CPR/06/209 Project Revision

1 Project Implementation Status

The revision refers to the project entitled “Green Poverty Alleviation for Poor Rural Areas of China (GPA)”, including three pilot projects :1) production and processing of bio-diesel and bio-ethanol energy in Southwest Yunnan, Guizhou and Sichuan provinces; 2) Jarrah / Dayun cultivation in Xinjiang; and 3) wind energy generation in Inner Mongolia.

The project document was signed by representatives of China International Center for Economic and Technical Exchange (CICETE), Ministry of Science and Technology (MOST) and United Nations Development Programme (UNDP) in July 2006.

The first two pilot projects have started their implementation activities in line with project objectives and strategies. The implementation process is going well with government and enterprise partners involved. Some key implementation activities of pilot one and two include:

- set up and functioning of project offices,
- annual plans have been developed,
- baseline surveys and feasibility assessments have been conducted,
- project sites for demonstration have been selected,
- a series of trainings and workshops have been delivered, and
- building-up of demonstration projects is undergoing.

As to pilot project three, due to difficulties in mobilizing government cost-sharing as promised, Bureau of Commerce of Wulanchabu city had to withdraw from the project; instead, Poverty Alleviation Leading Group of Inner Mongolia Autonomous Region became the implementing agency and continue to proceed the wind energy pilot project in IM.

2 Background for Project Revision

Since the inception of the GPA project, many local governments have been demonstrating their great interests in the project concepts and priorities on the combination of environment protection, renewable energy development and poverty alleviation, and officially applying to participate into this project; of which, three proposals are identified.

1) <u>Mushroom Production in Qingshui Township of Mengtougou District of Beijing</u>

In the past decades, the local households’ incomes depend on small coal mines scattered in Mengtougou District. In recent years, due to the serious pollution problems, most of these small coal mines have been closed. Local development thus faces an issue of a transition in economic structures from a mines based one to a more environmental friendly and sustainable one. The mushroom production project is therefore being proposed to fit well with this context. The abandoned coal mine caves will be transformed to mushroom cultivation bases. A module of “Company + Farmers” will be adopted. Via the module, identified company will reuse farming residues and prepare

mushroom cultivation bags ready for sprouting in the factory, and sell bags to individual farmer for cultivation in coal mine caves. The local government and company will also provide specific technical training and field advice to ensure success in the production. After the harvest, farmers will sell mushroom back to the company. All the production and sale process will be carried out under a contract between the company and farmers or farmers' association as their representative to secure the benefits and interests of farmers. The government, besides providing the technical support, will also play a coordinating function during the whole process.

The proposed pilot project will concentrate in the Upper Qingshui village which has 406 households with 728 farmers. The implementing partner is Mengtougou district government and the project office will be established in the agriculture committee under the district government.

2) Bio-ethanol Development in Shanxi Province

Development of bio-ethanol using sorghum as raw materials is one of mature technologies and has been promoted by the Shanxi province as a source of renewable energy and income generation for poor farmers. The project is designed to emphasize following capacities: 1) capacity building of poor farmers in respects of planting technologies and self-development thru build-up of farmers' associations and application of participatory approach; 2) establish connection between farmers and bio-ethanol plant, i.e., the module of company plus farmers to secure win-win mechanism. The pilot sites include 3 counties, i.e., Yangqu, Yuzhi and Fanzhi with a total planting areas of 1,000 mu.

3) Bio-diesel Energy Development in Hainan Province

Hainan province is inhabited by Li and Miao ethnic minorities with the annual income of no more than CNY 740. Planting of Jatropha Curcas L trees and development of bio-diesel has been placed with high priorities by the provincial government as a viable route to achieve income generation for the poor farmers.

The proposed project will be joining in the cluster of UNDP JCL Bio-diesel pilot part under the poverty alleviation project, and together with existing pilot sites, i.e., Sichuan, Yunnan and Guizhou, construct an integrated JCL planting region which are the first round of national bases of renewable energy forests.

The module of company plus farmers will be applied to the process of JCL planting, cultivation and procurement.

Four ethnic minority counties are identified as the pilot sites, including Ledong, Changjiang, Qiongzhong and Baisha. The implementation will be under the coordination of MOST PMO and local project authority is Hainan Renewable Energy Association.

3 Justification for Project Revision

1） Mushroom Production in Qingshui Township of Mengtougou District of Beijing

The proposed projects are all involved with individual farmer households fits well with the need of local economic structure transition. The new business using local farming residues is environmentally friendly and thus will contribute to sustainable development in the district, as the business grows and spreads in local areas. Second, the mushroom production also meets the need of farmer households of developing their own economic business to replace migration to the city for employment. The production chain will make a full use of surplus labors, especially women, for income generation in rural areas. Farmers who are already starting their mushroom production in special cultivation houses they built or in un-used coal mines have shown that they have to employ surplus labors such as neighbors, relatives and friends from their own villages. A few other farmers have already shown their great interest in also starting the mushroom business. Third, the company and local district government will give its support to the new business. Before the project was proposed, the district government has already started with the Pu-Ren company to develop a mushroom industry in the district. The district government has seen the UNDP's support as a great opportunity to push up further the business by adding new concepts, methodologies of poverty alleviation in rural China, and has committed government contributions.

2) Bio-ethanol Development in Shanxi Province

Bio-ethanol development well fits the national policies of upgrading shares of the renewable energy in the structure of national energy consumption. Sorghum is strongly recommended by MOST and NDRC as the raw material for the production of bio-ethanol. The upgrading of related processing technologies has been placed in 11th development plan at the ministry level. Meanwhile, the development of sorghum bio-ethanol also brings income-generation and employment opportunities to the farmers whose incomes mostly depend on agricultural economy. The farmers will be involved in the chain of bio-ethanol industry from sorghum planting and harvest, to bio-ethanol production, sale, and production. Thru the whole process, farmers are organized as a group or association and their capacity in self-management and development will be fostered and upgraded. With the coordination of the government, the module of company plus farmers will secure the interests of local farmers to some extent.

3) Bio-diesel Energy Development in Hainan Province

Bio-diesel energy development in Hainan is a supplement of GPA project in terms of geographic distribution. With the involvement of Hainan province, and plus the existing sites including Sichuan, Yunnan and Guizhou, UNDP GPA covers all the priority areas of national JCL bio-diesel bases in China, thus UNDP GPA' project modules and results will be of great pilot effects to the national efforts.

Of these pilot provinces, Hainan is the least developed and remote one inhabited by ethnic minorities. The proposed project well fits the project

concept of integrating environment, renewable energy and poverty alleviation into a concerted approach.

4 Proposed Pilot Project: objectives, outputs and activities

The proposed pilot projects contribute to the objectives that are in line with the overall GPA ones, namely using science and technologies as a main input and means to utilize and process local resources and raw materials, help get out of poverty and create income generation.

The Programme Results and Resources Framework are adjusted and integrated to reflect the participation of new pilot projects. The budget revision and AWP are also updated accordingly. For more details, please see the Annex.

Regarding the management arrangement, three project management offices will be established in Mentougou Agriculture Committee of Mentougou District, Shanxi Department of Agriculture and Shanxi Potato Detoxification Center and Association of Renewable Energy of Hainan Province. Poverty Alleviation Office of Inner Mongolia will also set up its PMO to take place of the Wumeng Bureau of Commerce. Especially in order to reflect the budget decrease from US$1.5million to US$600,000 in Inner Mongolia, the planned activities will also undergo the according adjustments as follows:

1) It is intended that 300 farmers (previously 1000 farmers) will receive special training to develop the necessary skills to improve their quality of life and agricultural production
2) The project will cooperate with a small scale wind turbine manufacturer to install 100 sets (previously 1000sets) of 100W wind turbines in selected pilot villages in project counties throughout the Ulanqab area.

These four PMOs will follow the existing management structure, and under the leadership of the NPD and national project management office, be responsible for the carrying out of project activities on daily base.

Regarding this change, new added UNDP and governmental cost-sharing are listed as below:
1) Government cost sharing: (US$)

Mentougou:	1,200,000
Shanxi:	900,000
Hainan:	600,000 (added to the part of MOST pilot project)
IM:	600,000 (US$ 1.5 Million committed by Wumeng Bureau of Commerce is reduced due to its withdrawal from the project)

The cost sharing will cover the following:

- Identification and preparatory work of the project, including workshops and trainings;
- Costs of short-term domestic experts;

- Short term study tours and trainings: covering participants' accommodation, allowance and travel costs in China;
- Workshops: travel costs, accommodation, allowance, venue costs;
- Overseas trainings: travel costs of some trainees, domestic costs related to application and preparation;
- Costs of demonstration or piloting activities;
- Follow up of actions recommended by the programme, incl. holding dissemination workshops, printing workshop materials;
- Partial costs of PMOs' operation, including communication, transportation as necessary plus procurement of project-used facilities and vehicles for PMOs in these four areas (Committee of Agriculture of Mentougou District, Shanxi Potato Detoxification Center, Hainan Association of Renewable Energy, Poverty Alleviation Office, TOYOTA Land cruiser V6, estimated US$ 60,000 per one for each unit)
- All necessary resources to facilitate programme management and sub-programme implementation

In-Kind Contributions of the Government to cover:

- Personnel for the national programme coordination office and for the two project management offices that will implement the demonstration component of the sub-programme.
- Office building, rental costs in the four locations.

Schedule of Government Cost Sharing, thousand USD

US/CNY Exchange Rate: 1: 7.49

Govn't Agency	2006	2007	2008	2009		Total
MOST		310	1,900	1,490		3,700
Xinjiang	493	653	516	23		1,685
Inner Mongolia		0	350	150	100	600
Shanxi	0	47	420	371	62	900
Mentougou	0	51	650	300	199	1,200
Total	493	1061	3,836	2,334	361	8,085

2) UNDP Inputs:

- International and national consultants and resource persons;
- Support technical services, partial operation costs of national sub-offices, training activities, study tours, symposiums and workshops;
- Monitoring and evaluation;
- Material and equipment to a limited degree; and
- The costs of review meetings and evaluations.

Inputs: US$ 2,880,850 increased by US$ 518,000

3) Project Funding Total: US$ 10,965,850

5 project outputs remain the same: project management, baseline analysis, capacity building and training, demonstration project, and project dissemination.

Special attention shall be paid to the coordination among these cooperating agencies.

Meanwhile, Environment Impact Assessment and decision-making system shall be emphasized and carried out in all these projects and the impacts on bio-diversity shall also be evaluated.

Government of the People's Republic of China

United Nations Development Programme

Programme Revision Document

Green Poverty Alleviation in Poor Rural Areas of China

The document reflects the concluded project revision by adding new component of Mentougou, Shanxi and Hainan, and adjustment of Inner Mongolia component.

Given the change of the implementation agency in Inner Mongolia, the wind energy pilot will be implemented within the revised scheme. Apart from the revision of the components, the Results and Resources Framework of the old project document is replaced by the attached one.

This budget revision is to reflect the agreed budget increase from USD 8,647,850 to USD10,965,850, in which increase of TRAC USD518,000 and government cost sharing USD1,800,000.

THE PEOPLE'S REPUBLIC OF CHINA

UNDAF (2006-2010) Outcomes/Indicators	Outcome 1. Socio-economic policies are developed and improved to be more scientifically-based and human centred for sustainable and equitable growth; Outcome 3. By the end of 2010, more efficient management of natural resources and development of environmentally friendly behaviour in order to ensure environmental sustainability
MYFF (2004-2007) Outcomes/Indicators	Goal 1. Achieving the MDGs and Reducing Human Poverty. Service Line 1.2: Pro-poor policy reform to achieve MDG targets; Goal 3. Energy and environment for sustainable development. Service Line 3.5: Conservation and sustainable use of biodiversity.
UNDP CP Outputs/Indicators Defined in UNDAF	UNDP Outcome 1.2 National efforts to lead and manage Xiaokang implementation supported through a variety of instruments and capacity building initiatives; UNDP Outcome 3.2 Improved environmental awareness and enabling environment created for greater public participation. Commercialisation of new and renewable energy technologies promoted; UNDP Outcome 3.4 Conservation and sustainable use of biodiversity is more effective.
Government Coordinating Agency and Implementing Partner	China International Centre for Economic and Technical Exchange (CICETE)
Government Cooperating Agency	Ministry of Science and Technology (MOST), Xinjiang Poverty Alleviation Office; Inner Mongolia local Government

Estimated start date: June 2006
Estimated end date: December 2009
Management Arrangement: National Execution (NEX)
Project site: Selected ethnic minority regions
Beneficiary country: China

Budget:	**US$ 10,965,850**
Allocated Resources:	
UNDP:	US$ 2,880,850
MOST:	US$ 3,100,000
Local Govts:	US$ 4,985,000

Agreed by:		
	Signature	**Date**
Government Coordinating Agency and Implementing Partner (CICETE):	Mr. Wang Yue	10 July 2006
Government Cooperating Agency (MOST):	Mr. Xu Liang	10 July 2006
UNDP:	Ms. Alessandra Tissot	10 July 2006

Government of the People's Republic of China

United Nations Development Programme

Programme Document

Green Poverty Alleviation in Poor Rural Areas of China

The project is aimed to support government efforts to alleviate poverty and accelerating development of rural China with priority given to the western region and communities of ethnic minorities where are ecologically fragile, economically fallen behind and geographically remote. The specific aim of this project is to investigate and demonstrate the use of science and technology as major inputs through organizational and institutional support for the development of local communities. This will be done through the combination of rural poverty alleviation with eco-environmental regeneration and energy development to assist in alleviating poverty in these areas and to provide the basis for future sustainable development.

The project seeks to improve human development outcomes among targeted groups through strengthening institutional support mechanism and linkages to facilitate and encourage needs-based response at community level. A series of sound environmental, ecological and energy technologies will be offered to and selected by targeted poor households on a voluntary basis. Based on these technologies, three pilot projects will be selected in order to demonstrate the benefits to a wider audience in China. Potential technologies and mechanism for income generating and social well-being include: 1) planting of the Jatropha Curcas L tree in Guizhou, Sichuan and Yunnan in order to provide a feedstock for bio diesel production; 2) planting of Jarrah Dayun in desert and arid areas for use as a raw material for traditional medicine; and 3) the application of small-scale wind turbines for poor herdsmen in Inner Mongolia.

