

# Permanent Housing In the Kerala Region of India

## GPS Shelter the World 2019

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### Introduction / Abstract

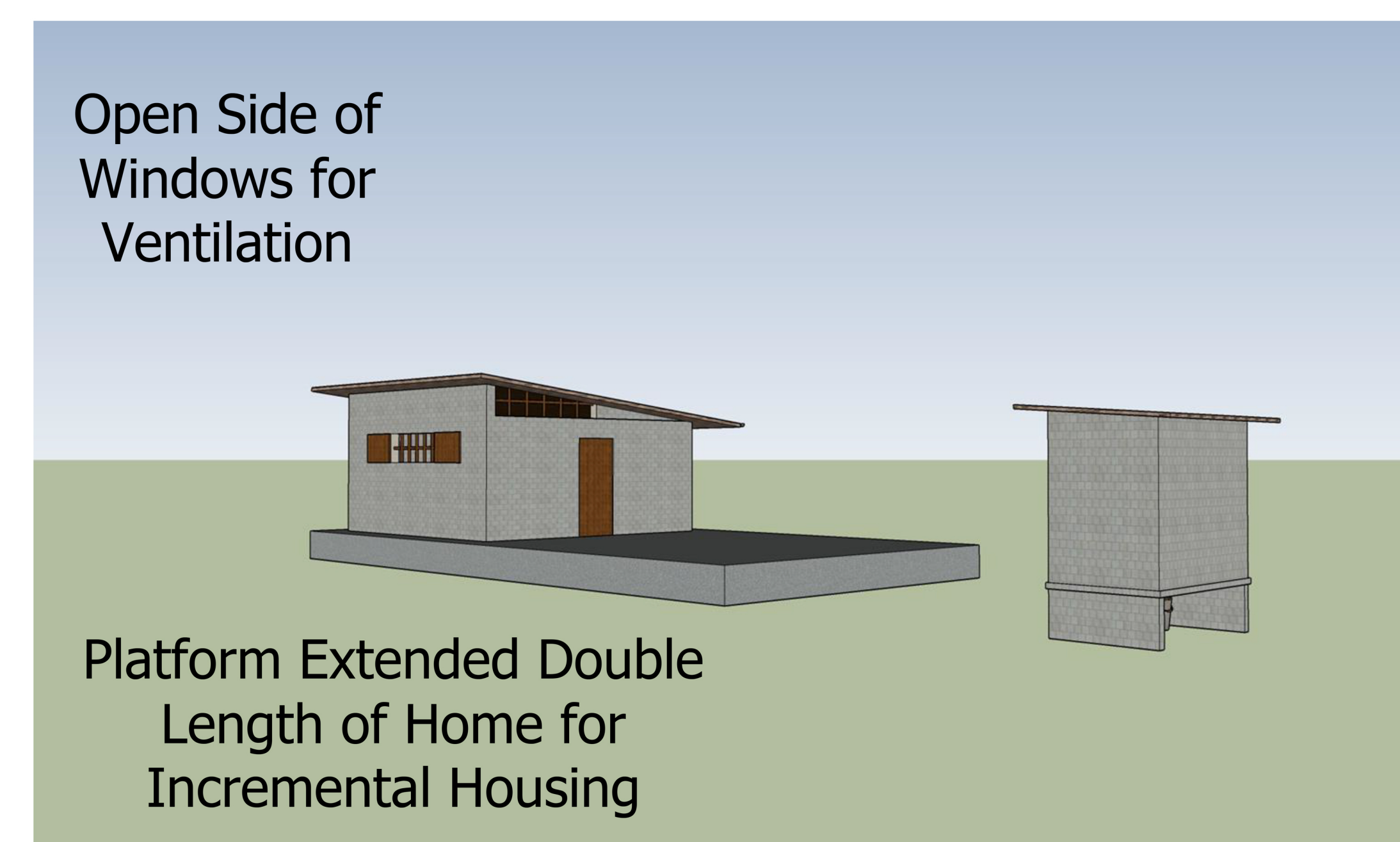
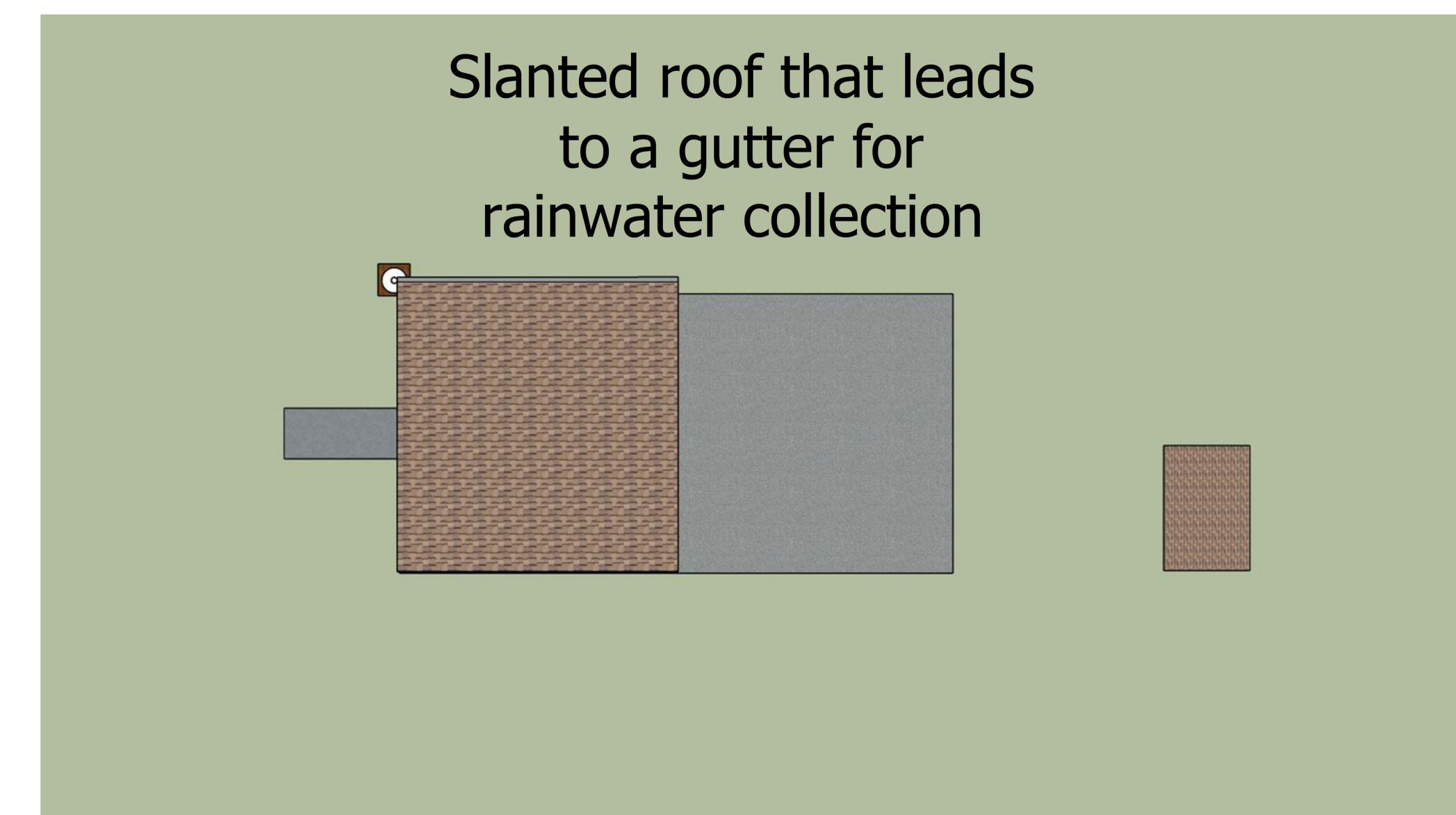
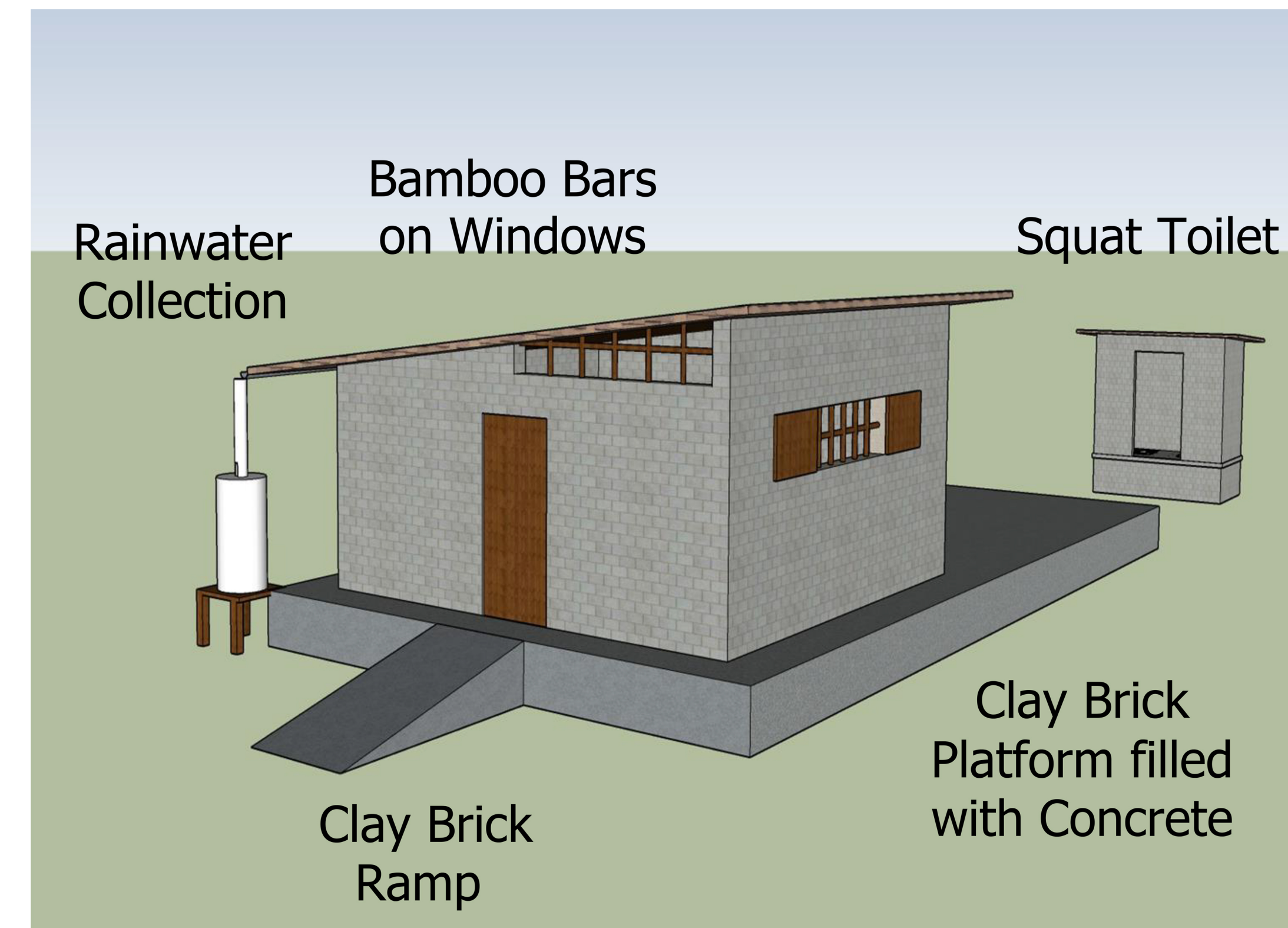
Natural disasters, such as flooding and earthquakes, are frequent in the coastal regions of India. Rural regions experience the most as natural disasters wipe out their villages, homes, and communities

