

**MONITORING REPORT****Version 01 05/08/2010****Qi'nan Hydropower Project****Reference Number: 2120****Monitoring Period: 30/01/2009-31/07/2010****SECTION A. General description of the project activity****A.1. Brief description of the project activity: >>**

>>

Qi'nan Hydropower Project is constructed and operated by Yuzaikou Hydropower Co. Ltd. It utilizes the water resources of Qijiang River to generate electricity and supply to China Southern Power Grid (CSPG) which is fossil fuel-fired generation dominated. It generates greenhouse gas emissions by replacing power generation from grid connected fossil fuel power plants.

The Qi'nan project with installed capacity of 18MW, consisting of 2 units of 9 MW turbine. But another small hydropower project named as Mazitan which is 4km in the downstream of Qi'nan is influenced, as the water flow will be smaller during dry season after the construction of Qi'nan. The installed capacity of Mazitan is 4.8MW, which was commissioned in 1999 and expected to continue operation till 2034. The average annual electricity generation of Mazitan(from 2003-2007) was 18,000Mwh.. After the commission of Qi'nan, the Mazitan will connect to Qi'nan to deliver electricity to grid.

The 1# unit of Qi'nan is connected to grid on 29/10/2008 and the 2# unit is connected to grid on 10/11/2008.¹

The total achieved emission reductions in this monitoring period is 41,088² tCO_{2e}.

A.2. Project Participants

>>

Name of Party involved(*) ((host) indicates a host Party)	Private and/or public entity(ies) Project participants (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participants (Yes/No)
People's Republic of China (host)	Yuzaikou Hydropower Co., Ltd	No

¹ Assessment Report for the Start-up & Acceptance Testing of the Rucheng County Qi'nan Hydropower Plant by Chenzhou Water Resources Bureau on 26th Jul 2009.

² The emission reduction calculation period is from 01/02/2009 to 31/07/2010, the emission reduction from 30/01/2009 and 31/01/2009 were given up by PP.



Sweden	Carbon Asset management Sweden AB	No

A.3. Location of the project activity:

>>

The project is located in Nandong Town, Rucheng County, Chenzhou City, Hu'nan Province.
Coordinates: Longitude 133°25'12"; latitude 25°27'36".

A.4. Technical description of the project

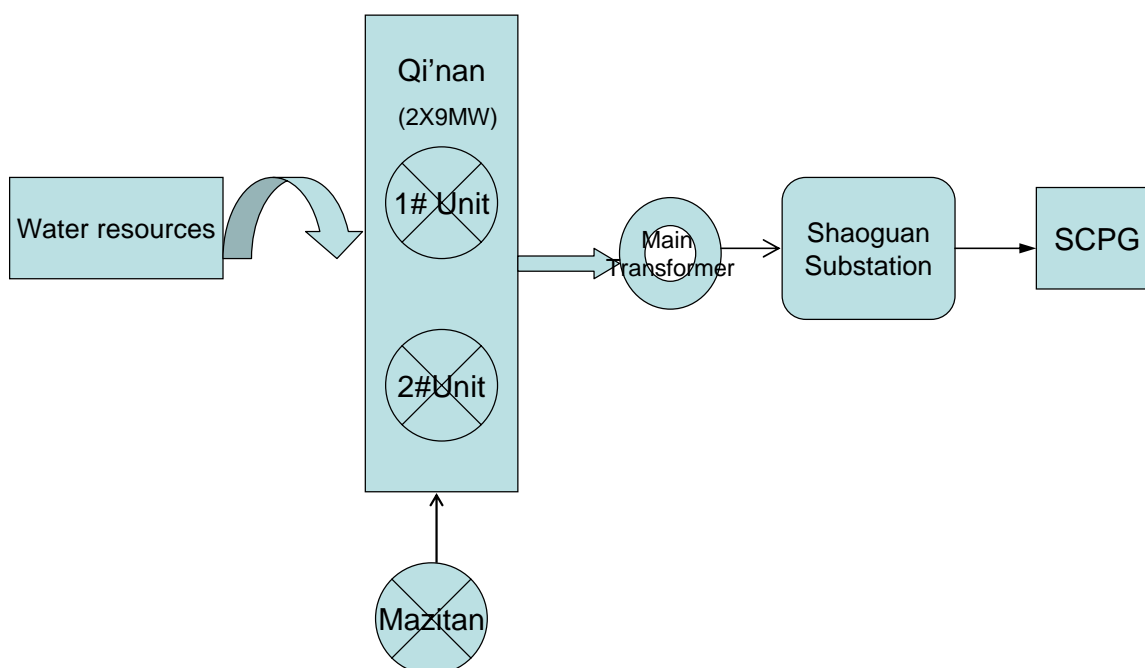
>>

The project is a newly built hydropower plant, the total installed capacity of the project is 18 MW. The project makes use of water resources for electricity generation. The project is connected to Shaoguan Renhua Substation through the 110 kV transmission line. The generated electricity will be delivered to SCPG. Table below shows the characteristics of the equipments employed.

