POLICY BRIEF
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Madhya Pradesh Rajya NITI Aayog

Pathways to STI led growth of Madhya Pradesh

Abstract

Science, Technology and Innovation (STI) have become inevitable and essential parts of our everyday life. 'Science' and 'Technology' are ever-evolving, dynamic fields that offers solutions to several socio-economic challenges, with 'innovation' serving as primary catalyst. It can play a crucial role in driving economic growth and ensuring sustainable development in Madhya Pradesh. The following policy brief outlines key policy considerations for leveraging science and technology as sustainable drivers of growth in the state along with a brief summary of MPSTIP-2022 launched by Government of Madhya Pradesh to strengthen STI ecosystem in the state.

Keywords: *STI, Economic development, Innovation, Growth, Research & Development.*

JEL Classification: O_{14}, O_{31}, O_{40}, O_{30}

Madhya Pradesh Rajya NITI Aayog policy briefs are prepared on specific policy issues on contemporary social, economic and governance issues for policymakers. This Policy brief has been developed under the guidance of Shri B.S. Jamod, CEO, MPRNA and Shri Deepak Asai, Advisor, MPRNA.

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For a state like Madhya Pradesh, sustainable economic development is possible only through the adoption of scientific principles with the implementation of innovative technologies. Being the second largest state in terms of area and fifth in terms of population, Madhya Pradesh can play a pivotal role in realizing the national target of $5 trillion economy through Technology led economic growth. Madhya Pradesh is a State with resource abundance in the sectors like Agriculture, Natural resources, and Indigenous knowledge which needs to be harnessed and utilized with timely and proper Science and Technology intervention.

The current status of Madhya Pradesh in terms of science and technology development is mixed. On one hand, the State has made certain progress in some areas, such as the adoption of digital technologies in sectors like agriculture and healthcare. On the other hand, the State still faces significant challenges, such as a lack of investment in R&D and limited access to technology for many of its citizens.

In the present scenario, despite demographic and geographic hurdles, Madhya Pradesh is striving hard to emerge as a frontier State in Science, Technology and innovation. Madhya Pradesh stands at 13th rank out of 17 major states, as per India Innovation Index 2021 with a score of 12.74 against the country's average of 14.02 (considering the category of major states)[1]. There is a huge scope of improvement, and hence attention is required to various parameters like Human capital, Innovation, Investment, Knowledge workers, Performance, Knowledge output and Safety & Legal Environment. Although State performs considerably well in provision of Knowledge Diffusion and Ease of Doing Business, there is a dire need of State specific STI (Science, Technology and Innovation) ecosystem that addresses the local needs and challenges of society.

POLICY FRAMEWORK

Government of Madhya Pradesh (GoMP), has adopted a methodical approach to enhance key components of science and technology in the State. In this sequence, foreseeing the opportunity in the field of Information Technology sector, GoMP has made necessary amendments in its IT, ITeS and ESDM Investment Promotion Policy and Scheme, in 2023. To create and manage spatial data infrastructure in an effective manner, the State has notified the Madhya Pradesh State Spatial Data Infrastructure Policy, 2014. In the similar way, to facilitate the availability and access to data and information in both human-readable and machine-readable forms through an electronic network, Madhya Pradesh Data Sharing and Accessibility Policy, 2014 is there in amendments. Alongside, Department of Science and Technology (DST), GoMP has also unveiled Cloud Adoption framework in October 2022 with an objective of providing guidance to Government/Semi-government organizations to understand and follow a standard process while planning to host its identified software applications on cloud. With an aim to align with Digital India programme, and develop knowledge-based society and economy, DST, GoMP has launched "Policy to facilitate the establishment of Telecom infrastructure in Madhya Pradesh in 2023 with necessary amendments to facilitate the development of telecommunication infrastructure (wireline/ wireless voice and data services) particularly

in unserved areas. Recently, Department of Science & Technology, GoMP launched "Madhya Pradesh Science, Technology, and Innovation Policy - 2022" (MPSTIP-2022), which is formulated in coordination with Madhya Pradesh Rajya Niti Aayog. MPSTIP 2022 aims to promote a scientific mindset in society, enhancing the innovation ecosystem, providing S&T-based services to citizens, preserving traditional knowledge systems, and encouraging involvement at the grassroots level in research and innovation. Broadly, the policy focuses on areas; Science Popularisation; R&D; Capacity building and Skill development; STI for Good Governance; Data for STI ecosystem as shown in Figure 1. [2,3]

