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TÜV®

CDM Executive Board

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Date
29.08.2008

Request for Review

“Yuexi Dayan Small Hydropower Project” (1814)

Dear Sir/Madam,

Please find below the response of the project participant (Yuexi County Liyuan Hydropower Development Co. Ltd) and the TÜV NORD JI/CDM Certification Program to the request for review for the above mentioned project no. 1814.

If you have any questions do not hesitate to contact us.

Yours sincerely,

TÜV NORD JI/CDM Certification Program



Rainer Winter

Request for Review (1-1, 1-2, 1-3)	
Issue raised by EB Members / DNA	<i>The DOE is required to explain how it has validated the project activity faced financial barriers if the bank loan refusal is based on a 10 MW plant and not on the 14.2 MW plants.</i>
Response of project participant	<p>The Yuexi County Dayan River Basin Hydropower Development Report was approved by the Development & Reform Commission of Liangshan Yi Autonomous Prefecture on Sep. 13, 2005 (Document No: Liang Ji Jiao Neng [2005]435). According to the Report, the hydro-energy of Dayan River would be developed by 3 hydroelectric stations named Stage I, II and III. The installed capacity of Stage I, II and III would be 1.26 MW, 1.85 MW and 10.0 MW, respectively. Stage II and III was owned and developed by Yuexi County Liyuan Hydropower Development Co. Ltd., and Stage I was owned and developed by another company.</p> <p>The project owner applied loan from Agricultural Bank of China Yuexi County Branch for both Stage II and Stage III, but it was rejected due to high risk of investment on January 26, 2006. According to the economic evaluation results of both Stage II and III carried out by Agricultural Bank of China Yuexi County Branch, unit kWh investment was 1.251 Yuan/kWh, which was much higher than average level. The average IRR was only 6.87 % of the total investment for both Stage II and III, and the NPV was –1143.49 Yuan. Thus, the financial indicators were unacceptable. The loan application was rejected on January 26, 2006. In the meantime, the bank suggested the project owner to apply for CDM¹.</p> <p>Then three shareholders retreated from Yuexi County Liyuan Hydropower Development Co. Ltd. on February 25, 2006. The project owner tried very hard to find every way to save the project. With the suggestion from Agricultural bank of China Yuexi County Branch and based on the successful experiences of CDM project development in China, the project owner was encouraged to continuously develop Dayan Stage II and III with the help of CDM. Then the fifth meeting of the board of directors was held on May 06, 2006. On the meeting, it was decided by the board of directors that Dayan Stage II and III would be developed as CDM projects with the help of CDM experts. After the meeting an agreement on CDM development cooperation was signed between Yuexi County Liyuan Hydropower Development Co. Ltd. and the CDM experts from Hunan province on June 2, 2006². Thus, the project owner has seriously considered CDM.</p> <p>Although the proposed project is scaled up after considering CDM and the total installed capacity is regulated from 11.85 MW to 14.2 MW due to project optimization according to geological conditions. The proposed project is still financially unattractive based on IRR analysis whose data source is based on the Power Purchase Agreement for Stage II and Stage III dated 6 March 2007 and the Preliminary Design Report for Installed Capacity Regulation for Stage</p>

¹ Reply to the loan application of Yuexi County Liyuan Hydropower Development Co. Ltd. to Agriculture Bank of China Yuexi County Branch on March 26, 2006, where the loan application was rejected due to the poor profit.

² Agreement on CDM project development cooperation signed between Yuexi County Liyuan Hydropower Development Co. Ltd and Sangzhi Nanfang Hydro Development Co. Ltd. on June 2, 2006.

