PROJECT DEVELOPMENT FACILITY
REQUEST FOR PIPELINE ENTRY AND PDF BLOCK B APPROVAL

AGENCY'S PROJECT ID: 38301-01
GEFSEC PROJECT ID: 2789
COUNTRY: PEOPLE'S REPUBLIC OF CHINA
PROJECT TITLE: Dryland Farming in Northern Region
GEF AGENCY: Asian Development Bank (ADB)
OTHER EXECUTING AGENCY(IES):
DURATION: 5 YEARS; **PDF-B** 10 MONTHS
GEF FOCAL AREA: Land Degradation, Multiple Focal Area/OP12
GEF OPERATIONAL PROGRAM: OP 15 Sustainable Land Management, OP 12 Integrated Approach to Ecosystem Management
Submitted under the OP 12 PRC-GEF Partnership on Land Degradation in Dryland Ecosystems
GEF STRATEGIC PRIORITY: SLM-2; EM-1; CB-2; BD-2
ESTIMATED STARTING DATE: September 2005
ESTIMATED WP ENTRY DATE: October 2006

FINANCING PLAN (US$)	
GEF ALLOCATION	
Project *(estimated)*	10,000,000
Project Co-financing *(estimated)*	200,000,000
PDF A*	
PDF B** *(estimated)*	350,000
PDF C	
Sub-Total GEF PDF	350,000
PDF CO-FINANCING (*estimated*)	
ADB	400,000
National Contribution	340,000
Others	
Sub-Total PDF Co-financing:	740,000
Total PDF Project Financing:	1,090,000

* Indicate approval date of PDFA
** If supplemental, indicate amount and date of originally approved PDF

RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT:
Mr Wang Bing GEF Operational Focal Point
Ministry of Finance

This proposal has been prepared in accordance with GEF policies and procedures and meets the standards of the GEF Project Review Criteria for approval.

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PART I - PROJECT CONCEPT

A – SUMMARY

1. The drylands of the People's Republic of China (PRC), located in the North, Northeast and Northwest, and the Loess Plateau, are home to about 40% of the total PRC population. These drylands are vital contributors to the total national production of grains (56% of PRC's grain crops), cash crops and animal products. However, rural income has been unable to grow at a rate to significantly narrow the rural-urban income gap which is currently at a regional average ratio of 1:3.2. Moreover, rural poverty, as a consequence of declining farming based income, is still prevalent, especially in dryland farming areas where a significant part of the population, estimated to be above 30%, lives below the poverty line.

2. Rural farmers' and enterprises' efforts to increase their income are seriously constrained by the extent and severity of land degradation in the northern drylands. Land degradation affects 70% of the arable area of these drylands (54 million ha) and accounts for about US$21 million per day in lost income due to decline in productivity. The PRC government in view of these problems has place top priority on combating land degradation by identifying one of its main causes as inappropriate conventional farming practices. These include practices such as excessive cultivation (particularly ploughing) and the routine removal of crop residues, which are prime factors leading to water and soil erosion.

3. The PRC-ADB-GEF project (the Project) will introduce the innovative farm practices of Conservation Agriculture (CA) as a more environmentally friendly alternative to current conventional methods to combat land degradation, implemented at the local level but with strong global impacts. CA is an internationally tested and proven set of scientifically based on-farm practices: (i) reduced or zero tillage, (ii) permanent soil cover (plant residues and/or cover crops), and (iii) crop rotations. CA besides reducing land degradation, also increases land productivity and rural income, and importantly, contributes significantly to positive global environmental impacts such as increased carbon sequestration, improved land and water biodiversity and reduced CO_2 production and global warming.

4. The overall Project's goal is to increase income in dryland farming areas within an environmentally sustainable framework based on CA. With that purpose the Project aims to (i) improve dryland farming productivity and profitability, by introducing CA farming, crop diversification, and the integration of intensive crops and livestock production; (ii) promote agro-processing enterprises that support CA with emphasis on the proactive links between enterprises and farmers, with appropriate government support; and (iii) improve marketing systems by developing marketing infrastructure such as wholesale markets, storage facilities and market information systems.

5. However, while CA will be applied in the Project, to ensure a wider global adoption with a wide range of global impacts, several supplementary actions will be implemented during the Project. These include: policy analysis of land degradation related issues and adoption/implementation of CA, implementation of a comprehensive capacity building strategy, institutional strengthening and community based planning, and monitoring and evaluation of CA impacts.

6. The Project will be implemented in four provinces: Gansu, Shanxi, Henan and Shandong, selected because: (i) they embody a wide range of climatic, agricultural, economic and social conditions of the northern dryland region, (ii) the majority of rural people are poor, (iii) land degradation, being the main problem to be addressed by the Project, is endemic and extensive, (iv) land degradation is recognized as the prime constraint to increase productivity and farm income, and (v) they present a wide range of agro-ecological conditions, facilitating formulation of representative models for application within and outside the PRC.

7. The Project will seek GEF financing under OP#15 and OP#12. The intention is to utilize the OP#15 financing to mitigate the causes and negative impacts of land degradation on the structure and functional integrity of ecosystems through sustainable land management practices. Under OP#12 financing, the introduction and adoption of the CA approach will be promoted at a larger scale to ensure the achievement of cross-sectoral approaches to integrate agro-ecological, social and economic goals to achieve multiple and crosscutting local, national and global benefits.

8. In October 2002 the GEF Council approved the PRC-GEF Partnership on Land Degradation in Dryland Ecosystems (PRC-GEF Partnership). This is a long term country programming framework (CPF) with the main objectives of combating land degradation, reducing poverty and conserving biodiversity in six provinces of the western region of the PRC over a 10-year period (2003-2012). For the Project, only Gansu and Shanxi are included in the PRC-GEF Partnership while Henan and Shandong are not in the western region. Not withstanding this, the Project shares the same principles of the PRC-GEF Partnership. The Project has the potential to strongly enhance the PRC-GEF Partnership agenda by offering a wider range of agro-ecological conditions and land degradation scenarios in the dryland areas, which in turn will lead to the development of an expanded range of options for combating land degradation and poverty reduction. In this way a greater range of models, for wider application, can be developed and tested, compared to the situation where initiatives are restricted to the original six provinces.

B - COUNTRY OWNERSHIP

1. COUNTRY ELIGIBILITY

9. The PRC adopted the **Convention to Combat Desertification** (CCD) in December 1996 which it subsequently started to implement through a number of activities including the preparation of the National Action Plan to Combat Desertification (NAPCD). The NAPCD outlines a strategy and a set of strategic actions for addressing land degradation. The PRC signed the **United Nations Framework Convention on Climate Change** (UNFCCC) in 1992 which it subsequently ratified in 1994 (followed by the signing and ratification of the Kyoto Protocol in 1998 and 2002, respectively). The UNFCCC commits to manage, conserve and enhance greenhouse gas (GHG) sinks (carbon sequestration) and to mitigate GHG sources (including reduced reliance on fossil fuel) and promote increased public awareness and monitoring studies. The PRC signed the **Convention on Biological Diversity** (CBD) in June 1992 which it subsequently ratified in January 1993. Within the framework of the Convention, the PRC completed its National Biodiversity Action Plan (NBAP) in June 1994 that details a set of strategic actions designed to conserve and to restore the country's rich biodiversity.

2. COUNTRY DRIVENNESS

10. The proposal to GEF is complementary and consistent with the PRC national priorities as identified in national and regional policies and legislation. The proposal also follows CBD guidance to GEF as stipulated in CBD Decisions I/2 and VII/20 refering to CBD Programme

Priorities (see Section IV Response to Reviews, and Annex 2 for full reference to proposal conformity to CBD decisions). Moreover, the PRC`s development policy has emphasized rapid economic growth and social stability. This has been accompanied by increased focus on environmental protection. For that purpose, a number of strategies have been initiated. Specifically,

11. **PRC-GEF Partnership on Land Degradation in Dryland Ecosystems (Asian Development Bank)**. The PRC-GEF Partnership aims to reduce poverty, arrest land degradation and restore dryland ecosystems in the country's Western Provinces. It is governed by the Country Programme Framework (CPF) which covers a 10 year period (2003-2012). The PRC-GEF Partnership will focuses on the effective use of financial and human resources to achieve sustainable natural resource management (NRM). The CPF supports a sequenced set of priority activities. These will serve to: (i) strengthen the enabling environment and build institutional capacity for adopting an integrated approach to combat land degradation, and (ii) demonstrate viable Integrated Ecosystem Management (IEM) models, including Conservation Agriculture (CA) approaches, useful for widespread replication.

12. **National Action Programme to Combat Desertification (NAPCD).** Following the PRC's signing of the UNCCD, a NAPCD has been formulated to establish the country's strategic objectives and key focus to combat desertification. The major goals of the NAPCD include: the containment of desertification and to gradually establish a comprehensive ecosystem approach in the affected areas. To implement the programme the following measures have been taken: increase public awareness and education to encourage proactive national participation; intensify administration and law enforcement, in combating desertification; implement projects to combat desertification; encourage the extension of appropriate technology as well as traditional approaches in tackling desertification; increase funding towards combating desertification; and formulate enabling policies.

13. **10th National Five-Year Plan (2001-2005)**. The PRC's development strategy as set out in the 10th Five-Year Plan (2001-2005) aims to narrow the urban-rural income gap and environmental sustainability, particularly in the dryland areas, as one of the cornerstones of the Plan.

14. **Western Development Strategy**. One of the key principles guiding the PRC's Western Development Strategy is the raising of income and environmental protection emphasizing the sustainable use of natural resources (land and water) to provide food and ecological security for the Western Provinces. A key objective of the Strategy is to implement sustainable land use, conservation and management, and environmental projects.

15. **10th Provincial Five-Year Special Plans (2001-2005)**. Activities supported under the project are compatible with identified priorities of all the participating provinces for the planning period 2000 to 2010 include: poverty alleviation; increasing public-private enterprise-farmer partnership (improving agro-processing and market infrastructure), increasing integrated crop-livestock farming, increasing crop diversification,; development of policies to promote sustainable development; and, promotion of increased public awareness of the need for sustainable development. In addition, province-specific priorities include: improved land and water use, management and conservation and environmental protection and poverty reduction; promoting sustainable development, reducing wind and water erosion.

