Current Affairs of the Day

For net-zero by 2050, India needs 2.5 per cent of its land for clean energy installation

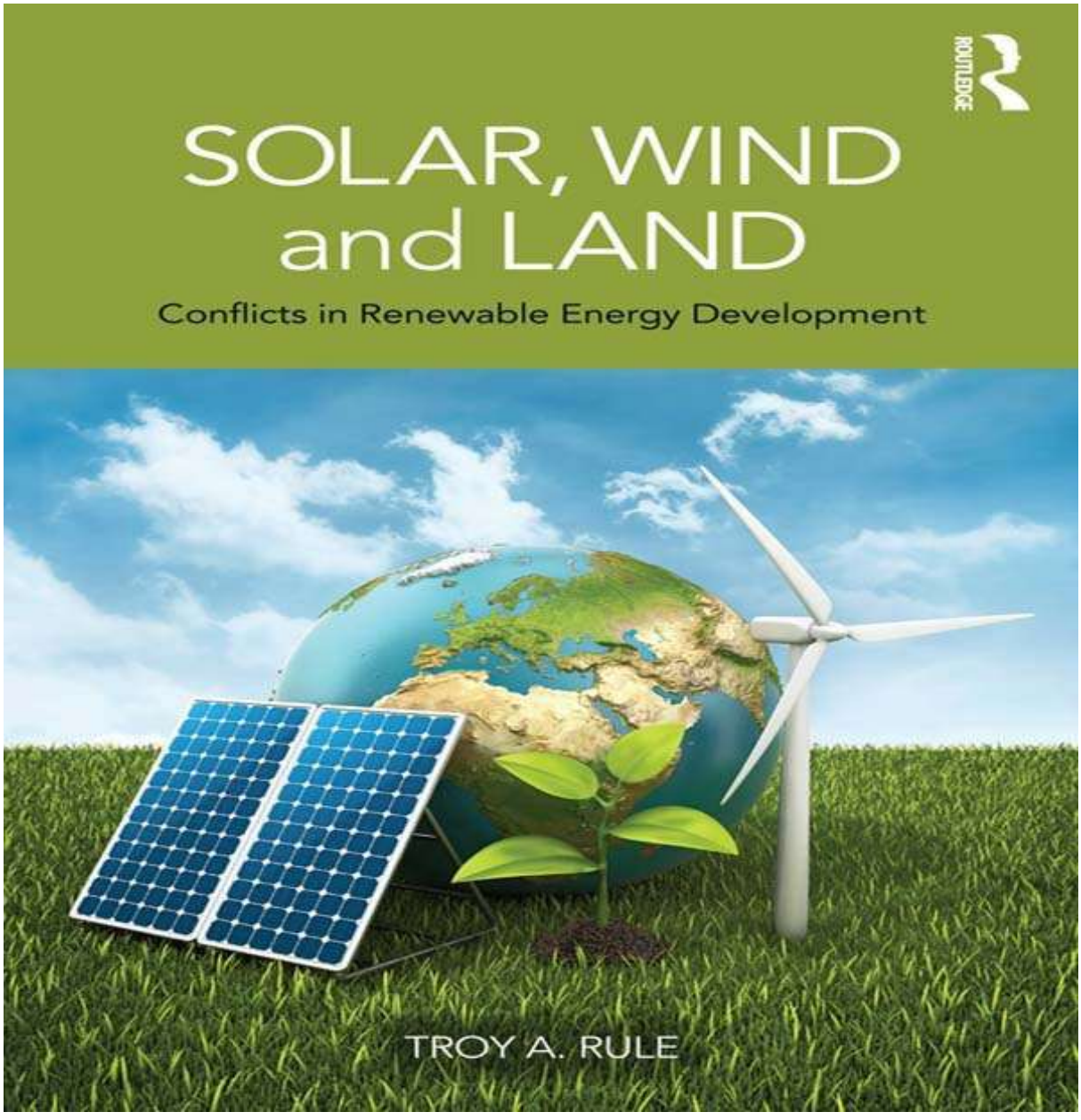
- To achieve the net-zero target by 2050 through large-scale adoption of renewable energy projects, India needs at least 65,000 square kilometres of land for installing solar and wind power projects across the country.

- The study by Institute for Energy Economics and Financial Analysis (IEEFA) notes the potential for land-use conflict to arise over renewable energy installations, even in sparsely populated areas.
- It recommended minimising total land use requirements for renewable energy by promotion of offshore wind, rooftop solar and solar on (mostly artificial) water bodies.
- The report suggested to the Indian government and the state governments to develop a framework that optimises decisions about land use for renewable energy in the coming decades rather than proceeding with such decisions on an ad-hoc basis.