THE PEOPLE'S REPUBLIC OF CHINA

UNDAF (2006-2010) Outcomes/Indicators	Outcome 1. Socio-economic policies are developed and improved to be more scientifically-based and human centred for sustainable and equitable growth; Outcome 3. By the end of 2010, more efficient management of natural resources and development of environmentally friendly behaviour in order to ensure environmental sustainability
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Government Coordinating Agency and Implementing Partner	China International Centre for Economic and Technical Exchange (CICETE)
Government Cooperating Agency	Ministry of Science and Technology (MOST), Xinjiang Poverty Alleviation Office; Inner Mongolia local Government

Estimated start date: June 2006
Estimated end date: December 2009
Management Arrangement: National Execution (NEX)
Project site: Selected ethnic minority regions
Beneficiary country: China

Budget: US$ 8.585 million.

Allocated Resources:
UNDP: US$ 2.3 million
MOST: US$ 3.1 million
Local Govts: US$ 3.185 million

Agreed by:		
	Signature	**Date**
Government Coordinating Agency and Implementing Partner (CICETE):		
Government Cooperating Agency (MOST):		
UNDP:		

ABBREVIATIONS AND ACRONYMS

APR	Annual Progress Report
CAAS	China Academy of Agricultural Science
CASS	Chinese Academy of Social Sciences
CAC	Central Advisory Committee
CBD	Community Based Development
CICETE	China International Centre for Economic and Technical Exchanges
CRED	Centre for Renewable Energy
CREIA	Chinese Renewable Energy Industries Association
CSO	Civil Society Organisation
DSS	Decision Support System (information systems that support decision making)
GEF	Global Environment Facility
GOC	Government of China
GPA	Green Poverty Alleviation
LGOP	Leading Group Office for Poverty Alleviation, China State Council
MDGs	Millennium Development Goals
MOA	Ministry of Agriculture
MOFCOM	Ministry of Commerce
MOLSS	Ministry of Labor and Social Security
MOST	Ministry of Science and Technology
NEX	Nationally Executed
NDRC	National Development and Reform Commission
NGO	Non-governmental Organisation
NPD	National Project Director
NPMO	National Programme Management Office
NSC	National Steering Committee
PADO	Poverty Alleviation and Development Office
PMO	Project Management Office
PPP	Public Private Partnerships
SEAC	State Ethnic Affairs Commission
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNISE	United Nations Initiative for Sustainable Energy

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SECTION I. RATIONALE AND STRATEGY

Part 1.1. Situation Analysis

The huge strides in poverty reduction that China has made since the beginning of economic reforms in 1978 have not been uniform. The number of poor people living on less than 1US$ PPP per day fell from 490 million to 88 million between 1990 and 2002. While much has been achieved in the western regions and among ethnic minorities, those areas have fallen behind. These gains have been achieved at the expense of increased multi-dimensional inequalities, between urban and rural areas and between the Western inland region and the Eastern coastal region.

The main reason for these inequalities is the higher incidence of extreme and chronic poverty in the Western region. Despite high aggregate growth rates, the proportion of the total poor living in the Western Provinces has increased in recent years. Determining factors included: geographical disadvantages, poor infrastructure, reduced government transfer payments during the reform period, a policy preference for the East, lower income, savings and investment levels and lower development in terms of human capital (education, skills and the health care). As a result, whilst important pockets of poverty remain in the mountainous areas of the Eastern coastal provinces, the overwhelming majority of China's poor now live in the remote upland areas of Western China. People with disabilities and ethnic minority groups make up a disproportionate share of this group. Approximately 20% of the population of the Western Provinces consists of ethnic minority groups and 90% of the land area is included in designated ethnic national autonomous areas. Out of the Government's 592 national designated poverty counties, 267 are located in ethnic minority areas. GDP per capita in ethnic minority areas was 56.71% of the national average in 2003, and 39.39% that of eastern regions. These areas minority areas and communities are ecologically fragile, economically fallen behind, politically sensitive and geographically remote.

Other important issues include gender imbalance, maternal health and combating HIV/AIDS, provision of safe drinking water need to be urgently addressed in the West. Sex ratios among western provinces approach to 110%, higher than the national average of 106%. Migrant workers from western provinces are the major driving force of the inter-country migration. Statistics shows female migrants at age 20-29 accounting for 58.3% against 41.7% for male. They are mainly engaged in the occupation charateristised by low skills, low productivities, low wage and hence low status. Distance to schools, high costs, and incompatibility with local language or culture, has led to illiteracy rates of 60% in some ethnic populations with women and girls most likely to be affected. This has a huge negative impact on the ability of local populations to access skills development, work opportunities and wages. The lack of outside contact as well as language difficulties has isolated minorities from vital information about accessing off-farm jobs, markets and investment opportunities, as well as the necessary connections to benefit from such opportunities.

Harsh living conditions and low population densities within a vast land mass have caused high costs of living and production in these regions. The fragile ecology and environment has suffered serious damage due to long-term overgrazing and inappropriate farming methods leading to aggravated soil erosion and desertification.

The current level of energy consumption in poor western rural areas is relatively low and the energy supply infrastructure poorly developed. With gradual social and economic development, the demand for energy is expected to increase and will challenge the supply

structure. The ability to meet rising energy demands will be an essential element of any solution which purports to achieve lasting poverty alleviation.

More recently, a significant energy development scenario among the world leading consumers of crude oil is to push ahead on biofuels for reasons of the new oil crisis and meeting Kyoto Treaty commitments to carbon emissions. China, the world No.2 consumer importing nearly half its oil in 2004, is a new comer strongly promoting biofuels as a way to cut costly fuel imports and national consumption of fossil oils. Ethanol and biodiesel can be more expensive than the fossil oil they replace but this is a price if the government is willing to bear to ensure an outlet for biofuel crops and trees. This energy scenario offers a great opportunity for poor farmers to grow such crops and trees to generate income and hence improve their livelihoods.

In addressing the task of poverty alleviation in western rural areas, central and local governments place considerable emphasis on the protection and improvement of the eco-environment, landscapes, fauna, flora and biodiversity. However, the reconstruction of fragile ecosystems will be a long and difficult task requiring considerable strategic investment. Natural resource degradation and biodiversity loss are undermining the livelihoods of large numbers of the poor. Some examples of ecosystems that support livelihoods include provision of natural habitat for wild pollinators that are essential to food crops, natural predators that control crop pests and soil organisms that are important to agricultural productivity and ground stability conditions.

Poverty situation in the western region and the degradation of ecosystems could grow significantly worse during the next decades and may well be a barrier to sustaining China's impressive achievement towards reaching the MDGs and national Xiaokang. Already these western provinces facing the greatest challenge of achieving MDG targets coincide with those facing significant ecosystem degradation challenges. The challenge of reversing trends of degradation while meeting increasing demands for natural resources for economic development and poverty reduction can be partially met by strengthening frameworks for policies, institutions and practices – effective national and local environmental operational regimes.

Many opportunities can be identified to reduce poverty by improving the environment, but there are significant policy and institutional barriers to be overcome to facilitate effective implementation. Experience indicates that; sustainable solutions require full participation of those affected; environmental protection cannot be deferred in favor of economic growth as it undermines the basis for sound growth; and environmental stewardship is an integral and not separate development issue. The quality and sustainability of growth can be enhanced by integrating poverty-environment issues into energy supply and economic policy reforms.

Part 1.2. National Initiatives:

In addition to the quadrupling of per capita incomes, Xiaokang advocates for the scientific concept of development, focusing on achieving five balances: between urban and rural areas; between regions; economic and social development; people and nature; and between domestic development and 'opening up'.

The Ten Year Rural Poverty Alleviation and Development Plan (2001-2010): prioritised assistance to the remaining absolute poor; helped those vulnerable to falling back into poverty because of natural disasters or medical emergencies; targets minorities, border, mountainous and remote areas; uses multi-dimensional, participatory poverty planning methodology; and mandates a role for civil society and NGOs to design, implement and monitor government-led poverty reduction activities. From 1994-2000, a national total of US$ 23.9 billion was spent to tackle the poor.

The Western Development Initiative (WDI) of 2000 has seen 850 billion RMB invested in over 60 projects. The plan which focuses on the less developed western regions covers 95% of ethnic autonomous areas and counties and 80% of the ethnic minority population. Projects include: infrastructure development; ecological and environmental protection; education; social service provision covering basic rural health facilities and specialised hospitals. In 2002 the government launched a plan to accelerate the development of ethnic minorities and regions. Initiatives include local infrastructure, ecological and environmental protection, special measures on education and communication, and social services. In 2003, the State Council's Leading Group for Poverty Alleviation (LGOP) launched a participatory village poverty reduction planning program for 140,000 poor villages.

Renewable energy technologies, such as wind, biogas and solar, offer environmentally sound alternatives to fossil fuels. These are often more flexible in that they can deliver power to remote and marginalised areas much more effectively than coal based technologies. These technologies have been considered by the Chinese government as a powerful tool for poverty alleviation and social development. The Chinese government has made great efforts to develop renewable energy use in China. Over the past two decades, new and renewable technologies were developed and introduced. Many of these have been successfully disseminated using the national budget. A National Township Electrification Program was implemented to offer 17 MW and 700 townships in western China, being considered as largest renewable energy rural electrification programme in history. The Government practices preferential taxation, subsidies for and provides fiscal inputs to the development of bio-energy and encourages farmers to grow high income plants and crops for poverty reduction. A series of relevant programs have been piloted in similar areas in China which have established good foundations for further programs in terms of accumulated technologies and managerial experiences.

China already began to use old stock grain to produce fuel ethanol with pilot sites established in nine provinces during the past 3 years. Until now, these pilots were well completed with feasible technologies. The practice has proved that autos work well with the gasoline integrated with 10% of fuel ethanol and emission decrease is obvious. While China is not a country with significant grain surplus, to develop and use non-grain materials to produce fuel ethanol will have longer-term significance. Since 1980s, China has already achieved substantial results in the breeding of high yielding energy source crop, sweet Chinese sorghum and the techniques of using the crop to produce fuel ethanol.

Biodiesel is another alternative liquid energy source that is clean and renewable. There are many kinds of raw materials for producing biodiesel including abandoned and recycled propagation oil or oil plants with high content of oil such as rapeseed, soybean, Jatropha Curcas, Pistacia chinensis etc. European and American countries use rapeseed and soybean as materials. Given the concern of food security and limited arable land, China can only grow the oil plants such as wild Jatropha Curcas and Pistacia chinensis that will not occupy farm land. China began research and pilot program on Jatropha Curcas for biodiesel production from the period of its "Eighth Five-Year Plan". 30 hectares of Jatropha Curcas pilot woods is established in Jin-sha River drainage area of south-west China, with results of mature technology. The program is now a core element of the country's Scientific Action for the Development of China's Western Region. It is believed, to disseminate the use and integrated development of Jatropha Curcas in poor arid river valley in South-West China will improve local fragile ecological system and help farms increase their production and incomes.

However, to have a major impact, these technologies have to be commercially competitive. The government is now looking to facilitate a market-oriented approach to developing, disseminating and commercialising bio and renewable energy technologies.

As a policy response to address this concern, the Chinese Government issued the "Programme on New and Renewable Energy Development in China for 1996-2010" nationwide in 1995. For this to be implemented, an appropriate market structure and management framework is required. It will also greatly strengthen capacity in China to accelerate the commercialization of the renewable energy.

In line with the new scientific development concept, an innovative approach to poverty alleviation in remote rural areas is an integrated 'Green Poverty Alleviation' (GPA) strategy promoted by MOST that combines the main goal of poverty alleviation with eco-environmental improvement and rural energy development. China is implementing its grain-for-green policy as a major part of its West China Development Program to restore ecological balance in the western region by turning low-yielding farmland back into forest and pasture. This Green Poverty Alleviation' strategy introduces alternative ways to serve the same purpose but also support income activities of the rural poor in the West.

Part 1.3. International Assistance:

The UN Development Assistance Framework (UNDAF) harmonizes the development assistance of UN agencies in China and supports government initiatives through multi year programming cycles that respond to prioritised needs. Recent UNDP commitments are set out in the 2006-2010 UNDAF which emphasizes a number of priorities for the Western Region including improving access to health, education and social protection with a focus on disparity reduction, and creating an enabling environment for civil society and its effective engagement in Xiaokang priority issues. The 2004 Common Country Assessment (CCA) focuses on: growth, inequality and poverty reduction; balancing economic growth and social development; balancing people and nature; social protection; education and human resource development etc.

This proposed project contributes to UNDAF outcomes: The 'national Xiaokang vision and MDG goal and indicators localised and integrated into the development plan'; 'poverty reduction approach as piloted in target population' and 'increased participation of civil society in the design and implementation of development policies/programmes; the project responds to development of: agro-based industry; by-products of agriculture, horticulture and animal husbandry; ethnic minority leadership in pro-poor decision making, local planning and management of local resources and environment. Access to energy services is a prerequisite to achieve the MDGs as recognized at the World Summit for Sustainable Development in Johannesburg in 2002. UNDP is committed to supporting enhanced application and commercialisation of new and renewable energy technologies through demonstration and development of strategies, guidelines, standards and regulations and will continue to support the conservation and sustainable use of biodiversity which is the actual mandate of this GPA project.

The proposed GPA project responds to a number of areas of intervention identified by the UNDP:

- Development of agro-based industry;
- Development of by-products of agriculture, horticulture and animal husbandry;
- Development of ethnic minority leadership in pro-poor decision making, local planning and management of local resources and environment.

The current UNDP Country Programme1 also recognises that balancing economic growth and the environment is a pressing challenge for China. UNDP will support enhanced application and commercialisation of new and renewable energy technologies through demonstration and development of strategies, guidelines, standards and regulations. UNDP will also continue to support the conservation and sustainable use of biodiversity.

UNDP projects focussing on Western and minority development in China have been undertaken in recognition of the fact that national development programs often do not give sufficient attention to these regions and local groups. The Participatory Rural Development and Poverty Reduction in Inner Mongolia, Jiangxi and Xinjiang (2002-2005) demonstrated sustainable and comprehensive rural development models benefiting the poor and vulnerable through participatory community-based initiatives. Poverty Alleviation and Sustainable Human Development projects in Qinghai, Yunnan and Sichuan involved capacity building of service providers and households, the operation of user-friendly micro-credit schemes, introduction of income generating activities, and improvement in health and education services, as well as rural environment. UNDP also supported the government to strengthen national capacity in implementing Agenda 21 in the west, executed poverty alleviation and women empowerment programs through PRA, microfinance and ICT rural telecentre for income generating activities; also a number of agricultural development projects, such as farmer-centred agricultural resources management and agricultural development in arid and semi-arid areas.

