DAILY NEWS ANALYSIS

India–Japan Joint Crediting Mechanism: Carbon Markets, Climate Finance and Article 6.2 Explained

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India and Japan have operationalised the Joint Crediting Mechanism to promote low-carbon technologies, climate finance and verified greenhouse-gas reductions. Linked with Article 6.2 of the Paris Agreement, the framework enables internationally transferred mitigation outcomes while requiring robust accounting to prevent double counting.

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Excerpt / Brief Summary:
India and Japan have operationalised their Joint Crediting Mechanism framework to promote low-carbon technologies, climate finance and verified greenhouse-gas mitigation projects. Linked to Article 6.2 of the Paris Agreement, the mechanism allows internationally transferred mitigation outcomes while requiring robust accounting to prevent double counting.

GS Section / Paper:
UPSC Prelims – General Studies Paper I
UPSC Mains – General Studies Paper III

Topic: Environment, Climate Change, International Environmental Agreements, Carbon Markets and Sustainable Development.

Why the Joint Crediting Mechanism Is in News

India and Japan have moved their bilateral climate partnership into the implementation stage by launching an operational framework for the **Joint Crediting Mechanism (JCM)**.

The mechanism is designed to facilitate projects that bring advanced low-carbon and decarbonisation technologies to India while creating measurable and independently verified greenhouse-gas reductions.

The programme is important because it links:

- Climate finance
- Technology transfer
- Carbon markets
- International cooperation
- India's energy transition
- Nationally Determined Contributions



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What Is the Joint Crediting Mechanism?

The Joint Crediting Mechanism is a bilateral, project-based climate cooperation framework originally promoted by Japan with partner countries.

Its central idea is straightforward:

Japan and a partner country cooperate to introduce advanced low-carbon technologies, infrastructure, products or services. The greenhouse-gas reductions achieved by these projects are then measured, verified and converted into recognised mitigation outcomes.

The resulting climate benefits can be shared between the participating countries according to agreed rules.

Article 6 of the Paris Agreement

Article 6 of the Paris Agreement enables countries to cooperate voluntarily in achieving their climate commitments.

It has become one of the most important elements of the emerging global carbon-market architecture.

Article 6.2

Article 6.2 allows countries to cooperate through internationally transferred mitigation outcomes.

These are commonly referred to as **ITMOs — Internationally Transferred Mitigation Outcomes**.

If one country transfers an emission reduction to another country, proper accounting must ensure that both countries do not claim the same reduction toward their respective climate targets.

Article 6.4

Article 6.4 establishes a centrally governed international crediting mechanism under the Paris Agreement.

For UPSC, aspirants should clearly distinguish the bilateral cooperative framework under Article 6.2 from the UN-supervised crediting mechanism under Article 6.4.

What Are ITMOs?

Internationally Transferred Mitigation Outcomes are verified greenhouse-gas mitigation outcomes that can be transferred between countries participating in Article 6 cooperation.

They may arise from projects such as:

- Renewable energy
- Energy efficiency
- Green hydrogen
- Industrial decarbonisation
- Waste management

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- Low-carbon transportation
- Carbon removal projects

Their credibility depends heavily on reliable measurement, reporting and verification.

How the India–Japan JCM Works

Stage	What Happens
1. Project Identification	Indian and Japanese entities identify a project capable of delivering measurable emission reductions.
2. Technology Deployment	Advanced low-carbon technology or infrastructure is introduced.
3. Methodology & Baseline	A baseline is established to determine what emissions would have occurred without the project.
4. Monitoring	Actual project performance and greenhouse-gas reductions are measured.
5. Third-Party Verification	An independent body validates the project and verifies the mitigation outcomes.
6. Joint Approval	A bilateral committee reviews the verified results.
7. Credit Allocation	Eligible mitigation outcomes are allocated between India and Japan under agreed accounting procedures.

Why Double Counting Is a Major Issue

Carbon markets can lose environmental credibility if the same emission reduction is claimed by both the host country and the purchasing country.

