

**The Hindu Important News Articles & Editorial For UPSC CSE**

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The recent announcement by U.S. President Donald Trump regarding the imposition of reciprocal tariffs from April 2 has sparked global concern.

# U.S. will impose reciprocal tariffs from April 2: Trump

U.S. President terms 'high levies' by India and others as 'very unfair', he says if these countries do not manufacture products in America, they will pay a tariff and in 'some cases, a rather large one'

**Press Trust of India**  
 NEW YORK/WASHINGTON

U.S. President Donald Trump criticised the high tariffs charged by India and other countries, terming them as "very unfair" and announced reciprocal tariffs from April 2 on nations that impose levies on American goods.

Mr. Trump made these remarks in an address to the Joint Session of the Congress on Tuesday. It was the first address of his second term in the White House.

"If you don't make your product in America, however, under the Trump administration, you will pay a tariff and in some cases, a rather large one," Mr. Trump said. "Other countries have used tariffs against us for decades and now it's our turn to start using them against those other countries. On average, the European Union, China, Brazil, India, Mexico and Canada – have you heard of them? And countless other nations charge us tremendously higher tariffs than we charge them," the U.S. President said.

"It's very unfair. India charges us auto tariffs higher than 100 per cent." In

## Trade in numbers

Tables show top exports and imports between the U.S. and India from April 2024 to Nov. 2024



February, Mr. Trump said that his administration would "soon" impose reciprocal tariffs on countries such as India and China, reiterating what he had said during Prime Minister Narendra Modi's visit to the U.S. capital last month.

### 'India won't be spared'

He has made it clear to Prime Minister Modi that India will not be spared from the reciprocal tariffs and emphasised that "nobody can argue with me" on tariff structure.

"China's average tariff on our products is twice what we charge them. And South Korea's average tariff is four times higher. Think of that. Four times higher. And we give so much help militarily and in so many other ways to South Korea. But that's what happens.

This is happening by friend and foe," Mr. Trump said.

"We've been ripped off for decades by nearly every country on earth, and we will not let that happen any longer," the U.S. President said.

Asserting that this system is "not fair to the United States" and never was, Mr. Trump said that reciprocal tariffs will kick in from April 2.

"Whatever they tariff us, other countries, we will tariff them. That's reciprocal, back and forth," he said, amid applause from Republican lawmakers.

"Whatever they tax us, we will tax them. If they do non-monetary tariffs to keep us out of their market, then we will do non-monetary barriers to keep them out of our market. There's a lot of that too.

They don't even allow us in their market. We will take in trillions and trillions of dollars and create jobs like we have never seen before," Mr. Trump said.

Mr. Trump is implementing a 25% additional tariff on imports from Canada and Mexico and a 10% additional tariff on imports from China. In a retaliatory action, Canada said that effective March 4, 2025, it is imposing 25% tariffs on \$30 billion in goods imported from the United States.

Mexico said it will announce reciprocal action on Sunday. China also announced it will impose additional tariffs of up to 15% on imports of key U.S. farm products.

**'RESHAPE AMERICA'**  
 » PAGE 14

- The move targets countries that impose high levies on American goods, including India, China, and key U.S. allies such as Canada, Mexico, and South Korea.

- The decision is in line with Trump's long-standing stance on trade protectionism, emphasizing "fair trade" and reducing trade deficits.

### Background of the Issue

- For years, the U.S. has accused several nations of imposing disproportionately high tariffs on American goods while benefiting from lower U.S. tariffs. Key concerns include:
  - 1. India's Auto Tariffs** – India levies more than 100% tariff on imported cars, which the U.S. views as unfair.
  - 2. China's Tariff Disparity** – The average tariff China imposes on U.S. goods is reportedly twice what the U.S. charges China.
  - 3. South Korea and the EU** – South Korea's tariff levels are allegedly four times higher than those of the U.S., despite American military and economic support.
- This move is not unprecedented, as Trump had earlier imposed tariffs on steel and aluminum imports and withdrew India's GSP (Generalized System of Preferences) benefits in 2019.

### Implications of Reciprocal Tariffs

#### 1. Impact on India

- **Exports to the U.S.:** India exports a significant volume of pharmaceuticals, textiles, IT services, and auto parts to the U.S. Higher tariffs could impact these industries.
- **Retaliatory Tariffs:** India may impose retaliatory tariffs on U.S. agricultural and industrial goods, leading to a trade standoff.
- **Trade Balances:** The U.S. is India's largest trading partner, and disruptions could slow India's export growth.

#### 2. Impact on Global Trade and WTO Norms

- Escalation of a global trade war, reminiscent of the U.S.-China trade war, could disrupt supply chains.
- Such unilateral tariff impositions violate WTO principles of non-discrimination and most-favored-nation (MFN) treatment, leading to potential disputes.

#### 3. Impact on the U.S. Economy

- Tariffs could lead to higher import costs, raising prices for American consumers.
- U.S. companies relying on imported raw materials could face higher production costs, reducing competitiveness.

- ▶ While the administration claims it will bring manufacturing back to the U.S., historical data suggests tariffs often lead to job losses in the affected industries.