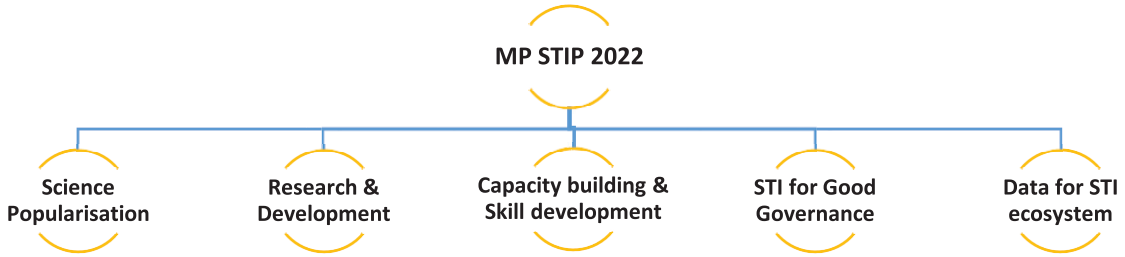

Figure 1 : Focus areas of MPSTIP-2022

In the FY 2023-24, as per the budget received by the Department of Science and Technology, an amount of Rs. 343.04 crores[4] which accounts to 0.11% of the total state budget (i.e., Rs. 314025 crores). However, State has experienced a compounded annual growth rate of 37.04% in S&T budget in last five years, which is mostly dedicated towards building and maintaining S&T infrastructure in the State. But, Gross Expenditure on Research & Development (GERD) by State governments as a percentage of Gross State Domestic Product (an important metric for S&T ecosystem) for the FY 2020-21 is 0.03% approximately which is very low when compared to national figure of 0.7%, which is a matter of concern (as depicted in Figure 2)[5].

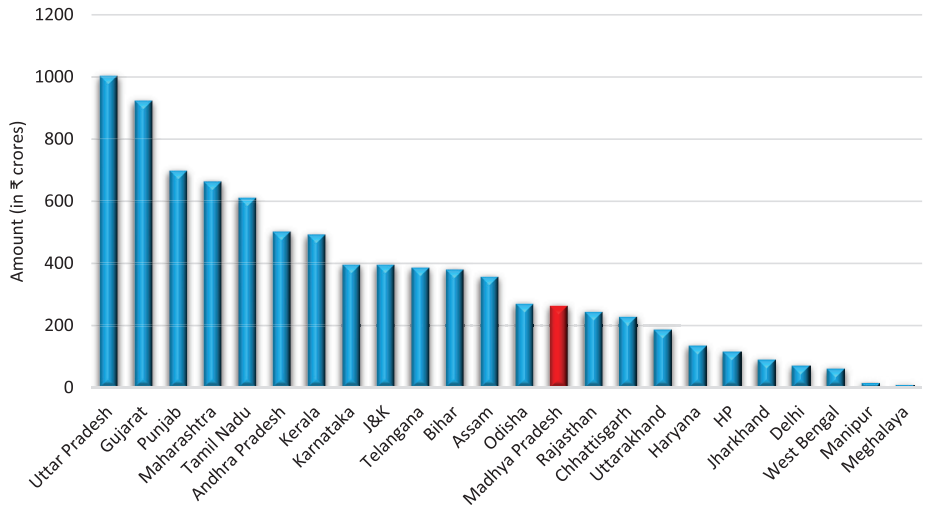

Figure 2 : Gross expenditure on Research & development by States

[Source: S&T indicators, DST, GoI, 2023]