To implement clean energy action, UNDP has assisted MOST in preparation of the clean energy action plans in 18 Chinese cities to promote clean energy and clean energy technology use so as to control air pollution and maintain economic growth. Under the UNDP support, the project cities are implementing the demonstration projects to introduce the clean energy technologies and to phase out or renovate out-of-day technologies and equipment. Market-Based Instruments (MBIs) have been designed and applied in the process.

Other experiences include:

- ADB helping the Gansu authorities to develop policies and strategies for natural resource management aimed at controlling desertification and enhancing oasis ecosystems in the Hexi Corridor; ADB loan project of efficient utilisation of agricultural wastes for adoption of biomass-based renewable energy systems and improvement of the environment and promote economic growth in rural areas of shanxi, Henan, Hubei and Jiangxi;
- EU project in Shigatse Prefecture of Tibet Autonomous Region to provide irrigation infrastructure, establish improved pasture, plant trees and support agricultural and livestock activities;
- FAO/UNDP project for research, demonstration and extension of sustained agricultural system for arid areas in Northwest China; FAO supporting Shanxi province through demonstration and production of oil crops, small scale processing, thus improving the livelihoods of local people and promoting the transformation of agriculture in mountainous areas towards market economy;
- IFAD/WFP Ningxia/Shanxi environment protection and poverty alleviation programme
- DFID Yunnan environment development programme, establishing linkages between environmental issues and poverty and helping develop practical approaches to address these issues/challenges;
- GTZ through a combination of technical cooperation and financial cooperation to introduce an integrated set of poverty reduction measures in Sichuan, including growing

[1] Draft country programme document for the People's Republic of China (2006-10), Executive Board of UNDP an UN Population Fund, 6 April 2005, DP/DCP/CHN/1

pasture, water-sustaining and economic plantations, soil erosion prevention, building irrigation system and replicating energy-saving cooking facilities etc.

These experiences above could be well incorporated in the new PGA project in western provinces.

Part 2. Strategy

This project in partnering with MOST, Xinjiang Poverty Alleviation Office; Inner Mongolia local Government, is a component of the UNDP/GOC comprehensive umbrella programme agreed by SEAC, UNDP and its national government counterpart, CICETE/MOC at a joint workshop in June 2005. The overall programme is directed at a comprehensive approach to poverty reduction in the western region with focus on ethnic minorities based on mobilizing their natural and cultural resources. The umbrella programme has four inter-linked sub-programmes: 1) Leadership Capacity Development; 2) Community-based Poverty Reduction in Small Ethnic Minority Areas; 3) The Development of Tourism and Cultural Industries based on Natural and Cultural Assets; and 4) Green Poverty Alleviation (GPA) in Poor Minority Areas.

This GPA project will use eco-environmental regeneration and energy development as an entry point and a conduit for testing optional solutions for income generation and social well-being improvement and thus alleviation of poverty. The project has a goal to establish an innovative and interlinked technology-energy-poverty mechanism. Priority of this project is given to the western region and ethnic minority communities.

2.1 Objectives and scope of the project

The project will utilise available science and technologies as major inputs for the development of local communities through an integrated 'Green Poverty Alleviation' (GPA) strategy that combines poverty alleviation with eco-environmental improvement and rural energy development. The focus will be on providing solutions to problems such as providing energy for continuing development, improving the utilisation and processing of local resources and raw materials and creating opportunities for income generation through:

- Agro-economical activities to address planting and cultivation;
- Local energy generation through the application of renewable energy resources;
- Processing of local resources and raw materials to provide improved income-generation activities.

Pilot Projects: A series of sound environmental, ecological and energy technologies will be offered to, and selected by, targeted poor minority households on a voluntary basis. Based on these technologies, three pilot projects will be selected in order to demonstrate benefits. Examples of potential pilot projects include:

***Pilot project one - manufacture and sale of bio diesel and bio-ethanol energy**:*

An overview of the economic viability. China currently sells ethanol-blended gasoline in Northeast Corn Belt and in wheat-rich Henan province. The central government subsidizes production at four plants with a combined annual capacity of 1.02 million tonnes, or about 0.5 percent of projected corn and wheat annual output. Economically, it is cost effective to use any surplus grain it has to produce ethanol than to subsidize the export of that same grain. Corn fuel and sugarcane fuel ethanol are sold at RMB 6,846 yuan/t (production cost RMB4,450 yuan/t) and RMB6,369 yuan/t (production cost RMB4,140 yuan/t) compared with

the sale prices of 90#gasoline and 0#diesel, i.e. RMB 5,950 yuan/t and RMB 5,482 yuan/t respectively. They are not price competitive. While, the sweet Chinese sorghum ethanol is sold at RMB 4,923 yuan/t against its production cost of RMB 3,200 yuan/t, showing very promising price competitiveness. Thus, sweet Chinese sorghum can be considered at an option of raw materials to produce fuel ethanol. Jatropha, already identified as one of the ideal raw materials for bio-diesel production, is a fast-growing, high-yielding tree that can be planted in semi-tropical areas on wasteland and irrigated with sewerage water, such as in the conjunction minority area bordering Guizhou, Sichuan and Yunnan. Currently, biodiesel made from Jatropha Curcas is sold at RMB 6,153 yuan/t with production cost of RMB 4,000 yuan/t, slightly more expensive than 90#gasoline and 0#diesel. While along the expansion of plantations, the cost will be reduced. With the increase of gasoline price, Jatropha Curcas biodiesel will be competitive.

Globally, the end of cheap oil and the impending fuel crisis have convinced the EU and the United States to guzzle biofuels instead. EU aims at the target of 5.75% biofuel content by 2010; Japan aims to replace 20% of petroleum products used now with non-conventional fuels in 2030; Gasoline with up to 25% bio-ethanol is used in Brazil; the Indian government announced a national biodiesel purchase policy in 2005 that would enable farmers and bio-diesel producers to get a price support for jatropha oil and intends to bring one million ha of land under jatropha cultivation to supply blended diesel within the next few years (Energy Bulletin, March 2006, ISIS).

It was predicted in 2004 that the world market for biodiesel would grow by 14.5% annually to 2.79 million tones by 2010. China, the world No.2 oil consumer, is certainly under a pressing need to develop such fossil fuel substitutes. Both global and domestic demand on bio-fuel offer great opportunities for poor farmers to grow such crops and trees to generate income and thus improve their livelihoods. It was estimated that three tones of Jatropha oil seeds can produce one ton of bio-diesel. In the conjunction area bordering Guizhou, Sichuan and Yunnan, 0.65 ton/mu dry oil seeds can be harvested and sold at a price of about RMB 1,000 yuan/t to process 0.18 ton of bio-diesel. If farmer household plants 2 mu Jatropha, incremental household cash revenue of RMB 1,300 yuan could be generated annually.

The bio-fuel products related to the project may be more expensive than oil-derived fuels in either the short or the long run. While, fundamentally, if the country has no option to develop bio-fuels, then the options to offset the economic/financial gap are to introduce package schemes including mandatory obligation, incentives (preferential taxation and subsidise) and incentive plus quota etc., which are used in Brazil, USA, EU and Japan etc. No matter what scheme is applied, farmers' threshold price has to be assumed to secure interest of farmers and hence sufficient supply of the raw materials.

This pilot project demonstrates Jatropha Curcas planted by farming communities on mountain slopes for the production of biodiesel. The Jatropha Curcas L tree largely grows in a conjunction minority area bordering Guizhou, Sichuan and Yunnan to provide a feedstock for bio-diesel production and fuel ethanol production in other selected areas. The pilot project will support the national programme for clean and renewable energy production through demonstrating the potential for innovative but proven technology in bio-fuel production. The Renewable Energy Law of 2006 will ensure market access and will prohibit displacement of food crops for energy crops to minimise risk to farmers in poor areas. The pilot project will explore viable business models of renewable energy sources to benefit the poor. It will help ensure a saleable product, and identify a path to the market by requiring fuel distributors to accept bio-diesel. MOST has accumulated a comprehensive knowledge of the properties and difficulties of a wide range of trees and plants with potential to yield bio-energy. Site and plant selection will be flexible should the soils and conditions within poor minority regions fail to support the planned choice.

A key question to be answered through the demonstration is how best to involve and benefit poor farmers themselves and to address the problem of migration of young people from the countryside to the cities. To achieve this, Jatropha cultivation must become more financially attractive to farmers because of the current perception that higher wages can be earned in the cities and other regions. In addressing this problem, there is a need to:

- Prove the commercial feasibility of Jatropha cultivation.
- Provide financial support and incentives to farmers.
- Provide technical and institutional support, perhaps through the formation of a farmers' association and associated market supply chain.
- Provide policy support to stimulate investment in planting, processing and distribution of the product and also in creating a market for biodiesel.
- Optimise the business model of biodiesel production.

Therefore, the aim of this demonstration project is to address these needs and to design and integrated poverty reduction system. This would require the establishment of an equitable and optimised commercial supply chain for biodiesel and its by-products. UNDP is expected to introduce lessons learnt from the UNDP Multifunctional Energy platform in Mali which is a Jatropha development project and experiences from other countries in particular Brazil and India. This demonstration would include the following main elements:

- Establishment of a farmers' association in the selected demonstration area to represent local farmers and to act as a focal point for training and technical, commercial and policy support activities. A technical biofuels centre would also be created to provide essential support and advice.
- Tree planting, cultivation, harvesting and storage system design.
- Optimisation of product sales system for Jatropha seeds.
- Production/manufacturing system design for biodiesel.
- Establishment of a sustainable marketing system for the biodiesel.

Similarly, **fuel ethanol production** from stalks of the sweet Chinese sorghum and other options produces clean and renewable energy, and is an effective way for raising peasants' income and contributing to solving the "San-nong" issues. The use of fuel ethanol will certainly reduce the GHGs emission, which is possibly supported by the Clean Development Mechanism as an additional funding source to the area of in terms of poverty alleviation.

The sweet Chinese sorghum is suitable to the weather conditions of the vast semi-arid regions in China. The project can also include small sites to test the sweet Chinese sorghum as a valuable biology source of fuel ethanol production. With farmers responsible for growing stalks and separately producing raw fuel ethanol, and large-scale fuel ethanol specialized factories for collecting and processing, production costs can be greatly reduced, while peasants' income can be increased and environmental pollution can be controlled.

The pilot will not only support the technical improvement of the generation of the bio-fuel, but also summarize the overall social and economic costs and benefits from the pilots. This will help provide knowledge and inputs for both the government and the private sector to enlarge the use of the bio-fuel.

Pilot project two - crop cultivation:

Supporting the planting, and establishment of a market mechanism for Dayun, a raw material in herbal medicine grown in the Jarrah root useful for stabilizing fragile soil cover and

preventing desertification in desert and arid areas in Hetian District of Xinjiang (From 2001, Xinjiang commenced a new phase of poverty reduction development where the emphasis would also be placed on scientific, commercial and industrial development. An opportunity has been identified to cultivate Dayun (which is grown in the root of the Jarrah plant) for the production of traditional medicines and to combat desertification and protect the eco-environment. Although a new crop and perceived as risky by poor farmers, there is potential for generating income from private sector companies and demand is likely to grow. The pilot project will support the introduction of such crops for poverty reduction, environmental protection, and the introduction of market mechanisms to support sale.

This demonstration project conforms to the new strategy by: providing guidance local farmers in applying scientific principles to the cultivation of Jarah and Dayun; encouraging sound ecological practices; and assisting in establishing the commercial infrastructure and marketing mechanism to associate farmers to achieve sustainable development.

The overall aim of this demonstration is to assist a local farming community in creating the conditions necessary to establish a prosperous and harmonious society. This would be achieved through the planting, cultivation and marketing of Jarrah / Dayun to improve the eco-environment, increase the income of poor farmers, provide a local source of energy and create employment opportunities. The project would include the following main elements:

- Assess the commercial and technical feasibility of Jarrah/Dayun cultivation before any plantation activity conducted;
- Determine alternative options of plants and crops which could serve as complementary materials if needed;
- Training to increase the capacity of farming communities to achieve sustainable development with particular consideration of gender issues.
- Financial support through micro-credit schemes and/or other funding sources to improve the local eco-environment provide sustainable energy sources and improve the living conditions of poor farmers.
- Active participation of over 1000 poor families in establishing some 9000 mu of Jarrah / Dayun cultivation.
- Development of an interactive decision support system (DSS) to allow farming communities, local government and other key decision makers to collaborate in local economical development, eco-environmental protection and poverty alleviation through supporting information access to market.

Jarrah/Dayun cultivation in Hetian prefecture has demonstrated high economic viability. The 9000 mu demonstration sites engaging 1000 households will yield fresh Dayun, annually 450 tonnes with a total sale of RMB 5.22 million yuan. Except for costs of land preparation in the selected desert area, nursery, labor costs of planting Jarrah and Dayun propagules in the initial phase, as well as costs for water irrigation during the growing years, there are no other major costs. A net income per household from the plantation will be about RMB 1,260 yuan. Three manufactures and promising domestic market are in place for the sales.

***Pilot project three - wind energy**:*

The application of small-scale wind turbines in Siziwang Banner, Ulanqab Municipality, Inner Mongolia to assist 1,000 households of Mongols herdsmen living in particularly remote areas by installing movable small windmills to meet local energy needs and increase possibility of access to information through TV connectivity. The project will demonstrate a new poverty reduction mechanism for herdsmen to realize science and technology transformation, reducing reliance on other organic energy sources and increasing the potential for raised incomes through improvements in traditional production and living conditions. This will be achieved through a number of project activities including:

- Pre-assessment should be conducted on local wind recourse and associated seasonal risks in electricity generation, as well as the feasibility of solar energy as option;
- Capacity-building of local farmers and their families to efficiently utilise the wind energy and participate in supported income generating and social well-being activities;
- Training in the operation and maintenance of small wind turbines. It is intended that 1000 farmers will receive special training to develop the necessary skills to improve their quality of life and agricultural production;
- Small scale of micro-credit loans can be tested with the instalment of wind turbines to leverage herdsmen's participation in income activities;
- Improving the project management skills of local officials;
- Installing and demonstrating the application of wind energy for household and farming activities. The project will co-operate with a small-scale wind turbine manufacturer to install 1000 sets of 100W wind turbines in selected pilot villages in project counties throughout the Ulanqab area;
- Disseminate the results and lessons of the project to a wider audience.

