Study #4627

**Contributing Projects:**
- P661 - 1.2.4 Comparative Science, Technology, and Innovation Systems in Developing-Country Agriculture

**Part I: Public communications**

**Type:** OICR: Outcome Impact Case Report  
**Status:** On-going  
**Year:** 2021

**Title:** Technical assistance from the PIM-supported Program for Biosafety Systems facilitated the development of scientifically sound genome editing oversight guidelines for improved applications in the agricultural sector in Ethiopia, Kenya, Malawi and Nigeria

**Short outcome/impact statement:**
The PIM-supported Program for Biosafety Systems (PBS) assisted four African countries in developing oversight guidelines for genome editing that accurately reflect the science and evolving regulatory trends for this game-changing, Nobel-prize winning technology. This outcome capitalizes on PBS’s nearly two decades of technical assistance aimed at enhancing the skills of decision makers in agricultural biotechnology regulations.

**Outcome story for communications use:**
<Not Defined>

**Links to any communications materials relating to this outcome:**
- https://tinyurl.com/ybu683gc  
- https://tinyurl.com/ychp9v3l

**Part II: CGIAR system level reporting**

**Link to Common Results Reporting Indicator of Policies:** Yes

**Policies contribution:**
- 879 - Support to Nigeria’s National Biosafety Guideline on Gene Editing (https://tinyurl.com/2qlnq6nh)

**Stage of maturity of change reported:** Stage 2

**Links to the Strategic Results Framework:**

**Sub-IDOs:**
- Adoption of CGIAR materials with enhanced genetic gains  
- More efficient use of inputs

**Is this OICR linked to some SRF 2022/2030 target?:** Yes

**SRF 2022/2030 targets:**
- Increased rate of yield for major food staples from current 1%/year

**Description of activity / study:** <Not Defined>
Geographic scope:
- Multi-national

Country(ies):
- Nigeria
- Ethiopia
- Malawi
- Kenya

Comments: The guidelines developed in these countries are likely to influence those of neighboring countries (Uganda, Ghana) and to contribute to the AU-NEPAD initiative to develop continent-wide guidance on genome editing.

Key Contributors:
Contributing CRPs/Platforms:
- PIM - Policies, Institutions, and Markets

Contributing Flagships:
- F1: Technological Innovation and Sustainable Intensification

Contributing Regional programs: <Not Defined>

Contributing external partners:
- NCST - National Commission for Science and Technology, Malawi
- NABDA - National Biotechnology Development Agency (Nigeria)
- EEFCCC - Ethiopian Environment Forest and Climate Change Commission
- NBMA - National Biosafety Management Agency (Nigeria)
- Eiar - Ethiopian Institute of Agricultural Research
- Lilongwe University of Agricultural and Natural Resources
- EBTI - Ethiopian Biotechnology Institute
- EAD - Environmental Affairs Department (Malawi)
- NBA - National Biosafety Authority
- USAID - U.S. Agency for International Development

CGIAR innovation(s) or findings that have resulted in this outcome or impact:
Several CGIAR research initiatives around genome editing are on-going, such as the Community of Practice on genome editing and the MLN Gene Editing Project led by CIMMYT.

Innovations: <Not Defined>
Elaboration of Outcome/Impact Statement:

Genome editing encompasses various modern technologies that allow scientists to insert, remove, replace or modify specific fragments of DNA of organisms or cells. Genome editing can provide new ways of addressing challenges related to food insecurity and climate change. In 2019, in the context of recent advancement of several CGIAR-led R&D efforts on genome editing (Maize Lethal Necrosis Gene Editing Project [1], Community of Practice on genome editing [2], recognition of genome editing research in CGIAR’s Ethics Code [3]), four African partner countries requested regulatory policy assistance on this technology from the Program for Biosafety Systems (PBS) team.

The PBS team followed a well-planned strategy to achieve policy change driven by local actors. The capacity building approach combined technical and communications training customized for scientists, regulators, lawyers, professional communicators and economists – the key groups that need to be targeted in order to build institutional strength for independent, self-reliant decision making in the technology space.

Initially carried out in Kenya, the process was subsequently replicated in Nigeria, Malawi and Ethiopia [4], with additional efforts planned for Uganda and Ghana. Nigeria, which has progressed the farthest amongst this group, has already published the government’s position on gene editing [5] [6]. Similar guidelines are in various stages of development in the other countries [7] [8].

This swift progress has led Kenya and Nigeria to provide leadership in the development of genome editing guidelines for agricultural innovations in Africa. The CEO of Kenya’s National Biosafety Authority participated in a One CGIAR webinar on genome editing on October 13, 2020 [2] and the CEO of Nigeria’s National Biosafety Management Agency is now leading an Africa Union-wide effort on genome editing policy guidelines.

A letter of appreciation from Kenya’s National Biosafety Authority acknowledging the role of PBS is attached [9]. PBS has been awarded additional funding from Crop Life International to further this work. The USAID PBS evaluation team wrote this testimony: “The IFPRI core staff, field staff, and team of consultants, are among the most highly qualified in the world to perform biosafety capacity building work.”

This work should result in potentially game-changing innovations for agricultural productivity, nutritional status and climate change resilience in Africa.
References cited:
•[7] Letter dated May 7, 2019 from the CEO of Kenya's National Biosafety Authority to Dr. Judith Chambers, IFPRI (https://www.dropbox.com/s/38qsstj43f05q8f/OICR4627_9.pdf?dl=0)

Quantification: <Not Defined>

Gender, Youth, Capacity Development and Climate Change:
Gender relevance: 0 - Not Targeted
Youth relevance: 0 - Not Targeted
CapDev relevance: 2 - Principal

Main achievements with specific CapDev relevance: Through a series of workshops, consultations and working groups, the PBS team contributed to enhanced capacity of technical staff, expert reviewers and technical agencies in the review and decision-making processes for applications involving genome editing.

Climate Change relevance: 0 - Not Targeted

Other cross-cutting dimensions: <Not Defined>

Other cross-cutting dimensions description: <Not Defined>

Outcome Impact Case Report link: Study #4627

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