

VGS Monitoring Report

Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower

Bundle Project

(Gold Standard ID 835)

Monitoring period: 01/08/2013 – 31/07/2014

Version 1.1

10/10/2014

Climate Bridge Ltd.

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1. INTRODUCTION

The purpose of this report is to calculate the emission reductions achieved by *Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project* (Gold Standard ID 835) during the monitoring and crediting period covered by this report, and to serve as basis for the verification and issuance of corresponding VGS credits.

1.1 Monitoring and Crediting Period

01/08/2013 -- 31/07/2014

1.2 Document Reference

Version: 1.1

Date: 10/10/2014

2. GENERAL DESCRIPTION OF THE PROJECT

The *Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project* (hereafter referred to as “the bundled project”) consists of two hydropower projects in Huaihua City, Hunan Province, P.R. China. The total installed capacity of the bundle project is 5.89 MW, and the electricity will be transferred to Central China Power Grid (CCPG). The construction of *Guanbaodu Hydropower Station* (hereafter referred to as “Guanbaodu”) commenced in August 2005, and its operation started in January 2008; and the construction of *Liangjiangkou Hydropower Station* (hereafter referred to as “Liangjiangkou”) commenced in August 2006, and its operation started in January 2008.

The start date of the first crediting period of the bundled project is defined as 1st Jan 2009. The chosen crediting period is 7 years. The first monitoring period of the bundled project is from 01/01/2009 to 31/12/2010; the second monitoring period is from 01/01/2011 to 31/05/2012; and the third monitoring period from 01/06/2012 to 31/07/2013. This monitoring period (01/08/2013-31/07/2014) is the fourth monitoring period, and the net electricity generated during this monitoring period is 18,418.41 MWh.

Guanbaodu is located on the lower reach of Qushui River, and the project is 16 km from Jingzhou County and the geographical coordinates are east longitude 109°44'09" and north latitude 26°40'38". Liangjiangkou is located on the Tongdao River, and the project is 8.5 km away from Tongdao County and the geographical coordinates are east longitude 109°47'45" and north latitude 26°13'11".

The bundled project contributes to Sustainable Development through the reduction of GHG emissions and other pollutants associated with the standard practice of fossil fuel fired power

plants in the region. It also contributes to ensuring the local power supply by generating reliable hydro power, promoting the local economy development and improvement of livelihoods by creating job opportunities, and helping local residents pave roads, build bridges, and construct power transmission lines. Please refer to the project PDD for more detailed information.

3. DESCRIPTION OF MONITORING SYSTEM

3.1 Monitoring data and procedures

The baseline and monitoring methodology applied for the project is methodology ACM0002 (Version 12.1.0): “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.

Relevant data and parameters necessary for determining the emission reductions for each of the project are list below:

Guanbaodu

ID number	Data variable	Source of data	Data unit	Measured (m), calculated (c), estimated (e),	Recording Frequency	Data value	How will the data be archived? (electronic/ paper)	Comment
1	Electricity export (EG_{export})	Meter reading	MWh	m	Continuous measurement and monthly recording	See details in Table 4-1	Paper	Electricity monitored by meter records and cross checked by Electricity Transaction Notes (ETN).
2	Electricity import (EG_{import})	Meter reading	MWh	m	Continuous measurement and monthly recording	See details in Table 4-1	Paper	Electricity monitored by meter records and cross checked by Electricity Transaction Notes (ETN).
3	Net Electricity supplied to the grid by the project ($EG_{PJ,y}$)	ID3=ID1 – ID2	MWh	c	Continuous measurement and monthly recording	See details in Table 4-1	Paper	Electricity monitored by meter records and cross checked by Electricity Transaction Notes (ETN).

4	Installed capacity	Readings of nameplate	MW	m	Yearly	4 (2013) 4 (2014)	Paper	The installed capacity is monitored by checking the nameplates of all the generators installed in the project
5	Area of the reservoir	The third party's report	m ²	m	Yearly	327,000 (2013) 327,000 (2014)	Paper	The area of the reservoir is measured by local River Management Station
6	Power density	ID6=ID4/ID5	W/m ²	c	Yearly	12.23 (2013) 12.23 (2014)	Paper	The results during the whole verification period are higher than 10W/m ² , therefore, no project emission needs to be taken into account

Figure 3-1 shows the electricity connection diagram of *Guanbaodu*.