Compared with the first two pilot projects, the wind energy pilot may not show straight forward economic viability, rather it will more directly focuses on poverty reduction through electricity generation via the wind energy. Specifically, the project will mainly support household with electricity generated from wind energy for lighting and grassland cultivation. There will be limited direct production activities in this aspect.

The three pilots of the project are intended to be a model for possible later replication on a larger scale in western China - with potential larger external funding for instance the GEF assistance.

Institutional Strengthening: Capacity building among senior local government staff is key for gaining acceptance and support, for disseminating results, replication and scaling-up for commercial production. Local government ownership is essential for success and to ensure sustainability. Capacity building from provincial to county level will ensure that relevant government department leaders are informed of the objectives, risks and potential of the project, and the importance of their roles in the process.

Institutional strengthening at county level will be achieved through training, study tours and guidance on the mechanisms of establishing community associations for managing the supply of raw materials, developing price structures and providing a focus for educating farmers on the critical relationship between crop production and environmental protection. Assistance will be provided to local governments in developing support policies to promote appropriate land husbandry while protecting the environment. Once an understanding is gained by local leaders of the cycle of activities and the opportunity to alleviate poverty, senior local leaders, will take some ownership of the project and thus start to accept responsibility for the activities providing a sound foundation for long-term sustainability.

2.2 General principles

Pilot projects will consider the principles of poverty alleviation, sustainable energy and ecological protection with the overriding principle to put the needs of farmers first, to encourage participation in decision making and to develop strong and effective partnerships. Criteria for selection will be to:

1) Focus on provinces in the western region;
2) Priority given to poor minority rural areas and minority groups but not exclusively;
3) Involve voluntary participation of farmers and local farming communities;
4) Take full cognisance of gender issues and women's development;
5) Include equal partnership between the farming community and other project stakeholders.

Green aspect of the plantation and cultivation. The technologies promoted by the project should be environmentally friendly. These agro-economical activities to address planting and cultivation are planned in non-arable land. On one hand, the pilot plantations will contribute to the replacement of fossil oil and help improve soil degradation and desertification, characterized as "Green" of the project; on the other hand, as the associated commercial industry has planned for expansion, it is likely that they will begin to occupy primary or secondary forested areas. Soil erosion may be caused by site preparation. To maintain high productivity, any commercial plantation needs to use fertilizer and pesticide. Without fertilization, the land will become poorer, while excessive utilization of the inorganic would harm the soil. Commercial plantations will involve more human activities in the forests; the risk of forest fire will increase. Therefore, rigorous and disciplined management, in particular, the use of organic fertilization should be encouraged. Biodiesel may lead to adoption of genetically modified (GM) crops. Additionally, other greenhouse gases are generated as a product of the crop itself, the processing, refining, transport, and distribution of the fuel. These potential risks must be awared before implementing the project. The project will give special attention to the establishment of guiding principles for environmental protection and sustained development.

Ethnic minority and gender sensitivity. The project shall focus on the western region with large ethnic minority areas and communities those are ecologically fragile, economically fallen behind, politically sensitive and geographically remote. Reaching out to these communities to alleviate their poverty requires a tailor made approach. Meanwhile, in the dimension of gender, there is a long tradition in particular that women are mostly responsible for household chores and care work, and this gives them inferior status when it comes to access to resources, decision-making in family/community or control over earnings. In the situation of poverty, women need to be engaged in income generating activities that together with their role as primary care providers pose double and often even triple burden on them. The female minority groups may suffer more from exclusion of their own groups, and thus have even more difficulties accessing to opportunities. Therefore, it is imperative to build up, through the process of the project implementation, understanding that none of the ethnic groups will benefit from the intervention automatically unless there is a specific effort to identify and address the needs of both women and men. It is also important to keep in mind that the project will take into account, in the process of its execution, monitoring and evaluation, interests and needs of both women and men, as they differ. Qualitative and quantitative indicators for monitoring should be established.

These modality and principles established will be replicable and capable of dissemination to other rural areas of China.

Each pilot project, though independent in implementation, will be linked to the common goals of the overall project by the aim of green poverty alleviation. Some activities will be specific to each, others, such as capacity building, institutional strengthening, basic education and project dissemination will be common to all.

A **pre-assessment of potential risks and benefits** shall be conducted prior to the project implementation. Due to uncertainties of commercial activities, there could be a number of issues/risks to be addressed and, in a way, this provides further justification for UNDP support. It is important therefore that full risk analyses are carried out and risk mitigation strategies are developed in the initial stages of the project.

Barriers and existing problems. The potential issues may include: Plant growing and technical characteristics and climatic conditions vary from region to region; For the wind energy pilot, assessment should be made on local wind recourse and associated seasonal risks in electricity generation, also the feasibility of solar energy as option; Eco-environmental risks of planting

and cultivation associated with potential invasiveness and competition with other crops and land uses; For processing biofuels, large refining plants have to be constructed close to agricultural areas or forests where the raw materials are grown. The biodiesel will then have to be transported to filling stations, with the cost increased by the geographical radium of product sales; There is an increasing market for biodiesel to replace fossil fuels and for herbal medicines in both international and domestic market, while, the risk is how successful to establish the market chain for full access of the poor in particular, and how best to organise them to participate in; The oil industry will want to maintain control over the distribution of fuels, and will naturally enter into an agreement with new bio-fuel companies, the supply chain thus may become very complex with farmers' interest being protected in the chain; Lastly, the policy framework and bio-fuel standard are faulty to support the development. These all should be pre-assessed before any actual production activities to be organised.

Information and Communication Technologies (ICTs) as a new delivery system of technological and market information. Experience world-wide demonstrates that progress in Information and Communication Technologies (ICTs) offers viable solutions to effectively address limitations in the out-reach of communication networks. The continuing rapid development of telecommunications and computer-based information technology will be a big factor for change in extension, one which will facilitate and reinforce other changes. While, existing facilities in rural areas are not put to the use of local communities to cater to the broader information needs of households, especially applied technological information transmission to improve rural productivity, market information for livelihoods and income generating activities. The idea of community information centres will help strengthen communication practices with local communities and seek expert advice on means through which more effective flow of needed information to farmers and communities can be achieved to support the plantations.

2.3 Project outcome, outputs and key activities

The project aims to achieve the following specific project outcomes with a number of expected project outputs through the implementation of key project activities.

Outcome One: Improved capacity at institutional/community level to understand and utilise science and technology inputs for local energy and poverty alleviation needs.

Output 1: An efficient and effective management and implementation structure for the sub-programme established. **Key activities**: establish project management offices for each pilot project; establish participatory decision-making mechanism and appoint experts; conduct baseline studies and review

Output 2: Baseline studies and research: to provide information and data for assessment of specific project needs; development of an improved support structure in each project area; design and optimisation of three projects. **Key activities**: conduct a pre-assessment of risks and benefits; undertake consultations and conduct reviews and case studies; identify priority areas and assess institutional strengths and weaknesses; carry out detailed risk/benefit analysis; identify training needs; design and organise study tours; prepare baseline study report

Output 3: Capacity Building/training: to improve active participation, self-determination and self-development of farmers in local decision making, commercial and negotiation skills of farming communities in each demonstration area. **Key activities**: elect farmers development association; provide social education training courses and easy to access information; entreprenourship development and business skill coaching, market accessibility and training in poverty alleviation particulalrly through ICT support, eco-environmental protection, renewable energy etc.; prepare and initiate website; develop integrated decision support system for planning energy, eco-environmental activities etc

Outcome Two: Innovative and practical science technologies and combining ecological energy development with poverty alleivation practice tested and dessiminated for scaling up

Output 4: Demonstration Pilot Projects to improve and demonstrate farmer's ability to achieve sustainable development by means of relying on practical science technologies and combining ecological energy development with poverty alleivation practice. **Key activities**: identify potential demonstration projects; assees technical development, environmental and social needs for each; finalise and design implementation plan for each; endorse project plans; implement plot projects; establish basic requirments for sustainable business; develop business models

Ouput 5: Project dissemination to promote the concept of green poverty alleviation to a wider audience in China. **Key activities**: prepare training manuals and materials; organise workshops and training courses for local farming communities to disseminate.

Refer to Part 7 - Programme Results and Resources Framework for more detailed project outcomes, outputs and activities (page 20).

2.4 Implementation strategy

Given the committed funding from both UNDP and the government, this project shall be executed and implemented immediately after signing of the project document. While, other Sub-programmes with SEAC will be launched in the second phase provided that under-budget funding is in place from the government and third parties, in addition to the TRAC fund that UNDP has already committed.

Protecting valuable natural assets and the environment, in support of the development of China's wetsern region and in particulalr, ethnic people's economic, social and cultural rights, requires skill and sensitivity. *The project will take science and technology-driven development as the precursor and participatory rural appraisal (PRA) as the working approach. The project will in particular aim to be gender sensitive and include women, marginalised groups and the unemployed*. The project should:

a) Agree and establish management structure and institutional arrangements for the GPA project at all levels of operation;
b) Complete baseline studies of each pilot project area, review relevant experiences in China and overseas and report with recommendations for demonstration pilot projects and establishment of supporting infrastructures.
c) Capacity building and training in all aspects of project implementation; in particular, establishment or development of community associations to represent the views and interests of farmers and to act as a focus for training, technical support, financial support, etc
d) Selection, planning and implementation of demonstration pilot projects including investigation and development of business models to maximise the financial benefits to farmers and other local stakeholders.
e) Project dissemination to summarise the experiences and lessons from the three demonstration projects, to provide training and advice to other farming communities and to promote the concept of Green Poverty Alleviation to a wider audience.

Common themes and synergies will be explored between activities in order to maximise effective use of resources including: training activities for local government and community associations; technical assistance; annual review workshops; project dissemination, e.g. website, training manuals, guidelines; final project workshop.

The duration of the Project is four years 2006-2009. Project implementation will be carried out from the second half of 2006 to the first half of 2009, dissemination and scaling up will take place in the second half of 2009. The project will cover Inner Mongolia, Xinjiang, Guizhou, Yunnan, Sichuan and ethnic minorities in selected provinces. Other demonstration sites with similar national programs may also be selected for knowledge exchanges and lessons learnt.

2.5 Synergies for the GPA project with other relevant UNDP programs

In the phase of project implementation, synergies will be identified and established with the existing UNDP programs, in particular the following projects for lessons learnt:

- UNDP/MOST Technical Task Force (TTF) project. The GPA and TTF projects can share experiences in developing participatory mechanism of technological extension services and risk management of applying innovative technologies and market accessibility. The TTF has just been launched within the same ministry. It would be easy for the two NPMOs to establish a regular meeting mechanism for learning from each other during their project life;

- UNDP/GEF project. Since 2002, UNDP and the Global Environment Facility (GEF) have cooperated with the NDRC to support China's national rural energy programs. The Project has developed a renewable energy service company (RESCO) management training course and business models to build capacity in organizations responsible for operating village power systems. A baseline survey was executed for the Song Dian Dao Xiang systems to develop a database for evaluation and assessment of current performance, urgent needs, and guidance for the future SDDC village powered programs. The project has also developed experience with RESCOs in a village wind-solar hybrid power project in Bulunkou in Xinjiang Province as a model for addressing several institutional issues associated with sustainable village power development. The Inner Mongolia wind energy pilot should use the project results as a good reference. If needed, a study tour can be organised to the pilot sites in Xinjiang;

- The GEF/UNDP Project of China Demonstration for Fuel-Cell Bus Commercialization to support clean energy action. The project assists 18 Chinese cities in preparation of the clean energy action plans to promote clean energy and clean energy technology use so as to control air pollution and maintain economic growth. The project has succeeded in introducing the clean energy technologies and phased out or renovated out-of-day technologies and equipment. While, the Market-Based Instruments (MBIs) are not fully applied in the process. This GPA project may have an interest to learn the barriers to actualise the market mechanism in the promotion of biofuels to ensure profitability and sustainability of the plantations with possible incentive scheme.

- UNDP/MOST ICTs for rural poverty reduction project. The GPA may have a first insight how to establish the connectivity of the village telecentres and how farmers use them for market information access. Study tour can be organised to the pilot centres in Yulin of Shaanxi or Wuan of Hebei Province. The ICT project has confirmed that new technology application can be accepted and adopted by poor rural households. The project is a powerful show-case in using the ICT tools

to provide market related information with strong quantitative evidence of increased income of the sample households although no much result were achieved in more broad social dimensions such as providing education and medical information etc.

- UNDP/MOST food processing and dairy development for poor farmers' livelihood projects. Under WTO and economic globalization, the development of farmer organizations is an important means to empower small farmers and women to participate in the competition, particular given the characteristic of the farm scale and feminization of the agricultural sector. The two projects introduced contractual arrangement between agro-processors and farmers or farmers' organisations, which has been a good scheme proven to ensure a viable market access of small farmers. The GPA project should organise tours to learn the project results. One of the dairy pilot sites is in inner Mongolia managed by the same implementing agency of the GPA project and another dairy pilot site is located in Xinjiang, which the Jarrah / Dayun cultivation pilot should conduct study tours to…. Another element for the GPA project to learn is how to make maximum use of the Green Box subsidies, the bio-diesel project offers a continuing opportunity for MOST to play in the research & development and for policy recommendations.

- UNDP/MOST pilot counties for microcredit programs. An important observation is that these piloting institutions besides issuing loans, also provided technical and vocational training for income generating activities thus performed with a high repayment rate of the loans. It means the loans could not work well alone. In this connection, the MOST nationwide technical network is important in facilitating microcredit operation of financial and non-financial institutions. This GPA project has micro-credit components, which should best use the MOST experiences gained from UNDP projects in managing micro-credit loans.

2.6 Beneficiaries

Direct beneficiaries: Government organisations, institutions and related agencies at national, provincial, municipal and county level by strengthening capacities in poverty alleviation, ecological and environmental protection, sustainable energy planning, job creation, and the development of sustainable rural economies; local implementation agencies and farming communities through capacity development and infrastructures; energy consumers through the development of green energy supply systems with potential to increase production efficiency and flexibility; poor minorities through improved income, better environmental and living standards, access to viable energy resources and greater participation in their future social and economic development. Expected improvements in the supply and quality of Dayun (grown in the root of the Jarrah plant) will benefit local entrepreneurs, suppliers and users of the medical derivatives.

