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## News Analysis (23 May, 2019)

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## Marathwada Water Crisis

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According to some economists and water academics, the water crisis in the Marathwada region of Maharashtra is the outcome of 'policy failure'.

### Key Points

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- Last, year, the region received 300mm rainfall which is sufficient to sustain the population of Marathwada and enough for one crop.
- But, mismanagement of water resources coupled with four decades of incessant 'water mining', had led the groundwater table across the Marathwada region to decline precipitously to the point where rejuvenating it had become difficult.
- According to data by the Groundwater Surveys and Development Agency, the water table had dropped alarmingly in 70 of the 76 talukas of Marathwada, with more than 25 reporting a drop of more than two metres.

### Factors Behind the Water Crisis

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- One major **factor responsible for the water crisis is the change in crop pattern** to one which is not congruent with the agro-climatic characteristics of this region.
- Earlier, the main crops cultivated here used to be cereal and oilseeds. These crops were not only conducive to Marathwada's arid climate but were drought-resistant and led to moisture harvesting.
- But now, the predominant crops here are soybean and Bt Cotton, which dominate more than 80% of Marathwada's cultivable land. These crops, coupled with the lure of easy profits from sugarcane, have led the farmers and the citizens to the edge of the current hydrological disaster.
- Another factor responsible for the crisis is the **diversion of water to the industries and sugar factories**.
- Sugar factories in Marathwada were operational despite the mounting water crisis. To

produce 1 kg of sugar, about 2,000 litres of water are required.

- There was also no significant effort was made by the State to curtail the water supply to the industries.
- Moreover, there has been **no significant effort at harvesting water** or replenishing the groundwater table.

## Way Forward

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- There are provisions within the **Maharashtra Irrigation Act of 1976** wherein the government can notify people in the command area not to go in for water-intensive crops like sugarcane in the case of acute water scarcity.
  - Cultivation of **drought-resistant crops like oilseeds and pulses** should be encouraged.
  - People should be encouraged to adopt **water harvesting practices** and watershed should be developed under the MGNREGA programme to replenish the groundwater table.
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## Golden Rice

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- The **International Rice Research Institute (IRRI)** and its partners, the Philippines Rice Research Institute and the Bangladesh Rice Research Institute, have successfully cultivated **Golden Rice** in a controlled environment on IRRI campus.
- The safety evaluations have shown that Golden Rice is as safe and nutritious as conventional rice but comes with the added benefit of increased beta-carotene content in the grain.
- This is aimed at covering a vast rice-eating population in the world with high prevalence of deficiencies.

## About Golden Rice

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- Golden Rice is a new type of rice that contains **beta-carotene (provitamin A), which is converted into vitamin A** as needed by the body and gives the grain its **golden color**.
- It is **developed through genetic engineering** and produces two new enzymes that complete the beta-carotene expression in the rice grain.
- Research has indicated that one cup of Golden Rice can provide up to 50% of the daily requirement of an adult for vitamin A.
- But presently, it has a **low shelf life of not more than 3 months** as it may lose its nutrients after that.
- Golden Rice can be grown just like ordinary rice and varieties **containing the GR2E Golden Rice trait** have the same yield and agronomic performance as their

conventional counterparts.

- It is intended to complement current strategies in the **fight against vitamin A deficiency (VAD)** and is intended to supply up to 30-50 percent of the estimated average requirement for vitamin A for preschool age children and pregnant or lactating mothers.

## Vitamin A Deficiency (VAD)

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- Vitamin A is a **fat-soluble vitamin** that is good for healthy vision, skin, bones and other tissues in the body.
- **Source:** There are two types of vitamin A.
  - **Preformed vitamin A**, also called **retinol**, is found in animal products. Good sources are fortified milk, eggs, meat, cheese, liver, halibut fish oil, cream and kidneys.
  - **Pro-vitamin A** is found in plant-based foods such as fruits and vegetables. The most common type of pro-vitamin A is **beta-carotene**, a carotenoid that produces dark pigments in plant foods.
- As vitamin A affects a wide range of body functions, a deficiency can lead to a variety of problems. These include:
  - night blindness
  - a higher risk of infections, especially in the throat, chest, and abdomen
  - follicular hyperkeratosis, leading to dry, bumpy skin.
  - fertility issues
  - delayed growth in children
- Vitamin A deficiency (VAD) **afflicts around 250 million people worldwide.**
- **Women and children are the most vulnerable to VAD**, the leading cause of childhood blindness and inability of the immune system to combat disease.
- Vitamin A availability could prevent 1.3–2.5 million of the nearly 8 million late-infancy and preschool-age child deaths annually in developing countries with the highest risk.
- **Multiple approaches are needed to combat VAD**, including nutrition education and consuming a diverse and nutrient rich diet; promoting breastfeeding and complementary feeding practices; vitamin A capsule supplementation; **food fortification**; and other public health measures aimed at the control of infectious diseases.