C – PROGRAM AND POLICY CONFORMITY

1. PROGRAM DESIGNATION AND CONFORMITY

16. The Project is consistent with the objectives of the following operational programs (OP):

17. **Sustainable Land Management (OP#15).** The Project is compatible with OP#15 in mitigating the causes and negative impacts of land degradation on the structure and functional integrity of ecosystems through sustainable land management practices as a contribution to improving people's livelihoods and economic well-being. At the local level the Project will support accelerating country-driven actions on sustainable land management to preserve, conserve and restore the structure and functional integrity of ecosystems. At the Global level, the Project will increase carbon sequestration (mitigating the greenhouse effect), including carbon-grant payments with potential for carbon sequestration to equal the human made increase in CO_2; reduce pesticide, weedicide and fertilizer use; cause less leaching of soil nutrients or chemicals into ground waters; less pollution of waters (river, lake, reservoir, ocean); reduce erosion (wind and water); improve recharge of ground water aquifers through better infiltration; lessen fossil fuel usage (particularly diesel fuel), hence reduce CO_2 particulate black carbon emissions, and heat production[1]; stabilize sediment storage and release into waterbodies. At each of the local and global levels, land degradation issues will be addressed using integrated and cross-sectoral approaches, within the framework of sustainable development.

18. Tradeoffs between global (environmental) and local benefits is expected but these should be temporary in nature and will principally occur in the initial stages in the shift from conventional agriculture to CA. It is expected that during the shift to CA, there could be short-term adjustment costs that would be at the expense of local benefits (poverty alleviation/livelihoods/incomes) but GEBs are bound to accrue. Over time, these two are expected to be complementary. To address the short-run trade off period, the Project will promote income generation interventions, through the baseline activities, so that the beneficiaries' income will not be affected. More detailed formulation will be considered during the PPTA stage. The positive balance between energy, environment and agriculture (EEA) is a key element for promoting the development of the national economy as well as the living standard of less developed areas in the PRC. The successful model of that practice could be, to some extent, a worthwhile referential example for other developing countries

19. **Integrated Approach to Ecosystem Management (OP#12).** The Project is compatible with OP#12 at each of the local, national and global levels, in promoting cross-sectoral approaches to integrate agro-ecological, social and economic goals to achieve multiple and crosscutting benefits. In line with CBD Decision II/8 the Project also addresses conservation and sustainable use of biodiversity and its components in a holistic manner, taking into account the three levels of biodiversity and fully considering socio-economic and cultural factors, whilst emphasizing the ecosystem approach as the primary framework for Project interventions. Moreover, the PRC-GEF Partnership aims to achieve a synergy among land degradation, carbon sequestration and biodiversity conservation objectives through sustainable agriculture and rural development activities, with an emphasis on locally appropriated benefits and sustainable livelihoods. As a step towards achieving the objective, the Project will support the introduction of the Conservation Agriculture (CA) approach which addresses the cross-sectoral linkages mentioned above.

[1] As a specific example, based on 1992 data, 8% of the rural energy consumption for production in the PRC was derived from diesel fuel. A recent article (New Scientist, May 2005) states that the 22 million 3-wheel tractors in the PRC "produce as much (air) pollution as all the other conventional road vehicles in the PRC", and account for 25% of all PRC diesel consumption.

20. The Project is consistent with each of the GEF Strategic Priorities, as detailed below. Though presented here individually, a last section will discuss synergies between the different Focal Area objectives and the trade-offs between global environmental and local benefits that will be a focus of the project.

Sustainable Land Management

21. **SLM-2**: Implementation of Innovative and Indigenous Sustainable Land Management Practices.

The Project will facilitate the introduction of CA practices to complement the best practices of conventional agriculture. The Project will contribute to the adoption of appropriate practices to decrease land degradation, specifically to decrease soil loss from water and wind erosion, increase rainfall use efficiency, increase carbon sequestration and to enable conditions for the restoration of biodiversity.

Integrated Approach to Ecosystem Management

22. **EM-1**: Integrated Approach to Ecosystem Management

The Project will adopt an IEM approach to aid resolution of the problem of land degradation using techniques that bring about global benefits such as (i) conservation and sustainable use of biological diversity as well as equitable benefits arising from biodiversity use as a result of innovative farming techniques, (ii) reduction of net emissions and increase of greenhouse gases principally in terrestrial ecosystems including carbon sequestration, reduced CO_2 emissions and the control of global warming, and (iii) prevention of the pollution of globally important terrestrial ecosystems as a result of wind and water erosion control. IEM is a holistic scientific approach, that is based on an integrated understanding of: (i) the natural resource characteristics of individual ecosystems (climate, soils, water, plants and animals); (ii) the environmental functions and services provided by healthy ecosystems (watershed protection, maintenance of soil fertility, carbon sequestration, micro-climate amelioration, bio-diversity preservation etc); and (iii) the constraints to, and opportunities for, the sustainable utilization of an ecosystem's natural resources to meet peoples' welfare and economic needs (e.g. for food, medicine, fuel, shelter, income, communication, recreation). It thus represents an ecological approach to natural resource management that aims to ensure productive and healthy ecosystems by integrating social, economic, physical, and biological, needs and values. Additionally, the Project supports policy and institutional activities that incorporate ecological considerations into institutional approaches at the provincial, county and township levels and related public and private entities. Moreover, the Project will address the need for multisector collaboration, by creating partnerships with a variety of groups. Partnerships will include those with local communities; local, regional, and national administration and government agencies; private sector; NGOs; and international donor organizations. In this way, the Project will contribute to creating an enabling environment to support future "mainstreaming" of IEM principles in land degradation management systems.

Capacity Building

23. **CB-2:** Cross Cutting Capacity Building; The Project will provide public and private training, and institutional strengthening for the formulation and implementation of the CA approach, with a bottom-up methodology, to ensure ownership of the activities, and that the objectives mentioned above (in SLM-2) are adequately achieved within an appropriate framework.

Biodiversity

24. **BD-2:** Mainstreaming Biodiversity in Production Landscapes and Sectors. Through demonstrations of CA in various degraded landscapes and ecozones across the four Provinces the Project will showcase biodiversity conservation and restoration at the national, regional and global levels. The IEM approaches and partnerships outlined under EM-1 above will at least partly ensure that agro-biodiversity (crop varieties and traditional crops) and wildlife biodiversity associated with crop lands is restored. For instance, populations of species such as the great bustard (*Otis tarda*), a migratory bird species classified as Vulnerable by IUCN and wintering throughout the north PRC drylands are known to respond positively to CA techniques in eastern Europe. Populations of other species such as Oriental plover (*Charadrius asiaticus*), Northern lapwing (*Vanellus vanellus*), Daurian partridge (*Perdix dauuricat*), bramberling (*Fringilla montifringilla*), birds of prey such as the harriers (*Circus* spp.), cranes (*Grus* spp.) and typical agricultural birds such as the buntings (*Emberiza* spp.) are all known to respond to greater diversification in arable crops and crop rotation, and will undoubtedly benefit from the wide-scale Project interventions. Initiatives that protect marginal lands (rather than convert them to unsustainable agriculture) and diversify existing croplands for biodiversity will be explored as part of the CA strategy. Benefits accrued to partners (farming communities, co-operatives, state run farms, etc) through mainstreaming biodiversity in production landscapes will be in terms of improved pest control, green marketing of organic products (certification), and potential spin-offs resulting from biodiversity conservation that will all be developed during the Project.

Synergies between Focal Areas (OP) and Strategic Priorities

25. Strong synergies exist, and will be further developed within the Project, between each of the above OP areas. Integral to mitigating the causes and negative impacts of land degradation is the sum total of an integrated approach to ecosystem management and capacity building to achieve short-term and the all important long-term gains, required to drive the integrated ecosystem approach. A healthy, robust, dynamic and varied ecosystem is well able to support a wide range of air-, water- and land-based biodiversity, that in itself achieves a synergetic and integrated role in improving local and global land, water and air qualities, as well as improved aesthetic conditions for rural dwellers and urban visitors. Achievement of all of the preceding is driven and attained at the local level, though in time the broader ecosystem impacts will become evident at the national and global scale. Local activities and impacts will be part of the Project plan, whereas the global impacts, though most important and far reaching, commonly tend to be serendipitous.

2. PROJECT DESIGN

Background

26. The Project is being submitted under the PRC-GEF Partnership on Land Degradation in Dryland Ecosystems (PRC-GEF Partnership). The Partnership is a long term country programming framework (CPF) with the main objectives of combating land degradation, reducing poverty and conserving biodiversity in six provinces of the western region of the PRC over a 10-year period (2003-2012). For the Project, only Gansu is included in the PRC-GEF Partnership while Henan and Shandong are not in the western region. Not withstanding this, the Project shares the same principles of the PRC-GEF Partnership. The Project has the potential to strongly enhance the PRC-GEF Partnership agenda by offering a wider range of agro-ecological interventions and land degradation scenarios in the dryland areas, which in turn will lead to the development of an expanded range of options for combating land degradation and poverty reduction. In this way a greater range of models, for wider application, can be developed and tested, compared to the situation where initiatives are restricted to the original six provinces.

27. The Project also has strong links to the China Biodiversity Partnership Framework (CBPF; GEF project ID 2435) in that the current Project will lead to a shift in the PRC approach to biodiversity conservation and sustainable use, to a fuller integration of biodiversity into development at all levels. Specifically, the Project will provide a vehicle for developing, testing and up-scaling of innovative approaches to strengthen and broaden the range of biodiversity, principally through improved land management systems, based on the CA approach; and in this way assist in the coherent implementation of the activities in the CBPF. As such, the Project aligns well with the CBPF project, as both recognise that agricultural ecosystems have greatly declined in quality over the past few decades, and that this trend is continuing. An important factor is farmers choosing to cultivate a smaller number of crops and varieties. For example, generally more than 10 crops and sometime up to 50 could be collected from a farmer's land in the 1980s. In addition to several staple crops (such as rice, wheat and maize), a wide range of indigenous crops including many kinds of legumes, oil crops, fruit trees, vegetables, cotton and other textile plants were cultivated. However, since the 1990s, many crops are no longer grown by farmers because of the economic situation. At present, most farmers have only one main crop and possibly some vegetables. Moreover, because government agencies strongly support the process of modernisation, most varieties are no longer found on farms. For instance, 384 of 400 varieties of peanut used in Shandong province in 1950 are no longer used by farmers. Overall, the number of varieties and the wealth of indigenous systems and practices continues to decline. Specifically, the linkages with the proposed UNDP-GEF CBPF will occur through the Project's components (related to biodiversity conservation) with CBPF's relevant goals such as to (a) provide a platform for interactions and communications between international organizations and central government policy-makers and experts; (b) provide a vehicle for developing, testing and up-scaling truly innovative approaches; (c) strengthen coordination, harmonization and synergies across individual projects and activities; among others.

