

## **EU – India Research and Innovation Roadmap**

### **1. India as a partner of the EU**

The EU-India Strategic Partnership was created in 2004 to enable the partners to better address international issues in the context of ever-increasing globalisation. Political cooperation covers a wide range of international concerns such as security, international political issues, energy, environment, and climate change. The EU and India have been negotiating an ambitious Free Trade Agreement since 2007.

India has embarked on a process of economic reform and progressive integration with the global economy that aims to put it on a path of rapid and sustained growth.

India's R&I landscape is however contrasted. On the one hand, the country has ramped up scientific production at an impressive rate. India has several world-class centres for science education, particularly the Indian Institutes of Technology. The country is also recently experiencing a surge in its share of the world's high-quality scientific publications<sup>26</sup>. On the other, with only 200,000 full-time researchers and 17 patent applications per 1 million people, India has few scientists relative to its population size and it produces relatively few patents<sup>27</sup>.

The outsourcing of knowledge-intensive activities to India has contributed to make the services sector the largest contributor to GDP (55%) and the presence of multinationals' R&D centres has accelerated India's integration in the global research system. In 2014 India had a research intensity of 0.85 % of GDP, contributing to 2.7% of the total global R&D spending. Only a third of the Indian investment in R&D is from the private sector. More than half of it relates to defence, space and nuclear sectors. EU-India cooperation in several areas of R&I is increasing the ability of both sides to tackle global challenges more effectively.

### **2. Priorities for S&T cooperation**

At the 2015 EU-India Joint Steering Committee meeting both sides agreed to continue and explore cooperation in the following areas: health, water, energy, smart cities, food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy, nanotechnologies, and advanced materials. These areas are in line with the political priorities provided by the EU-India Summit held in Brussels on 30 March 2016. On that occasion, the EU-India Agenda for Action 2020 was adopted and a number of joint declarations made, notably on an India-EU Water Partnership and on a Clean Energy and Climate Partnership. On the bioeconomy area, India has been invited to become a member of the International Bioeconomy Forum which would create a multilateral platform for discussion and action on the bioeconomy and which will be established in the second half of 2016.

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26 <http://www.natureindex.com/pdf/news/indian-science-ascending.pdf>

27 <http://www.nature.com/news/india-by-the-numbers-1.17519>

The EU and India cooperate well in the framework of the Global Alliance for Chronic Diseases (GACD). Since the EU joined (India was already a member), calls have been launched in areas such as type 2 diabetes and lung diseases. The next planned call is in the area of mental health. The EU encouraged Indian participation in health research within multi-lateral platforms such as the Global Research Collaboration for Infectious Disease Preparedness and the International Initiative for Traumatic Brain Injury. An important interlocutor on health research is the Department of Biotechnology (DBT), which is willing to cooperate on anti-microbial resistance including the Joint Programming Initiative on Anti-Microbial Resistance<sup>28</sup>. Reinforced cooperation in the area of Global Health is also envisaged as announced at the EU-India Summit of March 2016.

On fusion cooperation, both sides agreed at the second Euratom-India Coordinating Committee meeting, to share knowledge and understanding of the respective fusion programmes and strategic roadmaps, with ITER constituting the main benchmark for both parties. A main area of cooperation is the potential India partnership in the Joint European Torus (JET) programme. The two sides agreed to establish a bilateral 'Task Force on the JET ELM coils project'. The mapping of bilateral collaborative activities between European and Indian labs is ongoing.

Negotiations are also ongoing to allow India to join the Joint Programming Initiative on Water<sup>29</sup> which is one of the important areas of cooperation between the EU and India and would contribute to the India-EU Water Partnership mentioned above. India is a region where there are significant prospects for Concentrated Solar Power (CSP). Deployment and research cooperation activities can target specific applications, for example small-size CSP installations for rural areas.

In the field of ICT, the areas of cloud computing, high performance computing, language technologies, Internet of Things and e-infrastructures were identified as potentially promising areas for cooperation in the last meeting of the Joint ICT Working Group of January 2015.

### **3. Framework Conditions**

Framework conditions for cooperation in research and innovation between the EU and India are relatively satisfactory. However, the Indian patent regime should be strengthened; the complex legal framework simplified; and doing business made more transparent. R&I cooperation potential is also inhibited by procedural delays and capacity constraints in certain government departments.

To support the participation of entities established in India in Horizon 2020 collaborative projects, a co-funding mechanism has been agreed with the DBT<sup>30</sup>. The mechanism covers all areas related to biotechnology: health, agriculture, food security, bioeconomy and bioenergy. A similar mechanism is being negotiated with the Department of Science and Technology and the Department of Electronics and Information Technology.

Discussion with Indian authorities will be pursued to improve framework conditions for innovation, to promote the opening of Indian R&I programmes to EU researchers and to simplify administrative procedures.

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28 <http://www.jpiamr.eu/>

29 <http://www.waterjpi.eu/>

30 <http://www.dbtindia.nic.in/wp-content/uploads/DBT-EUcallsunderH2020-.pdf>