

Impact case study (REF3b)

Institution: University of Greenwich
Unit of Assessment: (UoA 24) – Anthropology and Development Studies
Title of case study: Improving agricultural commodity trade and finance in Africa through promoting a warehouse receipt system.
<p>1. Summary of the impact</p> <p>The Natural Resources Institute (NRI) of the University of Greenwich has, since the early 1990s, played a lead role in researching, developing and piloting a sustainable and transferable warehouse receipt system (WRS) that is accessible to smallholder farmers in Africa. This institutional innovation helps to overcome post-liberalisation challenges in agriculture by easing access to finance, improving crop marketing and increasing incomes for smallholder farmers. The outcome of the pilots is also influencing strategic choices by governments in developing institutions, regulations and policies which foster efficient and remunerative output markets in Africa.</p>
<p>2. Underpinning research</p> <p>Decades after liberalisation, Africa's agriculture continues to be hampered by inefficient markets with low transparency, high transaction costs and high price volatility. Smallholder farmers and small-scale traders have very limited access to finance. Consequently, smallholder farmers are often compelled by household liquidity constraints to sell the bulk of their produce at harvest when prices are low. This squeezes producer margins and reduces incentives to adopt technology which can increase farm productivity and output.</p> <p>Availability of inventory finance (loans made using agricultural commodities stored in third-party warehouses as collateral) can help address some of these challenges. However, in the 1990s the most common inventory finance systems in Africa had major limitations. Commercial providers of inventory finance required the underlying stocks to be managed by reputable international inspection companies who charged high fees: affordable by only large-scale enterprises, engaged predominantly in import/export trade. Domestic trade in agricultural commodities hardly benefited. Furthermore, the receipts issued did not represent transferable title to the stored commodities, so it was not possible to use them in trade conducted between parties who had no personal contact. On the other hand, NGOs like Technoserve promoted inventory credit systems which exclusively targeted smallholder farmers. They typically provided intensive supervision as well as loan guarantees (sometimes as high as 100% of the credit advanced to farmers). However, the lack of economies of scale and high oversight costs associated with this system limited efforts to scale up and to achieve sustainability.</p> <p>NRI therefore set as its research objective the development of a sustainable warehouse receipt system (WRS) that is accessible to smallholder farmers. The aim was to develop a WRS which improves access to inventory finance but also facilitates trade because the receipt represents transferable title to the stored commodity. Such a system had to attract commercial finance and larger-scale depositors – farmers, processors and exporters – in order to build up breakeven volumes within 4-5 years, the duration of most donor-funded projects.</p> <p>NRI's initial research, funded by DFID, involved a review of WRS models in the US, South America, India and Eastern Europe. The most promising model was then piloted for maize in Ghana in 1993-1996. The research indicated that a regulated, widely-accessible WRS will deliver benefits to African farmers by easing access to finance and facilitating more efficient trade in agricultural commodities, including by providing a solid foundation for a viable commodity exchange. The research and subsequent pilots identified the following prerequisites for successful WRS:</p> <ol style="list-style-type: none"> A network of licensed/certified warehouse operators who satisfy requirements designed to protect the interests of depositors and lenders including stipulated minimum capital. Enforcement of quality standards which minimise risk of deterioration of stored commodities during storage and are trade-friendly. A robust regulatory system consisting of warehouse legislation and a trusted regulatory agency. Issuing of transferable warehouse receipts with features which minimise the risk of fraud. Reliable market information systems.

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f. Access by smallholder farmers through primary-level organisations.

g. Effective capacity building for key players.

3. References to the research (REF1 submitted staff in **bold**, * submitted by the University of Greenwich to RAE 2008, UoA 43, **REF2 Output,)

3.1 Coulter, J., & Shepherd, A. W. (1995). Inventory Credit: an approach to developing agricultural markets. *Food & Agriculture Organisation Agricultural Services Bulletin No. 120* (cited 35 times in Google Scholar).

*3.2 Coulter, J., & Poulton, C. (2001). Cereal Market Liberalization in Africa. In T. Akitama, J. Baffes, D. Larson, & P. Varangis (Eds.), *Commodity Market Reforms: Lessons of two decades* (pp. 191–271). The World Bank: Washington, D.C. (cited 27 times in Google Scholar).

*3.3 Coulter, J., & Onumah, G. (2002). The role of warehouse receipt systems in enhanced commodity marketing and rural livelihoods in Africa. *Food Policy*, 27(4), 319–337. [http://dx.doi.org/10.1016/S0306-9192\(02\)00018-0](http://dx.doi.org/10.1016/S0306-9192(02)00018-0) (cited 93 times by Google Scholar).

