EU-India cooperation: *Driving sustainability*

THE EU-India relationship has equally changed from a more traditional development approach to mutually beneficial cooperation. From 2014 onwards, the EU has discontinued direct bilateral aid to middle income countries such as India, even though thematic cooperation with civil society organisations as well as support to regional activities will continue.

Instead, it is engaging with India as a strategic partner, investing in key areas of cooperation between the two, such as promoting investment and energy security. This is also reflected in the examples of the work the EU does with India. Other areas of cooperation include support for education and skills, and engagement with civil society. Strategic support regarding the external dimension of EU policies and key sectors such as environment and climate change will in future continue through the so called 'partnership instrument'.

SUPPORTING CLEAN ENERGY

The EU-India policy dialogue on energy has been on-going for more than 10 years now and much has been achieved in areas like Indian coal quality management, modernisation and renovation of existing power plants, application of eco-design and greater use of biofuels and renewables.

ENERGY EFFICIENCY

The EU and the Bureau of Energy Efficiency (BEE) are developing a project to plan and implement energy efficiency improvements in commercial buildings. The EU has lent support to BEE in training and capacity augmentation in the past, and has now expressed interest in working in four states across the country namely, Orissa, Bihar, Madhya Pradesh and Maharashtra. To kick-start this initiative, a memorandum of understanding will be signed between the EU and the governments of the states concerned.

RENEWABLE ENERGY

Under the EU-India Joint Declaration on Energy Cooperation, officials from the two sides held the first Renewable Energy Joint Working Group on 7th May, 2015. The JWG focused primarily on – research and development in new technologies in the PV solar and in biomass sectors.

The JWG will also cover recent developments in the renewables policy in EU and India, offshore wind supported by ongoing EU projects like FOWIND, and areas of further future cooperation.

Cooperation projects include one on clean energy,— the €5 mn. 'Facilitating off-shore wind in India (FOWIND)' project, which supports the implementation of offshore wind turbines from this year onwards. In addition, €8 mn (Rs 56 crore approximately) have been committed to a pilot solar-biomass hybrid plant for setting up a 3 megawatt solar thermal and biomass hybrid power plant in Bihar.

PARTNERS FOR A HEALTHY ENVIRONMENT

Resource efficiency, recycling and waste management were the major themes of the 7th European Union-India Environment Forum that took place in New Delhi on February, 25, 2015. Ambassador Cravinho observed that 'the new Indian Government and the new Commission offer an opportunity for giving momentum to resource efficiency and better waste management in India'. The EU's Director for International Environment Timo Makela underlined that "the EU had made enormous strides in resource and waste management and that India could use these examples and implement them to suit Indian needs".

Bilateral interest focused on the objective of developing a circular economy – one in which waste materials from one sector could become raw material resources for another. The Forum was followed up with a conference on February 26: Meeting India's Environmental Challenges, where best practices were shared from waste and water projects financed in the framework of EU-India Cooperation.

RESOURCE EFFICIENCY INITIATIVE

India, one of the fastest growing economies of the last decade, has been witness to a radical development paradigm not unlike other emerging economies. With 1.2 billion people today, India is predicted to become the most highly populated country in the world by 2025. Furthermore, India has changed from being a net material exporter to net importer. Import growth is dominated by fossil fuels and metals. Moreover, the demand for materials will continue to increase given high anticipated future growth in GDP from $1.4 trillion in 2010 to $5 trillion in 2020, and higher expected rates of population growth and urbanisation. Based on recent calculations, India's demand for resources will increase from 5 billion to 15 billion tonnes by 2030 and to 27 billion tonnes by 2050. India will, therefore, have the largest material consumption share in the world (17 per cent) by 2050.

In a proposed partnership with India on Resource Efficiency, the EU has offered to support the development of a long-term framework for actions in many policy areas, supporting policy agendas for climate change, energy, transport, industry, raw materials, waste, soil, land, agriculture, water and biodiversity. The action will bring European stakeholders active in resource efficiency initiatives (including designers, producers, recycling industries, local and national authorities, NGOs and other stakeholders) into partnerships that would provide green economy solutions to India.

ROAD TO PARIS: MEETING THE CHALLENGE OF CLIMATE CHANGE

At the Paris summit in December 2015, 196 countries will meet to sign a new climate change agreement. Progress in combating climate change cannot be achieved without the full participation of India. There is unequivocal evidence that the Earth's climate is changing. By 2012, the average global surface temperature was 0.85°C higher than in 1880, and each of the past three decades has been warmer than any preceding decade since records began in 1850.

Preventing global warming from exceeding this threshold of 2°C is both technologically feasible and economically affordable if the world takes strong action in the near future. Building a low-carbon global economy will create new sources of economic growth and jobs, strengthen energy security, and save money by reducing our dependence on fossil fuel imports and by cutting air pollution and its associated costs.

One of the key priorities of the Juncker Commission is to reform and reorganise Europe's energy policy into a new resilient European Energy Union with a forward-looking climate change policy. The overall line on domestic policy of the Juncker Commission is defined by the 2030 climate and energy targets: reducing EU domestic greenhouse gas emissions by at least 40 per cent below the 1990 level; the share of renewable energy to at least 27 per cent of the EU's energy consumption; increasing energy efficiency by at least 27 per cent.

