10th February 2026: DSC

India–Malaysia Strategic Partnership

Why in News ?

Recent Bilateral Developments

India and Malaysia signed 11 agreements in 2026 covering defence, semiconductors, energy, and digital cooperation. This shows a shift from traditional trade toward high-technology and security cooperation.
Both countries encouraged trade settlement in local currencies (₹–Ringgit) amid global de-dollarisation, aiming to reduce foreign exchange risk and transaction costs in a bilateral trade relationship already exceeding US$20 billion annually.

Relevance

GS 2 (International Relations)

- India–ASEAN relations, Act East Policy
- Bilateral diplomacy, UNSC reforms
- Indo-Pacific strategy, maritime cooperation
- De-dollarisation and currency diplomacy

GS 3 (Economy & Security)

- Semiconductor supply chains and technology sovereignty
- Defence cooperation and maritime security
- Energy and digital economy partnerships

Basics & Core Keywords

Strategic Partnership
A strategic partnership involves continuous cooperation in defence, technology, and diplomacy. India and Malaysia upgraded their ties in 2015 to an Enhanced Strategic Partnership, establishing annual dialogues and sector-based cooperation.

Local Currency Trade
Local currency settlement reduces dependence on the US dollar. India has similar arrangements with the UAE and Sri Lanka, reflecting the RBI's effort to internationalise the rupee across more than 18 partner countries.

Semiconductor Cooperation
Semiconductor collaboration aligns with India's US$10 billion Semiconductor Mission (2021) and Malaysia's established role in global chip assembly, where it manages about 13% of global testing and packaging.

Indo-Pacific
The Indo-Pacific accounts for 60% of global GDP and 50% of global trade, making India–Malaysia maritime cooperation important for securing sea lanes.

Historical & Civilisational Links

Maritime & Cultural Ties
Trade and migration during the Chola period created strong links. Today, about 2 million people of Indian origin live in Malaysia, forming one of Southeast Asia's largest Indian diasporas.

Diaspora Diplomacy
The Indian diaspora contributes significantly to Malaysia's services and political sectors, strengthening soft power and business connections.

Political & Diplomatic Dimension

UNSC Support
Malaysia reaffirmed support for India's permanent membership in the UNSC, strengthening India's reform narrative backed by major ASEAN partners.

High-Level Engagement
Prime Minister-level visits and CEO forums support business deals. Malaysia is among India's top 15 global trading partners.

Economic Dimension

Trade & Investment
Bilateral trade has crossed the US$20–25 billion range in recent years, dominated by palm oil, petroleum products, electronics, and machinery.

Currency Diversification
Rupee–ringgit trade can reduce hedging costs by 2–3% of transaction value, benefiting SMEs and stabilising trade flows.

Supply Chain Resilience
Cooperation in semiconductors and electronics reduces overdependence on East Asian hubs, a key lesson from the 2020–22 global chip shortages.

Security & Defence Dimension

Counter-Terrorism
Both countries cooperate through intelligence sharing under ASEAN-led frameworks. Southeast Asia remains vulnerable to extremist networks such as Jemaah Islamiyah, making coordination necessary.

Maritime Security
The Malacca Strait handles about 25% of global trade, making maritime cooperation vital for anti-piracy and SLOC security.

Defence Engagement
India provides defence training and capacity-building to ASEAN states, including Malaysia, through ADMM-Plus mechanisms.

Technology & Innovation Dimension

Digital & AI Cooperation
India's digital economy is projected to reach US$1 trillion by 2030, making technology partnerships attractive for Malaysia's innovation ecosystem.

Health & Food Security
Joint cooperation in agri-tech and pharmaceuticals aligns with India's role as the "pharmacy of the world," supplying vaccines and generic medicines globally.

Geopolitical Significance

Act East Policy
Malaysia is a key ASEAN economy. ASEAN–India trade is around US$110 billion, making Malaysia important for regional integration.

China Factor
China is ASEAN's largest trade partner with trade exceeding US$900 billion, encouraging India to deepen bilateral ties for strategic balance.