3.4 Onumah, G. E. (2003). Improving access to rural finance through regulated warehouse receipt systems in Africa. Presented at the Paving the Way Forward for Rural Finance: An International Conference on Best Practices, Washington, D.C., 2-4 June 2003 (cited 15 times in Google Scholar)

3.5 Onumah, G. E., Davis, J. R., Kleih, U., & Proctor, F.J. (2007). Empowering Smallholder Farmers in Markets: Changing agricultural marketing systems and innovative responses by producer organizations, ESFIM Working Paper 2. IFAP/ECART/IFAD. (cited 13 times in Google Scholar)

3.6 Onumah, G. E. (2012). Warehouse Receipts and Securitisation in Agricultural Finance to Promote Lending to Smallholder Farmers in Africa: Potential Benefits and Legal/Regulatory Issues. *Uniform Law Review-Revue de droit uniforme*, 17(1-2), 351–367. <http://dx.doi.org/10.1093/ulr/17.1-2.351>

Key grants:

3a *Development of Grain Marketing Systems using Warehousing Receipt and Inventory Credit in Africa.*

Common Fund for Commodities (CFC)

Location: Ghana, Zambia and Ethiopia

November 1999 to December 2004

Total project cost: \$2,075,475; of which CFC grant funding was equivalent to US\$ 1,179,578 with counterpart contribution of US\$ 258,930 from DFID and contribution of US\$ 636,967 by stakeholders in the target countries – Ethiopia, Ghana and Zambia

Implementation led by Jonathan Coulter.

3b *Coffee Market Development and Trade Promotion in Eastern and Southern Africa and Improvement of Cotton Marketing and Trade Systems in Eastern and Southern Africa*

Common Fund for Commodities (CFC)

Grant reference numbers: (CFC/ICO/03FA) (CFC/ICA/12FA)

Location: Tanzania, Uganda and Zimbabwe

Start date for NRI lead role in piloting WRS for coffee and cotton was October 2004, and completion date was September 2006

Funding directly available to NRI was US\$1,318,587.

Implementation led by G. E. Onumah.

3c *Review for restructuring the Uganda Commodity Exchange.*

Delegation of the European Union in Uganda

Grant reference number: Framework Contract AMS/451 Lot No.1 (Uganda).

Location: Uganda

June 2004-July 2004

Funding directly available to NRI: €45,637.

Implementation led by G. E. Onumah.

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3d *Facilitating Study Visit on Warehouse Receipt Systems (WRS) and Agricultural Commodity Exchanges (ACE) for stakeholders from West Africa.*

Main grant funding by Technical Centre for Agriculture and Rural Co-operation (CTA) and L'Agence Française de Développement (AFD)

Grant reference numbers: Cont: 234; Proj: 4-7-41-153-8 and NRI/AFD/STR-APR 2008 06 072

Location: Tanzania and South Africa

September 2008 to February 2009

Total funding: €94,461

Implementation led by G. E. Onumah.

3e *Farm Risk Management for Africa (FARMAF)*

Main grant funding by the European Commission, Food Security Thematic Programme, counterpart funding by: AGRINATURA-EEIG

Grant reference numbers: DCI-FOOD 2011/260-875

Location: Burkina Faso, Tanzania and Zambia

December 2011 to December 2015.

Total funding: €4.7 million. UoG income €663,997.

Implementation led by G. E. Onumah.

4. Details of the impact 750

The outcome of NRI's research has been adopted in the design of projects, for staple grains as well as export commodities, funded by donors including the Common Fund for Commodities (CFC), the European Union, the World Bank and USAID in West, Eastern and Southern Africa. Progress in developing the NRI-promoted WRS model is most advanced in Tanzania, making it possible to mainstream inventory finance for export commodities such as cashew and extend it to food staples such as maize. Demonstrable benefits to smallholders are outlined below by commodity, followed by impacts on national and regional policy.

Cashew

Almost all cashew nuts produced in Tanzania are now marketed through the WRS – first piloted in 2007 to make raw cashew marketing more transparent. The WRS allows primary (village-level) Agricultural Marketing Cooperatives (AMCOs) to borrow over US\$50 million per season from commercial banks to finance purchases from members as they build up volumes for sale. The receipted nuts are traded through an auction system involving over 30 exporters and local processors who submit sealed bids for advertised lots. The introduction of these two allied systems, WRS and the auction system, has contributed to higher producer prices. In the 2007/08 season, cashew farmers in Tanzania obtained average farmgate prices estimated at US\$290 per tonne. By 2011/12, the minimum price was estimated at US\$750 per tonne – an increase of over 2.5 times without any corresponding increase in the international market price. The improved producer incentives contributed to a rise in output from 79,100 tonnes in 2008/09 to over 158,000 tonnes in the 2011/12 season.

