

**China-Denmark Cooperative Project  
On Provincial Capacity Building for Biomass Energy CDM**

**Summary Report**

**Academy of Area Economy  
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School of Geography Science and Tourism  
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**Dec. 2009**

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**1. The Project Background**

CDM is related to the sustainable development, and it has impacted economy and society development, such as sustainable agriculture, clean production, clean energy and transport, natural resource protection and use, pollution control. Because China also is a 'big nation' in green gas emission, she will face the bigger pressure of emission reduction. With the raising request for environmental conservation, now the economy growth mode、consumption mode and energy consumption structure in China will face big challenge. How to hold a position in technical regulation of CDM and emission standard is the key to holding initiative in international trade, meanwhile it also the key to obtaining funds and vanguard technology to promote economy and society development and reduce poverty for poor regions.

The CDM Capability Building for Biomass Project aided by the Danish Government formally went into effect in the November of 2006. According to the consultation between the Chinese and Danish parties, this project is jointly implemented by the Energy Research Institute (ERI) under the State Development and Reform Commission of China and Danish Technological Research Institute. The project aims improving China's capacity in developing and managing CDM projects and enhancing China's international cooperation in global climate change. Xinjiang Autonomous Region is one of the three exemplary provinces for implementing this project. The College of Geography Science and Tourism of Xinjiang Normal University and the Institute of Macroeconomics under Development and Reform Commission of Xinjiang Uyghur Autonomous region are the project cooperative

partners of ERI in Xinjiang Uyghur Autonomous Region. In the July of 2007, the two partners, Xinjiang Normal University and Development and Reform Commission of Xinjiang, signed a formal contract on the cooperative implementation of the project in Xinjiang. And the two partners have accomplished all the task of the project according to the project plan based on the contract.

## **2. Project Objectives**

a) Cooperation with ERI to carry out country-wide investigation of biomass resources and technologies;

b) To carry out the investigation of biomass resources activities in Xinjiang and to make assessment on the needs of CDM capacity building, to organize training programs for CDM knowledge and skills, and to work out the plans for assuring biomass materials and to organize training programs for management of biomass construction projects;

c) To improve the capacity of the regional officials and research personnel in identifying and developing CDM projects, as well as the capacity in developing PINs and PDDs for the CDM project.

## **3. The Basic Conditions of the Application Units**

Xinjiang Normal University is a nationally and regionally funded full time university, also a key University in Xinjiang. There are 1877 staffs and 963 fulltime teachers, of which are 76 professors and 295 associate professors. The university has 5 first-category disciplinary programs, 45 second-category disciplinary programs at the national level, two key disciplinary faculties at the provincial level, and another 7 key disciplinary programs at the university level. The university had developed a complete education system including post-graduate education. The university has 11 colleges, covering eight disciplinary faculties, including economics, law, education, management, literature and language, history, the sciences and engineering. The university has 12 comprehensive laboratories, 14 research institutes, 10 research

centers, 7 laboratories. Xinjiang Normal University Library is noted for its collection of books of languages, Chinese culture, computer, pictorials, newspapers, altogether 1,100,000 volumes and more.

College of Geography Science, Xinjiang Normal University, has 54 teaching and administrative staff, including 6 professors, 15 associate professors, 24 lecturers, and 5 laboratory technicians. In the past five years, the College has 32 projects granted by the national foundations and the foundations of Xinjiang, and 8 projects of international cooperation. Now the College teachers are doing research for two national projects. The college academic staff published 20 academic books and 500 research papers. The College of Geography Science has MA programs in human geography, geographic information system, population resources, ecology, and physical geography. The College is equipped with a key laboratory for oasis studies, an oasis space information and geography laboratory. It has a rich collection of references about Xinjiang natural resources, society and economy. Also the College has a Remote Sensing Image database. And it also has its own institute of oasis and a section for culture anthropology, and other training sectors and a sustainable development education center.

The collaborative applicant, the Institute of Regional Economy Studies, Xinjiang Academy of Economy Studies, affiliated to Xinjiang Development and Reform commission, is an research institution that provides the theories and consultancy service for the Government and the CCP Committee of Xinjiang Uygur Autonomous Region, Xinjiang Development and Reform Commission, its related departments, and local governments and enterprises. Its main research tasks are to monitor and predict the development of regional land management, development, use, arrangement of resources and market and adjustment and layout of industrial structure, providing suggestions and applicative methods; it also carries out surveys and offers policy consultation service for related problems on resources, environment and sustainable

development; and it carries predictive and application micro researches on regional resources, environmental information, analysis, assessment of environment and 3S application.

