

DAILY PT POINTERS

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The Hindu-GS3(Environment)Page 8

How will the govt. produce the required fuel ethanol?

Does India's ethanol distillery industry have the capacity to produce nearly 1,100 crore litres of fuel ethanol? Why have maize imports increased substantially in the past year?

M. Kalyanaram

The story so far:

Union Minister Nitin Gadkari said that India will achieve its target of 20% ethanol blending of petrol in the next two months, at least a year ahead of what was originally planned. This would entail the production of nearly 1,100 crore litres of fuel ethanol in one year.

Where will this come from?

The 1,100 crore litres of fuel ethanol will come from sugar and high grade molasses, Food Corporation of India (FCI) rice, broken rice, and maize. India's ethanol distillery capacity has ramped up to 1,600 crore litres, driven by a range of government incentives and the promise of a stable, lucrative market.

Sugar is expected to provide some 400 crore litres this ethanol year, according to

Deepak Ballani, director general of Indian Sugar and Bio-energy Manufacturers Association. India had closing sugar stocks of around 80 lakh tonnes in October 2024. The projected sugar production for next year is around 315 lakh tonnes out of which 40 lakh tonnes will go to fuel ethanol. Mr. Ballani said that ethanol for non-fuel uses will come from low grade molasses called C Heavy that don't go into sugar production.

The government recently decided to reduce the price of FCI rice to distilleries from ₹28 to ₹22.5 per kg. The government handout states that some 110 crore litres of ethanol will be produced from FCI rice this ethanol year. This means almost 400 crore litres of fuel ethanol should come from maize. For context, India was producing little or no ethanol from maize until 2020. Besides pure-play grain-based distilleries coming up, some sugar distilleries have modified to dual-feed so

in the off-season they can use other feedstock (maize) to produce ethanol.

How is maize playing a role?

India's maize production is just about enough for traditional needs such as for the poultry sector, livestock feed, starch production and some 10% for human consumption. As the government had imposed curbs on allowing sugar and high quality molasses for ethanol production, maize imports started ramping up in April 2024. From April to June, approx. 700 crore worth of maize was imported while, for 2023-24, maize imports were approx. \$33 million. Ministry of Commerce figures show that a total of \$188 million worth of maize was imported from April to November 2024.

The promise of a steady, lucrative ethanol market has meanwhile graded many farmers to take to maize cultivation across India. The major maize producing

States are Karnataka, Madhya Pradesh, Maharashtra, Andhra Pradesh, Rajasthan, Bihar, and Uttar Pradesh. For the 2024-25 ethanol year, maize output would be some 42 million tonnes out of which nine million can go towards producing the 350 to 400 crore litres of ethanol. H. S. Jat, director ICAR Indian Institute of Maize Research, Ludhiana, said. Citing good prospects for kharif this year, he said importing maize will not be necessary.

Since 2020-21, when ethanol production was almost all sugar-based, maize production had increased by nearly six million tonnes in three years, for potential ethanol use.

As things stand now, maize is cultivated in 10% more area at a higher yield, says Mr. Jat who also expects some diversion from traditional maize uses since supplying to ethanol is more lucrative for farmers. On whether that won't disrupt the market, Mr. Jat says DDCS (Distiller's Dried Grains with Solubles), a byproduct of ethanol, can be used for poultry. The long-term sustainability of fuel ethanol would depend on whether the switch to ethanol and stress on maize has a negative impact on production of other foodgrains. Mr. Jat estimates that 100 crore litres of fuel ethanol translates to ₹6,000 crore savings on oil imports and the money going into the internal economy including to farmers. For context, India's yearly oil import bill is some ₹10.5 lakh crore.