Coffee

In Tanzania, WRS has enabled smallholder farmers to directly market value-added 'clean' coffee rather than unprocessed 'parchment' coffee. The farmers sell through rural cooperative societies (RCS) which aggregate on behalf of members using inventory finance from banks. It is estimated that over US\$12 million commercial bank financing is provided per season for the coffee trade. The coffee is deposited with curing factories licensed by the Tanzania Warehouse Licensing Board. Launched in the early 2000s, this system enables over 4,000 smallholder coffee farmers to sell through RCSs. Usually, they receive an initial payment which is about 60% of the farmgate price offered by private traders for parchment. Subsequent payments, received in two tranches, bring the total to almost 170% of the parchment price. Increased competition at farmgate level has also reportedly benefitted non-participating farmers.

Cotton

The WRS pilot for cotton has taken off in Eastern Tanzania, where ginners, who traditionally bought the raw seed cotton, processed it into lint and cotton seed and then sold them, are willing to provide toll-ginning services: farmers' organisations pay a fee for ginning and can then sell the

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processed products themselves. The organisations use inventory finance to make initial payments to farmers while they wait for processing. Participating farmers obtain net incremental income of over 50% above the price for seed cotton. In one community, the farmers' organisation used part of the profits to finance procurement of inputs and tractor services, leading to a ten-fold increase in profits for members. Ginners in Western Tanzania are increasingly interested in replicating the model. WRS has not had much impact on the market in unprocessed cotton as yet.

Grain

Even in countries such as Tanzania, Ghana, Kenya and Zambia, where export bans and other government interventions in output markets make it difficult for depositors to sell their produce for the best possible prices, there is evidence that private sector representative organisations, e.g. the Ghana Grain Council and the Grain Traders' Association of Zambia, continue to advocate the NRI-promoted WRS model. Furthermore, in countries where commodity exchanges were incorporated in advance of reliable delivery systems, the exchanges are increasingly reverting to the NRI WRS model where the receipt assures delivery against traded contracts. This is the case in Zambia, where government and the Zambia Agricultural Commodity Exchange are in dialogue over a regulatory system that will foster WRS. The Ethiopia Commodity Exchange is also promoting WRS for "non-mandated" crops such as grains to encourage their trading on the exchange floor.

Impact on policy and strategy for developing efficient output markets

Following declarations by African Union high-level meetings and other regional fora in 2005-2006 on the need to promote new market institutions, African governments have incorporated WRS into agricultural policies. The Kenyan government initiated a WRS to improve trade in maize and other staple grains in 2010. In Tanzania, the government and private stakeholders are working to strengthen the WRS to ensure a sound foundation for a viable commodity exchange. Similar programmes have been initiated by the governments of Nigeria and Uganda to turn around the poor performance of their commodity exchanges.

5. Sources to corroborate the impact

- i) Common Fund for Commodities (CFC) – major donor for WRS pilots involving NRI
- ii) Technical Centre for Agricultural and Rural Co-operation (ACP-EU) – collaborated with NRI in sharing experience on WRS
- iii) The Tanzania Warehouse Licensing Board (TWLB) – beneficiary of technical advice from NRI in piloting WRS for export commodities in Tanzania
- iv) The Alliance for a Green Revolution in Africa (AGRA) - grant-providing organisation supporting agricultural sector development in Africa
- v) Eastern Africa Grain Council - regional stakeholder organisation collaborating with NRI on structured trade and finance involving the use of warehouse receipts
- vi) The WRS is a key pillar of the Farm Risk Management (FARMAF) Project which is being implemented by AGRINATURA-EEIG. <http://www.agrinatura.eu/News-Events/Farm-Risk-Management-for-Africa-FARMAF.html>
- vii) The International Finance Corporation recently launched a global WRS financing programme aimed at increasing access to working capital to farmers and other players in agricultural value chains, with its basic features mirroring the NRI-promoted model. http://www1.ifc.org/wps/wcm/connect/Industry_EXT_Content/IFC_External_Corporate_Site/Industries/Financial+Markets/Trade+and+Supply+Chain/GWFP/