#### 4. Retaliatory Measures by Other Nations

- ▶ **Canada's Response:** Announced a 25% tariff on \$30 billion worth of U.S. goods.
- ▶ **Mexico and China's Response:** Preparing countermeasures that could impact U.S. agricultural exports.
- ▶ Such actions could create economic uncertainty and affect global stock markets.

#### Conclusion

- ▶ The U.S. move towards reciprocal tariffs underlines the resurgence of protectionist policies in global trade. While it aims to address trade imbalances, it risks triggering a retaliatory trade war that could harm economic growth worldwide.
- ▶ For India, the focus should be on negotiating trade agreements, enhancing competitiveness, and diversifying export markets to reduce dependency on any single nation.

#### UPSC Mains Practice Question

**Ques:** Examine the impact of the U.S. reciprocal tariff policy on India's trade and economic relations. Suggest measures India can take to mitigate the effects. (250 words)

A recent study by the Council of Scientific and Industrial Research-Centre for Cellular and Molecular Biology (CSIRCCMB) found that endogamy (marrying within small communities) is a major cause of population-specific genetic diseases in India.

## 'Endogamy key cause of population-specific diseases'

**The Hindu Bureau**  
HYDERABAD

Endogamy, the practice of marrying within small communities, was the primary cause for population-specific diseases in India, said a recent study led by Bhatnagar Fellow and senior scientist at the Council of Scientific and Industrial Research-Centre for Cellular and Molecular Biology (CSIR-CCMB) K. Thangaraj.

Researchers found a significant number of disease-causing genetic variants, many of which were unique to specific populations. Earlier studies had also shown many population-specific hereditary diseases most often associated with novel genetic mutations.

One of the key findings of this study has been that the widespread prevalence of ankylosing spondylitis, a type of arthritis that causes inflammation in the joints and ligaments of the spine, is linked to the 'HLA-B27:04 risk allele', a genetic variant that increases the likelihood of developing a disease, said an official release on Tuesday.

### **Risk factor**

"We found a high incidence of ankylosing spondylitis disease in the Reddy community, who dwell in a specific geographical region of Andhra Pradesh", said rheumatologist Sarath Chandra Mouli Veeravalli from Krishna Institute of Medical Sciences (KIMS), Hyderabad, one of the authors of this study.

### **We observed genetic variations in the genes that alter drug response, says one of the authors**

Lead author Pratheusa Machha explained that 281 high-coverage whole exome sequences were analysed from four anthropologically distinct populations.

"We examined several key factors, such as extent of inbreeding and novel genetic variants in populations. We also looked pharmacogenomic markers that influence drug metabolism to understand why different drugs seem to work differently in different populations," Ms. Machha said.

The study also uncovered novel genetic variants associated with drug metabolism, with implications for personalised medicine, especially in response to some of the common drugs, such as Tacrolimus (an immunosuppressive drug) and Warfarin (anticoagulant).

"We observed genetic variations in the genes that alter the drug response, which differ across populations, and hence provide opportunity for developing targeted drugs and improving health outcomes", said co-author Divya Tej Sowpati.

Dr. Thangaraj pointed out that the study forecast the impact of endogamy in causing population-specific genetic diseases and

drug responses.

"This emphasises the need for appropriate genetic screening, counselling and clinical care for the communities that are vulnerable to various health conditions," Dr. Thangaraj said.

### **Major step**

The study was a major step towards our understanding of the genetic underpinnings for India's unique genetic architecture.

It could play an important role in the development of more effective diagnostic and therapeutic strategies, said CSIR-CCMB director Vinay K. Nandicoori.

The findings were recently published in the *Journal of Genetics and Genomics*, the release added.

- Researchers discovered many disease-causing genetic variants, some unique to specific groups.

### **Impact of Endogamy on Population-Specific Genetic Diseases in India**

- **Genetic Variants:** Endogamy leads to a higher prevalence of disease-causing genetic variants, some of which are unique to specific communities.
- **Hereditary Diseases:** Many population-specific hereditary diseases in India are linked to novel genetic mutations due to inbreeding.
- **Case Study – Ankylosing Spondylitis:** The study found a high incidence of ankylosing spondylitis in the Reddy community, linked to a type of arthritis that causes inflammation in the joints and ligaments of the spine.

- ➔ **Drug Response Variability:** Genetic variations influence how different populations respond to common drugs.
- ➔ **Need for Genetic Screening:** Findings highlight the importance of genetic screening, counseling, and personalized medicine to improve health outcomes.
- ➔ **Research by CSIR-CCMB:** The study by CSIR-Centre for Cellular and Molecular Biology (CSIR-CCMB) emphasizes the impact of endogamy on genetic diseases and drug metabolism.



On December 30, 2024, a 500 kg metal object fell in Kenya, identified as a part of a space-bound rocket.

- ➔ Similar incidents in the U.S. and Australia highlight the growing problem of space debris.

### Space Debris and Legal Issues

- ➔ There is no universally accepted legal definition of space debris in international treaties.
- ➔ The UN Committee on the Peaceful Uses of Outer Space defines space debris as non-functional man-made objects in orbit or re-entering the atmosphere.
- ➔ Legal disputes focus on whether debris qualifies as a "space object" under the 1972 Liability Convention.
- ➔ The 1967 Outer Space Treaty holds states responsible for all national space activities, including private entities.
- ➔ The 1972 Liability Convention imposes absolute liability on states for damage caused by space objects on Earth.