THE GIST

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- India is set to achieve 20% ethanol blending in petrol ahead of the 2025-26 target, requiring 1,100 crore litres of ethanol.
- This will be sourced from sugar, molasses, FCI rice, broken rice, and maize. India's ethanol distillery capacity has increased to 1,600 crore litres, with significant contributions from sugar (400 crore litres) and maize (350-400 crore litres).
- Maize production has grown as farmers shift to maize cultivation due to the lucrative ethanol market. Ethanol blending has led to foreign exchange savings of ₹6,000 crore, contributing to India's energy self-reliance.

The Hindu-GS1(Culture)

Remote tribal village in A.P. gets electricity for first time

Harish Gilai
ANAKAPALLI

Tribal families at Neelabandha, a hilltop hamlet in Arla panchayat of Andhra Pradesh's Anakapalli district, broke into celebrations after receiving electricity for the first time since Independence. Four households, comprising around 20 persons, were so happy that they performed 'Dhimsa', a popular tribal dance.

Following State government directions, the Anakapalli district administration has been identifying



Lighting up lives: Tribal families jubilant after getting electricity connection for the first time at Neelabandha in Anakapalli district.

to know about lack of electricity in the tribal village, directed authorities from the Eastern Power Distri-

cle, G. Prasad, said they provided electricity to the interior hamlet for free.

He said providing elec-

- Tribal families in Neelabandha, Andhra Pradesh, celebrated receiving electricity for the first time since Independence. Four households, about 20 people, marked the occasion by performing the traditional 'Dhimsa' dance.
- Dhimsa is a traditional dance of Andhra Pradesh tribes, symbolizing unity and cultural heritage. It reflects themes from mythology, folklore, and daily life. Accompanied by instruments like dappu, tudumu, and mori, it is popular during festivals, marriages, and religious events. The dance also helps in resolving conflicts.

Why scientists are monitoring asteroid with only 1% chance of hitting Earth

ALIND CHAUHAN
NEW DELHI, FEBRUARY 3

THE NEWLY discovered asteroid 2024 YR4 has a roughly 1% chance of crashing into Earth in 2032, NASA officials said last week. Paul Chodas, director of NASA's Center for Near Earth Object Studies, said, "We are not worried at all, because of this 99% chance it will miss [Earth]... But it deserves attention".

Although millions of asteroids float in the Solar System, there is a small probability that one will end up hitting Earth, let alone cause serious damage. Over the years, however, scientists have closely observed a few asteroids such as the 2024 YR4, for both research and monitoring purposes.

What is the 2024 YR4?

2024 YR4 was discovered in December last year by the Asteroid Terrestrial-impact Last Alert System (ATLAS) telescope in Chile.

According to a rough estimate based on the asteroid's brightness, it is likely between 40 to 100 metres wide. The logic behind estimating an asteroid's size using this method is that larger an object, the brighter it appears. But since brightness also depends on how reflective an asteroid's surface is, this method is imprecise. Distinguishing a large, dark asteroid and a small, shiny one is challenging.

According to the Associated Press, 2024 YR4 came closest to Earth on Christmas Day, passing roughly 800,000 kilometres from the planet — about twice the distance be-

tween Earth and the Moon. It will fade from view over the next few months, and will only be visible again in 2028. At the moment, scientists are using some of the world's most powerful telescopes to chart 2024 YR4's path and exact size before it goes out of sight.

Could 2024 YR4 impact Earth?

Experts say that while 2024 YR4 is big, it is not as big as the asteroid that wiped out dinosaurs, and most other extant life some 66 million years ago. It can, however, cause considerable localised damage if it hits a populated area.

Astronomers use the Torino Scale to categorise a Near-Earth Object's destructive po-

tential. At the moment, NASA has rated 2024 YR4 a 3 (out of 10) on this scale.

Scientists say the asteroid is expected to release 8 to 10 megatons of energy in case of a crash. The asteroid that hit Chelyabinsk, Russia, on February 15, 2012, released energy equivalent to about 500 kilotons of TNT — about 30 times the explosive force of the atom bomb that detonated over Hiroshima, an NPR report said. The Chelyabinsk asteroid injured around 1,500 people, and damaged thousands of buildings.