Main parameters of the equipment

Item	parameter
Number of Units	2
Turbine Model	HLA551-LJ-145
Generator Model	SF9000-14/3250

The diagram of the technical process is as follows:

**A.5. Title, reference and version of the baseline and monitoring methodology applied to the project activity:**



>>

The baseline and monitoring methodology applied to the project includes:

“Consolidated baseline methodology for grid-connected electricity generation from renewable sources”

Version 06, 19 May, 2006;

“Consolidated monitoring methodology for zero-emission grid connected electricity generation from renewable sources” Version 06, 19 May, 2006;

Tool for the demonstration and assessment of additionality, version 04, 30 Nov, 2007.

A.6. Registration date of the project activity:

>>

The project is registered on 30th Jan., 2009.

A.7. Crediting period of the project activity and related information (start date and choice of crediting period):

>>

The project adopts renewable crediting period $7 \times 3 = 21$ years.

The start date of the first crediting period is: 30/01/2009

The first crediting period is: 30/01/2009~29/01/2016

A.8. Name of responsible person(s)/entity(ies):

>>

The monitoring report is completed by:

Ms. WANG Xianlai

International Network on Small Hydro Power (IN-SHP)

No. 136 Nanshan Road, Hangzhou, P.R. China

Tel: +86-571-8713-2791

Fax: +86-571-8702 3353

Email: wxl@inshp.org

**SECTION B. Implementation of the project activity****B.1. Implementation status of the project activity**

>>

The project was commissioned on 28/10/2008. All the equipments adopted by the project are in good operation during this monitoring period.

The revenue meter (M4) with Meter serial no.: DSSD536-5054-80800015, was broken as a result of thunder and was replaced by a new meter on 17:18pm 03/08/2009 with Serial no.:DSSD536-5054-80800020, 0.5S.

It is indicated in the registered PDD that the Mazitan project will be connected to Qi'nan and is expected to generate an average annual output around 10,000Mwh. However, due to the limit of water resources and distribution arrangement of the grid company, Mazitan project almost haven't been operated during this monitoring period³.

B.2. Revision of the monitoring plan

>>

Not applicable.

B.3. Request for deviation applied to this monitoring period

>>

Not applicable.

B.4. Notification or request of approval of changes

>>

Not applicable.

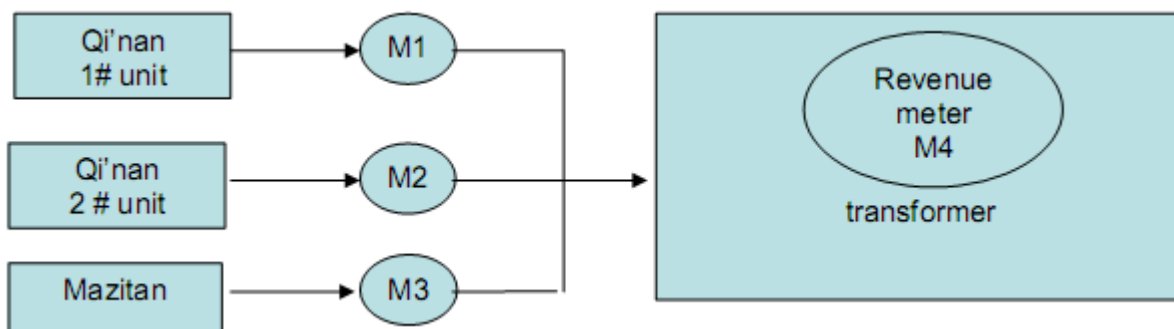
SECTION C. Description of the monitoring system

>>

M1&M2 are installed to measure the electricity generated by Qi'nan. M3 is installed to measure the electricity generated by the original project-Mazitan.

M4 is the revenue meter of the project and is installed at the transformer site to measure the total electricity supplied to SCPG. See below Chart.

³ According to the meter record, the Mazitan plant has only been operated for 2 days in Sept 2009.