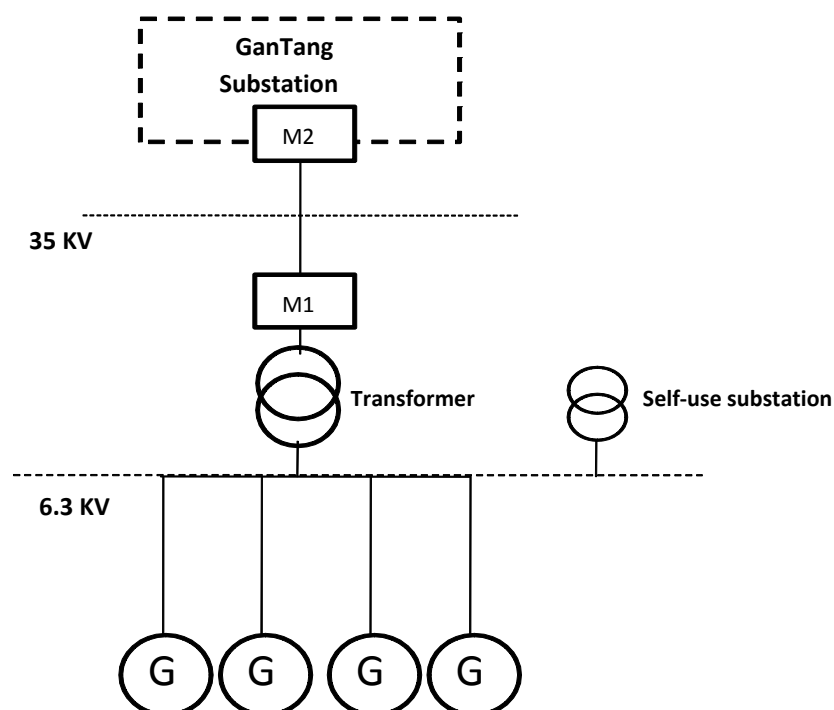


Figure 3-1 Electricity connection diagram of Guanbaodu

The local power company uses a bidirectional gateway meter (M2) which is installed at the

Gantang Transformer Station and owned by local power company to measure and record the amount of electricity exported to the grid and the amount of electricity imported from the grid. The readings of gateway meter (M2) were recorded on a monthly basis, and the Electricity Transaction Note (ETN) was served as additional check for quality control. All data will be archived for at least 2 years after the end of the last crediting period. M1 installed at the power station is the back-up meter, and it is owned by the Guanbaodu Hydropower Station; the technical staff at the power station recorded the readings of M1 every day and write daily log.

M1 and M2 were installed and verified according to *Technical Administrative Code of Electricity Energy Metering* (DL/T448-2000). The two meters was calibrated once a year by the Measurement Institute of Jingzhou Power Co., Ltd. to secure the measurement accuracy.

If M2 is detected any failure but M1 operates normally, the emission reduction will be conservatively calculated by the readings of M1. The faulty meter will be repaired or replaced by the accredited equipment testing organization as soon as possible. If malfunction occurs for both M1 and M2, no emission reductions will be claimed until the malfunction is fixed.

No failure of meters took place during this monitoring period.