That asteroid, however, was only half the estimated size of 2024 YR4.

How often do asteroids crash into Earth

and pose real danger?

Thousands of asteroids enter Earth's atmosphere every day. Most are very small and burn up in the atmosphere due to friction. The larger ones burn spectacularly, and appear as fireballs in the sky. Sometimes, unburnt fragments hit the surface, but in most cases, these are not big enough to cause much damage.

Large asteroids that can cause global disasters hit Earth less often. A Deutsche Welle report said that asteroids more than a kilometre in diameter, such as the Chicxulub asteroid that led to the extinction of dinosaurs, might hit only once in 260 million years. This is because compared to Earth, the Solar System is huge — there is ample room for celestial objects to move around without often hitting each other.

But smaller asteroids can also inflict damage. Factors like an asteroid's speed, and its angle of entry into Earth's atmosphere play a role. Under certain conditions, a 40-metre-wide rock could level an entire city, the DW report said.

What can space agencies do?

Space agencies such as NASA are working on planetary defence mechanisms to prevent celestial bodies from colliding with Earth. The Double Asteroid Redirection Test (DART) a joint project between NASA and the Johns Hopkins Applied Physics Laboratory, was NASA's first such mission.

In 2022, a DART spacecraft crashed into an asteroid named Dimorphos, and successfully changed both its shape and trajectory.

- The newly discovered asteroid 2024 YR4 has a 1% chance of hitting Earth in 2032.
- It was found in December 2023 and is about 40-100 meters wide. If it crashes, it could cause localized damage, releasing 8-10 megatons of energy.
- Most asteroids that enter Earth's atmosphere are small, but larger ones can cause significant damage. Space agencies like NASA are developing planetary defense methods, such as the DART mission, which successfully redirected an asteroid's path in 2022.
- Asteroids are small, rocky objects that orbit the sun, mainly found in the asteroid belt between Mars and Jupiter.

EXPLAINED
SPACE

Indian Express-GS2(IR)Page17

Trump, Musk & USAID

Established in 1961, USAID has played a central role in spreading American influence abroad. But the agency is now a victim of the Trump administration's bid to rehaul the federal government

ARJUN SENGUPTA
NEW DELHI, FEBRUARY 3

THE UNITED States Agency of International Development (USAID) over the weekend emerged as the latest casualty in the Trump administration's bid to rehaul the federal government.

A week after President Donald Trump ordered a 90-day pause on foreign aid, his administration removed two top USAID security officials after they refused to grant representatives of Elon Musk's Department of Government Efficiency (DOGE) access to restricted spaces at the agency. Musk has since repeatedly called for USAID's "death", referring to it as a "criminal organisation".

As of Monday evening (IST), the USAID website remains inaccessible.

Why have Trump, Musk targeted USAID?

Trump and Musk have targeted USAID for the same reasons as they have gone after multiple other departments and agencies in the federal government: to reduce spending and eliminate the perceived bloat within the US federal government.



Donald Trump (right) and Elon Musk are looking to cut US government spending. AP

more specifically, the United States' fear of a communist takeover of Latin America following the Cuban Revolution of 1959. In 1961, President John F Kennedy launched the "Alliance for Progress", a multi-billion dollar program to boost democracy and economic development in South and Central America with educational initiatives, housing and infrastructure projects, among other things.

"[The program] was an attempt... to fight communist tendencies in Latin America... with USAID responsible for coordinating the activities of the different organisations involved," Unger wrote.

The agency was established via an executive order by President Kennedy after the US Congress in 1961 passed the Foreign Assistance Act which mandated the creation of a single agency to administer foreign aid.

What role does USAID play in India?

The US has provided development and humanitarian assistance to India since 1951 when President Harry Truman signed the India Emergency Food Assistance Act, according to an archived page on the USAID website.