M1&M2 records the electricity generated by Qi'nan and M3 records the electricity generated by Mazitan. The accuracy of meter is 0.5S. The meters are measured continuously and recorded monthly.

The revenue meter M4 is used for cross-check, which records the total electricity delivered to grid. It is a 2-way recording meter and its accuracy is 0.5S. The meters are measured continuously and recorded monthly. M4 could be used to check the reasonability of (M1+M2+M3).

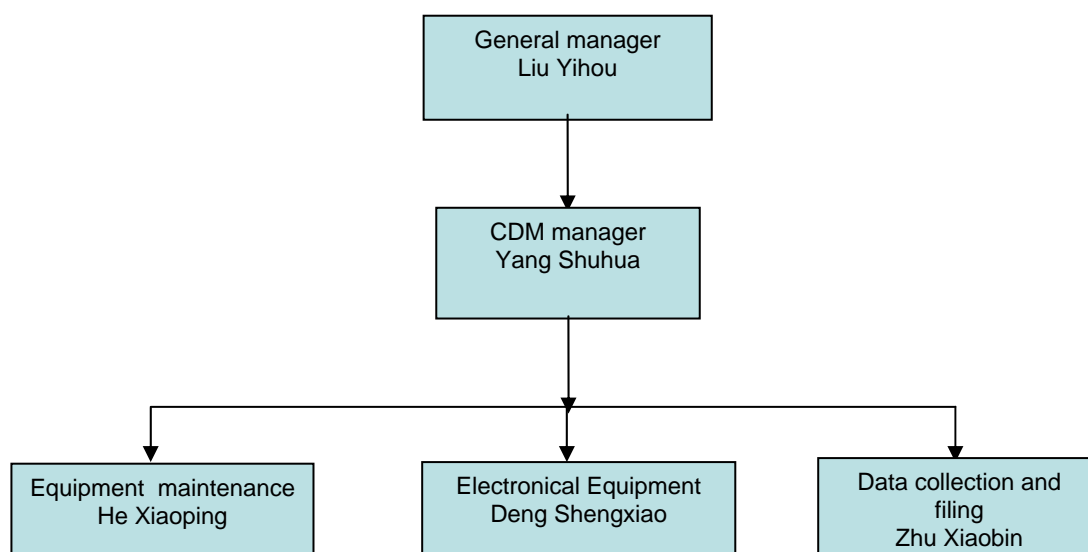
Electricity sales receipts would also be used for cross-check. Conservative value among meters and receipts would be adopted for emission reduction calculation.

Data Collection Procedures:

All the data monitored was achieved in electronic documents as well as manual recording, and will be kept for 2 years till the end of the crediting period. Sales invoices and receipts will also be kept as required.

Organization Structure:

A monitoring organization has been set up and roles and responsibilities of personnel are shown in the Figure below.





The general manager of the proposed project Mr. Liu Yihou will responsible for the whole monitoring plan and checkup the data filed and the monitoring report. Mr. Yang Shuhua is designated as CDM manager to take charge of supervising and demonstrating all the measuring and recording tasks, such as collecting data(ammeter reading, sale receipts), calculating emission reduction and preparing monitoring report etc; he will also be responsible for training the relative staffs, such as CDM knowledge, the operational regulations, the data recording requirements and the management rules etc. Engineer He Xiaoping will be responsible for the hydraulic equipment (including turbine, generator etc) maintenance; Deng Shengxiao will be responsible for the electronic equipment (including meters, control room etc). Zhu Xiaobin will be responsible for data reading and recording.

CDM staff training was carried out and can be proved by training records available. Procedures for data reading, recording, collection, and quality assurance and quality control, as well as procedures for equipment maintenance, failure and calibration, emergency dealing have been included in the operation manual and monitoring manual.

SECTION D. Data and parameters

D.1. Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors

Data / Parameter:	EG _{historical}
Data unit:	Mwh
Description:	Historical generation of the original influenced project Mazitan 5 recent year's annual power generation (2003-2007)
Measured /Calculated /Default:	
Source of data:	Logbook/registered PDD
Value(s) of monitored parameter:	18,000
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	
Measuring/ Reading/ Recording frequency:	
Calculation method (if applicable):	N/A
QA/QC procedures applied:	Kept 2 years after the crediting period

Data / Parameter:	EF _y
Data unit:	tCO _{2e} /Mwh
Description:	Baseline emission factor fixed for the first crediting period



Source of data used:	
Value(s) :	0.84335
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Additional comment:	n/a

