

1. Discuss the solar potential of South Asia. What have been some of the major achievements on the solar front in India? Discuss.

Demand of the question:

It expects students to discuss the solar potential of South Asia based on its characteristics. It also expects to give an account of the major achievements on the solar front in India.

Introduction:

The development of Solar energy technologies is now widely recognized as a crucial component in providing an integrated solution to rising demand of energy across the world. In South Asia, a number of developing countries like India, Sri Lanka, and Maldives are looking into inexhaustible and repeatable alternative energy sources such as solar energy.

Body:

Energy supply and security are major challenges on the road to development in the South Asian countries. Energy use traces the total amount of energy consumed by the end user. This includes domestic production as well as imports.

- Per capita electricity consumption of South Asian countries accounts to around 2600 kWh.
- Many South Asian countries depend on a single source to provide more than 50% of total electricity generation including India (Coal – 67.9%), Nepal (Hydropower – 99.9%), Bangladesh (Natural gas – 91.5%) and Sri Lanka (Oil – 50.2%).
- In many countries less than 5% of energy consumed comes from renewable resources.
- Access to electrical energy varies from 41% in Afghanistan to 100% in Maldives in 2010.
- Also, world over almost every country is facing the emerging challenges posed by climate change. Which is catalysed due to heavy reliance on the fossil fuels and conventional energy sources.

The South Asian countries have huge potential for solar energy resources.

- Solar energy has its applications in electricity generation, cooking and water heating. It helps in less consumption of fuel wood, kerosene and batteries, and also helps to improve local air quality.
- As we know, Rural areas in many of the South Asian countries rely excessively on the consumption of wood, kerosene, which affects health of the People and environment in various ways. Hence, Solar energy has advantage to be applied as an energy resource in the South Asian countries.
- As per 'Global Solar Atlas' South Asian countries have potential to generate around 32 kWh solar energy per day for average household consumption.
- Once adapted on a wide scale it will benefit in various ways such as illumination for rural education and access to information and communication technology.

- It will also reap benefits by aiding socio-economic development through Improved quality of life as well as better health and sanitation through streetlights and boiled water.

Solar power in India is a fast developing industry. India's solar installed capacity reached 35.12 GW as of June 2020. India has the lowest capital cost per MW globally of installing solar power plants.

- Indian government had an initial target of 20 GW capacity for 2022, which was achieved four years ahead of schedule.
- In 2015 the target was raised to 100 GW of solar capacity (including 40 GW from rooftop solar) by 2022, targeting an investment of US\$100 billion.
- India has established nearly 42 solar parks to make land available to the promoters of solar plants.
- India expanded its installed solar power capacity by 233 times from 161 MW to 37,627 MW.
- Rooftop solar power accounts for 2.1 GW, of which 70% is industrial or commercial. In addition to its large-scale grid-connected solar photovoltaic (PV) initiative, India is developing off-grid solar power for local energy needs.
- Solar products have increasingly helped to meet rural needs; by the end of 2015 just under one million solar lanterns were sold in the country, reducing the need for kerosene.
- 34 solar parks of aggregate capacity of 20,000 MW have been sanctioned for 21 states. INR 356.63 crores has been released to Solar Energy Corporation of India for the projects. 31,472 solar water pumps were installed in 2015-16; this is higher than total number of pumps installed during the last 24 years since 1991.
- Recently, Asia's largest 750-megawatt (MW) Rewa ultra-mega solar power project is inaugurated in Madhya Pradesh
- The International Solar Alliance (ISA), proposed by India as a founder member, is headquartered in India.

However, Solar energies lacuna's can't be blindsided, as it requires sizeable amount of land, and poses environmental hazards if the production process not handled appropriately.

Conclusion:

Solar energy due to its abundance has an enormous potential for use and wide scale applications. Considering this potential and applicability, India has put forward step in the right direction, which will surely help to realise the concept of "One Sun One World One Grid" to harness abundant solar power on global scale.

2. How has the spread of the COVID-19 pandemic affected the supply and distribution of oil resources? Examine.

Demand of the question:

It expects students to probe deeper into the effect on supply and distribution chain of oil resources due to COVID-19 and explain it in detail with relevant facts and examples.

Introduction:

On the world scale, global oil demand shrunk by ~15-20 million barrels for day (mbpd) due to COVID-19 pandemic. India which accounts for, oil imports at 84% and gas imports at 53%, also faced reduction in oil resources demand nearly by 30% of their respective annual demands.