**Our goal** is to design a permanent home for the rural Kerala region of India that can better withstand natural disasters



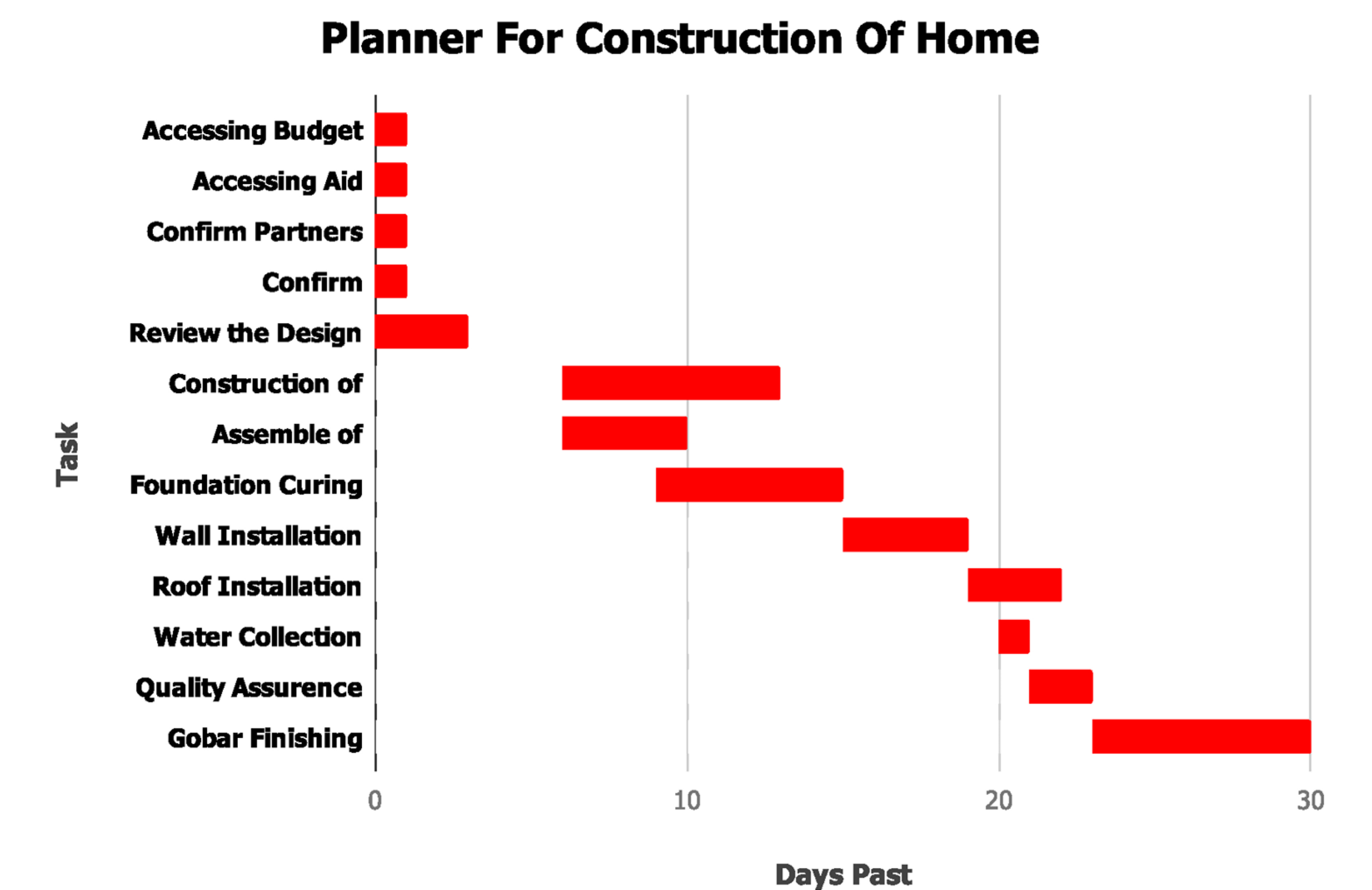
Devastation of the 2018 Kerala floods (left), Overhead view of flooding in 2018 (right)  
Source : REUTERS/SIVARAM V (LEFT) , KAVIYOOR SANTOOSH (RIGHT)