Indo-Pacific Stability
Both countries support a rules-based maritime order in line with UNCLOS and freedom of navigation principles.

Challenges

Trade Imbalance
India often runs a trade deficit due to palm oil imports, with Malaysia among its top suppliers.

Geopolitical Sensitivities
ASEAN centrality requires India to expand influence without engaging in bloc politics.

Implementation Gap
Past MoUs have faced slow implementation due to regulatory and financing delays.

Way Forward

Institutional Dialogue
Annual reviews and sectoral working groups can improve implementation tracking.

Tech Skill Ecosystem
Joint semiconductor skill hubs and R&D centres can support long-term cooperation.

Maritime Cooperation
Expanding HADR operations and joint naval exercises can strengthen sea-lane security.

Value Addition

- Malaysia is India's 3rd largest trading partner in ASEAN after Singapore and Indonesia
- FDI from Malaysia to India is about US$1.2–1.5 billion, mainly in infrastructure and construction
- Over 60 Indian companies operate in Malaysia in IT, pharma, and manufacturing
- India imports about 6–7 million tonnes of palm oil annually, with Malaysia among the top two suppliers
- ASEAN accounts for about 11% of India's total global trade
- The Indian Ocean carries 80% of global oil trade, highlighting maritime cooperation importance

Thwaites Glacier ("Doomsday Glacier")

Why in News ?

Recent Scientific Concern

Recent field studies and satellite data show rapid thinning, retreat of the grounding line, and ice-shelf fracturing. This has raised concerns about irreversible instability and Antarctica's role in future global sea-level rise.

Relevance

GS 1 (Geography) — Core

- Glaciers, cryosphere, sea-level rise
- Physical geography of Antarctica
- Climate–ocean interactions

GS 3 (Environment) — Core

- Climate change impacts
- Global warming and sea-level rise
- Coastal vulnerability and disaster risk

Basics & Core Keywords

What is a Glacier ?
A glacier is a long-lasting mass of compressed snow and ice that flows under gravity. It acts as a freshwater store and climate indicator, sensitive to temperature, snowfall, and ocean conditions.

What is Thwaites Glacier ?
Thwaites Glacier is a large outlet glacier in West Antarctica draining into the Amundsen Sea. It is comparable in size to a large country and is crucial for global sea-level regulation.

Why "Doomsday Glacier" ?
It is called the "Doomsday Glacier" because its collapse could cause major sea-level rise and destabilise nearby ice basins, increasing global coastal risks.

Physical Geography & Glaciology

Marine Ice Sheet Setting
Thwaites sits on bedrock that slopes downward inland below sea level. This marine ice-sheet configuration makes retreat self-reinforcing once warm water reaches the grounding zone.

Grounding Line
The grounding line marks where ice lifts from bedrock and begins floating. Its inland retreat signals weakening stability and higher vulnerability to ocean melting.

Ice Shelf Buttressing
The floating ice shelf slows inland ice flow. Thinning or collapse reduces resistance, allowing faster ice discharge into the ocean.

Climate & Ocean Interactions

Ocean-Driven Melting
Warm Circumpolar Deep Water flows beneath the ice shelf, melting it from below and accelerating grounding-line retreat.

Atmospheric Warming
Rising air temperatures affect surface melt, but ocean heat currently plays the dominant role in destabilisation.

Data & Evidence

Current Contribution
Thwaites contributes about 4% of current global sea-level rise, making it one of the largest individual contributors.

Potential Sea-Level Rise
Complete collapse over centuries could raise global sea levels by around 0.5 metre and destabilise nearby ice, adding several more metres over longer periods.

Observed Changes
Satellite data show rapid thinning, faster ice flow, and grounding-line retreat, indicating ongoing imbalance.

Global Implications

Coastal Vulnerability
Even small sea-level rise increases flooding, erosion, salinity, and storm damage, threatening coastal cities and deltas.

Small Island States
Low-lying islands face displacement, higher adaptation costs, and freshwater loss due to saltwater intrusion.

Economic Impact
Sea-level rise increases costs for infrastructure, insurance, disaster management, and adaptation.