### Challenges in Legal Enforcement

- ➔ Despite legal provisions, enforcement is difficult due to diplomatic negotiations and prolonged settlements.
- ➔ A past case of a Soviet satellite crash in Canada in 1978 resulted in years of negotiations, securing only half of the cleanup cost.
- ➔ Identifying the origin of debris adds complexity, making liability enforcement challenging.

### Growing Risks of Uncontrolled Reentries

- ➔ Recent incidents include a rocket fragment falling in Poland and a massive rocket stage plunging into the Pacific Ocean.
- ➔ Many older rockets lack controlled reentry mechanisms, increasing the risk of debris falling unpredictably.

## 'India a good venue for production and capacity expansion'

**Dinakar Peri**  
NEW DELHI

"In Europe, sometimes we are very good in over-regulating and the current European Commission is very strong on the agenda of simplification of regulations," said Andrius Kubilius, European Commissioner for Defence and Space, in a conversation with *The Hindu*. The EU can look at India not only as a "good destination" for production and capacity expansion but also as "an example" of how to make regulation more smart, he added.

From an economic point of view, the 21st century, apart from being the "Century of Space", will also be the "Century of India", he said, adding the partnership between India and the EU was "limitless". "There are plenty of platforms where we can put very clear proposals, both short-term and long-term, and how we can develop this cooperation and partnership between India and the EU, which would be beneficial for both sides, and beneficial globally and internationally," Mr. Kubilius said.

**Strategic pact**  
He identified the strategic pact on security and defence proposed by Commission President Ursula Von Der Leyen, on the lines of the EU's pact with Japan and South Korea; the new strategic space dialogue; and the forthcoming negotiations on the Free Trade Agreement that Ms. von der Leyen and Prime Minister Narendra Modi had agreed to conclude by the year-end, as various possibilities.

The two sides are also set to hold the India-EU Summit by the end of the year, wherein they expect to renew the current Strategic Roadmap for 2020-2025.

On the regulatory front, he said over-regulation was impacting competitiveness in Europe, and they had since proposed simplification. One of the challenges for the European defence industry in ramping up was not funding, which was always an issue but can be resolved, but "how to build a factory".

"It takes so much of time and here again, India could be very attractive," Mr. Kubilius said, adding they heard that some Indian businesses can build factories in 12 months,



Andrius Kubilius

**The European Commissioner for Defence and Space says partnership with India is limitless**

which would take four years in Europe.

In an unprecedented visit, Ms. von der Leyen, accompanied by 22 members of the College of Commissioners, visited India last week.

Defence was a major focus area, and the two leaders agreed on further focused discussions on defence industry and policy to explore opportunities from new initiatives and programmes.

Mr. Kubilius termed the geopolitical situation as "turbulent times", referring to the Russian war against Ukraine. "There are a lot of intelligence services publicly reporting that Russia can be ready to start new oppression against EU member states before 2030. So it brings, for Europeans, a very clear understanding that we need to ramp up our preparedness, our capabilities, our defence industry, defence production and so on."

**Indo-Pacific stability**

Elaborating, he said that it was not Russia alone that was creating all the possible threats to Europe. "But we see also some kind of, what they call, axis of aggressive authoritarians. Starting from Russia, we have Iran, North Korea, and China is not far away from that axis. That creates possible instabilities here in the Indo-Pacific. That is why we need to look into joint efforts on possibly how to guarantee security in this region, not just for India."

Adding that India played a very important role in the region, Mr. Kubilius said the Indo-Pacific was also important for the EU as it was very important for their economic development.

- The rapid expansion of satellite constellations, with over 100,000 satellites expected by 2030, will worsen the issue.

### Need for Stronger Regulations

- Current space regulations lack mandatory oversight for reentries unless damage occurs.
- Global agreements must enforce controlled reentries and impose penalties on non-compliant actors.
- National governments should require companies to adopt debris mitigation strategies.
- Sustainable space practices, such as reusable rockets and debris-neutral technologies, should be incentivized.
- The 1972 Liability Convention should be updated to include an independent international tribunal with enforcement powers.

### Conclusion

- Space debris poses a serious risk, and voluntary guidelines are insufficient.
- Strong global cooperation, enforceable laws, and accountability mechanisms are needed to prevent future incidents.

### Space Debris Mitigation Initiatives by Space Agencies

- **NASA (USA) Orbital Debris Program Office** – Monitors and studies space debris.
- **RemoveDEBRIS** – Aims to test debris removal technologies like nets and harpoons.
- **ISRO (India) Project NETRA** – Early warning system for tracking space debris.
- **Cartosat Satellites** – Help monitor debris in orbit.
- **ESA (Europe) ClearSpace-1** – First active debris removal mission, planned for 2026.
- **e.Deorbit** – Aims to remove defunct satellites.
- **CNSA (China) Space Debris Action Plan** – Develops mitigation measures.
- **Active Debris Removal (ADR) Studies** – Research on debris-cleaning methods.
- **JAXA (Japan) Kounotori Experiment** – Uses electrodynamic tethers to deorbit debris.

