

INDIA-EUROPEAN UNION PARTNERSHIPS FOR **SUSTAINABILITY, CLEAN ENERGY & CLIMATE ACTION**



The European Union and India are working closely together on sustainable development, clean energy and climate action. At different High-Level summits, the European Union and India leaders agreed on the need for further deepening cooperation on these important challenges.



WATER

With 2.45% of the earth’s land area, India has 17.5% of the world’s total population. Rainfall, though abundant, is concentrated in a few weeks and leads to large run-offs. There is growing reliance on groundwater (65% for irrigation and 85% for drinking water), leading to falling water tables and increased competition between users. With less than 40% of wastewater in towns connected to a municipal sewage system, water pollution is leading to increasing illnesses and declining environmental quality.

An India- European Union Water Partnership was agreed at the 2016 Summit and followed up with a Memorandum of Understanding which was signed in October 2016 in New Delhi by EU Commissioner for Environment, Karmenu Vella and India’s Minister for Water Resources, River Development & Ganga Rejuvenation, Uma Bharti. The Partnership foresees cooperation in water law and governance; promotion of research, innovation and exchange of business solutions, and joint initiatives to rejuvenate the iconic Ganga river and India’s other water bodies by bringing together a wide community of stakeholders on both sides.



Minister Uma Bharti and EU Commissioner for Environment Karmenu Vella

Implementation of the India – EU Water Partnership is well under way with the organisation of technical exchanges & workshops, annual water Fora and the creation of business and networking opportunities.

The agreed priorities are: Sustainable River Basin Management, Environmental Flows , Ganga Rejuvenation, Groundwater Use & Recharge, Water Use in Irrigation, Solar Pumping for Irrigation, Capacity Building, Reuse of wastewater & Research, Innovation, Technology.

Research, Development and Innovation are needed to overcome complex and new challenges. Several research, development and innovation projects have already been carried out between the EU and India. A Joint EU-India call for Research and innovation under the Horizon 2020 Programme was launched in November 2017.

The first five successful projects will start on 1 February 2019 and a kick-off meeting will be organised in New Delhi mid-February. Two more projects will be granted, with starting date in Spring 2019. In total, about 135 partners are involved in the selected projects, both from public and private sector.

Sustainable and integrated water resource management in India:

From 2007 to 2015, the EU provided € 70 million. (INR 5 billion approx.) in development assistance through the Rajasthan State Partnership Programme (SPP). The Programme focused on state-wide water sector reforms leading to sustainable and integrated water resource management (IWRM) in eleven districts. Panchayat-based action plans were prepared for 3200 villages in 82



Water scarcity is a fact of life



Vltava river in Prague

European Water Framework Directive (WFD) improving water management.

Europe has achieved considerable success in managing its waters based on the Water Framework Directive (WFD). Adopted in the year 2000, the Directive bases the management of water according to river basins, 40 of them international, rather than on administrative or political divisions. EU Member States prepare River Basin Management Plans with the objective of reaching good chemical and ecological status – stringently defined by common standards – before a given deadline. This method has been very successful in improving water quality in the last 15 years. In order to address the challenges in a cooperative and coordinated way, the Member States, Norway and the European Commission have agreed on a Common Implementation Strategy (CIS) for the Water Framework Directive. This has helped to implement the directive, creating *new implementation tools, and proposing solutions* based on previous experience. This model is being shared with Indian stakeholders.

blocks; communities and panchayats have strengthened capacities to manage equitable access to safe and sustainable water and conserve and replenish ground water supply. Important legislation regarding water policy on IWRM in 2010 and a Water Regulatory Act in 2013 have been introduced in Rajasthan as a result of the SPP. The Government of Rajasthan has incorporated principles of IWRM in its water self-sufficiency movement (*Jal Swavlamban Abhiyan*) across the state and in regulation through the enactment of the Rajasthan River Basin and Water Resources Regulatory Act.



CLEAN ENERGY AND CLIMATE CHANGE



Under the India - EU Clean Energy and Climate Partnership, the European Union and Indian are closely cooperating on ensuring affordable, clean and secure energy and on climate action. The cooperation focuses on the promotion of renewable energy, including offshore wind and solar power, energy efficiency, smart grids and implementation of the Paris Agreement.



Offshore wind energy has potential in India

At the EU-India Summit in 2016 an **India- European Union Clean Energy and Climate Partnership** was announced with the aim of reinforcing cooperation on clean energy and the implementation of the Paris Agreement by strengthening joint activities for deployment of climate friendly energy sources, including solar and wind energy. At the EU-India Summit in 2017 this commitment was re-emphasised. The EU supports a wide range of initiatives to further enhance India's potential to deploy low carbon energy production and improve energy efficiency, thereby contributing to the mitigation of global climate change.

