



Agribusiness: Vendor Financing in Input Markets

**Improving Access to Rural Finance through
Regulated Warehouse Receipt Systems in Africa**

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1. Introduction

Promoting efficient, sustainable and widely accessible rural financial systems remains a major development challenge in most African countries. With about 73% of Africa's population living in rural areas, and the high incidence of rural povertyⁱ, improved rural finance is seen as crucial in achieving pro-poor growth and poverty reduction goals. However, the development of rural financial systems is hampered by the high cost of delivering financial services to small, widely dispersed customers; as well as a difficult financial terrain – characterised by high and covariant risks, missing markets for risk management instruments and lack of suitable collateral.

Attempts to reduce the gap in the provision of rural finance often focus on supply-side interventions, including government and donor-funded targeted credit programmes of the 1950-60s, the global failure of which is well cited (Yaron et al. 1997). Contrary to the expectations of its advocates, liberalisation of financial markets in the 1980s has not succeeded in improving the supply of finance to rural households and enterprises, as formal financial institutions (FFIs) have become more risk averse and reduced their exposure to agriculture and the rural economyⁱⁱ. During the 1990s, a number of NGOs converted into full-service micro-finance institutions (MFIs) targeting rural and micro-entrepreneurs. However, scepticism is growing about their role in mobilising rural savings and in providing agricultural finance (Murdoch, 2000).

This paper takes the view that sufficient attention has not been given to interventions that improve access to rural finance through reducing risks in the rural financial environment. It is argued in the paper that rural borrowers are not attractive to FFIs because they are perceived as high risk borrowers (with “wrinkled” faces). It is stressed that their chances of accessing finance can be improved with interventions that give them a “facelift” by providing them with opportunities to manage and reduce the risks to which they are exposed. Using the case of a warehouse receipt (WR) system being developed in Zambia, the paper demonstrates how market institutions can be used to give rural borrowers a “face-lift”, and to further show that setting up institutions that facilitate market delivery of rural financial services is not a short-term fix but a long-haul process.

The paper is structured as follows: Section 2 looks at how low and unstable rural income as well high risks limit access to financial services in the rural economy. In Section 3 we illustrate how a warehouse receipt (WR) system can help turn this situation around. In Section 4, various WR models are reviewed and the model being established in Zambia described, including the implementation challenges faced. The summary and conclusions are set out in Section 5.

2. Low and unstable income and high risks limit access to rural finance

FFIs often require investors to make a minimum equity contribution, arguing that the less a borrower contributes to an investment project, the more his/her interests diverge from those of lenders, thus increasing the risk of strategic default. Due to low per capita rural income, most rural borrowers cannot meet the minimum equity requirements of FFIs, and are therefore excluded from the credit market. This leads to investments in socially and economically beneficial projects being stifled. Bernanke and Getler (1990) describe such an economy, in which the net worth of most investors is small relative to the value of their projects, as financially fragile

Financial fragility in rural Africa can in part be attributed to production and marketing problems in agriculture, which accounts for 32% of GDP and employs about 66% of the labour force (Human Development Report 1997)ⁱⁱⁱ. The sector is dominated by smallholders, cultivating one (1) hectare or less and agricultural productivity is not only very low, but has risen by only 0.5% from the end 1980s to end 1990s. Average yield per hectare of maize is about 1.5 tonnes, though commercial and semi-commercial producers in Zambia record between 3.5 and 5.5 tonnes per hectare (Onumah 2001). Production is largely rain-fed and the use of productivity-enhancing inputs is very low. The average consumption rate of fertiliser in Sub-Saharan Africa is 10-15 kg per hectare compared to about four times that rate in the Indian sub-continent (Pinstrip-Andersen et al. 1999). Agricultural output is highly variable.

The weak demand for productivity-enhancing inputs is sometimes attributed to rising input prices resulting from the withdrawal of subsidies. For this reason, Governments are often under pressure to restore subsidies^{iv} or maintain Government-run subsidised input distribution programmes. What this argument ignores is the influence of other important determinants of demand for inputs by smallholders, including land tenure arrangements (with freehold or cash-rent leases favouring fertiliser use), cropping intensity, and access to extension services and credit^v.