Governance & Policy Dimension

Climate Mitigation Link
Thwaites' future depends on global warming pathways, making strong emissions cuts under the Paris Agreement essential.

Scientific Cooperation
International Antarctic research improves monitoring, modelling, and early-warning systems.

Challenges & Uncertainties

Timescale Uncertainty
Exact collapse timelines are unclear, but risk-based planning supports early action.

Complex Ice Dynamics
Ice–ocean interactions and feedbacks make modelling difficult, requiring continuous observation.

Way Forward

Rapid Emission Reductions
Keeping warming well below 2°C lowers long-term risks.

Coastal Adaptation
Strengthen zoning, resilient infrastructure, mangroves, and managed retreat.

Polar Research Investment
Expand satellite monitoring, ocean sensors, and radar systems.

Value Addition

- Antarctica stores about 70% of the world's freshwater
- Antarctic ice could raise sea levels by about 58 metres if fully melted
- Global sea level has risen about 20 cm since 1900
- Current rise rate is around 3.3 mm per year
- Mumbai, Kolkata, and Chennai are among the top 20 global cities at flood risk by 2050
- India has a 7,500 km coastline, making it highly vulnerable

Biotechnology and Green Growth

Why in News ?

Biotech for Sustainable Future
Experts speaking at a national webinar highlighted the role of biotechnology in supporting green growth, zero-waste processes, and sustainable industries. This aligns with India's growing bioeconomy and sustainability objectives.

Relevance

GS 3 (Science & Tech + Economy + Environment)

- Bioeconomy and green growth
- Industrial biotechnology and sustainability
- Agricultural biotechnology and food security
- Innovation-led growth and startups

Basics & Core Keywords

Biotechnology
Biotechnology uses biological systems, organisms, or their products to develop applications in health, agriculture, environment, and industry. It combines biology with technology to generate economic and social benefits.

Green Growth
Green growth means economic development that lowers environmental risks, improves resource efficiency, and ensures sustainability while maintaining GDP growth and employment.

Bioeconomy
Bioeconomy includes economic activities that use renewable biological resources to produce food, materials, and energy. It reduces reliance on fossil fuels and supports a circular economy.

Data & Evidence

India's Bioeconomy Growth
India's bioeconomy grew from about US$10 billion in 2014 to around US$165 billion in 2024, a 16-fold increase, making it one of the fastest-growing bioeconomies globally.

2030 Target
India aims to achieve a US$300 billion bioeconomy by 2030, driven by biopharma, agricultural biotechnology, industrial biotech, and bio-services.

Sectoral Contribution
Key contributors include biopharma, agri-biotech, industrial biotech, and IT-enabled bio-services, supporting innovation-led economic growth.

Environmental Dimension

Zero-Waste & Circularity
Industrial biotechnology enables zero-waste manufacturing, bioremediation, and biodegradable materials, reducing pollution and landfill pressure.

Climate Link
Bio-based fuels and materials lower carbon emissions and support net-zero goals alongside renewable energy policies.

Economic Dimension

Employment & Skills
Biotechnology creates high-skilled jobs in genomics, microbial technology, bioinformatics, and process engineering, strengthening the knowledge economy.

Innovation Economy
Biotech startups and R&D attract investment, patents, and global collaborations, reinforcing India's innovation ecosystem.

Social Dimension

Health & Food Security
Biotechnology supports vaccines, diagnostics, fortified crops, and precision agriculture, improving public health and nutrition security.

Rural Development
Agri-biotech promotes climate-resilient crops and bio-inputs, increasing farmer incomes and supporting sustainable rural livelihoods.

Governance & Policy Dimension

Policy Support
India's biotechnology growth aligns with the BioE3 framework (Biotechnology for Economy, Environment, Employment) and national sustainability missions.

Skill Development
Emphasis on biotech education and training helps build human capital for future bio-industries.

Technology Dimension

Core Skills
There is high demand for skills in gene editing, microbial culture, fermentation technology, and data analytics.

