



## Small and micro run-of-river hydro, China

This bundle of small and micro hydro plants provides China's rural and mountainous South-West with emission free energy. Without the need for a retaining dam, the plants use natural height differences to generate sustainable power.

### Location



About one hundred hydro plants span over the rangy parts of the provinces of Sichuan, Chongqing, Yunnan, and Guizhou, through a variety of landscapes from the subtropical South over severe karst hills up to the Tibetan plateau. Several important Asian rivers flow through the region such as the Yangtze, the Pearl River, the Mekong, the Salween, and the Red River.

### Project



In these mountainous regions, one can see the benefits of sustainable energy production: until recently, light and heat came from burning wood (which lead to deforestation and soil erosion) or from dirty and inefficient diesel generators. Now, the use of locally produced renewable energy allows for sustainable development without emissions harmful to people and planet.

Technically, the hydro plants operate without dam (with their known problems of dam construction, flooding, resettlement, environmental impacts on river flora, etc.) but convert the force of water flowing through a penstock over a natural height difference into electrical energy. The emission reductions result from the replacement of carbon intensive coal power – still common in China – with clean hydro power.



Only by combining a multitude of small and micro power plants with an installed capacity of 0.5 to 15MW each, the single small and micro hydro plants became viable for carbon trade and can now be co-funded by organisations and individuals striving to make a difference to the world.

The project also brings additional benefits to local communities, e.g. by supporting local farmers with new irrigation opportunities and with tree grafting workshops, but also with the provision of new jobs and infrastructural improvements. To reflect these outstanding social benefits, the project activity has been verified under the Social Carbon standard, while its carbon reductions are still developed against the established Verified Carbon Standard (VCS).

## Project achievements



### Socio-economic impact:

- Jobs for locals have been created both in construction and maintenance, with training on the job and health care above Chinese standards.
- Improvements of local roads ease the locals' daily lives, improve connections to the next cities, and enable sustainable development opportunities.
- Newly built water channels improve farming opportunities, with farmers having prioritized access to the water before power generation.
- Annually, agricultural workshops are given to local farmers according to their needs as expressed in stakeholder meetings, e.g. on fruit tree grafting. In addition, they receive support in the form of free tools and an agricultural library with books and DVDs. All these activities are funded by carbon revenues and conducted by a local NGO.
- The decrease of open fireplaces in households due to the availability of safe and clean energy leads to less respiratory diseases.



### Environmental impact:

- The decrease of open fires for light and heating leads to less deforestation and soil erosion, while the decrease of diesel generator use improves local air quality and mitigates air pollutants such as sulphur dioxide and nitrogen oxide.



## Checklist Project 300494



**SOCIALCARBON®** **VCS** VERIFIED CARBON STANDARD  
A Global Benchmark for Carbon

✓ Additionality and permanence:	according to the rules of the VCS und Social Carbon Standard
✓ 3 <sup>rd</sup> party verified::	by TÜV Rheinland
✓ Transparency:	provided by Markit Environmental Registry
✓ Annual CO <sub>2</sub> reduction:	700,000 tCO <sub>2</sub> e
✓ Social and environmental benefits:	as documented in our database
✓ Marketing material:	high resolution pictures and videos available

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