An even more important consideration is the overall profitability of using the input; (in the case of fertiliser this can be measured using the value-cost ratio). The Zambian case discussed in Box 1 suggests that farmers are more likely to use productivity-enhancing inputs if they can be assured more remunerative producer prices, rather than through subsidised distribution programmes. It also confirms the observation by Onumah and Coulter (2000) that ad hoc interventions in the Ghanaian maize market in the late 1990s, which artificially dampened producer prices, had the unintended consequence of weakening fertiliser demand by maize producers.

Most farmers in Africa are unable to obtain remunerative producer prices because of inefficient agricultural markets (Badiane et al., 1997; and Coulter et al. 2000). The markets lack basic storage and transport infrastructure, and access to commodity finance is limited. Traders face such risks as theft, losses during storage and in transit, unenforceability of contracts and uncertainty concerning government policy on food markets. Systems of standard grades and measures are poorly developed, except for a few export crops, making it difficult for low-cost “sight-unseen” trade to develop. The markets also lack transparent systems of price discovery as well as institutions and instruments that enable producers and traders to manage price and other risks.

It is apparent that, inefficiencies in input and output markets contribute to low and unstable household income, and in turn limit borrowing in the rural economy. Other access barriers faced by rural borrowers include lack of credible track record. This situation is due mainly to rural transactions being predominantly informal and cash-based, with little or no documentation (Onumah 1998). They also lack assets which can be collateralised, partly because valuation and liquidation of rural assets, especially land, can be frustrated by lack of effective legal/registration systems and missing markets for such assets (World Development Report 2001). Even where suitable real estate in rural locations is mortgaged, there can be difficulties with liquidation as a result of culture-related opposition from the community (Onumah 1995). In the next section we discuss how a regulated system of transferable WRs can help overcome some of these problems and ease access to rural finance.

3. How can warehouse receipts improve access to finance?

According to Budd (2001), grain warehouse receipts were first used in Mesopotamia in 2400 BC and the first form of paper money used in the United Kingdom were negotiable silver warehouse receipts. The use of WRs is often associated with structured financing transactions, which ensure that if a transaction proceeds normally then the lender is automatically reimbursed (i.e. the loan is self-liquidating), and if it goes wrong the lender has recourse to collateral that can be liquidated with minimum difficulty. In this paper we look beyond the use of WRs in structured finance and also discuss how the receipt system can help improve trade in agricultural commodities in African economies.

Coulter and Onumah (2002) define warehouse receipts (WR) as *documents issued by warehouse operators as evidence that specified commodities, of stated quantity and quality, have been deposited at particular locations by named depositors*. The depositor may be a producer, farmer group, trader, exporter, processor or indeed any individual or body corporate. The warehouse operator holds the stored commodity by way of safe custody; implying he is legally liable to make good any value lost through theft or damage by fire and other catastrophes but has no legal or beneficial interest in it. However, in case of liquidation, the warehouse operator's creditors will not be able to seek recourse to the commodities stored as legal title remains with the depositor or *bona fide* holder of the receipt. The only exception is the warehouse operator's lien covering outstanding storage costs.

In many countries WRs can be transferred to lenders under pledge, an arrangement under which title to the goods and any appreciation in value of the asset, less the cost of storage and finance, remain with the borrower. The lender can only dispose of the goods only when the borrower defaults on his payment obligations. The receipts may also be transferred to a trade counter-party, allowing the holder to take delivery of the commodity upon presentation of the WR at the warehouse.

3.1 Lowering access barriers using WRs

By attracting deposits from small farmers and traders, the system will help formalise their trade transactions, enabling a database on their activities to be generated. This will help overcome the problem of lack of track record, and enable banks to screen borrowers more effectively and with minimum delay.

Lenders can mitigate credit risk by using the stored commodity as collateral. This form of collateral is more readily available to rural producers and may be less difficult to liquidate than most assets traditionally accepted by FFIs as collateral. For instance, availability risk associated with movable collateral (Bessis 1998), can be reduced by the warehouse operator's guarantee of delivery from a stated location. The risk of loss of value of the collateral can be reduced by monitoring movements in its market value as well as by margining and the use of price risk management instruments (Coulter and Onumah 2002). Foreclosure can be made simple and low cost, without any resort to the courts depending on how the financing is structured^{vi}.

