

**Sharing  
innovative  
experiences**

**Examples of successful initiatives in  
agriculture and rural development in the South**



United Nations  
Development Programme



United Nations



Special Unit for  
Technical Cooperation among  
Developing Countries



Food and Agriculture  
Organization  
of the United Nations

Rome, 2001

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations or of the United Nations Development Programme concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

All rights reserved. Reproduction and dissemination of material in this information product for educational or other non-commercial purposes are authorized without any prior written permission from the copyright holders provided the source is fully acknowledged. Reproduction of material in this information product for resale or other commercial purposes is prohibited without written permission of the copyright holders. Applications for such permission should be addressed to the Chief, Publishing and Multimedia Service, Information Division, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy or by e-mail to [copyright@fao.org](mailto:copyright@fao.org)

© **FAO and UNDP 2001**

# Foreword

This book presents 25 case studies covering a wide range of examples of innovative experiences in the field of agriculture and development. The publication is the result of a strategic partnership between the United Nations Development Programme's (UNDP) Special Unit for Technical Cooperation among Developing Countries (SU/TCDC) and the Food and Agriculture Organization of the United Nations (FAO).

The case studies included in the book were selected from 100 compiled through the project. In selecting them, an attempt was made to maintain geographical and thematic balance; exclusion in no way indicates a negative judgement.

The publication is the fifth in an SU/TCDC-sponsored series on innovative experiences in developing countries. Volume 1 examines successful initiatives in science and technology in the South, Volume 2 contains a range of practices in small island developing states of the Caribbean, Volume 3 looks at successful economic, environmental and sustainable livelihood initiatives in the South and Volume 4 reports good practices in social policies, indigenous and traditional knowledge, and appropriate technology in the South.

I wish to thank several people who helped bring this publication to fruition. Spearheading the project were Ms Atsede Worede Kal, Information Services Officer of SU/TCDC, and Mr Ramadhar, former Chief, TCDC/ECDC Service, FAO, Ms Mieke Ikegame, who took over as Chief upon the retirement of Mr Ramadhar, and Mr Gabriel Kouthon, the current Chief of FAO's TCDC/ECDC Service, helped to bring the project to completion. The contributions of FAO technical divisions, and the network of TCDC/ECDC Focal Points in identifying topics and selecting the case studies are gratefully acknowledged. The network of FAO representatives in the countries helped to ensure that the information was compiled and sent to FAO Headquarters for further processing. We are grateful for the time and enthusiasm they gave to this effort.

We hope that this publication will provide a basis for further exchange of ideas, experiences, policies and practices among developing countries.

**John Ohiorhenuan**

Director

UNDP Special Unit for Technical Cooperation among Developing Countries

# Contents

Foreword	iii
<b>INTRODUCTION</b>	<b>1</b>
Chapter 1	
<b>AGRICULTURAL PRODUCTION AND SUPPORT SYSTEMS</b>	<b>7</b>
Mucuna cover cropping: Benin	9
Zero tillage: Brazil	24
Productive water decontamination: Colombia	45
Walnut propagation: India	63
Rice self-sufficiency: Indonesia	74
Oil palm R&D: Malaysia	88
Date production support: Namibia	98
Cotton standardization and grading: Pakistan	111
Agribusiness linkages: Philippines	124
Microbanking: Philippines	141
Beekeeping as business: Samoa	150
Baby corn development: Thailand	160
Acid sulphate soil drainage: Viet Nam	170
Smallholder Irrigation: Zimbabwe	180
Chapter 2	
<b>FOOD AND AGRICULTURE POLICY AND DEVELOPMENT</b>	<b>197</b>
Nutrition training to prevent vitamin A deficiency: Nepal	199
Household food security and nutrition: Nigeria	212
Chapter 3	
<b>FISHERIES</b>	<b>225</b>
Aquaculture extension through trickle-down: Bangladesh	227
Improved fish smoking: Ghana	240

Chapter 4	
<b>FORESTRY</b>	<b>255</b>
Community forestry: Turkey	257
Chapter 5	
<b>CONTRIBUTIONS TO SUSTAINABLE DEVELOPMENT AND SPECIAL PROGRAMME THRUSTS</b>	<b>265</b>
Empowering women: China	267
Client-oriented extension training: Ethiopia	279
Gender and biodiversity management: India	294
Rural women in development: Slovenia	313
Rural youth curriculum: Uganda	324
People's participation: Zambia	334
<b>ACRONYMS</b>	<b>349</b>

# Introduction

This book is the fruit of many months of work. It presents the results of locally based innovation initiatives in developing or emerging countries.

In many parts of the world, innovation has become an end in itself, a form of point-scoring that in reality does little to improve living conditions or the quality of life, which is what innovation should be about. Nor does innovation necessarily mean importing techniques or practices from elsewhere under the false impression that “the grass is greener on the other side of the hill”.