These actions are spurring innovation in clean technologies, creating sustainable sources of economic growth and jobs. It is estimated that the number of "green" jobs in the EU increased from 3 million to 4.2 million between 2002 and 2011, including by 20 per cent during the recession years. By 2030, the EU domestic greenhouse gas emissions should be reduced by at least 40 per cent compared to the 1990 level. In addition, targets for 2030 were set to increase the share of renewable energy to at least 27 per cent, and increase energy efficiency by at least 27 per cent. As for the long term, Europe aims to reduce its emissions to 80-95 per cent below 1990 levels by 2050.

The EU and a number of member states announced voluntary climate finance contributions to developing countries, adding up to €5.5 billion in 2013. The EU plans to commit up to €14 billion in grants from the EU budget and the European Development Fund (EDF) over the years 2014-2020 to support climate action in partner countries outside the EU, in line with the goal of investing at least 20 per cent of the EU's budget in climate-relevant actions during 2014-2020. It will establish a Green Climate Fund; provide support for developing countries' efforts to adapt to climate change; launch action to combat tropical deforestation and forest degradation (estimated to account for some 15 per cent of world GHG emissions); and promote greater international cooperation in the development and transfer of innovative technologies.

SOLAR BIOMASS HYBRID POWER

THIS clean energy project, titled SCOPE BIG (Scalable CSP Optimised Power Plant Engineered with Biomass Integrated Gasification) is being set-up in Dehri, in Rohtas district in Bihar. Although designated 'backward', this area has abundant water supply and fertile soil, but a shortfall in energy.

India has a challenging energy situation with a chronic shortfall in electricity production. The national strategy response includes a 100,000 MW solar energy target by 2022 to be met, in equal part, by solar thermal - also known as Concentrated Solar Power (CSP) - and solar photovoltaic energy (SPV). Large CSP projects (50 MW+) are finding it difficult to raise finance. Moreover, they need 7.5 acres of land and 4 cu. ms. of water for every MW of capacity. Where land is available in large arid tracts, water is relatively scarce; and where water is available the land is suited to agriculture and therefore has a high opportunity cost. On the other hand, CSP is easy to store and feed into the grid. The purpose of the present project will be to demonstrate the viability of CSP-biomass hybrid plants at a smaller scale.

The project will be implemented from October 2013 to October 2018. It is being implemented by a consortium of Indian and EU organisations. The consortium is headed by Centre for Study of Science, Technology and Policy (CSTEP), Bangalore, and their partners include: Thermax Limited, Bihar State Power Generation Company Limited (BSPGCL), Energy Research Centre of the Netherlands (ECN); and Centre National de la Recherche Scientifique. Institut de Combustion Aérothermique Réactivité et Environnement ICARE-CNRS, France. While CSTEP will contribute economic analysis, the low-cost medium temperature solar collectors are being developed by Thermax with Frauenhofer Germany and are in operation in Maharashtra and other locations. Contribution to the high-efficiency gasifier technology comes from ECN in the Netherlands and from a 250 KW Department of Science and Technology-sponsored plant built by Thermax in Shive village near Pune. ICARE-CNRS will provide expertise in heat-transfer, while MNRE at the Centre and the BSPGCL at the state level will enable grid offtake, help procure land and give policy support.

By the end of the third year the project is due to be commissioned and it is expected to produce 5.76 mn units (kwh) of electricity per year, thereafter. Studying its operation, partners will make further improvements and suggest how the pilot can be commercialised at large scale over the next two years. Detailed geospatial mapping to estimate biomass and solar potential will be done for several states, including Bihar, Kerala and Maharashtra. An interesting feature of this project will be that chambers of commerce will coordinate industry participation in power equipment whereas panchayats and other local bodies in the project area will be encouraged to participate in selling biomass for the gasifier to ensure its viability. The gasifier is able to take a wide variety of feedstock, allowing huge improvements in efficiency as economies of scale kick in.

SMART CITIES: HABITATS OF THE FUTURE

Europe is engaging with India on sustainable urbanisation and the development of smart cities. India's urban population is only 31 per cent, but cities produce over 60 per cent of India's GDP. India is facing a challenging situation where cities are expected to grow fast and thus, the smart city approach to face these urban dilemmas is crucial.

The European Union has been Partnering with Mumbai on sustainable urbanisation since 2013 when over 40 European city representatives came to Mumbai to address the challenges of urbanisation in Mumbai. From that starting point, specialised workshops were held to discuss water and waste management, energy and integrated transport issues and the challenges of city planning and financing.

Both sides stand to gain. Europe, for example, has substantial experience in public transport, sustainable heritage planning, and solid waste management. India, on the other hand, provides an exciting market for EU technologies and investments. A conference related to sustainable urbanisation in May 2015 will identify concrete initiatives, thus ensuring close relations between EU and Mumbai stakeholders and take cooperation to a level where concrete European solutions and businesses will be brought forward and other cities will be involved.