28. The Project aims to redress this continuing lack of crop varieties by aiming to introduce a range of cover and rotation crops as part of the CA approach. Cover crops are critical to protect the soil from raindrop impact and erosive winds, and together with rotation crops (principally grown for disease and weed control) provide a diverse habitat for in- and above-ground animal species, including a wide range of birds and insects. Crop rotations are a planned sequence of different crops grown in succession over a number of years. They are an effective method of managing crop production problems that otherwise occur in a monoculture, such as weeds, insects and diseases that become adapted to a single crop environment Moreover, herbicide management can be more carefully controlled through careful selection of rotation crops, where not only do alternative broad leaf and narrow leaf crops provide greater flexibility in herbicide use between years, but also certain rotation crops provide allelopathic effects to inhibit the growth of known weeds. Furthermore, late and early seeding and harvesting of a range of rotation crops allows for better labour utilization, provides new methods of managing weeds and year-round food and shelter for a wider range of rural animals. Crops of various root depth draw nutrients from different soil strata and can prevent nitrate leaching. Rotations also allow for the inclusion of crops that will improve the fertility and structure of the soil, essential in minimum tillage systems where tillage is removed or greatly constrained as a management tool. Rotations have been widely demonstrated to effectively break disease cycles and should be included in a disease prevention strategy as part of a no- or minimum-till farming system,

29. At present the overall approach by the PRC to land degradation control in the drylands of the western region has been disjointed and inefficient. Most control efforts have been undertaken under the auspices of domestically funded programs, implemented by individual sector agencies. These domestic efforts have been supplemented by international donor supported projects. In terms

of PRC government funded programs, during the 1990s, total public investment in land degradation programs almost tripled, to over 54 billion Yuan. Government expenditures in the six most degraded dryland areas (Gansu, Inner Mongolia, Ningxia Hui, Qinghai, Shaanxi, and Xinjiang Uygur) in 2002 were approximately equivalent to $1 billion, almost twice the 2000 level. To date the domestic program for combating land degradation within the PRC's drylands has been dominated by a national government sectoral agency led approach, in which each agency separately plans and implements its own activities. Primary responsibility for the domestic program (and the bulk of the domestic funding) has been assigned to the State Forest Administration and the Ministry of Water Resources. There is currently no overall coordinated strategy for the sustainable management of the PRC's drylands, and conflicting institutional mandates, responsibilities, priorities and policy objectives have limited the effectiveness of past efforts. Ecosystem elements are currently treated in isolation from each other, in line with the mandates of the concerned institutions. As a result there is no strong understanding of area-wide ecological systems and how to address their management problems, in a coordinated, systematic and integrated manner. For example water is treated differently depending on whether it is managed for livestock needs, irrigated agriculture, forestry purposes, industry or domestic consumption. Likewise different agencies deal with soil erosion, depending on whether it is induced by water (MWR) or wind (SFA). This creates problems because most dryland ecosystems suffer from a combination of both. The agency responsible for desertification (SFA) is not responsible for the management of grasslands (MoA), despite the fact that grassland degradation is a major cause of desertification.

30. The Project covers four provinces: Gansu, Shanxi, Henan and Shandong. The first three and the western hilly area of Shandong lie in the northern drylands farming area of the PRC, spanning a wide variety of environments and land use. The northern dryland area is an important base for grain, cotton, oil crops and soybean products and accounts for 46% of grain production (70% wheat and 80% maize) and 50% of the PRC's total stockbreeding products.

31. Compared to the southern PRC, population density in the northern areas is less. However,, the area of arable land is greater on a per capita basis.. 22% of the arable land is low yielding land (3000kg of grain /ha), 38% is mid-yielding land (3000~6000 kg of grain/ha). Many counties have even lower economic levels. Climatic conditions range from arid in western Gansu (<100 mm annual rain) to semiarid/sub humid in Shandong (average of 670 mm annual rain). Additionally, in the past 10 years the rainfall totals have reduced by 10-15%. On the positive side, the northern dryland area has more sunlight hours and higher accumulative temperatures.

32. Gansu in the northwest of the PRC, generally consists of a poor, dry environment with low rainfall amounts, and serious land degradation problems. Arable land occupies 5 million ha (10% of total province area) of which 60% is sloping land. Gansu has very serious water and wind erosion, in terms of both intensity and area affected (38.9 million ha, 86% of the total province land).The annual average eroded topsoil is about 5 to 8 ton/mu, carrying with it tons of K, P, N and organic matter. Annual input of sediment to the Yellow river is 510 million ton. In Gansu, several factors combine to seriously restrict the development of the agricultural economy in the rural areas: low management skills, poor soil productivity, cropping limited by drought, market fluctuations and low farmer net income. It is considered there is no further potential to increase yield and net income with current cropping systems. Agri-industries are still in the development phase and there are few private-farms with no up-scaled high grade company farms.

33. Henan is an important agricultural province, accounting for 10% of the PRC grain production. Arable land is about 7.9 million ha (47% of total land). Total population is 97.2 million, of which 69.1 million (71%) are rural. Annual average precipitation is 600 mm in the drylands, concentrated (70%) in July-September. Wind and water erosion are widespread with 4.1

million ha suffer from land degradation (over 25% of the total land area) and there is an annual loss of 47,500 ha in arable land to water erosion. Henan's population has nearly doubled in the last 20 years, greatly increasing rural unemployment, and causing great difficulties in raising net farmer income. About 10% of the PRC's population classed as poor live in Henan; and about 12% of Henan farmers fall into this category.

34. Shanxi is located in the east part of Loess Plateau with a rural population of 23 million (70% of province total). 3.6 million are classified as poor (15.7% of the farm population). Arable land occupies 3.9 million ha (27.5% of province total) of which 2.8 million hectare is dryland (72% of total arable). Grain crops (mainly maize, wheat and cereal) occupy 76.5% of total crops. Annual rainfall is 400-650mm, concentrated (70%) in July-September. with the Province has 11 million ha of water eroded land (69% of the total land area),with 456 million tons of sediment diverted into rivers annually. Wind erosion, concentrated mainly in south Shanxi, affects 3.9 million ha with an annual rate of loss of 5000 to 5800 tons/km^2.

35. Shandong is located in the eastern PRC, though it is classified as belonging to the northern PRC Plain. It is one of the most highly and densely populated PRC provinces with 91 million in 15.6 million ha of which 6.6 million ha is arable land. 40% of the total province area is classed as dryland. Annual rainfall is only 500 mm in the western area, far less than required for successful cropping. Each year 1.7 million ha of arable land suffers from drought (22% of provincial arable land). Eroded area is 6 million ha (almost half of the Province), predominantly (82%) water erosion. Erosion has a strong impact on grain production with average grain yields of 700, 500 and 300 kg/mu achieved in the light, medium and heavily eroded areas, respectively. Shandong has a wide gap in economic development between east and west and between urban and rural. Provincial farmer net annual income is US$387, but more than 7.3 million farmers earn below US$121 annually and 1.3 million farmers earn less than US$76; a maximum urban:rural ratio of 5:1. 75% of those poor farmers are concentrated in the middle and western dryland area.

36. In terms of opportunities, the four provinces have good potential for the production of cash crops, vineyards and orchards that are nationally recognized as of good quality, providing them with a strong marketing advantage. Also, there is an extensive experience with value adding, resource protecting practices, such as the integration of crop and livestock production coupled with biogas digesters and rain harvesting. Moreover, in support and integral to the development of all the above, the private sector has a strong presence represented by "dragonhead" enterprises2 each of which has the potential to reach many thousands of households. Also, these enterprises have expressed their strong interest in supporting innovative and more conservative farming practices, recognizing that these will lead to greater and more stable outputs and supply. The four provinces have experience with internationally financed projects, and have an established institutional structure and road, rail and communication infrastructure that facilitate effective implementation of projects.

Problems Statement and Root Causes Analysis

37. The problems faced by these provinces can be summarized as:

(i) Land Degradation and Declining Land Productivity

[2] Dragonhead enterprises were established to help develop agriculture industries. They receive support from the provincial financial bureau and include partnerships with farm households and businesses. A dragonhead enterprise can be a private or township enterprise or a shareholding organization, but must be established and show profit, be managed well, and have access to new technology and market information.

Land degradation is endemic to each province. The major causes are: inappropriate conventional farming activities contributing to serious wind and water erosion and inappropriate use of scarce water resources, with larger scale regional environmental impacts such as river siltation and eutrophication, duststorms, air pollution, nitrification of groundwater, nutrient enrichment of rivers estuaries and coastal areas. These also impact at the global level for example, the burning of fossil fuels and organic residues, and the loss of carbon sinks contribute to global warming and climate change as well as reduced biodiversity through the destruction of natural habitats and creation of low diversity agricultural landscapes. These problems have led to a serious decline in land productivity: the yields of food crops in the northern dryland areas are 25% lower than the PRC average. Grain yield in some areas is less than 0.75 ton per ha compared to 4.3 ton per ha in the PRC.

(ii) Lack of exposure to new and sound knowledge and capacity building

The dryland areas under the Project suffer from a lack of extension services that hinders the spread and adoption of innovative farming practices. Another important barrier to more extensive adoption has been the lack of access to credit for purchase of required equipment and inputs. Capacity building activities, for the introduction of appropriate techniques in improved land management, have not been conducted in a structured or coordinated manner, nor at a scale large enough to have a significant impact, mainly due to lack of financial resources at all levels. Lack of a mechanism for appropriate public and private awareness and dissemination of knowledge of appropriate techniques, associated with lack of public media campaigns and inadequate numbers of field demonstration and trial sites.