Indirect beneficiaries: Women, through greater employment opportunities with reduced working hours; and reduced migration of men from families. China will benefit by mobilising green energy resources that may displace petroleum imports and by promoting use of renewable energies to reduce reliance on polluting fossil fuels. The wider availability of Dayun will benefit national health and establish a blueprint for improving the commercial value of farming activities in remote areas of China. The associated Jarrah plants will prevent desertification and protect the ecological environment.

2.7 Partnership Strategy

The successful implementation of the programme will depend on the development of effective partnerships between numerous different agencies at multiple levels. Partnerships will be pursued with national and local agencies, as well as international partners to enrich and further project aims. The project will form a partnership strategy with three elements: 1) Central coordinating function; 2) Local implementation function; 3) Technical and commercial partnerhsip.

1) Central and provinicial coordinating function:

The National Programme Steering Committee at central level will be the vehicle through which strong partnerships and synergies can be acheived and enabled. Key partners will be: i) **Ministry of Science and Technology (MOST):** MOST is responsible for formulating and organising implementation of national plans of fundamental study and development and dissemination of key technologies in energy and transportation fields. This includes research and development into sustainable energy systems in China, e.g. by developing and promoting the use of renewable energy technologies; ii) **China International Center for Economic and Technical Exchange (CICETE) of the Ministry of Commerce** is UNDP's national counterpart for overall Project execution; iii) **State Ethnic Affairs Commission (SEAC), The State Council's Leading Group Office for Poverty Alleviation (LGOP), China Western Development Office of the National Development and Reform Commission (NDRC) and Ministry of Agriculture (MOA)** can be invited as members of the project national steering committee. SEAC is a member of the State Council, has been created to manage ethnic minority affairs at all levels. SEAC formulates national policies towards ethnic minorities in the fields of law, economy, culture, education. The GPA project is a component of the overall umbrealla programme agreed with SEAC, therefore, programme synergies should be achieved with the involvement of SEAC; As the project demonstrations all are located in western provinces, the NDRC Western Development Office will be a key partner in policy coordination and support as well as project result dissemination; LGOP has responsibility for the overall success of China's poverty reduction programme and for coordination of the poverty reduction activities of other government ministries and agencies. The LGOP and its executive agency the Poor Alleviation and Development Office (PADO) which extends down to county and township levels, is the principal advocate of China's rural poor; MOA oversees and guides the development of the agricultural sector, having a strong link to agro-economical activities to address planting and cultivation. The ministry supervises and administers the existing rural extension system which can benefit the demonstration of selected agro-economic activities and technologies through the project.

2) Local implementation function:

Local partners with a national network, particularly local offices i.e agricultural bureaus, science and technology, statistics bureau, Women's Federation, NGO's and CSO's are important to the overall implementation of local demonstration projects. Local PADO/LGOP will be a major project partner throughout project implementation particularly where project interventions take place at local level. Much poverty alleviation work in western China and poor ethnic minority areas is undertaken by national NGO's and CSO's who have built up extensive knowledge and expertise at the local level. The Women's Federation will be a key ally to maintain the gender focus of the project. NGOs and CSOs will support programme activities: at the community level; for support in delivery of micro projects.

3) Technical and commercial partnerhsip:

The support and assistance of relevant associations, as suppliers of expertise and national and international industry contacts will be essential to the energy components of all three sub-demonstration projects. The project will also seek to form

collaborative relationships with the international community to leverage additional resources, e.g. donor organisations, relevant government programmes overseas, consultancy providers and specialist technology suppliers. A key contact organization on energy technology issues will be the Chinese Renewable Energy Industries Association (CREIA). CREIA was established in 2000 under the support of SETC/UNDP/GEF Project of Capacity Building for Rapid Commercialization of Renewable Energy in China. As an industrial association, CREIA has succeeded in attracting over 100 corporate members and about 160 individual members covering all the sub-sectors of Renewable Energy in China, including Solar Thermal, Solar PV, Wind, Biomass (Biogas Plant), Bagasse, Hybrids, Geothermal, Small Hydro and Ocean energy. There is worldwide interest in biofuels due to concerns about depleting fossil fuel reserves and the environmental impact of their use. This expertise will be harnessed in the biodiesel sub-project through both collaboration with European technology providers and the expertise brought by international specialists on the team. A similar level of technical support with regard to energy and medical crops will be sought from agronomic institutes and expertise from the Chinese Academy of Agricultural Sciences (CAAS) and agricultural universities.

The Private Sector will be a critical partner to make the project success. Private sector bodies, individuals and business associations will be pro-actively drawn into activities wherever relevant and possible in supporting the development of community-based science and technology poverty reduction activities and commercialisation of the activities of planting and cultivation. The companies in these businesses will help with access to economic opportunities – through employment, business linkages, income generating opportunities, access to credit, new technologies and trainings.

Meanwhile, bilateral donors and international development agencies are good partners for experiences sharing. These may include: ADB, World Bank, EU, FAO, IFAD/WFP, DFID and GTZ etc.

Part 3. Management Arrangements

The project will be executed on behalf of the government by China International Center for Economic and Technical Exchange (CICETE) of the Ministry of Commerce according to NEX manual. The Project will be jointly implemented by the Ministry of Science and Technology (MOST), the Inner Mongolia local government and the Xinjiang local government.

In line with overall project objectives to build up and support synergies of the project and sub-demonstration projects, a National Programme Steering Committee will be established. It will be co-chaired by Vice Ministers of MOST, Director General of CICETE and UNDP Resident Representative including pilot provincial governments as the committee members. Relevant ministries including SEAC, MOA, LGOP and NDRC Western Development Office will be invited to the committee. The Committee will supervise the implementation of the overall programme, review, evaluate and approve outputs, coordinate inputs of related agencies, and communicate outputs to appropriate agencies.

A National Project Management Office (NPMO) for the project will be established within MOST/CICETE (two-sub offices). The NPMO will consist of one National Project Director (NPD) from MOST and two National Programme Managers (NPMs) from the two sub-NPMO offices, technical advisers, and support staff (2-3). The NPD will be responsible for endorsing and overseeing all capacity building activities, implementation of demonstration

sub-projects and dissemination activities. A particularly important role will be in co-ordinating project activities to ensure efficient and effective use of project resources. The NPD will be supported by the appointed two MOST/CICETE national programme managers (NPMs) and two provincial managers (from Xinjiang and Inner Mongolia), for day to day management.

Two Technical Advisors (TAs), one national and one international (with the international playing a role of Chief Technical Advisor), will be recruited to provide technical support. The advisors will provide technical support and back-up and will ensure that technical aspects of the project are undertaken at the required standard within time and budget. Alongside international and national consultants, will be recruited upon needs. (Refer to TORs in Annex)

More specifically, for the three demonstration projects, PMOs will be established for day to day management of pilot sites depending upon needs at provincial, prefectural and county level. They will support and be supervised by the NPMO. (Refer to Management Flowsheet, Page 31)

Pilot project one:

The Project Management Organisation responsible for this Sub-project (biodiesel) will be the Ministry of Science and Technology (MOST). MOST is responsible for formulating and organising implementation of national plans of fundamental study and development and dissemination of key technologies in energy and transportation fields. This includes research and development into sustainable energy systems in China, e.g. by developing and promoting the use of renewable energy technologies. In this project, MOST will focus its resources on comprehensive R&D and management support of the biodiesel sub-project, and will form collaborative relationships with international specialist technology suppliers.

Pilot project two:

It is proposed that this sub-project (Jarrah and Dayun cultivation for traditional medicines in Xinjiang) will be overseen directly by the NPMO sub-office within CICETE. It is understood that the local project executing agency will be the Poverty Alleviation and Development Office (PADO) of the Xinjiang Autonomous Region and Hetian Prefecture. The local PMO will therefore be established within the PADO.

Pilot project three:

A similar arrangement is proposed for this sub-project (Small-scale wind energy in Inner Mongolia). The NPMO sub-office within CICETE will take responsibility for overall project management. However, to implement the day-to-day management of the project, a local PMO will also be established within the PADO of the Ulanchabu Prefecture as the local project implementing agency.

Part 4. Monitoring and Evaluation

Monitoring and evaluation (M&E) of the project will be undertaken in line with the UNDAF results matrix and monitoring and evaluation plan.

Project monitoring and evaluation (M&E) will be conducted with focus on outcomes and outputs of interventions, institutional results and partnerships, policy advice and dialogue, advocacy and coordination. The M&E should aim at the following key objectives: 1) focus on results at two levels: at output level, the specific products and services from the project; at outcome level, in which the project has contributed to overall institutional setting and policy formation for poverty reduction specially targeting the western region, ethnic minorities and

women; 2) to enhance management efficiency of the project and ensure consultation/participation of all stakeholders and 3) to not only focus on assessment of progress of the project, but also on experiences and lessons learnt to support more informed decision-making and dissemination of project results.

Project management will invite the direct involvement and support of provincial and local level government on an ongoing basis to enhance monitoring and evaluation activities. The extent to which the desired outcomes of the project have been achieved will be monitored through a system of M +E project activities, annual work plans and budgets, and peer group review and evaluation.

The project will hold annual National Project Steering Committee meetings to evaluate project progress, results, experiences and lessons learned during project implementation and work plan for the following years. The annual review will be a tool to ensure periodic assessment on whether the approach and interventions will produce the expected outcomes. The national project management office (NPMO) will support convening of the review meetings and will assist MOST, the regional governments of Xinjiang and Inner Mongolia to prepare annual programme reports.

Monitoring visits will be conducted by UNDP and CICETE to assess programme progress and results through consultations with relevant stakeholders and beneficiaries. The Project Managers will prepare quarterly project updates with assistance of project technical advisors to support day to day monitoring and implementation, as well as information sharing among concerned parties.

CICETE will provide periodic reports (annual review) on the progress, achievements and results of their projects, outlining the challenges faced in project implementation as well as resource utilization as articulated in the AWP.

Part 5. Legal Context

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Agreement between the Government of the People's Republic of China and the United Nations Development Programme, signed by the parties on June 29, 1979. The reference to "Implementing Partner(s)" shall mean "Executing Agency (ies)" as used in the SBAA.

Part 6. Funding

The total budget for the project is **US$ 8,585,000** of which US$ 2,300,000 is from UNDP TRAC fund, and US$ 6,285,000 is committed from the Chinese Government cost/sharing contribution.

1. Government cost sharing:

The cost sharing will cover the following:

- Identification and preparatory work of the project, including workshops and trainings;
- Costs of short-term domestic experts;
- Short term study tours and trainings: covering participants' accommodation, allowance and travel costs in China;
- Workshops: travel costs, accommodation, allowance, venue costs;
- Overseas trainings: travel costs of some trainees, domestic costs related to application and preparation;
- Costs of demonstration or piloting activities;

- Follow up of actions recommended by the programme, incl. holding dissemination workshops, printing workshop materials;
- Partial costs of PMOs' operation, including communication, transportation as necessary plus procurement of project-office facilities and vehicles for PMOs at national and local levels; (Implementing Units at national level: sub-PMOs at MOST and CICETE); (Implementing Units at local level: Poverty Alleviation Offices in Yunan, Guizhou, Sichuan, Xinjiang; Xinjiang Center of PA with Foreign Funds; Hetian Prefecture PA Office, Hetian County, Pishan County, Luo Pu County, Wulan Chabu of Inner Mongolia).
- All necessary resources to facilitate programme management and sub-programme implementation;

MOST	US$ 3,100,000
Xinjiang	US$ 1,685,000
Inner Mongolia	US$ 1,500,000
Subtotal	**US$ 6,285,000**

In-Kind Contributions of the Government to cover:

- Personnel for the national programme coordination office and for the two project management offices that will implement the demonstration component of the sub-programme.
- Office building, rental costs in the three locations.

Schedule of Government Cost Sharing, thousand USD (US/CNY Exchange Rate: 1: 8.0)

Govn't Agency	2006	2007	2008	2009	Total
MOST	600	1,200	900	400	3,100
Xinjiang	549	549	549	38	1,685
Inner Mongolia	500	500	500		1,500
Total	1,649	2,249	1,949	438	6,285

2. UNDP Inputs:

- International and national consultants and resource persons;
- Support technical services, partial operation costs of national sub-offices, training activities, study tours, symposiums and workshops;
- Monitoring and evaluation;
- Material and equipment to a limited degree; and
- The costs of review meetings and evaluations.

Inputs: US$ 2,300,000

3. Project Funding Total: US$ 8,585,000

Detailed budgeting for these programme activities is in Part 7 - Programme Results and Resources Framework, Page 25.

SECTION II – RESULTS AND RESOURCES FRAMEWORK

Part 7. Programme results and resources framework

Intended Outcome as Stated in the UNDP Country Results Framework: Achieving the MDGs and Reducing Human Poverty; Energy and Environment for Sustainable development.
Outcome Indicator as stated in the Country Programme Results and Resources Framework: Focus Area 1.3**.** Growth with equity is integrated into national development policies and plans; Focus Area 3.3.Loss of biodiversity resources is reversed (Baseline: greater institution of local NGOs and communities to participate in Biodiversity conservation activities strengthened).
Applicable MYFF Service Line: 1.2. Pro-poor policy reform to achieve MDG targets. 3.5. Conservation and sustainable use of biodiversity.
Project partnership strategy: 1. **Partnership mechanism**. The successful implementation of the programme will depend on the development of effective partnerships between numerous different agencies at multiple levels. Partnerships will be pursued with national and local agencies, as well as international partners to enrich and further project aims. The project will form a partnership strategy with three elements: 1) Central coordinating function; 2) Local implementation function; 3) Technical and commercial partnerhsip. 2. **Key partners.** 1) Central coordinating function: MOST, CICETE and UNDP co-chair the national project steering committee, inviting also State Ethnic Affairs Commission (SEAC), The State Council's Leading Group Office for Poverty Alleviation (LGOP), The National Development and Reform Commission (NDRC) Western Region Development Office and Ministry of Agriculture (MOA) as committee members; 2) Local implementation function: Local partners with a national network, particularly local offices i.e agricultural bureaus, science and technology, local poverty alleviation and development offices, statistics bureau, women's Federation, NGO's and CSO's are important to the overall implementation of local demonstration projects; 3) Technical and commercial partnerhsip: Universities, research institutes, CASS, farmers groups and technology providers in particular the Chinese Renewable Energy Industries Association (CREIA) are technical resource agencies. The Private Sector will be a critical partner to make the project success. Private sector bodies, individuals and business associations will be pro-actively drawn into activities wherever relevant and possible in supporting the development of community-based science and technology poverty reduction activities and commercialisation of the activities of planting and cultivation. Lastly, bilateral donors and international development agencies are good partners for experiences sharing. These may include: ADB, World Bank, EU, FAO, IFAD/WFP, DFID and GTZ etc.

