

Government of the People's Republic of China

United Nations Development Programme

Project Document

NINGXIA ANTI-DESERTIFICATION AND LIVELIHOOD IMPROVEMENT

The project is aimed to assist the efforts of the Ningxia Hui Autonomous Regional Government to better manage the sand control initiatives and improve the livelihood of the selected dryland and desert affected regions of Ningxia in the process of combating land degradation and desertification. Specific emphases will be given to initiatives which strike the harmony of human activities and environment sustainability. This will be done through the combination of eco-system regeneration, human capacity building and a green entrepreneurship. This project is also aiming to enhance China's participation in global issues through sharing China's development experience with other countries.


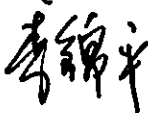

The project will demonstrate in Zhongwei City and Yanchi County: a) rehabilitation of the ecosystem and livelihood improvement; b) enhanced capacity of inter-agency cooperation in ecological management and poverty reduction; and c) a knowledge network is to be set up to enhance capacity development in anti-desertification and combat land degradation in Ningxia and promote experience sharing with other dryland areas in China and other countries.

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|--|---|
| 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 |
| 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 Exchanges (CICETE) |
| Government Cooperating Agency | Ningxia Hui Autonomous Region Government, Ningxia Association for Science and Technology. |

Estimated start date: September 2010
 Estimated end date: December 2014
 Management Arrangement: National Execution (NEX)
 Project site: Ningxia Hui Autonomous Region
 Beneficiary country: China

Budget: US\$ 10.5 million.

Allocated Resources:
 UNDP TRAC: US\$ 1.5 million
 Gov't Cost sharing: US\$ 9.0 million

| Agreed by: | Signature | Date |
|--|--|----------------|
| CICETE: |  | Sept. 28, 2010 |
| Government Cooperating Agency (Ningxia Hui Autonomous Region): |  | 2010.9.28 |
| UNDP: |  | 28/09/2010 |

ABBREVIATIONS AND ACRONYMS

| | |
|--------|---|
| APR | Annual Progress Report |
| CAC | Central Advisory Committee |
| CBD | Community Based Development |
| CICETE | China International Centre for Economic and Technical Exchanges |
| CMF | Chinese Ministry of Forestry |
| CSC | Chinese State Council |
| DFID | |
| DFI | Dryland Farming Institute |
| DOF | Department of Forestry |
| DNPDD | Deputy National Project Director |
| FAO | Food and Agriculture Organization |
| GIS | Geographic Information System |
| GNHAR | Government of Ningxia Hui Autonomous Region |
| GOC | Government of China |
| GPA | Green Poverty Alleviation |
| IISD | International Institute for Sustainable Development |
| LIDR | Lanzhou Institute of Desert Research |
| MOFCOM | Ministry of Commerce |
| MDG | Millennium Development Goals |
| MOST | Ministry of Science and Technology |
| NAST | Ningxia Association of Science and Technology |
| NEX | Nationally Executed |
| NGPC | National Green Product Centre |
| NPD | National Project Director |
| PMO | Programme Management Office |
| PSC | Project Steering Committee |
| PM | Project Manager |
| PMO | Project Management Office |
| SC | Shelterbelt Centre |
| SDI | Sustainable Development Institute |
| UNDAF | United Nations Development Assistance Framework |
| UNDP | United Nations Development Programme |
| WFD | World Food Program |

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PART ONE: SITUATION ANALYSIS

1.1 Desertification and Poverty

The Ningxia Hui Autonomous Region is located in north-western China with a total land area of 66,400 square kilometres. It is bordered by Shanxi on the east, Gansu on the south and on the north by Inner Mongolia Autonomous Region. The region's cold semi-arid climate characterized by long, harsh winters and short and hot summers. Uneven rainfall distribution, periodical severe droughts and strong wind add insults to the already injured fragile eco-system. Ningxia has a population of 6.25 million by 2009, many of these (36%) are Hui Muslims.

Ningxia is surrounded by deserts namely Tenggeli, Wulanbu and Maowusu in its west, north and east, respectively. Desertification has devoured 55.8%, or 2.89 million hectares, Ningxia's total terrain, with additional 1,21 million hectares grassland and 132,000 hectares farmland are under the threat of desertification. The livelihood of inhabitant in 13 cities, 40 townships and 600 villages have been severely affected and the region's vulnerable natural environment is also at stake. Ningxia is one of the major sources of sandstorms which devastated northern China, particularly the Beijing Capital region, every year and sometimes, affect the air quality and aviation safety of southern China and even neighboring countries. The Yellow River supplies Ningxia approx. 4 billion cubic meters of fresh water annually and forms the lifeline of Ningxia's agriculture production and economic development. Ground water and natural precipitation contribute another 1.09 billion cubic meters of water per year to Ningxia. However, erratic rainfall patterns and brackish groundwater bring little benefits to agriculture productions.

Ningxia is generally classified into three agricultural zones, based on topography and available water resources. Namely: Northern Yellow River Irrigation District; Central Arid & Sandy Highland and Southern Loess Plateau.

The Northern Yellow River Irrigation District, with its favourable topography, soil conditions and sunshine hours, is the main agriculture region of Ningxia. The region's 358,000 inhabitants share a land base of 27,733 hectares, or 0.077 hectares per capita. Less than half of the arable land has access to irrigation water from the Yellow River. The problem of limited land based and over population has not only kept the local livelihood chronically poor, but also exert undue pressure to the already fragile ecosystem. To ease the shortage of arable land, the local government has laid

eyes on the 14,970 hectares of desert affected land with access to groundwater. However, long-term irrigation with brackish groundwater could increase soil salinity and further hampers the land productivity in the long run. The Central Arid & Sandy Highland, lays west-east between the Tenggeli Desert and Maowusu Desert, in central Ningxia is largely under developed and prone to desertification. The undulating terrain of the Southern Loess Plateau, after years of over cultivation, mismanagement of the soil and water resources, and destruction of natural vegetation cover aggravated, already suffers extremely low crop yields and extensive poverty.

In the proposed project areas, Zhongwei City and Yanchi County, 20.3% or 120,000 hectares, of the land base in the Zhongwei Shapotou region is the Tenggeli Desert which is the major source of frequent sand-storms. Sand dunes, 2-8 meters in heights, formed by sand-storms are wedging southward threatening the infra-structures of the downtown core of Zhongwei City. Many farmers are forced out of their land due to desertification, which aggravates the poverty situation in one of the regions. The total rural population in Zhongwei is 224,000. Total arable land in Zhongwei is 208,000 mu. The average income in rural area of Zhongwei in 2009 was RMB 3,853 Yuan, which is also below the provincial average. The amount of poverty people is 30,470.

While the Liuyaotou Watershed in Yanchi County, a typical dry prairie ecosystem, located on the south skirts of the Maowusu Desert, has been devastated by wind and water erosion, ruined vegetation cover and poverty. The county has total population of 163,000, including agriculture population of 131,000. Number of poverty people in the project site is 40,220. Annual average per rural capita income in 2009 was RMB 3,288 Yuan¹ far below the national average. The local government's efforts to rehabilitate grassland and forest face stiff resistance from the rural population and have had little success. Uncontrolled and irresponsible agriculture practices cause further degradation of the soil and water resources and hampered the productivity of many farms.

In conclusion, Ningxia is considered one of the most devastated regions in China in terms of desertification, severe weather conditions and extensive poverty. Consequently, conservation, reforestation and environmentally conscientious economic development have been the policy priorities of the local government.

