

Strengthening State-Centre Partnership in S&T Sector

CONCEPT NOTE



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Strengthening State-Centre Partnership in Science and Technology Sector

1. Context

Several technologies are being developed by research institutions under various Scientific Departments. Although some of those technologies with potential for public and social good are available, on account of the absence of structured mechanisms, they are not available to the States for their developmental processes. Recognizing the likely benefits of an improved and structured mechanism for delivering technologies to the States, a special session was organised in the Annual Meeting of Chief Secretaries held during 1-2 February, 2010.

Presentations were made by Director General, Council of Scientific and Industrial Research (CSIR) and Scientific Advisor to Raksha Mantri highlighting research outcome of chain of laboratories under CSIR and Defence Research and Development Organization (DRDO), respectively. A joint presentation was made on behalf of Departments of Agricultural Research and Education, Atomic Energy, Biotechnology, Earth Sciences, Space and Science and Technology by the Secretary, Department of Science and Technology. It became evident that there remains untapped opportunity for the States for sourcing technologies from various Scientific Departments and Agencies as indicted in **Figure 1**.

Figure 1.

Possible Linkages of State to the Indian Science Sector for Technologies from Solution Science	
Technology/Service	Departments/Agencies
Healthcare	DBT, CSIR, ICMR, DAE, DRDO , TeleMed-DOS
Agriculture	ICAR, DBT, DAE, DRDO, CSIR , DOS
Education	DoS, DST, DBT
Environment	DAE, DBT, CSIR, DOS
Climate Services	MoES, DOS
Natural Disaster Warning	DoS, MoES, DST
Disaster Management	CSIR, DRDO, DOS, ICMR/DHR
Man-made Disaster	DRDO
Homeland Security	DRDO
Decentralized Planning	DoS, DST
Water	DAE, CSIR, MoES, DRDO, DST, DOS
New Mechanisms for Technology Outreach from Science Sector to States through Public-Public Partnerships in Technology Envisioned	

2. Recommendations from the Meeting of Chief Secretaries of States

At the Annual Conference, it became evident that new models and mechanisms will be necessary to increase the absorption of technologies in various States. Important suggestions received at the Annual Conference of Chief Secretaries are presented in **Figure 2 & 3**.

Figure 2.

Summary of Center -State Dialogue on Technology Applications in States

Information related	Flow mechanism related	Financing systems	Implementation & policy issues
IT access to Compendium	Nodal centers in States	Centrally sponsored scheme	Performance guarantees and risk
State specificity in selection of technologies	Structured and Institutionalized mechanism for linking	Mission with fund support to States for S&T	Administrative and CPWD type tender guidelines
Technology proving on ground	Strengthening of existing entities	Venture capital support	Legislation for Innovation ecosystem
Rural Technology bank concept	Mechanism for two way information flow	National innovation fund	A Standing Committee for S&T link

Figure 3.

Action Points Emanating from Chief Secretaries meeting on Technology Trends

Issue	Recommendation	Action decided
State -Center linkage on S&T with provisions for State specificity	Structured/ institutional mechanism and a Standing Committee for oversight and implementation	A note to be prepared within one month by S&T Departments for consultation with States
Financing technology partnerships	A S&T mission with support to States and National Innovation Fund	A new centrally sponsored scheme to be developed
Administrative/ policy provisions	Special provisions for proving technologies from public funded R&D	States to consider provisions for technology absorption

Decisions taken at the Annual Conference are listed below. They are

1. A Standing Committee will be formed under the chairmanship of Cabinet Secretary to review the progress of work relating to the deployment of technologies in various developmental programmes of the States within 10 days
2. The Department of Science and Technology will prepare a Concept Note in consultation with CSIR and DRDO for development of mechanisms for promoting technology partnerships between States and Centre.

Accordingly, this Concept Note has been prepared for circulation among various States for discussions and possible follow-up actions.

3. Current Models for State-Centre Partnerships in S&T sector and Institutional Mechanisms Available

States have established State Science and Technology Councils, which are supported by the Department of Science and Technology through a limited grant for meeting the cost of man power. Since the supports received generally by these Councils are sub-critical, the prevailing Centre-State partnership on Science and Technology remains generally weak.

CII- and some State Governments have established an arms-length entity to link indigenous technologies from the institutions to the industrial development in the States. These entities are mostly engaged in limited number of activities on account of their need to remain self sufficient.

Most States do not provide adequate budget for science and technology. Recommendations have been made that some centrally sponsored schemes for backing technologies with funds may be developed. There is no such scheme, at present.

Some research laboratories under CSIR, DRDO and other national agencies develop partnerships with the local institutions or the respective State Governments and work on specific projects in a time bound manner to link technologies developed in their own laboratories. This model does not often offer opportunity for penetration and holistic development. However, there have been some important examples to learn from.

CSIR had employed field stations to relate the technologies developed in their own laboratories as an extension support mechanism. CSIR has 37 research institutions and 39 field stations in different parts of the country. DRDO has developed a network of 55 institutions in which they undertake intra-mural research.

