

Technology Fact Sheet for Mitigation

Sector: Industry.

Sub sector: Building

Technology: Compressed Stabilized Earth Blocks (CSEB) ⁱ

A.1 Introduction

A compressed stabilized earth block (CSEB) is a new product, made of soil and stabilizer. The soil, raw or stabilizer, is slightly moistened, poured into a steel press (with or without stabilizer) and then compressed either with a manual or motorized press in the desired shape and size. This technology allows building of thin, water resistance and high walls which have high compression strength. Equipment for CSEB is available from manual to motorized tools ranging from village to semi industry scale

A.2 Technology Characteristics

It is a simple technology that doesn't requires previous skills; efficient training centre can transfer the technology in a week time. CSEB allow unskilled and unemployed people to learn a skill, get a job Since then, the production is made on the site itself or in the nearby area and utilizes local material then transportation chain will be shorter. The technology is more environmentally friendly by using bio-degradable material, parallel it doesn't consume fuel wood as the traditional bricks.

A.3 Country specific/applicability

There is good potential for the stabilizer material in different areas of Sudan. Explained by its technical characteristics the products have low technical performances compared to fired bricks is limited. Since the majority of the family houses in Sudan are single story building then the technology will have social acceptance. According to the local context (materials, labour, equipment, etc.) the final price will vary, but in most of the cases it will be cheaper than fired bricks. Furthermore, it will reduce imports of expensive materials or transport of heavy and costly building materials over long distances.

A.4 Status of technology in country

Different programs for CSEB building had been applied in different states in Sudan and proved to be appropriate and acceptable. The National Centre for Research had modified different types of machine and extended training programs for private sector and organizations (UN-HABITAT). Additionally, different machines had been designed and manufactured locally.

A.5 Barriers

- Lack of awareness among stakeholder and absence s of promotion programs.
- Limited technical know –how
- Proper soil identification is required.

A.6 Benefits to economic/ social and environmental development

- This technology reduced of pollution and GHG emission compared to fired bricks.
- Pollution emission (kg of CO₂ /m²): 2.4 times lower than *wire cut* bricks and 7.9 times lower than *fired bricks*
- Energy consumption (MJ): 4.9 times lower than wire cut bricks; 15.1 lower than fired bricks

A.7 Costs

The main cost factors are distributed as follows: Labour: 20 - 25 % Soil & sand: 20 - 25%
Cement: 40 - 60 % Equipment: 3 - 5 %,

ⁱ **This fact sheet has been extracted from TNA Report – Technology Needs Assessment for Climate Change Mitigation - Sudan. You can access the complete report from the TNA project website <http://tech-action.org/>**