



General Studies-3; Topic: Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage

Efficient Water Use for Sustainable Agriculture

State of India's Water Resources

- As per the Central Water Commission's reassessment of water availability using space inputs (2019), India utilises only 18 percent of mean annual precipitation it receives; the rest is lost to evaporation and other factors.
- As per the UN's report on Sustainable Development Goal-6 (SDG-6) on "Clean water and sanitation for all by 2030", India achieved only 56.6 per cent of the target by 2019.
- This indicates that we need to move much faster in order to meet this SDG goal.
- As per the Niti Aayog's Composite Water Management Index (2019), 75 per cent households in India do not have access to drinking water on their premises and India ranks 120th amongst 122 countries in the water quality index.
- India is identified as a water stressed country with its per capita water availability declining from 1951 to 2011 and is likely to go down further 2050.

Water Use in Agriculture

- Agriculture uses about 78 per cent of fresh water resources.
- As the country develops, the share of drinking water, industry, and other uses is likely to rise.
- Rice and Sugarcane alone consume almost 60 per cent of India's irrigation water.
- While Punjab scores high on land productivity of rice, it is at the bottom with respect to applied irrigation water productivity.
- Similarly, in the case of sugarcane, irrigation water productivity in Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu is only 1/3rd of that in Bihar and UP.
- There are technologies to produce the same output of these two crops with almost half the irrigation water.

- Example, drip with fertigation in case of sugarcane and “Family Drip System” innovated by Israeli company.
- Technologies like Direct Seeded Rice (DSR) and System of Rice Intensification (SRI) can also save 25-30 per cent of water compared to traditional flood irrigation.

Concerns / Challenges

- Only about half of India’s gross cropped area is irrigated.
- Groundwater contributes about 64 per cent to irrigation.
- This is primarily from the skewed incentive policy of free or highly subsidised power, particularly in the country’s north-west.
- Over exploitation of groundwater has made this region amongst the three highest water risk hotspots

Need of the Hour

- The demand for water in 2025 and 2050 can be met if we remain focused and follow an appropriate strategy that not only “catches more rain” but also ensures better demand management of this precious resource.
- There is a need to realign cropping patterns based on per unit of applied irrigation water productivity.
- Unless one learns to give effect to the credo of “per drop more crop” in agriculture, the challenge can be daunting.
- We need a paradigm shift in our strategy to increase land productivity measured as tonnes per hectare and also maximise applied irrigation productivity.
- Technological solutions cannot make much headway unless pricing policies of agri-inputs are put on the right track and farmers are incentivised for saving water.
- It is time to switch from the highly subsidised price policy of water/power (and even fertilisers) to direct income support on a per hectare basis, and investment policies that help with newer technologies and innovations.
- Water and power need to be priced as per their economic value to ensure sustainable agriculture.