Body:

The impact of COVID-19, whether due to the wide-spread demand destruction, or the downward spiral of crude prices, is of enormous concern for all of the oil resource industry participants. Effect on supply and distribution of oil resources can be observed as follows:

- In an unprecedented event, oil for the first time in history breached the \$0 mark. Hence, cheaper fuel is available to customer in the short run.
- A condition called 'Super Contango' spread its dark clouds over the oil resource industry. A Contango market implies that oil traders believe crude prices will rally in the future. Thus, spot prices are being offered at super discounts to futures prices.
- One of the major likely impact is the availability of workforce and resources. As due to lockdown, workers numbers are reduced due to transportation constraints and health reasons.
- The primary reason behind this freefall is the lack of fuel demand across the world followed by a glut in global oil markets leading to an acute dearth of available storage capacities.
- Like the oil production situation, the major oil refinery companies have not stopped buying oil from oil producing companies, hence production of refined oil posed question of consumption.
- With no recovery in sight in the foreseeable future, the key issue of oil storage is likely to stay.
- Keeping track of logistics, containing the oil spillage, and pilferage from the containers are exacerbating the problem in this pandemic.
- The downstream supply chain i.e. distribution chain is hard hit due to COVID-19 pandemic. As there is sudden fall of demand and production lines are producing at the same rate before COVID-19 situation, transition market space from supply to demand is creating major bottlenecks in the entire supply demand chain.
- Once the lockdown is lifted the market will see a sudden rise in demand, which will require robust supply and transportation planning capability, to meet such demands even the supply is overstocked.

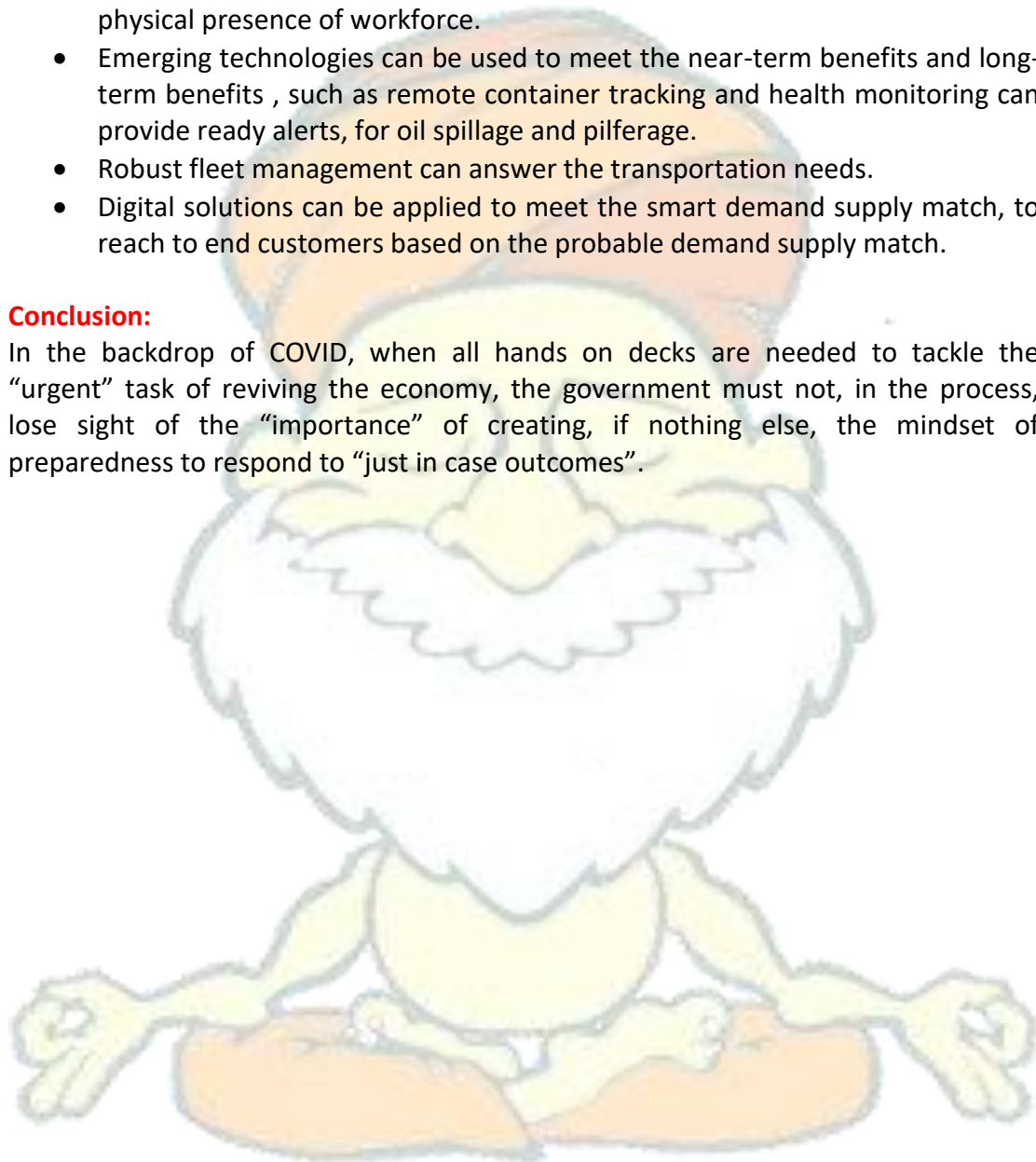
- However, drastic fall in the demand and supply chain of oil has resulted in one positive aspect by helping to reduce the consumption of fossil fuels, in turn helping the environment in the short run.

