

## ACT's Pilot Activities

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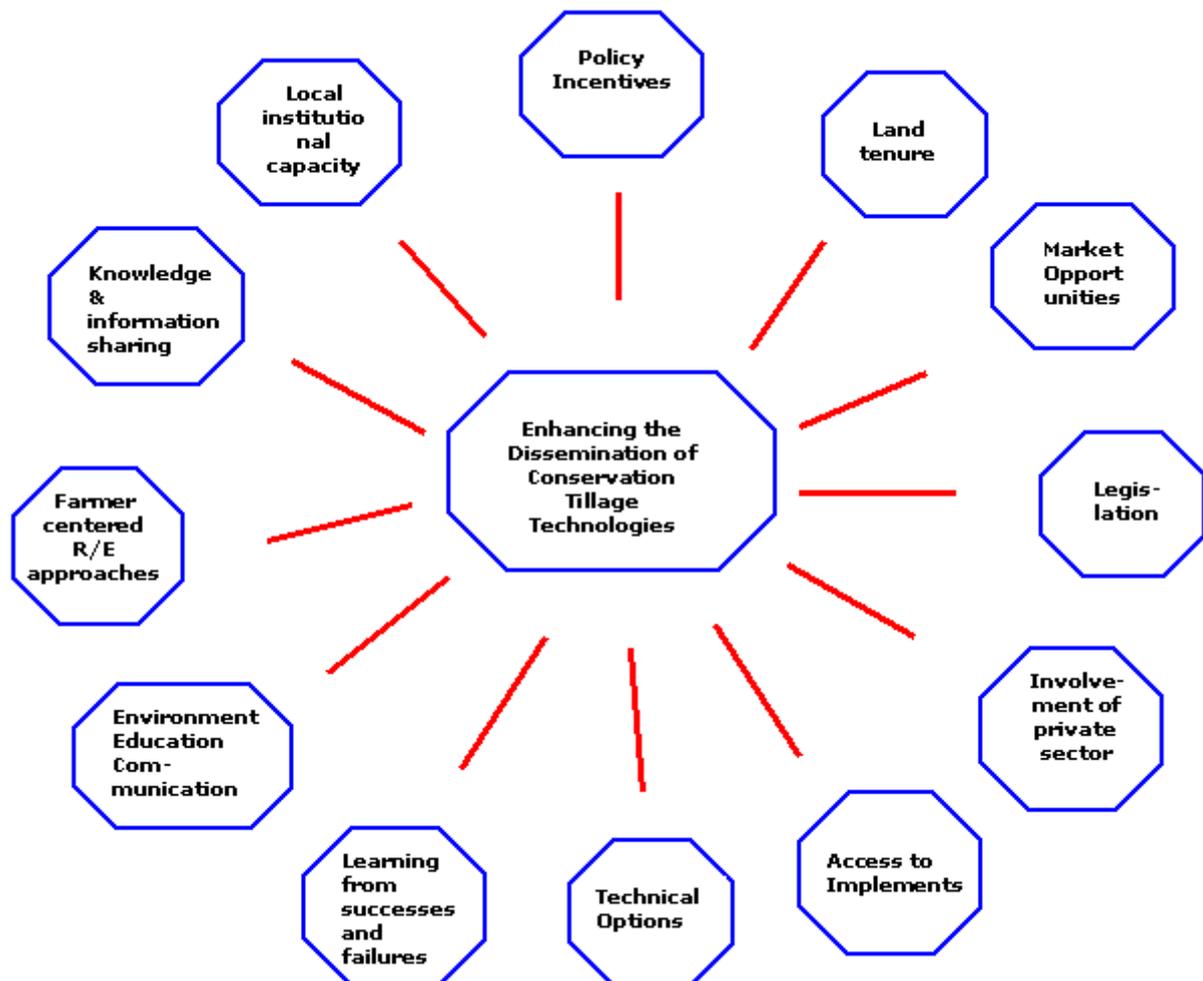
### **Background**

The objective of the network is to enhance the dissemination of conservation tillage practices in smallholder farming. To achieve this objective, direct links to farming communities and support to on-farm activities are required. Farmers have to try different conservation tillage options and select suitable options for their specific ecological and socio-economic environments. For this purpose the network secretariat supports partner organisations in planning, implementing and assessing pilot activities. Besides participative testing of technical options different dissemination approaches are applied and refined. Focus is on strengthening of farmers associations through mutual learning.

