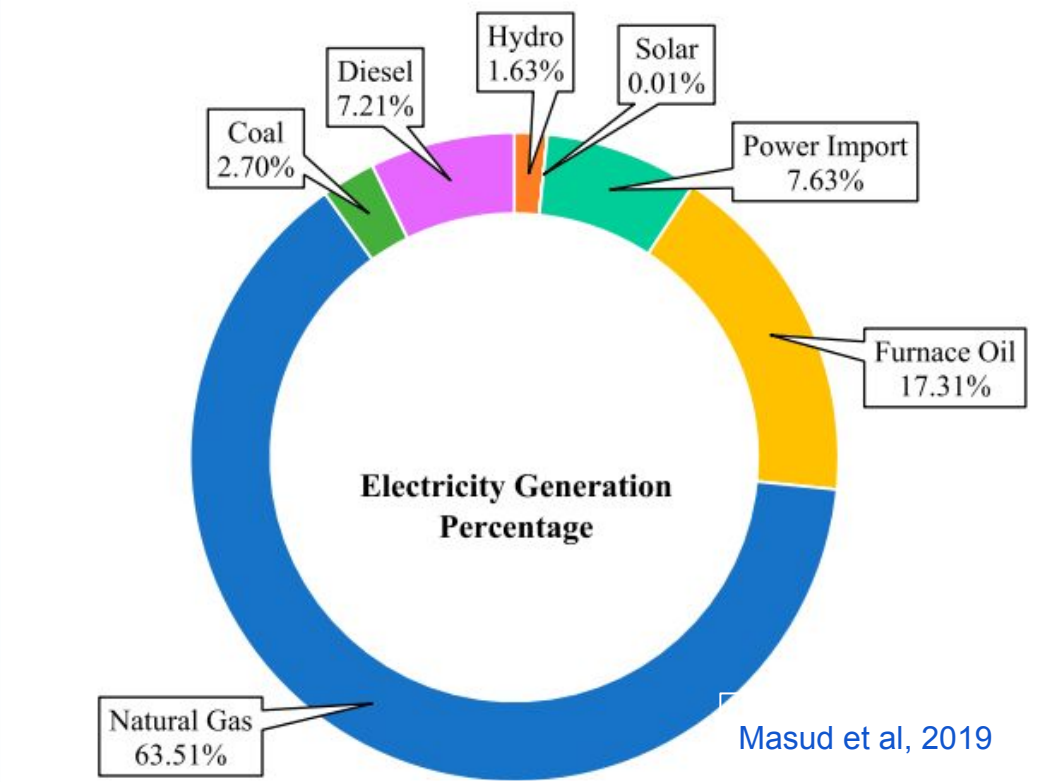
See(Bay of Bengal) to the South

East and West are surrounded by India and Myanmar respectively.