The Head of the Cooperative Unit, Jiao Guanghui, born in 1956, was a scholar on Tsukuba University of Japan. As a senior economist, he is the head of regional economy section of Xinjiang Development and Reform Commission. He is specialized in the study of regional sustainable development, regional economy cooperation, and “clean” development dynamics. Now he is in charge of several research projects, such as the eleventh planning for recycle economy of Xinjiang and the middle-long term planning study, and organization the monitoring on Xinjiang CDM projects, Xinjiang recycle economy development. His research results, such as countermeasures for Tarim River ecological environment restoration, won the second-class award of Xinjiang Science and Technology Progress, the project of China and Pakistani collaboration in satellite resources remote sensing in which he participated, won the same government award, and the project on the area differences in economic development and investment environment and the project on the participation of China Xinjiang in the central Asia region economic cooperation in which he participated also won the third-class awards of Xinjiang Science and Technology Progress. He published more than 10 research papers in the academic journals at various levels.

The Head of the Project Implementation, Wang Zhe, born in 1957, is an professor, tutor of MA program, and the director of Central Asia Research Center, manager of the Institute of the Oasis Studies of Xinjiang Normal University, Urumqi. His research field includes regional resource development and planning, the sustainable utilizing of local natural resource, and the area economic development. He has been in charge of or participated more 20 projects at national and Xinjiang Uygur Region’s level, and published 6 monographs, such as “The Xinjiang Geography”、 “The Study of

Xinjiang Region and the Environment for Investment ”, “An Analysis of Spatial Economy Structure”, and he also published 30 research papers.

## **4. Effects of project implementation**

### **4.1 Main Tasks**

The project contains the following main contents:

- a) To assess the potentials of the main biomass resources in Xinjiang;
- b) To assess the specific needs for capacity building;
- c) To work out the programs to attract the local residents to participate in the project and provide the project with biomass materials;
- d) Training: To organize the personnel training concerned of Xinjiang Uygur Autonomous Region, such as government officials, researchers of related institutes, people of other institutions related to biomass, CDM project developers and local personnel related to the implementation of the project. The training programs aims to introduce the basic concepts, methodology, the management of biomass building projects、 and to introduce the CDM experiences at home and abroad;
- e) To introduce CDM project to the local people;
- f) To identify and screen projects;
- g) To organize the training programmes related to CDM, and to develop 1 PDD and 5 PINs;
- h) Revision and appraisal about project reports.

### **4.2 the Output**

- a) Completed the final Chinese and English versions of *A Report on Xinjiang Biomass Resources and the reports about typical areas*;
- b) Completed the final Chinese and English versions of *A Report on Assessment of Capacity Building Needs*;
- c) Completed the final Chinese and English versions of *A Reports on Biomass Material Supply*;
- d) Completed the final Chinese and English versions of *Summary Report on*

*Training Seminar;*

e) Completed the final Chinese and English versions of *Tracking Survey Report on Operation Management Training of Biomass Building Project after three months;*

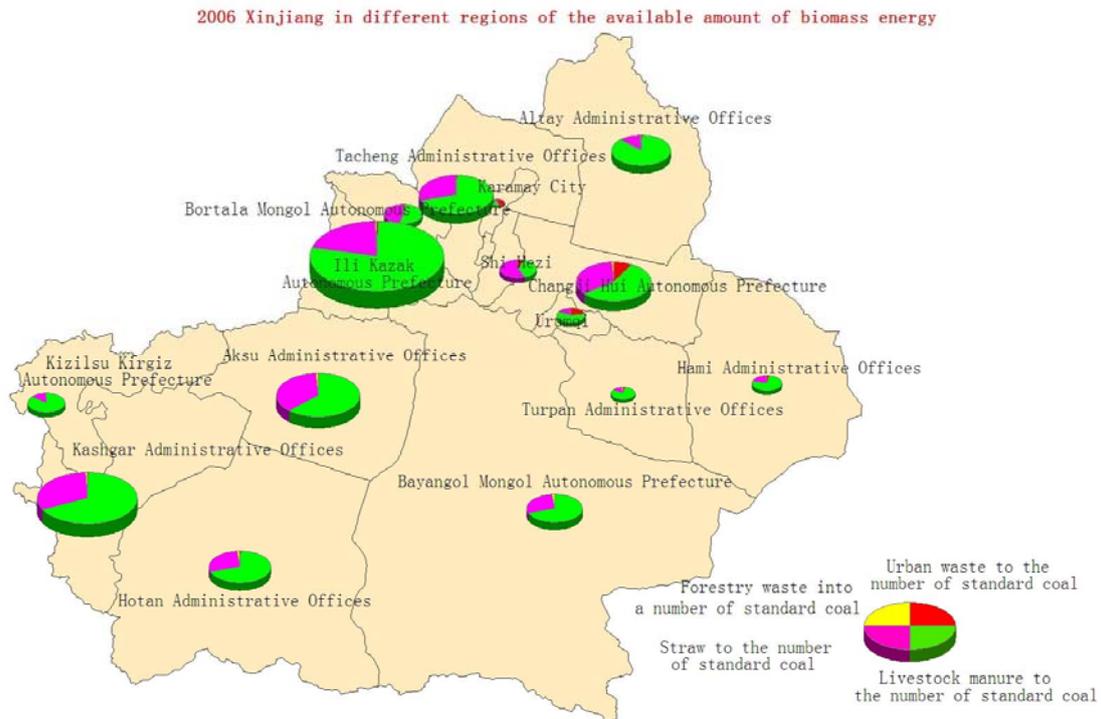
f) Completed the final Chinese and English versions of *A Report on Application of Screening Software Tool for the Project;*