Specifications of M1 and M2 are listed in table 3-1 below:

Table 3-1 Specifications of Meters used for Guanbaodu

Meter No.	Type	Serial No.	Accuracy	Calibration Frequency	Date of Calibrations	Validity
M1	DSSD25	0704575	0.5	Yearly	19/09/2012 17/09/2013	19/09/2012-18/09/2013 17/09/2013-16/09/2014
M2	DSSD331	1158010043	0.5	Yearly	19/09/2012 17/09/2013	19/09/2012-18/09/2013 17/09/2013-16/09/2014

Liangjiangkou

ID number	Data variable	Source of data	Data unit	Measured (m), calculated (c), estimated (e),	Recording Frequency	Data value	How will the data be archived? (electronic/ paper)	Comment
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1	Electricity export (EG_{export})	Meter reading	MWh	m	Continuous measurement and monthly recording	See details in Table 4-2	Paper	Electricity monitored by meter records and cross checked by Electricity Transaction Notes (ETN).
2	Electricity import (EG_{import})	Meter reading	MWh	m	Continuous measurement and monthly recording	See details in Table 4-2	Paper	Electricity monitored by meter records and cross checked by Electricity Transaction Notes (ETN).
3	Net Electricity supplied to the grid by the project ($EG_{PJ,y}$)	ID3=ID1 – ID2	MWh	c	Continuous measurement and monthly recording	See details in Table 4-2	Paper	Electricity monitored by meter records and cross checked by Electricity Transaction Notes (ETN).
4	Installed capacity	Readings of nameplate	MW	m	Yearly	1.89 (2013) 1.89 (2014)	Paper	The installed capacity is monitored by checking the nameplates of all the generators installed in the project
5	Area of the reservoir	The third party's report	m ²	m	Yearly	177,700 (2013) 176,900 (2014)	Paper	The area of the reservoir is measured by local River Management Station
6	Power density	ID6=ID4/ID5	W/m ²	c	Yearly	10.64 (2013) 10.68 (2014)	Paper	The results during the whole verification period are higher than 10W/m ² , therefore, no project emission needs to be taken into account

Figure 3-2 shows the electricity connection diagram of *Liangjiangkou*.

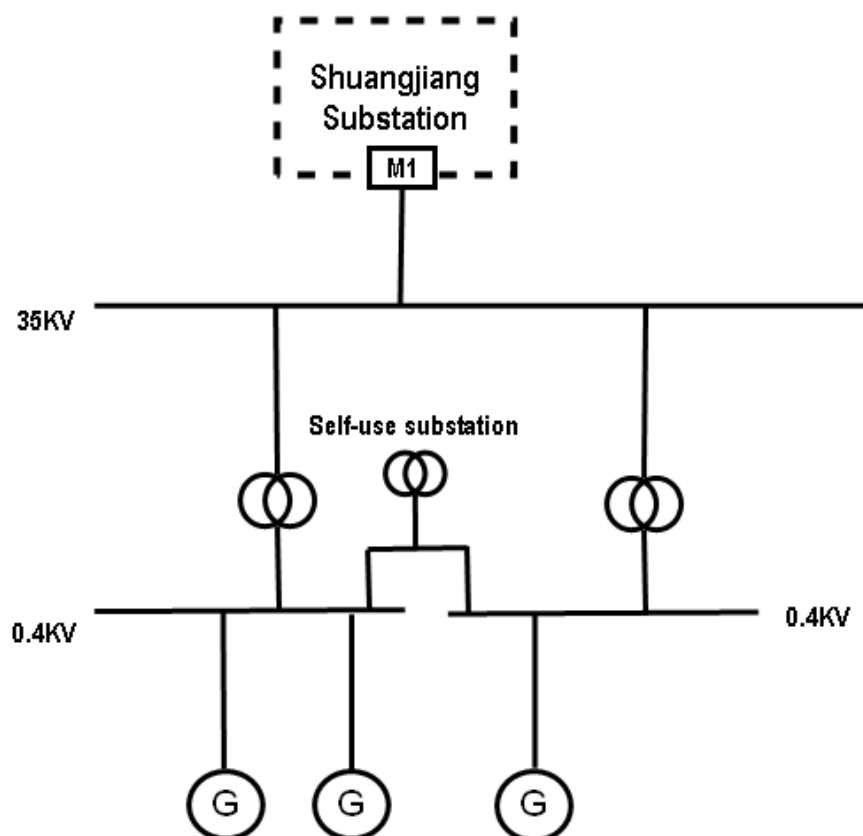


Figure 3-2 Electricity connection diagram of Liangjiangkou

The local power company uses the bidirectional gateway meter (M1) which is installed at the Shuangjiang Transformer Station and owned by local power company to measure and record the amount of electricity exported to the grid and the amount of electricity imported from the grid. The readings of gateway meter (M1) were recorded on a monthly basis, and the Electricity Transaction Note (ETN) was served as additional check for quality control. All data will be archived for at least 2 years after the end of the last crediting period.

