Science communication initiatives in developing countries: global information network on crop biotechnology

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Introduction

The International Service for the Acquisition of Agri-biotech Applications (ISAAA) is a not-for-profit international organisation that shares the benefits of crop biotechnology to various stakeholders, particularly resource-poor farmers in developing countries, through knowledge-sharing initiatives and the transfer and delivery of proprietary biotechnology applications. ISAAA has an information network composed of the Global Knowledge Center on Crop Biotechnology (popularly known as KC) and 26 Biotechnology Information Centers (BICs) or country nodes located in Africa, Asia, Latin America, and Europe. It is probably the only one of its kind in the world today.

With its global mandate, the KC critically scans global and regional developments and analyses issues and concerns that affect developing countries. This information is transformed into prototype science communication strategies that the BICs adapt for their clients specific information needs to advance a broader public understanding of crop biotechnology. The network uses an array of multi-media communication approaches, networking and various interpersonal formats.

The information network has enabled policy-makers, scientists, academics, media practitioners, farmers, and other interest groups to participate in a transparent and science-based discussion and debate on the technology. Country case studies of how they have operationalised science communication are documented in the book Communication Challenges and Convergence in Crop Biotechnology (Navarro and Hautea, 2011). Experiences are presented on how countries have addressed communication challenges by introducing innovative approaches, building capacity for science communicators, and integrating efforts among public and private sectors in knowledge-sharing initiatives. Lessons learned are forwarded on how best to contribute to a better appreciation and understanding of biotechnology despite its being a perceived controversial topic. Countries demonstrated that it is not a case of Science then Communication but Science Communication.

Science Communication Challenges

Biotechnology has been touted as a powerful and promising technology with a range of economic, social and environmental benefits. James (2011) highlights the fact that biotech crops have become the fastest adopted crop technology in recent history with over 16 million
farmers from 29 countries worldwide growing them. Yet while benefits continue to be documented and the potential for next generation crops with direct gains to consumers is being talked about, the technology continues to be a magnet for debate and diverse viewpoints. Issues beyond the realm of science have made the technology a recurring and contentious public concern. In addition, “drama” in the form of protests, uprooting of field trials, and anti-biotech scenes through the use of exaggerated scare tactics from civil society groups have attracted media attention and public outcry despite negative and inaccurate messages. This scenario highlights the importance of science communication and its role in facilitating an environment that allows for greater awareness and understanding, and eventually the adoption of new technology.

Global Biotech Information Network

In September 2000, ISAAA established the Global Knowledge Center on Crop Biotechnology in response to an urgent demand from senior policy-makers in developing countries for an entity that would make authoritative information available to facilitate and support transparent decision-making processes regarding crop biotechnology. They noted that “the scarcity of current authoritative information and knowledge regarding food biotechnology crops represents a major deficiency that denies policy-makers and scientists access to the vital knowledge needed to make well-informed decisions”.

The ISAAA Southeast Asia Centre was designated the hub of the KC. Along with the core KC, three initial Biotechnology Information Centers (BICs) were established in the Philippines, Thailand, and Malaysia. Today there are 26 BICs in Asia, Africa, Europe, and Latin America. The BICs are at the forefront of responding to science-based information needs, and in promoting and advancing a broader public understanding of crop biotechnology in their respective countries.

In 2011, ISAAA documented the science communication initiatives of eight countries in Asia and Australia in a book Communication Challenges and Convergence in Crop Biotechnology. The book highlights the unique experiences that these countries encountered in shepherding innovations from the laboratory to greenhouse trials, confined trials, multi-location trials, and finally to the farmers’ fields. As in the case of other regions, public acceptance of crop biotech continues to be an issue of concern. Public and private sectors both realise that the environment demands a degree of sensitivity to public opinion as an unfavourable attitude towards the technology will hamper its development and potential for commercialisation.

Role of Media

The public relies on mass media for what it knows about science in general and crop biotechnology in particular. An understanding of how media “defines” biotechnology is therefore crucial to public understanding and policy development. A study in the Philippines on the use of metaphors and cartoons in crop biotech articles and graphical forms shows that during a period where the technology was abstract and little information was available, writers and cartoonists used the negative tone, preferred the fear appeal, and tended to exaggerate portrayal of objects and people. However, once media practitioners were introduced to science-based information and sources, a significant decline in negative articles was noted.
They were able to negotiate meanings with authoritative sources resulting in clear discussions of scientific perspectives.

**Identification of Key Publics and Champions**

Champions among the key stakeholder groups (policy-makers, scientists, academics, regulators and the media) need to be identified and nurtured to advance the cause of the technology. These are people who are well-informed, have high credibility in the community and are able to influence peers. Key stakeholders will enhance efforts to strengthen debates and discussions essential for decision-making.

**Strengthening Availability and Access to Information**

Information overload and lack of information are both problems faced in developing countries. Internet availability and the new media have increased access to information but lack of translations and simplified formats, to ensure understandability by nontechnical audiences, hamper their use. The availability of new media forms needs to be explored in the light of different information-seeking behaviour among potential audiences.

**Conclusion**

The various information needs of stakeholders in developing countries have given rise to many innovative communication strategies in getting them to better understand and accept the technology. These include fashion shows in Malaysia where designers “define” biotech through clothing; use of cartoons and animation in India and the Philippines; and portrayal of biotech products through mascots and plays in China. Increasingly, the intensified use of strategies and channels highlight efforts in the public engagement of science. Countries are able to share their experiences and lessons learned in communicating crop biotech.

**Reference**