

Building back better brick kilns in Nepal

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Brick production is regarded as one of the most polluting and energy consuming industries.

During the spring of 2015, Nepal was struck by a major earthquake and numerous aftershocks. Along with damaged infrastructure and loss of human lives, brick kilns in the country also suffered heavy damage. Of the 800 kilns in Nepal, 350 were completely or partially affected. Ninety-eight per cent of the brick kilns in the valley were affected. Four brick kiln workers lost their lives as a result of the quakes, and damages to brick kilns are estimated at NPR 112,500,000 (more than USD 1 million).

In responding to this crisis, the International Centre for Integrated Mountain Development (ICIMOD) took it as an opportunity to incorporate better technology while rebuilding destroyed kilns, which will directly reduce emissions. It was also a chance to set standard kiln design guidelines and to introduce earthquake-resistant chimneys. With support from the Climate and Clean Air Coalition (CCAC), the initiative carried out a feasibility study on rebuilding kilns and enhancing their efficiency, which would ultimately contribute to the reduction of black carbon and other emissions.



The Federation of Nepal Brick Industries (FNBI), MinErgy, GreenTech, and Climate and Health Research Network (CHeRN) partnered with ICIMOD in the process of promoting cleaner brick kiln design during reconstruction. Local brick entrepreneurs, engineers, scientists, and architects were key members of the team that developed the design manual. A multistakeholder meeting on ‘Policy and Advocacy for Reforming the Brick Sector’ held in July 2015 informed government officials and other stakeholders about the plan for developing an improved design manual. This helped reduce duplication and encourage others to use the manual in the rebuilding process.

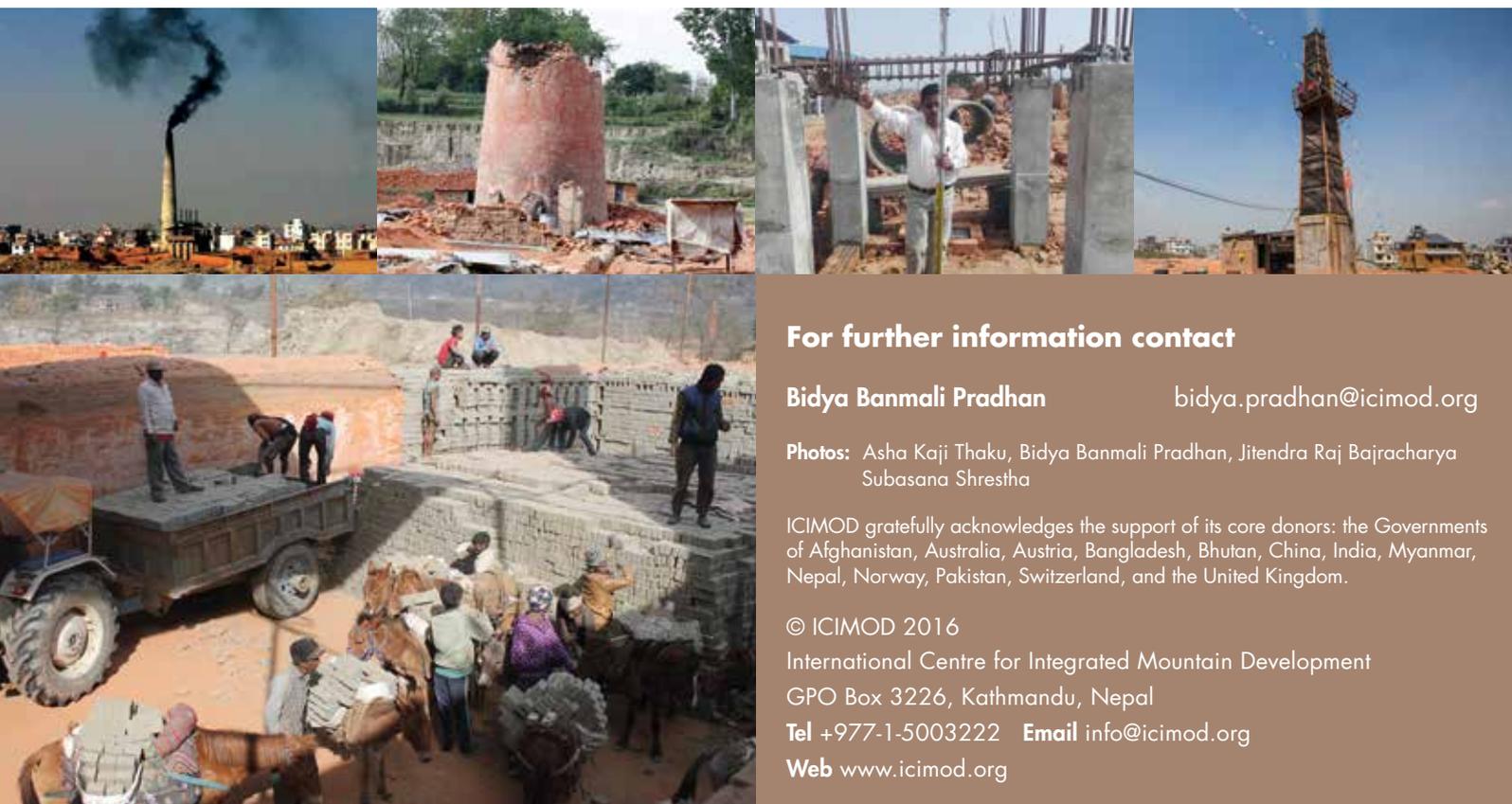
Two manuals – one on natural draught zig zag kilns and one on induced draught zig zag kilns – were prepared and launched in September 2015. The manual suggested modifications in the construction of the kiln’s chimney, duct and shunt, wall structure, floor, and fan.

Constructing kilns using the new design helps ensure they are:

- structurally sound and earthquake resistant;
- energy efficient;
- less polluting compared to traditional brick kilns;
- more worker friendly; and that they
- produce higher quality bricks.

Nine kilns (seven in Kathmandu and one each in Dhulikhel and Dhading) rebuilt using the improved design manual are operational. The owners of these kilns have made the following observations:

- Coal consumption has reduced drastically.
- The new variable frequency drive has allowed more control.
- The quality of the bricks produced has improved.



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