D.2. Data and parameters monitored

Data / Parameter:	EG _{y,pa}			
Data unit:	Mwh			
Description:	Electricity supply to grid by project activity			
Measured /Calculated /Default:	Measured			
Source of data:	Meters			
Value(s) of monitored parameter:	75,646.12			
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The data is used for baseline emission calculations.			
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	The data were measured continuously by 3 Meters and were recorded monthly. The information of the meters are as follows:			
	Item	Meter 1	Meter 2	Meter 4
	Type & Serial Number	DTSD341-0141030302	DTSD341-0141030303	DSSD536-5054-80800020 ⁴
	Accuracy	0.5s	0.5s	0.5s
	Calibration information:			
	Meter	1 st Calibration date	Valid until	2 nd Calibration date
	M1	21/10/2008	20/10/2009	20/10/2009
	M2	21/10/2008	20/10/2009	20/10/2009
	M4	21/10/2008	20/10/2009	
	M4 New	03/08/2009	01/08/2010	
	Calibration Frequency	Yearly		
	Calibration	Hu'nan Chenzhou		



	Entity	Metrological Testing Institute	
Measuring/ Reading/ Recording frequency:	Hourly measurement and monthly recording		
Calculation method (if applicable):	Calculated with M1&M2 records.		
QA/QC procedures applied:	Double checked with M3, M4 and sales receipts		

Data / Parameter:	EG _{y,m}				
Data unit:	Mwh				
Description:	Electricity supply to grid by original influenced project Mazitan				
Measured /Calculated /Default:	Measured				
Source of data:	Monthly records				
Value(s) of monitored parameter:	2.6				
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation				
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	M3 records the electricity generated by Mazitan.				
	Item		Meter 3		
	Type & Serial Number		DTSD341-0141030305		
	Accuracy		0.5s		
	Calibration Information				
	Meter	1 st Calibration date	Valid until	2 nd Calibration date	Valid until
M3	21/10/2008	20/10/2009	20/10/2009	19/10/2010	
Measuring/ Reading/ Recording frequency:	Monthly records				
Calculation method (if applicable):	N/A				
QA/QC procedures applied:	Double check with M1, M2, M4 and sales receipts				

Data / Parameter:	A _{PJ}
Data unit:	m ²
Description:	Surface area at full reservoir
Measured /Calculated /Default:	Measured
Source of data:	Topographical survey



Value(s) of monitored parameter:	49000
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The data is used for power density calculation. The power density is calculated as 367.3W/m ² , thus the project emissions are not needed to be considered.
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	The data was measured by the Hunan Provincial Hydropower Design& Research Institute through topographical surveys (full reservoir and reservoir storage) and maps on 28 th November 2008, which is after the full operation of the project.
Measuring/ Reading/ Recording frequency:	Once at the beginning of crediting period
Calculation method (if applicable):	N/A
QA/QC procedures applied:	Kept 2 years after the crediting period

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

>>

The baseline emissions (BE_y) for this monitoring period can be calculated by:

$$BE_y = EG_y * EF_y$$

Where:

BE_y is the baseline emissions in a given year y . in tCO_{2e};

EG_y is the electricity supplied by the project activity to the power grid in year y , in Mwh;

EF_y is the baseline emissions factor in year y , in tCO_{2e}/Mwh.

The baseline emission factor (EF_y) is 0.84335tCO_{2e}/Mwh, which is the fixed for this crediting period according to the registered PDD

The net electricity used for emission reduction can be calculated by:

$$EG_y = (EG_y - EG_{\text{historical}}) = (EG_{y,pa} + EG_{y,m} - EG_{\text{historical}})$$

Where:

$EG_{\text{historical}}$ is the historical Electricity Production of Mazitan project;

Table 1. Electricity Supplied to Grid and Electricity imported from Grid

Period*	$EG_{y,m}$ (Mwh)	$EG_{y,m}$ (Mwh)	$EG_{y,pa}$ (Mwh)	EG_y (Mwh)	EG_y (Mwh)	EG_y (Mwh)	Invoiced EG_y (MWh)	EG_y (Mwh)
	M1	M2	M3	M4 Electricity to Grid	M4 Electricity from Grid	M4 Net Electricity	Invoice	Min (M1+M2+M3, M4, Invoice)
01/02/2009~ 28/02/2009	418.82	431.49	0	846.12	11.00	835.12	835.12	835.12
01/03/2009~			0			2559.04	2559.04	2559.04