The WR systems will also make it less necessary for lenders to monitor a large number of small borrowers as a few warehouse operators assure loan performance. This will reduce monitoring costs and encourage commercial lending to the rural sector, helping to capitalise the rural trade.

3.2 Other advantages

As shown in Box 1, the WR system will help farmers, especially smallholders, better market their crop and increasing household farm income and also making it more predictable. This will help rural borrowers meet minimum net worth requirements and improve cash flow planning, thereby improving their chances of obtaining formal credit. The WR system can contribute to improved commodity marketing through various means as discussed below.

The guarantee of the warehouse operator to deliver commodities described in WRs, will remove two major sources of uncertainty in many African agricultural markets. These are lack of certainty regarding the quality and quantity of the commodity and the ability of the seller to deliver on schedule. These problems tend to be more acute where commodities are only traded in domestic markets. By reducing information asymmetry between counter-parties (on the quality and quantity of commodities to be traded), and curtailing cheating on weights and quality, the WR system will facilitate agricultural trade. It will foster impersonal trade by description, which involves much lower transaction costs than the trade by sampling, which is the norm in most African countries.

The system makes it possible for information on inventories to be collated and disseminated to major buyers at little or no cost and can help smallholders bulk up their crop and sell further down the marketing chain to large traders, processors and to regional markets for a better price. This is currently not possible in Zambia, as in most African countries, because of variable commodity standards.

The system allows storage to occur in well-run warehouses or silos, thereby reducing post-harvest losses, which are quite substantial in Sub-Saharan Africa and often mean significant loss of income to farm households. Producers will be able to defer sale of produce by making use of inventory credit to satisfy immediate consumption needs.

Box 1: Warehouse receipts system, crop marketing and farm productivity in the Eastern Province of Zambia

The maize market in Zambia is segmented with a less formal chain dominated by smallholder produce, which is characterised by the following weaknesses:

- It is very illiquid as under-capitalised traders have little or no access to bank loans.
- The marketing strategy of smallholders is dictated by the need for cash rather than price levels, with over 50% of their marketable surplus being sold early in harvest season – as they are unable to defer sale – leading to depressed producer prices.
- No formal quality standards are maintained and smallholder produce tends to be discounted at the mills because of uncertain quality.
- The cost of transacting is high - trade usually involves physical sampling; traders are known to spend at least 3-4 days assembling a 30 tonne load due to lack of reliable information about available supplies from particular locations, and; transport costs are high due to poor roads, and related to that, lack of required means of transport.

We discuss the case of a farmer at Chief Mumbi, in the Eastern Province of Zambia, in the 2000/01 crop, and show how, by using the WR system, he could have increased household income and made much more profitable use of fertiliser. The farmer planted 1.3 hectares of maize with fertiliser provided on credit (but no subsidy) by a NGO, which also offered extension services. The yield is estimated at 3.5 tonnes per hectare, and 1 tonne is retained for household consumption with 3.55 tonnes being sold. The average price levels at relevant locations in 2001 were:

| | | July | October |
|--|---|-------|---------|
| Lusaka (national capital and major market) | - | \$100 | \$135 |
| Petauke (district capital) | - | \$60 | \$90 |
| Chief Mumbi (village) | - | \$35 | \$54 |

Without the use of the WR system, total household income from sale of 50% of the crop in July (\$62.13) and the remainder in October (\$95.85) would have amounted to \$157.98.

With sale using the WR system, household cash income if the entire stock is deposited in a certified warehouse in the district capital would be \$68.83 (i.e. bank finance against the stocks at an advance rate of 70%, less of the cost of bagging, sorting and transport to the warehouse).

In October the farmer can either sell in the district market or into Lusaka (with quality and quantity certification making this possible). If the entire crop is sold in the district market, the household income (net of storage, broker's fees, loan and interest) will be \$133.70. Total household income for the year will, therefore, amount \$202.53 or 28.2% more than is the case when crop is sold without the use of the WR system. If the crop is sold into the Lusaka market, the net household income in October will be \$218.54; annual household income of \$287.37, which is almost 82% more than the alternative of selling outside of the WR system.