Energy production in Jan. 2021 is approx. 20000 MW

Mostly used by industries

BPDB, 2021

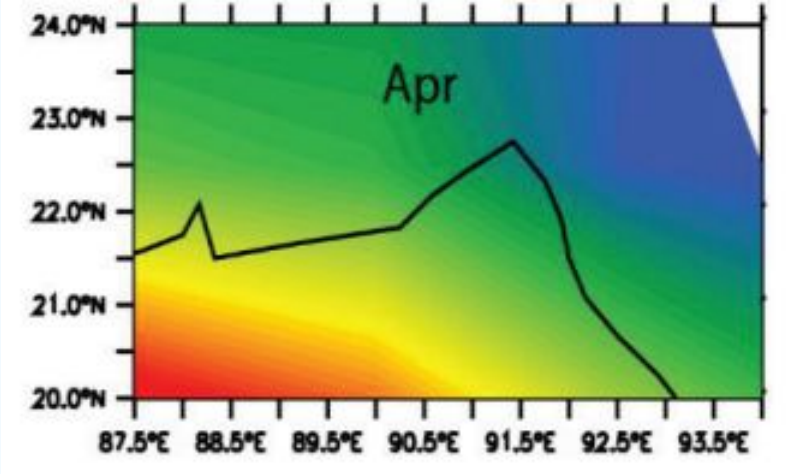


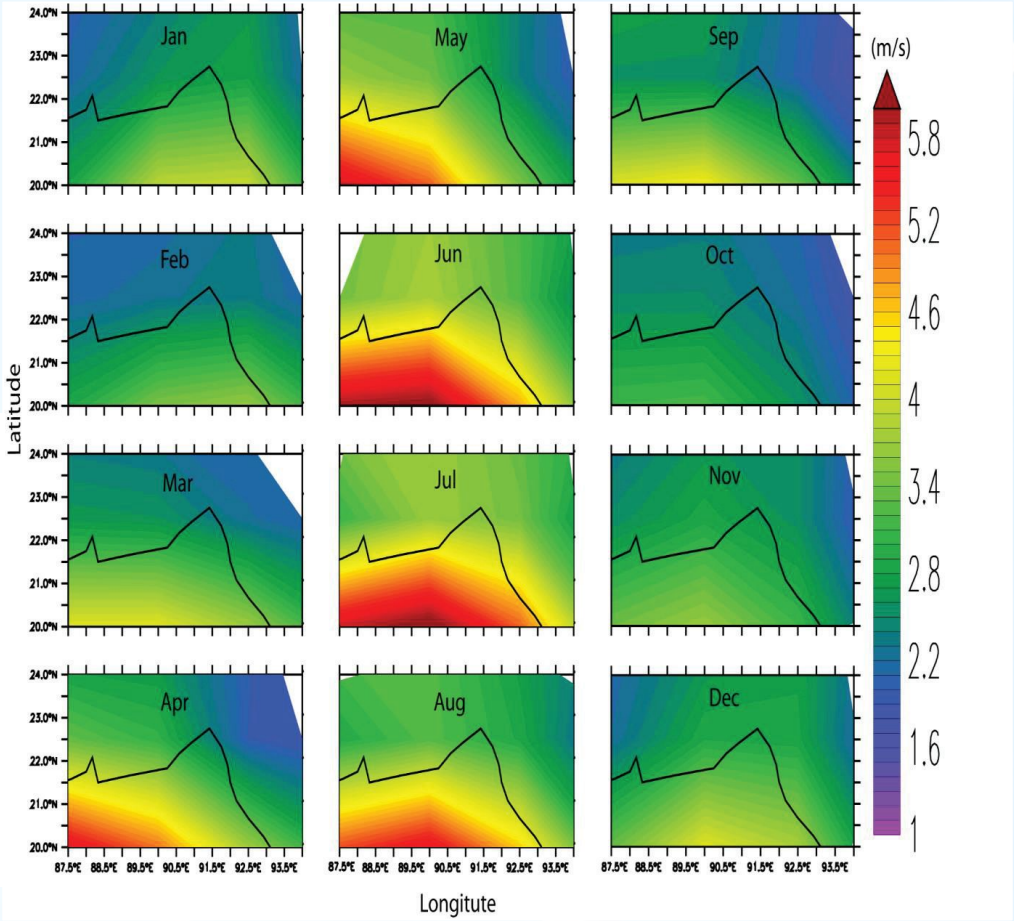
Masud et al, 2019

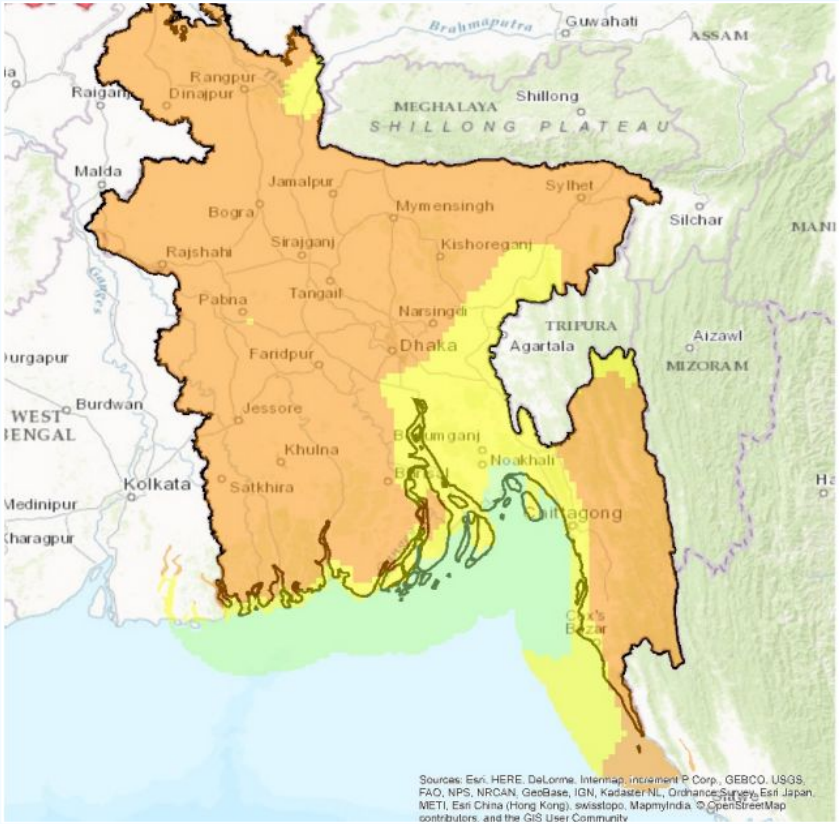
Challenges to Wind Energy

- Wind Speed
- Competition with Solar energy
- Infrastructure insufficiency
- Lack of suitable transfer grids
- Land Scarcity
- Cyclones
- Corruption

Monthly wind speed varies depending on the latitude and longitude. (from 1990 to 2016).
Speed < 5 m/s is considered as low(*Baseline Study Wind Energy Bangladesh, 2017*)