The EU strongly supports India's **off-shore wind development**: the FOWIND (Facilitating Offshore Wind in India) project (€ 4 mn.) has carried out resource mapping, policy guidance and capacity building measures to assess the potential for the Offshore wind sector in India. This project is being followed up by FOWPI, the First Offshore Wind Project in India (€2,3 mn.) to develop designs and

technical studies for a 200 MW offshore windfarm off the coast of Gujarat in order to prepare it for bidding.

The EU supports, in cooperation with the Bureau of Energy Efficiency, the States of Maharashtra, Madhya Pradesh, Bihar and Odisha with the **implementation of the codes for energy efficiency in commercial buildings** (€ 1,4 mn). The project is providing technical assistance to set up the legislation and procedures for implementation of the ECBC scheme in those states, as well as developing a certification mechanism and a monitoring and verification framework. It also supports BEE in setting up a national ECBC forum as well as four regional fora, and includes the energy efficient design of 2 buildings in every State, to ensure its compliance with the ECBC codes.

India's Solar Park Programme receives EU assistance to enable integration of solar energy into the electricity grid in a designated green energy corridor. This project of



Indian team at solar park in Spain

technical cooperation (€ 1,7 million) aims at enhancing India's capacity to deploy low carbon energy production, thereby contributing to the mitigation of global climate change. Concretely, the project is developing, in cooperation with the Ministry of New and Renewable Energy and the National Institute for Solar Energy (NISE), a set of operations and maintenance manuals for solar parks, a tool to monitor and forecast solar park production as well as technical assistance and capacity building to enhance the planning, development and operations of solar parks throughout India.

The EU has established a **Roof-Top solar cell in the Ministry of New and Renewable Energy** (EUR 1 million; ca INR 70 million), assisting in the roll out of India's roof-top solar programme, by promoting the exchange of best practices implementing policies as well as implementing and enforcing existing regulations and developing scalable models for wider dissemination.

EU-India Smart grid cooperation is being developed with workshops organised with members of the Indian Smart Grid Forum in inter alia Nice, Vienna, Bornholm Denmark and Florence. At the third Edition of India Smart Grid Week (ISGW) in 2017, which was supported by the EU, the European Union and the India Smart Grid Forum co-organized an EU – India workshop to discuss exchange of best practices in the roll out of smart meters and business models for Distribution System Operators/Utilities in the smart grid era.

The EU supported the development of the digital platform "Infopedia" for the **International Solar Alliance** spearheaded by India and signed on 30 November 2015 in Paris. During COP24 in Katowice the EU and the ISA signed a joint declaration on cooperation on promotion of solar energy.

The **EU-India Climate Change Dialogue and Partnership** aimed to facilitate and foster cooperation in addressing the climate-change-related challenges that India faces.

Several Speaker Events have been organized – including at RE EXPO in 2018 - involving bilateral organisations, academicians, practitioners, researchers, and representatives from private companies to discuss how best to integrate experiences with technology and policy innovation in India and the EU to support clean energy and the implementation of the NDCs.

A conference on the **"Implementing the Kigali Amendment to Montreal Protocol in India "** took place in 2017. The aim of the Green Cooling conference was to discuss sustainable solutions for the rapidly growing air-conditioning and cold-chain sector in India through an EU-India dialogue on successful policy, technical and financial solutions to help tackle the use of HFCs (Hydroflourocarbons) in the Indian cold chain sector.

URBANISATION

It is estimated that by the year 2050, the number of people living in Indian cities will touch 843 million. Globally, it is expected that 60% of the world's people will be living in towns and cities in the next 10 years, creating opportunities for the efficient provision of services of energy, transport, waste management, health and education. At the same time, there are challenges of rural to urban migration (10 million per year in India) and overcrowding, pollution, and inadequate supply of these very same services on account of costs, prices, technical constraints and administrative issues. India's government has taken up the challenge by launching the 100 Smart Cities Mission and the AMRUT programmes. These will develop public transport, sewerage, water supply and public green spaces.

The European Union has responded to India's urbanisation challenge with a number of initiatives:

At the India-EU Summit in October 2017, the two sides agreed on a Joint Declaration on Partnership for Smart and Sustainable Urban Development which will contribute to Indian flagship programmes such as Swachh Bharat, the 100 Smart Cities Mission and AMRUT. It will address the challenges of governance and regulation, infrastructure funding, sustainable transport, resource efficiency and waste management, and air quality and will comprise converging initiatives in joint research, policy dialogue, exchange of best practices, the setting up of platforms for business solutions and looks at financing models for sustainable urban development.

The partnership brings together all relevant stakeholders: European and Indian institutions, EU member states and Indian states, businesses and civil society. The reason for designing the Partnership like this is our firm belief that all both public and private stakeholders need to pull their weight to achieve the goals we have set ourselves.