For example, if an Indian project reduces one tonne of carbon dioxide and that mitigation outcome is transferred to Japan, both India and Japan cannot independently count the same tonne toward their climate targets.

Article 6 therefore requires accounting adjustments known as **corresponding adjustments**.

Corresponding Adjustment

A corresponding adjustment is an accounting mechanism used when mitigation outcomes are transferred internationally.

Its purpose is to ensure that a transferred emission reduction is counted only once in the global climate accounting system.

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Why the JCM Matters for India

1. Access to Advanced Clean Technology

Japan has significant capabilities in industrial efficiency, renewable energy, smart infrastructure, low-carbon transport and advanced manufacturing.

The JCM can accelerate deployment of such technologies in Indian industries.

2. Climate Finance

Many low-carbon projects require large upfront investment.

Japanese public and private financing can help reduce investment risks and make clean projects commercially viable.

3. Industrial Decarbonisation

Indian industries such as steel, cement, chemicals and manufacturing need substantial technological upgrades to reduce carbon intensity.

Carbon-market cooperation can help lower the cost of this transition.

4. Green Employment

Deployment of clean-energy and energy-efficiency infrastructure can create jobs in:

- Engineering
- Renewable energy
- Energy auditing
- Carbon accounting
- Green manufacturing
- Monitoring and verification

5. Progress Toward Climate Commitments

The JCM can support India's broader low-emission development pathway and international climate commitments while facilitating clean investment.

Importance for Japan

The mechanism also provides strategic benefits to Japan.

- Supports Japanese climate targets.
- Creates international markets for Japanese clean technologies.
- Strengthens economic ties with India.

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- Encourages Japanese private investment in green infrastructure.
- Creates internationally recognised mitigation outcomes.

JCM and India's Domestic Carbon Market

India is simultaneously developing its own domestic carbon-market framework.

For UPSC preparation, it is useful to distinguish:

Mechanism	Nature
Domestic Carbon Market	Operates under India's national climate and energy efficiency framework.
JCM	Bilateral India–Japan cooperation linked with international carbon accounting.
Article 6.2	Allows voluntary cooperative approaches and international transfers between countries.
Article 6.4	Creates a UN-supervised international crediting mechanism.

Potential Sectors for JCM Projects in India

Renewable Energy

Solar, wind, renewable-storage integration and decentralised clean-energy systems can generate measurable mitigation outcomes.

Industrial Energy Efficiency

High-efficiency equipment and advanced manufacturing technologies can lower energy consumption and carbon intensity.

Green Hydrogen

Low-carbon hydrogen can help decarbonise hard-to-abate industries such as refining, fertilisers and steel.

Electric Mobility

Electric public transport and charging infrastructure can support cleaner urban mobility.

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Waste Management

Methane capture, waste-to-energy and circular-economy technologies can generate significant mitigation benefits.

Efficient Cooling

Energy-efficient cooling technologies are particularly important for a warming and rapidly urbanising India.

Major Challenges

1. Carbon Credit Integrity

Emission reductions must be real, measurable and additional.

Credits generated for reductions that would have occurred anyway can undermine the integrity of the system.

2. Baseline Manipulation

An artificially high emissions baseline can exaggerate the amount of carbon reduction credited to a project.

3. Double Counting

Without transparent corresponding adjustments, both participating countries could claim the same mitigation outcome.

4. Technology Dependence

India must ensure that climate cooperation strengthens domestic manufacturing and technological capability rather than creating permanent dependence on imported technologies.

5. Carbon Sovereignty

India must carefully determine which mitigation outcomes should be transferred internationally and which should be retained for meeting its own future climate commitments.

6. Administrative Complexity

Carbon-credit projects require rigorous methodologies, monitoring systems, verification and registry infrastructure.

JCM and Climate Justice

International carbon cooperation should not shift the entire burden of mitigation toward developing countries.

India's climate diplomacy continues to emphasise:

- Equity

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- Climate finance
- Technology transfer
- Historical responsibility
- Common but Differentiated Responsibilities

The success of mechanisms such as JCM will therefore depend on whether they genuinely mobilise additional finance and technology rather than simply creating cheap offsets for developed economies.

