

Project Idea Note

Name of the project: Laopokou Small Hydropower Project

Summary Box

<p>Sector</p> <p>Renewable Energy <input checked="" type="checkbox"/> Energy Efficiency <input type="checkbox"/></p> <p>Power <input type="checkbox"/> Fuel Switching <input type="checkbox"/></p> <p>Transport <input type="checkbox"/> Agriculture <input type="checkbox"/></p> <p>Chemical Industry <input type="checkbox"/> Waste Management <input type="checkbox"/></p> <p>Other (please specify)</p>	<p>GHG abated</p> <p>CO₂ <input checked="" type="checkbox"/> CH₄ <input type="checkbox"/> N₂O <input type="checkbox"/> HFCs <input type="checkbox"/></p> <p>PFCs <input type="checkbox"/> SF₆ <input type="checkbox"/></p>
<p>Finance</p> <p>Project Cost : USD20,500,049</p> <p>Equity:</p> <p>Debt:</p> <p>Government grant:</p> <p>CDM finance:</p> <p>CER price: (indicative)</p>	<p>Status of project</p> <p>Commissioned <input type="checkbox"/> Yet to be commissioned <input type="checkbox"/></p> <p>PIN <input checked="" type="checkbox"/> PDD <input type="checkbox"/></p>

PIN Prepared:

A. Project description, type, location and schedule

Name of Project: Laopokou Small Hydropower Project

Objective of the project	To sell the electricity generated to the neighboring Guangdong grid by a non-polluting electricity generation mechanism in order to tackle the electricity shortage and to improve the standard of living of, and increase the opportunities for local people.
Project description and proposed activities (including a technical description of the project)	<p>This CDM project activity consists of constructing a small hydropower station in Rucheng county to enhance the socio-economic development in the area.</p> <p>The Laopokou hydroelectric project would be located on the lower reaches of the Qijiang river, in Rucheng County, Hunan Province. Plant capacity will be 24,000kW (two vertical 12,000kW Francis type turbines) at 72m net head, with an associated maximum hydraulic capacity of 21.1m³/s. Annual energy output of the station would be 85,370 GWh.</p> <p>The hydro electric project is of a diversion type. Its third cascade project on the Qijiang river. Although the primary purpose of the project is power generation, it would also help the county to manage the frequent severe floods in the river better.</p> <p>The estimated time for constructing the station is 2 years during which the powerhouse, penstock, and a low dam would be built and the technical equipment acquired and installed. Due to the landscape and meteorological factors the area is ideal for SHP application.</p>
Technology to be employed and its status	The main components of the project are a dam, diversion tunnel and the powerhouse.

Project developer (those who are developing project on behalf of actual project promoter)	
Name of the project developer / Seller	International Center on Small Hydropower
Name of the contact person for more info and clarification	HU Xiaobo
Organizational category	NGO
Other function(s) of the project developer in the project	Intermediary , Technical Assistance
Summary of the relevant experience of the project developer	IC-SHP has been organizing actively various small hydropower projects (training, consultancy, and international SHP technology and equipment exchange, all over the world over its 10 years of experience in the sector. The government of China recently asked IC-SHP to evaluate projects under its national programs such as "Send electricity to villages" and "Replace firewood with electricity".
Address	136 Nanshan Road, Hangzhou, P.R. China
Contact person	HU Xiaobo
Telephone / fax	+86 571 870 79113 / +86 571 87023353
E-mail and web address, if any	huxiaobo@gmail.com / www.inshp.org

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Project proponent	
<i>(List and provide the following information for all project proponents)</i>	
Name of the project proponent	Laopokou Hydropower Development Co. Ltd
Organizational category	Private company
Address (include web address, if any)	N/A
Main activities	<ul style="list-style-type: none"> • Power generation and supply • Power generation and distribution • SHP equipment supply
Summary of the financials	
Type of the project	
Greenhouse gases targeted	CO ₂
Sector	Renewable Energy
Bundling option considered	No
Location of the project	
Village, District, City, State	Rucheng county, Hunan Province
Brief description of the location of the project site	Laopokou station is located in the Rucheng county in the southeast of Hunan province, in the downstream of Qijiang River. The station will be connected to the Guangdong grid.
Expected schedule	
Earliest project start date	January 2006
Expected first year of CER delivery	January 2008
Crediting period	10 years
Project Lifetime	A modern small hydroelectric plant is normally functional for more than 40 years.
Current status of the project	<u>Statutory clearances obtained</u> /financial closure in process Feasibility study finished and available. The Department of Water Resources of Hunan Province has approved the feasibility study.
Current status of the acceptance by the Bureau of Environmental Protection of Hunan Province	Letter of Approval is available.

