BANANA INNOVATION SYSTEM IN TANZANIA

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INTRODUCTION

Why the study

► TOT workshop on ASTI systems –
August 2006, Morogoro, Tanzania
For Eastern & Southern African Experts
- Organized by CTA in collaboration with Sokoine University of Agriculture (SUA)

►Case study – Approach with focus on Banana
- Conducted by SUA experts

INTRODUCTION

- **Objectives of the Case study**

Application of the ASTI system framework
►Collect information useful to building up capacity in analysis of local S&TI system in the banana sub-sector in Tanzania
- Why Banana?
  (i) Staple for 15% of the population (34 million)
  (ii) Cash crop, for local market
  (iii) Multiple other uses

INTRODUCTION

- **Banana? and Plantain?**

Crop Plants of the *Musa spp* = *groups of cultivars*

- **Cultivars classification based on use:**

Dessert – Banana used raw when ripe (sweet)
Cooking – Plantains and EAHB

- **Plantains** – Unpalatable for eating raw thus cooked or roasted after ripening

- **EAHB** – Cooked still green

METHODOLOGY

1. DESK STUDIES

- Review of Policy environment
- Preliminary identification of key Actors
- Literature reviews

2. SURVEYS

- **Interview of Key Actors**
- **Two Questionnaires used:**

(i) Farmers (213)
(ii) Organizations (22)

METHODOLOGY
LOCATION OF STUDY AREA

RESULTS

- Importance of Agriculture

Agriculture is the back bone of Tanzania's Economy:

- Contributes 50% to GDP
- 66% to export earning
- 75% to Employment and 70% rural income
- Cash crops accounts for 10% only of GDP.

Growth rate : 3.3% for 1991 – 2000
4.3% for 1999 – 2003
Target: 5%

- Major cash crops: Coffee, Cotton, Cashew Tobacco, Tea, Sisal, Pyrethrum, cut flowers
- Major Food crops: Maize, rice, **Banana** wheat, sorghum, millets, Cassava

RESULTS
Importance of Banana (banana & plantains)

Production
Tanzania = 7th Position in World (4% of world prod.)

= 2nd in Africa, after Uganda
Total production =

Trend in production =
Decreasing: 2.6 ton/ha/yr in 1995, to 2.3 ton/ha 2005

- USES:
- Staple food for more than 5M Tanzanians out of 34M
- Cash crop sold on local market
- Several traditional uses

RESULTS
NATIONAL POLICY FRAMEWORK

- **Overall Policy Goals:**

Development of an Agricultural Sector that by 2025, is:

- Modernized, commercial, highly productive and profitable
- Utilizes natural resources in sustainable manner
- Acts as an effective basis for inter-sectoral linkages

RESULTS
Policy strategies

- Several policies, legal and regulatory framework do exist.

Two policies most important:

i) Science and Technology Policy
ii) Agricultural Policy

RESULTS
Science and Technology Policy

General Features

- Enacted in 1985, revised 10 1996
- **Objective:**

  Promote S&T as a tool for economic development, improving human, physical & social wellbeing and protecting national sovereignty

  Identified priority areas:
  Research in materials, biotechnology, telecommunication and IT

Implementing Organs:

Ministry of Higher Education, Science & Technology.
Tanzania Commission for Science and Technology
Tanzania Atomic Energy Commission
Research institutions in various field under different ministries

RESULTS
Science and Technology Policy

Performance

- Most research is undertaken by the public sector institutions, with negligible private sector involvement.
- Level of National investment in R&D is very low:

  = 0.01% GDP vs 1% targeted to be achieved by the year 2000

RESULTS
Agricultural Policy

General Features

Enacted in 1983 revised in 1997

Objective:
Enhance growth & Investment in Agriculture through enhancing private sector participation

Identified priority areas:
Defined under the Agricultural Sector Dev. Strategy of 2001 as strengthening institutional framework, reforms in Agricultural Research & Extension services, facilitation of investment, market development and physical infrastructure

Implementing organs:
Ministry of Agriculture – Research and Training institution
Local Government – Extension services (Diffusion)
Others, University, Private sector

RESULTS
Agricultural Policy

Performance

- **ASDS prepared in 2001 – its implementation program (ASDP) was in 2006**
- **Some laws not translated into workable strategies – Different ministries mandates**
- **Banana recognized variously**

– Horticulture as a fruit (Dessert banana only!)