### UPSC Mains Practice Question

**Ques:** Discuss the challenges posed by space debris and evaluate the effectiveness of international legal frameworks in addressing liability and mitigation. Suggest measures for enhancing global cooperation in space debris management. (250 words)



U.S. President Donald Trump has changed America's policy on the Ukraine war, leading to disagreements between the U.S. and Ukraine.

➔ A public dispute between Ukrainian President Volodymyr Zelenskyy and Mr. Trump occurred in the Oval Office, after which the U.S. paused all military aid.

## A brief history of the Russia-Ukraine war

Why has U.S. President Donald Trump taken a dramatic shift when it comes to US's policy on Ukraine and NATO? Does the US still consider Russia as a systemic threat? Are European leaders supportive of the US plan? What lies ahead for the Russia-Ukraine war?

### WORLD INSIGHT

Stanly Johny

**The story so far:**  
The Ukraine conflict has witnessed dramatic developments in recent weeks. U.S. President Donald Trump has brought in a 180-degree shift in the U.S.'s policy towards the war. Disagreements between Kyiv and Washington on how to end the war have led to an unprecedented public spat between Ukraine's President Volodymyr Zelenskyy and Mr. Trump in the Oval Office, following which the U.S. paused all military aid for the war-torn European nation. Within a day, Mr. Zelenskyy 'regretted' the spat, announced Kyiv's readiness to declare a partial truce and work with Mr. Trump to achieve lasting peace. Europe seems caught off guard as the geopolitical glacial plates are shifting fast. Russia is watching and waiting, while the war grinds on.

### How did the war begin?

When Russian President Vladimir Putin launched the invasion of Ukraine on February 24, 2022, he probably thought the war would be over within days. So did Ukraine's western partners, including the U.S., who vacated their embassies in Kyiv right before the war began. But when Ukraine, armed with U.S.-supplied weapons, denied a quick victory to the Russians, the West stepped in. The U.S., under the Biden administration, adopted a two-pronged approach towards the war – impose biting sanctions on Russia to weaken its war machinery and economy, and arm Ukraine to the teeth to fight the Russians on the battlefield. "We want to see Russia weakened," Mr. Biden's Defence Secretary Lloyd Austin said in April 2022. This approach was relatively successful in the war's initial phase. By September 2022, Russian troops were forced to withdraw from the settlements they had captured in the Kharkiv Oblast in the northeast. In November, Russia pulled back forces from Kherson city and parts of Mykolaiv on the right bank of the Dniipro River in the south.

But in between Russia's retreats from Kharkiv and Kherson, President Vladimir Putin had doubled down on the war: he annexed four Ukrainian oblasts – Donetsk, Luhansk, Zaporizhzhia and Kherson – and announced a partial mobilisation. The message from the Kremlin was that it was ready to fight a long war. On the economy front, Mr. Putin pivoted towards Asia where the huge markets of China, India and others helped Moscow offset the impact of the sanctions.

### Where does the war stand today?

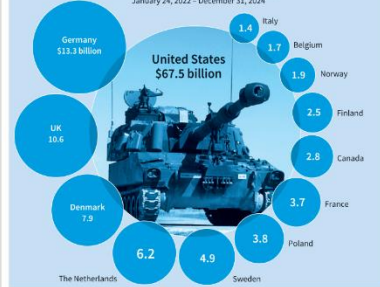
In 2023, Russia gradually turned the tide of the war, inch by bloody inch. It took Soledar in January and Bahmut in May, after a months-long campaign. In 2024, Russia expelled its battlefield advances by capturing Avdiivka in February, Krasnohorivka in September and Vuhledar in October. At no point since 2022, had Ukraine seemed capable of defeating the Russians and recapturing the lost territories. In June 2023, Ukraine launched a much-awaited counter-offensive, with advanced western weapons, in the south, but it fizzled out in the face of Russia's dogged defence.

In August 2024, Ukraine captured some 1,000 sq. km of Russian territory in the Kursk region in a surprise attack aimed at mounting pressure on Russia's advancing troops in the east. But Russia

### A shift in policy

Donald Trump's actions suggest a shifting U.S. worldview, according to which China is the systemic threat to its primacy. A Sino-Russian alliance could make that threat perilous.

The U.S. now wants Kyiv to take the deal the U.S. plans to make with Russia and end the war



TOTAL COMMITMENTS TO UKRAINE BY DONOR GROUP  
Humanitarian, financial and military aid from January 24, 2022 – December 31, 2024

Europe \$139.3bn United States \$120.2bn

Sources: AP, Kiel Institute Picture: NARA & DVIDS Public Domain Archive © GRAPHIC NEWS



refused to walk into the trap and pressed ahead with its offensive in the east, the soft belly of Ukraine's resistance. In 2024, Russian forces captured an estimated 4,168 sq. km in both Ukraine and Russia's Kursk. In January 2025, Russian troops seized Velyka Novosilka and parts of Toretsk. They have also been trying to encircle Pokrovsk. Ukraine in recent months stepped up drone and missile attacks deep inside Russian territory as well as in the Black Sea, hurting Russia's security. But on the battlefield, it has been on the backfoot for over two years.