1.2 Achievement in Sand Control and poverty reduction in the Province

¹ Ningxia provincial average rural income per capita in 2009 was RMB 4048 Yuan, national average rural per capita income was RMB 5,153 Yuan. The highest was RMB 10,007 Yuan in Zhejiang

Throughout the years, encouraging achievements have been made in the efforts to control desertification and improve the livelihood of the local population. Through extensive reforestation projects in the 50's, the Lanzhou Institute of Desert Research (LIDR) was successfully stabilized the sand dunes along the railroad between Lanzhou and Baotou and effectively contained part of the Tengellin Desert from moving southward. Based on the LIDR model, a combined forest shelterbelt and greenhouse production model has since been developed to make use of the region's abundant solar energy. Trial projects have demonstrated promising result to increase the farm household income and alleviate regional poverty. The indigenous wisdom of "gravel mulch" for water conservation Gravel mulch is a common and effective sand control and water conservation practice in the north-west part of China. Currently, in Zhongwei dryland there are close to 17,000 ha of gravel mulched water melon field produce 1,200,000 metric tons of water melon annually. Water melon production contributes RMB 720 million per year to the region economy. It is considered an effective poverty alleviation industry.

Potential for low-input agriculture and organic farming in high elevation areas: The unique mountain eco-environment of the Xingshan area, with elevation ranging from 1500 to 2300 metres, of Zhongwei Shapotou has been identified by the National Green Product Centre (NGPC) as a Class A green agriculture production area. In 2007, some of the water melon fields have been certified as organic farms. There exist a real potential to further develop the region into a high value added agriculture production base. However, an integrated development approach which strikes the balance of economic viability and environment sustainability is yet to be refined and perfected.

With years' efforts of construction and development, Ningxia has made significant achievements in poverty reduction through ecological construction, and the number of poverty-stricken people has been remarkably reduced. The number of poverty people reduced from 1.28 million in 2000 to 168,000 in 2008. The degradation of ecological environment has been reversed.

In the south part of the province, an ecological-economic forestry supporting system with water source conservation forests and soil conservation forests as the major features has been preliminarily built at Mt Liupan; and a framework of production bases for ecological-economic harmonious development has been preliminarily built, characterized with the production of potatoes, fodder grasses, livestock products, miscellaneous grains, wolfberry, herbal medicines, apricots and seedlings. Each year,

the silt export to the Yellow River is decreased by 40 million tons, and grain production is added by more than 100,000 tons.

In the central dryland of the province, around 31,130 ha of desertified land have been regulated. A historic achievement has been made that the speed of desertification management is higher than that of desertification expansion in Ningxia. The desertified land has decreased from 110,000 ha in 1970s to 78,870 ha nowadays. The tragedy situation of “desertification marching forward and human being withdrawing” has been preliminarily reversed. Ningxia has become one of the national tops in desertification prevention and control.

1.3 National Initiatives Recently:

In October, 2008, the State Council presented a policy directive, entitled: “*Opinions on Further Enhancement of Ningxia’s Social and Economic Development*”, which pledged to develop Ningxia into a national model of desertification prevention and the eco-safety shelter-belt in western China. The policy directive also announced that: a number of sand-control demonstration sites to be deployed strategically in the Maowusu Desert and along the southeast edge of the Tenggeli Desert to demonstrate the successful desert rehabilitation model developed in Zhongwei Shapotou and Lingwu Baijitan. Other guidelines provided by the policy directive included:

To expedite the on-going rehabilitation programs along the south-east edge of the Tenggeli Desert and Maowusu Sand:

- a. To prohibit animal ranching in all desert areas and restore native grassland.
- b. To develop regulations and integrated management systems for grassland protection and desert control.
- c. To enhance integrated sustainable development in the Maowusu Desert, Central Highland and the Helan Mountain Region.

As a part of a larger national program, the State Administration of Forestry has committed 20 billion yuan to develop “comprehensive ecological demonstration zones for sand control and desertification prevention” in Ningxia. 11.3 billion yuan of the 20 billion yuan will be used to support the reclamation of over half a million hectares (7.69 million MU) of land devastated by desertification.

PART TWO: PROJECT STRATEGY

2.1 Objectives and scope of the project

Facing the challenges of fragile living and ecological condition in proposed project areas, Zhongwei City and Yanchi County, the main objective of the project is to improve the way to ensure livelihood improvement in environmentally friendly manner to balance economic and ecological benefits and build up a knowledge platform in Ningxia to consolidate and share good practices in integrated development in arid and desert areas, and promote south-south cooperation in the area.

The project will consolidate and demonstrate desertification prevention initiatives and strengthen related policy development and implementation capability to the benefit of Ningxia. The immediate project focus will be on protecting the fragile ecosystems of the Tengelli Desert, Maowusu Desert, Central Arid and Sandy Highland of Zhongwei and Liuyaotou Watershed while also improve the livelihood of the inhabitants in these regions. The project's mid-term objectives are to develop a sustainable sand-based industry and diversify economic activities in the project areas from traditional subsistence farming to a mosaic of value-added products, tourism and knowledge based market economy and strike the balance of economic and ecological benefits. To a much longer and wider prospect, the project will demonstrate global citizenship and commit to the reduction of carbon emission through the establishment of forest shelterbelts network and the rehabilitation of native grasslands.

The project has three outcomes:

- Outcome 1: Capacity Development to improve inter-sectoral collaboration in ecological management and poverty reduction;
- Outcome 2: Local Pilots for Sustainable Sand-based industry Development
- Outcome 3: Knowledge Platform and Policy Development

Outcome 1: Capacity Development to improve inter-sectoral collaboration ecological management and poverty reduction.

The objective of the Outcome One of the project explores a way to link environmental protection with improvement of livelihood and ensure the balance of ecological benefit and economic and social benefit. Review of experiences and lessons learnt in other similar projects (government initiatives and foreign supported projects) will be

undertaken to take advantage of best practices of other projects and experiences learned in the past.

- **Capacity building to strengthen inter-sectoral collaboration in Ecosystem management and poverty reduction**

Capacity building arrangements are designed to strengthen interdepartmental cooperation and communication in anti-desertification and poverty reduction in the arid and desert-affected areas defined by the project. Activities are designed to improve inter-departmental cooperation in water and soil conservation, sand prevention and control in the process of livelihood improvement. The concept and approaches of Integrated Ecosystem Management (IEM) will be introduced to the capacity building initiatives to support establishment of a cross-sector regional natural resource management framework, which ensures sustainability of local agricultural production in the arid and desert-affected areas.

The project coordination and management institution will be set up with participation of multi institutions including science association, departments of forestry, water conservancy, agriculture, science and technology at provincial, and the relevant agencies at Zhongwei City and Yanchi County. Each of the department has its own experience in anti-desertification, and many of them have experiences in inter-governmental cooperation in ecological improvement. The project is another chance to link them closely and explore ways of striking the balance between short-term economic benefit with long term ecological capacity. In line with due assignments of relevant departments at provincial level, a sustainable working mechanism at county level will be explored to strengthen cross-sectoral collaboration in combating desertification and livelihood improvement in this project. Possible measures include data and information sharing and feasible resource consolidation among different agencies at county level, joint work of concerned agencies in the project pilots. It is hoped that such practices through pilots and capacity building efforts to strengthen cross-sectoral work could provide solid foundation for future inter-governmental coordination and further enhance the local coordination mechanisms.

- **Trainings in agroforestry management, farming practices and soil improvement, water saving and farmers organization**

Connecting to the pilots in the Outcome 2, agroforestry management, farming practices and soil improvement, water saving are main items in the capacity

development. Concept of Integrated Ecosystem Management (IEM) will be delivered through training workshops to companies in sand-based industry, farmers and NOGs in the project areas.

