India’s advancement in science and technology and its foreign policy objectives

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(Mains examination, General studies Paper 2& 3, International Relations, Science and Technology)

Context

- COVID-19 **pandemic gives India a unique space to mainstream science and technology in its domestic and foreign policies.**
- **Many countries have initiated this very idea of vaccine diplomacy including China. But India’s vision is unique in many way and it gives enormous opportunity to India to expand its wings in the field of strategic advancement.**

Main points

- India’s **ongoing ‘Vaccine Maitri’ campaign,**which is aimed at provisioning COVID-19 vaccines to countries both immediateneighborhoods and extended global world , is one of the most important recent initiatives to leverage its science and technological advantages for the furtherance of its foreign policy objectives.
- It wil not only upgrade India’s position in the subcontinent but also will strengthen its stature at world level.

Science diplomacy

- Science diplomacy is analogous to economic diplomacy, cultural diplomacy, or sports diplomacy. The popular way of looking at science diplomacy is to regard it as composed of three components –'science in diplomacy', 'diplomacy for science', and 'science for diplomacy'.
- Science in diplomacy means the scientific inputs going into diplomacy and foreign policy making. Diplomacy for science means making use of diplomacy to gain benefits in science and technology - bilaterally as well as multilaterally and globally. Science for diplomacy means using science and technology collaboration to bring countries which have differences together.
- Sciencediplomacy would be the integration of science and technology into the diplomatic and foreign policy framework which not only determining its increasing importance in international relations but also determining global competitiveness, where the role of knowledge based industries is becoming increasingly critical.

India's Covid19 response and world recognition

- India's science and **technology prowess would be tested internationally** by 2019 through an unprecedented global disruption originating from China in the shape of the COVID-19 pandemic.
- India's pharmaceutical firms such as the **Serum Institute of India** competently partnered with the U.K.'s Oxford/AstraZeneca vaccine project while others such as Bharat Biotech gave rise to indigenous vaccines in the shape of Covaxin.
- India officially starts its vaccine diplomacy with the name **"Vaccine Maitri"** under its Neighborhood First policy in which Indiawill supply Made-in-India Covid-19 vaccines to its neighboring and key partner countries under its Neighborhood First policy.
- India had earlier supplied Hydroxychloroquine, Remdesivir and Paracetamol tablets as well as diagnostic kits, ventilators, masks, gloves and other medical supplies to a large number of countries during the pandemic, **welcomed by its partners across the world.**

  Under the Partnerships for Accelerating Clinical Trials(PACT) programme, India has also provided training to several neighboring countries to enhance and strengthen their clinical capabilities

- **India's response came**at a time where the developed world was pre-occupied in trying to address its own domestic issues and China's health diplomacy much like its other development assistance came with prohibitive costs.

- **India efforts to address**this health emergency were met with vocal appreciation by leaders from Brazil, Canada and even more from the Global South world.

Historic science diplomacy approach of India

- India's global priorities in science and technology were clearly articulated by its first Prime Minister Jawaharlal Nehru during his address to the country's Science Congress on January 21, 1959.
- Nehru was aware of both the constructive and destructive power of science and made India's intention of seeking international scientific advances for the country's development and rise clear with added emphasis on averseness to inter-state rivalries.
- This template would set the tone for India's international science and technology engagement for much of the 20th century, and met with mixed results as more powerful states such as the United States sought to curb its ambitions in critical spheres such as its nuclear and space programmers.
- Recently, Prime Minister Narendramodi has been categorical in placing science and technology at the forefront of the country's diplomatic engagement.

India's assertiveness for its interest

- Despite limitations, India still managed to assist its partners from the Global South in key areas of science and technology such **as health across Asia and Africa.**
- The country's national confidence would also rise during the final decade of the last century as economic dynamism led to a more pro-active assertion of its interests.
- By the early years of the 21st century, it sought to reduce its dependence on foreign countries to then emerge as a net provider of development assistance in the international system.
- **The 21st century international system** was more conducive to the country's science and technology designs in spheres such as nuclear and space technology due to a thaw in ties between India and the United States given the rise of an aggressive China and other consequential challenges to the international system.
- India now become major power in space technology which strengthening its military, economic as well as global diplomatic power. India's space mission can be broadly categorized into the following categories: Launch vehicle fleet like PSLV, GSLV etc, Satellite programs ex. INSAT, Satellite Navigation program ex. IRNSSS and NAVIC, Extraterrestrial exploration like Chandrayaan, Mars Orbiter Mission, Human Spaceflight Programme viz. Gaganyaan.