Project Title and ID: Green Poverty Alleviation in Poor Rural Areas

Project Outcome One: Improved capacity at institutional/community level to understand and utilise science and technology inputs for local energy and poverty alleviation needs

Baseline: Limited institutional capacity to promote or combine poverty alleviation with sustainable energy development and eco-environmental protection and regeneration; limited participation of poor farmers and gender sensitivity/awareness in community activities and decision-making processes.
Indicators: Baseline studies of poverty alleviation, energy and the eco-environmental situation in each demonstration area completed; local government officials, decision makers and practitioners trained in a scientific approach that combines poverty alleviation with energy development and eco-environmental regeneration; Improved ability of local farming communities to participate in the process of green poverty alleviation, ensuring ethnic minority and gender sensitivity in programme design and implementation.

Project Outcome Two: Innovative and practical science technologies and combining ecological energy development with poverty alleivation practice tested and dessiminated for scaling up

Baseline: Limited commercial micro-entrepreneurship, marketing and negotiation skills among local farming communities; Limited knowledge and understanding of the concept, development and implementation of sustainable development plans.
Indicators: Demonstration projects selected and implementation plans endorsed by National Steering Committee; Business models established for each project area with local farmer's associations formed or strengthened; agreed number of women (at least 50%) and majority ratio of ethnic minority households encouraged to participate in project activities and decision making; over 50% households at pilot villages with annual income increase of at least 15% by participating the demonstration projects; agro and forest habitats expanded & improved around key national and provincial nature reserves around the region of demonstration sites; results and lessons disseminated.

Intended Outputs	Output Targets	Indicative Activities		Inputs US$
	Outcome one related outputs 1-3 **Output 1: Project Management** to establish efficient and effective management and implementation structure for the project.	Mid 2006	1.1 Establish National Steering Committee 1.2 Establish National Programme Management Office 1.3 Establish Project Management Offices for each sub-project 1.4 Establish project executive agencies at local level. 1.5 Establish participatory decision-making process in the demonstration projects 1.6 Appoint national and international expert consultants. 1.7 Hold project inception meeting 1.8 Finalise management arrangements.	UNDP $ 292,000 Cost Sharing: MOST $ 315,900 Xinjiang $278,500 Inner Mongolia $201,500
		Monitor and review project (Years 1-4)	1.9 Ongoing monitoring, evaluation and management of project. 1.10 First annual review meeting. (To review progress, discuss baseline studies, confirm selection of demonstration projects, endorse implementation plans and resolve any financial issues.) 1.11 Mid-term project review meeting. 1.12 Final project review and workshop	UNDP $ 145,000 Cost Sharing: MOST $ 40,000

Output 2: Baseline analysis To provide information and data for: assessment of specific project needs; development of an improved support structure in each project area; and the design and optimisation of the three demonstration projects.	Complete baseline studies in each project area and community. (1st half 2007)	2.1 Undertake local stakeholder consultations and assess the current situation regarding poverty alleviation, energy and ecology. 2.2 Undertake case studies to establish local residents' understanding of ecology and poverty alleviation, and indigenous knowledge on planting and environmental protection. 2.3 Quantitatively investigate and collect basic data on energy utilization and eco-environmental conservation. 2.4 Identify priority areas that need to be addressed. 2.5 Assess strengths and weaknesses of institutional policy, management and technical support systems. 2.6 Identify training and resource needs.	UNDP $ 75,000 Cost Sharing: MOST $ 20,000
	Review relevant experiences and lessons from China and abroad. (1st 2007)	2.7 Consider any relevant capacity-building initiatives in the project areas and elsewhere in China. 2.8 Investigate potential synergy with other UNDP projects and aid initiatives in China and overseas. 2.9 Design, organise and undertake national study tours relevant to each project area. 2.10 Design, organise and undertake international study tours (three study tours envisaged; one for each demonstration project). 2.11 Produce report of study tours.	UNDP $ 185,000 Cost Sharing: MOST $ 47,500

	Produce baseline study report to include input data for decision support system (mid 2007)	2.12 Produce report on baseline study including assessment of current situation, findings of study tours, training needs, recommendations for demonstration projects and improved technical, policy and institutional support in each project area. 2.13 Present baseline study report at first annual review meeting	UNDP $ 34,000 Cost Sharing: MOST $ 2,500
Output 3: Capacity Building/Training To improve active participation, self-determination and self-development of farmers and local decision makers in each demonstration area.	Work towards the est. of farmers' self-development associations or enhance existing farmers' associations in each project area. (mid 2007)	3.1 Farmers elect members of farmers' development association. 3.2 Where appropriate, provide training to farmers representatives and local stakeholders in the establishment of associations 3.3 Agree terms of reference and regulations for the association. 3.4 Establish the function of associations to create a 'green community'.	UNDP $ 50,000 Cost Sharing: MOST $ 10,000
	Encourage poor farmers (especially women and ethnic minorities) to take part in associations and community activities. (mid 2007)	3.5 Provide fundamental social education through easy-to-learn training courses to local ethnic people, e.g. basic training in housekeeping, sanitation and healthcare. 3.6 Provide easy access to information sources and support services. 3.7 Cultivate knowledge sharing through modern ICT means e.g. by means of rural village telecentres tested by UNDP in other provinces (also see output 3.5 below).	UNDP US$ 100,000 Cost Sharing: MOST $ 20,000

	Improve capacity of farmers' associations and local decision-makers to represent interests of poor farmers and create a 'green community' (Project year 1-3)	3.8 Develop a training plan based on training needs identified in baseline studies. This could include training in: the theory and practice of agricultural co-operation; marketing and contract negotiation; participatory poverty alleviation; eco-environmental protection; renewable energy; and agricultural production skills. 3.9 Undertake national and international study tours relevant to each demonstration project. 3.10 Provide training to trainers and key decision makers in farmers' associations.	UNDP $ 360,000 Cost Sharing: MOST $ 60,000
	Train farmers to protect the eco-environment, utilise renewable energy and learn agricultural production skills. (Project year 1-3)	3.11 Train in participatory poverty alleviation 3.12 Train in protection of the eco-environment 3.13 Train in the utilisation of renewable energy 3.14 Train in crop planting, cultivation and related skills	UNDP US$ 200,000 Cost Sharing: MOST $ 20,000
	Establish an internet website to provide easy access to information sources, remote training, technical support, market information, advocacy and a trading platform. (Project year 1)	3.15 Develop the specification for the website. 3.16 Issue a sub-contract for website establishment, maintenance and updating. 3.17 Establish internet access arrangements for the recipients. 3.18 Initiate website.	UNDP $ 25,000 Cost Sharing: MOST $ 2,500

	Develop an integrated decision-support system for planning energy, economic and eco-environmental activities in farming communities. (Project year 1)	3.19	Establish roles and responsibilities of relevant government officials	UNDP $ 21,500 Cost Sharing: MOST $ 5,000
		3.20	Identify specialist support services required	
		3.21	Analyse interactions of energy structure, economic development and eco-environmental conservation through a series of MCDA and multivariate statistical approaches based on the data obtained from base-line studies.	
		3.22	Apply established trade-off models (goals: maximize economic benefits for local governments and farmers; satisfy energy demand and maximize renewable energy availability; minimize ecological and environmental impacts)	
		3.23	Design a user-friendly decision support system for integrating the above components into a general framework.	
		3.24	Prepare decision-tree and seek ratification at appropriate government level	
		3.25	Prepare technical guidance documentation	

Outcome two related outputs 4-5 **Output 4: Demonstration Projects** *Purpose:* to improve and demonstrate farmers' ability to achieve sustainable development by means of relying on practical science technologies and combining ecological energy development with poverty alleviation practice. To provide information for project dissemination and future training.	Select appropriate projects using a participatory approach and based on a scientific and rational basis (end of project year 1)	4.1 Identify potential demonstration projects that combine ecological energy development with poverty alleviation practice. 4.2 Apply decision-support system (DSS) using data from baseline study and other relevant sources. 4.3 Select demonstration projects and develop outline plan for presentation at first annual review.	UNDP $ 50,000 Cost Sharing: MOST $ 5,000 Xinjiang $2,500 Inner Mongolia $2,500
	Prepare detailed implementation plans for selected projects[2] (early project year 2)	4.4 Assess technical development, environmental and social needs for each demonstration project. 4.5 Carry out national (or international) field visits to gain experience and guidance from similar applications in China and overseas as required. 4.6 Optimise technical, environmental and social parameters for each project. 4.7 Establish an appropriate scientific and technical support platform for each project. 4.8 Identify financing needs associated with each demonstration project. 4.9 Finalise design and implementation plan for each demonstration project. 4.10 Hold stakeholders meeting to agree and endorse the project plan.	UNDP $ 150,000 Cost Sharing: MOST $ 10,000 Xinjiang $ 2,500 Inner Mongolia $ 2,500

[2] to be undertaken by farmers' associations in partnership with other project stakeholders

	Implement poverty alleviation, ecological and energy demonstration projects. (Project years 2-4)	4.11 Make financing mechanisms available such as micro-credit schemes and investment from enterprises and third parties to encourage and support farmers (through farmers' associations). 4.12 Establish demonstration projects and commence project activity. 4.13 Initiate monitoring and evaluation activities of demonstration projects. 4.14 Conduct life-cycle assessment of each demonstration project.	UNDP $ 350,000 Cost Sharing: MOST $2,327,500 Xinjiang $1,177,500 Inner Mongolia $1,057,500
	Establish and apply a 'business model' to cover production, supply, marketing, contract negotiation. (Project years 2-4)	4.15 Establish the basic requirements for a sustainable, commercial business and identify the supply and user chain requirements. (more detail of specific activities for each demonstration are provide in Annexes 2-4) 4.16 Investigate and assess options for business models (if applicable). 4.17 Develop business models; apply business models in practice; review and optimise business models	UNDP $ 90,000 Cost Sharing: MOST $ 5,000 Xinjiang $2,500 Inner Mongolia $2,500
	Report on demonstration projects. (Project years 2-4)	4.18 Present selected projects and outline implementation plans at first annual review. 4.19 Present progress reports at mid-term review. 4.20 Prepare draft final reports for approval. 4.21 Present final reports at final project workshop.	UNDP $ 60,000 Cost Sharing: MOST $ 5,000 Xinjiang S$2,500 Inner Mongolia $2,500

Output 5: Project Dissemination[3] *Purpose:* to promote the concept of green poverty alleviation to a wider audience throughout China.	Summarise the lessons and experiences from the three demonstration projects (end project year 4)	5.1 Hold a final workshop to present summaries of the three projects 5.2 Prepare material and run a training course for potential future high-level project developers and trainers	UNDP $ 40,000 Cost Sharing: MOST $ 10,000
	Prepare training manuals, guidelines and educational material. (project year 4)	5.3 Based on the project experience, prepare training manuals and guidelines to advise on and promote good practice in plant cultivation, eco-environmental protection, sustainable energy development and business development. 5.4 Produce training manuals and guidelines. 5.5 Make training manuals, guidelines and other relevant educational material available on project website.	UNDP $ 40,000 MOST $ 5,000
	Select farming communities and organise practical training courses in plant cultivation, eco-environment, sustainable energy and basic commercial skills. (Project year 4)	5.6 Identify specific needs of the local farming communities. 5.7 Select learning resources to meet individual learning needs 5.8 Organize training courses at the level of village and township appropriate to specific needs. Sufficient courses will be organised to enable full participation of interested parties making due allowance for essential farming and family commitments	UNDP $ 89,000 MOST $ 16,000

[3] Output 5 to be overseen by the National Programme Management Office

	Promote the concept of green poverty alleviation to a wider audience. (Project years 2 - 4)	5.9 Update website at key stages within the project (e.g. after mid-term review and final project workshop). 5.10 Make provision for continuing maintenance of website after project completion. 5.11 Consider establishing a GPA network to include member units such as government, NGOs and research institutes. 5.12 Organise or participate in symposia in China and abroad.	UNDP $ 35,400

