

# »» Project Information

Implemented by:



## Energy Efficiency – India

Setting new standards

India has achieved impressive economic growth rates with an average of 6 % increase in GDP over the last years. Economic growth has, however, also made the country one of the largest energy consumers and emitters of greenhouse gases. To keep up its economic development, while also contributing to climate protection, the country is exploring new avenues for increasing demand-side energy efficiency – for instance in the housing sector.

EUR 50 million interested reduced loan back in 2008. KfW Development Bank back then was entrusted by the Federal Ministry for Economic Cooperation and Development (BMZ) to prepare and implement an efficiency program. For that purpose it drew on its decades of experience from financing energy efficient homes in Germany. The so-called "KfW Efficiency House" label is firmly established in Germany and highly coveted on the real estate market. Only buildings whose energy consumption is 30 to 60 per cent below the standard receive such a label and qualify for the low-interest KfW loans in German.

### Context

In India not only the industrial sector is devouring increasingly more electricity, a lot of which is being generated from coal. The growing Indian middle class is also contributing to the rising demand of energy. In order to satisfy the country's energy needs, created on different levels, India is steadily increasing its generating capacities, for example by expanding renewable energy, among them wind and solar. But there is more to it. The government is also looking for ways to manage and use existing resources more carefully. Just like in Germany, a great potential to save energy is hidden in buildings: better insulated walls, reflective paint and other efficient building technologies can conserve much needful energy.

Until some years ago, however, energy efficiency in buildings has received little attention in India. This has been due to relatively low electricity prices, a nascent market for energy-efficient materials, the lack of efficiency standards for building materials and energy performance of buildings. However that began to change when the issue was first taken up under the Indo-German Financial Cooperation with a commitment for a

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| <b>Project name</b>          | Energy Efficiency in Buildings                                  |
| <b>Commissioned by</b>       | Federal Ministry for Economic Cooperation and Development (BMZ) |
| <b>Country/Region</b>        | India   |
| <b>Lead executing agency</b> | National Housing Bank (NHB)                                     |





Energy saving buildings in India. Source: KfW, photographer: Silke Hermes

### Project approach

In order to set up a similar system in India, KfW initiated a close collaboration between the German “Fraunhofer Institute for Building Physics” and “The Energy and Resource Institute” (TERI) in New Delhi. Together they adapted an existing German calculation model for the energy assessment of buildings to the specific conditions in India. The methodological basis for the tool had already been established in Europe and had contributed to standardising the energy accounting of buildings within the European Union. The tool has then been modified for usage on the subcontinent. It calculates the energy need of buildings as a whole and the potential savings offered by active (such as air conditioning or lighting) and passive (for instance wall insulation) energy efficiency measures based on the specific building design.

KfW extended a credit line of EUR 50 million to the National Housing Bank (NHB), which channels the funds to commercial banks that provide loans for energy efficient homes. New residential buildings are considered energy efficient if they save at least 18 % compared to reference buildings for passive measures alone and at least 30 % if active and passive measures are combined. This clear-cut eligibility criterion depends entirely on the assessment with the Fraunhofer/TERI tool. The overall reduction is important, not so much the measure to achieve it. Buildings that fulfill the criterion receive a certificate and home loans for apartments in these buildings can be refinanced by National Housing Bank.

### Impact

The EUR 50 million has been used to refinance around 2,000 home loans. These homes are located in the first 13 Indian residential projects that were evaluated and optimised regarding their energy performance using the Fraunhofer/TERI tool. The construction projects include large scale developments, in which a total of more than 22,000 residential units are eventually built. All in all, the certified buildings are expected to save approximately 42,000 MWh of electricity a year compared to a reference Indian home. This corresponds to the electricity consumption of more than 50,000 Indian citizens. With the continuous reliance on coal-based power generation, this translates into a reduction of CO<sub>2</sub> of almost 37,000 tons annually.



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