



PARTNERSHIPS IN AGRICULTURE

AGRICULTURE IS A CORNERSTONE OF SUSTAINABLE DEVELOPMENT.

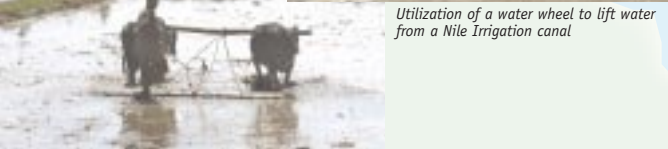
Canada is committed to supporting sustainable development in developing countries to reduce poverty and contribute to a more secure, equitable and prosperous world. Canada is well positioned to provide expertise in sustainable agriculture and international development.

Currently, Canada is developing an international strategy that will highlight the role of agriculture in development by sharing knowledge and technologies with the international community through scientific, technical and educational capacity building.

Canada is working with developing countries in development activities related to sustainable agriculture. Please see the following list of projects Agriculture and Agri-Food Canada (AAFC) is pursuing, in partnership with the Canadian International Development Agency (CIDA) and countries around the world.



EGYPT



Egyptian farmer planting irrigated rice in northern Nile Delta

NATIONAL WATER QUALITY AND AVAILABILITY MANAGEMENT

The National Water Quality and Availability Management program is a joint undertaking by the Government of Egypt's Ministry of Public Works and Water Resources and the Government of Canada's Canadian International Development Agency (CIDA). The project is being managed for CIDA by Agriculture and Agri-food Canada – PFRA. The goal is to assist Government of Egypt institutions to manage water resources in three key areas: improved water quality/quantity data, better analysis of supply and demand variables, and safe reuse of drainage water.

The objectives of the Water Quality Monitoring component are to rationalize water quality monitoring activities and strengthen institutional capacity. During its first three years of implementation the project developed a baseline monitoring program for the Nile River drainage and irrigation canals. It is now refining this program and working on communicating the new abundance of water quality data to institutions, which need the information.

The Water Availability Management component's goals are to improve water policy development, evaluation and analysis, and combine current data collection systems into one national network. The component will also develop tools that help predict changes in water supply and demand and analyze alternative water strategies and policies.

The purpose of the Drainage Water Reuse component is to produce guidelines for reuse of drainage water in a manner that is safe for human health and for the environment. A monitoring pilot program will assess changes in water and soil quality, crop productivity and pollutant levels due to drainage water reuse.

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ETHIOPIA



Soil survey field work

WATER HARVESTING AND INSTITUTIONAL STRENGTHENING IN TIGRAY (WHIST)

WHIST is a six-year capacity building project funded by the Canadian International Development Agency (CIDA) to help the Ethiopian government reduce the impact of drought and move toward food self-sufficiency. Agriculture and Agri-food Canada – PFRA is managing the project for CIDA. The project is located in the Tigray Region of Northern Ethiopia, an area of the country often affected by drought and resulting food shortages.

The purpose of WHIST is to increase water harvesting and the use of water for food production through strengthening the technical and management expertise of the Tigray Water Resources Development Bureau (TWRDB) and of the Bureau of Agriculture (BOA). To accomplish its task, WHIST is using a mentoring program that uses Canadian engineering and agronomy experts to build the capacity of TWRDB and BOA staff so that these two government agencies will be capable of moving the region towards food self sufficiency through new irrigation infrastructure development, improved irrigated agricultural practices and better soil and water management.

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INNER MONGOLIA



Sand Dune Reclamation

Overgrazing, initial stages of desertification

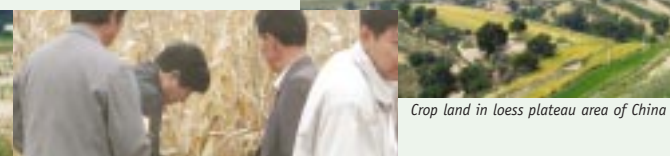
SUSTAINABLE AGRICULTURE IN THE INNER MONGOLIA AUTONOMOUS REGION

This Sustainable Agriculture project is a five-year capacity building initiative between Canada and China aimed at promoting environmentally sustainable agriculture practices in the Inner Mongolian Autonomous Region (IMAR), through better forage-based livestock production systems and conservation tillage technology.

The project administered by the Prairie Farm Rehabilitation Administration (PFRA), includes sustainable grazing management, conservation tillage and capacity building. The Sustainable Grazing component of the program develops systems that promote increased production and benefits for livestock producers. The Tillage Equipment and Agronomy component reduces tillage passes and soil loss, conserves moisture, improves seed placement, and increases crop yields. The Capacity Building component improves ability of Chinese extension staff to deliver agriculture-related information, particularly in the areas of grazing management and conservation tillage.

