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1. How should India tackle diabetes load?

Overview



On International Diabetes Day (November 14), a paper published in the *The Lancet*, based on a global study, recorded over 800 million adults living with diabetes, with more than half not receiving treatment. According to the study, the total number of adults living with either Type 1 or Type 2 diabetes in the

world has surpassed 800 million — over four times the total number in 1990. Of this, over a quarter (212 million) live in India, with another 148 million in China. The estimate came as a bit of a shock, because the last scientific countrywide estimate by the Indian Council of Medical Research-INDIAB study last year had pegged the number at slightly over 100 million.

Why is there a discrepancy in numbers?

The nub of it is in the means used to measure blood sugar, experts have pointed out. The *Lancet* study, conducted by the NCD Risk Factor Collaboration (NCD-RisC), along with the World Health Organization (WHO), used data from over 140 million people (18+ years) culled from more than 1,000 studies in different countries. They estimated trends from 1990 to 2022 in diabetes prevalence and treatment for 200 countries and territories. As such they had to use what was available as data in these nations — picking fasting glucose or HbA1C or a three-month glycated haemoglobin average. The ICMR study, however, used a fasting measure and a two-hour post prandial value to come up with the number of people who have elevated blood sugar levels.

What are the areas of concern?

1. Rising Numbers: Whether 100 million or 200 million, the fact remains that India already has a large number of people requiring treatment for their diabetes, and who, as a consequence are prone to several life-threatening complications involving the heart, eyes, kidneys, and peripheral nervous system. Quibbling over numbers apart, the *Lancet* study must be seen as yet another reminder that in India, diabetes has grown — and is growing — across populations, and efforts should be made on a war footing to both prevent diabetes and treat persons with the condition.

2. Lack of access to treatment: Another aspect that the study highlighted was the lack of access to treatment for people with diabetes. Senior author of the paper, Majid Ezzati, of the

Imperial College, London, says: "Our study highlights widening global inequalities in diabetes, with treatment rates stagnating in many low-and middle-income countries, where numbers of adults with diabetes are drastically increasing. This is especially concerning as people with diabetes tend to be younger in low-income countries, and in the absence of effective treatment, are at risk of life-long complications, including amputation, heart disease, kidney damage or vision loss, or in some cases, premature death."

3. Complications are untreatable: No country in the world can afford to treat patients when the complications of diabetes set in, explains Dr. Mohan. "Even if we assume we have 100 million people with diabetes and 20% of them move to kidney failure, then that is 20 million people who will need a kidney transplant. How are we going to help all those people?"

What can individuals do?

The Lancet paper identifies obesity and poor diets as important drivers of the rise in Type 2 diabetes rates. Diabetes rate was either already high or increased more in some of the regions where obesity was or became prevalent between 1990 and 2022. The writing is on the wall: a measure of mindful eating and exercising have a proven effect in preventing diabetes, and controlling blood sugar levels.

Relevance: GS Prelims & Mains Paper II; Governance

Source: The Hindu

2. Why is there a row over climate finance?

Introduction



The 29th edition of the Conference of Parties (COP), arguably the most important of the UN's climate conferences, was scheduled to end on November 22, after 11 days of negotiations, and take a collective step forward in addressing rising carbon emissions. However, deliberations are expected to carry on beyond

the deadline with several sticking points outstanding.

What is the significance of COP29?

Going into the talks, developing countries had stated that at least a trillion dollars per year from 2025-35 would be necessary to meet emission targets. This was seen to be the New Collective Quantified Goal (NCQG) on climate finance which refers to money that will be given to developing countries by developed countries to help the former meet their goals to transition away from the continued use of fossil fuels and curb greenhouse gas emissions. Developing countries have been repeatedly saying that the figure should be "trillions of dollars." To this end, developed countries have mobilised and transferred \$115 billion in 2021-22 — a controversial clause that has yet to be resolved in the universal agreement — but per

the Paris Agreement, a new target higher than \$100 billion must be agreed upon by 2025. The talks in Baku were expected to conclusively agree upon a number but there continues to be a sharp split between developed and developing countries on the quantum and other basic aspects of what this NCQG should look like.

What do developing countries want?

This block of countries include China, India and the Group of 77 countries. There are also other coalitions such as the Like Minded Developing Countries (LMDC), Least Developing Countries (LDC), Small Island Developing Countries (SIDS) etc. Nearly all developing countries fall into one or multiple groupings and while they have differences, they are largely agreed on the point that it is the developed countries that should pay the bulk of climate finance.

More importantly, they specified that this money had to be provided not only to help countries meet their Nationally Determined Contributions (NDC) but also buffer against existing threats of climate change, and make good for climate damage already wrought. The NDCs are targeted, voluntary plans by all countries to reduce carbon emissions by certain quantities until 2030. The NCQG, the developing countries say, should also reflect contributions by developed countries on the basis of their historical contribution to existing carbon concentrations in the atmosphere as well as their per capita GDP. To put this in perspective, it is important to note that even if all countries fulfilled their stated voluntary commitments, it would as of now only translate to a 2% cut, and this year — the latest scientific assessments suggest — carbon emissions will likely increase 0.8% over 2023.