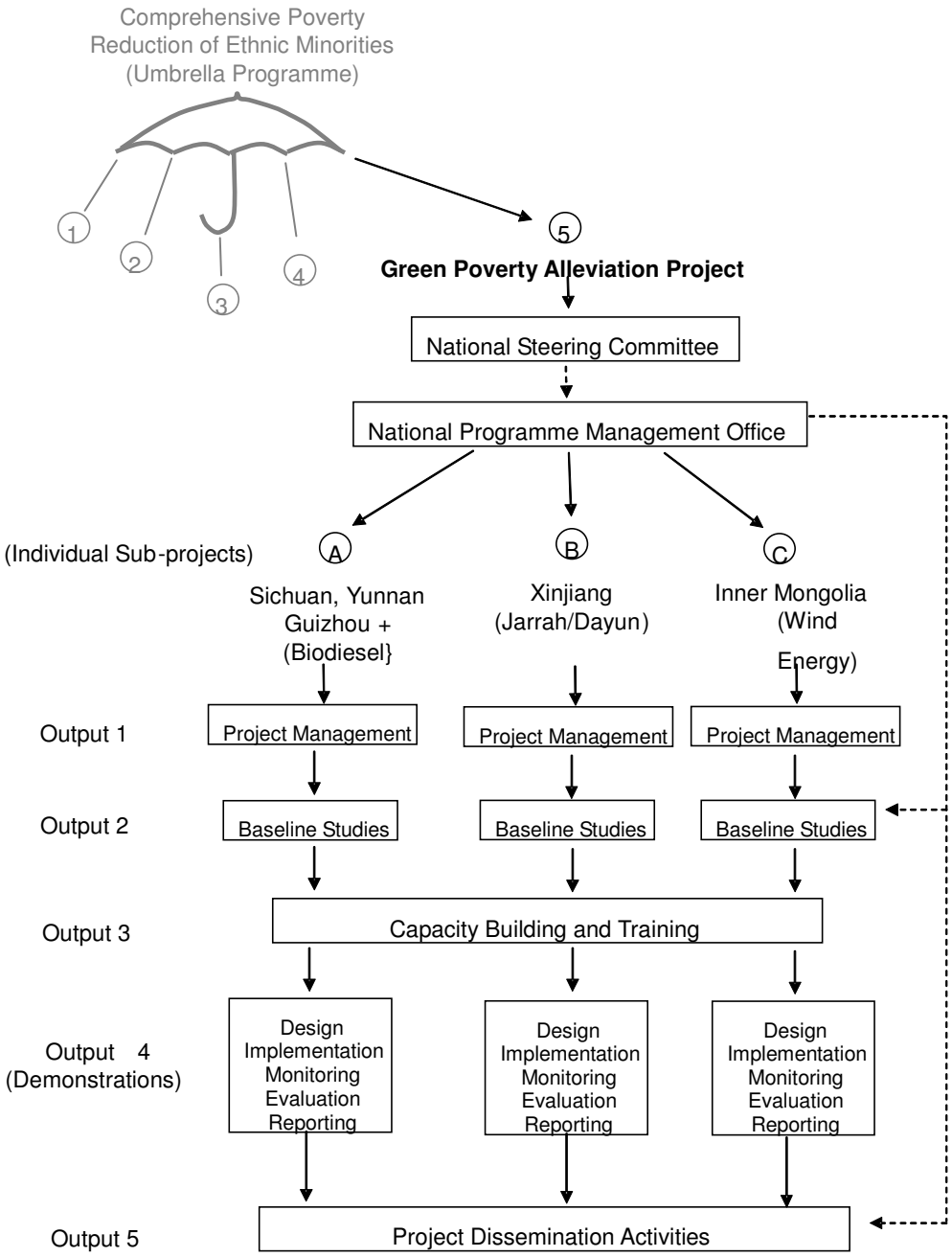
Part 8. Project Work Plan

Expected Outputs	Indicative Activities	2006 2009		2007										2008		Resp. Partner/Indiv.
		3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Output 1 Project Management to establish efficient and effective management and implementation structure	1.3 Establish PMOs	X	X													MOST, CICETE, Inner Mongolia and Xinjiang local government, UNDP
	1.5 Establish participatory decision-making process	X	X													
	1.8. Finalise management arrangements.	X	X													
Output 2 Baseline research for development of sub-projects	2.1 – 2.3 Assess current situations	X	X	X	X											
	2.4. Identify priority areas			X	X											
	2.6 Identify training and resource needs			X	X											
	2.7- 2.9 Review capacity building initiatives and undertake study tours relevant to sub-project area	X	X	X	X											Programme implementing agencies
	2.12 Baseline study including findings and present for review				X											
Output 3 Capacity building/Training to improve participation and self-determination and development in demonstration areas	3.1-3.4. Set up farmers development associations including training, TORs	X	X	X	X											Local partners
	3.5 – 3.7 Provide social education through training course and access to information support services and ICT	X	X	X	X											
	3.8-3.9. Develop training plan, undertake study tours and provide training to trainers	X	X	X	X	X	X	X	X	X	X	X				
	3.11-3.14. Training to protect eco-environment and utilise renewable energy resources	X	X	X	X	X	X	X	X	X	X	X				

	3.17 -3.18 Establish internet access	X	X	X	X											
	3.19-3.25 Develop integrated decision-support system for planning	X	X	X	X											
Expected Outputs	**Indicative Activities**	**2006 2009**						**2007**							**2008**	
Output 4 Demonstration projects to improve/develop ability to achieve sustainable development relying on science technologies	4.1 Identify and select sub-projects	X	X	X	X											MOST, CICETE, UNDP, local govts of Xinjiang
	4.4 – 4.9 Prepare detailed implementation plans and finalise design					X	X									Technical Advisor and project teams
	4.11 – 4.14 Funding mechanisms available and commence sub-project implementation						X	X	X	X	X	X	X			
	4.15 - 4.17 Establish and apply business model						X	X	X	X	X	X	X			
	4.18 - 4.21 Reporting				X				X			X		X		
Output 5 Project dissemination to promote concept of green poverty throughout China	5.1 Final workshop and run training for potential future trainers													X	X	
	5.3 - 5.5 Prepare training materials and make available												X	X	X	Sub-programme management
	5.6 – 5.7 Identify and prepare training courses for farmers															
	5.9 - 5.12 Up-date website and consider establishing GPA network for wider audience						X	X	X	X	X	X	X			

SECTION III. ANNEXES

A1. GPA PROJECT FLOWSHEET



A2. PROFILE OF BIO-DIESEL AND BIO-ETHANOL DEMONSTRATION

Proposed locations for the **bio-diesel** demonstration project include mainly the provinces of Sichuan, Guizhou and Yunnan.

Sichuan has one of the largest populations and agricultural output in the country. HIV control, poverty alleviation and compulsory education are focuses of the local development strategy. There are three poor belts: North Sichuan; South Sichuan; and Liangshan and Panzhihua prefectures, the latter of which is the proposed project area.

The farming communities grow Jatropha Curcas on mountain slopes for the production of bio diesel. Companies rent mountain areas from local farmers who receive income for planting and cultivating trees. Jatropha Curcas cultivation has considerable potential here and in other areas of Sichuan, Guizhou and Yunnan. At present there is no standard system of planting and cultivation and there is a need for research to gain greater understanding of Jatropha Curcas, its optimum growing conditions (e,g. soil, aspect, water, and fertiliser) and its effect on the eco-environment. Key issues include: the need to improve the quality of Jatropha seeds and enhance oil yields (currently 40-60%); the need to accelerate production and reduce land requirements; past research has reduced the maturity time of the trees from 3 to 2 years but further research is required to further reduce this.

There is a need to optimise bio diesel production. There is no technical standard, health and safety standard or life-cycle assessment of the technology. Key issues include the need to:

- Reduce production costs of bio-diesel (currently 20% higher than conventional diesel).
- Develop production technologies to improve the quality of bio-diesel.
- Optimise production and use of by-products.

Finally, and crucially, the question is how to best to involve and benefit poor farmers themselves and to address the problem of migration of young people from the countryside to the cities. Jatropha cultivation must become more financially attractive to farmers to counteract the perception that higher wages can be earned in the cities. There is a need to:

- Prove the commercial feasibility of Jatropha cultivation.
- Provide financial support and incentives to farmers.
- Provide technical and institutional support, perhaps through the formation of a farmers' association.
- Provide policy support to stimulate investment in planting, processing and distribution of the product and also in creating a market for bio-diesel.
- Optimise the business model of bio-diesel production.

Similarly, **fuel ethanol** production from stalks of the sweet Chinese sorghum produces clean and renewable energy, and is an effective way for raising peasants' income and solving the "San-nong" issues (issues concerning villages, agriculture and peasants). A mutation of the common sorghum, the sweet Chinese sorghum is produced for its grain as well as for sugar-refining and energy. Not

only can the sweet Chinese sorghum produce 100 to 400 kg grains per mu, but also can produce 4000 to 5000 kg stalks with high sugar content per mu. If transferred the daily-accumulated carbohydrate into ethanol, its production is 3.2 times than that of maize. Thus the sweet Chinese sorghum is a valuable biology source. The sweet Chinese sorghum is adapted to a wide range of environmental conditions but is particularly adapted to drought. It is also tolerant to water-logging and salinity. Being water efficient, it needs only an accumulated daily temperature (above 10℃) of more than 2600℃-4100℃ day-degrees during the 4-5 month plant cycles and is suitable to the weather conditions of the vast semi-arid regions in China. With farmers responsible for growing stalks and separately producing raw fuel ethanol, and large-scale fuel ethanol specialized factories for collecting and processing, production costs can be greatly reduced, while peasants' income can be increased and environmental pollution can be controlled.

A3. PROFILE OF JARRAH/DAYUN DEMONSTRATION

Xinjiang autonomous region has been designated by the government as a region targeted for poverty alleviation.

Through past support, Xinjiang has made considerable progress in creating the necessary infrastructures to combat poverty and by 2000 the region had virtually overcome the problem of providing basic food and clothing to the population. However, by national standards, there are still over 3 million people (36% of the population) in Xinjiang living below the poverty line. Most of these people are dispersed in remote oases where climatic conditions are variable and extreme, communication is difficult and industrial and social infrastructures are very fragile. Combating poverty in this region is therefore extremely difficult and requires considerable investment. Two main areas in the region are worst affected:

1. Southwest of the Taklamagan desert (Hetian, Kashgar, Kezlesukekirks and Akesu districts) where the main minorities are Uyger, Kurkez and Tajik. This region includes 85% of the poor population of Xinjiang.
2. Agricultural and pasture land bordering the Tianshan and Altai mountains in the north of Xinjiang where the main minorities are Kazak and Mongolian. The area, characterised by long periods of hoarfrost, frequent natural disasters, poor living conditions, and lack of industry, accounts for 15% of the poor population of Xinjiang.

The focus of poverty alleviation is therefore in the South and particularly in the Hetian area where resources are very poor and ethnic minorities are highly concentrated. A major problem in this area is desertification largely through overuse of the meagre natural resources. Traditional energy sources of energy (coal, natural gas and electricity) are scarce and this has led to heavy dependence on local biomass resources. This has had a destructive effect on the local ecosystem; natural vegetation is being destroyed, forests are receding, the land is barren, ground water is disappearing and the sand dunes are encroaching onto farm land.

In order to combat poverty, a major step forward would be to break the cycle of overuse of natural resources and to begin to restore and strengthen the fragile ecosystem. This will require a combination of poverty alleviation measures, eco-environmental regeneration and sustainable

energy development.

From 2001, Xinjiang commenced a new phase of poverty reduction development where the emphasis would also be placed on scientific, commercial and industrial development. An opportunity has been identified to cultivate Dayun (which is grown in the root of the Jarrah plant) for the production of traditional medicines. Furthermore cultivation of the associated Jarrah plant can combat desertification and protect the eco-environment.

The proposed project conforms to the new strategy by: providing guidance local farmers in applying scientific principles to the cultivation of Jarah and Dayun; encouraging sound ecological practices; and assisting in establishing the commercial infrastructure to achieve sustainable development.

A4. PROFILE OF INNER MONGOLIA WIND ENERGY DEMONSTRATION

The Ulanqab municipality, located in the central part of the Inner Mongolian Autonomous Region, is a multi-racial municipality with around 23 ethnic minorities. The population is 2.74 million with 2.21 million in farming communities. Economic development in the area is relatively undeveloped, with around 300,000 people still living below the poverty line; income *per capita* is less than 1000 Yuan per year and is considerably lower than the absolute poverty line as defined by the World Bank.

The climate is characterised by dry/semi-dry continental conditions with dry spring, cool summers and very cold winters. Natural 'disasters', such as drought, flooding, snow storms and strong winds, occur quite frequently. Although local wind and solar energy resources are good, making the area a potentially important energy producer, these have not been developed fully; poor management and a variety of modes of production have made it very difficult to transform these resources to economic advantage.

Agricultural production is very low and is typical of arid and semi-arid areas, with little application of science and technology and low levels of mechanisation. In the main, the status of agricultural production and husbandry is at the level of self-sufficiency, relying on simple hand tools. Irrigation is also very low in the municipality with only 15% of the total land irrigated. These factors have led to serious deterioration of the eco-environment to the point where wind erosion and desertification affects 70% of the total area. This has seriously restricted the sustainable development of the areas and has also threatened the environment of Beijing, Tianjin and the north of China.

There is apparent characteristic of ethnic minorities in Ulanqab Municipality (the Ulanqab transformed its administration from League to Municipality approved by State Council in

November 2003). About 6000 no-power used poverty households were identified by Governments of counties and banners. Due to historic reason, they have been living remote, poverty and bad nature condition areas long time, without access to electricity. Because no power to use, their production and living condition are very inconvenient and quality of living can not be improved long term. Of 6000 households, about 3000, they are pastoral Mongolians, living Siziwang Banner, Ulanqab Municipality. The per capita annual income of the herdsmen in this area is 1700—1800 RMB Yuan, which is lower than the poverty line of Inner Mongolia.

The project aims to install 1000 sets of movable small windmill for those households so that they can use 2 lamps, 1 TV set and small grass brokers. The demonstration project will further find a new poverty reduction mechanism by windmill installation to herdsmen to realize science and technology transformation, and led herdsmen access to market so as to enable them to change their traditional production and living way.

The Ulanqab municipality is located in the West wind belt and is well blessed with wind energy (estimated to be over 10% of the total wind resource of China). Ulanqab has a long experience of using these wind resources to assist farmers in using wind resources to support farmers and now nearly 30,000 households are equipped with small wind turbines to provide basic household needs and, in some cases, electricity for agricultural purposes. Average wind speed is 7.2 m/s and the potential power capacity has been estimated at up to 30GW.

The technical infrastructure for wind energy is quite good, with strong technical support of the Inner Mongolia Herding Industry Machinery Ltd (IMHIM) as infrastructure supplier. Other key organisations in the region include the Institute of Wind Power Research (IWPR) of the Power Management Bureau of Inner Mongolia and the New Energy Office (NEO) of Siziwangqi.

A5 DRAFT TERMS OF REFERENCE FOR KEY POSITIONS

Due to the management complexity of the GPA project and technical diversity of the project it is proposed to appoint an international CTA with overall responsibility for co-ordination of technical guidance but with special responsibilities for the biodiesel sub-project. A deputy national CTA will take technical oversight responsibility for the small-scale wind and medicinal crop sub-projects and will also assume one of the key positions, e.g. the New and RE experts.

Post Title:	**International Technical Advisor (Part-time throughout the project)**
Duration:	6 w/m
	Key member of the project management team - will co-ordinate the activities of all international experts and assist in the overall project management effort.
Qualifications:	Bachelors or Masters degree At least five years diverse experience in developing and co-ordinating

projects to promote the use of sustainable energy. General knowledge of poverty alleviation, sustainable energy planning mechanisms and associated policy measures. Knowledge of programmes, contacts and resources throughout the world that may be useful as China implements its GPA Programme. Experience in developing international co-operation programmes between developed and developing countries.
Willingness to spend total project allocation time each year in China.

Language: English (in addition, Chinese is desirable but not required)

Duties: Advise and assist China GPA National Programme Management Office in all aspects of project planning and implementation

- Assist NPMO and PMOs in developing full TORs for the consultants and subcontracts for this project
- Assist in identification and recruitment of suitably qualified international experts to the project
- Co-ordinate activities involving the international experts to ensure that they are all kept current on the implementation of the overall project
- Assist NPMO in organising the international study tours
- Provide technical guidance to the project on key issues and actions
- Research relevant international experiences which provide useful information to help guide China GPA Programme activities
- Review and comment on reports, analyses and other documents prepared under this project
- Under the direction of the NPMO, work with international agencies and institutions to facilitate communications and exchange of information
- Liaise with the international community to promote the GPA and foster links with other countries.
- Assist NPMO and PMOs to prepare annual progress reports (APRs)
- Assist NPMO to prepare project final report and provide support at TPR meetings.