## International Rice Research Institute (IRRI)

- IRRI is an independent, non-profit, research and educational institute, founded in 1960 by the Ford and Rockefeller Foundations with support from the Philippine government.
- The institute, **headquartered in Los Baños, Philippines**, has offices in 17 rice-growing countries in Asia and Africa.

- It is the world's premier research organization dedicated to reducing poverty and hunger through rice science; improving the health and welfare of rice farmers and consumers; and protecting the rice-growing environment for future generations.
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## Doubling India's Exports

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The high-level panel constituted by Commerce and Industry Ministry has recommended a host of measures for **doubling India's exports** of goods and services to over USD 1,000 billion by 2025. The panel was headed by economist Surjit Bhalla.

## Recommendations

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- It has suggested issuance of '**Elephant Bonds**' wherein people declaring undisclosed income will have to mandatorily invest half of that amount in these securities.
  - "**Elephant Bond**" is a 25-year sovereign bond in which people declaring undisclosed income will be bound to invest 50 per cent.
  - The fund will be utilised only for infrastructure projects
- **Tax rates:** Lowering effective corporate tax rate, bringing down cost of capital and simplifying regulatory and tax framework for foreign investment funds.
- Increasing capital base of **EXIM Bank** by another Rs 20,000 crore by 2022.
- **Free trade agreements:** Seeking inputs from industry and MSMEs before signing free trade agreements (FTAs) and sensitising them of its benefits.
  - There is a need for an in-depth assessment of the existing agreements and their impact on the competitiveness of the Indian industry;
  - Remedial measures, to be considered for future FTA negotiations and maintaining a database based on such assessment.
- **WTO measures:** state governments need to be closely involved in improving the competitiveness of exports by providing support measures in a WTO (World Trade Organisation) consistent manner.
- **Tariff structure:** building a comprehensive export strategy and rationalise tariff structure.
- **Industry-specific suggestion includes:**
  - **Textiles and garments sector:** modification in labour laws (like the Industrial Disputes Act, 1947) to remove the limitation on firm size and allow manufacturing firms to grow.
  - **Medical tourism:** Setting up of a pan-India tourism board to promote medical value tourism. Simplification in the medical visa regime.
  - **Agriculture exports:** abolishing Essential Commodities Act and the APMC (Agricultural Produce Market Committee) to promote agricultural export.
  - **Medical sector:** a single ministry for medical devices and separate regulation for this sector.

- **Benefits:** Promoting exports helps a country to create jobs, boost manufacturing and earn more foreign exchange.
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## International Day for Biodiversity

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The International Day for Biological Diversity, also known as World Biodiversity Day, is observed on **May 22** to promote biodiversity.

**The theme for the year 2019 is "Our Biodiversity, Our Food, Our Health"**. The theme focuses on biodiversity as the foundation for food and health and a key catalyst to transforming food systems and improving human health.

## Biodiversity For Food and Agriculture (BFA)

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- Biodiversity is the variety of life at genetic, species and ecosystem levels. **Biodiversity for food and agriculture (BFA) is, in turn, the subset of biodiversity that contributes in one way or another to agriculture and food production.**
- BFA includes the domesticated plants and animals that are part of crop, livestock, forest or aquaculture systems, harvested forest and aquatic species, the wild relatives of domesticated species, and other wild species harvested for food and other products.
- It also encompasses what is known as **"associated biodiversity"**, the vast range of organisms that live in and around food and agricultural production systems, sustaining them and contributing to their output.

## BFA is Essential to Food Security

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- BFA is indispensable to food security and sustainable development. **It supplies many vital ecosystem services, such as creating and maintaining healthy soils, pollinating plants, controlling pests** and providing habitat for wildlife, including fish and other species that are vital to food production and agricultural livelihoods.
- Biodiversity **makes production systems and livelihoods more resilient to shocks and stresses**, including those caused by climate change.
  - Diversifying production systems, for example by using multiple species, integrating the use of crops, livestock or promoting habitat diversity in the local landscape or seascape, helps to promote resilience, improve livelihoods and support food security and nutrition.

## BFA is on Decline

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- **Since the 1900s, some 75 percent of plant genetic diversity has been lost** as farmers worldwide have left their multiple local varieties and landraces for genetically

uniform, high-yielding varieties.

- This has resulted in a rapid decline of agro-biodiversity and associated traditional knowledge related to food and medicine.
- The homogenization of plant varieties makes humans vulnerable to the vagaries of climate change, pollution and other developmental imperatives, putting food and nutrition security at risk.
- **30 % of livestock breeds are at risk of extinction;** six breeds are lost each month.
- Today, 75 percent of the world's food is generated from only 12 plants and five animal species. Only three - rice, maize and wheat - contribute nearly 60 percent of calories and proteins obtained by humans from plants.
- More than 40% of amphibian species, almost 33% of reef-forming corals and more than a third of all marine mammals are threatened.  
Animals provide some 30 percent of human requirements for food and agriculture and 12 percent of the world's population live almost entirely on products from ruminants.