### Why has Trump changed America's Ukraine policy?

Mr. Trump had promised during his election campaign that he would bring the war to a quick end. After taking office in January, he moved fast. First, Pete Hegseth, the U.S. Defence Secretary, told the Ukraine Defence Contact Group, an alliance of 57 countries and the EU put in place by the Biden administration to help Kyiv, that Ukraine would not become a NATO member. He also ruled out American security guarantees for Ukraine and said any European guarantee would not be covered under NATO's collective security clause. Immediately after Mr. Hegseth's comments, Mr. Trump held a telephone call with Mr. Putin. Within days, Russia and the U.S. had two rounds of direct talks. Mr. Trump seems determined to reset America's ties with

### Russia.

One explanation for this approach is that the U.S. doesn't see Russia as a threat any more. The U.S., in that sense, is breaking with the post-Second World War trans-Atlantic consensus, and is going back to the pre-First World War offshore balancing the U.S. is protected by the world's two greatest oceans and shares borders with two meek powers in the south and north. In this Realist worldview, China is the systemic threat to the U.S.'s primacy and a Sino-Russian alliance could make that threat perilous. It would entail a reorientation of America's policy towards Russia – in a reverse order of what Henry Kissinger did in the 1970s when he and President Richard Nixon exploited the Sino-Soviet split and reached out to Beijing. In this grand reset plan, Ukraine is just a hindrance. Mr. Trump believes Ukraine can't win the war even with American support, and wants Kyiv to take the deal the U.S. plans to make with Russia and end the war.

### How does Europe look at the developments?

Europe seems to be struggling to come to terms with what's happening. When Ukraine was promised NATO membership by U.S. President George W. Bush in 2008, Germany and France were hesitant. After Russia annexed Crimea in 2014 and supported a rebellion in

### Pete Hegseth, the U.S. Defence Secretary, told the Ukraine Defence Contact Group, an alliance of 57 countries and the European Union put in place by the Biden administration to help Kyiv, that Ukraine would not become a NATO member

Ukraine's east, Germany and France played a role in negotiating the Minsk process to bring peace to Ukraine. But the U.S. was not very keen on the Minsk accords, and continued to back Ukraine militarily. No side – Kyiv, the separatists in the east, and Russia – implemented the accords. The crisis escalated into a full-blown war on Europe's watch. After the war began, Europe had to pay a huge economic cost. The Nord Stream pipeline, linking Russia across the Baltic Sea to Germany, was blown away (most likely by the Ukrainians, according to American media). The stoppage of the flow of cheap Russian gas triggered a cost-of-living crisis and de-industrialisation, which deepened public antipathy towards Europe's political establishment in several countries. For example, Germany is in recession for the third consecutive year, and the German far-right is ascendant.

And now, the U.S., which was in the lead of the pro-Ukraine alliance, is breaking with the policy and directly talking to Russia, excluding both Ukraine and Europe. European countries have called two summit-level meetings since Mr. Trump came to office, and promised to do more to help Ukraine. But the question is whether Europe, which itself is divided, has the capacity to provide security guarantees to Ukraine without America's backing. At present, Europe doesn't have many options but to go with the American plan. Europe also has bigger problems than Ukraine. It is worried about the future of NATO as the Trump administration is reorienting America's post-war foreign and security policy.

### Where does it leave Ukraine?

Ukraine has lost more than 20% of its territories to Russia and tens of thousands of soldiers were killed in the war. Millions of Ukrainians have fled the country. Its economy is in shambles, and the energy sector is facing a major crisis because of Russia's repeated bombing of its infrastructure. The country is dependent on external supplies to meet at least half of its weapons requirements – including artillery and ammunition. Ukraine is also facing a manpower crunch on the battlefield (Mr. Trump says Ukraine is "running low on soldiers", while Vice President J.D. Vance says Russia has a "huge numerical advantage").

The country is therefore in dire straits. The U.S. says it's not practical to expect Ukraine to retake its lost territories – the Ukrainians and Europeans would gradually agree. The U.S. promised NATO membership to Ukraine in 2008. In 2025, the U.S. says Ukraine can forget about NATO membership. Ukraine wants at least security guarantees, but America is reluctant to provide any such guarantee. So, if Ukraine continues the war, it could lose more territories. If it stops the war, it will have to do so on the terms set by Russia and America. In the outset, no good options left for Mr. Zelenskyy and his Generals. Great powers fight proxy wars when their interests clash. Great powers reset ties when their interests align. The pawns and proxies suffer. Ukraine's story is not different.

### THE GIST

When Russian President Vladimir Putin launched the invasion of Ukraine on February 24, 2022, he probably thought the war would be over within days. So did Ukraine's western partners, including the U.S., who vacated their embassies in Kyiv right before the war began.

The U.S., under the Biden administration, adopted a two-pronged approach towards the war – impose biting sanctions on Russia to weaken its war machinery and economy, and arm Ukraine to the teeth to fight the Russians on the battlefield.