M1 was installed and verified according to *Technical Administrative Code of Electricity Energy Metering* (DL/T448-2000). The operation of M1 was checked periodically by the Tongdao Power Company and calibrated once every year.

If M1 is detected any failure, no emission reductions will be claimed until the malfunction is fixed.

On 08/12/2013, the M1 has been replaced by a new meter which is easier to fit in the remote monitoring. Before the replacement, no failure of the old meter occurred; and after the replacement, no failure of the new meter occurred either.

Both of the old and new meters have been calibrated regularly in line with the relevant

regulations, so there was no influence on the ER calculation due to the meter replacement.

Specifications of M1 are listed in table 3-2 below:

Table 3-2 Specifications of meters used for Liangjiangkou

Meter No.	Type	Serial No.	Accuracy	Calibration Frequency	Date of Calibration	Validity
M1(old)	DSSD566	0611960283	0.5	Yearly	13/12/2012	13/12/2012-12/12/2013
M1 (new)	DSZ331	010003697381	0.5s	Yearly	08/12/2013	08/12/2013-07/12/2014

3.2 Operational and management structure

The monitoring of the emissions reductions of all the three bundled projects are basically the same as each other. The monitoring process will be carried out according to the operation and management structure shown in **Figure 3-4**:

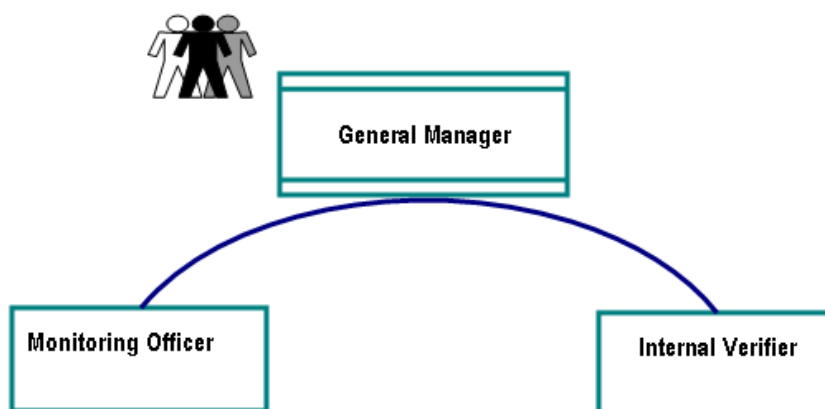


Figure 3-4 Operations and Management Structure

- 1) The General Manager conducts the overall responsibility for the monitoring process.
- 2) Station staff serves as the monitoring officer to carry out the measurement of the exports and imports electricity recordings.
- 3) An accountant worked as internal verifier is responsible for internal verification of the measurement, collection of electricity receipts and invoices and the calculation of the emission reductions.

3.3 Quality control (QC) and quality assurance (QA)

Besides data management procedure described above, the project owner also take the following procedures to ensure the operation and accuracy:

- 1) All meters are installed in accordance with the national Chinese standard *Technical Administrative Code of Electricity Energy Metering* (DL/T448-2000).
- 2) All relevant staff receives training periodically to improve their know-how and performance.
- 3) A monitoring and management manual identifying detailed duties and responsibilities of the relevant parties has been developed by Climate Bridge Ltd., and will be served as a basis of the project monitoring.
- 4) In the case that the readings of meters are not within the acceptable precision level at any month or the meter works abnormally, the net electricity supplied to grid will be confirmed based on the conventional process accepted by project owner and Grid Company. If such happens, relevant proof will be achieved by both parties and submitted for verification.