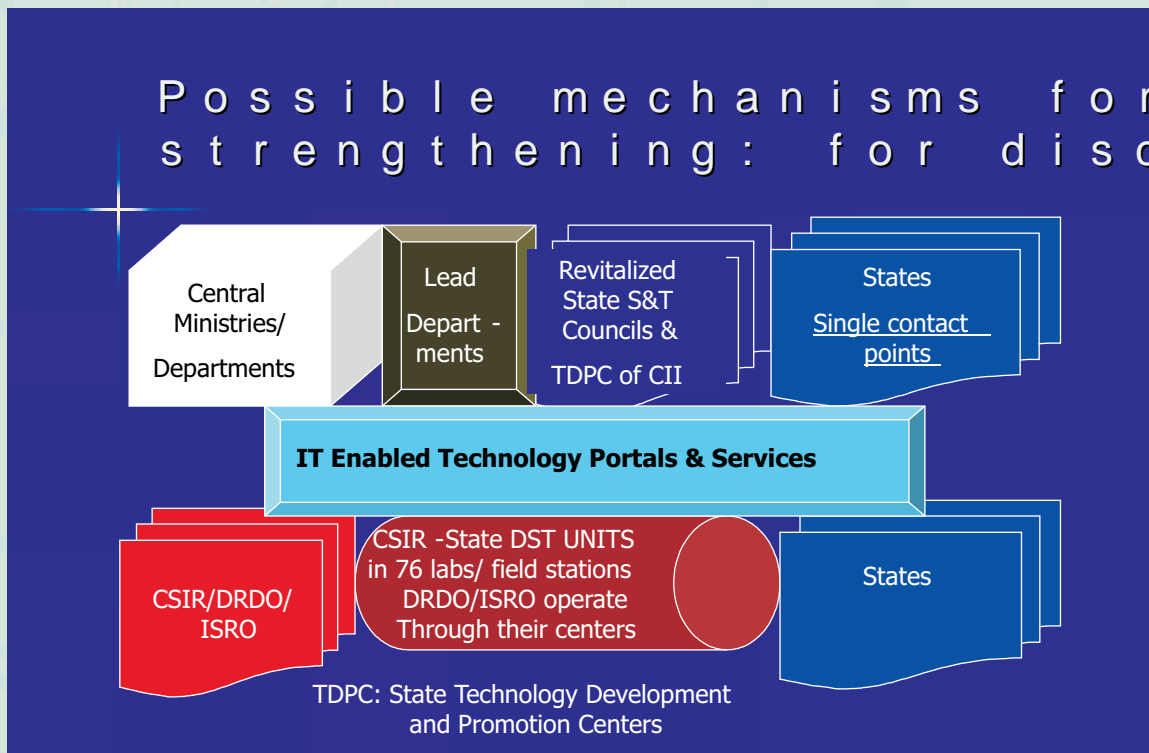
DAE, DoS, MoES, ICMR, MoEF, DIT, and MNRE have established their own chain of laboratories in different parts of the country. They undertake development of technologies relevant to their own business rules. DST and DBT support a large number of autonomous institutions in different parts of the country under Grant-in-Aid model. Some of these institutions enjoy a strong presence in the States in which they are located.

Almost all the research institutions under the Government of India work in special knowledge domains and are primarily focused on basic and applied research, leading to some important technology leads. Translation of technologies into products and services for use by States needs to be performed by

other link agencies including licencees.

It may be worthwhile to both strengthen the existing mechanisms and establish new systems for predominantly intramural research bodies like CSIR, DRDO and ISRO as shown in **Figure 4**

Figure 4.



4. Strengthening of Existing State-Centre Partnerships

- A. State Science and Technology Council Mechanisms:** Currently the State-Centre relationship in science and technology sector is mainly fostered by the State S&T Councils. However, this mechanism has not been effectively deployed for connecting technologies for social and public good with the stake holders in the State. State S&T councils remain sub-critical for want of funds and leadership support. It is important that a finite and critical level of funding support is extended to the State S&T Councils, through a centrally sponsored scheme for technology utilization in the States. Technology Compendium prepared recently can be made available to State S&T Councils to elicit State support for implementation.

An empowered State Council mechanism could be gainfully deployed by Department of Atomic Energy, Department of Biotechnology, Department of Science and Technology, Department of Space and Ministry of Earth Sciences for linking technologies for public and social good under project mode. An annual report of successful technology demonstrations in the States should be submitted by the State S&T Councils to the States and Ministry of Science and Technology. The State S&T Council Cell in the Department of Science and Technology in turn would submit annual reports of successful technology demonstrations to a) other State S&T Councils for possible replication of successful case studies, b) Planning Commission for providing State specific budget for replication of successful technologies and c) other socio-economic Ministries for possible replication under various Centrally Sponsored Schemes.