(iii) Lack of comprehensive and enabling policy. While the Government understands the importance and benefits of innovative farming systems, such as CA, there is no specific legislation for the development, adoption and implementation of such practices. Concerning land degradation legislation, there is a body of knowledge containing overlaps and gaps, that needs to incorporate incentive based measures to promote self regulation and promote a monitoring rather than enforcement role at the local level. At local levels, where capacity is weak, regulations are poorly understood, inconsistently applied, and subject to varying interpretations. The result is poor institutional coordination and lack of clear authority and control of natural resources leading to institutional conflicts and poor implementation of policies and legislation.

More generally, in the PRC context, many well meaning policies and programs have inadvertently caused or exacerbated land degradation. Examples include: (i) conversion of grasslands to irrigated agriculture resulting in increased pressure on the remaining livestock grazing areas, and local problems of water logging and salinization; (ii) resettlement of farmers from over populated uplands into marginal lowland areas with very limited potential for profitable and sustainable agriculture; (iii) industrial development in remote and water deficient areas; (iv) low water pricing policies that provide little incentive for the adoption of efficient water use practices; (v) conversion of farmland to forests and/or grasslands where single species of trees and/or grasses have been planted over large areas thereby further reducing local biodiversity; and (vi) promotion of mechanical tillage, and removal of all crop residues for stall feeding livestock, leading to loss of soil organic matter and nutrients, loss of topsoil structure and compacted subsoil layers, reduced protective ground cover, and increased susceptibility to wind and water erosion.

In addition to the above, the land conversion and human resettlement policies enacted in both mountain and desert areas have had significant environmental impact. While closure to livestock grazing has dramatically improved vegetative cover, and reduced soil erosion, within mountain areas, it hasn’t addressed the wider problem of excess livestock numbers, and has led to increased pressure on areas where grazing is still taking place. The 'desert transformation' policy has resulted

in further ecosystem degradation and continuing poverty, as people and livestock have been moved into highly fragile ecotypes that have little, if any, potential for profitable and sustainable use. Likewise many other ecological reconstruction projects, involving wide-scale tree planting, fodder growing, and terrace construction, are failing to deliver the anticipated ecological, economic and conservation benefits.

(iv) Lack of reliable data to support strategic initiatives to combat land degradation. Currently information on the extent and impact of land degradation from the local to global levels tends to be of poor quality, incomplete, conflicting, sector-focused, and based on non-standardized methodologies.

(v) Lack of institutional and cross sectoral coordination

To date, in the drylands area under the Project, there has been a tendency for land degradation control and the implementation of improved dryland agricultural practices (via Conservation Tillage) to have a top-down, academic/technologist-led and institutional approach with little local farmer participation in planning and design processes; and weak private enterprise-farmer partnerships.

IEM and CA approach for problem resolution

38. IEM provides a comprehensive and integrated framework for resolution of the above mentioned problems. As part of the IEM the Project intends to introduce and promote CA to enhance and complement current farming practices in the drylands of northern PRC. The principles and practices of CA are consistent with the broader IEM approach in as much as CA[3] is implemented in an integrated and holistic manner, aiming to (i) restore, sustain and enhance agricultural production, while conserving and enhancing the natural resources of land, water and climate, (ii) achieve sustainable and rural development, through the integration of crop bio-diversity, mixed crop/livestock farming and other activities such as supporting infrastructure and (iii) emphasize the achievement of environmentally sound income generation activities based on communal responsibility for land management and (iv) support institutional coordination and harmonization at national, provincial, and local levels of land degradation programs and budgets.

39. In the PRC, partial CA trials (principally no-till or reduced tillage) began in 1992 in Shanxi province. This trial provides good examples of the benefits achieved through the introduction of the CA approach: increased net annual income, wheat yield, crop rainfall use efficiency, soil organic matter and soil fauna (20-30%, 19%, 19%, 35% and 100%, respectively), and reduced wind and water erosion, and herbicide usage (60% and 19%). This trial has become instrumental in supporting the Ministry of Agriculture-led expansion of CA demonstration sites, from 2002. At present, there is an estimated 700,000 ha of land under CA in the PRC across 94 counties (14 provinces) supported with about 30 private engineering factories producing no-till and reduced till equipment. The Ministry of Agriculture (MOA) has supported increased adoption of CA through grants of up to US$US3.6 million per annum to 2005. However, the resources are limited relative to the magnitude of the needs for expansion of CA approaches at a significant scale.

[3] CA has three integral practices: (i) maintenance of a permanent organic soil cover through which crops are seeded or planted; (ii) establishment of crops and cover crops by direct seeding/planting (termed no-till); (iii) crop rotations, to improve soil condition, while reducing and controlling the build-up of pests and diseases.

Summary Project Description

40. **Baseline Project (The Baseline) scenario**

The PRC has achieved an impressive economic growth in the past two decades. However, it has been associated with an increasingly high environmental cost and increasingly widening gap between rural and urban incomes, as mentioned earlier. The goal of the Baseline activities, supported by ADB and the PRC government, is to increase rural income, through supporting and implementing on- and off-farm income generating activities, agroprocessing and marketing development, and improvements. However, the market-based Baseline activities, besides contributing to increase rural income will focus on reducing and combating land degradation and improved land conservation practices based on CA approaches.

41. To achieve the Baseline's objective, five major activities will be conducted.

(i) Improvement of dryland farming productivity and profitability. This will include the introduction of CA farming, crop diversification (cash crops, such as mushrooms, medicinal plants, vegetables and fruits), and the integration of intensive crops and livestock production (for example, promotion of the "5-in-1" model: greenhouse, with integrated rainwater collection system, animals, biogas digester and orchard). Long-term financing through the Baseline activities will be available for such items as the purchase of equipment and civil works (for example rain harvesting facilities, biogas digester), and land preparation. Short-term financing for working capital will be provided by commercial banks and local financial institutions (rural credit cooperatives) and other types of domestic counterpart funds. The Baseline activities will be implemented, where relevant, utilizing the principles and practices of CA blended with conventional agriculture practices. In order to achieve the Baseline's objective, practices will be introduced to not only increase crop yields, crop varieties, improve livestock returns and integrate intensive crop and livestock production but also decrease on-farm production costs.

(ii) Promotion of CA-supporting and value adding enterprises. The Baseline activities will promote agro-processing enterprises that support CA with emphasis on the proactive links between enterprises such as Dragonheads and farmers, with appropriate government support. The purpose is to support the further implementation of CA. The enterprises through contracts with farmers guarantee a purchase price and marketing of the produce, and provide technical assistance besides some trade credit (similar to the nucleus agro-enterprises). The Baseline will finance these enterprises to enhance their production capabilities to support creation of expanded employment, extend and multiply the coverage of CA to other groups and regions, and provide basic training in CA. In turn the enterprises will commit themselves to introduce and promote CA practices through the farmer's contract. The farmers will be required to implement CA practices in order to access the services provided by the enterprises.

(iii) Improvement of marketing systems. As production is expected to increase under the Baseline there is a need to complement this increase with provision and development of marketing infrastructure such as wholesale markets, storage facilities and market information systems.

(iv) Capacity building. This Baseline activity will provide capacity building in improving production, processing, and marketing skills.

(v) Project management. For proper implementation of the activities under the Project, a Project Management Office (PMO) and Project Implementation Offices (PIO) at the provincial and county level will be established with properly trained technical and administrative staff.

42. **Alternative Project (The Alternative) scenario**

The main global benefits, that could be achieved if CA is adequately adopted and implemented, are:

(i) Conservation and sustainable use of biological diversity. By applying the practices of CA and other relevant technologies, particularly minimizing tillage and retaining organic residues, agricultural land, soils, marginal habitats and mosaic habitats will all be enhanced for biodiversity. Nationally, regionally and globally significant biodiversity populations such as populations of the IUCN Vulnerable great bustard (*Otis tarda*) will respond to such changes across their wintering areas in northern PRC.

(ii) Prevention of the pollution and loss of globally important dryland ecosystems. Drylands, both in natural conditions and in agriculture, harbor unique biodiversity. This benefit is associated with item *i* but emphasizes the higher order biodiversity at the ecosystem level. This is expected to result from the restoration and protection of natural habitat and the adoption of CA to preserve their integrity necessary for the maintenance of biodiversity and other environmental functions.

(iii) Reduction of net emissions and increase of greenhouse gases principally in terrestrial ecosystems. The introduction of no-till and the improvements in the retention of crop residues will contribute to increased fixation of carbon (carbon sequestration) through decreased organic matter loss and increased soil cover. Also, the improved agricultural management practices of CA that are designed to increase agricultural productivity could enable soils to capture more carbon (e.g., through increased residue production from both better yielding crops and increased cropping frequency, due to better rainfall utilization). Decreased use of petrol- and diesel-powered farm machinery with CA, have been shown to achieve dramatic reductions in fossil fuel use with positive environmental effects of reduced CO_2 and heat production, with subsequent reductions in ozone depletion and global warming.

(iv) Mitigation of the intensity and frequency of duststorms. The PRC contributes to duststorms of vast magnitude due to significant wind erosion which have cross border effects that are increasingly being considered a global issue by the international community. CA introduction and propagation will contribute to reduce wind erosion. Also, controlling water erosion will not only greatly reduce siltation of rivers and reservoirs, but also water pollution from the off-site movement of farm chemicals.

43. While the Baseline project is aiming to increase farmers' income through introduction of CA practices with the associated benefits described earlier, positive global benefits, as described above accrue. The essence of GEF support is to accelerate country-driven actions on sustainable land management, primarily through the adoption of CA in the northern regions of the PRC, to achieve global environmental benefits within the context of sustainable development.

44. To achieve the global environmental benefits, brought by CA adoption and implementation, the GEF Alternative will support the following strategic outcomes:

(i) creation of an enabling environment (studying appropriate policies, regulations, incentive structures to support CA based on successful examples from elsewhere),

(ii) institutional strengthening (provision of training at all levels, logistical support for strengthening capacity of institutions to develop and implement CA, and community based planning), and

(iii) investments (such as farmer training schools, study tours to similar ecosystems with similar problems, establishing demonstration sites, provision, installation of and training in the use of monitoring and evaluation equipment).