And now, the U.S., which was in the lead of the pro-Ukraine alliance, is breaking with the policy and directly talking to Russia, excluding both Ukraine and Europe.

## How the War Began: A Brief History

- Russian President Vladimir Putin launched the invasion of Ukraine on February 24, 2022, expecting a quick victory. Western nations, including the U.S., initially believed Kyiv would fall quickly and vacated their embassies.
- Ukraine, with U.S.-supplied weapons, resisted, forcing the West to intervene.
- The U.S. imposed strict sanctions on Russia and provided military aid to Ukraine.
- By late 2022, Ukraine regained some territories, such as Kharkiv and Kherson.
- In response, Russia annexed four Ukrainian regions—Donetsk, Luhansk, Zaporizhzhia, and Kherson—and called for partial mobilization.

### Current Status of the War

- By 2023, Russia gradually took control of Ukrainian territories, including Soledar in January and Bakhmut in May.
- In 2024, Russia advanced further, capturing Avdiivka in February, Krasnohorivka in September, and Vuhledar in October.
- Ukraine's June 2023 counteroffensive failed, as Russia's defenses remained strong.
- In August 2024, Ukraine briefly seized 1,000 sq. km in Russia's Kursk region but failed to stop Russia's advances in the east.
- By early 2025, Russia captured around 4,168 sq. km in both Ukraine and Russia.
- Ukraine increased drone and missile strikes inside Russia but remained on the defensive.

### Trump's Policy Shift

- During his campaign, Mr. Trump promised to end the war quickly.
- After taking office in January 2025, his administration announced that Ukraine would not be a NATO member.
- The U.S. also ruled out any security guarantees for Ukraine.
- Mr. Trump held direct talks with Mr. Putin, signaling a reset in U.S.-Russia relations.
- The U.S. now views China as the main global threat and seeks to prevent a strong Russia-China alliance.
- Mr. Trump believes Ukraine cannot win the war even with U.S. support and wants Kyiv to accept a peace deal.

### Europe's Response

- European nations are struggling with the sudden U.S. policy change.

- In 2008, the U.S. promised NATO membership to Ukraine, but Germany and France were hesitant.
- After Russia annexed Crimea in 2014, Europe supported peace talks under the Minsk agreements, but they failed.
- Since the war began, Europe has faced economic challenges, including energy shortages and de-industrialization.
- Germany is in a recession for the third consecutive year, and far-right political groups are rising.
- Now, the U.S. is negotiating with Russia without including Ukraine or Europe.
- European countries have held emergency meetings to support Ukraine but lack independent security guarantees.

### Ukraine's Difficult Position

- Ukraine has lost over 20% of its land to Russia and suffered heavy military losses.
- Millions of Ukrainians have fled, and the economy is in crisis.
- Ukraine depends on foreign aid for weapons, and its army is running low on manpower.
- U.S. officials acknowledge that Ukraine cannot reclaim lost land.
- NATO membership, once promised, is no longer an option.

### Conclusion

- **Ukraine faces two bad choices:** continue fighting and risk losing more territory or accept a U.S.-Russia peace deal on unfavorable terms.
- The conflict highlights how powerful nations use smaller countries in their strategic battles, leaving Ukraine in a vulnerable position.

### UPSC Mains Practice Question

**Ques :**Analyze the impact of the U.S.'s changing stance on the Ukraine conflict on global power dynamics. How should India navigate its diplomatic and strategic interests in light of these developments?(250 words)

### In News : Agriculture Infrastructure Fund (AIF) Scheme

Punjab has fully utilized ₹4,713 crore allocated under the Agriculture Infrastructure Fund (AIF), making it the top-ranked state in India for implementing this scheme.

- As a result, Punjab has been granted an additional ₹2,337 crore to further expand its agricultural infrastructure projects.

#### What is the Agriculture Infrastructure Fund (AIF) Scheme?

- The AIF is a ₹1 lakh crore financing facility launched by the Government of India in July 2020 to support post-harvest agricultural infrastructure and community farming assets.
- AIF provides medium- to long-term debt financing at subsidized interest rates, along with credit guarantee support, to eligible beneficiaries.

#### Key Features of the AIF Scheme:

- **Total Corpus & Disbursement:** ₹1 lakh crore, disbursed over 10 years (2020-21 to 2029-30).
- **Interest Subvention & Loan Benefits:**
  - 3% interest subvention on loans up to ₹2 crore.
  - Credit guarantee support through CGTMSE and NABSanrakshan.
  - Maximum interest rate capped at 9% for a 7-year tenure.
- **Eligible Projects:**
  - **Post-harvest infrastructure:** Warehouses, cold storage, silos, drying yards, sorting, and packaging units.
  - **Processing & Value Addition:** Food processing plants, oil mills, flour mills, kinnow and cashew processing.
  - **Technology-driven solutions:** Drone projects, hi-tech farm equipment rental centers.
  - **Renewable energy:** Solar-powered irrigation and cold storage units.
  - **Integration with Other Government Schemes:** Can be combined with State & Central subsidies for maximum benefit.
- **Implementation & Monitoring:**
  - Managed via online MIS platform for real-time tracking.
  - National, State & District-level monitoring committees ensure effective execution.
- **Eligible Beneficiaries Under AIF:**
  - **Individual Farmers:** Seeking on-farm storage or processing units.
  - **Farmer Producer Organizations (FPOs):** For community-based infrastructure.

