



C.A Dated On 12-11-2018

General Studies-1

Groundwater Depletion:

With 230 billion metre cube of groundwater drawn out each year for irrigating agriculture lands in India, many parts of the country are experiencing rapid depletion of groundwater.

The total estimated groundwater depletion in India is in the range of 122–199 billion metre cube.

The Indo-Gangetic Plain, northwestern, central and western parts of India account for most intensive groundwater-based irrigation.

And among these regions, western India and the Indo-Gangetic Plain have more than 90% of the area irrigated using groundwater.

Significant depletion

- Based on Central Ground Water Board (CGWB) data of nearly 5,900 wells which have long-term data (1996–2016), a team of researchers found that a majority of districts in India experienced significant depletion in groundwater storage.
- The satellite data confirms the well data. The results were published in American Geophysical Union's journal *Earth's Future*.
- While districts with significant decrease in groundwater are located in the Indo-Gangetic Plain, northwest, and central (Maharashtra) regions, a few districts in Punjab show substantial decline in groundwater table.
- With depletion occurring at a rate of 91 cm per year, Punjab has been witnessing a steep decline in groundwater table since 1996.
- In northwestern India, the amount of groundwater extracted exceeds the total recharge leading to groundwater depletion.

Challenges:

- If groundwater is depleted and the region experiences drought for two–three years consecutively, there will be serious challenges.
- Availability of even drinking water will be a huge problem.



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- Natural recharge during monsoon may not help much if groundwater depletion becomes acute, as rainfall of past several years controls the current groundwater storage levels.

Causes of depletion:

- The study published in June this year found that groundwater recharge has declined between 1996 and 2016 in northwest and northcentral India due a reduction in low-intensity rainfall.
- Low-intensity rainfall during the monsoon is responsible for groundwater recharge in northwest and northcentral India.
- The study also found that carbon dioxide emission from pumping groundwater and release of carbon dioxide into the atmosphere from the soil when groundwater is depleted is less than 2-7% of the total carbon dioxide emissions in India.

Way Ahead:

- Using groundwater to irrigate the field only when necessary led to a reduction in electricity consumption and greenhouse emissions.
- Farmers are advised not to irrigate the field when the water level in the tensiometer(device to measure moisture) is in the green zone.
- When the soil gets dry the water level in the tensiometer drops and reaches the yellow zone in the device.
- Farmers should start irrigating the field at this time and never allow the water in the device to reach the red zone.
- Since stopping or reducing the subsidy in electricity prices may not be possible, farmers in the regions where groundwater depletion has already occurred should consider cultivating less water-intensive crops, use better irrigation technologies and irrigate crops only when necessary.

General Studies-2

Quad Meeting:

Officials from Australia, India, Japan and the United States will hold the third "Quadrilateral" or Quad meeting in Singapore on November 14th..



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The meet, that comes exactly a year after the format was revived, will be held on the sidelines of the East Asia Summit, that Prime Minister Narendra Modi will attend, and is expected to focus on infrastructure projects, maritime security cooperation and discuss regional challenges including development.

What is Quad?

Quad or Quadrilateral is a diplomatic initiative for regional coalition between great big democracies in the Indo-Pacific.

The member countries in Quad are India, Japan, US and Australia. Recently, first meeting of Quad diplomats at office level happened in Manila. Some of the gains for India with Quad are

- The initiative may promotes free, open, prosperous and inclusive trade Indo-Pacific region and serves the long-term interests of all countries in the region including India.
- It helps India and other three Nations to counter China's OBOR. As India is refused to join OBOR it helps India to connect with other markets like Central Asian and South East Asian markets.
- Moreover, both India and Japan will have to counter China to balance the power equation in the region

Though Quad idea was emerged for greater cooperation between the four nations Indian has less advantage with Quad compared with other Nation as India is already enjoying strategic partnership with the four countries.

Areas of Concern:

- However, officials from all four nations of the Quad conceded that while the Quad has made some progress over the year, many areas of divergence remain.
- To begin with, India has yet to agree to Australia's request to join the Malabar, and the officials said it was still "too early" to discuss "militarising" the Quad.
- The Quad has also shied away from using any strong language on maritime security in the Indo-Pacific, which may portray it as a platform against China.



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- India has also resisted raising the level of the Quad from the current assistant secretary/ joint secretary level to that of Foreign Secretary/Foreign Minister level as the US and Japan have been pushing for.

Finally, some misgivings remain amongst ASEAN countries that are ringed by the Quad countries that would need to be ironed out, which would also be on the agenda at the meetings in Singapore on the sidelines of the ASEAN summit, RCEP summit and East Asia summit next week.

General Studies-3

East Coast and East-West corridors

Odisha's railway infrastructure is likely to get a boost with the Dedicated Freight Corridor Corporation of India Limited's (DFCCIL) proposed East Coast and East-West Corridor, both of which traverse through the State.