g) According to the revision advices on DTI, completed the final Chinese and English versions of 5 PINs and 1 PDD.

**4.3 Effects of project implementation**

**a) Surveyed and evaluated the potential of main biomass resource in Xinjiang**

After survey and evaluate the potential of mainly biomass resource, we can see that the total biomass and its distribution in Xinjiang as shown in the following diagram:



**Table 1 Total biomass quantity of Xinjiang in 2006**

Types of biomass energy	volume theory (10,000 tons)	The amount available(10,000 tons)	The amount available Ton of coal equivalent (10,000 tons)	The amount available Ton of oil equivalent(10,000 tons)
Cotton Straw	794.56	529.71(Manual collection)	287.63	201.34
		397.28(Mechanical means of collection)	215.72	151.00
Tree branches	64.95	58.45	33.32	23.32
Livestock manure	6999.22	4382.29	205.97	
Municipal Solid Waste(Solid, liquid)	8811.29	8811.29	80.53	56.37
Total	16670.02	13649.31-13781.74	535.54-607.45	374.87-425.21

According to the characteristics of different minorities in Xinjiang who have their own energy use and based on the principle of conservative estimates, the total biomass energy of Xinjiang in 2006 can be converted to about 535.54~607.45 million tons of standard coal(374.87~425.21 million tons of standard oil).

#### **b) An Assessment of demands on capacity building**

We had surveyed the capacity of CDM projects enterprises (owners) in Xinjiang and found that CDM projects in Xinjiang has a limited number, lower level and takes only small percentage of the whole country. By the end of April 17, 2008, 1253 items of CDM project were authorized and 270,210,000 tCO<sub>2</sub>e were transferred. There are 18 items (see table 2) in Xinjiang, which were authorized by State Development and Reform Commission. The proportion is about 1.43% and estimatedly it will transfer 2,748,000 tCO<sub>2</sub>e, accounting for 1% of the country's. Up to April, 2008, the biomass energy CDM projects authorized by EB in Xinjiang were only 2. Therefore, from the point of the company concerned, biomass energy CDM project is quite a new thing. It needs more effective and systemic education and training in CDM so as to meet their needs for developing the CDM enterprises.

**Table 2 Quantity of Xinjiang's CDM Companies in the Whole Country**

	CDM company (number)	Total reduction (tco <sub>2</sub> e)
Xinjiang(total)	18	2,747,938
China(total)	1253	270,208,765
Xinjiang to China (%)	1.436552	1.01696849
Biomass energy CDM company	2	155,012

Data source: Region Economy Department, Xinjiang Uygur Autonomous Region Development Reform Committee. June, 2008

We had already surveyed the demands of CDM project for capacity building in Xinjiang, mainly for project owners, Consultant Company, government official and others. After the analysis of the results in questionnaire surveying on the demands for biomass energy CDM project capacity building in Xinjiang, we found that:

- (1) Poor Knowledge about biomass energy CDM project ;
- (2) Proportion of participation in biomass energy project ;
- (3) Positive attitude to the biomass energy CDM project;
- (4) High enthusiasm to participate in the training of CDM projects.