31/03/2009	1704.40	882.44		2570.92	11.88			
01/04/2009~ 30/04/2009	4220.75	585.71	0	4778.40	5.28	4773.12	4773.12	4773.12
01/05/2009~ 01/06/2009	3860.14	1913.81	0	5745.52	3.52	5742.00	5742.00	5742.00
02/06/2009~ 30/06/2009	3552.26	5821.77	0	9315.24	0	9315.24	9315.24	9315.24
01/07/2009~ 31/07/2009	754.11	2560.01	0	3298.24	5.72	3292.52	3292.52	3292.52
01/08/2009~ 31/08/2009	0.00	4525.61	0	4510.88	2.64	4508.24	4508.24	4508.24
01/09/2009~ 30/09/2009	545.08	1177.85	2.60	1707.64	3.08	1704.56	1704.56	1704.56
01/10/2009~ 31/10/2009	29.86	822.91	0	847.00	17.16	829.84	829.84	829.84
01/11/2009~ 30/11/2009	1042.71	0.00	0	1040.16	7.48	1032.68	1032.68	1032.68
01/12/2009~ 31/12/2009	1412.78	74.09	0	1480.16	14.08	1466.08	1466.08	1466.08
01/01/2010~ 31/01/2010	1425.63	1052.16	0	2470.60	11.44	2459.16	2459.16	2459.16
01/02/2010~ 28/02/2010	2040.07	700.43	0	2723.60	9.24	2714.36	2714.36	2714.36
01/03/2010~ 31/03/2010	1106.60	391.99	0	1491.60	11.44	1481.92	1481.92	1481.92
01/04/2010~ 30/04/2010	3735.77	5286.14	0	8960.60	1.76	8957.08	8957.08	8957.08
01/05/2010~ 31/05/2010	1669.82	6118.69	0	7738.72	1.32	7737.40	7737.40	7737.40
01/06/2010~ 30/06/2010	3900.77	6323.37	0	10127.04	0	10127.04	10127.04	10127.04
01/07/2010~ 31/07/2010	2346.25	3808.16	0	6114.68	3.96	6110.72	6110.72	6110.72
TOTAL	33765.80	42476.62	2.60	75767.12	121	75646.12	75646.12	75646.12

* Meters were read at 12:00 am on the last day of each month. Except May 2009, the grid company postponed the transaction date to 1st June.

The average annual generation of Mazitan (during the recent 5year: 2003~2007) is 18,000Mwh/year. So the $EG_{\text{historical}}$ from 01/02/2009 to 31/07/2010 (546 days) should be:
 $1,8000\text{Mwh}/365 \text{ days} * 546\text{days} = 26,926\text{Mwh}$.

Therefore,

$$\begin{aligned}
 EG_y &= (EG_y - EG_{\text{historical}}) \\
 &= 75,646.12 - 26,926 \\
 &= 48,720.12\text{Mwh}
 \end{aligned}$$



The Baseline emission for this monitoring period is:

$$BE_y = EG_y * EF_y = 48,720.12 \text{ Mwh} * 0.84335 \text{ tCO}_{2e}/\text{Mwh} = 41,088 \text{ tCO}_{2e}.$$

E.2. Project emissions calculation

>>According to ACM0002, A_{PJ} has been measured at the start of the crediting period. The surface area at full reservoir level is 49,000 m², the power density is 367.3 W/m², which is greater than 10 W/m². So the project emission (PE_y) is 0.

E.3. Leakage calculation

>>

According to ACM0002, Leakage (L_y) of the project activity is 0.

E.4. Emission reductions calculation / table

>>

Total baseline emissions: 41,088 tCO_{2e}.

Total project emissions: 0 tCO_{2e}.

Total leakage: 0 tCO_{2e}.

Total emission reduction of the project for this monitoring period (ER_y) is:

$$ER_y = BE_y - PE_y - L_y = 41,088 - 0 - 0 = 41,088 \text{ tCO}_{2e}.$$

E.5. Comparison of actual emission reductions with estimates in the CDM-PDD

>>

Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions (tCO _{2e})	58,106 tCO _{2e} (01/02/2009~31/07/2010)	41,088 tCO _{2e} (01/02/2009~31/07/2010)

E.6. Remarks on difference from estimated value in the PDD

>>

The actual value of emission reductions of the project **41,088 tCO_{2e}** is less than the ex-ante calculation in the PDD, i.e. **58, 106 tCO_{2e}** from 01/02/2009-31/07/2010. **There is no increase in electricity generation.**