Baseline Study Wind Energy Bangladesh, 2017

Approx. 18 million people are under with 7 million of **Solar Home System**

IDCOL,2019

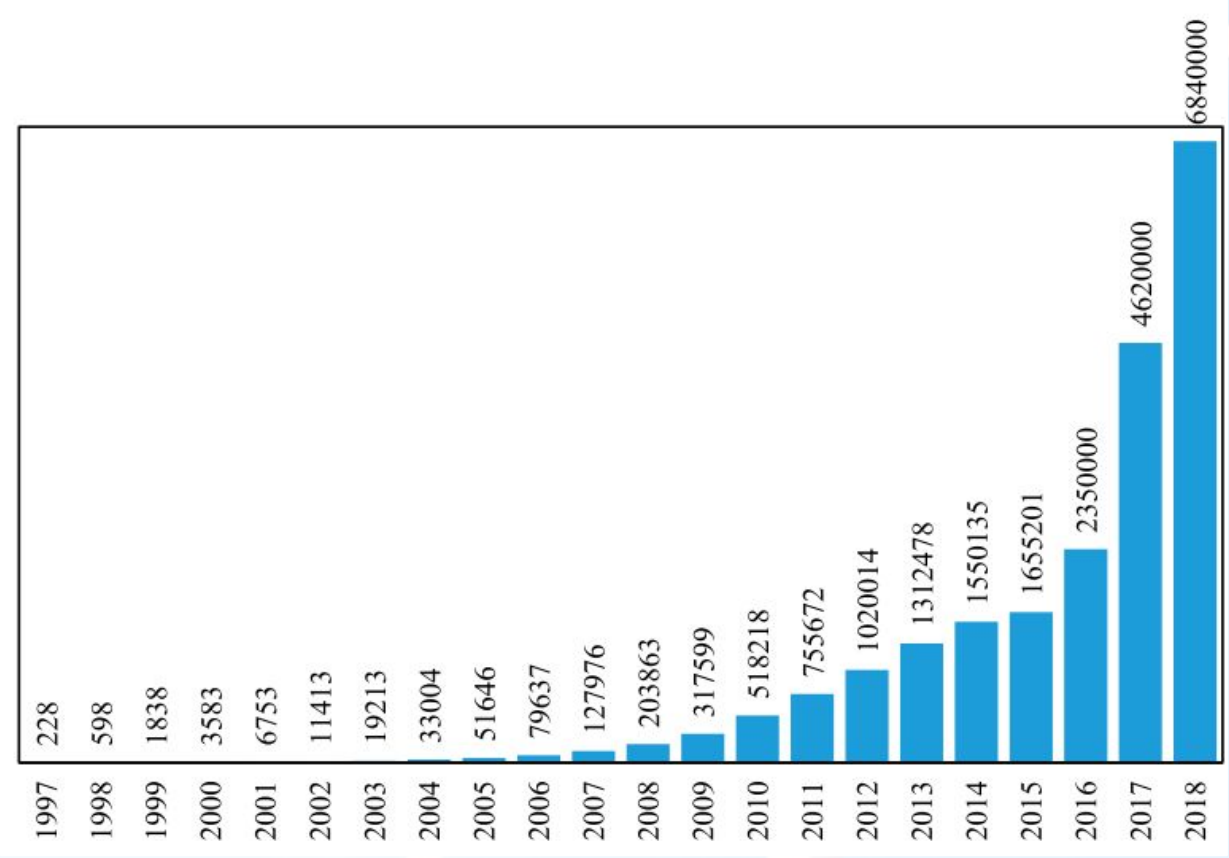


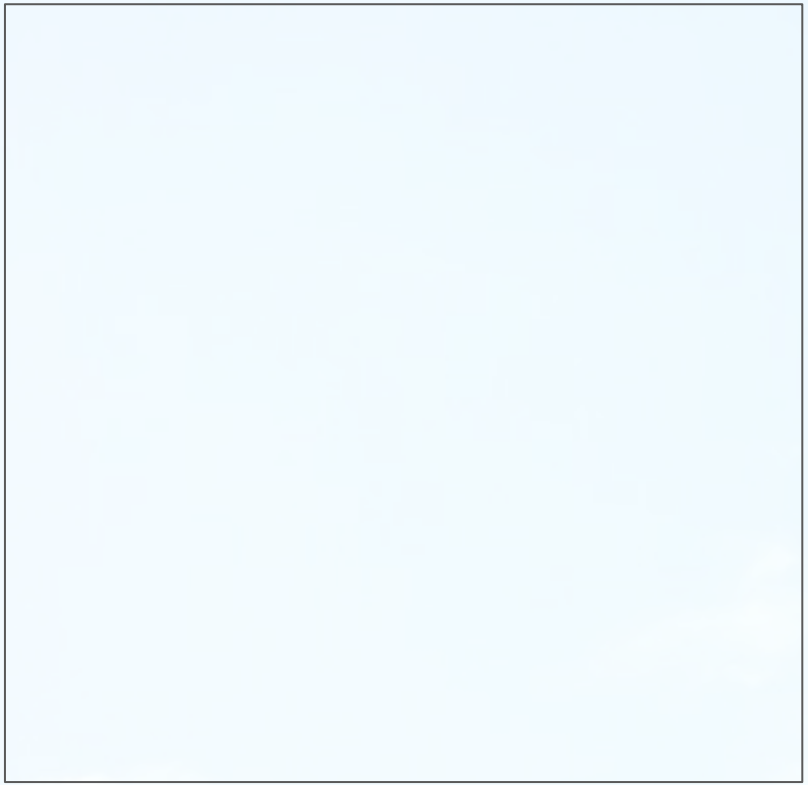
Table 01: Classification of Cyclones In South Asian Sub-Continent	
Depression	Winds up to 62 km/h
Cyclonic Storm	Winds from 63-87 km/h
Severe Cyclonic Storm	Winds from 88-118 km/h
Severe Cyclonic Storm of Cyclone Intensity	Winds above 118 km/h

