Draft Science, Technology and Innovation Policy

Why in news?

The government has recently released the draft 5th national Science, Technology and Innovation Policy (STIP).

Why is this significant?

- The policy outlines strategies for strengthening India's STI ecosystem to achieve the larger goal of Atmanirbhar Bharat.
- Previous STI policies were largely top-driven in formulation.
- The present STIP follows core principles of being decentralised, evidence-informed, bottom-up, experts-driven, and inclusive.
- It aims to be dynamic, with a robust policy governance mechanism that includes periodic review, evaluation, feedback, and adaptation.
- Most importantly, there is a timely exit strategy for policy instruments.

What are the objectives?

- The STIP will be guided by the vision of positioning India among the top three scientific superpowers in the decade to come.
- The aim is to -
    - attract, nurture, strengthen, and retain critical human capital through a people-centric STI ecosystem
    - double the number of full-time equivalent (FTE) researchers, gross domestic expenditure on R&D (GERD) and private-sector contribution to GERD every 5 years
    - build individual and institutional excellence in STI with the aim of reaching the highest levels of global recognition and awards in the coming decade

What is the Open Science Framework?

- STIP provides a forward-looking, all-encompassing Open Science Framework to provide free access for all to findings from publicly funded research.
- Private-sector researchers, students, and institutions will have the same accessibility.
- Output from research that is not funded by the government will be outside the purview of this framework. However, they will be encouraged to

participate.

- This framework will be largely community-driven, and supported with necessary institutional mechanisms and operational modalities.
- Open Science fosters more equitable participation in science through increased access to research output. It ensures -
    i. greater transparency and accountability in research
    ii. inclusiveness
    iii. better resource utilisation through minimal restrictions on reuse of research output and infrastructure
    iv. a constant exchange of knowledge between the producers and users of knowledge

What is the rationale for One Nation, One Subscription?

- The policy proposes buying bulk subscriptions for all journals.
- It thereby envisions free access to all journals, Indian and foreign, for every Indian against a centrally-negotiated payment mechanism.
- Scientists are producers of scientific knowledge in the form of scholarly articles.
- But the consumers of this knowledge such as line departments, innovators, industry, the society at large, etc. are several times larger in number.
- In the present mechanisms, they do not have access to this knowledge.
- R&D institutions in India spend huge amounts of money subscribing to journals, especially the international high impact-factor ones.
- As per a rough estimate, this amount comes to nearly Rs 1,500 crore per annum.
- But still, only a third of the country's total 3.5 lakh-odd researchers get access to these journals.
- Under STIP's payment mechanism, the amount may be higher than what institutions together pay today, but will facilitate access to India's over 1.3 billion people.
- The larger idea behind One Nation, One Subscription is thus to democratise science.

How about participation of women in Science?

- Over the last 6 years, women's participation in S&T has doubled in India; however, overall participation of women in R&D continues to be only about 16%.
- There has been considerable improvement in the participation of women in science education both at the Bachelor's and Master's levels (53% and 55% respectively as per AISHE 2019).
- However, there is a persistent gap at the doctoral level between male (56%)

and female graduates (44%).

- In this context, policy interventions in Science will bring transformative change.
- In this regard, the STIP has made recommendations such as -
    i. mandatory positions for excluded groups in academics
    ii. 30% representation of women in selection/evaluation committees and decision-making groups
    iii. addressing issues related to career breaks for women by considering academic age rather than biological/physical age
    iv. a dual recruitment policy for couples
    v. institutionalisation of equity and inclusion by establishing an Office of Equity and Inclusion, etc

What does the policy say about funding in R&D?

- India's gross domestic expenditure on R&D (GERD) stands at 0.6% of GDP.
- This is quite low compared to other major economies that have a GERD-to-GDP ratio of 1.5% to 3%.
- This can be attributed to inadequate private sector investment (less than 40%) in R&D activities in India.
- In technologically advanced countries, the private sector contributes close to 70% of GERD.
- STIP has made some major recommendations in this regard, such as -

i. expansion of the STI funding landscape at the central and state levels
ii. enhanced incentivisation mechanisms for leveraging the private sector's R&D participation

- The policy also offers creative avenues for collaborative STI funding through a portfolio-based funding mechanism.
- It is called the Advanced Missions in Innovative Research Ecosystem (ADMIRE) programme.
- It supports distributed and localised collaborative mission-oriented projects through a long-term investment strategy.
- A national STI Financing Authority, along with an STI Development Bank, needs to be set up to direct long-term investments in select strategic areas.
- The STIP also suggests modification or waiver of General Financial Rules (GFR), for large-scale mission mode programmes and projects of national importance.

Source: The Indian Express

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