45. To achieve the expected outcomes in the Alternative, the following activities will be conducted using GEF funds:

(i) Analyze and formulate integrated policies to support integrated ecosystem management

(a) The first step is the conduct of policy studies in: land degradation related issues and adoption/implementation of CA. Specifically, there are several national policies which attempts to address land degradation in the drylands of the PRC. Policies relevant to land degradation include: (i) Water Conservation in Dryland Areas, (ii) National Program of Conservation Agriculture Development in Dryland area and (iii) Control of Sandstorm and Duststorms. The translation of these national policies into effective actions for tackling land degradation issues at the village and township level remains a challenge. The Alternative's policy analysis activity would support studies which would serve to develop a better understanding of the impact of existing policies on land degradation and legal harmonization that will result in recommendations for clear and unambiguous changes in legislation. Agricultural sector plans and policies will likewise be analyzed in term of their consistency and coherence with the abovementioned policies related to land degradation in drylands.
(b) Building on the results of policy analysis in the Alternative, integrated policies will be formulated that will harmonize sector policies with land-degradation specific policies to ensure sustainable land management in the drylands and to optimize global environmental benefits.

(ii) Implementation of a comprehensive capacity building strategy, formulated during the Project preparation stage for (i) the formulation, creation and implementation of strategies for CA, and (ii) local stakeholders' (including government officers, farmers and enterprises) training to achieve implementation of CA and other related environmentally friendly techniques.

(a) Implement the capacity building strategy for furtherance of adoption of CA
(b) Create a CA training and advisory group
(c) Conduct participatory training and study tours for relevant stakeholders including farmers, private enterprises and government staff
(d) Establish new and enrich current demonstration farms and on-farm trials utilizing new equipment, crop rotations, and testing drought tolerant varieties and innovative weed control
(e) Build capacity at the government level in relevant legislative and policy aspects, such as planning and implementation
(f) Improve extension system / information systems available for implementation of CA
(g) Conduct awareness campaigns via newsletters, publications, media releases, public awareness programs and internet

Specifically, in order to ensure that all the stakeholders (private, public, farmers, entrepreneurs. NGOs) are able to build beyond the progress made in the Baseline and Alternative activities, there is a need to for the implementation of a comprehensive capacity building strategy and action plan to guide, optimize and strengthen the technical creativity, institutional capacity and human capital.

Thus, in order to continue to fill the knowledge gaps and fulfill institutional needs, the Alternative will add value to the Baseline activities to implement: (i) a comprehensive training and institutional

(e.g. R&D, extension) plan for CA implementation, (ii) new and expanded demonstration farms and on-farm trials to test new equipment, new cropping system (rotations, mixed- and intercropping), drought tolerant varieties and innovative weed control, (iii) improve extension system/information systems for implementation of CA, (iv) new comprehensive and upgraded participatory training programs utilizing data from on-farm and on-station trials, (v) a focused CA training and advisory group to address local and national needs, (vi) a CA exposure program such as study tours/workshop/farmer day for relevant stakeholders (farmers, private enterprises and government staff), (vii) capacity building at the government level in relevant legislative and policy aspects, such as planning and implementation and (viii) a CA publicity and awareness program utilizing newsletters, publications, media releases, public awareness programs and the internet.

(iii) Strengthen and institutionalize community based planning for integrated ecosystem approaches

(a) Strengthen public-private partnership to facilitate participatory development and adoption of CA (involving transparent governance)
(b) Support formation of farmer groups, including training for community based development planning, implementing / executing agencies

Specifically, Baseline activities utilize a participatory model that seeks to forge strong partnerships between government, farmers and private enterprises for the restoration of degraded land to achieve its potential productive functions for increased farm income and poverty reduction. This provides a platform to facilitate the participatory training in sustainable resource management so that local stakeholders could appreciate, respect and plan their scarce resources in a sustainable way. However, successful models for ensuring the practicality and sustainability of such partnership in the implementation of CA are still lacking. The Alternative will add value to the Baseline activities by (i) providing training for participatory development and adoption of CA among the partnership stakeholders, (ii) the formation of new and strengthening of existing farmer groups and NGOs to prepare themselves to participate in strategic partnerships and (iii) formulation and implementation of methodologies for community based, participatory development planning.

(iv) Formulate, monitor and evaluate ecosystem indicators

(a) Develop and implement a monitoring and evaluation system based on a common set of indicators used to monitor and evaluate conditions and trends of such issues as the status of land degradation, carbon sequestration, biodiversity, on- off-site pollution, and river siltation and eutrophication.

Specifically, to ensure standardized, scheduled data collection within the Alternative and to build beyond the progress made in the Baseline and Alternative activities, there is a need to develop a common set of indicators to evaluate several key components of the Alternative. The establishment of indicators will relate to global environmental benefits resulting from the improvement of ecosystem integrity with the adoption of CA (health, stability and connectivity) which will be monitored by a set of indicators related to structural ecosystem components and functional cycles.

Establishment of a common and standardized set of indicators will not only facilitate comparisons within and between the Project areas for the duration of the Alternative but will also provide models of data sets for expansion to future areas, to facilitate assessment of land degradation. Using the example of biodiversity, indicators could cover the two levels of biodiversity as applicable; species (the number of species (or a sub-set of indicator species) provided habitat from CA and the conservation of indigenous species in agriculture); ecosystem (area and types of

landscapes preserved/conserved with CA). Indicators pertaining to access and level of benefits (employment/income) are also suggested. The benefits from BD could proceed from the conservation of biodiversity (genetic, species and ecosystems). Sustainable incremental production and incomes from CA could also be added as higher-end benefits.

At the outset, benchmarks specifically for assessment of the global benefits will be established to specify the "pre-activity" conditions. Continued collection of the indicator data within a monitoring and evaluation system, at specified set intervals will facilitate monitoring of the impact of the Alternative activity.

3. SUSTAINABILITY (INCLUDING FINANCIAL SUSTAINABILITY)

46. Sustainability of the Project in terms of extending and widening the adoption and implementation of CA would be strongly facilitated through the combined achievement and implementation of the activities of the Alternative, specified above. In terms of Policy, the studies conducted under the Alternative will provide the basis for improvement of the formulation or amendment of CA related policies to further support the development and adoption of CA. Key outcomes of the capacity building activities will be the availability of a significant number of adequately CA trained technicians with adequate supporting training materials and facilities for the continuation of the spreading of CA beyond the life of the Project. Strengthened institutions and public/private partnerships will be the basis for a well established delivery mechanism for implementation of CA. Standardized and accurately collected data and analysis will contribute to better decision making on sustainable CA implementation and adoption strategies.

47. Financial sustainability will be achieved through the continuous support of the PRC government of CA programs[4]. Also, the expected development of strong public-private-farmer agribusiness partnerships where the private enterprise, in view of the perceived benefits of an increasingly stable supply of raw materials coming from implementation of CA practices, will support CA implementation through empowerment of contract farmers. These farmers in turn, recognizing the CA benefits of increased yields, reduced production costs and increased income will agree to 'enter into contract' and convert from conventional to conservation farming.

4. REPLICABILITY

48. The potential for replication is high for several inter-related reasons. The activities in the Alternative are closely linked with the overall rationale of the PRC-GEF Partnership, specifically that both projects address the PRC drylands; areas known to be severely affected by land degradation, with severe economic, social, and ecological consequences. Each project will, in part, address these problems through an integrated ecosystem management approach that is based on international and domestic experiences of Conservation Agriculture; globally recognised as "best practices". In both projects, the lessons learned through the implementation of the Alternative will lead to the formulation of models for CA implementation and adoption, which will stimulate appropriate scaling-up of replication and ensure transfer of experiences within and outside the PRC. Assurance of this eventuating is based on similar experiences in other countries, eg Brazil, Argentina and Paraguay where their implementation of no-till and rotation cropping have been replicated and upscaled to (currently) seventeen other countries, with a total of 100 million ha currently under CA, worldwide.

[4] For example, to demonstrate the commitment of the government to CA, it has allocated US$3.65 million in each of the past three years (to 2005) and plans to increase this to US$6.07 million in 2006 for support and implementation of CA at the village level.

5. STAKEHOLDER INVOLVEMENT/INTENDED BENEFICIARIES

49. During the process of conceptualizing the proposed Alternative, several meetings were conducted and field visits made where potential stakeholders were invited to present concepts and practices for consideration within the Alternative. Meetings were conducted both with senior PRC staff of various government agencies (Finance, Agriculture, Environment and Agriculture Mechanization Management) and academic institutions (Conservation Tillage Research Centre) as well as provincial and county officials from each of the four Project provinces. Additionally, field visits were made to two of the four Project provinces to experience local farming conditions and to talk with potential stakeholders (farmers and local agriculture-related personnel) on location at field sites, and processing / manufacturing agribusinesses.

50. During the Alternative implementation, government line agencies at all levels will be closely involved, especially the provincial and county agriculture departments, for the organization of Project implementation and co-ordination with authorities, private sector stakeholders, academic institutions, farmers and other stakeholders. Other government agencies will be also involved including finance and environment.

51. The Participatory Rural Appraisal (PRA) process will continue to be used in the Alternative, to ensure that the views and concerns of all stakeholders are heard and taken into account. The success of the enterprise-farmers business relationship hinges heavily on the ability of the farmers to be involved the identification of problems, resolution of problem, planning, design and monitoring and evaluation of CA activities for the optimization of land productivity using PRA methodologies.

D – FINANCING

1. FINANCING PLAN

52. A GEF grant of: (i) US$ 350,000 is requested for the GEF PDF-B phase; and (ii) a GEF grant of US$10 million is requested for the full Project.

2. CO-FINANCING

53. During the Project preparation phase ADB will provide US$ 400,000 through a Project Preparation Technical Assistance (PPTA) while the government counterpart contribution will be equivalent to US$ 340,000.

54. For the full Project implementation ADB will provide a loan of US$ 100 million which will be matched by a government counterpart contribution equivalent to US$ 100 million.

E – INSTITUTIONAL COORDINATION AND SUPPORT

1. CORE COMMITMENTS AND LINKAGES.

55. The Project is fully compatible with ADB's environmental strategy for and the PRC. ADB's support for environmental activities in the PRC is closely aligned with the government's long-term plan in environmental management and development, especially promoting the efficient use and conservation of soil and water resources. ADB financing is increasingly being utilized to tackle poverty through environmental sector projects. The PRC and ADB agree that land

degradation is closely correlated with rural poverty. In the PRC, about 90% of the rural poor live on moderately to severely degraded land. Improving the environment would be part of any pro-poor development strategy. The Government is aware that addressing environmental problems is critical for sustainable development and poverty reduction.