A country can be considered net-zero when its greenhouse gas emissions are sequestered either through natural or artificial carbon sinks. According to the United Nations, the entire world has to achieve net-zero emission by 2050 to limit the global temperature rise well below two degrees Celsius above pre-industrial levels. India is under tremendous pressure to announce its own net-zero targets but it has resisted it so far.

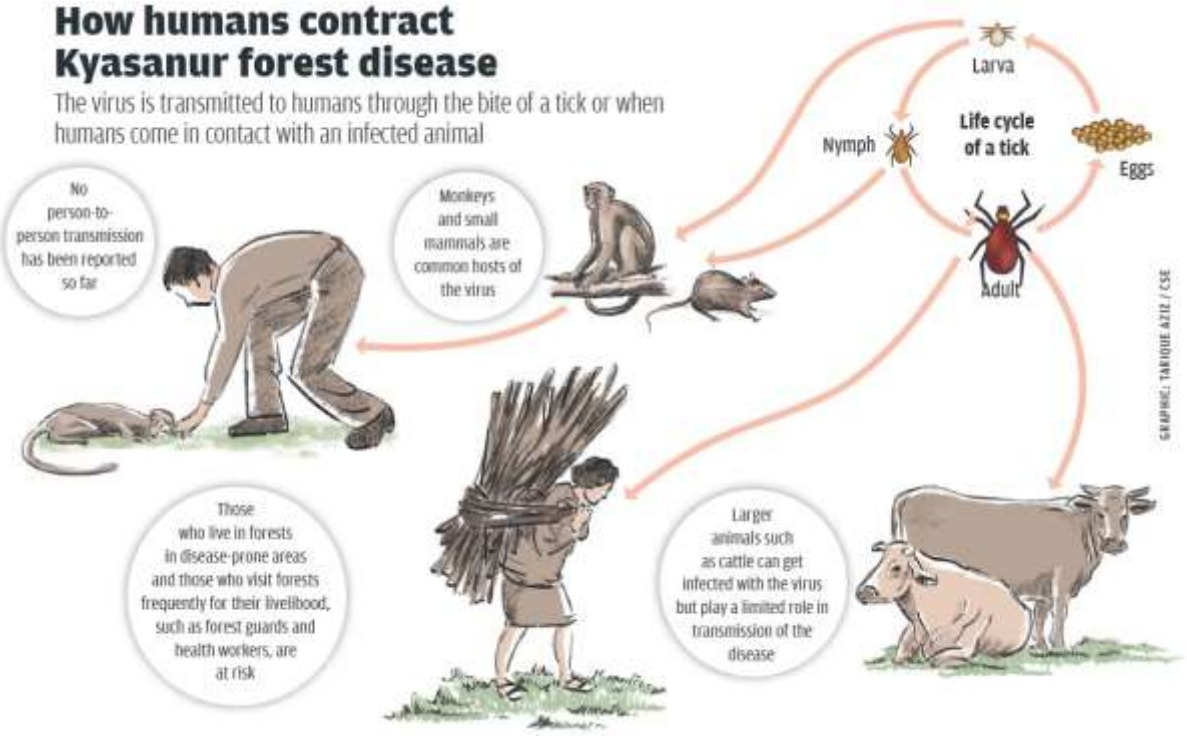
India had said that "reaching net-zero alone is not enough" while stating that developed countries have usurped far more than their fair share of the global carbon budget.

India has ambitious energy transition targets to push for large scale adoption of clean energy. It plans to install a capacity of 175 gigawatts (GW) of renewable energy by 2022 and 450 GW by 2030. However, as the rooftop solar sector has failed to take off, the focus of the Indian government has been on large solar and wind power projects – a move against which experts are expressing concerns due to its potential impact on the affected communities and biodiversity.

