

# ASTI TRAINING OF TRAINER MANUAL

## Course Overview

### 1.0 Background

In 2004, The Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA) began a process of training African, Caribbean and Pacific (ACP) experts to understand and apply the innovation systems framework in the agricultural sector. The initial training was conducted at UNU/INTECH in Maastricht, The Netherlands. On completion of the training, CTA provided financial and technical support to the ACP partner organizations for the experts to analyze the ASTI systems using a case study approach that focussed on commodities which were either important for food and nutrition security or export diversification or were under threat because of loss of preferential export markets.

The results of the 2004 case studies showed that there were several gaps in the ACP ASTI systems. More importantly, farmer innovators were not being included in the knowledge system. Universities were also operating outside of the system and although research was taking place at various national and international organizations, the coordination was dysfunctional and the science and technology initiatives failed to address the immediate and future needs of the sub-sector.

The success of the 2004 training and follow-up case studies led to requests from ACP stakeholders for CTA to expand the outreach of the ASTI training. In 2005, CTA and the Royal Tropical Institute (KIT), revised the training programme, updated the methodology for analyzing the ASTI system and launched a series of sub-regional and regional training workshops for the ACP region.

The strength of an ASTI system depends on the policy framework and, the 2004 case study reports showed that although national policies existed, these were not linked to actions which facilitated networking, information and knowledge sharing, interactive learning, research which impacted on social and economic development, access to funding and markets and entrepreneurship. The innovation culture was nascent or almost non-existent. Consequently, CTA launched a series of training workshops in 2005 on “Bridging the Gap in the ASTI System”. These were in collaboration with Vrije Universteit and CABI – Kenya, which focused on Farmer Experimentation and Innovation and Demand-led research / Priority Setting. National case studies were undertaken to reinforce the training, as was the case with the core ASTI training programme. This contributed to building ACP capacity to improve the interface among the actors with emphasis on influencing the policy processes in support of innovation.

The success of all three training programmes and continued support to ACP institutions to lead ASTI case studies created additional demands for CTA to continue building ACP capacity on ASTI systems. CTA was then mandated to develop a Training of Trainers’ Programme on ASTI Systems for the ACP region. This Training of Trainers / Facilitators module integrates the three training modules and is the combined work of experts from CABI-Kenya, KIT, Vrije

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Universiteit, Wageningen International (which joined the expert team in 2006) and CTA. Comments from the ACP community were incorporated in the development of the manual.

### 1.2 Introduction

It is now widely accepted that the application of science and technology is largely responsible for the rapid structural transformation of advanced industrial societies and in part explains the wide income divergence between developed and underdeveloped economies. It can be argued that without adequate investments in science and technology (S&T) economic growth is slow or in the extreme, not achieved.

However, investing in S&T is not the only strategy for achieving economic growth and social well being. Institutions and other macroeconomic and meso level factors including the policy and legislative framework, level and nature of human capital, physical infrastructure, finance and investment climate and systems for facilitating information and knowledge flows among the various actors and institutions in the system are equally important for achieving sustainable development. It is essential to realize that the relative importance of each of these elements varies across sectors, countries and regions. Therefore, **innovation** (defined as the development, adaptation or imitation and the subsequent adoption of technologies that are new within a specific context and how to facilitate this innovation) is essential.

This CTA sponsored training workshop seeks to improve understanding among leaders in the agricultural sector in ACP countries of innovation framework systems and how the major actors involved in an innovation system at national level in any given sector and, in particular in the agricultural sector can contribute to improving and expanding innovation processes in support of economic development.

A system of innovation consists of a network of economic agents together with the institutions and policies that influence their innovative behaviour. As a conceptual framework, it refers to a notion of innovation as an interactive process. In this process, enterprises, in continuous interaction with each other and supported by institutions and organizations, create, diffuse and use knowledge within an economic system. These organizations include: the enterprise (farms and other agro related enterprises), industry, associations, innovation and productivity centres, standard setting bodies, research and development institutions, universities, vocational training centres and information services interact. They share information and knowledge and with the support of banking and other financing mechanisms bring new products, new processes and new forms of organization into economic use. A strong system of innovation can contribute to improvements in productivity.

For the most part, agriculture underpins the economies of the majority of ACP countries and the agricultural sector plays a pivotal role in providing employment for large proportions of the population. However, national markets are in many cases highly fragmented and national research and development institutions are poorly linked to the productive sector. As such, the productive sectors do not sufficiently and adequately apply science, technology and innovation to facilitate meeting the challenges of competing effectively in global markets. Consequently, strengthening innovation systems is extremely important. This applies particularly for agricultural development, as improvements in agricultural productivity and growth in related

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agro-industries are required to facilitate the necessary transformation to compete in national, regional and international markets.

### 1.3 Target Group

This training programme is targeted at both the institutional and individual level.

1. Institutional - ACP national, sub-regional or regional organizations involved in agricultural research and development, education and training, outreach / diffusion, science and technology, or policy advice.
2. Individual – Researchers or lecturers / trainers who are:
  - Senior level practitioners – university trained (postgraduate degrees will be an advantage);
  - Leaders or seen as change agents;
  - Permanent staff of a national / sub-regional or regional organization;
  - Willing to train others and facilitate multi-stakeholder processes that enhance understanding of innovation systems.
  - Recommended by their organizations and will be supported to lead training and / or research on ASTI systems.