More than 50 cyclones hit Bangladesh since 1950 and 20% of them are categorized as severe.

Hossain & Mallik, 2020

Wind turbine requires approx. 1 acre permanent and approx. 2 acres of temporary land use during installation and decommission per MW

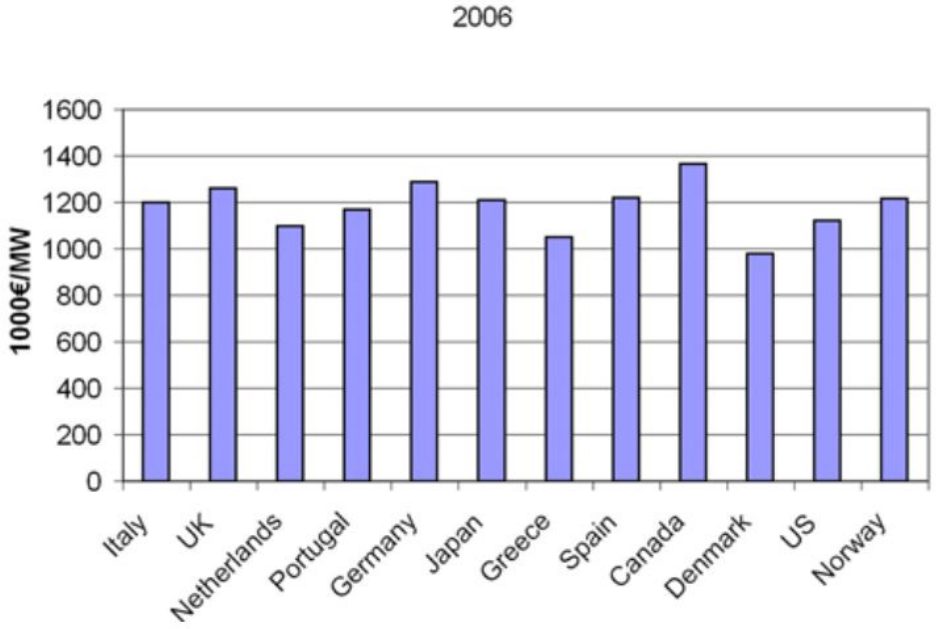
Installing Wind turbine will be land consuming considering the limited arable land in Bangladesh



Lack of sufficient roads in coastal areas for heavy machinery transport could be a problem. Making new roads will consume considerable amount of land area.

