Conservation and Sustainable Utilization of Wild Relatives of Crops

Project Brief Introduction

Project Management Office
Ministry of Agriculture

JUNE. 2009
Contents

1. Project General Information
2. Project Background
3. Project Design
4. Project Implementation Progress
5. Lessons Learned
6. Welcome International Cooperation
1. **Project General Information**

(1). **Project Title**: Conservation and Sustainable Utilization of Wild Relatives of Crops

(2). **County**: China, PR, National Project

(3). **Project Duration**: Planned 6 years

(4). **Leading Project Executing Agency**: Ministry of Agriculture (MOA)

(5). **Implementing Agency**: UNDP

(6). **GEF Operational Programs**: Agro-biodiversity (OP13)

(7). **Project Development Objective**: Sustainable Conserve Wild Relatives of Crops in China

(8). **Project Propose/Immediate Objectives**: To mainstream Conservation of Wild Relatives of Crops in Agricultural Production Landscapes in 8 Provinces in China

(9). **Project budget total**: 20,898,000 USD

    - UNDP/GEF: 7,850,000 (proj)  206,000 (PDF-B)
    - Co-financing: UNDP 650,000 (in kind)
    - MOA 5,982,000  Local government 6,210,000 (in kind)
(1). The importance of Wild Relatives

Wild Relatives of crops are the wild and semi-wild species in a same genus or

-- Wild relatives having historically contributed to the immense present-day value of agricultural crops
-- Wild relatives having the characteristics of high yield, resistance to pests and diseases, high tolerances in general; Under global environmental change, wild relatives may harbor genes that will prove to be very valuable in adapting to diverse & extreme conditions
(2). China is rich in wild relatives of crops

- China is one of the 15 so-called “mega diverse” countries due to its immense variety of ecosystems & the species diversity. It has been estimated that of about 1200 crop species harvested worldwide, 600 are found in China, and of those up to half originated in China.

- Rice, wheat & soybean are the three most widely cultivated. Wild relatives of all these three crops can be found in China with extensive distribution, large areas & high diversity, and these will become increasingly valuable as “reservoirs” of genes adapted for extreme conditions.

- Domestic surveys revealed:
  3 wild rice species; 2 of 6 soybean, 6 subgenera being globally; 160 wild species & varieties of wheat, out of the world total 325.
2. Project Background (3)

(3). Eliminating the threats and their root causes is pressing

-- human activities have led to a rapid loss of the resources: Unmanaged agricultural extension, uncontrolled grazing, desertification, land conversion (cultivation, infrastructure development), sources of pollution, over use of pesticide & herbicide, alien invasive species

-- The wild relatives become increasingly contaminated by domesticated and semi-wild varieties, increasing the genetic erosions.

-- The threats will degrade and destroy the last remaining deposits of this wild relatives.

-- Root causes of the threats:

  Lack of financial and political mechanism, shortcomings of legislation, lower capacity, awareness and knowledge at different levels; Lack of access to Information sharing.
2. Project Background (4)

--China has taken series measures to conserve and utilize the wild relatives of crops.

Since the 1950s, China’s Gov has taken efforts to collect and conserve both cultivated crops and their wild relatives, two gene banks storing 355,000 accessions in form of feedlots and 120 ex-situ conservation gardens were set up.

The utilizations of wild relatives of crops has played significant role in breeding new varieties. A good example is the “Three Line Hybrid Rice” developed by Chinese Academician Yuan Longping. This presented a breakthrough in China's rice production as well as a huge contribution to food security of China and the whole world. The same example is Hybrid Wheat bred by Chinese Academician Li Zhensheng.

--Initial measures have involved non-sustainable approaches, including the construction of physical barriers & removal of land from production. Threats are still existing.
3. Project Design

(1). Project Objectives & Main Tasks
This project changes the past manners of physical isolation to mainstream conservation into agro-production, under the original habitat, so as to enhance sustainability of conservation and utilization of wild relatives of crops.

- The main aim is to conserve wild relatives of wheat, rice and soybean in their natural habitats.

- To this end, to construct 8 pilot sites & establish incentives, enhance legal framework, capacity building, etc. to move barriers

- The experiences gained from pilot sites will be extended to 50 counties.
3. Project Design

(2) Expected Outcomes GEF-related

• **OUTCOME 1: .**
  Generation of sustainable financial and other incentives for wild relatives at the county level in 8 provinces.