Industry 5.0 Link
Biotechnology integrates with AI, automation, and data science under Industry 5.0, improving precision and efficiency.

Challenges

Regulatory Hurdles
Biosafety rules, ethical concerns, and approval delays can slow innovation.

Funding Gaps
High R&D costs and long development timelines discourage private investment.

Skill Mismatch
Fast sector growth requires continuous skill upgrading.

Way Forward

R&D Investment
Increase public–private investment in biotech R&D and support translational research.

Startup Ecosystem
Strengthen incubators, venture funding, and industry–academia collaboration.

Sustainable Integration
Encourage use of bio-based alternatives across mainstream industries.

AI Agents, "SaaSpocalypse" and Market Panic: Structural Shift or Overreaction?

Why in News ?

Claude Plugins Shock Markets
Anthropic released 11 open-source plugins for Claude Cowork on January 30, enabling autonomous legal, finance, and compliance workflows. This triggered fears of AI replacing software and jobs, leading to sharp global tech stock sell-offs.

Relevance

GS 3 (Science & Tech)

- AI-driven disruption and automation
- Agentic AI and the future of work

- Digital economy transformation

GS 3 (Economy — Core)

- Vulnerability of the IT sector
- Employment and reskilling
- Shifts in business models

Basics & Core Keywords

Agentic AI
Agentic AI systems can independently perform multi-step tasks, manage workflows, and make operational decisions with minimal human input, moving beyond chatbots to digital co-workers.

SaaS (Software as a Service)
SaaS is a cloud-based model that charges per user. Its revenue depends on human users, making it vulnerable if AI reduces workforce needs.

SaaSpocalypse
The term describes fears that AI agents could replace traditional software usage itself, not just improve productivity, threatening seat-based revenue models.

Human-in-the-Loop (HITL)
HITL refers to human oversight of AI systems for validation, ethics, and governance, especially in regulated sectors.

Data & Evidence: Market Reaction

Global Sell-off
About US$285 billion in market value was wiped out globally after the announcement, showing investor sensitivity to AI disruption.

U.S. Software Impact
The Goldman Sachs software basket fell 6 percent, while Thomson Reuters, LegalZoom, and RELX saw sharp declines due to perceived threats.

Indian Market Impact
Nifty IT fell 5.87 percent in a single day, erasing nearly ₹2 lakh crore. Infosys and TCS declined by over 7 percent.

Technological Significance

From Assistive to Autonomous
The shift from AI assistants to autonomous agents marks a move from productivity tools to workflow executors, threatening service-based models.

Bloomberg GPT Benchmark
BloombergGPT demonstrated that domain-specific AI can outperform general models in finance, setting a precedent for vertical AI disruption.

GitHub Coding Evidence
Around 4 percent of public GitHub commits are authored by Claude Code, projected to rise to 20 percent by year-end.

Economic & Business Model Impact

Headcount Model at Risk
India's outsourcing model depends on per-employee billing. AI agents replacing teams could force major pricing changes.

Corporate Signals
Salesforce paused hiring engineers and lawyers due to AI productivity gains, while Goldman Sachs uses AI for compliance and onboarding.

Capital Expenditure Paradox
Bank of America noted that AI cannot simultaneously reduce capital expenditure and replace all software, suggesting market overreaction.

Employment Dimension

Jobs at Risk
Entry-level testing, maintenance, and compliance roles face higher risk due to repetitive tasks.

Reskilling Imperative
Demand is rising for AI architects, governance experts, and HITL supervisors instead of traditional coders.

Quantitative Signal
TCS reportedly reduced its workforce by about 11,000, with some firms cutting fresher hiring sharply.

Comparative Insight: DeepSeek Moment

DeepSeek Precedent
DeepSeek triggered a US$589 billion loss in Nvidia's market value in one day, but the stock recovered 58 percent within a year, showing panic cycles.

Expert's View
Bank of America and Gartner described the sell-off as excessive, noting that firms will not abandon existing software quickly.

Strategic Implications for India

Need for Pivot
India must move from labour arbitrage to AI deployment partnerships that combine platforms with domain expertise.