Forkers Ltd. Renewable Energy

Figure 1.1: Total Investment Cost, Including Turbine, Foundation and Grid Connection, Shown for Different Turbine Sizes and Countries of Installation



Source: Based on data from the IEA

wind energy→ approved projects.

Is there any way? Yes!!

→ Small scale turbine
Overcome grid scarcity

→ Offshore Wind Farm
Overcome arable land scarcity

→ Hybrid Plant (combination of wind and PV)
Interchangeable options depending on the season

→ Planning for more robust solution
Long-term consideration for Big Offshore wind farm

Prospects of Windenergie in Bangladesh

links and infos:

1. Australia invested 760 m for 1.76 GW
2. Bangladesh has over 34,000MW of untapped wind power
3. https://www.youtube.com/watch?v=7j-aiUNUN4s
4.
5. background color #e8f0ffff
6. Border color #674ea7ff

References:

1. bangladesh Image source

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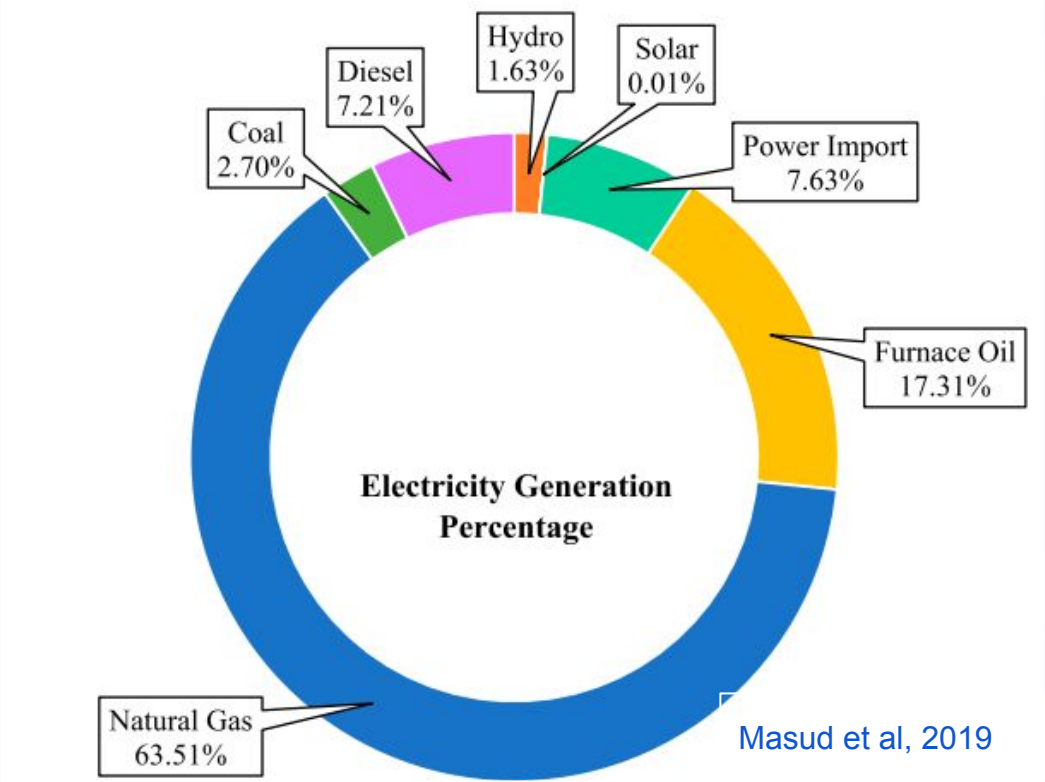

Masud et al, 2019

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Outline:

1) Study area:
   a) Geographical Location
   b) Major weather traits/characteristics
2) Energy sources and market condition
   a) Source wise share
   b) Tariff
3) Investment in energy sector:
   a) State investment
   b) Private investment
   c) State-Private investment
   d) Running Mechanism