

Scientific Animations Without Borders

A research system and high throughput engagement strategy for scientific knowledge transfer for international development

Barry Pittendrigh and Julia Bello-Bravo



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



USAID

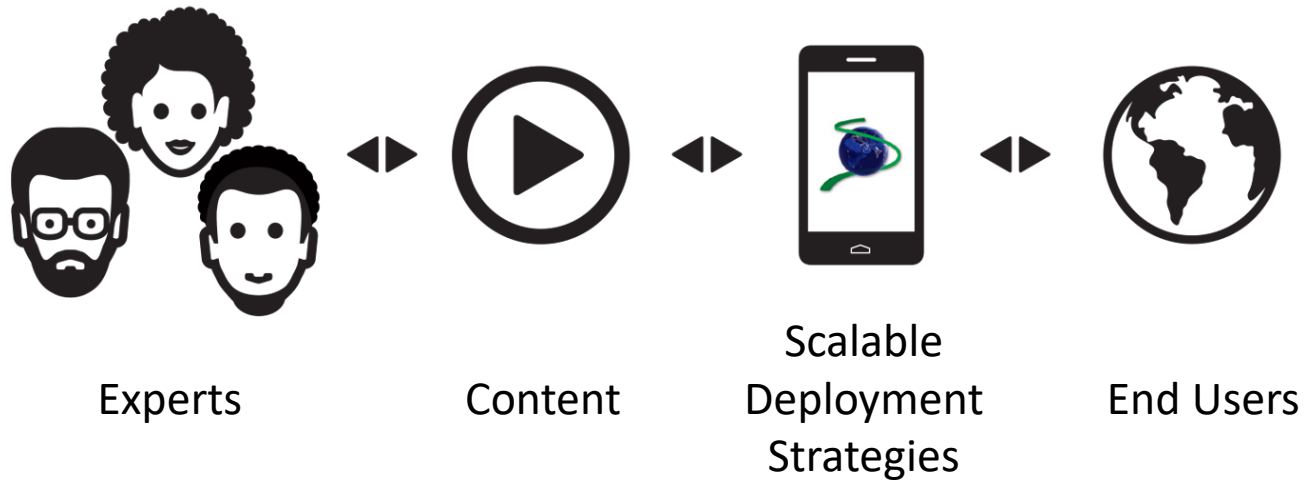
FROM THE AMERICAN PEOPLE



**ADM Institute for the
Prevention of Postharvest Loss**

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Knowledge Chain



Knowledge Chains

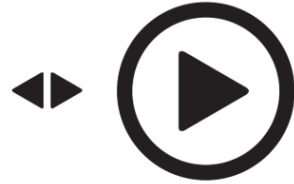
- In economics they talk about “value chains”
- We need to research and develop “knowledge chains”
 - For diverse languages and literacy levels
 - For connecting content experts and global communities

Broad Academic Questions

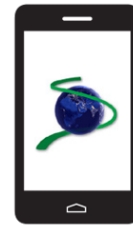
- How can we create scientifically accurate content?
- How can we make it globally useable?
 - Literacy levels
 - Language, culture, gender, age
 - Other parameters of the content and deployment
- How can we engage the global development community to scale this content?
- What are the uses of the content and outcomes?



Experts



Content



Scalable
Deployment
Strategies



End Users



Research and Outreach System



SAWBO

**Scientific Animations
Without Borders**

Status of SAWBO System



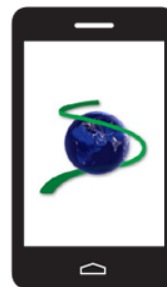
Experts

- Virtual collaborations
- Volunteers
- Content experts
- Language experts
- Attribution
- Case studies



Content

- Library of Animations
- Constantly growing
- Over 70 topics
- Over 90+ languages
- Case studies



Scalable
Deployment
Strategies

- Online library
- Offline systems
- Partner groups
- SAWBO App
- Student driven social media
- Crowdsourcing
- Research Studies