The **EU-Mumbai Partnership** launched in 2013, has looked at innovative solutions to the challenges faced by a megacity and has led to dialogue on all major sectors during 3 years. The partnership has also established solid ties between the EU and Mumbai/Maharashtra – a State that covers approx. 9% of Indian territory and population, and whose GDP is approx. 13% of India's GDP.

Under the EU's **World Cities Programme** experts from Pune, Chandigarh, Mumbai and Navi Mumbai have teamed up with European cities Stuttgart, Lazio and Copenhagen to develop sustainable projects.

The **Ecocities** project, with a € 9 mn. contribution from the EU out of an estimated total cost of € 12 mn., is implemented



World Cities Conference, Mumbai

by the IFC, in Bangalore, Bhubaneswar, Chennai, Jamshedpur and Mumbai. It aims at developing increased use of renewable energies. It promotes clean technology and energy efficiency in the delivery of municipal services, new building construction markets and SME clusters/supply chains; and the replacement of ageing infrastructure by involving the private sector through public private partnerships and other funding mechanisms. The project also catalyses the green building market by promoting resource efficiency.

A Technical Assistance project, promotes the exchange of best practices in **Sewage treatment and solid waste management in the cities of Mumbai and Delhi**.

The European Union is working with several **Urban Local Bodies** in India to promote integrated urban management actions and improve basic municipal services such as water, sanitation and solid waste management in Raisen, Burhanpur, in Madhya Pradesh; Kishangarh and Jaisalmer, in Rajasthan; and Solapur, Pune and Ichalkaranji, in Maharashtra.

Participatory governance approaches are promoted with the support of the EU in Ahmedabad, Karnal, Jabalpur and Warangal by strengthening the capacity of municipal staff to develop decentralised waste management systems. The All India Institute of Local Self Government (AIIISG) in Nagpur is trying to promote equity in municipal services delivery through the establishment of participatory forums where local authorities can engage in collaborative solutions with relevant stakeholders.

The International Urban Cooperation: Sustainable and Innovative Cities and Regions, launched on 26th April 2017 and to be implemented over the next 3 years, will generalise these results and make them available for other Indian cities. The IUC India programme is part of the worldwide IUC programme and operates in the framework of all the main international urban and climate agendas. It comprises of two components: a) 12 city-to-city pairings of Indian and EU cities for the definition of Local Action Plans in various urban sustainable development fields and b) a sustainable energy and climate mitigation and adaptation programme integrated into the Global Covenant of Mayors movement in the EU and elsewhere. Cities of the programme will be able to contribute to the achievement of India's climate change commitments, and exchange/transfer know-how and capacities with EU cities in the fields of urban sustainable development, energy efficiency and climate action, by accessing the EU market of sustainable innovations and best practices and funding sources/schemes/programmes for implementation of climate actions.

CIRCULAR ECONOMY

While India's material consumption per capita is lower than that of other major economies, it is projected to rise substantially. The waste burden, already evident, will increase. Delhi, for example, produces 8,400 tonnes per day, which it is finding difficult to handle.

The EU-India Resource Efficiency Initiative (EU-REI), funded by the EU and being implemented together with the Indian Ministry for Environment, Forestry and Climate Change (MoEFCC) and Niti Aayog, was launched in 2017 to support India in developing strategies for resource efficiency in transport, buildings, renewable energy, waste recovery and other sectors by promoting partnerships between businesses, NGOs and academia.

The project created a dialogue on the need for resource efficient approaches in India among key government and non-governmental organisations, businesses, students, media and the general public. Resource efficiency standards and business best practices are key in the transition, and the EU-REI has examined the opportunities in the different sectors.

The EU Delegation to India along with NITI Aayog released a Resource Efficiency Strategy and Action Plan, in 2017 on the implementation of cross-cutting policy instruments. The EU-REI also supports the MoEFCC's Resource Efficiency Cell, formed in March 2018. The EU-REI project also supports development of Strategies in Telangana, Goa and Odisha, and the monitoring and evaluation of the Ministry of Electronics and Information Technology (MeitY) programme on Awareness Creation.

As part of the REI, EU Commissioner Karmenu Vella led a high-level delegation of over 80 delegates representing 16 EU Member States to India on a Circular Economy mission in September 2018. The delegation engaged with the ministries of the Indian government and over 300 businesses, entrepreneurs and NGOs. Several new business partnerships were formed during the mission.

The EU's **'SWITCH Asia'** programme has worked since 2007 to encourage sustainable growth with low environmental impact, in cooperation with European retailers, producers and consumer organisations and financial institutions. Sixteen projects are implemented in India so far.