56. The government's commitment to resolve land degradation in the PRC is exemplified by the PRC-GEF Partnership. The current Project is being submitted under the PRC-GEF Partnership framework. The PRC-GEF Partnership's CPF initial focus (2003-2005) is on six provinces/autonomous regions (namely Gansu, Inner Mongolia, Ningxia Hui, Qinghai, Shaanxi and Xinjiang Uygur covering a population of approximately 120 million in the western region) that are both national priority areas, as well as of global significance for land degradation control and biodiversity preservation. During the remaining period of the CPF (2006-2012) all western region provinces/autonomous regions will be eligible for support. Two projects have already been approved and funded under this CPF, namely: (i) the GEF/ADB supported Capacity Building to Combat Land Degradation Project; and (ii) the World Bank/GEF-supported Gansu-Xinjiang Pastoral Development Project. Several other investment projects have been proposed under the CPF for ADB loan and GEF grant funding, including: (i) the Ningxia Integrated Ecosystem and Agricultural Development Project; and (ii) the Shaanxi Qinling Mountain Ecosystem Protection Project. The Project proposed here is a further part of the concerted approach to investigate and resolve land degradation issues and global environmental problems in the drylands of the PRC. The falls in line with the other two projects in Shaanxi and Ninxia provinces which aim towards the development of their own provincial integrated ecosystem management (IEM) strategy for land degradation control, as well as building its institutional capacity to design and implement investment projects for land degradation control.

2. CONSULTATION, COORDINATION AND COLLABORATION BETWEEN AND AMONG IMPLEMENTING AGENCIES AND EXECUTING AGENCIES

57. The Alternative will be developed and implemented in consultation, coordination and collaboration with the above described PRC-GEF Partnership, and with other related projects, summarized below.

58. **Sustainable Agriculture Development Project Phase II (SADP 2).** This is a recently implemented project of the Canadian International Development Agency (CIDA) in collaboration with the PRC's MOA. Project sites are located in the provinces of Beijing, Inner Mongolia, Sichuan, Gansu and Xinjiang, Hunan and Hubei. The project, to conclude in 2009, builds on current SADP initiatives in the Inner Mongolia Autonomous Region and will deal directly with land management systems and practices including attempts to foster more participatory and community-based management systems and processes and the growth of farmer organizations. Extension systems, methodologies, practices and incentives will be reviewed in each of the four provinces. Capacity building will take place on two fronts: the capacity of producers (farmers and herders) and the capacity of the governance/science systems which should help build the capacity of producers.

59. **Improved natural resource management for irrigated cropping.** This is a new Australian Center for International Research (ACIAR) project located in the Hexi Corridor, Gansu in collaboration with the China Agricultural University and the Conservation Tillage Research Centre, MOA. The project, to conclude mid-2009, has a prime focus on water saving (i.e. resource sustainability) and targets the less endowed regions of north western PRC. The project will develop an efficient irrigation system based on no-tillage and permanent raised beds to reduce irrigation water use, maintain farm yields and improve farmer incomes.

60. **Land Degradation Assessment in Drylands (LADA).** The objective of this global GEF supported activity executed by the FAO, is to develop tools and methods to assess and quantify the nature, extent, severity and impact of land degradation in drylands at a range of spatial and temporal scales. The objective will be achieved through supporting a series of case studies from a number of participating countries. In the PRC, five pilot areas have been identified to conduct land degradation assessments using 2-3 administrative villages as the basic interpretative unit. Once the final interpretative unit has been selected, this will be followed up by field surveys and local assessments.

61. **The GEF-China Portfolio.** During the Project preparation stage, special attention will be given in to place it in context with the full GEF-China portfolio, in terms of future collaboration and coordination and replicability potential. Special note is given to the UNDP-GEF "China Biodiversity Partnership Framework (CBPF)", a program tasked to support and coordinate biodiversity-related activities in China.

3. IMPLEMENTATION AND EXECUTION ARRANGEMENTS

62. Implementation arrangements will be finalized during the Project preparation stage. It is expected that the Baseline and Alternative activities will be implemented and executed under the MOA. They will be responsible for organizing and coordinating the preparation of the early stages of the Project. A Project Management Office (PMO) will be established within the Foreign Economic Cooperation Center (FECC) for the management of the Project at the central level, with corresponding Project Implementation Office (PIO) at the provincial level.

63. Each Project province would establish a leading group headed by a vice governor and assisted by representatives from the Provincial Development and Reform Commission (PDRC), Departments of Finance and Agriculture. The responsibilities of the leading groups are to formulate Project-related policies and resolve major issues related to the Project.

65. The consultants working for the formulation of the GEF component will work together as a team with the other consultants for the overall Project. The GEF consultants group consists of a total of 29 person months (pm), partitioned as follows: (i) international consultants (10 pm): (a) policy analyst (3 pm), (b) participatory farming system specialist (3 pm), (c) natural resource management specialist / GEF Team Leader (4 pm); and (ii) domestic consultants (19 pm): (a) legal/policy specialist (3 pm), (b) project economic specialist (3 pm), (c) PRA specialist (3 pm), (d) CA agronomist specialist (2 pm), (e) resource management specialist (2 pm), (f) poverty specialist/sociologist (3 pm), and (g) natural resources assessment specialist (3 pm). The terms of reference (TOR) for the GEF-financed consultants are given in Appendix 1.

PART II - PROJECT DEVELOPMENT PREPARATION

A - DESCRIPTION OF PROPOSED PDF ACTIVITIES

66. The following PDF activities will be carried out:

(a) Review and Assessment of Previous Provincial Experience in Land Degradation
This PDF activity will identify, review and evaluate the results achieved through national and donor supported land degradation projects for improved land management through CA. The scope of this activity will include (i) description of the policy components of the projects, (ii) description

of the technical approaches to address land degradation supported under the projects, (iii) assessment of their cost-effectiveness in addressing land degradation issues, (iv) evaluation of the role of community participation in the projects and contribution to their success, and (v) descriptions of institutional arrangements.

(b) Identification of policy studies to be conducted under the policy analysis activity under the GEF Alternative

Illustrative examples of studies for this activity are: (i) a review of pertinent CA legislation to identify overlaps, repetition and contradictions to formulate recommendations for their correction (ii) an assessment of the impact of existing policies on the promotion and adoption of CA for land conservation at both the village and township/county levels; (iii) an analysis of the challenges of increasing private sector involvement for combating land degradation and management and ways to address them, (iv) an analysis of public participation in decision-making related to land use management.

(c) Formulation of comprehensive capacity building, institutional strengthening, effective community based planning strategy and implementation plan, and public awareness campaign

Although the PRC has made great efforts to introduce sustainable agricultural practices through the development of various demonstration sites and investment in research and development (R & D), current programs tend to be: (i) lacking in a comprehensive, hands-on and standardized training program on CA locally and nationally (ii) top-down, academic, technologist-led and prescriptive with little participation from the end-users in R & D's decision-making, design and planning, (iii) lack of vertical and horizontal collaboration in R & D approach leading to overlaps, blame game, suspicion and compartmentalized approach to land degradation issues, (iv) piecemeal and 'a la carte' approach rather than providing a 'basket of choice', with flexibility for farmers to choose from, for adaptation to individual unique agro-ecological niche, (v) lacking adequate resources to support and implement delivery systems such as extension services and (vi) focusing on capital-intensive engineering solutions to treat symptoms rather than tackling the root causes of land degradation. To address these issues, this PDF activity will formulate a comprehensive capacity building strategy, institutional strengthening, and effective community based planning strategy and implementation plan that includes a public awareness campaign and a detailed costing of all of these items.

(d) Formulate a monitoring and evaluation system

This PDF activity will identify the institutional arrangements and technical requirements and costs required for the establishment and operation of a comprehensive monitoring and evaluation system.

(e) Identification of Key Stakeholders and Implementation of Participatory Workshops

Key stakeholders will be identified from provincial capitals and Project areas. A series of participatory workshops will be supported during project preparation to inform stakeholders about the project and solicit inputs into its design.

(f) Writing of GEF full project document for submission to Council and IA/ExA project document for CEO endorsement.

B - PDF BLOCK B OUTPUTS

67. The expected outcomes of a GEF-supported intervention will include:

(a) An enabling environment for development and adoption of CA: A comprehensive assessment providing the basis for identifying appropriate interventions for the development, dissemination and adoption of the CA approach within the Project area;
(b) Institutional strengthening: The capacity of the public and private staff related with CA activities within the four provinces will be strengthened through training and logistical support to design, conduct and implement CA activities and related participatory training programs.

68. The expected outputs of a GEF-supported intervention will include:

(a) GEF full project document for submission to Council and IA/ExA project document for CEO endorsement.
(b) Baseline information, including an evaluation of past efforts in the PRC to address land degradation issues for improved land management through CA
(c) Capacity building, institutional strengthening, effective community based planning strategy and implementation plan, and public awareness campaign
(d) Monitoring and evaluation plan supportive of the overall project implementation
(e) Full incremental cost analysis

C – JUSTIFICATION

69. The PDF Block B funding is needed to prepare the GEF component of the Project. The PDF Block B activities will design the GEF component of the Project proposal focusing on the incremental global benefits that would be derived from improved sustainable agriculture approaches, mainly CA, for the drylands within the Project areas. The preparation of the GEF component will be guided by the three conventions on which OP#12 is formulated[5] and the PRC-GEF Partnership. The GEF component will help to enhance the scale and impact of the incremental global benefits such as increased carbon sequestration, and reduced CO2 production and global warming, as well as trans-border benefits in reducing sand storms and river siltation, by extending the adoption of the CA approach and others which greatly contribute to the generation of these benefits.

70. In particular, the PDF grant will support stakeholder participatory activities such as workshops, consultations and study tours, the creation of achievable targets and work plans, the establishment of workable institutional arrangements for implementation, and through defining capacity building needs to ensure future sustainability, the grant will enable clear strategies and priorities to be defined. With the PDF grant, the potential incremental global benefits would be fully realized at a far greater scale and outreach with a wider and more structured introduction of the CA approach than without the support of the Alternative.