About the corridor:

- The DFCCIL considers the two proposed corridors to be a natural extension of the eastern and western dedicated corridors being implemented in the country.
- The 762-km-long East Coast corridor will originate from Kharagpur in West Bengal and culminate in Andhra Pradesh.
- In Odisha, the corridor will pass through Balasore, Bhadrak, Jajpur, Cuttack, Khordha, Ganjam and Gajapati.
- Similarly, the East-West corridor planned between Kharagpur and Nagpur is 1,142- km long. The infrastructure will benefit three Odisha districts: Sundargarh, Jharsuguda and Sambalpur.
- As per preliminary estimates, while the East Coast corridor entails an investment of close to Rs. 25,000 crore, the East-West corridor will require investment to the tune of Rs. 45,000 crore.

Benefits of Corridor:



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- The proposed corridors will cater to the transportation requirements of industries, mines on the eastern sector and ports.
- The existing rail network, runs on a combination of diesel + electrical trains.
- The Dedicated freight corridor will operate entirely on electric trains= less greenhouse gases.
- After Dedicated freight corridor, the passenger traffic and freight (goods) traffic will be separated = leading to faster speeds and efficiency.

Stubble burning:

Why in News?

Stating that State governments had failed to curb stubble burning, the National Green Tribunal (NGT) on Monday summoned the Chief Secretaries of Delhi, Punjab, Haryana and [Uttar Pradesh](#).

What is it?

Stubble burning is the deliberate setting fire of the straw [stubble](#) that remains after wheat and other grains have been harvested.

The practice was widespread until the 1990s, when governments increasingly restricted its use.

The burning of stubble, contrasted with alternatives such as ploughing the stubble back into the ground has a number of consequences and effects on the environment.

Stubble burning:

- Quickly clears the field and is cheap.
- Kills weeds, including those resistant to herbicide.
- Kills slugs and other pests.
- Can reduce nitrogen tie-up

However, it has a number of harmful effects on the environment:



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- Loss of nutrients.
- Pollution from smoke.
- Damage to electrical and electronic equipment from floating threads of conducting waste.
- Risk of fires spreading out of control.

There is a perception that stubble burning contributes to atmospheric CO₂. However carbon dioxide releases are only slightly greater than those from natural decomposition.

About NGT:

National Green Tribunal Act, 2010 (NGT) is an Act of the [Parliament of India](#) which enables creation of a special tribunal to handle the expeditious disposal of the cases pertaining to environmental issues.

It draws inspiration from the India's constitutional provision of [Article 21](#), which assures the citizens of India the right to a healthy environment.

Members

- The [tribunal](#) shall consist of a full time chairperson, judicial members and expert members.
- The minimum number of judicial and expert member prescribed is ten in each category and maximum number is twenty in each category.
- A judge of the Supreme Court of India or Chief Justice of High Court are eligible to be Chairperson or judicial member of the Tribunal.
- Even existing or retired judge of High Court is qualified to be appointed as a Judicial Member.

INSPIRE 2018

Why in News?



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This is the second edition of International Symposium to Promote Innovation & Research in Energy Efficiency (INSPIRE) and is being organised by **Energy Efficiency Services Limited (EESL)** and **World Bank**.

The three-day symposium will focus on enhancing grid management, e-Mobility, financial instruments and technologies for energy efficiency in India.

About INSPIRE:

- INSPIRE 2018 has been organised in collaboration with the Bureau of Energy Efficiency (BEE), The Energy & Resources Institute (TERI), Asian Development Bank (ADB), the United Nations Environment Program (UNEP), and the Administrative Staff College of India (ASCI).
- The event is bringing together policy-makers, influencers, innovators, thought leaders, researchers, leading energy-efficient companies, government agencies, business leaders and other stakeholders to deliberate on key energy policies, market transformation strategies, and sustainable business models that will help leverage the full potential of energy efficiency and bring its multiple co-benefits to the fore.

About EESL

- Energy Efficiency Services Limited (EESL), under the administration of Ministry of Power, Government of India, is working towards mainstreaming energy efficiency and is implementing the world's largest energy efficiency portfolio in the country.
- Driven by the mission of Enabling More – more transparency, more transformation, and more innovation, EESL aims to create market access for efficient and future-ready transformative solutions that create a win-win situation for every stakeholder.
- By 2020, EESL seeks to be a US\$ 1.5 billion (INR 10,000 crore) company.
- EESL has pioneered innovative business approaches to successfully roll-out large-scale programs that allow for incentive alignment across the value chain and rapidly drive transformative impact.
- EESL aims to leverage this implementation experience and explore new overseas market opportunities for diversification of its portfolio.



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