### Core Competencies / Key attributes of Participants

Participants are expected to have:

- Strong technical background
- Leadership qualities
- Willingness to learn /open to new ideas
- Exposure to systems thinking & analysis
- Experience with participatory approaches, multi-stakeholder groups or processes, policy processes, training, research or facilitating learning process will be an advantage.

It should be noted that a change in core competencies will be monitored during, immediately after and post training (within 6-12 months) through self and group assessment and feedback from facilitators.

### 1.4 Overall Objective

This training programme is another phase in the process of competence building in a number of ACP countries for applying the innovation systems framework to supporting ST&I policy development and implementation. Its main objective is to develop the capacity of ACP

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professionals to apply the innovation systems framework to support ST&I policy development and implementation for improving the performance of ACP agriculture.

### 1.5 Specific Objectives

More specifically the programme has two specific objectives:

1. To increase understanding of the concept and application of the innovation system framework and its relevance to the agricultural sector in ACP countries.
2. To develop skills to train others and facilitate ASTI system processes. More specifically:
  - Analyze the Agriculture Science Technology & Innovation (ASTI) system.
  - Improve the interface between all actors in the ASTI System e.g. farmers, scientists, policy makers and decision makers (using strategies that focus on two sub systems – farmer experimentation / demand-led research).
  - Influence policy.
  - Improve information flows and shared learning processes which enhance the ASTI system as a whole.

### 1.6 General Principles

The following general principles will be applied to achieve the objectives:

1. Learning by interaction, learning by doing, learning by using (KOLB learning cycle)
2. Participation and empowerment
3. Ownership of the process
4. Systems thinking

### 1.7 Expected Outputs

After the training, participants would have improved knowledge and skills to:

1. Lead training workshops on innovation systems.
2. Facilitate multi-stakeholder workshops on agricultural, science, technology and innovation systems.
3. Lead multi-disciplinary research teams on the analysis of ASTI systems.
4. Facilitate interactive learning processes *to strengthen the ASTI system* in particular; enhance information and knowledge flows, influence policy, demand-led research – priority setting, identify and evaluate and integrate farmer experimentation and innovation,.

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### 1.8 Programme Description

There are two main aspects to the Training of Trainers in ASTI Systems. The first is the Training of Trainers' workshop which will be followed by support for post-training activities to reinforce knowledge and skills gained.

#### *Key Concepts*

- Importance of knowledge economy including learning theories.
- Innovation
- National and agricultural innovation systems.
- Relevance of ASTI to ACP agricultural and rural development.
- ASTI Systems Analytical framework
- Strengthening the ASTI system (some approaches)
- Conflict management
- Training methods and approaches
- Facilitating multi- stakeholder processes
- Participatory monitoring and evaluation

#### *Training Workshop*

The training workshop will last five days. In addition to a series of lectures, there will be work group sessions that address specific issues discussed in lectures. Participants will also deliberate on case studies, using data collected from earlier country studies on agricultural innovation systems in the ACP region. During the training emphasis will be placed on the following key concepts.

#### *Course Content*

The training workshop will cover the following:

1. International context of agriculture and knowledge - Focus on emerging issues to include policy and trade related issues and emerging technologies.
2. Science, technology and innovation for social and economic development.
3. Innovation as a process of continuous learning and application of knowledge for product and process improvement.
4. Innovation systems approach – variety of actors (societal, individual, organisational and institutional) who all have knowledge and whose ability to innovate are affected by their behaviour, habits and practices which influence learning, linkages, investment.
5. Relevance of innovation systems approach to agriculture and rural development in the ACP region.

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6. Farmer experimentation, demand led research, information systems and policy processes including influencing policy change as strategies for strengthening innovation systems.
7. Facilitating and training others in ASTI system processes.

### ***Workshop Methodology***

- Plenary and working group sessions led by a core expert team
- Active participation and involvement of ACP experts (group work, facilitation, session chair)
- Use of different training approaches, techniques / tools
- Use of concrete cases e.g. the floriculture sector to develop skills
- Self assessment
- Development of action plan

### ***Training Post Workshop***

Opportunity will be provided for the national champions to gain hands-on experience post workshop. The following steps are envisaged.

1. Provision of financial support and technical backstopping for selected national or multi-country case studies post workshop.
2. Provision of support for the national champions in accessing funding for strengthening national innovation systems.
3. Support for networking / establishment of community of practice (COP) of the national champions to share lessons learned.
4. Monitoring and evaluation of impact using participatory approaches and feedback mechanisms.

### **1.9 Impact Assessment**

The impact of the training will be measured in the short, medium and long term.

1. Short Term – Completion of the regional / sub-regional TOT workshop
  - a) Number of ACP experts trained
  - b) Competencies developed (self and group assessment and facilitator evaluation)
  - c) Workshop assessment
2. Medium term – Execution of a national / multi-country case study (within 1 year of completion of training)
  - a) Case study –
    - National stakeholder workshop held;
    - Case study report (evidence / data) for decision making;

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- Competencies developed - success in undertaking key activities / reaching goals/targets set in action plan and;
  - Recommendations accepted by policy makers and other actors.
3. Long term – Post workshop and case study
- (a) ASTI system strengthened (within 1 - 5 years of completion of training and follow-up case study)
- Recommendations being used in - policy making, designing research programmes etc.;
  - The extent to which weaknesses have been removed from the ASTI system
- (b) Number of training workshops and persons trained.
- © Number of case studies conducted and reports published on ASTI system.