Support setup of farmers' organization is also an important part in this component. Farmers will be better organized in the project pilots, and gain more profit in the value chain. A mechanism to protect farmers' interests in the project pilots will also be explored.

Farmers will get access to successful experiences in farmers' association setup and operation in other areas. Good practices in farmer-market connection of other projects will be introduced in the project.

As a technology extension platform, two internet-based agricultural technology extension stations will be set in the pilot areas. The information and training stations will be a very good platform to provide useful agricultural techniques to the farmers in and out of the project sites. These stations will be built on the basis of existing internet-based agricultural technology extension system to get access to the centralized training resource center at the provincial level. The system is two-way real time interaction platform.

The training and capacity building activities in the component will take consideration of farmers' needs and willingness to join, engaging them through participatory approach.

Outcome 2: Local Pilots for Sustainable Sand-based industry Development

The Outcome 2 is to explore sustainable pilots of sand-based industry and an integrated way of watershed management.

- o **gravel mulch water melon in dryland and solar greenhouse**

Ningxia has tried a lot in development of sustainable sand-based industry. Two typical examples are gravel mulch water melon in dryland and solar greenhouse in desert. Some new approaches will be piloted in the project component to improve existing way of production.

At present, the total plant area of gravel mulch water melon is 1.03 million mu in Zhongwei. The "traditional wisdom" of gravel mulched water melon production technique was developed two decades ago, prior to the availability of water saving trickle fertigation and bio-degradable plastic mulch materials. Drastically reduced per unit land production due to soil degradation have been noticed in many old gravel mulched melon fields. In the project, 50,000 mu testing field will be developed for higher standard of production in terms of water saving, organic production, film application, etc. The project pilot will support address the soil degradation problems to ensure sustainable development of the gravel mulch production.

The existing amount of greenhouses in the project site is 1,100 (1,100 mu). The project will support to build 1200 greenhouses next to the existing ones. The current solar greenhouse site has no protection of forest. Intertwined forest shelterbelt will be introduced to protect the solar greenhouse matrix to contain the movement of sand dunes and at the meantime provide economic returns to participating farm households. Improved marketing and logistic systems will be promoted through the increased productivities of the evolving sand-based industry.

o **Liuyaotou watershed management in Maowusu Desert**

Total drainage area of 46.55 km². Efforts have made in water and soil conservation Liuyaotou watershed management in Maowusu desert. Initiatives such as "grain for green" and "grazing prohibition" have got some positive results in deterioration of plant coverage in the areas. But because of inadequate input and lack of scientific master plan in Liuyaotou watershed management, the treatment results are limited. The project pilot in the Liuyaotou watershed will develop a master plan for the watershed management and explore improved vegetative measures include vegetative cover, plant cover, mulching, vegetative hedges, grass land management, and agro-forestry. Data consolidation and joint efforts in watershed management and poverty reduction will be explored in this component.

Water supply facilities have been built in the project area. The Yan-Huan-Ding water supply project conveys Yellow River water to Hui'anpu of Yanchi county and its extension in carries water further to Chenxitan of the county. Subordinated water store pools were also built. The water facilities provide water supply for the installment agriculture.

Adoption of watershed management practices by farming communities in the area is also important. The pilot will also demonstrate appropriate production measures within the ecological capacity such as mixed cropping, strip cropping, cover cropping, crop rotations, cultivation of shrubs and herbs, shrubs branches producing and utility, land leveling, use of improved variety of seeds, horticulture, etc.

People's participation and collective action are critical ingredients for watershed management. Sustainability, equity and participation are the three basic elements of participatory watershed management. Sustainability involves conservation and enhancement of the primary productivity of the ecosystem. Equity has to be seen in terms of creating an equitable access to livelihood resources for the watershed community. Participatory watershed management attempts at ensuring sustainability of the ecological, economic and social exchanges taking place in the watershed territory. This part is intertwined with farmer empowerment and capacity building in the Outcome One

Outcome 3: Knowledge Platform and Policy Development

Shapotou Station of China Desert Academy, with profound scientific achievements in basic theoretical research of the ecological process in desert region, restoration and reconstruction of the damaged ecological system, laws of the wind-blown sand and environment monitoring, has been paying great attention to the development, demonstration and extension of the agricultural techniques in desert regions. The Station and other research institutions in the province will form (details see the annex 1, organization structure of the project) the key technical partnership network at home and abroad. Team up with the key knowledge partners, the project's outputs will be well documented and useful evidence for policy development in Ningxia to achieve sustainable development of arid and desert areas. The knowledge products in the project will also be shared with other provinces and countries facing with the similar desertification issues. Close communications and experience exchange will be conducted with Xinjiang, Inner Mongolia, Gansu through seminars, training and study tours. Existing working mechanism of south-south cooperation in UNDP can be functioned as platform to share the successful experience and lessons learnt of this project to other developing countries in regions such as Africa. .

2.2 Poverty Sensitivity and Gender

Due to the accumulated artificial impacts for many years such as misuse of natural resources, the self-regulating and self-rehabilitation capacity of the ecological system is degrading. As a result, the land resources, bio-diversity and the functions of ecosystem became degraded. Stressed by the increasing demands for food, fodder and fuel, unsustainable and even plundering practices were employed such as farmland over-reclamation, over-grazing and over-use of natural resources. The vicious circle of poverty and ecological degradation occurs.

The poverty reduction through ecological construction (PREC) is a measure of poverty reduction by means of improving ecological environment and infrastructure to upgrade the production and livelihood conditions for sustainable development of the poverty-stricken areas. Yanchi County, where Liuyaotou watershed is located, is a national level poverty country, has total population of 163,000, including agriculture population of 131,000. Number of poverty people in the project site is 40,220, including 10,782 female labour. Annual per rural capita income in 2009 was RMB 3,288 Yuan far below the national average. Apart from environmental structures adopted in the watershed management of Liuyaotou, some production methods within territory will directly contribute to income generation of the poor. The pilot of Liuyaotou watershed in Yanchi is a very good site to demonstrate poverty reduction initiatives through ecological construction, and how to balance environmental measures and production measures.

The total rural population in Zhongwei Shapotou is 224,000. Total arable land in Zhongwei is 208,000 mu. The average income in rural area of Zhongwei in 2009 was RMB 3,853 Yuan, which is also below the provincial average. The amount of poverty people is 30,470 accounting for 8.8% in Shapotou area (the project site). Local people tested some initiatives to increase income. Average net income from one mu gravel mulched water melon is 600 Yuan and the highest is 2500 Yuan³. One desert greenhouse producing vegetable would generate around 8000 Yuan. After reducing cost, the next income per greenhouse is 6,000 Yuan. Double cropping of vegetables and fruits can be undertaken in greenhouses in one year. The income is over 10,000 Yuan, quite remarkable by local standard. Under scientific planning and with sustainable way of production, gravel mulch water melon and greenhouse would be a sound practice to increase income of local farmers.

Women have equal access to the project activities. Cultivation of shrubs and herbs in the Liuyaotou watershed such as *Salix psammophila*, *Salsola ruthenica*, *Caragana*

³ The calculation of the income is made using 2009 price

intermedia and economic forestry and working in gravel mulch fields and vegetable/fruit greenhouses are suitable for women. Women The training activities in the project will enhance women's production skills. Although number of women in water melon production and greenhouses (around 1,500 because current scale of water melon and greenhouse is not big enough to accommodate more people) is smaller than Liuyaotou watershed (around 10,000, as watershed management provide more working opportunities), with successful demonstration of the pilots more women will join in the sand-based industry.

