

1. THE CONCEPT

In Asia smallholders are rapidly expanding the cultivation of GM (Genetically Modified) crops while smallholders in 50 of the 51 countries in Africa are not currently growing GM crops. The “biotechnology divide” between African and Asian smallholders is attributed to fears over food safety and environmental issues and a general lack of knowledge and outreach capacity to inform African political leaders, farmers and consumers about the complex issues surrounding biotech crops.

Using biotechnology as a core issue and emerging opportunity, this project will help build biotechnology educational and outreach capacity at 25 agricultural universities and Faculties of Agriculture in Africa and 25 in South Asia which can then be scaled up to include several hundred universities by drawing on the resource-base and experiences of these pilot universities. The full range of information technology will be used to inform smallholder farmers and urban consumers about the Asian and global experience with growing GM crops.

This project will complement a number of ongoing biotech and plant breeding projects that are being supported by the Gates foundation.

2. RATIONALE AND EVIDENCE THAT THE PROJECT CAN BE SUCCESSFUL

Agriculture in Africa and South Asia regions is in transition from production to market-driven systems to meet the goals of maintaining food security and opening new markets through value addition and trade. Along with the local traditional markets, supermarkets are emerging to serve the rapidly growing urban consumers. In addition, research institutions in South Asia and Africa are evaluating new tools of biotechnology, geographic information systems and ICTs for enhancing agricultural productivity and natural resource management. The recent trends around the world demonstrate that local governments and donors are investing to harness benefits from these new tools and technologies (World Bank 2008). Likewise many universities in Africa are setting up research facilities and new departments of biotechnology to harness these tools.

The curricula in most faculties of agriculture in Africa and South Asia needs reform because it is narrowly focused on scientific/technical aspects of biotechnology and not embracing the legal, regulatory, economic, business, ethical and social aspects of biotechnology (Eicher, Maredia and Sithole-Niang 2006). While, the private sector is playing a dominant role in commercializing new biotechnology products, the public educational system has been slow in reforming the curricula and training a large cadre of specialists in diverse areas (law, business, communication, ethics, food safety, environmental safety, trade, etc) that are required before developing countries can secure the legal authorization to launch field trials of new GM crops. The universities in Africa and South Asia are beginning to take positive steps in building their biotechnology programs. But there is a need for a long-term strategic vision on how to use the new tools

of ICT for creating a climate of debate on the fears and concerns of the global community over the use of GM crops

3. EXPECTED BENEFITS OF THE PROJECT INCLUDING COMMENTS ON SUSTAINABILITY AND SCALE

The institutional capacity and human resources generated through this project will help revitalize the African universities in terms of their ability to provide better and comprehensive training and education for both academic and non-academic stakeholders including students, extension specialists, NGOs, policy makers and private sector. This will help in creating greater awareness, understanding and building trust among various stakeholders on the complex regulatory, legal, ethical, and socio-economic and technology transfer issues surrounding new biotechnologies, thus creating an enabling environment for greater acceptance of these technologies by African and South Asian stakeholders.

Investments in universities are required because they are a stable platform for institutionalizing and sustaining educational programs and training beyond the life of this project. The educational programs will be sustained through fee-based short courses offered to a variety of stakeholders.

4. HOW THE PROJECT WILL TARGET THE NEEDS AND BE OF SPECIFIC BENEFIT TO WOMEN SMALLHOLDERS

The project will be implemented as follows:

1. Through a bottom-up approach, a landscape analysis of current biotechnology education, training and outreach programs/curricula and networks in Africa and South Asia will be conducted. The results will be shared with stakeholders through a regional conference in Africa and South Asia.
2. Identify 50 young “Master Trainers” from a minimum of 25 agricultural universities in Africa and 25 in South Asia. To achieve a gender balance of one male and one female trainer, two trainers per university will be identified through a merit based competitive process.
3. Identify host institutions in Africa and South Asia to provide the required training for master trainers to equip them to offer short courses in biotechnology.
4. Implement training programs through one-year to two-year certificate programs that aim at developing comprehensive curricula and modules in various areas related to agricultural biotechnology, including regulatory, legal, economic, environmental, food safety, business, trade and communication aspects.
5. Upon completion of the program, a team of “Master Trainers” will develop and introduce revised and new courses at 50 pilot universities.

6. The Master Trainers will share their new curricula, educational resources and experiences with 200 other universities in South Asia and Africa using short courses, web-based approaches and on-lines courses targeting both academic and non-academic stakeholders.

5. PROJECTED COSTS OF THE PROJECT

It is estimated that the project will cost \$ 5 million for a five-year period.

6. MEASURES OF SUCCESS

- No of young faculty trained as “Master Trainers”
- No of public-private sector partnerships developed for biotechnology education
- No of training modules developed
- No of on-line courses developed
- No of new biotechnology and related courses introduced at agricultural universities in Africa and South Asia
- No of students, extension workers, policy makers, farmer organizations, and media and consumer organization personnel trained

7. RISKS

Bureaucratic process of curriculum reforms may delay the introduction of new courses.

REFERENCES

1. Eicher, Carl K., Karim Maredia and Idah Sithole-Niang. 2006. Crop Biotechnology and the African Farmer. *Food Policy*. 31(6): 504-527.
2. KATYAL, J. C. 2006. State of Agricultural Education vis-à-vis Emerging Concerns and Challenges. Draft Report of the Committee headed by Dr. J.C. Katyal.
3. World Bank. 2008. *World Development Report 2008: Agriculture for Development*. Washington, D.C.: World Bank.