	<p>II and III hydro respectively (see the attached spreadsheets of IRR calculation). We realize that the PDD needs to be revised to include the financial analysis, showing that the project is still not viable without the CDM, even with the higher installed capacity. The revised PDD has been provided to TÜV NORD.</p>
Response of DOE	<p>The CDM management decision was made on 6th May 2006, based on bank loan rejection and the suggestion from the bank regarding to CDM. It has been validated that the project faced financial barrier at the time of CDM management decision. Evidences have been submitted, checked and listed in the final validation report.</p> <p>The installed capacity of the Dayan Stage II was adjusted from 1.85 MW to 1.6 MW and that of Dayan Stage III was changed from 10 MW to 12.6 MW due to bad geological condition. Details can be found in Preliminary Design Report of Installed Capacity Regulation for Dayan Stage III dated November 2006 and the Preliminary Design Report of Installed Capacity Regulation for Dayan Stage II dated April 2007. Both reports have been approved by local authority. The regulation of installed capacity does not make the financial status better. Based on the Preliminary Design Report of Installed Capacity Regulation and the Power Purchase Agreement for Yuexi Dayan Small Hydropower Project dated March 6, 2007, IRR of Dayan Stage II is 6.21 % and IRR of Dayan Stage III is 7.59 %, both below benchmark value 10 %. Sensitivity analysis using total investment, annual electricity output, electricity tariff and operational cost shows that when the sensitive parameters vary by -10 % to +10 %, the IRR of the two sub-projects are always below benchmark.</p> <p>The project participant made necessary corrections and revisions in the PDD. All the corrections and corresponding evidences were checked and assessed to be correct and appropriate.</p> <p>Thus, conclusion is made that loan rejection from bank is still valid, even if the capacity changed. The increase of capacity does not lead to a financially more viable project. Thus, the DOE assessed that the project faced financial barrier even after the capacity increase and therefore is additional.</p> <p>If this information is not sufficient to close the request for review, we appoint Mr. Li Yong Jun as our contact person:</p> <p>Mr. Li Yong Jun CDM project manager China Room 11C, East Ocean Centre II, No. 618 Yan An Rd. (E), Huangpu District, Shanghai China 200001 Tel: +86 (0)21 53855353-259 Fax: +86 (0)21 53855369</p>

Request for Review (2-1, 2-2, 2-3)	
Issue raised by EB Members / DNA	<i>The PP/DOE are requested to provide a detailed timeline of events carried out for implementing the project activity, including the events on CDM consideration.</i>
Response of project participant	<p>Yuexi County Dayan River Basin Hydropower Development Report was approved by the Development & Reform Commission of Liangshan Yi Autonomous Prefecture on Sep. 13, 2005 (Document No: Liang Ji Jiao Neng [2005]435). According to the Report, the hydro-energy of Dayan River would be developed by 3 hydroelectric stations named Stage I, II and III. The installed capacity of Stage I, II and III are 1.26 MW, 1.85 MW and 10.0 MW, respectively. Stage II and III was owned and developed by Yuexi County Liyuan Hydropower Development Co. Ltd., and Stage I was owned and developed by another company.</p> <p>The Preliminary Design Report of Stage III was approved by the Development & Reform Committee of Liangshan Yi Autonomous Prefecture on Dec. 22, 2005³. But the IRR value of the proposed project was found to be quite low. According to the economic evaluation results of Stage II and III carried out by Agricultural Bank of China Yuexi County Branch, unit kWh investment was 1.251 Yuan/kWh, which was much higher than average level. The IRR was only 6.87 % of the total investment, and the NPV was -1143.49 Yuan. Thus, the financial indicators were unacceptable. The loan application was rejected by Agricultural Bank of China Yuexi County Branch on January 26, 2006. In the meantime, the bank suggested the project owner to apply for CDM⁴.</p> <p>Considering the low investment return, three shareholders with 30 % of the total shares retreated from the company on Feb. 25, 2006⁵.</p> <p>With the suggestion of the Bank, the project owner considered CDM. The successful experiences of CDM project development in China also bring confidence to the project owner. A decision about developing Yuexi Dayan Small Hydropower Project as a CDM project was achieved on the fifth general meeting of shareholders on May 6, 2006⁶, and then an agreement on CDM development cooperation was signed between Yuexi County Liyuan Hydropower Development Co. Ltd. and the CDM experts from Hunan province on June 2, 2006⁷. CDM revenues will be expected to increase the project IRRs greatly. Thus, the proposed project will be investment attractive with CERs revenue.</p> <p>CDM revenues provide a secure long term source of revenues from the project in hard currency, mitigating the risks associated with investing in this project. Considering CDM revenues, four new shareholders joined in the proposed project activity on June 8, 2006 by providing up-front financing, and 25% of the total shares were transferred to the new shareholders⁸.</p> <p>Then, the preparation works including the supply of water, electricity and road and ground leveling started on July 1, 2006 for Stage III⁹. But the following exploration revealed that the geological condition of the location where the powerhouse of the Stage II would be built was quite bad. Thus, the location of the powerhouse of Stage II had to be moved upriver by 220m, and the intake gate of Stage III was moved upriver by 250m accordingly. By the regulation,</p>

