Japan, Australia is forging a new security paradigm in Asia. India should take note

- Japan and Australia made their latest gambit on the Asian chessboard this January. They signed a landmark defence treaty — the Reciprocal Access Agreement (RAA) — that is likely to reshape the regional power balance.
- By laying the groundwork, RAA paves the way for a new era of defence cooperation between Tokyo and Canberra.

The Reciprocal Access Agreement (RAA)

1. The moving force behind this agreement has been China's aggression in the Indo-Pacific. While Japan has faced military pressure from Beijing in the disputed Senkaku Islands, Australia has found itself in Chinese President Xi Jinping's detention room as both sides have locked horns in a tussle over China's embargo on select Australian goods.
2. Tokyo and Canberra have also watched warily as Chinese air squadrons try to intimidate Taiwan. A defence treaty that prepares Japan and Australia for military contingencies is a significant development.

Significance for India:

1. For India, which is hosting the two PMs this week, RAA is an encouraging sign. All roads to an effective Indian Indo-Pacific policy go through Tokyo.
2. Japan's decision to sign this agreement, only the second of its kind, signals that it is looking to shed its pacifist Cold War foreign policy and traditional dependence on the United States (US).
3. With Tokyo and Canberra, New Delhi may seek to expand its defence technology partnerships that will enhance joint military operations and help diversify India's sources of military material.
4. The signing of RAA also represents a coming of age moment for India's partners in the Indo-Pacific. RAA shows that India's Quad partners remain capable of doing the heavy-lifting on security affairs, even without significant US involvement.
5. For India, RAA is another step in the long march towards the evolution of new security and military architecture in the Indo-Pacific. This involves deepening

defence ties among Quad nations and shoring up players vulnerable to Chinese pressure in Southeast Asia, such as Vietnam and the Philippines.

Concerns:

1. Some may worry that India is increasingly looking like the odd one out as the US, Japan and Australia draw closer.
2. The RAA, following closely on the heels of the AUKUS, may raise some awkward questions about how India fits into a deepening military relationship among three nations that have cooperated closely since the days of the Cold War.
3. Such worry is premature. India's security ties with its Quad partners have only taken off in the last decade. In that period, progress has been rapid and substantial by any measure: High-level officials and political leaders meet frequently, military exercises are regular and security ties enjoy a high degree of domestic political support.
4. By contrast, Japan and Australia have been part of the US-led alliance system in Asia since the conclusion of World War II. Landmark agreements like AUKUS and RAA are as much a function of trust and successful cooperation over a period of time as they are of military compatibility.

Way Forward for India:

1. To take relations to the next level, New Delhi will have to make some much-needed changes. For example, India's troubled defence acquisition process continues to baffle observers while attempted improvements have been incremental.
2. An agreement like RAA would also tax New Delhi's limited bureaucratic capacity. As their military ties deepened, Tokyo established a separate Japan-Australia Defence Cooperation Office just to handle its security relationship with Canberra.
3. Should India wish to draw closer to its Quad partners, bolstering its understaffed diplomatic corps and ensuring bureaucratic follow-through on high-level political commitments will be the way forward.

Groundwater: India is on the right preservation path

- India has 16% of the world's population, but only 4% of its freshwater resources. Given our existing consumption patterns, including rampant groundwater extraction, estimates suggest that by 2030, we will only have half of the water we need.
- While the technology to commercially produce freshwater from the oceans or out of the atmosphere is not yet entirely viable, a crisis of this magnitude does require sustained investment in innovation and technology to improve the management efficiency of our water resources.
- Fortunately, there is growing evidence that India is on the path to giving water the priority it deserves.

Usage of water:

- Nearly 80% of our freshwater resources are used for agriculture, about 8% in industries, and about 6% for domestic usage.
- With over 50% of our population dependent on agriculture, farming, and horticulture, depletion of water supply could potentially threaten the nation's food security.

Innovative water conservation projects:

In such a scenario, spotting, supporting, and scaling up some of the promising innovations at the grassroots level can be a viable strategy for the country.

A. National Project on Aquifer Management (NAQUIM)

1. Take for example the government's National Project on Aquifer Management (NAQUIM), which aims to provide comprehensive and realistic information on groundwater resources in different hydro-geological settings in real-time.
2. This can help prepare, implement, and monitor the efficacy of various management interventions, which, in turn, can help achieve drinking water security, improved irrigation facilities and sustainability in water resources development.

B. The Kaleshwaram Lift Irrigation Project:

1. The Kaleshwaram Lift Irrigation Project on the Godavari in Telangana is the world's largest and India's first multi-purpose, multi-stage lift irrigation project with an IT-enabled water management system being used for full-scale irrigation.
2. The state government has deployed a decision-support system with a real-time assessment of water availability, demand and inflow forecast to provide planning and operational schedules for pumps and reservoirs.
3. The system automatically determines the pump operations and executes irrigation without human intervention.
4. The project has increased the irrigated area by 2,251 hectares (total irrigation potential of 7,38,851 hectares) and has enabled farmers to reap multiple crops with a year-round supply of water as against dependence on rain.

C. Pusa's Hydrogel:

Another interesting innovation is the Indian Agricultural Research Institute's Pusa hydrogel – a biodegradable cellulose-based hydrogel that absorbs water 300 times its size. During water-less or drought conditions, it helps plant roots use the water it has retained.

D. India-Israel Collaboration:

1. A public-private partnership between the Karnataka government, an Israeli irrigation company for technical assistance, and an Indian engineering company for implementation is Asia's largest community irrigation project that provides water to 7,000 smallholder farmers across 22 communities through a cylinder installed in their farms.
2. Farmers can mix their fertilisers and pesticides in the same cylinder, helping eliminate water wastage. The technology used also purifies the wastewater flowing back into the Krishna river.

E. Precision-irrigation solutions

1. Several start-ups have developed precision-irrigation solutions that provide predictive insights to farmers on the optimal watering for crops based on seasons, soil type and crop growth phase.

2. Embedded with Machine Learning, or the Internet of Things, such innovations monitor soil conditions, weather changes, evaporation rates and plant water use to determine and adjust watering schedules.

Vision for the future:

1. Securing India's water future needs to evolve into a movement with everyone getting involved. We need to move from being mere "users of water" to more active stewardship of water.
2. We need to ensure that water consumption is not only environmentally sustainable or economically beneficial but is also socially and culturally fair.
3. An inclusive strategy that considers both site- and catchment-based measures supported by the collection and analysis of complex data as well as joint investments from various stakeholders, collective water governance and accountability mechanisms is an achievable objective today.