Food and Agriculture Organization
of the United Nations

SUSTAINABLE FOOD PRODUCTION AND CLIMATE CHANGE

1 ASSESSING CLIMATE RISK

PRIORITIZING FARMERS' NEEDS 2

TARGETING AGRONOMIC SOLUTIONS 3

4 SCALING UP

High-quality seeds

Mechanization services

Training on climate-smart crop production

Agribusiness hub

Market linkages

IN PRACTICE

PRODUCING CROPS SUSTAINABLY

Tropical climates

In **SRI LANKA**, a landscape approach is used to balance competing labour demands and create sustainable solutions to intensify production in upland and lowland crop systems. Understanding the impact of upland practices and how they influence the lowlands and the overall environment creates sustainable solutions.

1

ASSESSING CLIMATE CHANGE

High-intensity rainfall causes erosion in the uplands and build-up of sediments in water reservoirs in the lowlands, causing them to operate at suboptimal capacities. This increases the vulnerability of the farmers in both the uplands and lowlands.

2

PRIORITIZING FARMERS' NEEDS

The government prioritizes the dry zone, as it is the most affected by climate change and has a high potential for development.

3

TARGETING AGRONOMIC SOLUTIONS

Improved water productivity and nutrients use efficiency for rice production in the lowlands through:

- early planting;
- alternate wetting and drying;
- transplanting of plantlets using trays (parachute rice transplanting);
- soil testing kits and color leaf charts for targeting fertilizer application; and
- use of leguminous cover crop in the fallow season to diversify production and reduce weeds.

Reduction in soil and water loss in the uplands through:

- conservation agriculture;
- growing pulses as an intercrop with maize to suppress weeds, increase soil fertility and diversify production;
- growing cover crops to suppress weed growth during fallowing period; and
- establishing multipurpose earth-bunds.

4

SCALING UP

- Training material for climate-smart crop production developed.
- Farmers and service providers trained.

- Field equipment tested to local conditions.
- Governments and small entrepreneurs work together to provide farmers access to sustainable production inputs, output markets and services.

PARTNERS: Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI), Department of Agriculture, Rice Research and Development Institute, Field Crop Research and Development Institute, Department of Agrarian Development, Provincial Agriculture Department, Department of Meteorology, Field Mechanization Research Center.

Subtropical climates

In ZAMBIA, a farm system approach captures the interactions between crop production, the environment and the influence of agricultural policy. It aims to prioritize policies and target field level solutions to increase the income and standard of living of smallholder farmers sustainably.

1 ASSESSING CLIMATE CHANGE

The growing season is starting earlier and the annual maximum temperature has also increased.

2 PRIORITIZING FARMERS' NEEDS

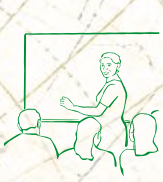
Nitrogen use efficiency and market integration of farm households mapped nationwide.

3 TARGETING AGRONOMIC SOLUTIONS

Recommendations tailored to farmers' needs and financial resources:

- Crop varieties and combinations adapted to each farm system.
- For farmers excluded from subsidies, cover crops used to reduce the use of fertilizers and herbicides without increasing labor.
- For farmers who can afford fertilizers, improved application for higher yields and reduced environmental impact.

4 SCALING UP



- Training curricula and materials for climate-smart crop production developed.
- Extension officers, farmers and service providers trained.

- Field equipment tested to local conditions.
- Sustainable production inputs and services for smallholder farmers provided.

PARTNERS: Zambia Agriculture Research Institute (ZARI), Grassroots NGO, Agricultural Knowledge and Training Centre (AKTC), Conservation Farming Unit (CFU), AGCO Corporation, Zambia Meteorological Department.

WHY **WE WORK**

Resource poor smallholder farmers are the most vulnerable to the effects of climate change. Their agriculture is barely profitable and often environmentally unsustainable.

Through climate-smart crop production practices, climate change adaptation and mitigation is possible. A climate-smart crop system requires smallholder farmers to use quality seeds adapted to local climate and pests, diversify crop systems, use sustainable mechanization, apply soil and water conservation practices, improve water management and invest in agricultural knowledge transfer.

Farming needs to be profitable. By improving their access to inputs, technical advice, credit and other financial services, smallholder farmers have the opportunity to access technologies that improve resilience of crop systems to specific climate stressors and reduce yield gaps.

CONTACT INFORMATION

Food and Agriculture Organization of the United Nations
Plant Production and Protection Division
Sandra Corsi: sandra.corsi@fao.org

In partnership with

Federal Ministry of Food and Agriculture

FAO PROJECTS:

GCP/INT/259/GER Implementing the Save and Grow approach (steps 1-3)

GCP/INT/398/GER Climate-Smart Crop and mechanization systems Scaling-up (step 4)