Prelim Bits 18-02-2022 | UPSC Daily Current Affairs

Type 1 Diabetes

According to a new study, Type 1 diabetes in those below 25 years accounted for at least 73.7% of the overall diabetes deaths in this age group in 2019.

- Inadequate diagnosis and treatment of diabetes is likely to be a major contributor to these early deaths, highlighting the urgent need to provide better access to insulin and basic diabetes education and care.
- The death rate varied based on the socio-demographic index (SDI) of a country.

SDI Spectrum	Death Rate for Type 1 diabetes
High SDI countries	0.13 deaths per 100,000 people (415 deaths)
Low-middle SDI countries	0.6 per 100,000 people (5,300 deaths)
Low SDI countries	0.71 per 100,000 people (4,860 deaths)

- Between 1990 and 2019, global death rates for all types of diabetes after age-standardisation decreased by 17% and that for Type-1 diabetes by 21%.
- Myanmar, Papua New Guinea and Haiti had the highest age-standardised death rates for diabetes. Cyprus, Slovenia and Switzerland had the lowest death rates.
- The UN and the World Health Organization in the 2013-2020 global action plan had recognised diabetes as one of the key challenges in the non-communicable diseases group and aimed to confront it.
- To know more about the Diabetes, click here.

Reference

https://www.downtoearth.org.in/news/health/type-1-diabetes-leading-cause-of-diabetes-deaths-in-those-below-25-easily-preventable-study-81521

Neutrino

Tamil Nadu has said to the Supreme Court that it does not want the Indian Neutrino Observatory (INO) to be set up in a sensitive ecological zone in the Western Ghats at a great cost to wildlife and biodiversity.

- Neutrinos are the 2nd most abundant particles, after photons.
- They come in three 'flavours' or 'types', and each flavour is associated with a light elementary particle. They are,
    1. Electron-neutrino is associated with the electron;
    2. Muon-neutrino with the muon and
    3. Tau-neutrino with the tau particle.
- They are not easy to catch, as they do not carry a charge, as a result of which they do not interact with matter.
- They also might have unique properties that would help explain why the universe is made of

matter instead of antimatter.
- Subatomic particles that make up antimatter have properties that are opposite to the subatomic particles of normal matter.
- Protons, neutrons and electrons (subatomic particles of normal matter) are among the 12 quarks and leptons have been discovered so far.
- To know about the Indian-based Neutrino Observatory, click here.
- **Related Links** -, Baikal-GVD, Neutrinos and Star Death,

Reference

https://www.thehindu.com/todays-paper/tn-says-no-in-sc-to-neutrino-observatory/article65060947.ece

Green Ammonia

The Ministry of Power notifies Green Hydrogen/ Green Ammonia Policy.

Hydrogen and Ammonia are envisaged to be the future fuels to replace fossil fuels.

Production of these fuels by using power from renewable energy is termed as green hydrogen and green ammonia.

- **Green Ammonia** - Ammonia is a pungent gas that is widely used to make agricultural fertilisers.
- Green ammonia production is where the process of making ammonia is 100% renewable and carbon-free.
- **Production** - One way of making green ammonia is by using hydrogen from water electrolysis and nitrogen separated from the air.
- These are then fed into the Haber process or Haber-Bosch process, all powered by sustainable electricity.
- In the Haber process, hydrogen and nitrogen are reacted together at high temperatures and pressures to produce ammonia (NH_3).
- But, the process of making ammonia is currently not a green process.
- It is most commonly made from methane, water and air, using steam methane reforming (SMR) (to produce the hydrogen) and the Haber process (to produce the ammonia).
- Around 90% of the carbon dioxide produced is from the SMR process. This process consumes a lot of energy and produces around 1.8% of global carbon dioxide emissions.

Reference

1. https://pib.gov.in/PressReleasePage.aspx?PRID=1799067
2. https://royalsociety.org/topics-policy/projects/low-carbon-energy-programme/green-ammonia/#:~:text=What%20is%20green%20ammonia%3F,nitrogen%20separated%20from%20the%20air .