Value-cost ratios (VCR) for the alternate scenarios (without and with the use of the WR system) is derived as follows: incremental income from use of fertiliser divided by the cost of fertiliser applied. It works out to be 1.81 where the crop is marketed without using the WR system and 3.86 when the system is used. The rule of thumb is, a ratio of 2 indicates fertiliser use is profitable.

Source: Onumah (2001)

Subsistence producers may not be in a position to take advantage of the system, because they have little by way of surplus to market or store. However, their capacity to cope with household food insecurity will be improved because with decline in seasonal price variability, the marginal sales they make during the harvest season will command higher prices, and the food the household must “buy back” in the lean season is likely to cost less.

Warehouse receipts can assist in the development of commodity exchanges, which are useful to farmers and others for purposes of price discovery and selling commodities, and can in some cases be used for mitigating price risks. Varangis and Larson (1996) observed growing interest in establishing commodity exchanges in a number of developing countries, with three established in Zambia and two in Ghana. However, the exchanges are often promoted without ensuring that the pre-conditions for success are in place, so that most end up merely as intermediaries with little or no active trading. What most of these exchanges lack are systems that guarantee contract performance and it is expected that they would have a better chance of success if they are linked to licensed warehouses as delivery locations.

4. Models of warehouse receipt systems

Collateralised financing is quite new in Africa, and the most common model has been developed around local subsidiaries of international inspection companies^{vii}. The inspection companies set up tripartite *collateral management agreements* (CMAs) involving a bank, the borrower and the collateral manager (i.e. the inspection company acting as warehouse operator), which allow depositors to secure bank credit. The warehouse receipts are issued directly to the financing bank and not to the depositor, and they are non-negotiable and non-transferable.

This model rests on the credibility of the collateral manager (which is the inspection company acting as warehouse operator). In the liberalised marketing environment with significant performance and credit risks in many developing countries, the CMAs provide the confidence for banks to continue financing import and export transactions, especially because the European-based parent companies of the inspection companies have various kinds of professional liability cover that provide additional comfort for lenders. However, Coulter and Onumah (2002) have identified various limitations to the scope and benefits from the CMAs, including:

- The main users tend to be large operators, who own or can rent entire warehouses or silos, and can afford high fees (usually in thousands of dollars (US) per month). Their services are not available to farmer groups or traders who wish to deposit relatively small volumes of a commodity (e.g. 50 – 100 tonnes).
- The system is predominantly used as a component in financing import and export transactions, but rarely used for non-tradables, except where the depositor is a large processor or major trading company. In most African countries, this has greatly limited the benefits of the WR system in the domestic agricultural trade.
- Like other operators, collateral managers sometimes experience losses through theft and fraud. Where losses occur, their liability tends to be limited by indemnity clauses in the storage contracts, and sometimes discourages banks from providing finance against collateralised inventory.

- The WRs are non-transferable and cannot be used as delivery instruments against contracts, thereby limiting their use in facilitating trade.

There have also been attempts by NGOs to establish inventory credit systems for small farmer groups, this being pioneered by TechnoServe in Ghana. TechnoServe's approach brought major immediate benefits to participating farmers but has not proved economically sustainable because of the small volumes of grain involved – usually much less than 1,000 tonnes of maize in a single year (Kwadjo 2000). The scheme requires TechnoServe to provide intensive supervision, similar to the above-mentioned CMAs, to give banks comfort. The cost of this is out of proportion to the benefits involved^{viii}. This and other experiences suggest that, to be sustainable, warehousing schemes must appeal to a wider clientele than simply smallholder farmers, thereby building up volumes, reducing unit costs and improving overall system efficiency.

4.1 Lack of regulatory system has limited benefits of WRs

Common to the models described above is the absence of a regulatory regime. Coulter and Onumah (2002) argue that, as a consequence, warehouse service providers in Africa do not come close to fulfilling the industry's development potential, except in the atypical cases of South Africa and Zimbabwe^{ix}. Looking at international practice, the most comprehensive regulatory regimes can be found in North America (US and Canada) and the Philippines^x. These regimes are concerned specifically with agricultural commodities, and the warehouse operator (or mill in the case of the Philippines) can issue WRs against stocks deposited by third parties and also against their own stock, providing a means of rapidly raising funds against inventories.