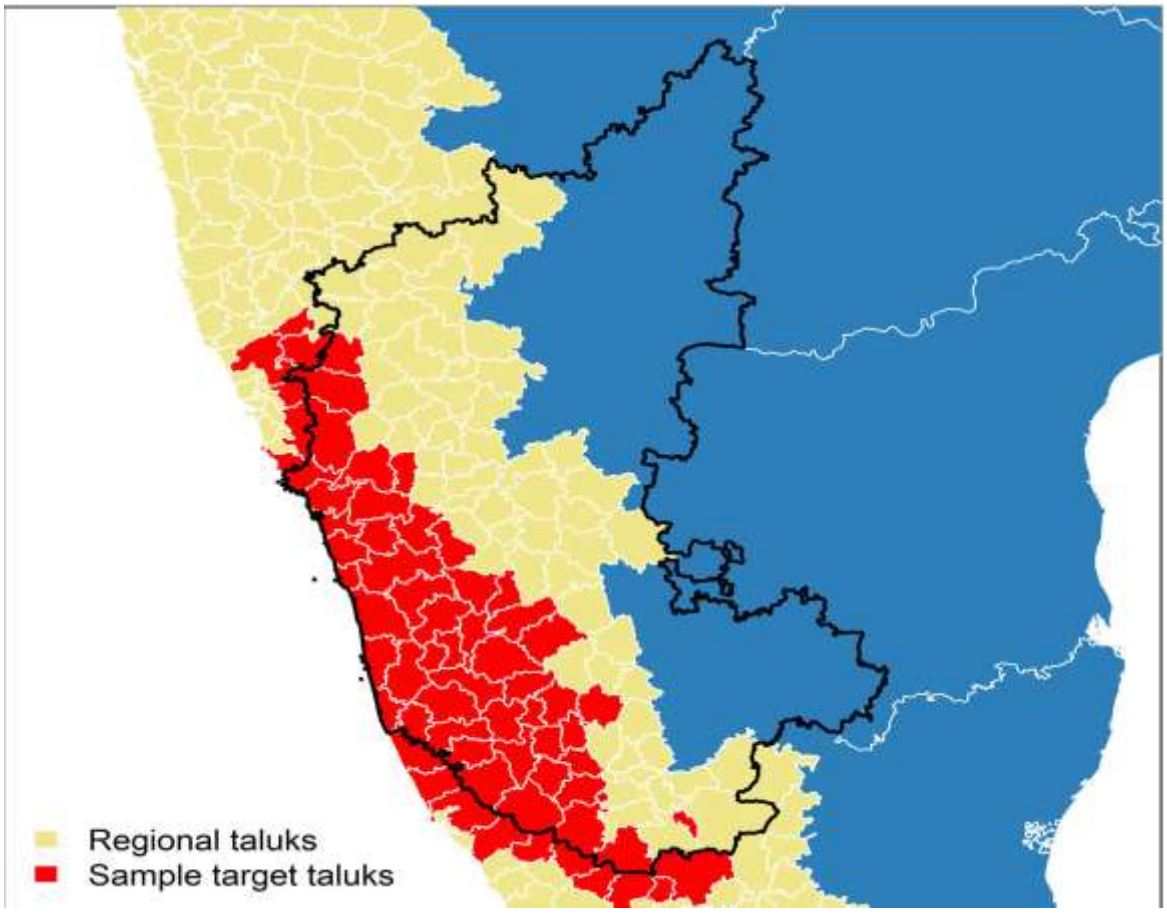


Lower species richness in deforested landscapes tied to high Kyasanur forest disease risk: study

- As outbreaks of Kyasanur Forest Disease (KFD) or 'monkey fever' rapidly expand across the Western Ghats, a study finds that in landscapes undergoing forest loss, a lower number of mammalian species is tied to high disease risk.
- Spread by infected ticks, the KFD affects people typically living and working in the Western Ghats, presumably due to greater human exposure to infected animals and ticks during January to June, before the onset of the monsoon.
- Haemaphysalis spinigera ticks are identified as the main vector. A wide range of small rodents, monkeys and birds are thought to play a role in Kyasanur Forest Disease Virus (KFDV) transmission.



- The disease first emerged in Kyasanur in Karnataka's Shimoga/Shivamogga district in 1957 after the forest ecosystem was increasingly degraded by human activities.
- Since 2012 the disease has spread to new districts in Karnataka and neighbouring states of Tamil Nadu, Goa, Maharashtra, and Kerala in the Western Ghats.
- Researchers at ICMR-National Institute of Virology (ICMR-NIV) chalk up the KFDV spread between states to movements of tick-infested monkeys in these forests along with changes in agricultural and occupational practices that encourage the proximity to humans and/or their dwellings



Taluks identified as priority targets (red) for implementing animal-human surveillance in Karnataka state. Once the taluks are selected, One Health surveillance infrastructure can be developed by working in concert with the forest department, animal husbandry and veterinary services and with primary healthcare centres.

No offshore wind project has commenced in India: Are we on track for 30 GW by 2030?

SCIENCE AND ENVIRONMENT FORTNIGHTLY
Down To Earth

India has planned to provide 24x7 electricity to every home. The International Energy Agency has forecast that the country's energy demand will increase by six-seven per cent annually over the next decade. It is therefore imperative to decarbonise the energy sector.