2.3 Value Added by UNDP

UNDP's value added in the project could be summarized as:

- Improve inter-departmental cooperation in sand control and poverty reduction. The project's entry point is to balance livelihood improvement with ecological benefit. The project involves over ten government departments at provincial and municipal level. Each of the department has its own experience in anti-desertification, and many of them have experiences in inter-governmental cooperation in ecological improvement. The project is a chance to link them closely and explore ways of striking the balance between short-term economic benefit with long term ecological capacity
- Team up with local partners and other partners to explore sustainable use of dryland for sand water melon production. The current way of production of gravel mulch water melon is not sustainable. As indicated in the previous section, after 8 to 10 years, the gravel and the soil will be evenly mixed in the certain depth. The gravel can't be removed fundamentally making the land non-arable. The purpose of gravel is to reduce evaporation of water from the earth. UNDP will take this opportunity to support the local partners in searching and testing other options for the same purpose in the pilot.
- Improve the current practice in sand control and watershed management by integrated ecosystem management (IEM). Although IEM as concept is known in some of the government departments and local communities in Ningxia (through other foreign supported projects such as PRC-GEF Partnership on Land Degradation in Dryland, etc), this project is a test field of further capacity building and implementation of IEM in a manageable fields.

- Training of farmers and setup of farmers' organizations. At project sites of Zhongwei, there is no farmers association in water melon production. The current production is 1 million tons (1.03 million mu). 95% percent of farmers only plant water melon. Water melon dealers or companies control the marketing. The profit in circulating sector is not equally shared with farmers. The project has the opportunity to help farmers in association establishment and empower farmers in profit sharing in the value chain. Also an internal insurance mechanism is proposed and explored to safeguard minimum income in case of extraordinary market shock and disasters. The internal insurance would be a funding pool consisting of association's retained profit and government subsidy. In most of cases, the water melon and vegetable and fruits produced in the project can be sold in the market. But in extreme whether condition, such as strong wind destroys greenhouses in the desert, the greenhouse will lose production in the year. Farmers engaging in the greenhouse production also lose the income. A feasible mechanism to cover farmers' losses to some extent will be explored in the pilot.
- Build up a knowledge platform to promote interprovincial communication and capacity building and South south-cooperation. The results of the project will be well documented and shared with other areas and other countries with similar natural conditions through existing network of UNDP projects.

2.4 Synergies with relevant UN/UNDP Projects and Other Projects

The UN Development Assistance Framework (UNDAF) harmonizes the development assistance of UN agencies in China and supports government initiatives through multiyear programming cycles that respond to prioritized needs. Recent UNDP commitments are set out in the 2011-2015 UNDAF which is focused on the disparities arisen after an intense period of growth, on ensuring the sustainability of development and on China's increasing ability to contribute to development elsewhere through south-south cooperation. The Government's vision of a 'Xiaokang' (all round, moderately prosperous) society by 2020 brings together these key priorities, as well as having a remarkable synergy with the Millennium Development Goals (MDGs) deadline in 2015.

This proposed project contributes to UNDAF outcomes: UNDAF Outcome 1: Government and other stakeholders ensure environmental sustainability, address climate change, and promote a green, low carbon economy. Outcome 1.2 Better managing natural resources which emphasis policy and implementation mechanisms to manage natural resources are strengthened, with special attention to poor and

vulnerable groups; Outcome 2.1. The poorest and most vulnerable play a more active role in China's social, economic and cultural development; and Outcome 3.3 Sharing China's development experience with other countries.

The current UNDP Country Programme also recognizes that balancing economic growth and the environment is a pressing challenge for China.

UNDP involvement in land resource management and rural development in the north-west region of China is not new. Accumulated expertise and know-how from past UNDP projects focusing on desert research and development, dealing with improved utilization of land and biological resources of the Loess Plateau as well as many generic components such as poverty alleviation, promoting women's social-economic status, improve the livelihood of ethnic minorities, etc. may be employed as reference materials and basic building blocks for desertification and social-economic development project.

The Ningxia Project can also benefit from the ongoing Technical Task Force (TTF) and Green Poverty Alleviation Project/Green Development in developing participatory mechanism of production technology extension, risk management and market accessibility, and mainstream climate change in rural development, especially ecologically fragile areas. The project also provides a testing field for Green Development project in research carbon sequestration in dryland. There are wide range of approaches in increase carbon storage in soil, including enhancing soil quality, erosion control, afforestation and woodland generation, no-till farming, cover crops, optimal livestock density, efficient irrigation, crops to grass/trees, agroforestry, etc. some of the approaches can be explored in the project sites.

Further, the development of farmer organizations is an important means to empower small farmers and women to participate in the production-marketing system, pertinent experience of the UNDP/MOST food processing and dairy development for poor farmers' livelihood project may directly applied to the sand-based industry development in the central dryland region of the Ningxia project.

UNDP's ongoing Provincial Programmes for Climate Change Mitigation and Adaptation in China; Conservation and Sustainable Utilization of Wild Relatives of Crops in China; EU-China Biodiversity Programme are also sources of knowledge and policy anchors with this project.

Other experiences include:

- GEF-ADB Capacity Building to Combat Land Degradation provides profound substantial reference for IEM and some capacity building activities in IEM concept and approaches have been done in the project in Ningxia at provincial and local level.
- 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

These experiences above could be well incorporated in the new Ningxia Project.

2.5 Institutional Arrangement and Partnership

For successful implementation and execution, this project requires multi- disciplinary cooperation and horizontal integration of administrative, extension services and business management.

A project steering committee will be set up and chaired by a vice governor level official in the Autonomous Region, through which strong partnerships and synergies can be achieved and enabled. The main departments in the Steering Committee include Ningxia Association of Science and Technology (NAST), Department of Finance, Department Forestry, Provincial Development and Reform Commission, Department of Science and Technology, Department of Environmental Protection, Department of Agriculture and Animal Husbandry, Department of Water Conservancy, government of Zhongwei City and Yanchi County, CICETE, UNDP.

Ningxia Association for Science and Technology (NAST) , which will undertake implementation functions, coordination as well as supervising day to day operations. Department of Forestry will be responsible for the environmental/ecology aspects of the project. This will include environment assessment, development of shelterbelts for desertification control and provide expertise of Geographic Information System (GIS)

in watershed delineation and management, etc. China International Centre for Economic and Technical Exchange (CICETE) is the UNDP's national counterpart for overall project execution.

Local implementing function: Lateral integration of project units at the regional extension services, desert research and education institutions and product marketing agencies will be strengthened. Liaison and collaboration with related expertise outside the project region will be explored via the national and international consultants working on the project. When and if deemed necessary, various sub-committees may be formed to facilitate the implementation of multidisciplinary and/or cross region activities of the project. The sub-committees composed with senior government officials and pertinent experts would coordinate project components such as technology development; extension and training; entrepreneurship and human resource development; and re-vegetation for carbon credit, etc., respectively.

Technical, commercial and international collaboration: Intertwined forest shelterbelt and solar greenhouse matrixes will be developed to contain the movement of sand dunes and at the meantime provide economic returns to participating farm households. Improved marketing and logistic systems will be promoted through the increased productivities of the evolving sand-based industry, which will stabilize the local economy. The existing internet-based Farmer Service System and Farmers Service Centers to be built in the project sites will be fully utilized to provide continues education and disseminate pertinent information to the population. Sand-storm control and desertification prevention models will be developed and demonstrated at large regional scale, highlighting the integration of natural and human components in sustainable development.