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Chinese extension specialist Mr. Ma Zhanyuan discusses corn production with farmers

CHINA/CANADA DRYLAND PROJECT

The Hebei Dryland project aims to improve rural well-being through sustainable and profitable agriculture in the Hebei Lowland Plain through capacity building, human resources, science, and technology development and transfer.

Deregulation of agricultural input markets for pesticides, fertilizers, diesel fuel, and seeds resulted in high rates of agri-chemicals in irrigation water and low rates of organic nutrient cycling in this region. These factors were threatening the fragile dry-land soil and water resources. During Phase 1 of the project, research was directed at improving water use efficiency and crop yields. Now, environmental considerations related to soil and water sustainability have become a priority concern.

In 1993, a socio-economic research component was added to the project to evaluate new technologies and the community impact of development activity. In 1994, research activities expanded again to include resource conservation and integrated pest management.

The project's second phase is currently being launched. It includes collaborative research activities which will be developed with the Hebei Academy of Agriculture and Forestry Sciences (HAAFS); the Chinese Academy of Agricultural Sciences (CAAS); Beijing Agricultural University (BAU); and international organizations such as the Food and Agricultural Organization of the United Nations (FAO). This research will collectively address best management practices and conservation for the fragile dry-land agro-ecosystem. An extension program has been established to transfer environmentally friendly crop production technologies to Chinese farmers in five provinces: Hebei, Shandong, Gansu, Shanxi and Inner Mongolia.

Since its inception, the project has resulted in numerous outcomes, including:

- implementation of bio-control systems for insects and diseases which result in increased yields of corn and cotton with little or no requirements for pesticides;

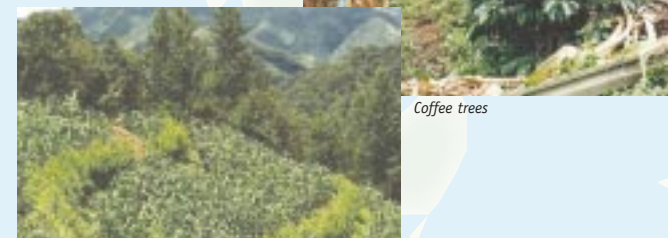
- water for water saving cropping systems can be reduced by up to 30% as compared to traditional cropping systems without reduction in yields;
- fertilization techniques aimed at capturing optimum yields which reduce soil and ground water pollution and reducing costs;
- Ninety percent of the corn crop occupying 2 million hectares planted in 2001 employed zero tillage techniques allowing farmers to conserve soil moisture and increase yield and also improve soil quality and reduce greenhouse gas emissions.

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MEXICO



Terraced conservation production systems where corn and beans are produced together with peaches

AGRICULTURAL SUSTAINABILITY AND CARBON SEQUESTRATION

Agriculture and Agri-Food Canada (AAFC) is collaborating with the Mexican government and the Global Environmental Facility/World Bank in a research and development project on agricultural sustainability to improve crop productivity, prevent soil erosion and to increase carbon sequestration in the State of Oaxaca, Mexico. Progress achieved through this project is illustrated in the following example.

Mr. Antelmo Merino and his family cultivate less than one hectare of land with more than 30% slope located in a small community of the State of Oaxaca, Mexico. This steep-land represents

millions of hectares with similar climate, soil and vegetation characteristics in Central and South America. Historically, cultivating these steep-lands has resulted in substantial losses of topsoil and crop productivity. Mr. Merino and his family, like thousands of other small farmers in the region, used until recently the traditional "milpa" system, which involves clearing forested land and cropping it to beans and corn for a few seasons, and then abandoning it for a fresh clearing. This system produces only enough corn and beans to feed a family for six months of the year.

The Merinos and other families are now using new terraced conservation production systems where corn and beans are produced together with "living terraces" of peach and coffee trees. The annual corn supply for the Merinos has increased from 1,200 kg/hectare under the milpa system to more than 4,500 kg/hectare under the living terrace with fruit trees system. In addition, peach trees produced 5,000 kg/ha of fruit in 2002. In 2001 corn grain production from hybrid varieties increased on average to more than 7,000 kg/hectare due to breeding improvements of native corn. At the same time, land use efficiency increased 20 times relative to the milpa system. Research shows that these new technologies prevent soil erosion, and that atmospheric carbon is being sequestered at a rate of 3 tones/hectare annually by the living tree fruit biomass. Complementary production of corn and fruit in conservation terraces enhances the sustainability of agriculture by improving the environment and the economy of farmers and rural communities.

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