D – TIMETABLE

71. PDF-B activities will be carried out, simultaneously with the ADB PPTA, over a period of 10 months commencing in October 2005.

[5] Convention on Biological Diversity (CBD), United Nations Framework Convention on Climate Change (UNCCC) and United Nations Convention to Combat Desertification (CCD).

E – BUDGET

GEF PDF-B COST ESTIMATES AND FINANCING PLAN			
Item	Foreign Exchange	Local Currency	Total Cost
1. Consultants			
a) Remuneration and per diem			
(i) International consultants (10 p/months)	184,000		184,000
(ii) Domestic consultants (19 p/months)		72,000	72,000
b) International and local travel			
(i) International airfares (4)	15,000		15,000
(ii) Local travel		15,000	15,000
c) Translation and interpretation	1,000	5,000	6,000
2. Equipment		5,000	5,000
3. Workshops, Seminars & Other Technical Meetings		10,000	10,000
4. Surveys		2,000	2,000
5. Miscellaneous Reporting & Operational Expenses		10,000	10,000
6. Contingencies	17,000	14,000	31,000
Total GEF Contribution	217,000	133,000	350,000

ADB AND GOVERNMENT CO-FINANCING ESTIMATES			
Item	Foreign Exchange	Local Currency	Total Cost
A. **ADB PPTA CONTRIBUTION**			
1. Consultants			
a) Remuneration and per diem			
(i) International consultants (11 p/months)	240,000		240,000
(ii) Domestic consultants (24 p/months)		96,000	96,000
b) International and local travel			
(i) International airfares (6)	20,000		20,000
(ii) Local travel		12,000	12,000
c) Translation and interpretation	5,000		5,000
2. Equipment	5,000		5,000
2. Workshops, Seminars & Other Technical Meetings		3,000	3,000
3. Miscellaneous Reporting & Operational Expenses		1,000	1,000
4. Contingencies	10,000	8,000	18,000
Sub Total A	277,000	123,000	400,000
B. **GOVERNMENT COUNTERPART FINANCING**			
1. Government contribution to the ADB PPTA		190,000	190,000
2. Government contribution to the GEF PDF-B		150,000	150,000
Sub Total B		340,000	340,000
Total Co-Financing (A+B)	277,000	463,000	740,000

PART IV – RESPONSE TO REVIEWS

A - CONVENTION SECRETARIAT

72. The review of the Secretariat of the Convention on Biological Diversity of 18th April 2005 stated the need to further consider the consistency of the project proposal with the guidance of the

Conference of the Parties, and that they could "find no reference to any guidance from the Conference of the Parties"

73. In response, the project concept has been strengthened in paragraphs 9 and 10, making reference to CDB Decision I/2 Annex I parts II and III(b) regarding conformity with CBD Policy and Strategy and Eligibility criteria and CBD Decision VII/20 relating to CBD Programme Priorities. A full response to the CBD review with respect to project concept conformity to the various Decisions of the CDB is provided in **Appendis 2**.

74. The GEF Secretariat Concept Agreement Review of 22nd April 2005 suggested several additions, clarifications and alterations to the submitted document. These have led to many alterations to the project proposal, as now presented.

B – OTHER IAS AND RELEVANT EXAS

75. No comments have been received from other IAs and ExAs.

Appendix 1

OUTLINE OF TERMS OF REFERENCE FOR GEF-FINANCED CONSULTANTS

A. International Consultants – GEF Financed

1. Policy Analyst (3 pm)

1. The International Policy Analyst will assess the impact of current land and conservation policy and regulations in relation to resource management and land degradation. Recommend enabling policy that will drive the promotion of sustainable agriculture practices such as CA. Develop a better understanding on policy and legal harmonization that will result in recommendations for clear and unambiguous changes in legislation. The following detail task will be undertaken:

- Review current water and land conservation policy and their impact on preventing land degradation and improving productivity.
- Assess the impact of grain policy on land degradation and machinery subsidy on CA.
- Recommend enabling policy with incentive for the voluntary actions to prevent land degradation.

2. Participatory Farming System Specialist (3 pm)

2. To develop a strategic plan for strengthening the participatory mechanism and processes of the farming system (e.g. private-farmer partnership, farmer-farmer group and scientist-extensionist-farmer partnership) to improve the technical, institutional and human capacity to adopt and implement CA in an integrated and transparent ways. The task will involved:

- Review current transfer and sharing of technology from farmers from scientist and extension staff and suggest means for improvement.
- Assess the barriers (technical, financial, social, legal) to the adoption of CA within the project area.
- Develop Participatory Training (farmer school) and Participatory Technology Development (on-farm, demonstration trials, drought variety selection, Integrated Pest Management) for CA system.
- Develop user-friendly CA training manual.

3. Natural Resource Management Specialist/GEF Team Leader (4 pm)

3. The Resource Management (Water and Soil) Specialist will develop a comprehensive monitoring and evaluation (M & E) system for studying the impacts of CA based on economic (income, CA mapping), social (stakeholder participation) and environmental (soil inventory, water mapping) indices. Examine the urban and rural use (agriculture) and future plans for

surface and ground water resources in relation to water quality and quantity. Working with the other consultants, contribute to the development of an overall plan for the M and E of the CA intervention and classification of areas suitable for CA practices based on water and soil data and improved management of the agricultural resources of the project area. The following detailed tasks will be undertaken:

- Review current M & E system and suggest means for improvement.
- Review the current status of the surface and ground water resources available to the project sites.
- Assess the current and future water demand from the agriculture sector within the project area and compare this with the available resource.
- Assess the ground water recharge and compare this to current ground water extraction rates.
- Advise on options for improving recharge and sustainable extraction rates.
- Advise on water saving options in both urban and rural environments.
- Responsible for overall supervision of preparation of GEF full project documents for submission to GEF Council and CEO endorsement.

D. Domestic Consultants – GEF Financed

1. Legal/Policy Specialist (3 pm)

4. Assist the International Policy Analyst Specialist in reviewing the national and provincial laws with regards to the protection, restoration and management of natural resources. Review all available sources of information regarding resource degradation including literature reviews, interviews with local experts and field assessments and verify the information.

2. Project Economic Specialist (3 pm)

5. Assist team leader in the reviews of China agricultural economic policy (emphasizing the policies adopted for restructuring the agricultural sector in view of the impacts on the sector created by the membership of PRC in the WTO), agro-processing and marketing, crops comparative studies, credit and other relevant background economic studies.

- Examine the project implementation capacity of the Executing and Implementing Agencies (EAs and IAs) and describe the organizational arrangements for project implementation, including the EA, IAs, and project coordination and monitoring. Prepare a detailed implementation schedule and specify TA requirements.
- Formulate cropping and enterprise budgets, collect crop production costs, develop cropping models, and conduct individual enterprise feasibility studies.
- Prepare detailed cost estimates, using COSTAB, under the following categories: land, civil works, equipment and materials, incremental operation and maintenance,

incremental administration, and consulting services. Include in costs the foreign exchange (including direct and indirect costs) and local cost components, and physical and price contingencies. Include in the local cost duties and taxes, which should be identified separately. Prepare a financing plan with contributions from the Government, ADB, the private sector, and beneficiaries Crop budgets and financial cash flow models of representative farm households will be presented to identify the need for credit, and to demonstrate the financial viability and sustainability of activities proposed at the farm level and their impact on returns to family labor.

- Undertake financial and economic analyses of the project components as a whole and assess recurrent costs and implications for participating entities in accordance with ADB's *Guidelines for Economic Analysis of Projects and Presentation of Financial Analysis.* Economic benefits as well as non-quantifiable benefits will be determined.

3. PRA Specialist (2 pm)

6. Work with the International Participatory Farming System Specialist to assess (i) the extent of participatory approaches being practiced at all government level, and (ii) the barriers to the transition of top to participatory approach and recommend means for improvement.

4. CA Agronomist Specialist (2 pm)

7. To assist the team in providing data on current CA practices and identify barriers to their adoption and widespread implementation.

5. Resource Management Specialist (2 pm)

8. Assist the RM Specialist in developing a comprehensive M & E system for measuring the impact of CA on reducing land degradation. Assess current M & E methodology and develop new indices (social, economic, environmental) for success M & E. Assess current soil inventory laboratories which can handle soil's physical (component, particle size) and chemical (soil carbon, organic matter) properties.

- Formulate in collaboration with the environmental specialist and soil specialist review, collate information and report on the state of the natural resources in the Project areas upon which the sustainability of dryland farming systems are dependent.

- Review relevant reports from the Ministry of Agriculture, SEPA and other concerned agencies and recommend approach and programs for environmentally sustainable land and water resource management, biodiversity protection in the Project areas;.

- Assist the environmental consultant to evaluate the impacts various project components on natural resources and in the preparation of the IEE.

- Consult with the State Environmental Protection Agency (SEPA) to determine their position on the Project, and the process required to meet environmental impact assessment (EIA) procedures. Obtain and review reports on environmental aspects of the Project area and previous relevant projects e.g. *Land Degradation Prevention and*

Control in the Western Region: A discussion Paper for PRC/GEF Partnership on OP12 and the *Western Development Strategy (2000)*.

- Examine each proposed Project component and determine any potential environmental impacts. The inputs for this assessment are to be made early in the project design process to ensure that mitigating measures for possible adverse environmental consequences can be built into the project.

- Evaluate the impact of the Project on the environment focusing on soil, water, and forestry resources, implications of changing farm cropping and livestock practices, inputs and water usage on soil fertility and salinity, vegetation cover and groundwater levels in the project area.

- Evaluate environmental implications of existing and proposed agro-processing activities (including effects of transportation, pollutant discharges etc.) and those of any large dairy cattle enterprises planned under the project and propose mitigating measures.

- Prepare an initial environmental examination of (IEE) and summary IEE of the project using ADB's Environmental Guidelines for Selected Agricultural and Natural Resources Development Projects, and Environmental Assessment Requirements. Prepare and Environmental Impact Assessment (EIA), if warrants, and summary EIA in compliance with ADB's and the Government's guidelines and requirements.

Appendix 2

Conformity with CBD Policy and Strategy, Eligibility and Programme Priorities.