The project will also seek to form lasting collaborations with international organizations through exchange visits and the establishment of trainer-trainee relations. Key international contacts being identified include, but not limit to: 1) the International Institute for Sustainable Development (IISD) at Winnipeg, Manitoba, Canada – a Canadian-based, policy research institute that has a long history of conducting cutting-edge research into sustainable development; 2) the Sustainable Development Institute(SDI) at Keshena, Wisconsin, USA., which focus on sustainability issues and applying them to the local scale Menominee model of sustainable development; and 3) the Shelterbelt Centre (SC) at Indian Head, Saskatchewan, Canada, which is dedicated to the promotion of environmental and

economic benefits of integrating trees with agricultural systems. Individuals with relevant expertise at these institutions will be invited to participate in the early stage of the project as international consultants, who will also help to develop and implement the follow up overseas training activities. Trainees, once return to their work units, will continue personal and professional contacts with their trainers and his/her associated institutions.

2.6 Beneficiaries

All residents, both farming and non-farming population, of the demonstration areas will expose to the desertification control technology and enjoy the improved ecological, social and economic environments, and hence will be the first group of people who are directly benefited from the project.

Through the support of the Project implementation, it is expected that the 70,000 farming population of the project area could realise an average annual per capita income of RMB5000 in Yanchi county, RMB6000 in Zhongwei county respectively, which is above the Chinese national poverty level.

530 farm households including 636 women will be selected to participate in the greenhouse production in Zhongwei Shapotou site and will be benefited from greenhouse production know-how and business management trainings.

Over 6000 inhabitants of the three demonstration sites will receive information and personal instructions on soil and water conservation farming practice and will enjoy increased household income.

Indirect Beneficiaries

Women, through greater employment opportunities with reduced working hours; and reduced migration of men from families. The province will benefit by mobilizing more contribution to policy development and good practices in ecological system improvement and livelihood improvement in arid and desert areas. Successful experiences in the project will be shared with other provinces and countries.

2.7 Expected Outcomes, Outputs and Indicative 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 1: Capacity Development to Improve Inter-departmental Cooperation in Ecological Management and Poverty Reduction

Success Indicators:

- Coordination of relevant government divisions, research institutes and private stakeholders strengthened.
- Two Internet-based Farmers Service and Training Centres built to enhance the agriculture extension capability.

Output 1: An efficient and effective consultation and participatory decision-making network of cross government departments, research institutions and industries is established for strategic planning and management of the project.

Key activities:

- i. Establish Project Steering Committee (PSC) & Project Management Offices (PMO).
- ii. Establish participatory decision-making network and hold strategic workshop to develop work plan and take consideration of data sharing and possible resource consolidation.
- iii. Conduct baseline review and studies of project materials, experiences and lessons learnt in other projects.
- iv. Recruit project staff, national and international consultants.
- v. Hold project inception meeting
- vi. Ongoing monitoring, evaluation and management of project.
- vii. Annual Project review.
- viii. Final project review.

Output 2: Increased human resource capacities through training in Sand control, sustainable development and effective extension.

Key activities:

- i. Training activities will be delivered in the bio-diversified shelterbelt technology, sand dune management and integrated conservation and development;

- ii. Capacity building activities on shelterbelt economy and carbon sequestration on soil and water conservation of arid and sandy regions
- iii. In conjunction with the Forestry Department, establish a GIS unit to train and apply GIS technology in watershed and desert delineations and related human habitats development.

Output 3: Enhanced agriculture extension and technology transfer capabilities through establishment of two Farmers Service Center to serve Zhongwei solar vegetable greenhouse production area and Zhongning gravel mulched water melon production; Producers' association established to coordinate production, marketing and logistics for effective quality control and increased market compatibility.

Key activities:

- i. Establish 2 Farmer Service centers to serve the Zhongwei and Zhongning
- ii. Conduct training of farmers on technical and capacity building; develop audio-visual training materials through essential equipment acquirement.
- iii Training of farmers with establishment of farmer's association and management of production relationship between farmer's association and businesses.
- iv Capacity building on farmer's organization, its women members as well as interaction between the government and farmer's association including public regulation, supporting system plus self-governance.
- v. Sharing with local framers good practices of farmer-market connection from other projects.

Outcome 2: Local Pilots for Sustainable Sand-based industry Development

Success Indicators:

- Increased awareness, in both public and private sectors, of the social, economical and ecological benefits of effective sand control, responsible use of soil and water resources and self-motivated sustainable development.
- Established a market-lead value-added fruits and vegetable production industry, characterized by organic production and low carbon emissions.

- A 5-year watershed management master plan developed to include the grass land, water courses, forests, farms and road system into one integrated ecological and social-economic zone.

Output 1: Economical development and Sand-based industry Development Strategy with consolidated work plan for Zhongwie region.

Key activities:

- Set up Project Management Team that directly manages project activities in Zhongwei City and Yanchi county.
- Establish date tree plantations, water melon production bases, solar greenhouses and shelterbelts complex as the foundation of the new sand-based industry.
- Conduct shelterbelt economic and carbon sequestration analysis and prepare Sand-based industry Development Strategy.
- Identify national/international experts to carry out the study on environment impact and reclamation of old gravel mulched field and explore feasible alternatives in water melon production in dryland of Zhongwei.
- Identify industry expert to assist on the development of irrigation water quality control and trickle ferti-gation.

Output 2: An integrated small watershed soil and water conservation strategy and implementation plan for Yan-chi County.

Key activities:

- Appoint sub-project management team members and technical advisors.
- Develop and implement watershed management plan with emphasise on bio diversification and participation of local community
- Capacity building in IEM in watershed management and sustainable livelihood improvement strategies.
- Study on grass-species and shelterbelts on effective water and wind erosion control in the watershed.

Outcome 3: Knowledge Platform and Policy Development

Success indicators:

- Real-life demonstration regions with regenerated ecosystems and improved livelihood
- Successful practices to other part of China and the rest of the world.

Output 1 Documentation of good practices of Ecological Rehabilitation and Rural Livelihood Improvement in project areas.

Key Activities

- i. Coordinate research and academy network to document the good practices in the project;
- ii. Publication of key knowledge products and sharing them with other provinces such as Inner Mongolia, Xinjiang, Gansu.

Output 2 Policy Recommendation of Sand-based industry Development Strategy for Ningxia

Key Activities

- i. Rollout of the framework of the Sand-based industry Development Strategy;
- ii. Prepare draft Ningxia Sand-based industry Development Strategy

Output 3: Linkage with existing South–South Cooperation Mechanism

Key Activities:

Share opportunities of capacity building with other projects in similar areas; dissemination of knowledge products of this project to other developing countries through UNDP and government channels.

PART THREE: MANAGEMENT ARRANGEMENT

The China International Centre for economic and Technical Exchange (CICETE), the counterpart organization to UNDP, will be the Executing Agency for the project. As such, CICETE will assume responsibility and accountability to UNDP for the outputs and the achievement of the project objectives.

A Project Steering Committee (PSC) will be established to provide supervision and directives to project implementation and execution and also to coordinate the various government departments participating in the project. The National Steering

Committee will be co-chaired by a leader at vice governor level of the Ningxia Hui Autonomous Region, representatives from CICETE and UNDP. Other members of the PSC will consist of representatives from relevant Departments and Divisions including Ningxia Association of Science and Technology (NAST), Department of Finance, Department Forestry, Provincial Development and Reform Commission, Department of Science and Technology, Department of Environmental Protection, Department of Agriculture and Animal Husbandry, Department of Water Conservancy as well as the local governments of Zhongwei City and Yan-chi County and relevant departments at the city and county level.

