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Institute of Civil Services



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Transgenic Crops

News: Recently, Gujarat, Maharashtra and Telangana, have deferred a proposal, approved by the Centre's Genetic Engineering Appraisal Committee (GEAC), to test a new kind of Transgenic Cotton Seed that contains a gene, Cry2Ai.

Background:

- Gene Cry2Ai makes cotton resistant to pink bollworm, a major pest.

What are Transgenic crops?

- Transgenic crops are plants that have been genetically modified using **recombinant DNA technology to introduce new traits** that do not occur naturally in the species.

What is the difference between Transgenic crops and GMOs?

- Transgenic crops are a type of genetically modified organisms (GMOs) that have been engineered to carry genes **from different species** using recombinant DNA technology. GMOs are a broader term that includes any organism whose genome has been altered by human intervention, either by adding, deleting, or editing genes.
- **Not all GMOs are transgenic**, as some may have genes from the same or closely related species. For example, cisgenic crops are GMOs that have genes from the same or compatible species, and gene-edited crops are GMOs that have genes that are modified within the same species.

What are the advantages of Transgenic crops?

- Improvement in yield, quality, and resistance to insects, diseases, herbicides, and abiotic stresses, resulting in higher productivity and food security.
- Enhancement of the nutritional content of the crops, such as vitamin A in golden rice, which can prevent malnutrition and related diseases.
- Lowering the transportation costs and environmental impact of the crops, by delaying the ripening and softening of fruits and vegetables, reducing the need for pesticides and herbicides, and improving the soil quality.
- Production of recombinant proteins with industrial and pharmaceutical value, such as vaccines, antibodies, enzymes, and bioplastics, using plants as factories.
- Rapid and accurate technique for gene transfer with no barrier for gene exchange, allowing for precise manipulation of desired traits and overcoming the limitations of conventional breeding methods.
- Some examples of transgenic crops are golden rice, Bt cotton, and herbicide-tolerant soybean.

What are the disadvantages of Transgenic crops?

- **Potential health risks**, such as allergic reactions, the emergence of new allergens, increased toxicity, and reduced nutritional value.
- **Environmental impacts**, such as increased use of herbicides, the emergence of herbicide-resistant weeds, contamination of organic and conventional crops, loss of biodiversity, and disruption of natural ecosystems.
- **Socio-economic and ethical issues**, such as patenting of life forms, corporate control of agriculture, loss of farmers' rights and choices, violation of religious and cultural values, and lack of public awareness and participation.
- Transgenic crops may also pose challenges to trade, regulation, labelling, and consumer acceptance.

How are GM crops regulated in India?

- In India, the regulation of all activities related to GMOs and products are regulated by the **Union Ministry of Environment, Forest and Climate Change (MoEFCC)** under the provisions of the **Environment (Protection) Act, 1986**.
- **Genetic Engineering Appraisal Committee (GEAC)** under MoEFCC is authorised to review, monitor and approve all activities including the import, export, transport, manufacture, use or sale of GMOs.
- **Other acts and rules that regulate GM crops include** - Environment Protection Act, 1986 (EPA), Biological Diversity Act, 2002, Plant Quarantine Order, 2003, GM policy under Foreign Trade Policy, Food Safety and Standards Act, 2006 and Drugs and Cosmetics Rule (8th Amendment), 1988.

Gender Social Norms Index 2023

News: The Gender Social Norms Index (GSNI) 2023 has been released.

About GSNI:

- It is released by **United Nations Development Programme (UNDP)**
- The index tracks people's attitudes towards women across a few dimensions - **political, educational, economic and physical integrity**. It has helped in examining how biased beliefs can obstruct gender equality and human rights.

