Motivation

- High maintenance cost
- Huge CO₂ emission
- Early failure in the existing sleeper

Environmental Problems

CO₂

Our Solution: Composite materials + Optimisation

Composite = Eco friendly + No insect infection and chemical attack

Stress distribution

Material wastage

Material savings

Traditional shape

Optimised shape

Results

Sleeper test

Installation

Conclusions:

- Optimised shape reduces two-third volume of materials
- Composite sleeper behaviour is comparable with timber