A Project Management Office (PMO) for the project will be established in Ningxia Association for Science and Technology. The PMO will consist of one National Project Director (NPD) and a National Programme Manager, and other necessary project staff. The NPD will be responsible for endorsing and overseeing all capacity building and policy development 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 PMO will be responsible for day to day project operation and management. Project management Units in Zhongwei and Yanchi will also be set up for management of project activities in local sites.

The PSC will meet once a year to monitor and oversee the progress of the project. Additional meetings may be called as required.

Technical Advisors (TAs), national or international, 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.

PART FOUR: MONITORING AND EVALUATION

Monitoring and evaluation of the project will be undertaken in line with the UNDAF results matrix and monitoring and evaluation plan.

Project monitoring and evaluation 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 livelihood improvement specially targeting the poor and vulnerable groups, including 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.

Primary project monitoring will be handled by the National Project Director, who manage and oversee the entire project. The NPD will be responsible for achieving project goals and objectives, monitoring the status of project outputs and ensuring technical transfer and the improvement of livelihood are being accomplished as projected.

The Project will be subject to annual review by representatives of UNDP and the Ningxia Government, under the auspices of the PSC. Project status and results to date and an overall project assessment, will be prepared and reported by the PMO. The PMO will also participate in the annual review meeting.

The PMO will prepare annual Progress Performance Evaluation Reports (PPERs) and resource material in advance of the PSC meeting. The report will be distributed to representatives of the PSC at least one month prior to the PSC meeting. The first PPER will be submitted six month after the inception of project activities.

IA 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.

At least four months before the final review meeting for the project, the National Project Director will prepare a final progress report for UNDP and CICETE. The report will include an overall evaluation of the project achievements and recommendations of post-project follow up plans.

PART FIVE: LEGAL CONTEXT

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement (SBAA) between the Government of the People's Republic of China and the United Nations Development Program, signed by the parties on 29 June 1979. The host country implementation agency shall, for the

purpose of the SBAA, refer to the government cooperating agency described in the document.

The following types of revisions may be made to this project document with the signature of the UNDP Resident Representative only, provided he or she is assured that the other signatures of the project document have no objections:

- a. Revision or addition to appendices to the project document.
- b. Revisions which do not involve significant changes in immediate objectives, outputs or activities of the project, but are necessary by rearrangement of inputs already agreed to, or by cost increases due to inflation; and
- c. Mandatory annual revisions which rephrase the delivery of agreed project inputs to allow for increased experts or other costs due to inflation or needed flexibility in expenditures.

PART SIX: BUDGET

The total budget for the project is US\$ 10,500,000 of which US\$ 1,500,000 is from UNDP TRAC fund, and US\$ 9,000,000 as government cost sharing is committed from the Ningxia Hui Autonomous Regional Government.

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 15 vehicles for PMOs at national and local levels;

- Procurement of excavators, irrigation, warehousing, growing, harvesting machines and other necessary agricultural machineries for Zhongwei and Yanchi;
- 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 at Zhongwei and Yanchi that will implement the demonstration components.
- Office building, rental costs in the two locations.

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.

Part Seven RESULTS AND RESOURCES FRAMEWORK

Programme Results and Resources framework

Project Title and ID: NINGXIA ANTI-DESERTIFICATION AND LIVELIHOOD IMPROVEMENT

| EXPECTED OP OUTPUTS And indicators including annual targets | Indicative Activities 2010-2014 | RESPONSIBLE PARTY | Resource allocation |
|---|--|---|---|
| <p>Outcome 1: Capacity Development to Improve Inter-departmental Cooperation in Ecological Management and Poverty Reduction</p> <p>Output 1: An efficient and effective consultation and participatory decision-making network of cross government departments, research institutions and industries is established for strategic planning and management of the project.</p> | <p>Activity 1.1.1. Establish Project Steering Committee (PSC) & Project Management Offices (PMO)</p> <p>Activity 1.1.2. Establish participatory decision-making network and hold strategic workshop to develop work plan and take consideration of data sharing and possible resource consolidation.</p> <p>Activity 1.1.3. Conduct baseline review and studies of project materials, experiences and lessons learnt in other projects</p> <p>Activity 1.1.4. Appoint project officers, national and international consultants</p> <p>Activity 1.1.5. Hold project inception meeting</p> <p>Activity 1.1.6. Ongoing monitoring, evaluation and management of project</p> | <p>CICETE</p> <p>CICETE</p> <p>CICETE</p> <p>CICETE</p> <p>CICETE</p> <p>CICETE</p> | <p>TRAC 130,000 GOVT 250,000</p> <p>TRAC 40,000</p> <p>TRAC 50,000</p> <p>TRAC 15,000</p> <p>TRAC 100,000</p> |

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| | <p>Activity 1.1.7. Annual review (To review progress, discuss environment assessment studies, endorse implementation plans and resolve any financial issues.)</p> | CICETE | TRAC 50,000 GOVT 50,000 |
| <p>Output 2: Increased human resource capacities through training in Sand control, sustainable development and effective extension</p> | <p>Activity 1.1.8. Mid-term project review meeting and Final project review and workshop</p> | CICETE | TRAC 50,000 |
| | <p>Activity 1.2.1. Design, organize and undertake training and capacity building activities per year in 2010, 2011, 2012 & 2013, to study bio-diversified shelterbelt technology, sand dune management, farm co-op; and integrated conservation and development, respectively.</p> | CICETE | TRAC 50,000 GOVT 100,000 |
| <p>Output 3: Enhanced agriculture extension and technology transfer capabilities through the establishment of two Farmers Service Center to serve the Zhongwei solar vegetable greenhouse</p> | <p>Activity 1.2.2. Immediately after the initiation of the project, in conjunction with the Forestry Department, establish a GIS unit to train and apply GIS technology in watershed and desert delineations and related human habitats development.</p> | CICETE | TRAC 50,000 GOVT 100,000 |
| | <p>Activity 1.2.3. Training on shelterbelt economy and carbon sequestration and on soil and water conservation of arid and sandy regions.</p> | CICETE | TRAC 300,000 GOVT 315,728 |
| | <p>Activity 1.2.4. Training on principles and practices of integrated sustainable development</p> | CICETE | TRAC 100,000 GOVT 420,000 |
| | <p>Activity 1.3.1. Establish two Farmers Service Center to serve the Zhongwei solar vegetable greenhouse production area and the Zhongning gravel mulched water melon production.</p> | CICETE | TRAC 50,000 GOVT 100,000 |

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|---|--|--------|--|
| <p>production area and the Zhongning gravel mulched water melon production. Producers association establishment to coordinate production, marketing and logistics for effective quality control and increased market compatibility</p> | <p>Activity 1.3.2. Conduct training to farmers on technical and capacity building, and develop audio-visual training materials through essential equipment acquirement.</p> | CICETE | <p>TRAC 50,000 GOVT 100,000</p> |
| | <p>Activity 1.3.3. Training of farmers in establishment of farmers association and management of production and relationship between farmer association and company.</p> | CICETE | <p>TRAC 50,000 GOVT 100,000</p> |
| | <p>Activity 1.3.4 Capacity building on farmer's organization, interaction between the government and farmer's association: government regulation, supporting system and self-governance, women in farmer's association, and sharing with local farmers good practices of farmer-market connection from other projects.</p> | CICETE | <p>TRAC 60,000 GOVT 50,000</p> |
| | <p>Subtotal</p> | | <p>TRAC 1,145,000 GOVT 1,585,728</p> |
| <p>Outcome 2: Local Pilots for Sustainable Sand-based industry Development</p> | | | |
| <p>Output 1: Economical Development and Sand-based industry Development Strategy with consolidated work plan for Zhongwie region.</p> | <p>Activity 2.1.1.1. Set up Project Management Team to directly manage project activities in Zhongwei City and Yanchi county.</p> | CICETE | <p>GOVT 100,000</p> |
| | <p>Activity 2.1.2. Establish date tree plantations, water melon production bases, solar greenhouses and shelterbelts complex as the foundation of the new sand-based industry.</p> | CICETE | <p>TRAC 60,000 GOVT 6,000,000</p> |
| | <p>Activity 2.1.3. Conduct shelterbelt economic and carbon sequestration analysis and prepare Sand-based industry Development Strategy.</p> | CICETE | <p>TRAC 60,000 GOVT 400,000</p> |