Post Title: **International Social and Institutional Development Expert**

Duration: (3 w/m)

The Social and Institutional Development Expert will provide input to the GPA programme on policy issues, social impact assessment and local training needs and content.

Qualifications: Bachelors or Masters degree
At least five years experience of projects in developing countries with emphasis on poverty alleviation and strengthening of governance in remote, poor areas..

Language: English

Duties:

- Introduce international experiences of best practices in social and institutional development in developing countries
- Advise on appropriate methodologies for social baseline studies and social impact assessment
- Provide input into the development of a training course on social and institutional development and, as appropriate, assist with the delivery of this course;
- Liaise with other national and international experts to ensure relevant social and institutional information is provided for the demonstration project feasibility assessment.
- Assess status of existing social and institutional development in each demonstration area and provide guidance on further development required.
- Liaise with national IT expert in developing educational delivery systems.
- Attend meetings with Chinese GPA members to discuss and review the baseline study report for each demonstration area.
- Answer other questions about social and institutional development posed by Chinese colleagues and other Chinese officials and experts.
- Prepare a final mission report.

Post Title: **International New and Renewable Energy Technology Expert**

Duration: 3 w/m

The New and Renewable Energy Technology Expert will provide input to the GPA team and national experts on international experience with application and exploitation of new and renewable energies in remote off-grid regions and will assist the team in selecting and developing suitable energy responses commensurate with available resources and needs in the demonstration project areas.

Qualifications: Bachelors or Masters Degree. At least 5 years experience of international RE development programmes including wide knowledge and experience of international best practice in RE applications. Willingness to spend at least half of the allocated project time each year in China is acceptable.

Language: English

Duties:

- Review current information on relevant international practice in RE application programmes for remote areas, produce report and provide copies to Chinese colleagues
- Assist Chinese counterparts to review current capabilities and energy supply needs in remote villages and townships
- Assist in developing TORs for a training course in RE technologies and applications in farming communities.

- Make a presentation at the training course
- Liaise with local experts to ensure all information required for energy planning for the relevant demonstration projects is collected.
- Provide input, as required, into developing technical programmes for the study tours
- Along with Chinese RE experts, provide guidance to the local governments and farming communities and associations in developing RE resources
- Review draft RE development proposals and make recommendations as appropriate to improve these
- Liaise with Chinese colleagues and other Chinese officials and experts working to develop and refine energy supply to farming communities
- Liaise with policy experts on the integration of RE needs into proposed policy support measures and social frameworks
- Attend project progress meetings as appropriate
- Participate in workshop to present and discuss the results
- Review RE applications in the light of experience from the relevant demonstration projects.
- Prepare a final mission report.

Post Title: **International Ecological and Environmental Expert**

Duration: 3 w/m

Qualifications: Bachelors or Masters Degree. At least 5 years experience of ecological and environmental protection and regeneration. Willingness to spend at least half of the time each year in China.

Language: English

Duties:

- Review existing ecological and environmental protection policies and enforcements standards
- Assess current conditions in the demonstration areas for the baseline study
- Review international best practice in development and implementation of appropriate policies and practices
- Input to the demonstration project feasibility studies – ecological and environmental impact assessments, soil quality and land use changes as appropriate
- Assist in drawing up TORs for training course elements on ecological and environmental impact assessment and protection.
- Assist in developing and presenting training courses
- Participate in final workshop to present results for dissemination on each demonstration project area

- Provide ongoing assistance and advice on ecological and environmental protection issues related to the demonstration projects
- Assist as required in arranging the international study tours and incorporating ecological and environmental protection issues.
- Prepare a final mission report.

Post Title: **International Agricultural Expert**

Duration: 3 w/m

Qualifications: Bachelors or Masters degree
At least ten years experience in the development of agriculture in poor rural areas. Willingness to spend at least half of the allocated project time each year in China.

Language: English

Duties:

- Review current cultivation requirements and characteristics of Jatropha, Dayun and Jarrah planting
- Identify best international planting and farming practice applicable to remote under-developed regions
- Assist in optimisation of crop yields
- Advise on animal husbandry as required (Inner Mongolia wind turbine project)
- Liaise with the ecological and environmental expert on baseline studies and impact assessment
- Assist in identifying training needs developing TORs for training courses for farmers associations.
- Work with Chinese counterpart experts to provide assistance with implementation of the relevant demonstration projects
- Provide input into continuous review and monitoring of projects and attend mid-term project review
- Provide input into the programme for monitoring progress and outcomes of the three demonstration projects
- Liaise with economic and commercial evaluation expert in evaluating these projects
- Provide input into guidelines and case studies for the project
- Provide input into the final project report
- Provide assistance and guidance to the project as requested.
- Prepare a final mission report.

Post Title: **International Economic and Commercial Development Expert**

Duration: 3 w/m

Qualifications: Bachelors or Masters Degree. At least 5 years experience in economic and commercial development in poor rural areas. Experience in assessment and development of business plans also desirable. Willingness to spend at least 50% of the time allocation in China is acceptable.

Language: English

Duties:

- Assess the economic conditions and development constraints in the demonstration project areas
- Input to the baseline and feasibility studies of the demonstration projects
- Provide economic input in developing TORs for training courses for farmers associations and assist in formulation and delivery of the training programmes.
- Work closely with other international and domestic experts in designing and implementing the demonstration projects
- Provide advice and guidance on the economic implications of the demonstration projects and conditions for commercial sustainability.
- Identify and recommend suitable financing mechanisms and provide guidance on the selection, implementation and management of practical solutions
- Assist in assessing the development and outcome of the demonstration projects
- Participate in the mid-project review workshop as appropriate.
- Provide input into guidelines and Case studies for the project
- Provide input into the final project report
- Prepare a final mission report.

Post Title: **National Technical Advisor (Deputy CTA)**

Duration: 12w/m

Qualifications: Bachelors or Masters degree; at least ten years experience in planning and implementing poverty alleviation programmes and policies in China including at least five years working on a variety of energy- and eco-environmental related programs and policies in China;
Extensive project management experience;
Good contacts with experts and manufacturers in the Chinese renewable energy, agricultural, eco-environmental and economic and social development sectors;
Should be fluent in reading, writing and speaking in the English language, as well as being familiar with the technical terms used in the above sectors.

Language: Chinese and English (fluent)

Duties:

- Support the National Programme director (NPD) in the day-to-day management of the project
- Assist the NPD in co-ordinating and managing the input required from parties within China
- take technical oversight responsibility for the small-scale wind and medicinal crop sub-projects
- Ensure information required by international experts in performing their duties is made available
- Assist with co-ordination of and, as necessary, participate in workshops, training courses, meetings and other similar activities.
- Ensure that all reports and studies produced by the project are complete, accurate and represent the policies of China
- Ensure that all appropriate documents prepared for the project are translated into English
- Ensure that translation services are provided for all international experts and other international participants in the project
- Organize and participate in inception workshop, as well as yearly project review meetings
- Assist the NPD to review the status of the project, to identify problem areas and issues and suggest approaches to resolve them
- Advise the NPD on national experts that could be considered and assist, as required, the NPD to make contact with them;
- Assist in developing the full TORs for the consultancies/subcontracts required under the project;
- Provide ongoing technical advice to the project on key issues and actions.
- Assist in preparation of reports, training materials and project dissemination activities.
- Actively participate in project workshops as required.

Post Title: **National New and Renewable Energy Expert**

Duration: 9 w/m

Qualifications: Bachelors or Masters degree; At least ten years experience in the development and application of new and renewable energy sources in remote rural areas. Experience in selecting and developing suitable energy responses commensurate with available resources and needs in the demonstration project areas.

Language: Chinese and English

Duties:

- Review the current methodologies and capabilities and energy supply needs in remote villages and townships
- Review existing planning capabilities in the pilot cities and identify specific requirements for CEP training

- Assist with development of training plans and TORs for training courses into the application of RE in remote farming communities.
- Provide background material for the RE training courses, participate and present as required.
- Liaise with experts on data collection to ensure sufficient data is available and in the correct form for energy planning for the relevant demonstration projects.
- Provide guidance to the local governments and farming communities and associations in developing RE resources
- Provide input as required into the development of the programme for the international study tours
- Review draft RE development proposals and make recommendations as appropriate to improve these
- Liaise with other Chinese officials and international experts working to develop and refine energy supply to farming communities
- Liaise with policy experts on the integration of RE needs into proposed policy support measures and social frameworks
- Review RE applications and assist in revising plans in response to experience gained from the pilot demonstration projects.
- Provide technical advice to the project on key RE issues and on actions required.
- Attend project progress meetings as appropriate
- Participate in workshops as required to present and discuss the results
- Prepare a final mission report.

Post Title: **National Ecological and Environmental Expert**

Duration: 9 w/m

Qualifications: Bachelors or Masters Degree. At least 5 years experience of ecological and environmental protection and regeneration. Willingness to spend at least half of the time each year in China.

Language: Chinese and English

Duties:

- Review existing ecological and environmental protection policies and enforcements standards
- Assess current conditions in the demonstration areas for the baseline study
- Input to the demonstration project feasibility studies – ecological and environmental impact assessments, soil quality and land use changes as appropriate
- Assist in identifying training requirements and in drawing up TORs for training course elements on ecological and environmental impact assessment and protection.
- Assist in developing training courses and, as appropriate, present at training courses

- Provide ongoing assistance and advice on ecological and environmental protection issues related to the demonstration projects
- Identify eco-environmental information needs from international study tours and, as required, assist international expert in developing the programme.
- Prepare a final mission report.
- Participate in final workshop to present results for dissemination on each demonstration project area

Post Title: **National Agricultural Expert**

Duration: 9 w/m

Qualifications: Bachelors or Masters degree
At least ten years experience in the development of agriculture and agricultural skills in poor rural areas.

Language: Chinese and English

Duties:

- Review current cultivation requirements and characteristics of Jatropha, Dayun and Jarrah planting
- Assist international expert in identifying best international planting and farming practice applicable to remote under-developed regions
- Assist in optimisation of crop yields
- Advise on animal husbandry as required (Inner Mongolia wind turbine project)
- Liaise with the ecological and environmental expert on baseline studies and impact assessment
- Assist in identifying training needs developing TORs for training courses for farmers associations.
- Work with international experts to provide assistance with implementation of the relevant demonstration projects
- Provide input into continuous review and monitoring of projects and attend review workshops as required.
- Provide assistance and guidance to the project team on all agricultural issues as requested.
- Provide input into the programme for monitoring progress and outcomes of the three demonstration projects.
- Liaise with national project evaluation expert in evaluating these projects
- Assist in preparation of guidelines and case studies for the project
- Assist in preparation of the final project report.
- Participate, as required in the final project review workshop.

- Prepare a final mission report.

Post Title: **Social and Institutional Development Expert**

Duration: 9 w/m

Qualifications: Bachelors or Masters degree; At least 10 years experience in the field of social and institutional development with particular expertise in poverty alleviation in rural areas, formation of associations and gender issues.

Language: Chinese and English

Duties:

- Provide input into stakeholder consultations and baseline studies into current social and institutional capacities in each project area.
- Assess the information from the baseline studies and provide recommendations for future improvements.
- Identify training needs and, if appropriate, recommend specific topics/locations for national and international study tours.
- Provide input into development and implementation of training courses on basic education, formation of associations, agricultural co-operation, participatory poverty alleviation, etc.
- Work with GPA experts and PMOs to provide advice and guidance in social and institutional issues as required.
- Provide input into implementation plans for the demonstration projects and into evaluation of the social and institutional aspects of these projects
- Attend and participate in GPA review workshops as requested by the NPMO.
- Provide social and institutional input into project reports as requested.
- Assist with the preparation of the final report
- Provide social and institutional input into training materials and dissemination activities as requested.
- Prepare a final mission report.

Post Title: **National Project Monitoring and Evaluation Expert**

Duration: 9 w/m

Qualifications: Bachelors or Masters degree; At least ten years experience in the field of project monitoring and evaluation

Language: Chinese and English

Duties:

- Develop a project monitoring and evaluation plan for the demonstration sub-projects
- Assist the NPMO and PMOs in monitoring and evaluation the project.
- Assess training needs in project monitoring and evaluation in project areas.
- Assist in preparation of the baseline study reports for each project area.
- Provide input into training plans and training course development as appropriate.
- Participate in training courses and make presentations as appropriate
- Provide input into progress reports throughout the project duration and in particular to the mid-project review report.
- Participate, as required, in project review workshops.
- Provide progress and evaluation reports to the NPD as required
- Provide input into the Final Report for the project.

Post Title: **Economic and Commercial Development Expert**

Duration: 12 w/m

Qualifications: Bachelors or Masters Degree. At least 10 years experience in the field of economic and commercial development in poor rural areas. Experience in marketing techniques, business finance, contract negotiation, etc. Experience in assessment, development and optimization of business plans.

Language: Chinese and English

Duties:

- Assess the economic conditions and development constraints in the demonstration project areas
- Conduct baseline studies into economic and commercial conditions in the project areas of the demonstration projects.
- Assess commercial feasibility of projects and evaluate project risks
- Assist in preparation of the baseline reports including recommendations for economic and commercial development.
- Assist in developing TORs for training courses on business planning, marketing and contract negotiation for farmers' associations and assist in formulation and delivery of the training courses.
- Work closely with other domestic and international experts in designing and implementing the demonstration projects

- Provide advice and guidance on the economic implications of the demonstration projects and conditions for commercial sustainability.
- Identify and recommend suitable financing mechanisms and provide guidance on the selection, implementation and management of practical solutions
- Assist in assessing the development and outcome of the demonstration projects
- Participate in project review meeting and project review workshop as required.
- Assist in preparing guidelines and case studies for the project
- Assist in preparation of the final project report
- Prepare a final mission report.

Post Title: **National IT Expert**

Duration: 3 w/m.

Qualifications: Bachelors or Masters Degree. At least 5 years experience in information technology, particularly with reference to database development and web site design

Language: Chinese and English

Duties:

- Liaise with the NPD and other project experts (as required) to define the contents of the web site
- Formulate TORs for the subcontract for databank and website establishment
- Direct the work of the Information Technology company in developing the website design.
- Manage the IT sub-contract
- Direct the work of the IT company in developing and updating the website and project information system
- Provide guidance to the project on methods of data presentation and transfer.