Innovation, introducing changes to established ways of doing things, is a process in all societies and often stands the best chance of success if generated from within.

The 25 case studies presented here represent a wide range of activities and approaches, from the conceptual to the technical, from planning to application:

- In **Bangladesh**, innovations in aquaculture extension services have seen the use of semi-intensive, low-cost methods for training fish farmers, who have subsequently passed on their skills to other fish farmers at no cost – an example of a “trickle-down” extension approach.
- Researchers in **Benin** found that cover cropping with mucuna alleviates low soil nutrient supply and reduces the need for weeding or herbicide for subsequent crops of maize, the staple crop in the Mono region of the country. This innovative experience is a good example of a sustainable cropping system developed with direct farmer involvement.
- Conventional tillage methods, based mainly on the use of ploughs and disc harrows, are not sustainable because they destroy soil. Millions of hectares of agricultural land could be protected or saved from degradation and erosion if farmers applied environmentally friendly tillage. **Brazil** is in the forefront of countries that have tried “zero tillage”, a process that allows a protective blanket of leaves, stems and stalks from the previous crop to remain on the surface, providing an ideal habitat for plant growth.
- In **China**, the Women, Population and Development programme, aimed at empowering women, showed how interrelated components affected targeted women. It led to increased decision-making power in the household and the community, greater economic dynamism, better social skills, improved gender relations within the household, greater community cohesion and improved health care and family planning services.

- An innovative productive water decontamination system in *Colombia* reduced water and soil pollution caused by agriculture and converted the energy and nutrients contained in wastewater into biogas, compost and fertilizer that could be used in farms. The system is based on the approach that organic waste treatment and recycling can be more effectively carried out through biological processes involving micro-organisms such as bacteria, algae, fungi, plants and animals.
- A two-year pilot project, Improving Client-oriented Extension Training in *Ethiopia*, aimed to improve the capacity of Agricultural Extension Department staff at national and regional level to design and implement extension training for farmers. Focus was on gender issues using participatory approaches and on developing a gender-sensitive analytical framework for the planning and implementation of agricultural programmes.
- Fish smoking in *Ghana* is carried out by women in coastal towns and villages and along the banks of Lake Volta and rivers. Traditional ovens were found to be inefficient, using more fuelwood than necessary and representing a health risk through smoke and burning. An innovative model of an improved traditional fish smoking oven has demonstrated the potential of traditional technologies in meeting present day challenges.
- The state of Jammu and Kashmir in the northwest of *India* is the country's major walnut-producing zone. Production suffered from lack of plant material of known pedigree and characteristics, an absence of proper classification of local varieties, a long gestation period, low tree density per hectare and low productivity. Different methods of vegetative propagation of walnut under local agroclimatic conditions were introduced and the transfer of this innovative propagation technology represents a major contribution to future development of walnut production in India as a whole.
- Also in *India*, an innovative research project, Gender Dimensions in Biodiversity Management, was carried out in different locations. This analysis of the roles that women and men play in managing bioresources allowed a reappraisal of existing practices, making it easier to prevent the mistakes of the past and meet the needs and opportunities of both women and men in the future.
- The success of *Indonesia* in attaining rice self-sufficiency has been made possible by innovation combining a number of key elements, including the Mass Guidance (BIMAS) Scheme. This is an integrated system through which farmers adopt new technology to increase their productivity and income. It includes the introduction of integrated pest management (IPM), which uses resistant varieties, appropriate cultivation practices and plant-

ing time, sanitation, the use of natural enemies and monitoring to ensure steady and sustainable production.

- The first commercial oil palm estate in *Malaysia* was set up in 1917. Since then, the industry has grown by leaps and bounds and the country is now the largest producer and exporter of palm oil in the world, accounting for 52 percent of world production and 64 percent of world exports in 1997. This progress is largely thanks to the establishment of the Palm Oil Research Institute of Malaysia (PORIM), which has helped generate information, increase production and processing efficiency and expand uses of palm oil through research and development.
- The government of *Namibia* has set the establishment of a date production industry high among its priorities. Unable to secure foreign funding for investigation of the potential for expansion of the industry, it set up its own Date Production Support Programme to transfer to local experts and farmers knowledge about date palm propagation, production and protection. It also supported the establishment of commercial plantations in the country.
- An estimated half-million people out of a population of 20 million in *Nepal* are at risk of total or partial blindness due to vitamin A deficiencies, with millions more affected by less severe forms of the disorder. To help counter this risk, a notable long-term initiative, Multisectoral Training in Nutrition for the Prevention of Vitamin A Deficiency, has successfully integrated nutrition-vitamin A concepts into existing training curricula in the agricultural, educational, health and local development sectors of the country.
- In *Nigeria*, the launch of a project to improve household food security (HFS) and community nutrition in Kano State through development of a comprehensive food-based action and training programme resulted in a comprehensive four-year food-based action programme and training package for multi-sectoral extension workers. It promises to achieve a sustained improvement in community nutrition through a reduction of household food insecurity and a 35 percent increase in per capita calorie intake.
- Cotton occupies a unique position in the agrarian economy of *Pakistan* and gives the country the potential of becoming a key player in global cotton and textile markets. The Cotton Standards Institute project aimed to establish a permanent institute and implement a cotton standardization programme based on internationally acceptable grading and classing, prepare grades and standards for seed cotton and lint and train new generations of cotton graders, classers, arbitrators and instructors. By the time the project terminated, achievements in the cotton sector had earned Pakistan recognition within and outside the country.