• **OUTCOME 2:**
  The policy, legal and regulatory system supports mainstreaming of conservation of wild relatives.

**OUTCOME 3:**
  Stakeholders at central and local level have adequate capacity of conserving wild relatives.

• **OUTCOME 4:**
  A monitoring system generates accurate and timely information concerning the status of wild relatives.

• **OUTCOME 5:**
  Lessons, experiences and the conditions created in target provinces are replicated in 50 counties.
3. Project Design
(3). Assessment Indicators

• In all target sites, the area occupied by wild relatives shows no decline at the mid-point or end of the project, compared with area in 2005 (should be compared with baseline).

• No land on which propitiation of wild relatives occurred has been taken out of agro-production.

Assessment Indicators for each Expected Outcomes
4. Project implementation progress

Project has been executed for 1.5 years since its formal inception in June 2006

(1). Institution Construction

• Establishment of the National Project Steering Committee (PSC)
  • National Project Director (NPD) appointed by MOA; PMO established, Technical Supporting Institution designated; exports recruited
  • CICETE was subcontracted to provide management and financial services.
  • LPSC and LPMO established at each of 8 project sites;
  • Identified technical support institutes

On this wise, a project implementation system consisting of guiding, technical supporting and working group was set up from central to local level
Project Management Structure
(2). Project Baseline Identification

Baseline refers to the general status of bio-resources, biological environment and social and economic situation in project sites, just before project implementation. Baseline is a fundamental bases for monitoring and evaluating assessment.

Firstly, re-identified target sites which were selected during project preparation period.

Secondly, methodology and criteria developed for a baseline survey. Sub-contractor worked out “Technical specification for assessment of resources and environmental status in the project sites” and “the survey methodology on social and economic situation in the project sites”, providing a guideline for baseline identification, ensuring consistency and continuity of M&E.

Finally, training on the methodology and the criteria conducted. Baseline survey conducted in all project sites. Survey on resources and environment has been primarily completed, data is collected and under verification. The baseline for each project site is completed by March 2009 and submitted to PSC.
Project Sites Identified

作物野生近缘植物保护与可持续利用国家项目办公室（CWRC-PMO）

新疆乌鲁木齐县小麦野生近缘植物保护区
宁夏盐池县小麦野生近缘植物保护区
云南景洪县野生稻保护区
海南省文昌县野生稻保护区
广西昭平野生稻保护区
河南桐柏县野生大豆保护区
黑龙江巴彦县野生大豆保护区
吉林省延边州龙井市野生大豆保护区

中国野生近缘植物保护区地图
Natural habitat of wild rice are destroyed
Indigenous people living in YunNan, China
• Wild Soybean
• Desertification of Arable Land
Summary of the Project Sites

Total farmers related: over 6000

Total area of target species: over 6700 Mu (1 Ha = 15 Mu)

Wild relatives of Crops included:

-- Wheat: *Elytrigia*, *Agropyron*,
*Eremopyrum*, *Psathyrostachys*,
*Hordium*, *Leymus*

-- Rice: *Oryza perennis*,
*Oryza officinalis Wall.eWatt*

-- Soybean: *Glycine soja* Sieb et Zucc

Local conditions: Remote area with concentration of ethnic groups, at poverty level and willing to participate in the project
(3). **Superior Germplasm Assessment**

ABS is a long term coal of the project, to achieve this end valuable gene materials should be provided, therefore Superior Germplasm Assessment has been conducted and will be accomplished within 3 years, by three laboratories.

---Technical route for superior germplasm assessment of the target crop wild relatives has been identified

---Samples collected in the 8 sites completed; Genetic analysis on samples started in some laboratory
(4). Construction of Monitoring and alerting system

In order to provide accurate date and support decision making the construction of Monitoring and Alerting System started which will be accomplished by two phases in three years

--- For the first phase, whole system has been designed by subcontractor, i.e. Agro-Information Development Center; The system consists of Date Base Sub-system and Monitoring and Alerting Sub-system; It can be linked with National Gene Resource Information System in CAAS, proving information services and regular monitoring and emergency alerting. The subcontractor has finished software development and system test

--- For the second phase, a survey conducted on hardware required for the monitoring and alerting system operation in the field, and a operational plan has been made by the subcontractor
Monitoring and Alerting System and Equipment

Central
中央级

Province
省市级

County
县级

National Gene Resource Information System
国家基因信息系统

Site 1

Site 2
We regard the following as Exploratory and Groundbreaking work
Exploratory and Groundbreaking work refers to the work that have not been conducted or not indicated how to do in the ProDoc.