– Food Crops – 3rd priority (as other crops category).

(An anomaly as banana is a staple for >15% of the population, more than Sorghum, Millets and Cassava)

RESULTS
BANANA SUB-SECTOR

- KEY ACTORS IN STUDY AREAS

Component	Actor
Enterprises	Farmers
	Kyimo Investment
	Banana Investment LTD
Research and Training	Agricultural Research & Training Institutes (**4**)
	Sokoine University of Agriculture
	Bujera Secondary School
Diffusion	MVIWATA
	Mogabiri Farm Extension Centre
Diffusion and Infrastructure	District Councils (**6**)
Market / Demand	Production, Value addition, processing and Marketing (**5**)
	Agric. Producers Marketing Cooperative Society (**1**)

RESULTS
CHARACTERISTICS OF BANANA FARMERS

Agro-ecological zone	Household Farm Size (ha)	Banana Farm Size (ha)	Proportion (%)	Farm Ownership
Northern	0.7	0.37	53	Family (90%)
Southern Highlands	3.2	0.91	28	Family (100%)
Eastern	2.0	0.50	25	Private (77%)
Lake	1.3	0.68	52	Family (97%)
Overall	**1.6**	**0.56**	**35**	**Family (85%)**

RESULTS
CHARACTERISTICS OF BANANA FARMERS

- Allocation of non land resources to banana activities is highest towards production (38 – 63%) and low for marketing (7 – 21%)
- It is however relatively higher in Eastern zone (towards production = 74 – 76%, and marketing = 19 – 24%).

#Banana cash crop in Eastern zone#

RESULTS
Education and Experience of Farmers

- Education:
  - 15.5% of farmers have no formal education
  - 66.2% - Primary educ.
  - 14.1% - Secondary educ.
  - 4.2% - Tertiary edu.
- Banana production experience
  - More than 60% have experience of over 10 years
  - Eastern zone has highest number of new banana farmers, > 40% are in business for 2 or less yrs.
  - Less than 40% of farmers have received training in banana production in all zones

RESULTS

Banana farmers collaboration and networking

ACTORS	INTENSITY OF COLLABORATION / NETWORKINGFARMERS
Regional research body	**Weak**
Local/national research body	No involvement*
National science council	No involvement
International agricultural research	**Average***
Small scale farmer groups	**Strong**
Medium –large scale farmers	No involvement
Farmers' associations	No involvement
Extension agents	**Weak****
Public laboratories	No involvement
Standard setting bodies	No involvement
Input suppliers	**Weak**
Machine suppliers	No involvement
Government	No involvement
Policy makers	No involvement

RESULTS

OVERALL PERFORMANCE OF THE SYSTEM

- Banana production is largely operating under traditional system
- There is inadequate support to the sub-sector from various actors
- There is very low investment and usage of new technology
- Value adding is lacking

- **Known innovation includes:**
- Introduction of new improved varieties
- Introduction of tissue culture planting material
- Artificial ripening treatment of dessert banana

- **Threats to the sub-sector:**
- New pests introduction – The bacterial Wilt disease

CONCLUSION AND RECOMMENDATIONS

- Application of S&T has not been adequately supported through investment.
- The agricultural policy does appropriately rank banana relative to its importance.
- Small scale farmers are the major actors in the sub-sector. They have strong intra, but weak inter linkages with other actors.
- Due to low level of education among farmers, lack of training, weak inter-linkage there is low generation of innovations and thus the performance of the sub-sector was still traditional

CONCLUSION AND RECOMMENDATIONS

- There is need to train and adopt the ASTI system in research and diffusion as a method of programmes planning.

THANK YOU