### **Objectives**

A range of factors influences farmers' decisions making. The performance of a new technology is just one of them. Based on the analysis of constraints and opportunities a draft conceptual framework for the dissemination of conservation tillage practices was developed (see figure below). This framework is tested and refined in the pilot activities.

### **Conceptual framework for the dissemination of conservation tillage technologies**



## Major components of the pilot activities

In accordance with the conceptual framework the pilot activities will focus specially on the following issues:

### Basket of technological options

Dependant on the climatic zone and the prevailing cropping systems, conservation tillage practices will be tested using participatory technology development (PTD) approaches. Amongst these options figures use of rippers or direct planters, green manures/covercrops, weed control, crop residue management.

### Farmer centred R&E approaches

Local knowledge of soil and water conservation should be discovered and integrated into the technology adaptation process. Farmers should be encouraged to innovate, i.e. to apply the basic elements of conservation tillage according to their own requirements and experiences.

## **Local institutional capacity building**

Farmers need to get organised in order to be heard, to strengthen their market position and to encourage each other when testing new farming practices or own innovations. The pilot activities should work primarily with existing farmer organisations or support the formation of groups, especially women groups. To assure transparency and accountability, preconditions of group sustainability, group leaders need to be trained in group management.

## **Involvement of private sector**

Farmers need access to CT implements, and other farm inputs. The private sector, especially implement manufacturers and repair shops need to be involved in the process.

### **Ongoing pilot activities**

#### **Kenya:**

here ACT co-operates with the Kenya Conservation Tillage Initiative (KCTI). Pilot activities are carried out in the semi-arid and mountainous Machakos region. Executing agency is the Kenya Network for Draft Animal Technology (KENDAT). Focus of the ground activities is testing of CT technologies, mainly ripping; growing of high values crops, in this case grafted fruit trees; support to the formation of women groups. For more information please contact [Dr. Pascal Kaumbutho](mailto:kendat@africaonline.co.ke) (kendat@africaonline.co.ke)

#### **South Africa:**

here ACT co-operates with the "Broadening Agricultural Services and Extension Delivery Project" (BASED) in the Limpopo Province. The region is mainly semi-arid and mountainous. Focus of the activities is the development of conservation tillage implements (planters) for tractors and animal traction; the adaptation of CT practices and support to farmer innovations; group formation and training (predominantly women groups. For more information please contact [Dr. Paolo Ficarelli](mailto:base.gtz@pixie.co.za) (base.gtz@pixie.co.za) or [Dr. Edward Chuma](mailto:chuma@africaonline.co.zw) (chuma@africaonline.co.zw)

#### **Zimbabwe:**

here ACT co-operates with the Institute of Environmental Studies (IES) and the Agricultural Extension Service (AGRITEX). These institutions have worked already for years on the development of conservation tillage technologies and farmers centred extension approaches. Focus of the activities is therefore the development of an extension manual and other information material. Field activities are centred around Masvingo, southern Zimbabwe, a semi-arid area, with water conservation being one of the chief objectives. For further information contact [Isaiah Nyagumbo](mailto:nyagumbo@africaonline.co.zw) (nyagumbo@africaonline.co.zw) or [Dr. Edward Chuma](mailto:chuma@africaonline.co.zw) (chuma@africaonline.co.zw)

#### **Tanzania:**

here ACT is linked to a private public partnership project, between GTZ and the Tanzania Farm Service Centre (TFSC). The activities are located in the Arusha region, northern Tanzania. Focus of the activities is subsoiling by tractor, with the objectives of breaking the wide-spread hardpan and thus improving water infiltration and reducing the risk of crop failure due to drought, and integration of green manures/covercrops in the cropping systems. For further information contact [Manfred Lieke](mailto:tfsc@habari.co.tz) (tfsc@habari.co.tz) or [Wilfred Mariki](mailto:sari@habari.co.tz) (sari@habari.co.tz).