### Our Proposed Design



This design will improve the stability of homes in the area against an earthquake, and provide better protection against flooding with the elevated base

### Construction Schedule



### Materials

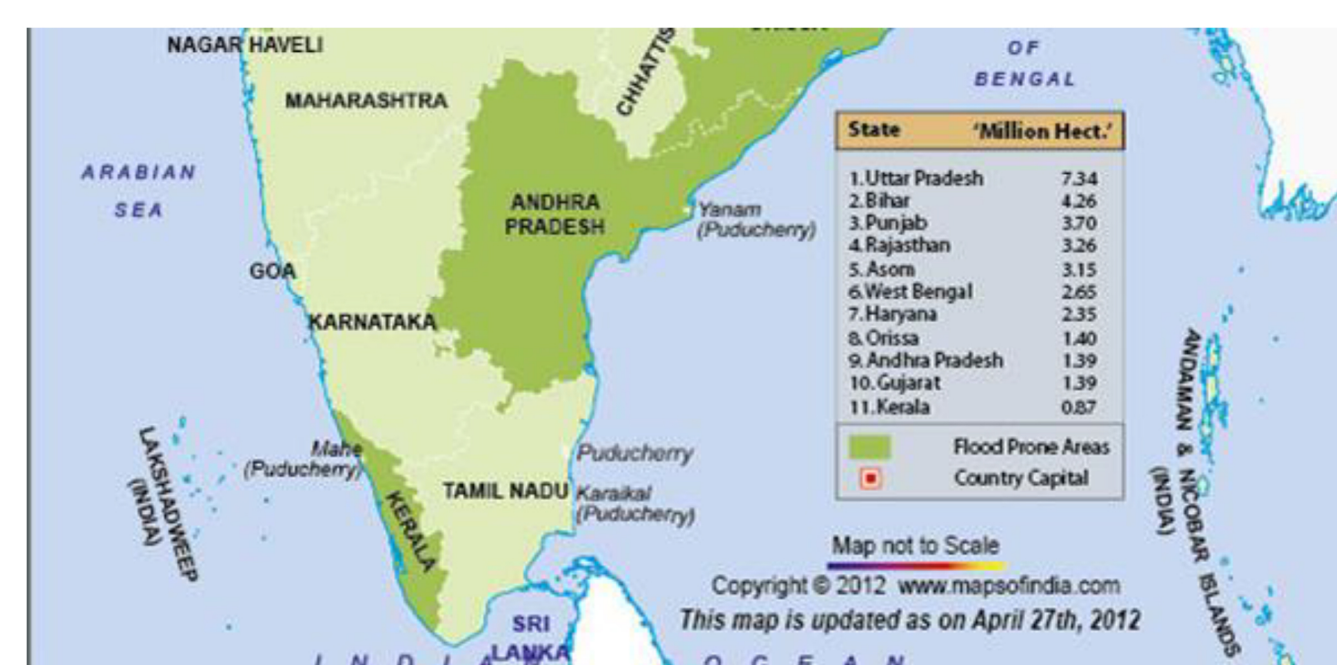
Material	Cost
Brick (Mud and Clay approx. same cost)	\$0.10 / brick
Clay Roof Tile	\$0.47 / piece
Bamboo	Wooden Construction Bamboo \$1.25
Cow Dung	\$55.24 / ton
Mortar	\$0.36 / kg mortar
Cement	\$4.17 / Unit
Laborers (immigrants)	\$2.09/person/day

These values were found on IndiaMart, which is an online company that sells unit quantities of materials that are locally sourced in India. These prices were also specified for the Kerala area.

### Cost Per House

Each home will cost approximately **\$1,000**. This number is a big estimate since costs will vary with the input and help of the local people.