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- **Self-Help Groups (SHGs) & Joint Liability Groups (JLGs):** Engaged in agricultural activities.
- **Cooperative Societies & Primary Agricultural Credit Societies (PACS):** For collective farming and value addition.
- **Startups & Agri-Tech Companies:** Developing post-harvest management solutions.
- **State Agencies & PPP Projects:** Government-backed rural infrastructure projects.
- **Entrepreneurs & Agripreneurs:** Working in food processing and value addition.



# DeepSeek's market disruption must awaken India

**D**eepSeek, a Chinese company, has shaken up the global tech industry and stock markets with its low-cost artificial intelligence (AI) model. This breakthrough has forced critics to reconsider China's position *vis-à-vis* the United States in the race to advancement and dominance in AI and computational capabilities. DeepSeek's innovation has caught the attention of not just policymakers but also business leaders such as Mark Zuckerberg, who opened war rooms for engineers after DeepSeek's success and who are now eager to understand its formula for disruption. So what DeepSeek, which is originally not a core AI firm but a financial trading company, has essentially done is to create generative AI models that perform on a par with the current leader, OpenAI's ChatGPT, while requiring significantly lower costs for development and operations.

## Placing China at an advantage

How does DeepSeek's Innovation affect India's dominance in IT? The core of DeepSeek's success lies in its ability to overcome the limitations of expensive computational power, giving it a significant cost advantage over competitors worldwide.

This disruption is reminiscent of India's long-standing dominance in the global information technology (IT) sector, which has been built on its competitive edge through an abundant supply of skilled, English-speaking, and cost-effective labour. However, with generative AI eliminating both skill and language barriers, DeepSeek's innovation has accelerated the rise of cheaper, more efficient alternatives that can replace low-cost IT service providers at an accelerated pace, posing a serious threat to India's IT dominance.

DeepSeek's breakthrough not only strengthens China's position in AI but also opens the door for broader advancements in IT services through



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The biggest lesson it offers to Indian IT giants is the power of research and development

AI-driven automation. The Indian IT sector, which has long thrived on cost-effective labour-led service models, now faces a reality where AI can easily replace repetitive, low-value tasks that were once its competitive advantage. DeepSeek's success signals that Indian IT giants have fallen behind their Chinese counterparts in this new era of technological competition and innovation.

What can organisations learn from DeepSeek? The biggest lesson DeepSeek offers to Indian IT giants is the power of research and development (R&D). DeepSeek treated AI product development as a "sidekick" rather than a core activity, yet this investment in innovation has paid off tremendously. This highlights the importance of utilising surplus capital as well as idle resources, both capital and human, towards R&D rather than merely optimising workforce efficiency.

Companies should foster an environment that encourages research, experimentation, and a tolerance for failure. Instead of focusing solely on delivering immediate business objectives, organisations must cultivate a culture that goes beyond routine deliverables. DeepSeek's approach of treating AI development as a secondary initiative reflects its willingness to take risks without expecting guaranteed returns. By normalising failure as part of the innovation process, it has created a foundation for groundbreaking advancements.

For Indian IT firms, the takeaway is clear: investing in R&D, even as a secondary pursuit, can lead to game-changing breakthroughs. The key is to build an ecosystem that values long-term innovation over short-term optimisation.

## Future priorities for India

India lags behind in R&D investment, a critical factor for sustaining long-term economic competitiveness. India's gross domestic expenditure on R&D (GERD) remains below 1% of

GDP, far lower than that of other major economies, including China.

According to UNESCO Institute for Statistics (UIS) data, China invested around 2.43% of its GDP in R&D as of 2021, underscoring India's need for urgent policy intervention in boosting domestic R&D in cutting-edge technologies such as AI. A key issue is the lack of investment in advanced research, particularly in hiring top talent, including PhDs, who are essential for driving innovation.

One major policy misstep has been the persistent debate over whether to prioritise manufacturing or services. This false dichotomy overlooks the strong linkages between the two sectors. Manufacturing and services complement each other and thrive together. Instead of choosing one over the other, India must adopt a balanced approach that fosters growth in both areas.

India's dominance in IT is now under threat. The focus should shift toward building a workforce that enhances productivity through AI rather than being replaced by it. Traditional comparative advantages such as cheap labour and English proficiency are no longer sufficient in the global AI-driven economy. Instead, India must recognise and retain its high-skilled domestic talent to ensure innovation happens within the country rather than abroad.

## Focus on quantum technology

As a top priority for the future, India must ensure it does not fall behind in the next major technological frontier, which is the quantum computing race. Advancements in quantum technology will be crucial for maintaining technological leadership in the coming decades. To stay competitive, the government and private sector must significantly increase investments in R&D, particularly in quantum computing alongside AI, and actively recruit top researchers to drive breakthroughs in this field.

**GS Paper 03 Science and Tech: Awareness in various science and tech fields**

**UPSC Mains PYQ 2020: "The emergence of the Fourth Industrial Revolution (Digital Revolution) has initiated e-Governance as an integral part of government". Discuss.**

## Context :

- ➔ DeepSeek has disrupted the global tech industry and stock markets with its affordable artificial intelligence (AI) model.