Prime Minister’s Employment Generation Programme

- Prime Minister’s Employment Generation Programme (PMEGP) Scheme is a central sector scheme administered by the Ministry of Micro, Small and Medium Enterprises (MoMSME).
- This scheme is a **credit linked subsidy programme** that was formed by merging the two

schemes that were in operation till 2008, namely
    1. Prime Minister's Rojgar Yojana (PMRY) and
    2. Rural Employment Generation Programme (REGP).
- **Objectives -** This scheme aims to generate employment opportunities in the country by setting up micro-enterprises in non-farm sector of rural and urban areas.
- To provide continuous and sustainable employment to traditional and prospective artisans through setting up of micro enterprises.
- To facilitate participation of financial institutions for higher credit flow to micro sector.
- **Salient features** - Assistance is given **only to new units** to be set up.
- Existing units or units already availed any Govt. Subsidy either under State/Central Govt. Schemes are not eligible.
- No income ceiling for setting up of projects.Any industry including Coir Based projects excluding those mentioned in the negative list of the Scheme.
- Per capita investment should not exceed Rs. 1.00 lakhs in plain areas and Rs. 1.50 lakhs in Hilly areas.
- **Implementation** - At the national level, the MoMSME is implementing the PMEGP since 2008-09 through Khadi and Village Industries Commission (KVIC) as nodal agency.
- At the state level, the scheme is implemented through State KVIC Directorates, State Khadi and Village Industries Boards (KVIBs), District Industries Centres (DICs) and banks.
- It is implemented through KVIC and State/ UT Khadi & V.I. Boards in Rural areas and through District Industries Centres in Urban and Rural areas in ratio of 30:30:40 between KVIC / KVIB / DIC respectively.
- **Assistance**

Sector	**Maximum cost of the project/unit admissible**
Manufacturing Sector	₹ 25 lakhs
Business/service sector	₹ 10 lakhs

- Categories of Beneficiary's Rate of subsidy under PMEGP are

Categories	**Beneficiary's own contribution (of project cost)**	**Rate of Subsidy**	
		Urban	**Rural**
General category	10%	15%	25%
Special category (including SC/ ST/ OBC/ Minorities/Women, Ex-servicemen, Physically handicapped, NER, Hill and Border areas, etc.)	5%	25%	35%

- The balance amount of the total project cost will be provided by the banks in the form of term loan and working capital.

Reference

1. https://pib.gov.in/PressReleasePage.aspx?PRID=1799032
2. https://msme.gov.in/1-prime-ministers-employment-generation-programme-pmegp
3. https://vikaspedia.in/agriculture/policies-and-schemes/rural-employment-related-1/pmegp

Immunosensor for Japanese Encephalitis Virus

Hyderabad-based National Institute of Animal Biotechnology has developed an electrochemical

based immunosensor for detecting the Non-Structural 1 (NS1) secretory protein, a biomarker for Japanese Encephalitis Virus (JEV).

> NS1 secretory protein is suitable biomarker for JEV found circulating in the blood and has been reported to elicit an immune response.

- This immunosensor was developed by fabricating fluorine-doped Tin Oxide electrode with reduced Graphene Oxide for the rapid, sensitive and specific detection of the NS1 secretory protein.
- The synthesized NS1 Antibodies were used as the bioreceptor to fabricate the electrode with reduced graphene oxide as a conductivity enhancing nanomaterial for the detection of JEV NS1 antigen (Ag).
- **Significance** - Detection of the NS1 instead of antibody has an added advantage since the antigen is present from day 1 of the infection and hence facilitates early detection.
- On the other hand, antibodies appear only after Day 4/5 of the infection.
- Since there is no cure available for JEV, early detection is essential to mitigate a breakout.
- Limit of Detection (LOD) range is more sensitive than other sensors developed for JEV.
- This immunosensor was also specific towards JEV NS1Ag as compared to other flaviviral NS1Ag.
- To know more about the Japanese Encephalitis Virus (JEV), click here.

Reference

https://pib.gov.in/PressReleasePage.aspx?PRID=1799063

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