## Way Forward

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- **Local and indigenous biodiversity for food and nutrition should be promoted.**
  - **Enabling frameworks** for the sustainable use and conservation of biodiversity for food and agriculture are urgently need to be established or strengthened. This is necessary to achieve sustainable development goals related to hunger, health, conservation of ecosystem etc.
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## Full Strength of SC Judges

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The government has cleared the names of four judges for their elevation to the Supreme Court. The SC will now have its full sanctioned strength of 31 judges (including the chief justice).

- The four names cleared by the government are **Justices Aniruddha Bose, A S Bopanna, B R Gavai and Surya Kant.**
- Article 124 of the constitution empowers the president to appoint Judges of SC.
- The **collegium** recommends the name of judges to government.
- The strength of SC judges is increased by **an act of parliament.** Last time in 2009, the number of judges was increased from 25 to 31 (including Chief Justice).

## Article 124

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### **Establishment and constitution of Supreme Court**

- There shall be a Supreme Court of India constituting of a Chief Justice of India

and, until Parliament by law prescribes a larger number, of not more than seven other Judges

- Every Judge of the Supreme Court shall be appointed by the President by warrant under his hand and seal after consultation with such of the Judges of the Supreme Court and of the High Courts in the States as the President may deem necessary for the purpose and shall hold office until he attains the age of sixty-five years: Provided that in the case of appointment of a Judge other than the Chief Justice, the Chief Justice of India shall always be consulted:
  - a Judge may, by writing under his hand addressed to the President, resign his office.
  - a Judge may be removed from his office in the manner provided in clause.

## Collegiums system in India

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- It is the system by which the judges are appointed by the judges. It is the system of appointment and transfer of judges that has evolved through judgments of the Supreme Court, and not by an Act of Parliament or by a provision of the Constitution.
  - The Supreme Court Collegium is headed by the Chief Justice of India and comprises four other senior most judges of the court.
  - A High Court Collegium is led by its Chief Justice and four other senior most judges of that court. Names recommended for appointment by a High Court collegium reaches the government only after approval by the CJI and the Supreme Court collegium.
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## Important Facts For Prelims (23rd May 2019)

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### IAF Test Fires Aerial Version of Brahmos

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The Indian Air Force has successfully test-fired the **Aerial version of the Supersonic BrahMos cruise missile from a Su-30 MKI fighter aircraft.**

#### About Supersonic Brahmos Cruise Missile

- Brahmos is a **two stage** (solid propellant engine in first stage and liquid ramjet in second) **air to surface missile** with a flight range of around 300 km.
- Brahmos is the **heaviest weapon** to be deployed on Su-30 MKI fighter aircraft, with weight of **2.5 tonne**.
- Brahmos is a **multiplatform** i.e it can be launched from land, air and sea and **multi capability missile** with pinpoint accuracy that works in both day and night irrespective of the weather conditions.
- It operates on "**Fire and Forget**" principle i.e it does not require further guidance after launch.

- It is a joint venture between **Defence Research and Development Organisation of India (DRDO) and NPOM of Russia**.
- Brahmos is named on the rivers Brahmaputra and Moskva.
- Brahmos is one of the **fastest cruise missile** currently operationally deployed with speed of **Mach 2.8**, which is 3 times more than the speed of sound.
- Brahmos Missile also created history on 22 Nov 2017 after it was successfully flight tested **first time from Indian Air Force's (IAF) frontline fighter aircraft Sukhoi-30 MKI against a sea based target in bay of bengal**.

## India's First Woman Pilot Qualified for Combat Missions

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- **Flight Lieutenant Bhawana Kanth** has become the **first woman pilot** of the Indian Air Force to qualify to **undertake combat missions by day** on a fighter jet.
- In order to be declared 'Operational by Day', a pilot has to complete the syllabus which proclaims him/her fit to fly during the day. Kanth has successfully completed the operational syllabus for carrying out combat missions on MiG-21 Bison aircraft, during the day.

**The MiG-21 is the oldest frontline combat jet in service with the Indian Air Force**, having first entered service in 1964. The jet has been regularly upgraded since then. **The MiG-21 "Bison" is the definitive variant of the legacy fighter.**

- **Along with Mohana Singh and Avani Chaturvedi, she was the first woman selected for the Air Force's fighter stream in 2016.**

She joined the fighter squadron in 2017 and flew solo on MiG-21 Bison last year.

- As per a government data, the Army has 3.80% of its workforce as women, the Air Force has 13.09% and the Navy 6%.

This year, the government has planned to induct women in the military police, with an aim to enhance their representation in the three services.

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