### Background

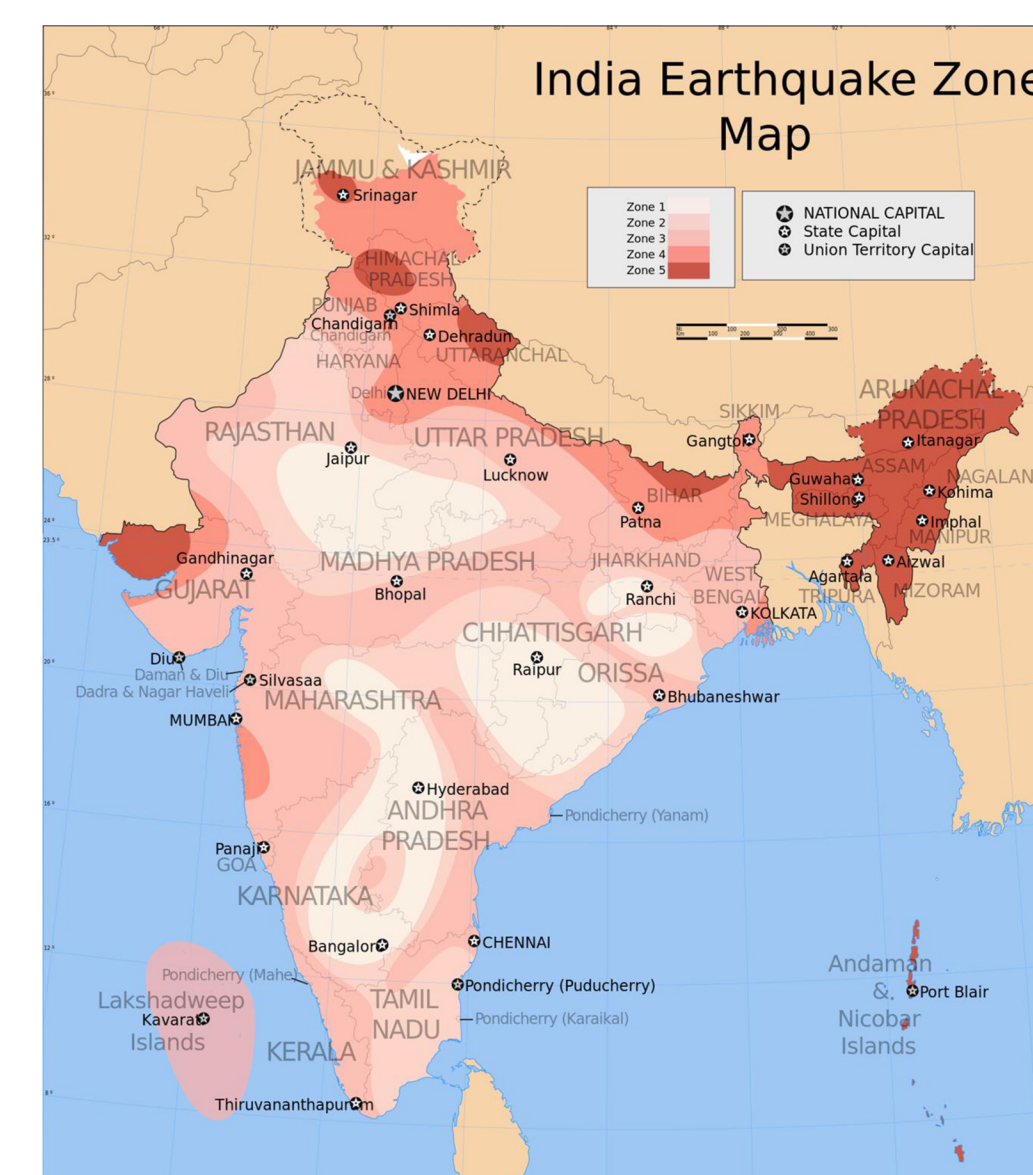


Kerala is the only flood prone region on the southwest coast of India

Source: mapsofindia.com



Current form of housing in rural Kerala



Kerala is in a zone 2-3 for earthquakes

Source: byjus.com/