4. CALCULATION OF EMISSION REDUCTIONS OR GHG REMOVALS BY SINKS

4.1 Baseline Emissions (BE_y)

Baseline Emissions are calculated by multiplying the Baseline Emission factor by annual power generation as follows:

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y} \quad (1)$$

Where :

- BE_y = Baseline Emissions in year y; (tCO₂/yr).
- $EG_{PJ,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year (MWh/yr). $EG_{PJ,y} = EG_{export,y} - EG_{import,y}$
- $EF_{grid,CM,y}$ = Combined margin CO₂ emission factor in year y (tCO₂e/MWh).
According to the registered PDD, $EF_{grid,CM,y} = 0.85285$ tCO₂e/MWh

4.2 Project Emissions (PE_y)

According to ACM0002 (Version 12.1.0), as a hydropower project whose power density of the project is greater than 10 W/m², the project emissions resulting from the project are zero. $PE_y = 0$ tCO₂e.

4.3 Leakage Emissions (LE_y)

According to ACM0002 (Version 12.1.0), there is no leakage considered, i.e. $LE_y = 0$ tCO₂e.

4.4 Emission Reductions (ER_y)

The emission reductions (ER_y) by the project during a given year y are the difference among baseline emissions (BE_y), project emissions (PE_y) and emissions due to leakage (LE_y).

The final GHG emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y \quad (2)$$

Where :

- ER_y = Emissions Reductions by the project in year y; (tCO₂/yr).
 BE_y = Baseline Emissions in year y; (tCO₂/yr).
 PE_y = Project Emissions in year y; (tCO₂/yr).
 LE_y = Leakage Emissions in year y; (tCO₂/yr).

Detailed amounts of the recorded electricity generated from the project and calculations of emission reductions are listed below:

Table 4-1 Emission reduction of Guanbaodu during August 2013 to July 2014

	Guanbaodu						
	$EG_{Exported}$ (Mwh)	$EG_{Imported}$ (Mwh)	$EG_{PJ,y}$ (Mwh)	BE_y (tCO ₂ e)	PE_y (tCO ₂ e)	LE_y (tCO ₃ e)	ER_y (tCO ₂ e)
	A	B	C=A-B	D= C × EF _{grid,CM,y}	E	F	G=D-E-F
2013.08	364.00	12.46	351.54	299.81	0.00	0.00	299.81
2013.09	805.00	6.44	798.56	681.05	0.00	0.00	681.05
2013.10	777.00	4.06	772.94	659.20	0.00	0.00	659.20
2013.11	644.00	5.18	638.82	544.82	0.00	0.00	544.82
2013.12	532.84	5.95	526.89	449.36	0.00	0.00	449.36
2013 Subtotal			3,088.75	2,634.24	0.00	0.00	2,634.24
2014.01	479.99	5.67	474.32	404.52	0.00	0.00	404.52
2014.02	291.55	9.52	282.03	240.53	0.00	0.00	240.53
2014.03	775.60	2.52	773.08	659.32	0.00	0.00	659.32
2014.04	1,675.80	0.70	1,675.10	1,428.61	0.00	0.00	1,428.61
2014.05	1,551.83	0.00	1,551.83	1,323.48	0.00	0.00	1,323.48
2014.06	2,361.52	0.00	2,361.52	2,014.02	0.00	0.00	2,014.02
2014.07	1,980.86	1.54	1,979.32	1,688.06	0.00	0.00	1,688.06
2014 Subtotal			9,097.20	7,758.55	0.00	0.00	7,758.55
Total			12,185.95				10,392.79

Table 4-2 Emission reduction of Liangjiangkou during August 2013 to July 2014

	Liangjiangkou						
	$EG_{Exported}$ (Mwh)	$EG_{Imported}$ (Mwh)	$EG_{PJ,y}$ (Mwh)	BE_y (tCO ₂ e)	PE_y (tCO ₂ e)	LE_y (tCO ₃ e)	ER_y (tCO ₂ e)
	A	B	C=A-B	D= C × EF _{grid,CM,y}	E	F	G=D-E-F

