Daily News Juice

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THE HINDU

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Vedanta-Foxconn's semiconductor project

Relevance: Prelims & Mains Paper III; Economics

Joint Venture

- Vedanta has partnered with Foxconn through a 60:40 joint venture to set up an integrated display and semiconductor fabrication Unit.

- Vedanta is Indian mining conglomerate and Foxconn is Taiwanese manufacturing giant.

- Foxconn is known for creating assembly units for electronic devices, including but not limited to mobile devices.

Project Details

- The JV plans to set up $22 billion (around Rs 1.54 lakh crore) project.

- The project is planned to be set up at Dholera, Gujarat.

- Under Gujarat Semiconductor Policy 2022-27, Semicon City is planned to be set up at Dholera.

Benefits expected

- One of the goals of the project is to make India self-reliant in electronics.

- 80,000 to 100,000 direct jobs

- $21 billion direct and $5-8 billion additional investment

- Around 150+ companies across the value chain would have benefited, creating 70,000 to 1,00,000 direct and indirect jobs.

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CRISPR use for treatment of genetic diseases
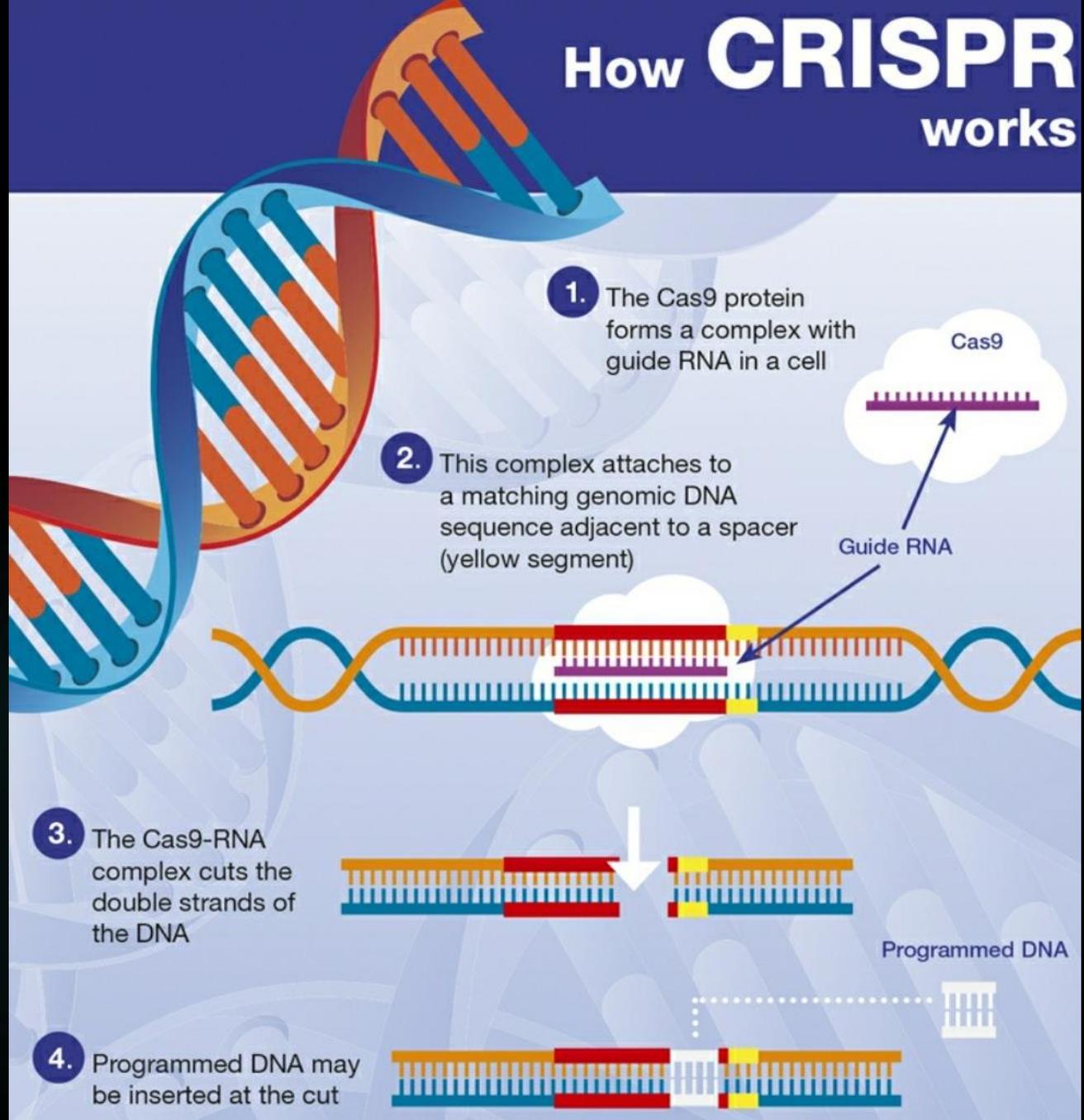
Relevance: Prelims & Mains Paper III; S&T

How does CRISPR work?

- The first task is to identify the particular sequence of genes that is the cause of disease or deformity.

- Once that is done, an RNA molecule is programmed to locate this sequence on the DNA strand, just like the 'find' or 'search' function on a computer.

- After this, a special protein called Cas9, which is often described as 'genetic scissors', is used to break the DNA strand at specific points, and remove the bad sequence.

- A DNA strand, when broken, has a natural tendency to re-attach and heal itself. But if the auto-repair mechanism is allowed to continue, the bad sequence can regrow.

- So, scientists intervene during the auto-repair process by supplying the correct sequence of genetic codes, which attaches to the broken DNA strand.