Necessary steps to reduce the impact:

- Solutions such as Internet of things enabled remote diagnostics, monitoring tools can be optimally used in the situation. It will reduce dependency on the physical presence of workforce.
- Emerging technologies can be used to meet the near-term benefits and long-term benefits , such as remote container tracking and health monitoring can provide ready alerts, for oil spillage and pilferage.
- Robust fleet management can answer the transportation needs.
- Digital solutions can be applied to meet the smart demand supply match, to reach to end customers based on the probable demand supply match.

Conclusion:

In the backdrop of COVID, when all hands on decks are needed to tackle the “urgent” task of reviving the economy, the government must not, in the process, lose sight of the “importance” of creating, if nothing else, the mindset of preparedness to respond to “just in case outcomes”.



3. India will have to regulate Ayurveda to meet the demand for natural remedies in the world market. Comment.

Demand of the question:

The question expects students to write about the need to regulate the Ayurveda to meet the demand for natural remedies in main points/core and give one's opinion based on the information or the arguments originated from the reading.

Introduction:

Natural remedies knowledge in Ayurveda carries thousands of years of tradition. The knowledge of Natural remedies has come in to limelight during the COVID-19 pandemic, especially on the need to regulate the Ayurveda to meet the demand for natural remedies in the world market.

Body:

Modern thinking is creeping into alternative medicine. This is good, and India stands to gain enormously as a producer and exporter of traditional herbal medicines.

- The world's growing fascination with natural remedies, traditional and alternative medicines and herbs augurs well for India. These can provide a substantial source of income for farmers and companies across the country.
- A very small quantity of herbal medicines produced in India is exported, as they do not meet the regulatory standards required by importing countries.
- Even at its current levels, with little exports, estimates are that Ayurveda is a Rs 30,000 crore industry in India.
- Recent 'Coronil' controversy emphasises the role the government has to play beyond encouraging the use of Ayurveda.

While they can be a great source of income and exports for India, we will need a modern regulatory system to succeed.

Regulatory requirement for Ayurveda:

- At the core of promoting alternative medicines are two government regulatory functions: One, ensuring safety, and two, checking the truth of claims about efficacy.
- Contrary to popular belief, Ayurvedic medicines can be dangerous to health. The dangers arise primarily for following reasons as, all plants are not safe for consumption, use of ashes and non-plant materials, illegal addition of allopathic medicines.
- Similarly, ashes may concentrate dangerous metals in the formulation. As recently as 2017, the Food and Drug Administration of the US warned against the use of certain Ayurvedic medicines. The FDA found the medication to contain dangerous levels of lead.
- Some unscrupulous medicine manufacturers go a step further. They mix allopathic medicines in Ayurvedic drugs, usually steroids. Some steroids (mostly corticosteroids) give a false sense of well-being by improving circulation and alertness.

- For the wrong ailments, like infections, they may accelerate the underlying disease, but since the patient gets a steroid high, he or she feels better and ascribes it to the medicine. A study by the King Edward Memorial Hospital in Mumbai found around 40% of Ayurvedic drugs tested contained steroids.
- Uncontrolled use of poisonous plants, presence of heavy metals, and outright fraud (adding steroids) damages the reputation of Indian medicine. The unscrupulous and negligent manufacturers make profits by cheating, but harm the status of the entire industry.
- The problem is worse in international markets. While we in India may be able to distinguish between established brands and suspicious ones, this is difficult sitting in the foreign country. A patient with a negative experience will probably avoid all Ayurvedic medicines.

Necessary steps to regulate Ayurveda:

- The first step of regulation of medicines is to ensure safety. Irrespective of whether they have any therapeutic effect, an AYUSH medicine should not harm patients..
- The second step after enforcing safety provisions is checking therapeutic claims.
- Making heavy penalty provision for the false claims, counterfeiting of medicines etc.

Government steps to promote and regulate Ayurveda:

- In 2003, the government published the first official list of Ayurvedic medicines, called a pharmacopoeia. The publication of a pharmacopoeia is the first step towards formalising any medical system.
- In 2014, the government merged the regulation of Ayurveda, Yoga, Unani, Siddha, and Homoeopathy (collectively called AYUSH) into a separate eponymous ministry.
- In 2017, the All India Ayurveda Institute was set up in Delhi, on the lines of the famous All India Institute of Medical Sciences. Also recently, the government decided to sell Ayurvedic medicines in Jan Aushadhi stores.

Conclusion:

Regulation of any medical system has concentrated on safety and efficacy to protect patients. Along with the promotion of AYUSH and farming of herbs, if we set up proper regulation of Ayurvedic medicines, we will not merely protect patients, but also promote Ayurveda as a safe and effective system of medicine, a system in which India can be a world leader.