"USAID's program has evolved progressively over the decades from emergency pro-

WHERE DO THE BILLIONS MANAGED BY USAID GO?

FY2023 Total Obligations: \$43.4 billion

BY SECTOR

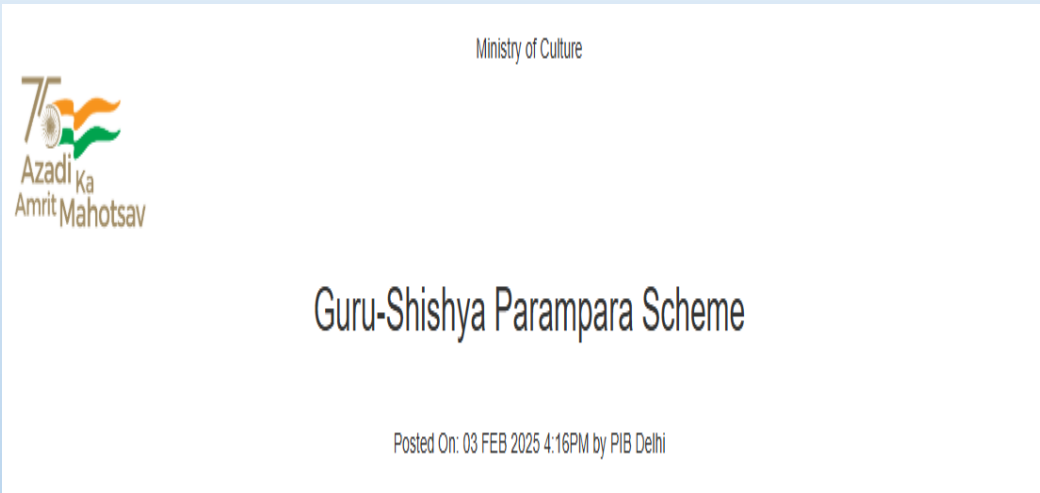
BY REGION

- USAID, the U.S. agency for international aid, is targeted by Trump and Musk to cut government spending.
- The agency provides billions in aid for poverty, healthcare, and education globally. Although it has a long history in U.S. foreign policy, its influence in India has declined due to the rejection of aid with conditions.

HEADLINES OF THE DAY



PIB-GS2(Governance)



- The Ministry of Culture's 'Guru-Shishya Parampara (Repertory Grant)' scheme provides financial assistance to cultural organizations training artists in music, dance, theatre, and folk arts.
- Organizations must submit annual applications for both renewal and new selections, which are reviewed by an Expert Committee.
- The scheme supports artists aged 3 and above and encourages new organizations to promote traditional performing arts and nurture emerging talent.

HEADLINES OF THE DAY



PIB-GS3(Environment)

Ministry of Environment, Forest and Climate Change



International Big Cat Alliance (IBCA) officially comes into force as a full-fledged Treaty based Inter-governmental International Organization

Posted On: 03 FEB 2025 7:14PM by PIB Delhi

- The International Big Cat Alliance (IBCA) officially became a full-fledged international organization on January 23, 2025, after five countries (Nicaragua, Eswatini, India, Somalia, and Liberia) ratified its Framework Agreement.
- Launched by India in April 2023, IBCA aims to conserve seven big cat species globally, including Tigers, Lions, Leopards, Snow Leopards, Cheetahs, Jaguars, and Pumas.

HEADLINES OF THE DAY

Air-GS3(Defence)

India-Maldives Joint Military Exercise 'Ekuverin' Begins



The 13th edition of joint military exercise 'Ekuverin' between the Indian Army and the Maldives National Defence Force has commenced in the archipelago nation. The military exercise commenced yesterday is a bilateral annual exercise conducted alternatively in India and Maldives. In 2023, it was conducted at Chaubatia in Uttarakhand from June 11 to 24. Ekuverin meaning 'Friends' in Dhivehi language.