Inspired from Bacteria

- CRISPR is short for Clustered Regularly Interspaced Short Palindromic Repeats, which is a reference to the clustered and repetitive sequences of DNA found in bacteria.

- The technology replicates a natural defence mechanism in some bacteria that uses a similar method to protect itself from virus attacks.

- The developers of the technology, Jennifer Doudna and Emmanuelle Charpentier, won the Nobel Prize for Chemistry in 2020.

How **CRISPR** works

1. The Cas9 protein forms a complex with guide RNA in a cell

Cas9

2. This complex attaches to a matching genomic DNA sequence adjacent to a spacer (yellow segment)

Guide RNA

3. The Cas9-RNA complex cuts the double strands of the DNA

Programmed DNA

4. Programmed DNA may be inserted at the cut

Credit: *MRS Bulletin*

Different from Gene Editing

- Editing, or modification, of gene sequences to eliminate — or introduce — specific properties in an organism.

- It usually involves the introduction of a new gene, or suppression of an existing gene, through a process described as genetic engineering.

- It has been happening for several decades now, particularly in the field of agriculture.

Potential

- Treatment of diseases and disorders which are genetic in nature.

- These include common blood disorders like sickle cell anaemia, eye diseases including colour blindness, several types of cancer, diabetes, HIV, and liver and heart diseases.

- Already research has shown successful result in treatment of sickle cell anaemia.

- The technology can also be used to treat deformities arising out of abnormalities in gene sequences, like stunted or slow growth, speech disorders, or inability to stand or walk.

Ethical concerns

- Interventions to obtain special traits

- Though the technology is fairly accurate, it is not 100 per cent precise, and could induce a few errors as well, making changes in other genes.

- The acquired traits or inaccurate changes may pass onto next generations.

Q1. Consider the following statements about CRISPR technology:

1. The technology makes use of programmed DNA to identify the defective sequence in the RNA Strand.
2. The technology can be used to treat genetic diseases such as sickle cell anaemia, but not genetic deformities such as stunted growth.
3. The technology uses the special protein to cut the defective strand of genetic sequence.

Which of the statements given above is/are correct?

(a) 3 only
(b) 2 only
(c) 1 and 2
(d) 1 and 3

The draft Indian Ports Bill of 2022

Relevance: Prelims & Mains Paper II; Governance

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Need of the bill

- The Indian Ports Act of 1908 is obsolete in many respects and needs a complete overhaul.

- India has 12 major ports and 212 non-major ports.

- Major ports figure in the Union List and come under the jurisdiction of the Central government. Non-major ports are in the Concurrent List and come under the respective State governments, but the Centre has overriding legislative and executive powers.

Maritime State Development Council (MSDC)

- In 1997, a Maritime State Development Council (MSDC) was created by an executive order as an advisory body.

- Union Minister of Shipping as chairperson and the Ministers in charge of ports of the maritime States/Union Territories (UTs) are members of MSDC.

- The recent bill sought to give statutory status along with wide-ranging powers and functions to the MSDC and make it a permanent body with its own office, staff, accounts and audit; on lines of GST Council.

- Maritime States suspect that the real aim of a statutory-cum-permanent MSDC is to curtail their powers to develop and manage non-major ports

Windfall taxes

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Meaning

- Windfall taxes are designed to tax the profits a company derives from an external, sometimes unprecedented event — for instance, the energy price-rise as a result of the Russia-Ukraine conflict.

- These are profits that cannot be attributed to something the firm actively did, like an investment strategy or an expansion of business.

- Governments typically levy this as a one-off tax retrospectively over and above the normal rates of tax. One area where such taxes have routinely been discussed is oil markets, where price fluctuation leads to volatile or erratic profits for the industry.

Oil Markets

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- The Central government on July 1, introduced a windfall profit tax of ₹23,250 per tonne on domestic crude oil production, which was subsequently revised fortnightly four times so far. The latest revision was on August 31, when it was hiked to ₹13,300 per tonne from ₹13,000.

Windfall taxes

Rationale by Government

- Ms. Sithraman explained the introduction of the windfall tax as a way to rein in the "phenomenal profits" made by some oil refiners who chose to export fuel to reap the benefits of skyrocketing global prices which affected domestic supplies.

Arguments Against

- Analysts say that companies are confident in investing in a sector if there is certainty and stability in a tax regime. Since windfall taxes are imposed retrospectively, they bring uncertainty about future taxes.

- There is another argument about what exactly constitutes true windfall profits; how can it be determined and what level of profit is normal or excessive.

India's forthcoming G20 Presidency

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Presidency to India

- India will assume the Presidency of the G20 for one year from 01 December 2022 to 30 November 2023.

- The G20 Leaders' Summit at the level of Heads of State / Government is scheduled to be held on 09 and 10 September 2023 in New Delhi.

About G-20

- The G20, or Group of Twenty, is an intergovernmental forum of the world's major developed and developing economies.

- It comprises 19 countries (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, UK, USA) and the European Union (EU).

Importance

- Collectively, the G20 accounts for 85% of global GDP, 75% of international trade and two-thirds of the world population, making it the premier forum for international economic cooperation.

Relevance: Prelims & Mains Paper II, Int. Orgns

G-20 Troika

- India is currently part of the G20 Troika (current, previous and incoming G20 Presidencies) comprising Indonesia, Italy and India.

- This would be the first time when the troika would consist of three developing countries and emerging economies, providing them a greater voice.

Q2. During Indian presidency of G-20 in 2023, which of the following countries are going to form G-20 Troika?
(a) India, Mexico and Brazil
(b) India, Brazil and Italy
(c) India, Brazil and Indonesia
(d) India, Indonesia and Italy

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Methodology

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- **Doubt Resolution**
- WhatsApp Group- 6 to 8 pm
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