STI POTENTIAL

It is important to mention that, to support the innovation ecosystem, 68 incubation centers are functional in the State, out of which 3 are part of Atal Incubation Centers[6]. Madhya Pradesh is also home to more than 3800 startups and increasing (key sector: Engineering & Construction), out of which around 1755 are led by women entrepreneurs (as per DPIIT, GoI as on 02.02.2024)[7] . Madhya Pradesh also has demonstrated significant progress in filed patent over a span of five years increasing from 190 in 2017-18 to 488 in 2021-22. A similar trend can be observed in the field of design filings, where the numbers rose from 61 in 2017-18 to 269 in 2021-22; as depicted in Figure 3[8]. Additionally, the available statistics indicate 97% increase in the number of researchers (PhD) from 2017-18 to 2021-22. Similarly, there has been a substantial growth of about 114% in the number of postgraduate students during the same period, highlighting the State's emergence as a potential producer of new-age researchers. [9]

The unique blend of resource abundance and industry enabling infrastructure has helped the State to attain Achievers category in the Business Reforms Action Plan 2020 report[10], and yet Madhya Pradesh's present contribution in National GDP is merely 4.8 per cent. This has happened because the State's economy has not stepped-up from agrarian to industrial domain. The contribution of the primary sector (agriculture) in the State's economy is a staggering about 47 per cent, whereas secondary and tertiary sectors contribute about 19 and 34 per cent respectively (as per advance estimates of 2022-23)[11] as shown in figure 4. To bolster economic growth of the State, there is a need to transform some of the key focus areas with high-end technologies, which is not possible without the intervention of Science, Technology and Innovation.

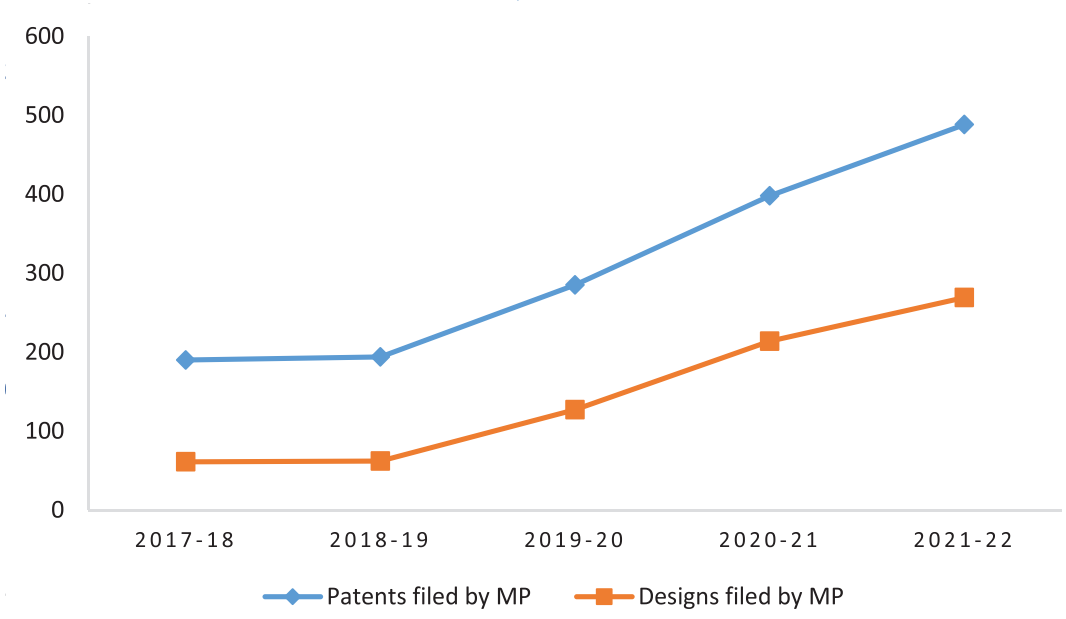

Figure 3 : Trend of IPR filing in Madhya Pradesh

[Data Source: Indian Patent Office, Government of India, 2024]