**Conclusion:** CDM projects training are very essential.

#### **c) Biomass material supply**

Based on the utilization situation of biomass resources in Xinjiang, we have planned for the biomass material supply. The specific content contains the following aspects:

- (1) the biomass resources utilization of Xinjiang;
- (2) the current supply system of biomass resources in Xinjiang;
- (3) the main supply modes of biomass resources;
- (4) the suggestions on guaranteeing biomass supply.

#### **d) CDM project training program**

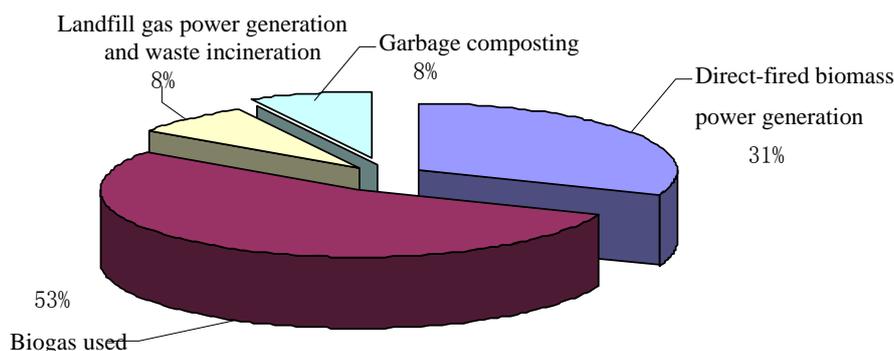
According to the Assessment Capacity Building needs, we have successfully conducted "Sion-Danish CDM biomass energy provincial level ability construction training seminar" in June 9-13, 2008 in the Hongyan Hotel in Urumqi. The participating units and people including 52 units and 135 people have signed up with

the meeting and 120 people actually participated the meeting. They are from statistics the government department, the scientific research institution, the universities, colleges and institutes, the elements of consultation, the project owner unit and so on.

After the analysis of the curriculum feedback in this training seminar, we may know this training seminar have a great influence and reach to the anticipated purpose.

e) Project recognition, screening and item file defining aspect

We had carry out field research in the typical district, and finally submitted the long list of 13 potential projects. According to the on-site research with the screening result, we had chosen 5 representative projects from the long list as emphasis cases. At last, we chose only one as CDM project to develop.



**The technology type distribution of biomass potential CDM projects in long list**

**chosen representative projects from the long list as emphasis cases**

<b>Project Name</b>	<b>Whether A Key Development Target for the Project</b>	<b>Whether Development for PDD</b>
The model project of the gas power generation of Bo Ning Livestock Development Company Limited	<b>Yes</b>	<b>No</b>
The model project of biogas power on the cow breeding farm Hutubi County	<b>Yes</b>	<b>No</b>
The demonstration basement project of the green energy eco-agriculture	<b>Yes</b>	<b>No</b>
The Direct Straw Biurning Power Generation Project of Manas County in Xinjiang	<b>Yes</b>	<b>No</b>
<b>The utilization project of large-scale chicken farm manure of Xinjiang Taikun</b>	<b>Yes</b>	<b>Yes</b>

In conclusion, after the activities above, we have made several progresses as

following: (1)we had a more accurate and macroscopic assurance about every biomass energy of the whole Xinjiang including their characteristic, distribution, annual output as well as using form and so on; (2)we had a more deeply understanding of the present situation of Xinjiang CDM project's development, and proposed ability construction demanding and several solution plans about the existed questions; (3) through thorough investigation and research, we generated the scientifically, effectively material supply plan; (4)we carried out the training and propaganda activities about the CDM project so that not only the government officials, the enterprise owners but also the farmers had a more recognition about the related knowledge of CDM; (5) Weighing investigations and studies and using “Biomass CDM Screening Software”, we have determined 5 PIN and 1 PDD developmental items and hoped that the coming CDM projects of Xinjiang may play a certain exemplary role.

## **5. Questions and Suggestion**

### **5.1The Main Problems in the Project Implement**

(1) the enterprises shows interesting to CDM, but no willingness to vest.

According to the results from the surveys by use of questionnaires and discussions, it is known that the enterprises also have a great interest in CDM projects. And their willingness to invest and develop projects is strong. Because of high risk, they shows unwillingness to vest on their own.

(2) the propaganda effective is good, but peasant have no free power to decide how to make use of biomass materials, because the local government decide how to use of material .