End Users

- Dozens of countries
- Dozens of partner groups
- Research Studies

TV Stations

Africa



Animations Broadcast on National TV Station in Nigeria

- Provided in Local Languages
- Audience of Millions



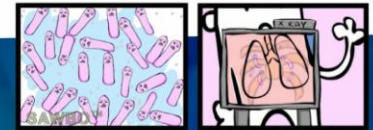
AREWA24



Eurasia

Tuberculosis Prevention

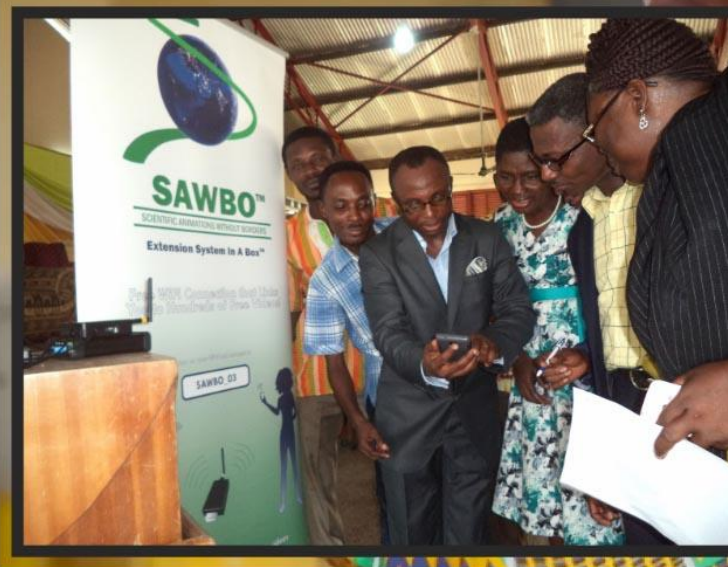
Georgia



Mid-sized NGOs

Ghana

Samuel Amoa-Mensa

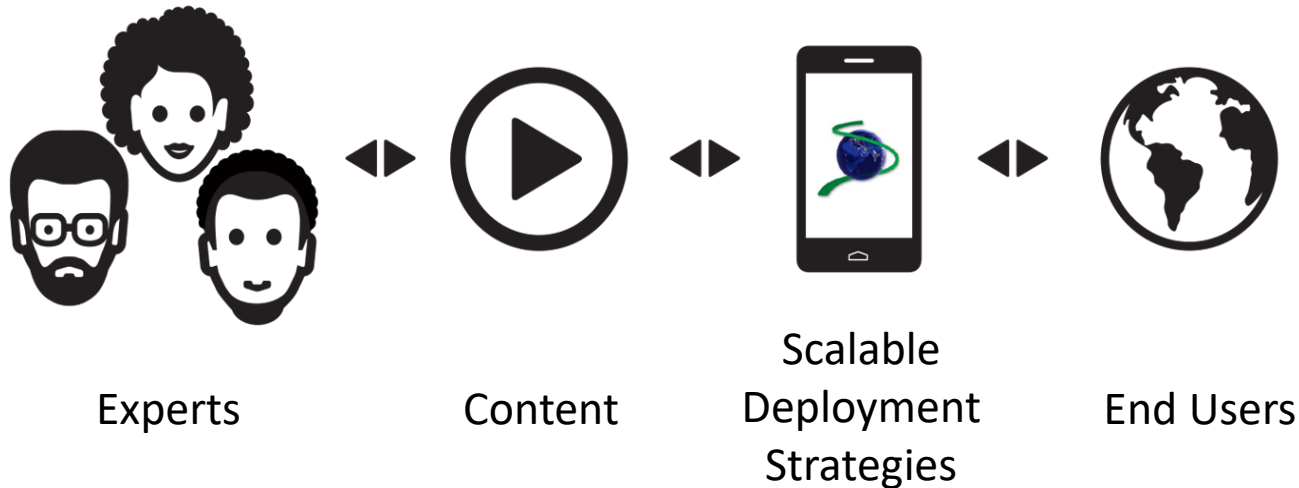


“NGOs of One”



Natural Insecticide from Neem Seeds

Initial “White Papers” to lay out the framework for SAWBO



Bello-Bravo, J., Diaz, R., Venugopal, S., Viswanathan, M., & Pittendrigh, B. R. (2010). Expanding the impact of practical scientific concepts for low-literate learners through an inclusive and participatory virtual knowledge ecosystem. *Journal of The World Universities Forum*, 3(4), 147-164.