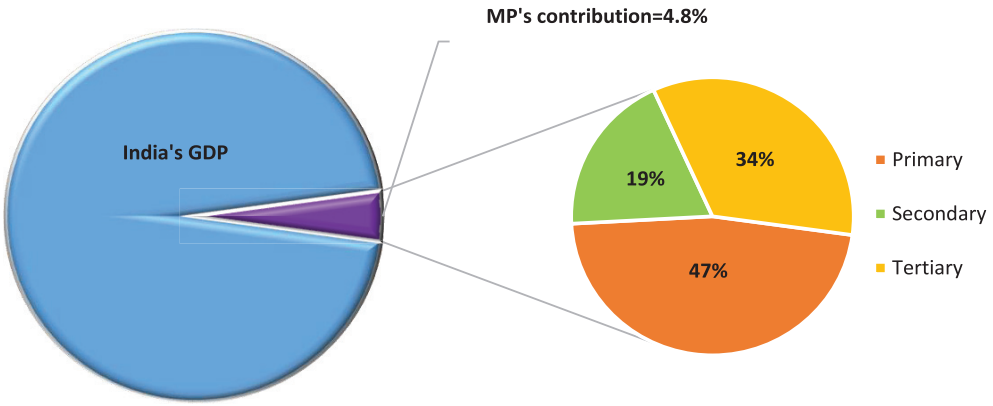

Figure 4 : Contribution of Madhya Pradesh in National GDP

[Source: Directorate of Economics and Statistics, GoMP, 2022-23]

POLICY RECOMMENDATIONS

The need for policy recommendations is paramount, given the crucial role that Science, Technology, and Innovation (STI) play in the economic and social development of any region. Madhya Pradesh, with its vast human resources and diverse economic potential, stands to benefit significantly from a well-informed and strategic approach to STI. By highlighting the pathways to STI-led growth, this brief can assist policymakers in crafting targeted policies, fostering collaboration between academic and industrial sectors, and attracting investments in research and development.

Madhya Pradesh is actively and remarkably working day and night to utilize its potential in this domain, but some efforts are needed to leap-frog the growth scenario.

Following section expounds the much-needed recommendations which at first and foremost suggests the creation of 'State Innovation Fund' that will support Innovators and scientists with necessary resources to conduct research.

Similarly, it is also necessary to promote and support Research & Development activities in the State, like setting up new R&D labs, support to R&D activities like patents, trademarks, industrial design and GI marks. Alongside, to support STI ecosystem, R&D landscape must be revisited with a novel and dedicated R&D policy for the State.

In Madhya Pradesh there is dire need of efficient usage of data by development of Data framework data standards to promote open data policies that will facilitate the sharing of research findings, dataset and methodologies. Government must strive to provide/allocate a Science & Technology Budget, that will be utilized exclusively for implementation of policy objectives; the same is also exemplified in MPSTIP 2022.

Moving to the second stage of policy decision-making, it is imperative to initiate the identification of short, medium, and long-

term goals, complete with their associated timeframes and responsible departments or agencies right from the outset. Given the pivotal role this policy assumes as a cornerstone for subsequent policies, it is essential to promptly assemble a dedicated team, comprised of subject matter experts and policy researchers, to meticulously outline the phased execution plan for this policy.

Lastly, for effective results, periodic review along with impact assessment for policy objectives will be required for review and revision process during the tenure of policy.

READINGS

[1]India Innovation Index 2021, NITI Aayog, Government of India.

[2]Department of Science & Technology, Government of Madhya Pradesh 2023.

[3]Economic Survey Madhya Pradesh 2022-23, Government of Madhya Pradesh.

[4]Department of Finance, Government of Madhya Pradesh, 2024.

[5]Science & Technology Indicators, Department of Science & Technology, Government of India, 2023.

[6]Department of Micro, Small and Medium Enterprise, Government of Madhya Pradesh, 2024.

[7]Department for Promotion of Industry and Internal Trade, Government of India, 2024.

[8]Annual Report 2021-22, Office of the Controller General of Patents, Designs, Trademarks and Geographical Indications, Government of India.

[9]All India Survey of Higher Education, Department of Higher Education, 2024.

[10]Business Reforms Action Plan 2020, Department for Promotion of Industry and Internal Trade, Government of India

[11]Directorate of Economics & Statistics, Government of Madhya Pradesh, 2022-23

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