



**Food Security and Biotechnology in Africa**



This project is financed by the European Union  
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## Module 6






# TAILORING BIOTECHNOLOGIES: TOWARDS SOCIETAL RESPONSIBILITY AND COUNTRY SPECIFIC APPROACHES

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For detail see word document and supporting PDF materials



# Course Structure

-  Unit 1: Technology and innovation to the rise of biotechnology: 5 hours
-  Unit 2: Policy-making and communication: 3 hours
-  **Unit 3: Value chain, agribusiness, local and global development: 3 hours**
-  Unit 4: Stakeholder participation: 3 hours
-  Unit 5: Case studies of tailor-made biotechnology in specific countries: 6 hours

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# Objective of module 6

The objective of this module is to allow students to understand how the innovation and policy making lead to tailor-made of both classic and modern versions of biotechnology to the needs and customs of specific countries. Tailoring biotechnology involves that stakeholders can use the tool within their own context and on their own conditions and have the opportunity to fulfil the required social, financial, ethical and other conditions for the implementation of the new technology.

# Specific Objectives

- ❖ Find the multiple currently available technologies and innovation and how they contribute to the rise of biotechnology.
- ❖ Understand the role of policy-making and media on adopting biotechnology
- ❖ Know how global and local value chain represent for local firms and suppliers in the countries to get access to larger markets and new technologies.
- ❖ The importance and the role of stakeholder perceptions, internalization and appropriation in the process of biotechnology for development.
- ❖ Discover current experience throughout case studies of African countries that apply GMO crops.



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### 6.3. Unit 3 .

# Value chain, agribusiness, local and global development: 2 hours

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# Objective of unit 3.

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The objective of this unit is to determine how global and local value chain represent for local firms and suppliers in the countries to get access to larger markets and new technologies.

## Definition of value chain

A value chain is the whole series of activities that create and build value at every step.

The total value delivered by the company is the total sum of the value built up all throughout the company.

The value chain concept separates useful activities (which allow the company as a whole to gain competitive advantage) from the wasteful activities (which hinder the company from getting a lead in the market).

Impact GVC for local firms and suppliers for access to larger markets and new technologies:

Biotechnology may have potential to improve living standards in low-income countries.

Biotechnology business can be divided into four major market segments: biomedical, environmental, industrial, and **agricultural**.

The **Agricultural biotechnology** is the most visible sector in Africa.



Focusing on the value-creating activities could give the company many advantages.

For example, the ability to charge higher prices; lower cost of manufacture; better brand image, faster response to threats or opportunities.

# Agricultural value chain

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To guarantee a value chain, one should keep in mind that all actors in the chain, from the small farmer to end users have to benefit equitably to Biotechnology.

Other indirect impacts of biotechnology on **GVC** may be the increase of food production, improve food access, improve nutritional quality, and raise health status.



To have a good value chain, it is important to understand and tailor the strategic alliances and gain to gain policy between:

- firms,
- agribusiness sector,
- government agencies,
- educational institutions,
- research structures and
- local communities.

## Current impact of the business of biotechnology

By 2012, 14 million farmers in 28 countries had planted 170 million ha of GM crops. The global market value of GM crops in 2009 was US\$10.5 billion with the accumulated global benefit estimated at US\$51.9 billion. The global net economic benefit to GM crop farmers in 2008 was US\$ 9.2 billion of which US\$4.7 billion went to farmers in developing countries and US\$4.5 billion to farmers in industrial countries (ABNE, 2014).

## Current impact of the business of biotechnology

Other non-african countries leading and economic blocks that have given approval on positive economic impacts of biotechnology include Japan, USA, Canada, South Korea, Mexico, Australia, Philippines, the European Union, New Zealand and China.

## Business and scientific partnerships benefit to society

The **CPB** recognizes both the benefits and the potential risks arising from GM technology.

Some African countries have taken precaution to be decision making based on scientific assessment and have consequently put in place regulatory measures that include science based risk assessment.

For example in Burkina Faso, the National Agency on Biosecurity (**ANB**) has a group of multidisciplinary scientific experts who advice the government.

## Business and scientific partnerships benefit to society

Currently, although Burkina Faso has suspended the commercialization of Bt cotton (April 2016), some countries African countries are testing GM crops and many are expected to progress towards commercialization.

Since there is a great chance of cross-border leakage of GM crop seeds from one country to the other without regulatory approval, all African countries should anticipate by set-uping GM regulations using the **CPB** as guide.

# Local and global requirements and developments (glocalisation)

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## Public concerns on Intellectual property rights:

The socio-economic concerns of public include:

- dependence of farmers on large corporations for seed;
- unaffordable cost of planting materials;
- possible unsuitability of GM crops for small-scale farm operations and for resource poor farmers,
- unethical patenting of life;
- possible limited access and increased price of seeds;
- products needed in developing countries not being developed due to market or profit consideration.



## What are Strategies for value chain management?

- Good management of co-existence between wild type and GM-crops.
- Encourage International Partnerships;
- Increase the income of all stakeholders with equitable partition of GM generated money.

## Strategies contn...

- Employment of women in firms participating in global value chains may provide economic independence, an alternative to domestic labor.
- Develop a significant in-state venture capital capacity;
- Continue to fund and advance a bio-safety network program.

- why should GVCs spread to some countries and outsource part of their activities to their enterprises?
- what opportunities for upgrading would this offer to these countries' firms?
- under what conditions could these opportunities be exploited?
- how do these opportunities differ from manufacturing to agriculture and to agro-food processing?
- What is your knowledge about GVC in your country with respect of GMO?