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Way Forward

- Ensure high-integrity measurement and verification standards.
- Maintain transparent public carbon registries.
- Prevent double counting through corresponding adjustments.
- Prioritise projects that transfer technology and build domestic capability.
- Align international carbon transfers with India's NDC requirements.
- Promote participation of MSMEs and Indian clean-tech startups.
- Develop skilled professionals in carbon accounting and climate finance.
- Integrate carbon-market cooperation with India's long-term low-emission strategy.

UPSC Prelims Quick Facts

- JCM stands for **Joint Crediting Mechanism**.
- It is a bilateral climate cooperation mechanism promoted by Japan with partner countries.
- India–Japan JCM is linked with **Article 6.2 of the Paris Agreement**.
- Article 6.2 deals with cooperative approaches involving internationally transferred mitigation outcomes.

- ITMO stands for **Internationally Transferred Mitigation Outcome**.
- Corresponding adjustments are used to prevent double counting.
- The mechanism can support technology transfer, climate finance and verified emission reductions.

UPSC Mains Practice Question

Q. Examine how bilateral carbon-market mechanisms such as the India–Japan Joint Crediting Mechanism can contribute to India's low-carbon transition. What safeguards are necessary to ensure environmental integrity and climate justice?

Suggested Answer Structure

- **Introduction:** Explain JCM and Article 6.2
- **Benefits:** Climate finance, technology transfer, industrial decarbonisation and green jobs.
- **Carbon-market dimension:** ITMOs and corresponding adjustments.
- **Challenges:** Double counting, additionality, technology dependence and carbon sovereignty.
- **Way Forward:** Strong MRV, transparent registries and alignment with India's NDCs.
- **Conclusion:** Carbon markets should supplement—not replace—real domestic decarbonisation.

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Frequently Asked Questions

What is the India–Japan Joint Crediting Mechanism?

It is a bilateral climate cooperation framework designed to promote low-carbon technologies and generate verified greenhouse-gas mitigation outcomes through projects undertaken jointly by Indian and Japanese participants.

Which article of the Paris Agreement governs JCM-related international transfers?

The mechanism is linked to cooperative approaches under Article 6.2 of the Paris Agreement.

What is an ITMO?

An Internationally Transferred Mitigation Outcome is a verified mitigation outcome transferred between participating countries under Paris Agreement accounting rules.

Why are corresponding adjustments necessary?

They prevent the same emission reduction from being counted simultaneously by both the country transferring the mitigation outcome and the country receiving it.

How can India benefit from the JCM?

India can gain access to climate finance, advanced low-carbon technologies, industrial decarbonisation investment, green jobs and international cooperation in clean infrastructure.

Why is JCM important for UPSC?

It combines key syllabus areas including environment, climate change, the Paris Agreement, carbon markets, international cooperation, climate finance and sustainable development.

Conclusion

The India–Japan Joint Crediting Mechanism represents a new phase in international climate cooperation.

By connecting clean-technology deployment with climate finance and verified mitigation outcomes, it offers India an opportunity to accelerate its low-carbon transition while attracting international investment.

However, the real value of the mechanism will depend on **environmental integrity, transparent carbon accounting, genuine technology transfer and careful protection of India's long-term climate interests.**

For India, carbon markets should become a tool for deeper decarbonisation—not a substitute for it.

SEO Tags

Joint Crediting Mechanism UPSC, India Japan JCM, Article 6.2 Paris Agreement, ITMO UPSC, Carbon Market UPSC, Carbon Credits India, Climate Finance UPSC, India Japan Climate Cooperation, Paris Agreement UPSC, Internationally Transferred Mitigation Outcomes, Corresponding Adjustment, Climate Change UPSC, Environment UPSC, GS Paper 3 Environment, India NDC, Green Technology India, Decarbonisation India, Sustainable Development UPSC, UPSC Current Affairs October 2026, UPSC Prelims 2027, Civil Service Gurukul

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