

## Creation of African-based, open curricular materials: The AgShare Method

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### Abstract

Working in partnership with four universities around East Africa, the AgShare planning and pilot project produced exciting results through the creation of African-based, open curricular materials that are easily localised. This work involved the incorporation of new faculty processes, active learning, and engagement by universities with community stakeholders. It also involved a graduate student learning and research agenda that focuses on serving the smallholder farm community. The process of growing open, shareable African-led resource based curricula can contribute towards sustainable agriculture productivity if they are based on solid research by university faculty and their students, coupled with input at the local level.

Key words: Community engagement, East Africa, open-education resources, value chains

### Résumé

Travaillant en partenariat avec quatre universités à travers l'Afrique orientale, le projet pilote et de planification d'AgShare a produit des résultats intéressants par la création des matériels de programmes pédagogiques ouverts et basés en Afrique, qui sont facilement localisés. Ce travail a nécessité la prise en compte des processus nouveaux au sein des facultés, l'apprentissage actif et l'engagement des universités avec les intervenants communautaires. Il a également impliqué l'apprentissage d'un étudiant de troisième cycle et un programme de recherche axé sur le service communautaire au sein des petites exploitations. Les processus d'accroissement des programmes ouverts basés sur les ressources partageables amenées en Afrique peuvent contribuer à la productivité agricole durable s'ils sont fondés sur de solides recherches par les professeurs d'université et leurs étudiants, couplés avec la contribution au niveau local.

Mots clés: Engagement communautaire, Afrique de l'Est, ressources en pleine formation, chaînes de valeur

## **Background**

Universities have a critical role to play in developing agricultural value chains around key crops and livestock. Graduates of African programmes in agriculture have the potential to become future leaders in industry, government, and academia, and to be positioned to implement impactful change that will directly and positively affect small farmers and rural communities. Working together, particularly through postgraduate academic programmes, academics and students are ideally positioned to develop stronger national knowledge systems in agriculture, build capacity right across the value chains, and improve the quality of data used for decision-making through effective research, thus contributing to greater food security in African countries. When the intellectual capital generated through this activity is released under open licensing models, it creates a sustainable platform for on-going strengthening and development of these value chains by making knowledge publicly accessible and easy to re-version and adapt.

AgShare is a powerful road-tested method that provides strategies for a coherent institutional approach to teaching, research and community development. Funded by the Bill & Melinda Gates Foundation and led by Michigan State University and OER Africa of the South African Institute for Distance Education, AgShare Phase I was piloted during 2010-2012 at four African universities in three countries: Makerere University, Uganda; Haramaya University, Ethiopia; Moi University, Kenya and United States International University, Kenya.

AgShare methods have demonstrated impact on farmers, student researchers, faculty and students in the classroom.

- AgShare methods have transformed the way in which academics now conceptualize their role as teachers and researchers by validating community-based problems as research and collaborating with students and stakeholders
- AgShare methods create relevant and effective student learning in the coursework component of the master's degree enabling students to engage with local issues versus abstract theory
- AgShare methods increase students' capacity to conduct meaningful, high quality independent research which becomes part of the public record and adds demonstrable research to the student's resume

- AgShare methods improve farmers' practices that lead to improved quality and productivity, and position them to begin moving away from subsistence farming.
- AgShare methods produce free, openly-licensed educational resources for customization and re-use that improve the quality of teaching through relevant case studies.

### Literature Summary

The Agshare Project envisaged a new method of cultivating MSc student to be active in community engagement and produced need knowledge. The knowledge is published as open education resources (OER) which increases access to information (Geith *et al.*, 2010). These OERs need to be tied to community engagement and new methods of student research (Chakeredza *et al.*, 2008; Rabinowitz). The participatory research efforts can scale smallholder productivity and enhance agricultural productivity (Locara, 2012). However, all these efforts and resources need to be tied together to make dissemination of OER much easier with technology and the internet (Vignare *et al.* 2011).

### Study Description

The AgShare Method is a research-based approach for the co-creation and publication of purposeful agricultural knowledge within and across stakeholder groups. Multiple-media Open Educational Resources (OER) provide an appropriate methodology as they are intended to be shared, modified, and made freely available through learning networks.

1. All projects commence with field-based research into farmers' practices and needs. Students, working closely with their faculty supervisors, carry out this research. Research involves relevant community-wide partners within respective value chains.
2. Students, faculty and staff participate in capacity-building workshops in research, OER and media production skills.
3. Student work is published in three ways: (1) OER multimedia learning packages for incorporation into degree programs; (2) information for farmers that is used for follow-up visits and extension materials; and (3) research in master's thesis and undergraduate student research.
4. The OER are published in appropriate venues leading to recognition for scholarship, teaching, research and extension.

The research-based nature of the AgShare OER method, with students conducting research in the field involving multiple stakeholders, is its essential component. OER are developed

from this research by student and faculty teams (AgShare Student and Faculty Fellows) for teaching and learning in the classroom, for extension in the field, and for scholarly research publication where appropriate.

