

RESULTS IN 2024 OF ECO-FRIENDLY BRICKS AND DESASTER RESISTANT HOMES MADE BY BUILD UP NEPAL

Since 2015 the social enterprise [Buildup Nepal Engineering](#) provides innovative machines and technology allowing local entrepreneurs to produce eco-friendly earth bricks and earthquake resilient homes in rural areas of Nepal.

The [CSEB – Compressed, Stabilized, Interlocking Earth Bricks](#) are produced in the villages, using local materials (sand, soil) and only 10% cement. They are consolidated by pressing and used as an alternative to fired bricks, allowing to reduce CO2 emissions. These bricks are high-quality and low-cost. The construction technology adopted and transferred to the local enterprises allows to build disaster resistant homes and schools, environmentally friendly and 25% cheaper than current buildings.

[In 2024 Buildup Nepal was one of the Finalists of the Earthshot Prize](#) and the proposal presented to the competition resumes the extraordinary impact results achieved by the organization. In particular they inform that in November 2023, a 6.4 magnitude earthquake struck western Nepal, destroying over 79,000 homes, largely due to unsafe construction methods. However, all the homes built using Buildup Nepal's technology near the epicenter remained undamaged, saving many lives. Building up Nepal measures its impact by the number of houses built (currently 11,000) and the CO₂ emissions saved compared to clay-fired bricks. Each house built with their technology reduces emissions by 9.5 tonnes of CO₂, with total savings reaching around 100,000 tonnes of CO₂e. So far, more than 43,000 people have benefitted from new homes, with 2,232 jobs created by 307 entrepreneurs in 300 villages. Buildup Nepal has also helped build 124 schools and public buildings

In the [Climate Friendly Construction section of the webpage](#) the data illustrating the great advantages for the environment of the building system using CSEB Interlocking Bricks technologies are presented.

The government of Nepal approved in 2017 the CSEB Interlocking Brick technology created by the innovative enterprise. The technology is approved by the Nepalese government's Building Code, make it easier to scale and promote widespread adoption. Since 2015 Build Up Nepal provides driven micro-entrepreneurs with low-cost machines, training and support to establish long-term sustainable construction enterprises. By combining these three aspects, this social enterprise was created to help address the dramatic situation of the country, after the 2015 earthquakes followed by severe flooding that had destroyed more than 800,000 homes, as a support to rural communities that needed skills and appropriate technology to build safe earthquake resilient homes.

The social enterprise was created in Chakupath (Patan Dhoka), and its



team today consists of 24 professionals including managers, engineers, and social mobilisers, all committed to further improving their technology and scaling up the social impact. Build Up Nepal provides local entrepreneurs requiring their support with the following machines and training activities useful to establish sustainable construction enterprises:

Machines and technology

The innovative machines and technology designed and constructed by Build Up Nepal allow to produce with local materials the Compressed Stabilized Interlocking Earth Bricks (CSEB), consolidated by pressing and used as an alternative to fired bricks. The machines are made of quality steel and developed for maximum efficiency, being able to produce at high capacity even in remote areas. In particular [the enterprise provides the following models:](#)

- CSEB Single mould machine. A low cost, easy-to-operate, highly efficient machine suitable for remote locations, with a capacity of 600 bricks per day;
- CSEB Multi mould machine. Suitable for commercial entrepreneurs, allowing to exchange moulds to make pavers and different size of bricks to supply wider market, with a capacity of 800 bricks per day.
- CSEB Hydraulic machines. Suitable for commercial production with a capacity of 1600 bricks per day, operates on 3-phase or single-phase electricity. Moulds can be exchanged to make different size bricks and pavers.

Training for making bricks

Build Up Nepal supports with on-site training the interested enterprises in using the machines for making CSEB bricks using local materials. The training includes all issues and skills to make quality bricks, as soil test and mixing, how the machine operates and its maintenance, efficient production and quality control. The activity also includes a business training for running an efficient local enterprise.

Training for building

Build Up Nepal supports local enterprises to design buildings with CSEB interlocking bricks and at the same time by accompanying them in the construction of the first house or school. The main themes of training concern aspects such as: theoretical principles and disaster resistance, walls and beams (brick laying, beam casting, quality control and all aspects of wall construction), how to build loadbearing structures (design principles of building and guidelines). The activity also includes training of the local enterprise for an efficient production at wide scale and business management.

The following goals are planned by Build UP Nepal for their future work in the country, scaling up the use of their innovative technology:

- Support 600 villages starting micro-construction enterprises to enable low-cost and safe earthquake resilient homes.
- Build 25,000 houses in collaboration with local entrepreneurs and partners.
- Create 6600 long term and qualified jobs in rural areas with focus on women, youth and disadvantaged groups.
- Save 115,000 tons of CO2 emissions by replacing fired brick with eco-friendly Interlocking Bricks.

By the years, [Build Up Nepal has also opened an international level of activities](#). They are working all over Nepal also outside earthquake affected areas and their Interlocking Brick technology has spread to more than 300 villages across Nepal and it is on the way to become a mainstream construction technology in all contexts affected by earthquakes. The technology of the Compressed Stabilized Interlocking



Earth Bricks (CSEB), has already been approved by the governments of Gujarat and Tamil Nadu in India, the government of Thailand, the government of Mexico and the government of New Zealand. The Buildup team is equipped to provide high-quality machines, training and technical support worldwide, helping small enterprises to start production and building with Interlocking Bricks. The main components of interventions and training methods are the same as those adopted in Nepal, adapted to the different contexts. Working with the support of many international organizations, they have already trained more than 300 teams in production with CSEB Interlocking Bricks and 1200 masons in construction in different world countries.

Looking ahead, Build Up Nepal plans to expand into Bangladesh and Pakistan, with interest from communities in India, Pakistan, and Afghanistan. By 2030, they aim to build 100,000 houses, saving around one million tonnes of CO₂e. After that, they plan to expand into India, China, and Africa.

In 2020 Build Up Nepal was one of the innovations winning the [United Nations STI Forum](#) for its work enabling local enterprises to build safe homes, creating jobs and reducing CO₂ over the long-term. In 2020 Build Up Nepal was also recognized as one of the 11 winners of the [International Ashden Awards](#) for backing green building entrepreneurs. In 2020 Build Up Nepal also won the [If Social Impact Prize](#).

The website of Buildup Nepal invites all interested actors [to establish contacts and collaborations](#).

To know more

[Build Up Nepal website](#)

[Build Up Nepal in Facebook](#)

[Build Up Nepal machines and training](#)

[Build Up Nepal projects](#)

[Build Up Nepal in Ashden Awards website](#)

[Build Up Nepal News](#)

[Engineers without Borders Sweden website](#)

[Article in globalcement.com](#)

[Design Catalogue 2016](#)

[Design-Catalogue Volume II](#)

[EarthShot Finalist 2024 -Buildup Nepal](#)

[Article in thetopp.com.au](#)

[Article in ewb-swe.org](#)