Competitive Advantage
Indian firms have strong domain knowledge in BFSI and healthcare, enabling HITL governance and AI integration services.

Investment Signals
TCS–TPG committed US$2 billion for AI data centres, while Wipro allocated US$1 billion for AI360 initiatives.

Challenges

Speed Gap
Global firms are adopting AI faster than Indian IT firms are transitioning.

Revenue Model Risk
Seat-based billing models are vulnerable to automation.

Skill Gap
Large-scale reskilling is required for AI system design and governance.

Way Forward

AI Governance & HITL
Develop HITL centres for regulated sectors to ensure trust and compliance.

Reskilling at Scale
Train engineers in AI architecture and domain analytics.

Platform Partnerships
Partner with leading AI firms rather than competing in foundation models.

Traditional Delicacies as Next "Makhana Moment"

Why in News ?

Cultural Visibility → Market Opportunity
National attention on Chhattisgarh's thethri and khurmi during a student interaction with the Prime Minister shows how cultural visibility can create market demand, branding, and value-chain development for regional foods.

Relevance

GS 3 (Economy)

- Food processing and value addition
- Rural livelihoods and SHGs
- ODOP, PMFME, GI-based economy

GS 1 (Culture)

- Intangible cultural heritage
- Food culture and identity

Basics & Core Keywords

Traditional Delicacies
Region-specific foods made using local ingredients and traditional methods. They reflect ecological knowledge, seasonality, and community practices, forming part of intangible cultural heritage.

"Makhana Moment"
Makhana transformed from a local snack into a national superfood through branding, GI support, and organised value chains. Similar scaling is possible for other regional foods.

Value Addition
Value addition includes processing, branding, packaging, and certification that increase product value beyond raw commodity sales.

Case Focus: Thethri

Composition & Shelf Life
Made from besan and spices, deep-fried to reduce moisture, allowing longer storage and transport.

Cultural Embedment
Associated with Diwali and harvest festivals, enabling storytelling-based branding and seasonal demand.

Case Focus: Khurmi

Nutritional Aspect
Prepared using jaggery, wheat flour, and semolina. Jaggery adds iron and minerals, positioning it as a traditional alternative to refined sweets.

Rural Suitability
Simple production methods allow SHGs and home enterprises to scale with low capital investment.

Economic Angle: From Snack to Sector

Rural Livelihoods
Scaling traditional snacks through SHGs and FPOs can generate non-farm income, especially for women.

Domestic Market Potential
India's packaged snacks market is valued at US$15–20 billion and is growing due to demand for ethnic and healthier foods.

Export Possibility
Ethnic foods benefit from diaspora demand. India's processed food exports exceed US$40 billion annually.

"Next Makhana" Pathway

GI & Branding
GI tagging and state branding signal authenticity, prevent imitation, and enable premium pricing.

Processing & Standards
FSSAI-compliant units, standard recipes, and hygienic packaging support shelf life and retail entry.

Cluster Development
ODOP and PMFME schemes can create food clusters with access to credit, training, and marketing.

Nutrition & Sustainability

Clean-Label Advantage
Short ingredient lists align with clean-label and reduced ultra-processed food trends.

Local Sourcing
Using local grains and pulses reduces transport emissions and supports local economies.

Governance & Policy Linkages

Scheme Convergence
Integrate PMFME, NRLM, ODOP, and GI promotion for end-to-end support.

Tourism Link
Culinary trails and festivals can promote food tourism and regional economies.

Challenges

Quality Consistency
Differences in taste and hygiene can limit scaling without standard procedures.

Commercial Dilution
Excessive additives or substitutions can reduce authenticity and nutrition.

Market Access
Small producers face logistics and retail barriers without aggregator platforms.

Way Forward

Brand–Build–Scale
Develop state-backed brands, storytelling labels, and influencer marketing.

Digital Commerce
Use ONDC and e-commerce platforms for nationwide reach.

Capacity Building
Train SHGs in food safety, packaging, and financial management.