2013.08	268.212	1.652	266.560	227.34	0.00	0.00	227.34
2013.09	422.464	1.120	421.344	359.34	0.00	0.00	359.34
2013.10	378.280	1.260	377.020	321.54	0.00	0.00	321.54
2013.11	262.584	1.568	261.016	222.61	0.00	0.00	222.61
2013.12	308.252	1.260	306.992	261.82	0.00	0.00	261.82
2013 Subtotal			1,632.93	1,392.65	0.00	0.00	1,392.65
2014.01	220.976	1.680	219.296	187.03	0.00	0.00	187.03
2014.02	212.520	1.036	211.484	180.36	0.00	0.00	180.36
2014.03	440.524	0.644	439.880	375.15	0.00	0.00	375.15
2014.04	848.260	0.476	847.784	723.03	0.00	0.00	723.03
2014.05	908.684	0.476	908.208	774.57	0.00	0.00	774.57
2014.06	1,142.764	0.140	1,142.624	974.49	0.00	0.00	974.49
2014.07	830.564	0.308	830.256	708.08	0.00	0.00	708.08
2014 Subtotal			4,599.53	3,922.71	0.00	0.00	3,922.71
Total			6,232.46				5,315.36

Table 4-3 Emission Reductions of the Bundled Project during August 2013 to July 2014

	Guanbaodu ER_y (tCO₂e)	Liangjiangkou ER_y (tCO₂e)	ER_y of the Bundled Project (tCO₂e)
2013	2,634.24	1,392.65	4,027
2014	7,758.55	3,922.71	11,681
Total ER of the bundled project during this monitoring period =			15,708

4.5 Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

	Values estimated in ex-ante calculation of registered PDD (tCO₂e)		Actual values achieved during this monitoring period (tCO₂e)
	Annual (365 days)¹	For this monitoring period (365 days)	365 days
Guanbaodu	13,230	13,230	10,392.79
Liangjiangkou	5,201	5,201	5,315.36
Bundled project	18,431	18,431	15,708.14

For Guanbaodu, the actual emission reductions achieved during the reported monitoring period are lower than the arithmetic average value calculated based on that estimated in the registered PDD.

¹ Based on registered PDD.

For Liangjiangkou, the actual emission reductions achieved during the reported monitoring period are slightly higher (2.2%) than the arithmetic average value calculated based on that estimated in the registered PDD. It is because that during the rainy season in 2014 the precipitation is a little bit higher than normal year, so the electricity generation in 2014 was higher than previous years which is reasonable.

5. SUSTAINABLE DEVELOPMENT MONITORING

As mentioned in the PDD, a management team led by the general manager has been established for each project in the bundle to carry out monitoring and internal verification tasks during the operation period. The most sensitive sustainable development indicators for each project have been determined for monitoring.

The details of the monitoring performance during this period are list below:

Sustainable Development Indicator	Data type	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Methods and equipments used	Results	Sources
Water quality and quantity	Local/regional/global environment	Level of management	e	Yearly during the operation period	The waste water during the operation period was monitored by stakeholders' questionnaires and relevant management. The discharge amount of sanitary wastewater was monitored by the payroll with information of employee numbers.	According to Standard of Quota for Water Use (DB43/T 388-2008), maximum daily demand of water use in rural area in Hunan Province is considered 80 liters per person daily. Hence produced wastewater is much less than 160 liters permitted in the EIA. The project's <i>Management Regulation of Environment and Health</i> stated that the waste water generated during operation period should be treated in the septic tank by digestion process and reused as fertilizers without any discharge to river as defined in EIA, and complying with the Integrated wastewater Discharge Standard, which has been confirmed by stakeholders' questionnaires. The project owner made a questionnaire for 12	Management Regulation of Environment and Health for Guanbaodu Hydropower Station Relevant Questionnaire