The AgShare Planning and Pilot Project successfully demonstrated the value of building structured relationships between academics, students, content suppliers, and community-wide partners such as farmers, farmers' associations, and agri-businesses to facilitate the creation and sharing of open knowledge in the form of OER. This content is being used to build capacity and strengthen knowledge systems across the agricultural value chains targeted in the pilot.

The AgShare pilot projects produced a wide range of publicly-available and easily localized open educational resources (OER) in several different media formats. These OERs can be found at (<http://www.oerafrica.org/agshare/AgShareNew/tabid/1990/Default.aspx>). These materials are integrated into programme delivery at four universities in Ethiopia, Uganda and Kenya. Open materials include videos and case studies on agribusiness, dairy, maize, and coffee pricing. In some instances, these materials have already been used as an integrated part of community development initiatives run by the universities. Where this has happened within the framework of existing consortia such as RUFORUM and the CMAAE, members of the consortia have already begun sharing their material with other consortium participants to facilitate re-use.

## **Research Application**

The impact evaluation of the AgShare Planning and Pilot phase indicates that the approach taken:

- contributed to an improvement in farmer practices that lead to improved agricultural productivity through improved quality of milk and other dairy products
- transformed the way university faculty now conceptualize their role as teachers and researchers by validating community based problems as research and collaborating with students and agricultural stakeholders
- increased student capacity to conduct meaningful, high quality independent research and participate in the generation of knowledge through development of OERs
- facilitated relevant and effective student learning enabling engagement with real local issues versus abstract theory

- produced free, openly licensed educational resources that can be used to improve the quality of teaching through the use of relevant case studies.

The capacity developed during the AgShare pilot phase and that developed by RUFORUM (formerly an anchor partner and now a project partner) will be used to further catalyze and facilitate the scaling up and continued adoption of the AgShare method at participating institutions. RUFORUM is an umbrella body for a network of 29 African Universities and has also developed a cohort of faculty that were involved in successfully developing several agricultural OERs that are being used to supplement and improve existing teaching and learning resources for a number of post-graduate programmes that can be found at: ([www.ruforum.org](http://www.ruforum.org)).

## References

- Chakeredza, S., Temu, S., Saka, AB., Munthali, J.D.K., Muir-Leresche, DC, Akinnifesi, K., Ajayi, FK. and Sileshi, G. 2008. Tailoring tertiary agricultural education for sustainable development in Sub-Saharan Africa: Opportunities and challenges. *Scientific Research and Essay* 3 (8):326-332, August 2008. Available online at <http://www.academicjournals.org/SRE>
- FARA (Forum for Agricultural Research in Africa). 2006. Framework for African Agricultural Productivity / Cadre pour la productivité agricole en Afrique. Accra, Ghana. 72 pp.
- Geith, C. and Vignare, K. 2008. Access to education with online learning and open educational resources: can they close the GAP? *Journal of Asynchronous Learning Networks* 12 (1), [http://www.distanceandaccesstoeducation.org/contents/JALN\\_v12n1\\_Geith.pdf](http://www.distanceandaccesstoeducation.org/contents/JALN_v12n1_Geith.pdf)
- Rabinowitz, P. Community-based Participatory Action Research. Found at: [http://ctb.ku.edu/en/tablecontents/sub\\_section\\_main\\_1349.aspx](http://ctb.ku.edu/en/tablecontents/sub_section_main_1349.aspx). Accessed on 21st May 2012.
- Locara, L. 2012. Community-based participatory Action Research: Helping small farmers earn more through hands-on research. Found at: [http://www.iloilnewstoday.com/index.php?option=com\\_content&view=article&id=8609:community-based-participatory-action-research-helping-small-farmers-earn-more-through-hands-on-research-and-validation&catid=214:larry-locara&Itemid=464](http://www.iloilnewstoday.com/index.php?option=com_content&view=article&id=8609:community-based-participatory-action-research-helping-small-farmers-earn-more-through-hands-on-research-and-validation&catid=214:larry-locara&Itemid=464). Accessed on 21<sup>st</sup> May 2012.
- Value chains and small farmer integration. In: Agriculture for Development. 2008. World Development Report, The World

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Bank - LCR series. Found at <http://www.responsibleagroinvestment.org/rai/sites/responsibleagroinvestment.org/files/Agriculture%20for%20Development-%20value%20chains%20small%20farmers.pdf>. Accessed on 23rd May 2012.

Vignare, K., Geith, C., Collins, B. and Weebadde, P. 2011. How organizing knowledge in meaningful ways enhances search and supports independent learning. In: Metadata and Semantic Research 5<sup>th</sup> Internal Conference, Barriocanal, Cebeci, Okur, öztürk (Eds.), Springer.

Wenz, K. and Bokelmann, W. 2011. Incorporating value chain research and problem based learning into horticulture and agriculture study programs in Kenyan and Ethiopian partner. *African Journal of Horticultural Science* 4:1-6.