Value Addition

Rural Economy

- India has over 80 lakh SHGs, many involved in food processing
- Food processing contributes about 13% of manufacturing GVA

Market Size

- Packaged snacks market: US$15–20 billion
- Processed food exports: over US$40 billion annually

GI & Branding Impact

- GI-tagged products often receive 20–40% price premiums
- India has over 500 GI tags, many related to food

Tourism Link

- Culinary tourism is a growing segment within India's US$200+ billion tourism economy

10th February 2026: Daily MCQs

Q1. Consider the following statements:

1. India and Malaysia elevated their bilateral relationship to an Enhanced Strategic Partnership in 2015.

2. Malaysia plays an important role globally in semiconductor testing and packaging.
3. India's Semiconductor Mission involves an investment of around US$10 billion.

How many of the statements given above are correct?

A. Only one
B. Only two
C. All three
D. None

Answer: (C) All three

Explanation:
Statement 1 is correct: India and Malaysia upgraded their relationship to an Enhanced Strategic Partnership in 2015, formalising cooperation in defence, economy, and technology.
Statement 2 is correct: Malaysia accounts for a significant share, roughly 10–15 percent, of global semiconductor testing and packaging activities.
Statement 3 is correct: India launched the Semiconductor Mission in 2021 with an incentive package of about US$10 billion to develop fabrication and ATMP capabilities.

Q2. Thwaites Glacier, which has been in the news recently, is situated in:

A. East Antarctica close to the Ross Sea
B. West Antarctica near the Amundsen Sea
C. The Greenland ice sheet near Baffin Bay
D. The Arctic region near Svalbard

Answer: (B) West Antarctica near the Amundsen Sea

Explanation:
Thwaites Glacier is an outlet glacier in West Antarctica that drains into the Amundsen Sea.
It is referred to as the "Doomsday Glacier" because of its potential impact on global sea-level rise.
West Antarctica is particularly vulnerable due to marine ice-sheet instability.

Q3. Which of the following represent major challenges to the growth of biotechnology?

1. Biosafety and ethical issues
2. Low research and development costs
3. Short timeframes for financial returns

Select the correct answer:

A. 1 only
B. 1 and 2 only
C. 2 and 3 only
D. 1, 2 and 3

Answer: (A) 1 only

Explanation:
Statement 1 is correct: Biosafety concerns, ethical debates related to GM organisms, and regulatory clearances pose real challenges.
Statement 2 is incorrect: Biotechnology involves high, not low, R&D expenditure.
Statement 3 is incorrect: Biotech projects usually have long gestation periods before commercial returns.

Q4. With reference to Software as a Service (SaaS), consider the following statements:

1. SaaS provides software access through the internet using a subscription model.
2. Users of SaaS must install and maintain the software on their own systems.
3. Updates and security management are handled centrally by the service provider.

Which of the statements given above are correct?

A. 1 only
B. 1 and 3 only
C. 2 and 3 only
D. 1, 2 and 3

Answer: (B) 1 and 3 only

Explanation:
Statement 1 is correct: SaaS operates through cloud-based subscription access.
Statement 2 is incorrect: SaaS does not require local installation, as access is typically through a web browser.
Statement 3 is correct: The provider is responsible for updates, maintenance, and cybersecurity.

Q5. Khurmi and Thethri, which were recently mentioned in the news, are best described as:

A. Tribal languages used in Central India
B. Traditional savoury and sweet foods from Chhattisgarh
C. Indigenous millet varieties promoted under nutrition schemes
D. Folk dance forms associated with harvest festivals

Answer: (B) Traditional savoury and sweet foods from Chhattisgarh

Explanation:
Thethri is a savoury snack prepared from besan (gram flour) and is commonly associated with festivals.
Khurmi is a sweet dish made using jaggery, wheat flour, and semolina.
Their recent mention highlights regional food heritage and potential under ODOP initiatives.

Mains: India–Malaysia relations are increasingly expanding beyond traditional trade into strategic and high-technology domains. Examine the key drivers of this shift and analyse its significance for India's Act East Policy and Indo-Pacific strategy. (250 words)