Indian Scientific Service – Need and Challenges

Mains: *GS-III – Science & Technology*

Why in News?

There is a raising discussion about a dedicated Indian Scientific Service to bridge the gap between administration and scientific knowledge.

Why are scientific services necessary today?

- **Origins of the current system** – India's post-Independence service rules were designed to ensure stability through generalist administrators — an approach that was essential for nation-building.
- **Changing Governance Needs** – Over time, governance has become increasingly shaped by science, technology, and environmental challenges, as scientists began joining government service to meet these new demands.
- **The Mismatch** – Despite their specialised expertise, scientists remained governed by rules created for a different era, these rules were designed for administrators, not for scientific professionals.
- **Impact** – The mismatch has limited the effective integration of scientific expertise into governance.

Why is there a paradox between administrators and scientists?

- **Recruitment Pathways –** Civil services (generalist service) rely on a single, competitive exam drawing from a large pool.
- Scientific careers (specialist service) depend on years of advanced education, research, and peer review, with a smaller, highly specialised pool.
- **Training & Career Progression –** Administrators receive structured training aligned with governance roles.
- Scientists are placed in diverse technical portfolios without comparable frameworks for training, career growth, or authority safeguards.
- **Role of Science in Policymaking** – Scientific inputs in policymaking are often commissioned for immediate needs — such as legal cases or regulatory decisions — making research time-bound and narrow.
- **Expanding Responsibilities** – India's governance now spans technically intensive sectors: environment, climate change, oceans, public health, disaster management, nuclear safety, biotechnology, space, and AI.
- Scientists have become indispensable to government functioning.
- **Nature of Scientific Progress** – Scientific progress depends on continuous inquiry,

testing of evidence, and honest assessment of risks and uncertainties.

- **Role in Governance** – The scientist must have the ability to flag ecological risks, technological limitations, or long-term consequences in a transparent manner.
- **Risks of Suppression** – When scientists are unable to formally record or communicate such assessments within institutional processes, their role risks becoming symbolic rather than substantive.
- Science that cannot question policy is not science - it is a decoration.
- **Global Practice** – Countries like France, Germany, Japan, the UK and the US have created distinct scientific cadres within government, with tailored service rules, career paths, and professional protections.
- It ensure independent, credible scientific input into policymaking rather than political convenience
    - **For Example,** U.S. Scientific Integrity Policies safeguard scientists from political interference, require transparent documentation, and prevent suppression of findings.

What unique challenges does India face?

- **Underutilisation of Science** – Until science becomes a regular partner in governance rather than a reactive tool, its full potential to improve policy and public trust will remain underused.
- Most research is not designed to improve policy effectiveness or anticipate future needs.
- **Institutional Mismatch** – Instead of creating a distinct institutional framework that was suited to scientific work, scientists were largely absorbed into the existing administrative system.
- **Limits of Current Frameworks** – While civil service rules stress discipline and neutrality, scientific work requires questioning assumptions and presenting evidence even when it challenges policy.
- Without frameworks that accommodate this, scientific inputs remain advisory rather than fully integrated into decision-making.
- **Governed by Administrative Rules** – Scientist continue to be governed by conduct rules, appraisal mechanisms, and hierarchies that were originally designed for general administrative functions.
- **Constraints on Professional Role** – Over time, this has limited the ability of scientists to exercise their professional role fully within governance structures.
- **Separate Rules, Shared Constraints** – Organisations like CSIR and ICAR have separate recruitment and promotion rules, but are still subject to the *Central Civil Services (Conduct) Rules, 1964*, limiting scientific independence.
- **Limited institutional authority** – Despite strong scientific institutions and highly trained professionals, government scientists often have limited institutional authority relative to their expertise.
- Their inputs may not always carry formal weight in decision-making processes, particularly in technically complex sectors.
- **Cautious communication** – Scientists often communicate cautiously, document uncertainty sparingly, and are relied upon mainly during crises rather than as continuous policy partners.

- **Risks of underutilization** – A governance system that does not fully utilise its scientific capacity risks long-term policy weaknesses.
- **Institutions for Global Aspirations** – India's aspirations, to be a leader in climate action, environmental stewardship, public health, and technology, require institutions that value scientific evidence alongside administrative efficiency.

What is the way forward?

- **Creation of an Indian scientific services (ISS)** – It could be a constructive way forward, the need for an ISS is no longer theoretical.
- It is a practical and timely reform to strengthen evidence-based policymaking and build more resilient governance for the future.

Possible framework of Indian Scientific Services (ISS)
• The ISS is *not intended to replace* administrative systems, but to complement them. • It could function as a permanent, *all-India scientific cadre* working alongside existing civil services. • Administrators ensure coordination and execution; scientists contribute evidence, risk assessment, and long-term perspective. • **Specialised cadres** – Such as the Environmental and Ecological Service, Climate and Atmospheric Service, Water and Hydrological Service, Marine and Ocean Services, Public Health and Biomedical Service, Disaster Risk and Resilience Service, Energy and Resources Service, Science and Technology Policy Service, Agricultural and Food Systems Service, and Regulatory Science Service. • **Recruitment** – Scientists would be selected through rigorous national-level exams and peer evaluation. • They would then be placed in ministries and regulatory institutions as active participants in decision-making. • **Separate Scientific Service Rules** – It would - Protect professional integrity, - Enable transparent recording of scientific assessments, and - Clarify the distinction between scientific advice and policy decisions.

- **Direct integration of expertise** – Integrate scientific expertise more directly into governance structures.
- **Shifting from Urgency to Preparedness** – A stronger approach would support continuous, long-term research that anticipates emerging challenges, allowing decisions to be guided by evidence and foresight rather than urgency.
- **Need for Institutional Mechanisms** – Effective governance requires mechanisms that allow scientific assessments to be placed on record, even while final policy choices remain with elected authorities.
- **Need a structural reform** – Not additional committees or ad-hoc advisory bodies are needed, but structural reform that clearly define the role of scientists in governance and provide them with proper institutional safeguards.

What lies ahead?

- Under the current situation, India is steadily moving beyond its colonial legacy and building a confident new India.
- In this spirit, an ISS would be a forward-looking reform — much like the

transformation of the Indian Civil Service after Independence — strengthening a science-driven administrative system that is aligned with India's national aspirations and global ambitions.

Reference

The Hindu | Bridging a divide with an 'Indian Scientific Service'