(5). Construction of Incentive Mechanism

--- To streamline conservation into production, the positivity of local leaders and farmers is crucial factor. Mechanism is the force of project implementation if baseline is the fundamental bases of the project implementation. The construction of incentive mechanism is considered as key point of the project success.

--- Construction of incentive mechanism must keep to the following principles; profit farmers, fit local condition and combine with local ongoing projects; the design of incentives should be acceptable and measurable.

--- The construction of incentive mechanism is conducted by a subcontractor consisting of multi-discipline experts. The construction will be completed by two phases in two yeas. For the first phase, the designs of incentives for 4 project target sites have been accomplished through discussion and consultation with local leaders and farmers. The designs focusing on adoptable measures especially financial measures and alternative livelihood have been accepted by local authorities.
(6) Study on policy, legal and regulatory system

--- One of expected outputs is that “The policy, legal and regulatory system supports mainstreaming of conservation of wild relatives“. Considering the fact that existing policy, legal and regulatory related to conservation of wild relatives of crops are a few and the conservation is affected by national environmental and agro-sectoral laws regulations and policies, the study is expanded to the scope of agricultural policy, legal and regulatory.

---To make a good use of sources, the study is jointly implemented by CWRC, ECBP (EU-China Biodiversity Program) and GTZ agro-biodiversity project. A framework of study on agro-biodiversity related policies and regulation was formulated; The study focusing on the impact of agro-sectoral policy, legal and regulatory on the conservation will be conducted within two phases (Phase I and Phase II)

---For Phase I, starting from July 2008, team was formed with national top experts in sub-sectors of crop plantation, animal husbandry, marine culture, inland fishery, grassland and TVE to conduct preliminary review on related policies and regulations; final reports will be submitted in May 2009.
Training and Project Publication

--- Currently, local leaders and farmers have little knowledge about conservation of wild relatives of crops so that project education and publication is long term task. Making training/education and publication acceptable and effective needs to a further approaching.

--- A strong team from CCTV international channel was contracted and work closely with PMO. Overall publicizing strategy is developed; Shooting of publicizing program and documentaries of the 8 project sites and publicizing program for the World Soybean Conference are done.

--- Project brochure published, project website developed (www.cwrc.org.cn)
(7). Training and Project Publication (cont’)

--- As request, carry out training activities: The assessment on training requirement and training plan for local leaders, farmers and women are completed; Based on consultation the training for village leaders of our project sites can be included into the Training Programs organized by the Ministry of Personal and the Dept. of personal of MOA. All materials needed have been completed.

--- Training activities have been carried out related to the implementation of baseline identification, incentive construction etc. Total trainees about 150 persons.
5. Lessons Learned

(1). Fundamental work is necessary for project implementation
   -- Institutional establishment (i.e. PSC, PMO, LPSC, LPMO)
   -- Mechanisms development
   -- Baseline identification
   -- Capacity building

(2). The implementation of project is in close combination with national and
   local effort on related activates, especially "the three rural issues"

(3). Take advantage of experts and sub-contractors selected on the bases of
   bidding at all levels, thereby ensure a scientific decision making and sooth
   implementation

(4). Strengthen communications, especially between the project and farmers
   at the project sites, thereby facilitating involvement of stakeholders

(5). Carry out implementing work Innovatively, i.e. study on Methodology
   and criteria developed for a baseline survey, cooperation with other
   stakeholders
6. Welcome international cooperation

- A short term international expert to be recruited to support project implementation and introduce ABS Concept and best practice;
- International exchange and study tour on biodiversity related policies and incentive mechanism will be organized by the PMO in 2010;
- World Soybean Research Conference VIII, including a forum on sustainable conservation and utilization of wild soybean to be hosted by CAAS in Beijing in August 2009;
- An international workshop on laws, policy, regulations and incentive related to biodiversity to be held in Beijing in 2010
谢谢！
Thank You for Your Attention!