						local residents affected by the Guanbaodu project on April 15 th 2014 to ask their comments on the impact of waste water discharged by the project during operation period, All of the 12 stakeholders stated there was no significant impact on local environment.	
Solid wastes	Local/regional/global environment	Level of management	m	Yearly during the operation period	The domestic rubbish treatment during the operation period was monitored by stakeholders' questionnaires and relevant management.	The project's Management Regulation of Environment and Health stated that the solid waste generated during operation period should be transported to the designated wastes deposit plant and then to landfill plant for central disposal as defined in EIA, which has been confirmed by stakeholders' questionnaires. The project owner made a questionnaire for 12 local residents on April 15th 2014 to ask their comments on the impact of solid waste discharged by the project during operation period, all of the 12 stakeholders stated that the solid waste has been treated complying with the relevant standard and there was no significant impact on local environment.	Management Regulation of Environment and Health for Guanbaodu Hydropower Station Relevant Questionnaire
Biodiversity (species and habitat conservation)	Local/regional/global environment	Degree of Biodiversity	e	yearly	This indicator was monitored by stakeholder's questionnaires.	The project owner made a questionnaire for 12 local residents on April 15 th 2014 to ask their comments on the impact by the project on the local ecological environment during the operation period,	Relevant Questionnaire

n)						and all of the 12 stakeholders stated that there was no significant impact on the local ecological environment, 2 of them also thought the local ecological environment were getting better.	
Employment	Social sustainability and development Economic and technological development	Number	m	monthly	Basing on the monthly payrolls, the numbers of employees and their income were checked regularly.	During the construction and operation phases, 16 job opportunities are provided to local people, and the salary for tentative and permanent employees is from 1035.86 to 3336.57 RMB/month during this monitoring period, higher than the average level of 698 RMB/month in rural area of Hunan Province (http://www.hntj.gov.cn/tigb/glgb/201403/t20140317_108101.htm). Additionally, comprehensive insurance has been provided to every permanent employee	Monthly payrolls of Guanbaodu Hydropower Plant
Livelihood of the poor	Economic and technological development	Number	c	yearly	By checking the annual revenue of the Guanbaodu project, the shareholders' profit was calculated according to the ratio of their share. Besides, the income of the local	The financial balance sheets showed that the annual profit of Guanbaodu Hydropower Station in 2013 and 2014 were positive, since the local villagers invested in the project, they have received their shares of the profit in return. Besides, the employment opportunities during the construction and operation period increase the income of local people. The average salary for tentative and permanent employees is from 1035.86 to 3336.57 RMB/month during this monitoring period, higher than the average level of 698 RMB/month in rural	Yearly financial report of Guanbaodu Hydropower Plant Monthly payrolls of Guanbaodu Hydropower Plant

					people who has been offered the job opportunities by the project was monitored by their payrolls	area of Hunan Province (http://www.hntj.gov.cn/tigb/qlqb/201403/t20140317_108101.htm). Also, the project has built road and bridge and sponsored the new irrigation system for local village, and these facilities have worked well by now which has provided convenience for locals and improved the living conditions in local region. The following photos are the road and bridge sponsored by the project: 	
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Access to energy service	Social sustainability and development	Number	m	monthly	The power sales receipt received from the local grid company was checked monthly.	The electricity from the project activity was delivered to Jingzhou County Grid, thus alleviating the power shortage in the county.	Monthly Electricity Transaction Notes (ETN) of Guanbaodu Hydropower Plant
Human and institutional capacity	Social sustainability and development	Number	m	monthly	Gender information on the monthly payroll was checked monthly. Training reports regarding operation and maintenance were also checked.	The payrolls of the project showed that the project offered 2 job opportunities for local women. The project owner provided training courses of power station's technical and safe knowledge for all staff in 2013 and 2014 respectively, and made relevant examinations to make sure the staff have learned well.	Monthly payrolls of Guanbaodu Hydropower Plant, Training certificate/report