(3)The Problems of the Defects of the Tools Software: Can Not Cope with Complex Situations

When we did project selection for the biomass waste straw resource utilization projects, it is found that there are many conditions do' nt met by actual conditions in

Xinjiang, such as the type of biomass fuel more than one, different transportation means and methods of purchasing biomass resources due to the differences in economic development and enterprise operation. So, these conditions will be met by instead condition, then the error is not avoided.

## **5.2 The Main Problems in the Project Development**

(1) The resources is very rich, but the developed biomass projects are rare.

(2) Poor Knowledge about biomass energy CDM project

Only 10% (4persons) of the objects are familiar with Chinese biomass energy resources, its developing and utiliting. The others know little about them (see Table4-5) . Although, in recent years, CDM projects have been developing rapidly in China, but in Xinjiang, the case is different. The degree of knowledge is also very low. This corresponds to the proportion of the CDM project quality in Xinjiang that accounts for 1% of the nation's. Therefore, to enhance biomass energy CDM project training is one of the important tasks in the adminsitative offices.

**(3) The consultant agency and professional is rare .**

Xinjiang's biomass energy CDM companies and consultant companies are at the primary stage. At present, only two biomass energy CDM projects are authorized by state departments. There is not any CDM consultant company in Xinjiang. In general, the CDM is a new for the Xinjiang's Enterprises, especially for the Biomass Enterprises.

## **5.3 Suggestion for future**

(1) To strengthen propaganda for residents ,enterprises and professional.

(2)With the government help, the consultant agency that render services for all the people will be constructed.

With the knowledge of CDM, the government should promote making use of biomass and develop projects.

(3) To Use the Ways of Tax Reduction and Tax-free to Encourage and Support Enterprises to Participate in CDM.

According to the results from the surveys by use of questionnaires and discussions, it is known that the enterprises also have a great interest in CDM projects. And their willingness to invest and develop projects is strong. And they hope that governments will offer subsidies in the way of tax-free. And the government leaders we interviewed expressed their willingness to offer help to enterprises with proper policies. Therefore, the governments should take effective measures to relieve enterprises of their worries and difficulties so as to achieve the good implementation of the CDM project.

(4) To Enhance the Education and Guidance and to Protect farmers' Enthusiasm for Participating in CDM Projects.

The projects of development and utilization of biomass offer more channels of the utilization of residues from production of agriculture and forestry, and it is also a new opportunity to increase the farmers income. Therefore, it is necessary to help farmers to understand more of the biomass resources by education and to guide farmers to actively participate in materials collection, storage and transportation.

The enthusiasm of the farmers in participation in CDM projects has much to do with the smooth operation of the project; and the understanding of the farmers of the project significance concerns the degrees of risk of smooth operation of projects. Therefore, the governments, enterprises, brokers, consultancy firms, should protect the enthusiasm of farmers and enhance the education of them so as to help them understand the significance of CDM projects, and they also should help farmers to fully understand and realize the environmental, economic and social benefits from CDM project. Only in this way, can we ensure a steady supply of the materials and smooth implementation of the projects. At present moment, farmers do not know much about Clean Development Mechanism, but their willingness to participate in it

is strong. For their enthusiasm, the governments and enterprises should give guidance in time and to introduce them to participate in CDM to ensure a sustainable implementation of the projects.

Meanwhile, the farmers could establish an organization to develop CDM project. Its main function is to coordinate stocks and farmers, one hand to protect farmers, benefits, the other hand to prevent farmers to change their willing with the signed selling biomass contract, so it could maintain the normative sale biomass market.

(5) we suggested local government properly relax the policy limitation to biomass use.

The projects of development and utilization of biomass have very good economic, social and environmental benefits for supporting agriculture, environmental protection and renewable energy development. If the government compare the economy、society and environment interests in different use way , then decide how to make use of biomass and properly relax the policy limitation to using biomass, it will be benefit to biomass exploit , economy growth and taking off poverty.

(6) we suggested that the hotline the specialized website that relate to the CDM should be set up in Xinjiang, and provide the domestic and foreign and local CDM consultation, practical tools and guideline. That would be helpful for the order of CDM development.

(7) To Sign detailed contract to make clear about the liability and obligation of three sides so as to grantee their interests.

Owners, residents/farmers and brokers are the three important sides in material collection. When brokers, entrusted by the owners, collect material from residents/farmers, they should not be allowed to stop purchasing at their will, and the farmers should not be allowed to raise price or change intention for sale. And when the owners sign contracts with the brokers, the acquisition price and quantity should be determined before hand.