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| | Activity 2.1.4. Identify national/international experts to carry out the study on environment impact and reclamation of old gravel mulched field and explore feasible alternatives in water melon production in dryland of Zhongwei. | CICETE | TRAC 100,000 GOVT 100,000 |
| | Activity 2.1.5. Identify industry expert to assist on the development of irrigation water quality control and trickle fertigation | CICETE | TRAC 35,000 GOVT 100,000 |
| Output 2: An integrated small watershed soil and water conservation strategy and implementation plan for Yan-chi County | Activity 2.2.1. Appoint sub-project management team members and technical advisors. | CICETE | GOVT 50,000 |
| | Activity 2.2.2. Develop and implement watershed management plan with emphasis on bio diversification and participation of local community | CICETE | GOVT 50,000 |
| | Activity 2.2.3. Capacity building in IEM in watershed management and sustainable livelihood improvement strategies. | CICETE | GOVT 100,000 |
| | Activity 2.2.4. Study on grass-species and shelterbelts on effective water and wind erosion control in the watershed. | CICETE | GOVT 100,000 |
| Subtotal | | | TRAC 255,000 GOVT 7,000,000 |
| Outcome 3: Knowledge Platform and Policy Development | | | |
| Output 1: Documentation of good practices of Ecological Rehabilitation and Rural Livelihood Improvement in project areas | Activity 3.1.1. Coordinate research and academy network to document the good practices in the project; | CICETE | TRAC 20,000 |

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|---|--|--------|----------------------------------|
| | Activity 3.1.2. Publication of key knowledge products and sharing them with other provinces such as Inner Mongolia, Xinjiang, and Gansu. | CICETE | GOVT 60,000 |
| Output 2 Policy Recommendation of Sand-based industry Development Strategy for Ningxia | Activity 3.2.1. Rollout of the framework of the Sand-based industry Development Strategy. | CICETE | TRAC 10,000 |
| | Activity 3.2.2. Prepare draft Ningxia Sand-based industry Development Strategy | CICETE | GOVT 100,000 |
| Output 3: Linkage with existing South-South Cooperation Mechanism | Activity 3.3.1. Share the opportunities of capacity building and participatory with other projects in similar areas; and distribution of knowledge products of this project to other developing countries through UNDP and government channel. | CICETE | TRAC 70,000 |
| Subtotal | | | TRAC 100,000 GOVT 160,000 |
| GMS to UNDP | | | GOVT 254,272 |
| Total | | | TRAC 1,500,000 GOVT 9,000,000 |

ANNUAL WORK PLAN 2010

| EXPECTED CP OUTPUTS And indicators including annual targets | PLANNED ACTIVITIES List all activities including M&E to be undertaken during the year towards stated CP outputs | TIMEFRAME | | | | RESPONSIBLE PARTY | PLANNED BUDGET | | |
|---|---|-----------|----|----|----|-------------------|-----------------|----------------------------|---------------|
| | | Q1 | Q2 | Q3 | Q4 | | Source of Funds | Budget Description | Amount (US\$) |
| Outcome 1: Capacity Development to Improve Inter-departmental Cooperation in Ecological Management and Poverty Reduction | | | | | | | | | |
| Output 1: An efficient and effective consultation and participatory decision-making network of cross government departments, research institutions and industries is established for strategic planning and management of the project. | Activity 1.1.1. Establish Project Steering Committee (PSC) & Project Management Offices (PMO) | | | X | X | CICETE | GOVT | 71400 Contractual Services | 6,000 |
| | | | | | | | TRAC | 74500 Miscellaneous | 6,000 |
| | | | X | | | CICETE | TRAC | 75700 Workshop | 20,000 |
| Output 2: Increased human resource capacities through training in Sand control, sustainable development and effective extension | Activity 1.1.5. Hold project inception meeting Activity 1.1.6. Ongoing monitoring, evaluation and management of project | | | X | X | CICETE | TRAC | 71600 travel | 5,000 |
| | | | | | | | GOVT | 71300 Local Consultants | 10,000 |
| | Activity 1.2.2. Immediately after the initiation of the project, in conjunction with the Forestry Department, establish a GIS unit to train and apply GIS technology in watershed and desert delineations and related human habitats development. | | | X | X | CICETE | GOVT | | |

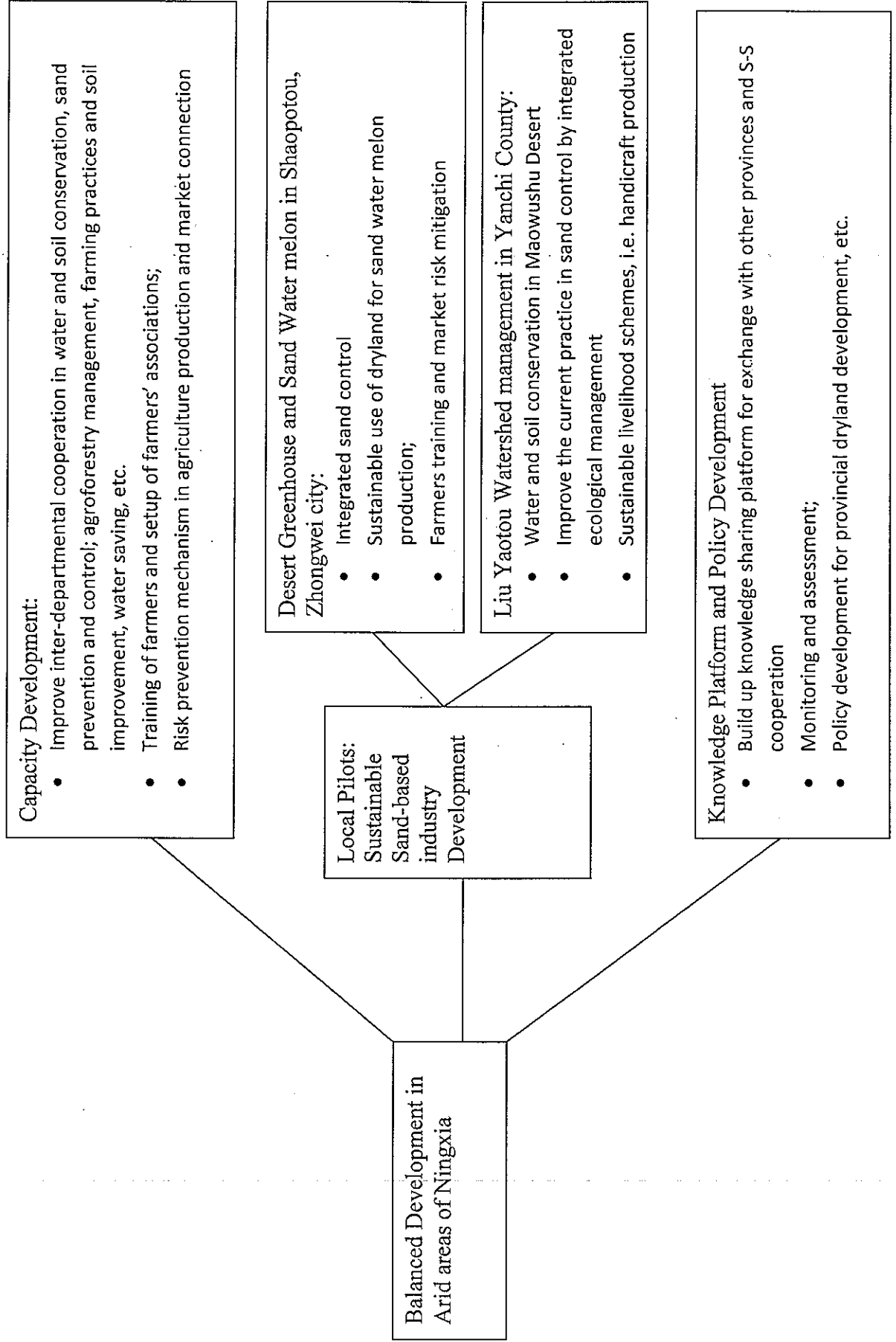
| | | | | | | | | | |
|--|---|--|---|--|---|--------|------|----------------------------------|-----------|
| | Activity 1.2.3. Training on shelterbelt economy and carbon sequestration and on soil and water conservation of arid and sandy regions. | | | | X | CICETE | GOVT | 75700 Workshop | 80,000 |
| Output 3: Enhanced agriculture extension and technology transfer capabilities through the establishment of two Famers Service Center to serve the Zhongwei solar vegetable greenhouse production area and the Zhongning gravel mulched water melon production. Producers association establishment to coordinate production, marketing and logistics for effective quality control and increased market compatibility | Activity 1.3.2. Conduct training of farmers on technical and capacity building, and develop audio-visual training materials through essential equipment acquirement. | | X | | X | CICETE | GOVT | 75700 Workshop | 5,000 |
| | | | | | | | TRAC | 75700 Workshop | 30,000 |
| Sub-Total | | | | | | | | | 162,000 |
| Outcome 2: Local Pilots for Sustainable Sand-based Industry Development | | | | | | | | | |
| Output 1: Economical Development and Sand-based industry Development Strategy with consolidated work plan | Activity 2.1.2. Establish date tree plantations, water melon production bases, solar greenhouses and shelterbelts complex as the foundation of the new sand-based industry. | | X | | X | CICETE | GOVT | 72200 Equipment and Furniture | 1,000,000 |

