

Fostering technological change by bilateral cooperation

A multi-pronged technology cooperation policy has been initiated under IKI initiative including demonstration projects, policy advisory and capacity building. *Christoph Blaschke* gives an overview of ongoing cooperation with India with focus on renewable energy and energy efficiency which supports India in the implementation of a progressive climate policy



The International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) has been financing climate and biodiversity projects in developing, newly industrializing countries and in the transition countries since 2008. The IKI supports efforts towards a comprehensive global climate agreement, forms part of the German climate financing, and fosters synergies between climate protection and biodiversity conservation.

Together with the partnering countries new political, economic and regulatory approaches are developed and lighthouse projects and cooperation models implemented. Focusing on solutions that can be widely replicated, the funded concepts are supposed to have a clear multiplier effect. The close political coordination with the partner countries ensures that the IKI projects are developed and tailored to their specific needs.

Important thematic priority within the area of mitigation greenhouse gas emissions

is the technology cooperation in the field of renewables and efficient use of energy. This includes projects that strengthen the investment activity of the private sector and mobilize additional public and private funding in climate-friendly technologies by lowering corresponding investment risks in the partner countries.

●●● CREATING A POLICY FRAMEWORK FOR A STRONG RENEWABLE POWERED ECONOMIC DEVELOPMENT

India's increasing ambition in the deployment of renewable energy gives recognition to the vital role of solar and wind energy in avoiding carbon emissions and is underlined by the increase of medium-term target for solar energy to 100GW. The decision to transform its energy sector by increasing the share of use of renewable energy in electricity generation consistent with its goal of 175GW of renewable energy by 2022, is becoming a significant reference point for

other developing and newly industrializing countries who want to reconcile socio-economic development and the challenges of climate change and environmental stress.

An expanding number of countries recognize that private and industrial investments on a very large scale in solar, wind and efficient use of energy are a prerequisite for the affordable achievement of climate neutral and livable communities, businesses, states and regions, and, at the same time, create vast opportunities for sustainable economic activities. Climate change responses and solutions generate new opportunities and co-benefits by creating jobs, spurring economic development and improving air quality.

The German Energiewende (energy transition) has demonstrated that with courageous enabling regulation and financing frameworks, a combination of demand pull and technology push policies, a virtuous circle of technology investments and that reduction in costs can be unleashed and ultimately lead





to exponential growth rates in the deployment of zero emission technologies. These policies that have been adopted by a number of other European countries caused important shifts of investment flows at global scale, lowering the Levelized Cost of Electricity (LCOE) of solar technologies in many regions to the same level or below that of unsubsidized fossil fuel based electricity generation.

The hope for limiting global warming below 2°C rests to a great extent in a rapid and massive shift of investment flows to solar, wind and efficient use of energy. Investment decisions in solar and wind infrastructure depend largely on a favorable and stable, i.e. risk-mitigating, policy environment as prerequisite for substantial capital availability at modest average cost of capital.

A number of ongoing and past IKI projects support the creation of policy frameworks for a strong solar- and wind-powered economic development by the Indian government in order to create new opportunities for progressive public and private entities.

The ComSolar project is supporting the development of solar energy in both urban and industrial zones by feasibility studies, technology transfer, information campaigns and comprehensive capacity building for the project partners. The Solar Guidelines

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website, launched with support of this project, encourages the rapid expansion of the solar power sector in India by providing information and latest updates on policy and regulatory frameworks, contractual agreements (PPA/PSA) and procedural requirements to project developers and other stakeholders.

Under the SolMap (Solar mapping and monitoring) project the establishment of a comprehensive country-wide solar measurement and monitoring programme has been supported to provide reliable data on solar irradiation and the performance of solar power plants currently in operation. With the installation of monitoring stations for solar radiation at 120 sites it has been build up one of the largest national networks of precision solar radiation measurements worldwide. The Indian Solar Radiation Atlas published in the context of the project will also contribute to IRENA's Global Renewable Energy Atlas.

The I-RE project (Integration of renewable

energies into the Indian electricity system) aims to encourage the broader use of decentralized photovoltaic systems on building rooftops and supports the efforts of the Indian Ministry of New and Renewable Energy (MNRE) in implementing appropriate regulatory and financial frameworks. This includes the analysis of technical requirements of (future) distribution systems and funding mechanisms to increase the proportion of energy from de-central renewable resources.

●● FACILITATING CLIMATE ACTION IMPLEMENTATION BY A MULTIPLICITY OF ENTITIES ON THE GROUND

While adequate regulatory frameworks have to be in place and financing mechanisms have to be established and refined over time, another important aspect of the transformative challenge of the Energiewende has to be addressed. Climate action at the

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required scale has to be implemented by a multiplicity of actors on the ground, contracting authorities and customers, which are supposed to take informed and provident decisions with long-term impact on greenhouse gas emissions. With energy generating and consuming urban infrastructure locking in emissions for decades, public and private institutions need a long term vision and adjust their investment planning accordingly.

In view of the challenges of climate change and – concurrently – the window of opportunity that has been opened by technological change, state and city level entities are confronted with a growing level of complexity and interdependence of their decisions. Cities are among the biggest emitters of greenhouse gases but, at the same time, they are coming ready to act in a leading position as they can tap multiple co-benefits by doing so, from job creation and improved air quality to improved livability in their ambits.

The support of state, regional and city level entities to harness new technologies, policies, financing mechanisms, and economic incentives to build up low carbon sustainable infrastructures can trigger important investment activity and accelerate the necessary change processes decisively, as the experiences from ongoing policy advisory activities under ComSolar project demonstrate. The project supported, for example, Delhi Metro Rail Corporation Ltd. (DMRC) and Karnataka State Cricket Association (KSCA) to integrate rooftop solar energy systems in their infrastructures by providing techno-commercial advisory.

While the first pilot project for DMRC of 500kW capacity has been inaugurated back in August 2014, its success has kicked off a series of new initiatives, which have led to an installed capacity of currently 2.8MW and signed agreements for additional 7MW. Furthermore, DMRC is considering covering their entire

electricity requirements by procuring 500MW solar power through a long-term power purchase agreement with a developer.


The first pilot plant of 400kW for KSCA has been inaugurated on 15 April 2015 on top of the famous M. Chinnaswamy Cricket Stadium in Bangalore. KSCA intends to increase the capacity to the full potential of the roof (1.3MW) and solarize other stadiums owned by them in other cities. The successful implementation of the project has amplified the interest of Sports Authority of India, Ministry of Youth Affairs and Sports along with Ministry of New and Renewable Energy (MNRE) to solarize other stadiums and to encourage all sports authorities in the Indian states to install rooftop solar plants through Solar Energy Corporation of India (SECI).

●● ENHANCING BILATERAL PARTNERSHIP AND COOPERATION ON CLIMATE AND TECHNOLOGY

The successful dual strategy described above, i.e. creating enabling policy and financing frameworks along with specific implementation support for sectoral

entities on the ground, should serve as a model to create new alliances on climate and renewables policies in both countries and intensify cooperation on climate and energy technology issues.

The International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) is prepared to further support India in its effort to develop and deploy renewable, in particular solar, energy technologies and to create attractive framework conditions for progressive public and private sector actors who are ready to invest in the Indian energy transition. German financial institutions are key partners to leverage investment in sustainable renewable energy technologies in India.

The existing and successful dialogue for a of the Indo-German Energy Forum and the Indo-German Environment Forum extensively support sustained partnerships and knowledge-sharing on climate and energy technology issues and foster stronger integration of all actors concerned with bilateral cooperation in this field. 

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