- Rural economies can be greatly improved by establishing linkages between small farmers and the agribusiness sector. In the *Philippines*, recent achievements in establishing such partnerships have allowed the country to respond to new market trends in food consumption, to the benefit of all parties concerned. A major innovative experience in this context has been the project Sustainable Agrarian Reform Communities – Technical Support to Agrarian Reform and Rural Development.
- Another project in the *Philippines* addressed ways of enhancing the efficiency and cost-effectiveness of rural financial institutions dealing with small transactions. The innovative experience of introducing the low-cost MicroBanker software system, designed to run on basic personal computer equipment, has served as a model for other countries. Worldwide, the system is currently installed in over 1 200 sites in about 30 countries and numbers are steadily growing.
- To further develop apiculture activities in *Samoa*, training initiatives were launched within the framework of the Beekeeping as a Small Business Initiative project. Training in basic beekeeping, potential products related to beekeeping, empowerment, microcredit and small businesses has resulted in the setting up of businesses related to beekeeping and has inspired women to try other business ideas.
- *Slovenia*, like many countries in transition, has undergone social changes that have brought many issues to the forefront such as poverty, social security, unemployment, traditional values and social rights, which have important implications for rural and farm women. In a unique experience, the country introduced a National Action Plan for the Integration of Rural Women in Development in Slovenia, one of the first such plans in the European region.
- Twenty years ago, people in *Thailand* considered maize and baby corn purely as grain for the poor or as animal feed, rather than a vegetable for human consumption, a view held in many other developing countries. A research and development programme coupled with widespread public relations, education and training initiatives, encouraged Thai farmers and consumers to sample baby corn products and participate in its production, preparation and use. Today, domestic markets for baby corn continue to grow and the number of Thai farmers producing the crop is still increasing.
- The innovative Development of Appropriate Methods for Community Forestry project in *Turkey* tested and developed practical methods for participatory community forestry, village development and integrated natural

resource management in 20 of the country's poorest forest villages, which suffered from infertile soils and very harsh conditions for agricultural and silvicultural production. Local participants were trained in methods for better co-management of energy in forests through participatory programmes and implementation.

- An innovative experience to draw up a rural youth training curriculum in **Uganda** was designed to address critical issues concerning the mobilization, organization, integration and development of the potential of the nation's youth in agriculture, helping to limit their migration to towns and combat low agricultural production. The experience aimed to give training institutions the knowledge and skills to enable them to become dynamic trainers of young people involved in agricultural activities.
- **Viet Nam** has approximately two million ha of acid sulphate soils, a large proportion of which are to be found in the Red River Delta in the north and the Mekong Delta in the south. These soils need to be reclaimed for agricultural production. A notable initiative to reclaim soils was the Water Management in Cau Qui Ninh – Pilot Polder project, implemented in a 26.7 hectare experimental area in Quynh Phu district in Thai Binh province.
- In **Zambia**, the idea behind the People's Participation Programme (PPP) is to focus on strengthening the collective self-help capacities of the poor through the promotion of small informal self-help groups. These groups, assisted by trained group promoters, are organized around a common income-generating activity that group members identify with. Since the programme began in 1982, 14 pilot projects have been implemented in Africa, Asia and Latin America.
- Smallholder farmers in **Zimbabwe**, particularly in low rainfall areas, are extremely food insecure. They suffer from low incomes and a generally low standard of living, poor nutrition, housing and health and are unable to send children to school. Introduction of the Hama Mavhaire Irrigation Scheme has rendered successful cultivation of crops possible.

The challenge is to draw on the knowledge inheritance, local knowledge and expertise acquired over generations, and extract those elements that serve today's needs and tomorrow's expectations. It is the people and the communities on the ground that often have the best answers. What they do can act as a model for others elsewhere. This is the idea behind this collection of case studies, an attempt to offer a vehicle for the sharing of knowledge and expertise.

Hidden knowledge is lost knowledge. Local answers to problems are not the stuff of media coverage and their existence usually passes unnoticed. Yet their significance can be of paramount importance. We want to offer the opportunity

for people to learn from others' success, even their failure. This should be the real sense of globalization: pooling ideas and techniques and placing them at the disposal **of** all. The key is to turn yesterday's lessons into today's pointers for the future.

**Phil Harris**

*Rome, 12 January 2000*