CLEANING THE GANGA

The Ganga provides drinking water and livelihood to over 400 million people. Although it has spiritual, cultural and religious status for many Indians, poor water quality has negatively impacted health, sustainable economic development, environment protection and economic activity. Prime Minister Narendra Modi has made the rejuvenation of this river a national priority.

In Europe, which had similar problems three decades ago, people can now safely drink tap water and swim in the seas, rivers and lakes. European businesses involved in water management activities have been flourishing for the last decades. EurEau, the association of drinking water and waste water service providers, from both the private and the public sectors, counts some 70,000 water service operators, which employ half a million people. The industry has not only contributed to achieving the objectives set in the European legislation but it has also developed new market opportunities; for example organic fertilisers produced out of treated sewage sludge and phosphorus recovery.

In the year 2000, the European Water Framework Directive (WFD) for the first time put together all the challenges faced by Europe's waters. It does not work in isolation, but builds upon other EU water legislation, including the Drinking Water Directive, the Urban Waste Water Treatment Directive, the Nitrates Directive that tackles water pollution by nitrates from agriculture, and other directives that deal with chemical pollution.

European Water Policy is centred on the management at river basin scale, that is, the natural geographical and hydrological unit that goes beyond administrative boundaries. Sharing of the experience of European Water Policy could be a major contribution by the EU to the current Government's plans to rejuvenate the Ganga.

PROMOTING SUSTAINABLE WATER USE IN INDIA

The European Union has partnered the Government of Rajasthan with a grant of €80 million for implementing state-wide water sector policy reforms leading to sustainable and integrated water resources management in 11 districts and 82 blocks of the semi and arid western regions of the state. Project activities have included restructuring of the state water resources and planning department, institutional development and capacity building of water-related departments and PRIs, as well as the strengthening of the water sector policy action plan. The programme helped the state to design an elaborate sustainable water campaign to raise awareness in the state.

With the active cooperation of NGOs, training has been provided to village health water and sanitation committees/water user groups on integrated water resources management (IWRM). Water management plans have been prepared for 3,182 village panchayats. EU Policy support has resulted in the approval of a state water policy on IWRM, and a Water Regulatory Authority Act. A river basin regulatory bill has been initiated.

SUSTAINABLE PRODUCTION AND CONSUMPTION

The EU launched the 'SWITCH Asia' programme in 2008 to help interested producers, retailers and consumers, as well as supporting associations to switch to a more sustainable way of production and consumption. Ten switch projects are implemented in India at the moment. The projects provide grants to civil society organisations and local administrations to promote adoption of sustainable consumption and production practices by Small and Medium Enterprises.

The sustainability message at the European Commission Headquarters

SWITCH project, ProSustain, making decorations from recycled paper

Europe: A research and innovation powerhouse

THE European Union is one of the leading regions of the world insofar for research and innovation are concerned. It accounts for 24 per cent of world expenditure on research and 32 per cent of high-impact publications, while representing only 7 per cent of the population. The list of last year's Nobel Prize Awardees confirms the vigour of European research.

About 200 Indian organisations participated in the Research Framework Programme 7 (2007-13) funded by the European Union, and about 1,600 individual Indian researchers received the prestigious Marie Curie fellowship offered by the EU. Two water projects are examples of how research is coming to the aid of development (see box).

Five 'coordinated calls for proposals' were organised and funded jointly by the EU and India (€30 MN each). Calls for proposals specifically targeting India have also been launched by the NEW INDIGO Partnership Programme, which supports Indo-European research and networking projects, and is multilaterally funded both by the EU, its member states, and by India. By early 2014, five such calls for proposals had been published. At the end of 2013, NEW INDIGO was replaced by INNO INDIGO (another FP7 ERA-Net), that will run until 2016/17.

The European Research Council (ERC) - one of the components of the large 'Horizon 2020' EU framework Programme - focuses on the funding of fundamental research projects. As an exception to Horizon 2020's classical collaborative projects, ERC project proposals can be submitted by an individual or a team, in any field, and such proposals will be evaluated on the sole basis of their excellence. Indian researchers are fully eligible for participation and for funding under this scheme - indeed 18 of them received such a grant under the previous FP7 (2007-13), whereby India ranked 5th amongst non-EU countries.

In addition, several EU MSs have established joint research centres or similar structures to promote collaboration with India, for instance the Indo-German Science & Technology Centre (IGSTC), the German House for Research and Innovation (DWIH New Delhi), the Indo-French Centre for the Promotion of Advanced Research (CEFIPRA), the UK-India Education and Research Initiative (UKIERI), the Research Councils UK India (RCUK India), the Innovation Centre Denmark in India and many others.

Rapid growth in India has spurred the demand for water, health, energy, ICT infrastructure, and climate change mitigation technologies. Research and innovation are also central to Europe's 2020 strategy for development. It seems likely, therefore, that joint research partnerships between the EU and India will play a major role in the coming decade.

For more information: http://eeas.europa.eu/delegations/india/eu_india/research_innovation/index_en.htm