Bello-Bravo, J., Seufferheld, F., Steele, L. D., Agunbiade, T. A., Guillot, D., Cutz, G., & Pittendrigh, B. R. (2011). Scientific Animations Without BordersSM: An International Collaborative Approach for Building Scientific Educational Materials for Use on Cell Phones and the Internet in Developing Nations. *The International Journal of Science in Society*, 2.

Bello-Bravo, J., & Pittendrigh, B. R. (2012). Scientific Animations Without Borders: A New Approach to Capture, Preserve and Share Indigenous Knowledge. *Journal of the World Universities Forum*, 5(2), 11-20.

Acceptability of Animations Across Numerous Countries



- Can people learn by animation and are they willing to learn this way?
- Yes



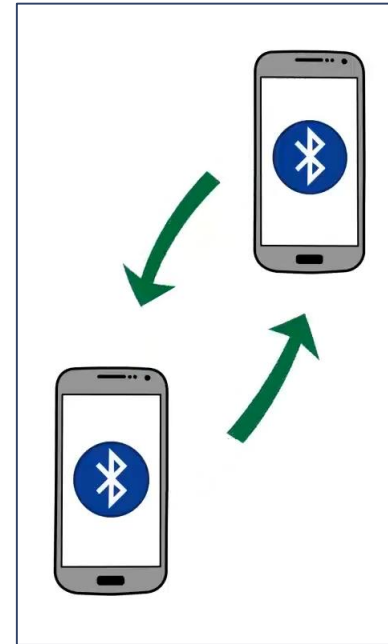
Bello-Bravo, J., & Baoua, I. (2012). Animated Videos as a Learning Tool in Developing Nations - A Pilot of Three Animations in Maradi and Surrounding Areas in Niger. *The Electronic Journal on Information Systems in Developing Countries*, 55(6), 1-12.

Bello-Bravo, J., Dannon, E., Agunbiade, T., Tamo, M., & Pittendrigh, B. R. (2013). The prospect of animated videos in agriculture and health: A case study in Benin. *International Journal of Education and Development using Information and Communication Technology* 9(3), 4-16.

Bello-Bravo, J., Olana, G. W., Enyadne, L. G., & Pittendrigh, B. R. (2013). Scientific Animations Without Borders and Communities of Practice: Promotion and Pilot Deployment of Educational Materials for Low-Literate Learners around Adama (Ethiopia) by Adama Science and Technology University. *The Electronic Journal of Information Systems in Developing Countries*, 56(4), 1-11.

Manuscripts in Progress

- Viral spread in the field through Bluetooth®
- Pre- and post-treatment knowledge studies
 - Benin, Ghana, Ethiopia, Burkina Faso and Mozambique
 - Animations equal or better than extension talks



Manuscripts in Progress (outcomes)



- Animations need to contain economic arguments
- Women learned more from the animations than from traditional extension approaches.



PHL Animations

Jerrycan Bean Storage (Mozambique version; other grant)

Jerrycan Bean Storage (Ghana version in progress; other grant)

Bag stacking

Bag transportation

Bulk transportation of grain

General grain storage/Warehouse storage of grain bags

How to build a solar grain dryer

How to use a solar grain dryer

Grain testing for moisture levels 2D

Grain testing for moisture levels 3D

PHL value chains

PHL supply and demand

Teff row planting

Teff transplanting

Mycotoxin (Ghana)

Grain drying (Bangladesh team)

Others...



Lots of adaptable content

- Storage
- Drying
- “Check list of concepts”

Next two years

Mycotoxin (Ghana) and grain drying (Bangladesh team) completed in this upcoming year

Creation of content that will be useful (preferably) across multiple countries (or even all four target countries)

Deployment pathways & Impact Assessment
- Pass-off to local deployers of knowledge