- India **would sign strategic partnerships bearing**substantial science and technology components with advanced economies such as the United Kingdom, Japan, Israel, Germany, the European Union, Singapore, the United Arab Emirates, Canada, South Korea and Australia. India also even strengthened its traditional partnerships with countries such as France and Russia.
- **India's state instruments**of diplomacy would also begin to show a more visible alignment to international science and technology cooperation.
- **India established the** Office of the Principal Scientific Adviser to the Government of India in November 1999.
- **India's ambitions would also become evident from its critical policy frameworks like science and technology policy 2003 and science, technology and innovation policy 2013 which clearly related international science and technology cooperation with national interest.**
- India currently fields **four Development Partnership**Administrations under its Ministry of External Affairs consequential given that President Ram NathKovind, in Cuba in June 2018, declared that the country had "placed science and technology at the center of its development cooperation strategy".
- "**The Ministry of External Affairs"**has seen a restructuring with a Cyber Diplomacy Division, an E-Governance & Information Technology Division and a New Emerging & Strategic Technologies Division to manage science and technology issues in the nation's diplomatic matrix.

India's engagement in some global programs:

- Diplomacy for science is quite similar in many respects to economic diplomacy where we try to expand our exports and increase inward investment. External collaboration in science and technology especially with advanced countries and engaging in large International scientific projects therefore becomes important.
- India has taken the initiative of the International solar Alliance (ISA) launched in 2015 with France as main partner. The ISA is a global platform that seeks to bring together and mobilize technology and finance to implement solar energy projects in member states.
- The ICGEB which was launched in 1983 together with Italy. The ICGEB was intended to help developing countries to gain access to the newly emerging field of genetic engineering and biotechnology and to apply it to problems faced by them
- India's participation in CERN is on a win-win basis where India supply components and equipment, the value of which then finances Indian researchers who work at CERN.

- The Government of India has an Indian technical and economic cooperation programme (ITEC) through which India provides capacity building assistance and training tor personnel from other developing countries. Indian Missions abroad play a vital role in this programme.
- India is actively participating in reducing global warming by reducing green house gases. For this india become active member of united nations frameworks and protocols like UNFCCC, UNFCD, CBD etc.
- The international community has agreed in 2015 upon a set of 17 Sustainable Development Goals (SDGs) which all countries have undertaken to achieve by 2030.To support this effort the UN and member states have established a Technology Facilitation Mechanism(TFM). This mechanism is intended to enable developing countries to access the technology which is required to achieve the SDGs.

Benefits of Indian science and technology diplomacy specially related to covid vaccine:

Strategic importance:

By providing covid vaccine and other medicines and medical equipments,india earn huge long-term goodwill from its immediateneighbours and across Indian ocean countries which is in line with India's neighborhood first initiative.

- **Countour Chinese dominance in the region is most important from indias point of view so by providing** early shipment in countries could help counter China's vaccine and mask diplomacy.
- Over emphasis on west for vaccine will create huge economic burden on small countries. By providing alternative, India not only supplies vaccine on economically viable cost but also applause by the world.

Economic importance

- **India will become global leader in vaccine supply as not only neighbours but around the globe** inclination is shown to purchase vaccines from India.
- **Indian pharma sector will get huge boost from vaccine supply and further trust of the world on Indian vaccine will be strengthened.**
- **Economic challenges that India is facing will get some relieve from vaccine supply to worldwide. It will also help in strengthening India's balance of payment situation**

Earns Good will:

- vaccine monopoly of few companies get challenged by India which not only reduce cost burden on developing and under developed countries but also ensure timely delivery of covid vaccine to provide greater good to humankind. This could help India have a moral right to have **greater say in international forums.**
- Indian vaccine also disrupts vaccine nationalism of developed world so that even excess of vaccine will be ensured. This will not only help countries around the globe but also India in long run specially in seeking permanent membership in United Nations.

Concerns for india:

- India's **Aatmanirbhar Bharat initiative**attempts to secure maximum self-reliance through capacity building and creating an environment where science and technology can not only answer its own national needs and cross-border interests but also global challenges but there are certain issues that must be addressed.
- **India's financial apportionment to**science and technology related research must rise to enable the country's own rise as must participation of its states, universities and private sector in research and development efforts.
- The time is also right for India's young scientists and technologists to be made more aware of the country's foreign policy objectives, and to also enable all stakeholders in the policy establishment to learn more about science and technology to bridge the intellectual divide.

  Science and technology ecosystem has deficits especially in terms of capacity of academic and research Institutions and funding for research. This results in the so-called brain drain or migration of skilled science and technology personnel to advanced countries with more favourable ecosystems.

Way forward

- As scientists developed vaccines to COVID-19 virus, it was India, an established leader in vaccine manufacturing that rose to the challenge of global provision. Beyond idealist invocations, India's COVID-19 response also came closely aligned with its **Neighborhood First, Act East, Indo-Pacific and Look West policies.**
- **The ongoing COVID-19 crisis** has presented the country a unique space to mainstream science and technology in its domestic and foreign policies. Thus, it is now up to India to conclusively convert this crisis into an opportunity.

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