Liangjiangkou

Sustainable Development Indicator	Data type	Data unit	Measure d (m), calculate d (c) or estimate d (e)	Recording frequency	Methods and equipments used	Results	Sources
Water quality and quantity	Local/regional/global environment	Level of management	e	Yearly during the operation period	The waste water during the operation period was monitored by stakeholders' questionnaires and relevant management. The discharge amount of sanitary wastewater was monitored by the payroll with information of employee	According to Standard of Quota for Water Use (DB43/T 388-2008), maximum daily demand of water use in rural area in Hunan Province is considered 80 liters per person daily. Hence produced wastewater is much less than 160 liters permitted in the EIA. The project's <i>Management Regulation of Environment and Health</i> stated that the waste water generated during operation period should be treated in the septic tank by digestion process and reused as fertilizers without any discharge to river as defined in EIA, which has been confirmed by stakeholders' questionnaires. The project owner made a questionnaire for 12 local residents affected by the Liangjiangkou project on	<i>Management Regulation of Environment and Health for Liangjiangkou Hydropower Station</i> Relevant Questionnaire

					numbers.	April 15 th 2014 to ask their comments on the impact of waste water discharged by the project during operation period, All of the 12 stakeholders stated that no waste water was discharged by the project and there was no significant impact on local environment.	
Solid wastes	Local/regional/global environment	Level of management		Yearly during the operation period	The domestic rubbish treatment during the operation period was monitored by stakeholders' questionnaires and relevant management.	The project's Management Regulation of Environment and Health stated that the solid waste generated during operation period should be transported to the designated wastes deposit plant and then to landfill plant for central disposal as defined in EIA, which has been confirmed by stakeholders' questionnaires. The project owner made a questionnaire for 12 local residents on April 15 th 2014 to ask their comments on the impact of solid waste discharged by the project during operation period, all of the 12 stakeholders stated that no solid waste was discharged by the project and there was no significant impact on local environment.	<i>Management Regulation of Environment and Health for Liangjiangkou Hydropower Station</i> Relevant Questionnaire
Biodiversity (species and habitat conservation)	Local/regional/global environment	Degree of Biodiversity		yearly	This indicator was monitored by stakeholder's questionnaires.	The project owner made a questionnaire for 12 local residents on April 15 th 2014 to ask their comments on the impact by the project on the local ecological environment during the operation period, and all of the 12 stakeholders stated that there were only	Relevant Questionnaire

						positive rather than negative impacts on the local ecological environment as there were more fishes in the river than before.	
Employment	Social sustainability and development Economic and technological development	Number	m	monthly	Basing on the monthly payrolls, the numbers of employees and their income were checked regularly.	During the construction and operation phases, 11 job opportunities are provided to local people, and the salary for tentative employees is from 700 to 1200 RMB/month and for permanent employees is from 1550 to 2500 RMB/month during this monitoring period, higher than the average level of 698 RMB/month in rural area of Hunan Province (http://www.hntj.gov.cn/tjgb/glgb/201403/t20140317108101.htm).	Monthly payrolls of Liangjiangkou Hydropower Plant Proof of insurance
Livelihood of the poor	Economic and technological development	Number	c	yearly	By checking the monthly payrolls of the project, the numbers of employees and their income were checked regularly.	The employment opportunities during the operation period increase the income of local people. The average salary for tentative employees is from 700 to 1200 RMB/month and for permanent employees is from 1550 to 2500 RMB/month during this monitoring period, higher than the average level of 698 RMB/month in rural area of Hunan Province (http://www.hntj.gov.cn/tjgb/glgb/201403/t20140317108101.htm).	Monthly payrolls of Liangjiangkou Hydropower Plant
						Also, the project has built road and bridge and sponsored the new irrigation system for local village, and these facilities have worked well by now which has provided convenience for locals and improved	

						the living conditions in local region. The following photos are the road, bridge and irrigation system sponsored by the project:  	
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Access to energy service	Social sustainability and development	Number	m	monthly	The power sales receipt received from the local grid company was checked monthly.	The electricity from the project activity was delivered to Tongdao County Grid, thus alleviating the power shortage in the county.	Monthly Electricity Transaction Notes (ETN) of Liangjiangkou Hydropower Plant
Human and institutional capacity	Social sustainability and development	Number	m	monthly	Gender information on the monthly payroll was checked monthly. Training reports regarding operation and maintenance were also checked.	The payrolls of the project showed that the project offered 1 job opportunities for local women. The project owner provided training courses of power station's technical, management and safety knowledge for all staff periodically.	Monthly payrolls of Liangjiangkou Hydropower Plant, Training certificate/report