Key Findings:

- Despite progress in education, **gender gaps in economic empowerment** persist. The increase in women's education has not translated into better economic outcomes. In 59 countries where adult women are more educated than men, the average income gap is 39%.
- Countries with higher bias in **gender social norms** witness a **significant disparity in domestic chores and care work**. Women spend nearly six times more time on these tasks than men, limiting their opportunities for personal and professional growth.
- Around half the world's population believe that men make better political leaders than women, and two in five believe that men make better business executives than women.
- Countries with greater bias exhibit a lower representation of women in parliament. On average, the share of heads of state or government who are women has remained around 10% worldwide since 1995, and women hold just over a quarter of parliament seats globally.
- Women are grossly underrepresented in leadership in conflict-affected countries, mainly at the negotiation tables in the recent conflicts in Ukraine (0%), Yemen (4%), and Afghanistan (10%).

Are there any hopeful signs?

- Overall progress has been limited. But there is an increase in the share of people with no bias in any indicator in 27 out of 38 surveyed countries.
- The largest improvements were seen in Germany, Uruguay, New Zealand, Singapore, and Japan, with progress greater among men than women. These major improvements in gender social norms were influenced by policies, regulations and scientific breakthroughs.

Which are government schemes for women empowerment in India?

- **Beti Bachao Beti Padhao scheme** - To address the declining child sex ratio and promote education and participation of girl children.
- **One stop centre scheme** - The One Stop Centres are established at various locations in India for providing shelter, police desk, legal, medical and counselling services to victims of violence under one roof integrated with a 24-hour Helpline.
- **Mahila E-Haat** - direct online marketing platform launched by the Ministry of Women and Child Development to support women entrepreneurs, SHGs, and NGOs to showcase products made and services rendered by them.
- **SWADHAR Greh** - To cater to the primary needs of shelter, food, clothing and medical treatment and care of women in distress.
- **Mahila Shakti Kendra** - To empower rural women through community participation.
- **Sukanya Samridhi Yojana**
- **Pradhan Mantri Matru Vandana Yojana**

Tactical Nuclear Weapons

News: During a recent event, President Putin revealed that Russia has successfully transported its initial batch of tactical nuclear weapons to Belarus.

Background:

- However, during the mega event, Putin asserted that it would 'only' be used if Russia's territory or state was threatened.
- "Why should we threaten the whole world? I have already said that the use of extreme measures is possible in case there is a danger to Russian statehood"

What are Tactical Nuclear Weapons?

- Tactical nuclear weapons are nuclear weapons that are designed to be used on a battlefield in military situations, mostly with friendly forces in proximity and perhaps even on contested friendly territory.
- They are **generally smaller in explosive power and shorter in range** than strategic nuclear weapons, which are intended to target the enemy's interior far away from the war front.
- Tactical nuclear weapons include **gravity bombs, short-range missiles, artillery shells, land mines, depth charges, and torpedoes** that are equipped with nuclear warheads.

Advantages:

- They can **deter a conventional attack** by creating a credible threat of escalation and retaliation.
- They can **counter specific military targets** such as large formations of infantry and armour, command and control centres, airfields, missile sites, and naval vessels.
- They can also create **psychological effects** such as fear, confusion, and demoralization among the enemy forces.
- They can **reduce the risk of collateral damage** compared to strategic nuclear weapons, as they have lower explosive yields and shorter ranges.
- They can also be **designed to minimize the radioactive fallout and environmental impact** by using enhanced radiation or low-yield warheads.

Disadvantages:

- They can increase the risk of nuclear war by lowering the threshold for nuclear use and blurring the distinction between conventional and nuclear weapons.
- It has the potential to trigger an arms race or proliferation of nuclear weapons.
- They can cause severe humanitarian and environmental consequences such as mass casualties, radiation sickness, genetic mutations, cancer, and long-term contamination.
- They can face technical and operational challenges such as reliability, accuracy, security, command and control, and delivery systems. They can also be vulnerable to sabotage, theft, accidents, or unauthorized use by rogue actors or terrorists.