the rated water head of Stage II would be deducted by 18m, and the water head of Stage II would increased by 17m. Thus, the installed capacity of Stage II was regulated from 1.85MW to 1.6 MW and the installed capacity of Stage III was regulated from 10MW to 12.6MW in Nov, 2006. The Preliminary Design Report for Installed Capacity Regulation in Dayan Stage II and III Hydropower Project was jointly approved by both Development & Reform Committee of Liangsha Yi Autonomous Prefecture and the Water Conservancy Bureau of Liangshan Yi Autonomous Prefecture on February 5, 2007 (document No: Liang Fa Gai Jiao Neng [2007]49). The tunnel construction of Stage III started on Feb. 6, 2007. And the construction of Stage II started on April 6, 2007¹⁰.

Some key events related to CDM consideration were listed in the table below:

Sep. 13, 2005	Yuexi County Dayan River Basin Hydropower Development Report was approved by the Development & Reform Commission of Liangshan Yi Autonomous Prefecture (Document No: Liang Ji Jiao Neng [2005]435). Stage II and Stage III with installed capacity of 1.85MW and 10.0MW, respectively, would be owned and developed by Yuexi County Liyuan Hydropower Development Co. Ltd.
Dec. 22, 2005	The Preliminary Design Report of Stage III was approved by the Development & Reform Committee of Liangshan Yi Autonomous Prefecture (Document No: Liang Shui Fa [2005]197).
Jan. 26, 2006	The loan application for Stage II and III construction was rejected by Agricultural Bank of China Yuexi County Branch, and the bank suggested the project owner to apply CDM.
Feb. 25, 2006	Three shareholders with 30% of the total shares retreated from the company.
May 6, 2006	The decision about developing Yuexi Dayan Small Hydropower Project as a CDM project was achieved on the fifth general meeting of shareholders.
June 2, 2006	Agreement on CDM development cooperation was signed between the project owner and the CDM consultant.
June 8, 2006	Four new shareholders joined in the proposed project activity, and 25% of the total shares were transferred to the new shareholders.
July 1, 2006	The preparation works including the supply of water, electricity and road and ground leveling started for Stage III.
Nov, 2006	The geological condition of the location where the powerhouse of the Stage II would be built was quite bad. Thus, the location of the powerhouse of Stage II had to be moved upriver by 220m, and the intake gate of Stage III was moved upriver by 250m accordingly. By the regulation, the water head of Stage II would be deducted by 18m, and that of Stage III would increased by 17m. Thus, the installed capacity of Stage II was regulated from 1.85MW to 1.6 MW and the installed capacity of Stage III was regulated from 10MW to 12.6MW.