In the United States, the system, which is widely credited with streamlining the US agricultural marketing system and, up to the 1950s, playing a critical role in financing and development of the family farm, is organised under the US Warehousing Act of 1916, with subsequent amendments^{xi}. Licensed warehouses have to meet and maintain key criteria in terms of physical facilities, capital adequacy, liquidity, managerial qualities, insurance and bonding cover (the latter protects depositors against fraud and mismanagement). Grain handling staff at the warehouses (weighers, samplers and graders) must also be licensed to carry on their activities, and commodities are graded to US standards. Warehouses are subject to unannounced visits by “examiners” who are responsible for enforcing the law and who can literally suspend or revoke a warehouse license overnight. The oversight system is funded mainly by user fees^{xii}.

4.2 The Zambian warehouse receipt model

With funding from the Common Fund for Commodities (CFC) and other donors, the Natural Resources Institute (NRI) assisted a range of Zambian parties (including farmers, bankers, traders, millers and policy makers), to develop and implement a regulated warehouse receipts system (described in Box 2). The approach involved fostering the development of a national network of privately managed warehouses, which are authorised to issue transferable WR, and where trust is developed through a robust certification and inspection system.

The main innovation in Zambia is that, to engender confidence in the system, an arms-length, ultimately self-financing regulatory agency, insulated from direct government control - the *Zambian Agricultural Commodity Agency (ZACA) Ltd.* - has been incorporated to certify, and inspect warehouse operators authorised to issue WRs against stored commodities. Certification is voluntary and is based on meeting and maintaining criteria such as suitability of warehouses, experienced management and personnel, minimum net worth, insurance and a bond.

The North American model of a Government-based regulatory regime was considered unsuitable. First, there is the problem of assuring the integrity of the system in countries where public regulatory functions are perceived as weak, and where there is no effective and articulate farmer lobby to rein in a non-performing authority. Related to this is the problem of overcoming the scepticism of bankers and others who fear that the scheme will be undermined by pilferage, embezzlement or political intervention.

BOX 2: THE ZAMBIAN REGULATED WAREHOUSE RECEIPT MODEL

National network of warehouses

Warehousing services are to be accessible to various depositors of different sizes - producers, processors and traders, with the minimum size of grain deposit of between 10 and 30 tonnes. The network will start in urban areas and along main transport arteries, but expand later to more remote areas capable of producing a marketable surplus. Commodities to be receipted initially are maize, wheat and soybeans but will later expand to include other storable staples and export crops.

Robust certification and inspection system

A stakeholder-controlled agency, the *Zambian Agricultural Commodity Agency Ltd. (ZACA)*, which is at arms' length from Government, has been established to certify and oversee warehouses, primarily to ensure that its integrity is not compromised by ad hoc political intervention in staffing, and in the issuing and revocation of warehousing licenses.

The certification system is designed to encourage investment in relatively small-scale rural warehousing services, while not compromising the quality of service and trust in the system. A low capital threshold is established (US\$ 50,000 in Zambia^{xiii}), with warehouses being able to store up to ten times their net worth. The applicant must also meet solvency criteria, provide a financial performance guarantee, show evidence of professional competence and integrity, and accept frequent unannounced inspections.

The certification agency will ultimately depend on user fees, but is being subsidised in its early years. It seeks to break even in the shortest possible time, by increasing the number of warehouses and the range of crops to be stored.

Commodity grading and weight standards

Only commodities that meet prescribed weight and grading standards are to be receipted. Warehouse operators and their front-line staff (samplers, graders and weighers) are trained and certified in commodity quality and quantity assurance to facilitate enforcement of commodity standards.

Private sector driven

Certified warehouse operators either own or lease sheds or silos on commercial terms and are free to charge economic storage rates. WR financing is also on commercial terms and does not include 'soft' credit lines from Government or donors.