Catching the offshore wind:

1. The transition to clean energy can be facilitated by offshore wind. India's Exclusive Economic Zone has 195 gigawatts (GW) of technological offshore wind potential (112 GW fixed and 83 GW floating), according to a World Bank-ESMAP report. In the past, high capital expenditures (CAPEX) and a lack of government support have been major deterrents.
2. The National Institute of Wind Energy (NIWE) estimates 36 GW of offshore potential off the Gujarat coast and 35 GW off the Tamil Nadu coast using mesoscale satellite data.
3. In line with the country's nationally determined contributions, India plans to generate 450 GW of renewable energy by 2030 — including five GW of offshore wind energy by 2022 and plans to scale it further to 30 GW by 2030.

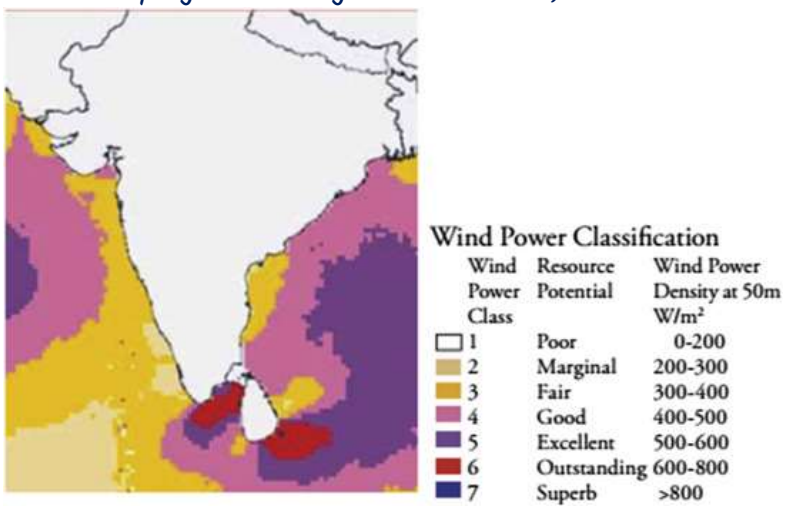
Need am ecosystem for offshore wind:

1. India, with its substantive 120-odd GW of offshore wind potential, needs a government-led sectoral development approach, spearheaded by a consortium of large public sector units and industry houses, which will help in the development of supply chains and ancillaries within the country.
2. The high plant load factor as expected from offshore wind is ideal for large-scale renewable energy integration in the national grid and also can be well integrated with India's hydrogen mission.

Offshore wind project status in India

1. Offshore wind is seen as a response to India's growing power demand, competition over land availability, and a system balancing technology.
2. In 2015, the Indian government introduced the National Offshore Wind Energy Policy and the EU-funded First Offshore Wind Project of India or FOWPI 2016-2019, according to the Global Wind Energy Council.

3. In 2019, India's Ministry of New and Renewable Energy (MNRE) applied for €800 million in viability gap funding to help support the construction of India's first 1 GW offshore wind project in Gujarat. To date, India has not begun any offshore wind projects.



Accelerate offshore wind project development

1. Industry interest has shifted from Gujarat to the stronger wind resource and geotechnical conditions in Tamil Nadu.
2. To facilitate offshore wind siting, the MNRE intends to conduct an offshore wind measurement campaign for a minimum of 10 GW of accurate on-site measurements.
3. NIWE plans to install five LiDARs (Light Detection and Ranging) by 2021 to gather precise bankable data that will be critical to developing offshore wind projects of up to 7.4 GW indicative installable capacity.
4. As India already has cheaper onshore wind and solar power, the MNRE is seeking feasible cost interventions from stakeholders for offshore wind. Offshore wind Power Purchase Agreements and auction designs are being examined by government authorities.

The way ahead

Offshore wind market potential in India is enormous, but it requires increased government-industry coordination and techno-economic studies to be realised in this decade. Some key recommendations are:

Technology and business models will have to be customized for the offshore wind sites off Gujarat and Tamil Nadu.

The Indian government can frame a visionary policy towards long-term cost reduction and energy security, implement legislation on seabed leasing, and clarify the bidding process and deadlines for tenders.

The offshore wind measurement campaign can yield LiDAR data to identify bankable offshore wind zones.

An offshore wind demonstration project, along with a support scheme framework, can be a good place to begin to demonstrate offshore wind capacity factors, technology optimisation, and initial costs.

Promote engagement among decision-makers at the federal, state, and local levels of government, civil society institutions, and local stakeholder communities to align offshore wind development strategies and promote a collective understanding of offshore wind's socioeconomic benefits.

Practice MCQs	Q. Kyasanur Forest Disease is most prevalent in the a. Western Ghats b. Central Indian forests c. Northeast India d. Bihar