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- B. State Technology Development and Promotion Centres:** Confederation of Indian Industries with the support of some State Industries Departments has established State level entities to relate technologies from the public funded institutions to the users in the industry. Such centres are currently operational in limited number of States and they work in close collaboration with the Department of Science and Technology. Expansion and further strengthening of this mechanism through formal understanding with States and CII may be considered. This entity should be supported through a membership based service model. Industries desirous of seeking services from such entities should be able to pay an annual fee for technology related services. The R&D institutions developing technologies could use these entities as service providers in the States, where they are located. Terms and conditions for such services could be decided on case to case basis by the technology institutions and the entities.
- C. State-Centre Partnerships through S&T Departments of States and Ministry of Science and Technology:** Partnerships could be formalized through Memorandum of Understanding between States and the Ministry of Science and Technology. These MoUs could be supported through mutually identified grants for technology utilization and States may have the option to select best technologies from the public funded bodies, through competitive models.
- D. Technology Portal:** Ministry of Science and Technology could commission a knowledge institution to design, develop and maintain a continuously up-gradable technology portal with authorization for a nodal officer in each State to access the portal and establish a viable

two-way partnership with all the Scientific Departments and Agencies through the portal. The nodal officer in the State could also pose technology challenges to the scientific bodies to solve in a time bound manner through the portal mechanism. The information technology enabled technology portal could emerge as one of the most viable tools for building partnerships between States and Central Scientific Departments and Agencies. States could name an officer from either the State S&T Council or the Department of Science and Technology that would remain connected to the portal for period of at least five years. Similarly, “Bhuvan portal – Beta version”, which is already hosted with lot of scientific inputs on natural resources with recent/current satellite images and vector thematic layers could serve as a one-stop-shop for respective States to utilise the same for better resource management purposes. The portal at present is already providing services specific to land, water, ocean and weather which could further be strengthened with specific inputs from States.

E. DOS-State Remote Sensing Application Centres & Agencies: Remote sensing technology offers various advantages in resource mapping, micro-level planning, implementation and monitoring of specific resource development activities in States. Well orchestrated and institutionalized mechanism exists between State Remote Sensing Application Centres (SRSAC), Agencies and Department of Space to use space technology in various developmental activities. This includes Natural Resources Planning and Management, Tele-Education, Tele-Medicine etc. Many operational projects of prime relevance to States are being successfully implemented through this mechanism. DOS has been providing both technical and financial (limited) support to SRSAC for their

activities. This could further be strengthened to address any other sector of relevance for better management and services to all States.

- F. DOS – Regional Remote Sensing Centres (RRSC):** DOS has also established RRSCs, which have been operational for the past more than 2 decades and provide specific S&T based solutions to cluster of States in their own Region. In addition to the RRSCs, DOS has also established North Eastern Space Application Centres (NESAC) which is actively contributing in taking space technology benefits in the entire North-Eastern Region successfully. This could further be strengthened by establishing stronger linkages between SRSACs, RRSCs, academia, NGOs and other agencies as a multi-tier approach to address specific problems of States.

5. Creation of New Institutional Arrangements for Building State-Centre Partnerships

- A. CSIR-State DST Partnerships:** CSIR has mooted a proposal that the agency would develop technology partnership with each State through the net work of their institutions and field stations as an extension mechanism for their technology outreach. An institutionalized mechanism for building technology partnership between State Departments of Science and Technology and the CSIR through their 76 local entities has been proposed by CSIR. This proposed arrangement may be formalised through MoUs between States and CSIR.

B. DRDO-State Partnerships: Some technologies developed by DRDO for defence applications bear utility in civil society needs as well. DRDO could bring out a compendium which could be gainfully deployed by States for example in applications such as a) internal security and b) mountain agriculture and animal farming. DRDO through their net work of 55 laboratories and industrial vendors could deliver technology products and services to the States directly. States could nominate a nodal officer for single point contact for periodical updating of technology spread sheet available with DRDO for applications by the States.

C. DHR –State partnerships: The Department of Health Research is establishing Model Rural Health Research Units and special units in State Medical Colleges which will partner with States for technology transfer and research, specially on epidemiology and implementation.

D. Coordination among different Science Departments in Health Sector: DHR has started coordinating with other Science Departments for the identification, development and evaluation of appropriate health care technologies and for this purpose a Group of Secretaries has been constituted. This group will periodically review the policy whereas the implementation will be done through Joint Secretary level officers. Whenever the technologies become suitable for health care applications these will be shared periodically with the States by appropriate communication / meetings with the Principal Secretaries / Directors / Director Generals of Health Services.

6. Summary

Technology and innovation form two established engines of growth in the global knowledge economy. For a balanced national economic growth, diffusion of technologies should form an integral part of the developmental agenda of various States in the country. Two-pronged approaches have been suggested in the Concept Note namely, a) strengthening the existing structures and mechanisms like State S&T Councils and State Technology Development and Promotion Centres and b) establishing new mechanisms and entities for connecting intra-mural technology development agencies like CSIR, DRDO and ISRO. States may prefer to deploy one or both models for their technology partnerships with the Scientific Agencies and Departments.