### Ghana:

here the network cooperates with the Sedentary Farming Systems Project in the Brong-Afaho Region, Southwest Ghana. The project is implemented by GTZ/Ministry of Food and Agriculture. Objective of the project is the development and promotion of sustainable farming systems, which could replace the traditional *slash and burn* agriculture. Focus of the pilot activities is on the development of direct planting systems for different mechanisation levels, manual systems in smallholding and tractor powered systems in commercial farms. Growing of cover crops, chemical weed control by use of *Roundup* and direct planting through a ground cover of crop residues and cover crops are tested in on-farm trials. For further information contact [Dr. Heinz Loos](mailto:gtzsun@ncs.com.gh) or [Asare Bafour](mailto:gtzsun@ncs.com.gh) (gtzsun@ncs.com.gh).

### Zambia:

in the dry Kariba valley of the Southern Province, on-farm activities have been started in two communities in cooperation with the agricultural extension service and the GTZ supported ASSIP-Project. This region suffers from frequent droughts and famine. In addition soils are sandy, with a low water holding capacity and nutrient status. Conservation tillage technologies could help to make better use of scarce rainwater and stabilise yields. Selected options are ripping with draft animals, and pitting for farmers without access to draft power and controlled grazing of crops residues. For further information contact [Dr. Dierk Hesselbach](mailto:dhebasia@zamnet.zm) (dhebasia@zamnet.zm).

### **"Iron sharpens iron: a farmer sharpens another farmer."**

**Please take this message back home and apply it - William Nhedzi, FFS member, Zvishavane, Zimbabwe**  
New technologies diffuse slowly, especially in smallholder communities in semi-arid areas. Can new extension methods accelerate technology diffusion? The answer is yes, provided the extension approach involves genuine farmer participation.

One participatory approach has proved successful in Zimbabwe: Farmer Field Schools (FFS), initially promoted by ICRISAT and FAO, and now being enthusiastically supported by government and NGO programs as well. An FFS is a group of farmers, led by a trained instructor. Each new management practice is applied jointly by the group on a 'model' field, and by individual farmers on their own plots. Performance is closely monitored throughout the season, the group discusses problems and solutions. Because they understand what they are doing, their profits are higher, and the risks (failure due to improper application of the technology) are lower.

In the past 3 cropping seasons (2000/2001 to 2003/04), a total of 138 FFS on soil fertility and water management have been held in four drought-prone districts in southern Zimbabwe. These programs linked advice on soil water and nutrient technologies with development of agricultural input and product markets. The aim: provide farmers with information, and the means (market access) to utilize this information to increase their incomes. Over 3300 farmers have been trained and over 50,000 farmers exposed to new technologies through field days and farmer-to-farmer communication.

ICRISAT worked with the national Department of Agricultural Research and Extension (AREX), to assess the impact of these efforts.

- FFS “graduates” were more knowledgeable than non-FFS farmers about various resource conservation methods (see table)
- Over 42% of FFS farmers, but only 27% of non-FFS farmers, had adopted improved soil fertility management practices
- FFS farmers obtained higher yields during a drought year - 10% higher for sorghum, 40% higher for maize.

Conclusion? FFS works. It’s a popular, practical way to communicate new ideas to farmers with little education and limited experience with new technologies. It’s particularly useful for knowledge-intensive technologies such as soil and water management. The national extension service has adopted FFS as a key part of their strategy to promote better management of natural resources.

<b>Knowledge scores (0-100) among FFS and non-FFS farmers</b>		
	<b>FFS</b>	<b>Non-FFS</b>
Soil conservation	54.5	51.9
Rainwater harvesting	74.7	49.7
Soil fertility management	81.7	62.5
Working together in groups	41.8	37.7

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