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| for Zhongwei region. | Activity 2.1.4. Identify national/international experts to carry out the study on environment impact and reclamation of old gravel mulched field and explore feasible alternatives in water melon production in dryland of Zhongwei. | | X | CICETE | TRAC | 71200 International Consultants | 6,000 |
| Output 2: An integrated small watershed soil and water conservation strategy and implementation plan for Yan-chi County | Activity 2.2.1. Appoint sub-project management team members and technical advisors. | | X | CICETE | GOVT | 75700 Workshop | 100,000 |
| | Activity 2.2.4. Study on grass-species and shelterbelts on effective water and wind erosion control in the watershed. | | X | CICETE | GOVT | 75700 Workshop | 25,000 |
| Sub-Total | | | | | | | 1,131,000 |
| Total | | | | | | | 1,293,000 |

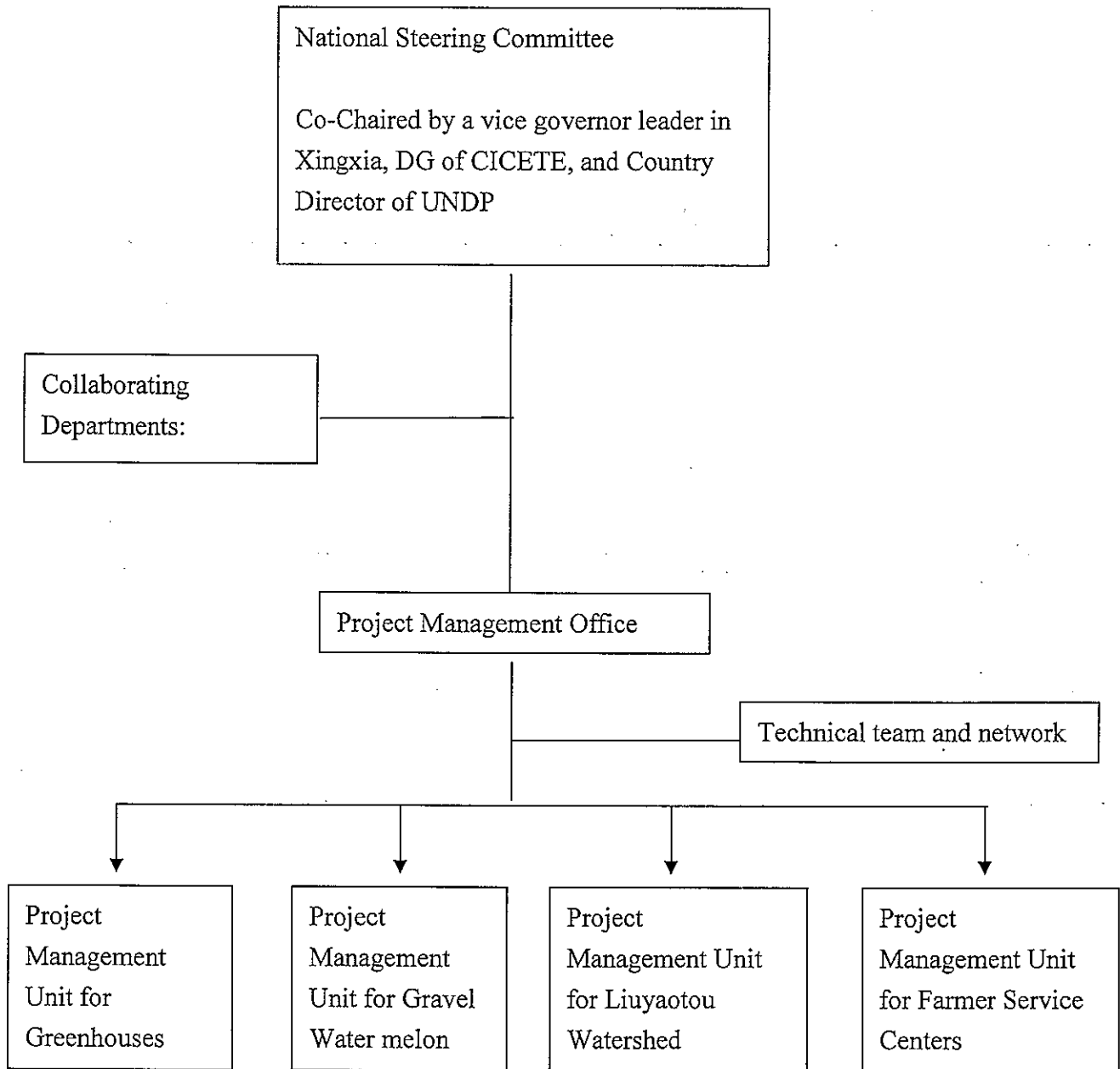
Total GOVT: \$ 1,226,000

Total TRAC: \$ 67,000

Annex I Project Design Diagram



Annex II PROJECT MANAGEMENT FLOW CHART



Collaborating Departments include Ningxia Association of Science and Technology (NAST), Department of Finance, Department Forestry, Provincial Development and Reform Commission, Department of Science and Technology, Department of Environmental Protection, Department of Agriculture and Animal Husbandry, Department of Water Conservancy as well as the local governments of Zhongwei City and Yan-chi County and relevant departments at the city and county level.