climate® friendly

# Kadamane Small Hydro Power Project

Voluntary Carbon Standard – India

# Contents

# 1.0
## Project Summary

The Kadamane Mini Hydel Scheme-I generates hydroelectric power which is fed into the grid, thereby helping to meet the energy needs in the state of Karnataka.

The project contributes to sustainable development in the region, whilst lessening reliance on fossil fuel based electricity and reducing greenhouse gas emissions.

The project displaces 32,456 tonnes of $CO_2$ emissions per year.

### 1.1 Project Snapshot

| | |
|---|---|
| Name: | Kadamane Mini Hydel Scheme-I |
| Location: | Maranhalli Village in Sakleshpura Taluka, Hassan District, Karnataka, India |
| Coordinates: | N 13°01 / E 76°10 |
| Type: | Hydro |
| Standard: | Voluntary Carbon Standard (VCS) |
| Volume: | 21,249 VERs |
| Vintage: | 2007-2008 |
| Status: | Validated and Verified |
| Project Operator: | Paschim Hydro Energy Private Limited |

# 2.0
## Project Benefits

***Environmental*** **–** The generation of hydroelectric power reduces the dependence on fossil fuel based electricity, leading to a reduction in greenhouse gas emissions. Importantly, hydroelectric power is clean energy and does not produce any greenhouse gases or other local air pollutants.

***Socio-Economic*** **–** The Kadamane Mini Hydel Scheme is helping to meet the power shortage in Karnataka. The improved grid reliability has resulted in increased economic activity in the state leading to more opportunities for local entrepreneurs such as bankers, consultants, suppliers, manufacturers and contractors.

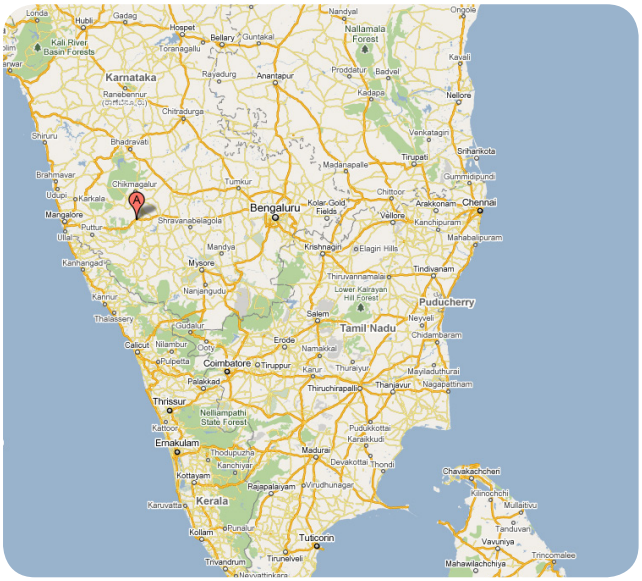
The quality of life for the rural population has also improved as the project supplies electricity for lighting homes, shops, community centres and public places throughout the surrounding villages.

The project activity has generated employment in the region and has brought about the transfer of technical knowledge, which would not have occurred in the absence of the project.

### 2.1 Key Achievements

- ☑ Reduces GHG emissions
- ☑ Technology and know-how transfer
- ☑ Reduces local air pollution of $SO_2$ and $NO_2$
- ☑ Promotes alternative energy in India
- ☑ Supports local economic development
- ☑ Secures electricity supply

# 3.0
## Background




Karnataka is a state in South West India. Whilst Karnataka has been the fastest growing Indian state over the past decade in terms of GDP - largely due to the IT boom in its capital Bangalore - much of its rural population still live in poverty. Many people living in rural villages have inadequate access to healthcare and other services and many homes do not have electricity.

The primary source of existing and new electricity generated in the region is coal-fired power plants which create high volumes of greenhouse gas emissions as well as causing local air pollution.

The project involved the construction of a small low-impact hydro-electric power plant on the river Yettinahole about 8.5kms from the village of Maranhalli in the Hassan district in the state of Karnataka. The plant supplies electricity to the local grid.

# 4.0
## Technical Details

The installed capacity of the project is 9MW, which was determined to be the optimal capacity for the site. It was found that at this capacity, the incremental energy per MW of increased capacity is more than 1.5GWh, whereas it drops steeply for capacities beyond 10MW. The plant load factor (PLF), which is around 48.4% for installation of 9MW drops to 45% for 10 MW. At higher capacities, though a greater quantum of water could be utilized for power generation, the energy content would be less and it would lower the PLF, thus lowering the economic viability of the scheme.

From the point of view of maintaining a high PLF, operational flexibility and facility to operate the power station even for smaller inflows during the non monsoon periods, a configuration of 2 units of 4.5 MW each, for a total installation of 9MW, was adopted. The installation utilizes a discharge of 3.3 cumecs at full load and generates a gross annual energy output of approximately 38 GWh.

# 5.0
## How the project meets Climate Friendly's principles

Climate Friendly only invests in projects that:

| Principles | How this project meets these criteria |
|---|---|
| Address the root cause of climate change | ✓ Hydro power doesn't emit greenhouse gases and replaces fossil-fuel based electricity |
| Are permanent | ✓ Emissions reductions can't be reversed |
| Are additional | ✓ Carbon finance required to overcome financial barriers |
| Are verifiable | ✓ Verified by SGS UK Ltd (independent 3rd party) |
| Are project based | ✓ Not allowance-based under compliance requirements |
| Contribute to sustainable development | ✓ Reduces pollution and creates employment |
| Are synchronous | ✓ Emissions reductions have already occurred |
| Are exclusive | ✓ Robust assurance process ensures no double counting |