For each area of guidance an outline of how the Project Concept conforms is detailed below:

A: Policy and Strategy Priorities: Refer to CBD Decision I/2 Annex I Part I . The main points relating to Project Concept are:

1. Project must fulfil the eligibility criteria and be endorsed and promoted by the Parties concerned:

The PRC signed the **Convention on Biological Diversity** (CBD) in June 1992 which it subsequently ratified in January 1993. Within the framework of the Convention, the PRC completed its Biodiversity Action Plan (BAP) in June 1994 that details a set of strategic actions designed to conserve and to restore the country's rich biodiversity.

Project conforms with priorities identified in the PRC's National Biodiversity Action Plan (NBAP)

2. Project should contribute to build cooperation at the sub-regional, regional and international levels in the implementation of the Convention:

Project Concept contributes to conservation of biological diversity at the all three levels through restoration, management and conservation of agricultural farmlands in the drylands of the northern and western PRC. Cooperative linkages with other projects sub-regionally, regionally and internationally have already been sought, considered and implemented (see paragraph 56 in Core Commitments and Linkages, detailing links with the PRC-GEF Partnership's initial focus on six provinces that are both national priority areas, as well as of global significance for land degradation control and biodiversity preservation, and other related PRC projects). Further cooperative links will be sought during Project implementation.

3. Projects should promote utilization of local and regional expertise:

Project Concept promotes use of local and regional expertise through implementation at the local (village and County) and Municipality levels within all four Provinces (Gansu, Shanxi, Henan and Shandong). Existing expertise in conservation tillage and associated machinery design and use, alternate and conventional cropping practices, farmer training schools, biodiversity assessments, etc will all be utilized during project implementation.

B: Eligibility criteria: Refer to CBD Decision I/2 Annex I Part II. See Project Concept (Country Eligibility) paragraphs 9 and 10.

C: Programme priorities: Refer mainly to CBD Decisions I/2 and VII/20. The main points relating to the Project Concept under CBD Decision I/2 are:

1. Projects and programs have national priority status and that fulfill the obligations of the Convention:

Project Concept conforms with priorities identified in China's National Biodiversity Action Plan (NBAP).

2. Strengthening conservation, management and sustainable use of ecosystems and habitats identified by national Governments in accordance with article 7 of the Convention:

Project Concept is *complementary and consistent* with the PRC national priorities as identified in national and regional policies and legislation. The Project Concept contributes significantly to the conservation, management and sustainable use of the drylands of the PRC, with particular emphasis on mainstreaming biodiversity in production landscapes and sectors. The PRC-GEF Partnership already recognizes the need to reduce poverty, arrest land degradation and restore dryland ecosystems in the country's Western Provinces, and the NAPCD has been formed to combat desertification in the PRC (see Project Concept paragraphs 11 to 15).

3. Capacity-building, including human resources development and institutional development and/or strengthening, to facilitate the preparation and/or implementation of national strategies, plans for priority programs and activities for conservation of biological diversity and sustainable use of its components:

Project Concept includes large component on human resource development and institutional development to promote activities for the conservation and sustainable use of biological diversity. The Project has recognized that the dryland areas of the PRC suffer from a lack of extension services that hinders the spread and adoption of innovative farming practices and that capacity building activities have not been conducted in a structured or coordinated manner, nor at a scale large enough to have a significant impact. The Paragraph 45 (ii) of the Project Concept states that GEF funds will be used to "Implement a comprehensive capacity building strategy formulated during the Project preparation stage".

4. In accordance with Article 16 of the Convention, and to meet the objectives of conservation of biological diversity and sustainable use of its components, projects which promote access to, transfer of and cooperation for joint development of technology:

Project Concept promotes the need to access innovative mechanisms for biodiversity and natural resource conservation and sustainable use. These will be centered on the introduction of the Conservation Agriculture approach, that will provide a common platform for the development of new technologies for the repair and long-term conservation of degraded farmlands. Access and widespread transfer of CA technologies will be affected *via* such initiatives as comprehensive training and institutional, new and expanded demonstration farms and on-farm trials, new cropping systems, innovative weed control, improved extension systems, comprehensive participatory training programs , training and advisory group formation, and study tours/workshop/farmer days (see Project Concept paragraphs 45 (ii).

5. Projects that promote the sustainability of project benefits; that offer a potential contribution to experience in the conservation of biological diversity and sustainable use of its components which may have application elsewhere; and that encourage scientific excellence:

The Project Concept has a strong focus on establishing entities and scenarios that will ensure strong sustainability of project benefits across a wide area, These include the creation of an enabling environment covering policies, regulations and incentive structures; institutional strengthening through training and logistical support; and investments such as farmer training schools, study tours, demonstration sites, etc. A vital element to these will be the catalyzing of local stakeholders (at each of farmer-, government official- and agribusiness-level) to integrate and adopt new approaches to biodiversity conservation in the PRC drylands. In particular, new approaches will involve the linking of

agro-processing enterprises that support CA with emphasis on the proactive links between enterprises such as Dragonheads and farmers, with appropriate government support. Moreover, The Project will support and enhance the PRC-GEF Partnership agenda by offering a wider range of agro-ecological conditions and land degradation scenarios in the dryland areas, which in turn will lead to the development of an expanded range of options for combating land degradation and poverty reduction *via* a greater range of models, for wider application in the PRC and Asia region.

6. Activities that provide access to other international, national and/or private sector funds and scientific and technical cooperation:

The GEF Project will form an integral component of an ADB investment loan of USD 100 million to the PRC Government for repair, conservation and implementation of the PRC dryland *via* conservative land management and long term sustainable practices (see Project Concept paragraphs 53 and 54).

Government of the People's Republic of China co-financing of USD 100 million has also been committed.

7. Innovative measures, including in the field of economic incentives, aiming at conservation of biological diversity and/or sustainable use of its components, including those which assist developing countries to address situations where opportunity costs are incurred by local communities and to identify ways and means by which these can be compensated, in accordance with article 11 of the Convention:

The Project Concept will strongly support and facilitate the development of innovative financial mechanisms to support biodiversity conservation, principally through the CA approach. This will be achieved through development and promotion of economic incentives for communities relating to agro-processing, principally through the development of strong public-private-farmer agribusiness partnerships where the private enterprise will support CA implementation through empowerment of contract farmers. These farmers in turn will agree to 'enter into contract' and convert from conventional to conservation farming. Benefits will (see Project Concept paragraphs 64). Additionally, to ensure "entry level costs" are not incurred by local communities any tradeoffs between CA yields and those from conventional agriculture should be temporary in nature and will principally occur in the initial stages in the shift from conventional agriculture to CA. It is expected that during the shift to CA, there could be short-term adjustment costs that would be at the expense of local benefits (poverty alleviation/livelihoods/incomes) but GEBs are bound to accrue. Over time, these two are expected to move in the same direction. To address the short-run trade off period, the Project will promote income generation interventions, through the baseline activities, so that the beneficiaries' income will not be affected. More detailed formulation will be considered during the Project preparation stage.

8. Projects that strengthen the involvement of local and indigenous people in the conservation of biological diversity and sustainable use of its components:

Strong local stakeholder participation is a prerequisite in GEF project design. The Project Concept emphasizes development of community interaction and co-project, participatory-based development. Initial stages of the Project will include farmer training schools, study tours, the implementation of on-farm demonstration sites, with the provision and education in the use of monitoring and evaluation equipment at the demonstration sites. In this way, all levels of community from individual farmers to local farm managers and agribusinesses will be involved in decision-making, with emphasis on management of natural resources and biodiversity in the wider landscape and enhancing benefits to

local communities resulting from better biodiversity management. In the longer term, the possibility of developing local Farmer Associations (following several International models, like AAPRESID (Argentina), CAAPAS (the Americas), ECAF (Europe)) will be initiated to develop farmer-farmer support scenarios.

9. Projects that promote the conservation and sustainable use of biological diversity of coastal and marine resources under threat. Also, projects which promote the conservation of biological diversity and sustainable use of its components in other environmentally vulnerable areas such as arid and semi-arid and mountainous areas:

The Project Concept targets conservation and sustainable use of biological diversity in the environmentally vulnerable areas of the drylands of the PRC; These are areas with serious constraints to increased rural income, mitigation of land degradation, limited options for sustainable land management and improved biodiversity.

10. Projects aimed at the conservation of biological diversity and sustainable use of its components which integrate social dimensions including those related to poverty:

The overall Project's goal is to decrease poverty (increase income) in the dryland farming areas within an environmentally sustainable framework based on CA. With that purpose the Project aims to (i) improve dryland farming productivity and profitability, (ii) promote agro-processing enterprises that support CA; and (iii) improve marketing systems by developing marketing infrastructure. As an example, 1.8 million people in Henan Province have *per capita* incomes below the official poverty threshold of RMB 625 per person per annum. 10% of the PRC's poverty-classed are in Henan, and 12% of Henan farmers are poverty-classed. (see Project Concept paragraphs 32 to 35).

CBD Decision VII/20 provides additional guidance to the Global Environment Facility in the provision of financial resources, in accordance with Article 20 and Article 21, paragraph 1 of the Convention and in conformity with decisions I/2, II/6, III/5, IV/13, V/13 and VI/17 of the Conference of the Parties: The main points relating to the Project Concept under further guidance through CBD Decision VII/20 are outlined below:

1. Referring to **ecosystem approaches**: CBD invites the GEF, in accordance with its mandate, and other funding institutions and development agencies to provide financial support for the implementation of the ecosystem approach, in accordance with decision VII/11:

The Project Concept fully complies with the ecosystem approach to biodiversity conservation. It will use an integrated ecosystem management (IEM) approach to mitigating poverty and land degradation in the the PRC drylands, including biodiversity conservation and sustainable natural resources management across four Provinces (see Project Concept paragraphs 11 and 22). Paragraph 19 of the Project Concept also refers to conformity with CBD Decision II/8 relating to holistic approaches to ecosystem management. This is fully complimentary with GEF Operation Strategies and Strategic Priorities in this area (see Project Concept Section C; Program and Policy Conformity).

2. Referring to **sustainable use**: CBD invites Parties and Governments, in collaboration with the GEF and other relevant organizations, including the private sector, to develop and transfer technologies and provide financial support to assist in the implementation of the Addis Ababa Principles and Guidelines at the national level to ensure that the use of biological diversity is sustainable:

See point 7 above on financial sustainability of the Project Concept.