Studying waste management solutions in Sweden

CLEAN AIR

India's recent growth and development has been spectacular. The country is in the midst of a massive wave of urbanization as some 10 million people move to towns and cities each year. However, severe pollution, including air pollution is generated due to the increased traffic, construction and heating with biomass and burning of various forms of waste without control of emissions. India has now a growing number of cities facing ambient air pollution, and the population is directly affected.



Air pollution is a serious health hazard

The EU has launched an Air Quality Initiative with the overall objective of a) assisting India in understanding its air quality management needs; b) making available the EU's know-how on air quality (political, regulatory, technical, economic); and c) partnering with India to address air pollution by developing a national strategy for ambient air pollution, especially in urban settings. Action has so far focussed on 3 Indian cities suffering from 3 different combinations of air pollution causes. During the next phase efforts will be implemented to spread the lessons learned throughout the country.

FINANCING OF PROJECTS

India has set numerous and ambitious goals in climate action, such as the objective to implement 100GW of solar power by 2022, or its Smart Cities objective to renew and upgrade 100 cities across India. Financing this ambition, cannot come only from public resources, whose role is necessarily catalytic. An estimated €95 bn. will be required for solar alone, whilst scaling up Smart Cities investment will require many multiples of this amount.

Blending operations

Under the Asia Investment Facility (AIF), two projects are being implemented in cooperation with the Agence Française de Développement (AFD). The AIF provides € 15.65 mn while the AFD contribution amounts to € 230 mn. Both projects run between 2016 and 2021. One project aims to support the development of green housing in India and thus to diminish the negative impacts of housing on the environment. The project has a financial and a technical component to foster sustainable investments and to provide support in elaborating and implementing green housing schemes. The other project supports the reduction of greenhouse gas emissions from urban transport through the implementation of urban mobility plans in Nagpur, Kochi and Ahmedabad.

EIB

The European Investment Bank (EIB), as the Bank of the European Union, invests in clean energy, sustainable development and climate related projects, both inside the EU and outside, and specifically in India. The EIB derives its funding almost entirely from the international capital markets and catalyses further private sector investment by innovating and sharing risk, co-financing, where appropriate, with private sector on climate-action and SDG related projects throughout South Asia.

As an example, the Global Energy Efficiency and Renewable Energy Fund (GEEREF) is managed by the EIB to operate as a 'layered-risk' fund of funds. It invests in the kinds of deals that medium-sized pension funds tend to shun: hydroelectric projects in the Philippines, Indian solar power, or geothermal plants in Ethiopia. GEEREF has a €112 mn. investment from Norway, Germany, the EU and EIB's own funds, which it uses to partially offset the risk to private investors by assigning first losses to the public money and a preferential return to the private money. The fund raised €110 mn. from private investors on the back of that de-risking strategy. Most of that probably would never have been invested in climate action in developing countries without GEEREF.

For more than 25 years now, the EIB has supported long-term investment across India. Following commitments made at the EU-India Summit in 2016, the EIB opened its Regional Representation for South Asia in New Delhi on March 31st, 2017, hosted within the offices of the Delegation of the European Union. At the formal opening of the office in presence of the EIB President Werner Hoyer and Finance Minister Arun Jaitley, new contracts totalling €450 million were signed for sustainable urban transport and renewable energy investment in India.



The EIB finances many wind energy projects

With a portfolio in India of over €2.2bn mainly in the areas of infrastructure, energy and climate change projects, the EIB finances many wind and solar projects and public transport. Most recently, the EIB signed an agreement with the Government of India for a loan of € 500 mn. for the metro project at Bangalore. This has just been followed up with a further €200 mn. loan to the Yes Bank to support investments in solar power by major Indian corporates. Earlier the EIB signed and is now disbursing €450 mn for the construction of a new 23 km first metro line in Lucknow, and the related purchase of 80 metro cars.

Highlights over the past two years include some €640 million of investment in Indian solar, supporting the construction 1.6 GW of renewable energy and providing more than 4 million households with clean, affordable energy, saving an estimated 4 million tonnes of CO₂.

And last year the EIB as the largest lender of renewables worldwide signed an MoU with the International Solar Alliance ISA, committing to provide low cost, blended (risk sharing) financing, crowding in of private sector finance, technical expertise and technology transfer to solar projects in those countries of common engagement.

Given the EIB's role in the development of offshore wind in the EU since the very first projects, the EIB is already working closely with Indian and international stakeholders to examine options for shaping the investment required to kick-start a sector which is potentially strategic both regionally and increasingly globally.

Furthermore the EIB is working with the ISA to set up an Off-grid Solar Finance Platform to address the financing needs of off-grid solar entrepreneurs in rural communities across the ISA's countries of operation, blending low cost, long tenor finance with blended grants for both technical assistance and risk mitigation.