What does the developed world say?

However developed countries, led by the European Union, say these demands are unreasonably high. They aver that “all actors” (read countries) should collectively work to hike up climate finance to \$1.3 trillion per year by 2035. While agreeing that they must “take the lead” they have only set a goal of \$250-300 billion by 2035 per year. Moreover this would consist of a “variety of sources,” including “public and private, bilateral and multilateral, and alternative sources.”

This suggests that another major demand of the developing world, of ensuring most of the money is in the form of grants or low-cost loans, remains unmet.

Have any concrete agreements been made?

A week before the conference began, China had petitioned the Presidency of COP29 to discuss “climate-change related unilateral restrictive trade measures” at the conference. This is an unusual request as trade issues are discussed on forums such as the World Trade Organization. China proposed this as part of a grouping of countries called BASIC (Brazil, South Africa, India, China).

The petition is primarily directed at a European Union proposal called the Carbon Border Adjustment Mechanism (CBAM), which imposes a tax on products imported into the EU that don't conform to carbon-emission norms required by the Union. The CBAM is currently operating in a “transitional phase” but will come into full effect from January 1, 2026.

The first day of the conference saw an agreement on carbon markets to be supervised by the UN. Such a market would allow countries to trade carbon credits — certified reductions of carbon emissions — among themselves and whose prices are determined as a consequence of emission caps imposed by countries.

The market itself follows from a section in the Paris Agreement, called Article 6. Sub-sections within the Article spell out how countries can bilaterally trade carbon among themselves (Art 6.2) and participate in a global carbon market (6.4). Though most of the necessary nuts and bolts to make operational such a carbon market, supervised by a United Nations body, were in place since 2022, there were several niggles, particularly on ensuring that the carbon credits generated are genuine and its antecedents are transparent.

While there is criticism among environmentalist groups that enough discussions on this didn't take place, this is supposed to be a mechanism to facilitate climate finance. India has been discussing bilateral deals to trade carbon with several countries. An agreement such as the one in Baku could be a catalyst, and activate India's own carbon-trading market.

Relevance: GS Prelims & Mains Paper III; Environment
Source: The Hindu

3. Why satellite space junk may be bad news for the environment

Introduction



More than 10,000 active satellites are in orbit around the planet today. This number is estimated to shoot up to more than 100,000 by the 2030s, and possibly half a million in the decades to follow.

Most satellites, at the end of their life-cycle, fall to a fiery death through Earth's atmosphere. As they disintegrate, however, they leave all kinds of pollutants in the upper atmosphere. As the number of satellites goes up, so will this pollution. And some scientists are very worried. Polluting satellites

Daniel Murphy, an atmospheric scientist at the US National Oceanographic and Atmospheric

Administration (NOAA), and others presented definitive evidence that "10% of the aerosol particles in the stratosphere contain aluminum and other metals that originated from the burn-up of satellites, and rocket stages during reentry" ('Metals from spacecraft reentry in stratospheric aerosol particles', 2023).

Connor Barker, an atmospheric chemist from the University College of London, and others found that emissions of aluminum and nitrogen oxides from satellite reentries significantly increased from 3.3 billion grams in 2020 to 5.6 billion grams in 2022. Also on the rise were

emissions from rocket launches, which leave pollutants such as black carbon, nitrogen oxides, carbon monoxide, aluminum oxide and a variety of chlorine gases ('Developing inventories of by-products from satellite megaconstellation launches and disposal to determine the influence on stratospheric ozone and climate', 2024).

Impact of satellite pollution

While pollution from burnt-up satellites high up in the atmosphere is seemingly a distant concern for humans, it might lead to ripple effects that will change the chemistry of the atmosphere. This is not good news. Life on Earth has evolved over billions of years to adjust to the planet's specific environment, and even miniscule changes could trigger massive chaos on the planet.

Scientists are particularly concerned about the impact of this pollution on the ozone layer in Earth's stratosphere. This layer absorbs up to 99% of ultraviolet rays from the Sun, which would otherwise harm living organisms on Earth's surface.

But pollutants from burnt-up spacecraft are likely already harming it. Aluminum oxide, for instance, is a known catalyst for ozone depletion. This would be a major new threat to the ozone layer especially in the light of the success of the Montreal Protocol of 1987, which banned production and emissions of known ozone-destroying chemicals such as chlorofluorocarbons (CFCs), previously used as a common refrigerant.

Murphy also notes many other ways in which spacecraft pollutants might impact the atmospheric composition. He told Science News: "Soot emitted from rocket engines absorbs solar energy, which can warm the atmosphere. Copper and other metals released during the incineration of spacecraft wiring and alloys are known to be powerful catalysts for chemical reactions in the atmosphere. Among other things, those metals could promote the creation of the tiny particles that act as the seeds of clouds."

Relevance: GS Prelims & Mains Paper III; Environment

Source: Indian Express