B. Expected environmental and social benefits

Assumed baseline emissions	
Estimate of Greenhouse Gases Reduction for the crediting period proposed (in metric tonnes of CO ₂ -equivalent)	Annual: 64,490 tCO ₂ -equivalent Start of 2008- end of 2017(10years): 644,900tCO ₂ -equivalent
Baseline scenario	The baseline or "business as usual" scenario can be summarized as the Laopokou Project will displace the business-as-usual construction of more coking coal plants in Guangdong grid.
Specific national & local environmental benefits	the development of Laopokou Project will directly reduce greenhouse gas emissions produced by thermal energy using fuels that are currently in operation in Guangdong grid
Which guidelines will be applied?	Every small hydropower project in China has to go through an Environmental Impact Study that will be approved/disapproved by the provincial environmental protection administration.
Local benefits	To create job opportunities for the local people and promote the

	<p>local economic development. the zero emissions SHP alternative would turn out to be more environmentally friendly source of energy to all the households included in the project.</p>
<p>National benefits</p>	<p>To alleviate the electricity shortage in the Guangdong province. Naturally, CO2 emissions would be reduced not only in the county but also nationally.</p>
<p>Socio-economic aspects What are the social and economic impacts/benefits that can be attributed to the project which would not have occurred in a comparable situation without that project?</p>	<p>There are a variety of non-environmental benefits of this project to the local community:</p> <ul style="list-style-type: none"> ○ Alleviation of rural poverty ○ The project would create the potential for small-scale local commercial development. The activities identified in the project area include carrot plantation and processing, metallurgy, construction materials and textiles. ○ Better health due to the use of electric appliances for cooking, heating and other appliances: <ul style="list-style-type: none"> ▪ No inhalation of the smoke emissions from wood burning ovens ▪ No firewood collection, and therefore reduced physical strain on women and children, who do the majority of firewood collection. ▪ Electricity enables the use of fridges for food and medicine ○ Gender issues <ul style="list-style-type: none"> ▪ Eliminates the burden of firewood collection placed on women. ▪ Women can become more active in the community and replace the time spent on wood collection by pursuing other, more productive, activities, such as further education or commercial business. ○ Social inclusion and IT <ul style="list-style-type: none"> ▪ Substitution to electricity from firewood gives the community more spare in two ways: no firewood collection and the range of evening activities expands due to availability of lighting in the evening. ▪ Electricity also enables the use of electronics such as radios, televisions, and computers.
<p>What are the possible direct effects (e.g., employment creation, capital required, foreign exchange effects)?</p>	<p>The direct effects of this project would be to enhance the living standards in the project area. In addition to the people employed to construct the plant, once finished the station would create 37 fulltime jobs and 500 temporary jobs. Moreover majority of the construction workers would be local engineers.</p> <p>The outcome would be increased income per capita, <i>ceteris paribus</i>.</p>
<p>What are the possible other effects? For example:</p> <ul style="list-style-type: none"> • training/education associated with the introduction of new processes, technologies and products and/or 	

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<ul style="list-style-type: none"> the effects of a project on other industries 	
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C. Finance

Total project cost estimate	(Exchange rate used: 1USD = 8.1CNY)
Total project cost	166,050,400 CNY (20,500,049USD)
Break up	
<i>Plant & Machinery</i> <i>Construction Engineering</i> <i>Erection Works</i> <i>Other expenses</i> <i>Basic Reserve Cost (6%)</i>	
Incase of power projects	
<i>Sale of power (million units)</i> <i>Revenue from sale of power (Rs in million)</i>	
Sources of finance to be sought or already identified	
Summary	
Equity	
Debt	
Grant	
Not identified	- (<10%)
CDM contribution in advance payments if desired (mention the discount factor assumed for upfront payment for the project)	If possible, the emission reductions could be sold in advance by signing a forward contract for the ten-year crediting period. Such an option will be critical component in attracting syndicate lenders and other finance for the project.
Sources of CER¹ buyers	Not confirmed.
Indicative CER Price (USD / CER)	
Total CER value for the crediting period proposed	

¹ Certified Emission Reductions; 1 CER = 1000 kg CO₂equivalent