



# Science, Technology and Innovation Policy in India. Some Recent Changes

Indigo Policy report by Prof. Venni V. Krishna  
Briefing note

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**Goals of the report:** Provide an overview of India's STI landscape with a particular focus on the policy's and initiatives of the new government of PM Narendra Modi (in power since mid-2014)

**Methodology:**

- JNU-based STI policy expert (Prof Venni V Krishna, expert on Sociology of Research) was contracted to draft the report;
- Data collection through desk research and interviews (by Prof Krishna and associates)
- Quality review through ZSI (ongoing).

**Core messages and findings:**

- Resources for R&D continue to expand, however at a still fairly low level: from 0.81% in 2001/2002 to 0.88% in 2011/2012. Actual growth relative to GDP is less if controlled for inflation. R&D investments in absolute terms increased almost fourfold, however (as the GDP more than tripled from 2002 to 2012 in current USD);
- The private sector's share increased, but is still at only 30% of GERD in 2011/2012 (18% a decade before);
- The new government implemented **institutional change** affecting the research policy area:
  - The National Institution for Transforming India (NITI Aayog) replaced the earlier Planning Commission
  - The National Innovation Council, established by the prior government in 2010/2011, is practically discontinued with the Niti Aayog and ministries taking over its functions

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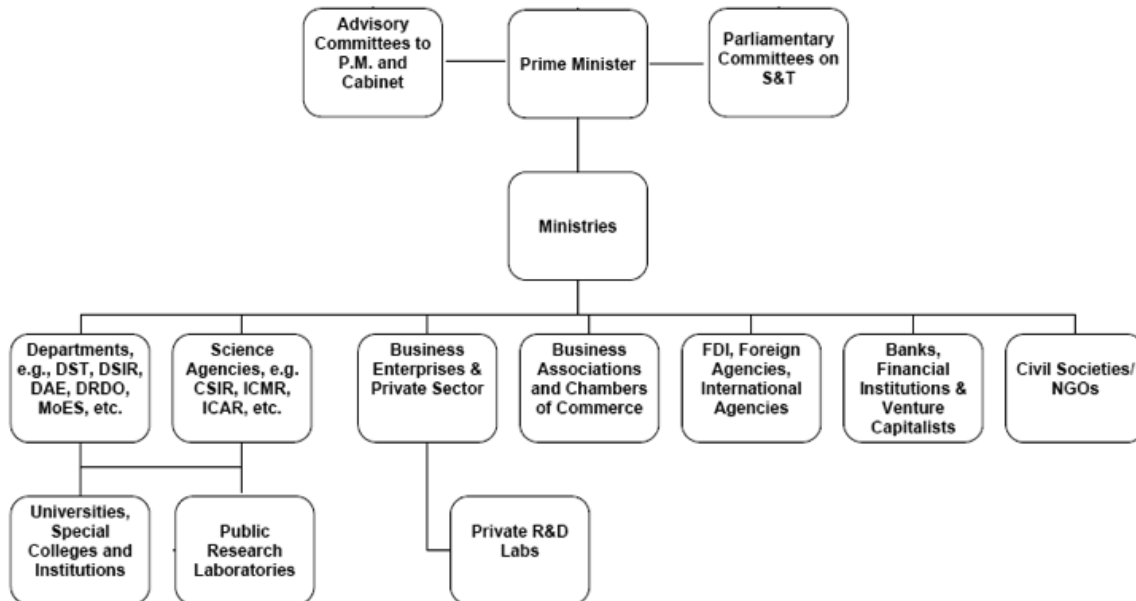


Figure 1: India's research system governance structure

- The current government continues the expansion of the top layer of federal higher education institutions also performing research. Since 2006, six **Indian Institutes of Science Education and Research (IISERs)** have been established (the latest one in 2015) with two more in the pipeline. Their mandate is to perform frontier research in the basic sciences (as well as related higher education). The group of the more engineering and applied sciences oriented **Indian Institutes of Technology (IITs)** was also expanded (from 16 until 2014 to 18 in 2015 and 22 in 2016);
- The largest number of R&D personnel, however, continues to be employed in **public research institutions** (like the labs of the Council of Scientific and Industrial Research (CSIR) or of Ministries like the Department of Biotechnology, the Department of Atomic Energy, etc.). The majority of **higher education institutions** focus on teaching (most of the 750 universities; exceptions are the IISERs, the IITs, the Indian Institutes of Management (IIM), the All India Institutes of Medical Sciences (AIIMSs), the Indian Institute of Science, the Tata Institute of Fundamental Research and around 20 major central universities);
- In terms of **publication output**, India's share in worldwide output rose from under 2% in the year 2000 to over 4% in recent years;
- The prior government announced the 'Decade of Innovation' 2010-2020 and launched a Science, Technology and Innovation Policy in 2013 (STIP 2013);
- The new government endorsed the STIP 2013 policy. The visibility and prominence of STI topics increased with the new government. The current scenario is more decentralised, however (compared to the earlier situation where the PM's office together with the Planning Commission and the Ministry of S&T were the sole decision-makers in S&T matters);
- The new government announced a series of **National Flagship Programmes/Schemes**:
  - Make in India (promoting manufacturing in India; stirred by Min of Comm and Ind);
  - Digital India (aiming to continue India's relative success in the ICT sector)



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- Skill India (a new Ministry of Skill Development and Entrepreneurship was launched);
- Green India (focusing on renewable energy and innovation; electric vehicles);
- Smart Cities and Urban Development (100 smart cities shall be built);
- Clean India (Ganga Rejuvenation Programme with various ministries involved; plus the Clean India Campaign (Swachh Bharat) focusing on clean neighbourhoods);
- Creating New Infrastructure (ports, industrial corridors, etc.);
- Public R&D resources are expected in these programmes. In line with the observation of a certain decentralisation mentioned above, they will be managed and implemented by the responsible line ministries (not channelled through DST);
- Beyond these programmes, the government has also announced a focus on the ease of doing business especially aiming at foreign investors (expanding the visa on arrival scheme, removing certain distinctions in FDI, etc);
- Under the above-mentioned Niti Aayog, the **Atal Innovation Mission** (currently endowed with a budget of around € 20m) aims to provide an innovation promotion platform and related R&D funds. It's mandate states that it should promote a network of world-class innovation hubs (e.g. as part of IITs, IIMs, AIIMs, etc);
- The new government also launched an **FDI Policy 2015** and a new **National IPR Policy**.

The new government's programmes and initiatives might provide entry points for novel cooperation formats with the European Union and its Member States (e.g. by re-opening discussions on matching H2020 funding or by including India in ERA-Net or JPI schemes).