### How does DeepSeek's low-cost AI model pose a threat to India's dominance in the global IT sector?

- ➔ **Cost Efficiency and Competitive Pressure:** DeepSeek's AI models, developed at a fraction of the cost compared to traditional models, could pressure Indian IT firms to reduce their prices, potentially impacting profit margins. For example, DeepSeek's R1 model was built using less-advanced Nvidia H800 chips, significantly lowering development costs.
- ➔ **Acceleration of AI Adoption:** The affordability of DeepSeek's models may lead to faster AI adoption globally, compelling Indian IT companies to integrate AI rapidly into their services to remain competitive. This swift integration could strain resources and require substantial upskilling of the workforce.
- ➔ **Shift in Client Expectations:** Clients may begin to expect more cost-effective AI solutions, challenging Indian IT firms to innovate and offer similar value propositions. This shift could disrupt traditional business models that rely on higher-cost infrastructures.
- ➔ **Increased Global Competition:** DeepSeek's success might inspire other low-cost AI entrants, intensifying competition in markets where Indian IT firms have traditionally held strong positions. This could lead to a more crowded marketplace, making differentiation more challenging.

### What lessons can Indian IT firms learn from DeepSeek's approach to research and development (R&D)?

- ➔ **Prioritize Long-term Innovation Over Short-term Gains:** DeepSeek treated AI development as a secondary initiative, yet its investment in long-term innovation led to groundbreaking success. Indian IT firms should allocate resources to explore emerging technologies beyond immediate client needs.
- ➔ **Utilize Surplus Capital for Experimental Projects:** DeepSeek leveraged excess resources from its financial trading operations to invest in AI research. Indian IT companies can similarly channel surplus funds into experimental R&D, such as advanced AI and quantum computing.
- ➔ **Invest in Talent and Advanced Research:** DeepSeek's success was driven by advanced AI expertise. Indian IT firms should actively recruit and retain top researchers, particularly those with specialized skills (e.g., PhDs in machine learning), to drive future innovation.

### Why is increasing Gross Domestic Expenditure on R&D (GERD) crucial for India?

- ➔ **Enhances Technological Competitiveness:** Higher R&D spending fosters innovation, enabling India to compete globally in emerging technologies like AI, quantum computing, and biotechnology. Without increased GERD, India risks falling behind nations like China, which invests over 2.43% of its GDP in R&D.
- ➔ **Drives Economic Growth and Job Creation:** Increased R&D investment stimulates industrial innovation, leading to the development of new products, industries, and high-value jobs. Countries with higher GERD, like South Korea (4.93% of GDP), have seen robust economic growth driven by technological advancements.
- ➔ **Reduces Dependence on Foreign Technologies:** Greater domestic R&D investment strengthens self-reliance in critical sectors such as defense, healthcare, and clean energy. For instance, India's investment in space technology through ISRO's R&D has reduced dependency on foreign satellite services while enhancing national security.

### Why is increasing Gross Domestic Expenditure on R&D (GERD) crucial for India?

- ➔ **Strategic National Security Advancement:** Quantum technology can revolutionize secure communications through quantum encryption, making data virtually unhackable. Countries like China have already developed quantum communication satellites, enhancing their cybersecurity capabilities.
- ➔ **Global Competitiveness in Emerging Industries:** Investing in quantum computing enables breakthroughs in industries like pharmaceuticals, finance, and logistics. For instance, quantum simulations can accelerate drug discovery by accurately modeling complex molecules.
- ➔ **Reducing Dependence on Foreign Technology:** Developing indigenous quantum capabilities reduces reliance on global tech giants for advanced computing solutions. India's National Quantum Mission (NQM) aims to build quantum computers and communication networks, promoting self-reliance.
- ➔ **Strengthening Scientific Collaboration and Talent Development:** Quantum research encourages interdisciplinary collaboration and advanced skill development, attracting top scientific talent. India's initiatives like the Quantum-Enabled Science & Technology (QuEST) program aim to build a skilled workforce and global research partnerships.

### How can India balance the growth of both manufacturing and services sectors to foster innovation and economic competitiveness? (Way Forward)



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- ➔ **Promoting Synergy Between Manufacturing and Digital Services:** Encourage the integration of advanced digital technologies (e.g., AI, IoT) in manufacturing to enhance productivity and global competitiveness. For instance, initiatives like "Make in India" combined with "Digital India" promote smart manufacturing and digital service exports.
- ➔ **Investing in Skill Development for Both Sectors:** Develop a workforce equipped with technical and digital skills to meet the demands of both manufacturing and service industries. Programs like the Skill India Mission train workers in emerging technologies, bridging the gap between traditional manufacturing and modern services.
- ➔ **Strengthening R&D and Innovation Ecosystems:** Foster public-private collaboration to drive research and innovation across sectors, ensuring technological advancements benefit both industries. For example, the Production Linked Incentive (PLI) scheme incentivizes domestic manufacturing while encouraging innovation in areas like electronics and pharmaceuticals.