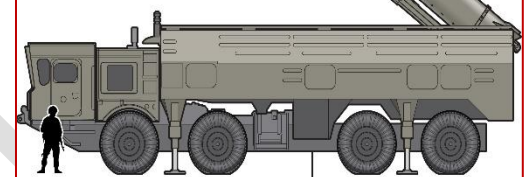
A 'small' nuclear missile

The 9K720 Iskander missile system, known to NATO forces as the SS-26, is capable of delivering "tactical" nuclear weapons as well as standard explosive warheads. The Russians appear to have Iskanders deployed in Ukraine.

9M723 Ballistic Missile

Range: Approx. 300 miles

The booster rocket stage and the warhead are both maneuverable in flight for precise targeting



MZKT launch/support truck

Sources: Federation of American Scientists; U.S. Department of Defense; GlobalSecurity.org

What is the 'landfall' of a cyclone?

News: This is in continuation of the post on the Tropical cyclone that was covered recently.

What is the Landfall of a Cyclone?

- Landfall is the event of a tropical cyclone coming onto land after being over water. **As per the IMD, a tropical cyclone is said to have made landfall when the centre of the storm – or its eye – moves over the coast.**
- A landfall should not be confused with a 'direct hit', which refers to a situation where the core of high winds (or eyewall) comes onshore but the centre of the storm may stay remain offshore.

Impact of Cyclone's Landfall:

- The damage caused by the landfall will depend on the severity of the cyclone – marked by the speed of its winds.

- For Cyclone Biparjoy, classified by the IMD as a “very severe cyclonic storm”, the impact may include extensive damage to kutchha houses, partial disruption of power and communication lines, minor disruption of rail and road traffic, the potential threat from flying debris and flooding of escape routes.

What is the duration of the Landfall?

- Landfalls can **last for a few hours**, with their exact duration depending on the **speed of the winds** and the **size of the storm system**.
- Cyclones lose their intensity once they move over land because of a sharp reduction of moisture supply and an increase in surface friction. In other words, while landfalls are often the most devastating moments of cyclones, they also mark the beginning of their end.

Facts for Prelims

Global Wind Day

News: The Ministry of New and Renewable Energy has joined the worldwide celebrations of **15th June** as **Global Wind Day** through the organization of a day-long event in New Delhi.

Key Highlights:

- Rajasthan was felicitated for achieving the highest wind capacity addition, Gujarat for achieving the highest wind capacity addition through open access and Tamil Nadu for initiating the repowering of wind turbines.
- Launch of **Wind Atlas** at 150 meters above ground level, prepared by **National Institute of Wind Energy** (NIWE, HQ: Chennai)
- The onshore wind potential of the country is now estimated at 1,164 GW at 150 meters above ground level.
- Theme – **Pawan-Urja: Powering the Future of India**

Important facts:

- Wind energy is crucial to India’s efforts to achieve its goal of having 50% of its electric power installed capacity from non-fossil fuel-based energy resources by 2030 and to achieve Net Zero by 2070.
- India ranks **fourth** in wind power capacity in the world.
- India currently has **4 GW of prospective projects** in wind energy.
- India has a potential of about 60 GW of wind.
- **Tamil Nadu** is the largest producer of wind energy followed by Gujarat and Karnataka.
- **Government Initiatives** - National Wind-Solar Hybrid Policy (2018) and National Offshore wind energy policy (2015)

Irshad Mangoes

News: The delicious Irshad mango from Uttara Kannada has earned its much-awaited geographical indicator (GI) tag. (It is also referred to as Kari Irshad)

About:

- Irshad mango, which is grown predominantly around Ankola, is tasty and contains a lot of pulp.
- The Kari Irshad is accepted as one of the finest quality mangoes due to its unique aroma, luscious taste, high amount of pulp, shape, and size.

About GI Tag:

- A GI is primarily an **agricultural, natural or manufactured product** (handicrafts and industrial goods) originating from a definite geographical territory.
- The registration of a geographical indication is valid for a period of 10 years.
- It can be renewed from time to time for a further period of 10 years each.

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