	Feb. 5, 2007	The Preliminary Design Report for Installed Capacity Regulation for Stage II and III was jointly approved by both Development & Reform Committee of Liangsha Yi Autonomous Prefecture and the Water Conservancy Bureau of Liangshan Yi Autonomous Prefecture on (Document No: Liang Fa Gai Jiao Neng [2007]49).
	April 6, 2007	The preparation works for the construction of Stage II started.
	June 4, 2007	The Emission Reduction Purchase Agreement (ERPA) was signed between the project owner and Carbon Asset Management Sweden AB.
<p>³ The Preliminary Design Report of Stage III has been approved by both Development & Reform Committee of Liangsha State and the Water Conservancy Bureau of Liangshan State on Dec. 22, 2005 (Document No: Liang Shui Fa [2005]197).</p> <p>⁴ Reply to the loan application of Yuexi County Liyuan Hydropower Development Co. Ltd. to Agriculture Bank of China Yuexi County Branch on March 26, 2006, where the loan application was rejected due to the poor profit.</p> <p>⁵ The decision of the third general meeting of shareholders, Yuexi County Liyuan Hydropower Development Co. Ltd. on Feb. 25, 2006, where three shareholder retreated from Yuexi County Liyuan Hydropower Development Co. Ltd.</p> <p>⁶ The decision on CDM development achieved in the fifth general meeting of shareholders, Yuexi County Liyuan Hydropower Development Co. Ltd., May 6, 2006.</p> <p>⁷ Agreement on CDM project development cooperation signed between Yuexi County Liyuan Hydropower Development Co. Ltd and Sangzhi Nanfang Hydro Development Co. Ltd. on June 2, 2006.</p> <p>⁸ The decision of the sixth general meeting of shareholders, Yuexi County Liyuan Hydropower Development Co. Ltd. on June 8, 2006, where four shareholders (Mr. Sun Guangming, etc) joined in Yuexi County Liyuan Hydropower Development Co. Ltd., and the Article of Association of Yuexi County Liyuan Hydropower Development Co. Ltd. which was revised on June 16, 2006.</p> <p>⁹ The Notice of Construction Starting for Stage III issued by Yichang Jiangxia Construction Surveillance Co. Ltd. on June 26, 2006, which stated that the project construction would started on July 1, 2006.</p> <p>¹⁰ The Notice of Construction Starting for Stage II issued by Yichang Jiangxia Construction Surveillance Co. Ltd. on April 5, 2007.</p>		
Response of DOE	<p>The detailed timeline of events carried out for implementing the project activity, including the events on CDM consideration is provided in the revised PDD. The time table is validated and all related evidences have been checked by DOE.</p> <p>If this information is not sufficient to close the request for review, we appoint Mr. Li Yong Jun as our contact person:</p> <p>Mr. Li Yong Jun CDM project manager China Room 11C, East Ocean Centre II, No. 618 Yan An Rd. (E), Huangpu District, Shanghai China 200001 Tel: +86 (0)21 53855353-259 Fax: +86 (0)21 53855369</p>	

Request for Review (3-1, 3-2, 3-3)	
Issue raised by EB Members / DNA	<i>The PP/DOE are requested to clarify/correct the operating margin figure used to calculate the ex-ante combined margin emission factor.</i>
Response of project participant	The operating margin figure used to calculate the ex-ante combined margin emission factor has been revised according to the guidance issued by Chinese DNA in the revised PDD.
Response of DOE	<p>For conservative reason the published data from China DNA in August 2007 is used for OM calculation. OM is now calculated as 1,2899 tCO₂e. Emission reduction calculation in the PDD is revised. The calculation has been checked by DOE. The corrections are also indicated in the corresponding section of the revised final validation report.</p> <p>If this information is not sufficient to close the request for review, we appoint Mr. Li Yong Jun as our contact person:</p> <p>Mr. Li Yong Jun CDM project manager China Room 11C, East Ocean Centre II, No. 618 Yan An Rd. (E), Huangpu District, Shanghai China 200001 Tel: +86 (0)21 53855353-259 Fax: +86 (0)21 53855369</p>