Building stakeholder consensus and growing policy coherence

Considerable effort is devoted to gaining the commitment of the various stakeholder groups with an interest in the scheme, notably farmers, traders, processors, bankers and policy makers.

Source: Coulter and Onumah (2002)

4.2 Programme achievements

The regulatory agency, ZACA, has been established; its staff recruited and trained in various aspects of warehouse certification and inspection as well as in grain quality and quantity assurance and in commodity trade and finance. Resource persons for training ZACA staff came from NRI, and the United States Department of Agriculture (USDA). ZACA has adopted commodity standards for soybeans, maize and wheat to be receipted under the programme. The main programme achievements as at March 2003 can be summarised as follows:

- 3 warehouse operators with total storage capacity of 23,000 tonnes certified to issue ZACA-backed WRs (this could rise to 50,000 tonnes in 2003, depending on demand; the target is 200,000 tonnes certified storage space in 3 years).
- Staff of the certified warehouses have been trained and certified (by ZACA) as competent in grading and sampling of soybeans, maize and wheat.
- Commercial farmers, millers and small farmer groups, who are keen to deposit under the system, have been identified.
- 5 financial institutions (including 2 international commercial banks) shown a readiness to finance ZACA-backed WRs.
- Training in commodity trade and finance has been provided for a range of stakeholders, including farmers, traders, millers, bankers and insurance personnel.
- Government has indicated strong support for programme and is willing to enact supportive legislation for WRs and to discuss enabling policies.
- Co-funding for ZACA secured from USAID, the Dutch Government and IFAD.

The first receipt for 100 tonnes of soybeans, produced by smallholders and deposited by a processor, was issued in December 2001. Grain deposit in 2002 was hampered by the short grain crop, due to a major region-wide drought, and uncertainty about Government intervention in the grain market. With growing Government support and sustained private interest, it is anticipated that the disabling policy elements will be addressed, thus improving outlook for the 2003 season.

As noted by Coulter and Onumah (2002), certain economic factors favour a successful outcome in Zambia. There is significant production by large-scale commercial farmers and the prior existence of inventory credit facilities under collateral management agreements run by international inspection companies suggests that the underlying economics are favourable to the establishment of a system of transferable warehouse receipts. Vis-a-vis its neighbours, (Zimbabwe and Malawi), Zambia enjoys relative freedom of trade and movement of currency and the level of seasonal price variability in the leading crop, maize, is very high^{xiv}.

4.3 Implementation challenges and approach

The challenges faced in introducing the model in Zambia include disabling elements in the policy environment, legal issues, engendering confidence among bankers, scale economies and ensuring smallholder participation. These challenges and the approach adopted in addressing them are discussed in this sub-section.

4.3.1 Disabling elements in the policy environment

Coulter and Onumah (2001) noted that Governments often resort to ad hoc interventions, which can potentially undermine inventory credit programmes, on food-security grounds. This phenomenon hampered two schemes in Ghana during the 1990s (see Box 3). Building stakeholder consensus and policy coherence has emerged as critical to reducing, though not eliminating, ad hoc interventions. In the case of Zambia, this approach enabled local stakeholders to effectively counter pre-electoral policy reversals and prevent the project from being derailed. However, consensus building is a long-term endeavour and requires sustained commitment from key stakeholders.

BOX 3: DISABLING POLICY ENVIRONMENT AND INVENTORY CREDIT IN GHANA

During the 1990s, there were two pilot inventory credit initiatives in Ghana, one of them involving small farmer co-operatives, and the other involving relatively larger traders storing in state-owned storage facilities. In 1997, both projects were adversely affected by an ad hoc Government decision to grant selected businesses exemption of import duties on white maize in reaction to crop forecast suggesting there would be a major food shortage. The forecast turned out to be incorrect, and the maize import seriously depressed market prices for two years, causing losses to those storing the domestic crop with inventory credit.

Government's reluctance to restructure and/or privatise the malfunctioning parastatal grain marketing agency also caused traders storing with the agency to experience losses, through disappearance and quality deterioration.

Similar observations may be made about the agricultural trade in Kenya; import duties are subject to a discretionary regime of "suspended duties", which reduces private incentives to store, and gives a competitive advantage to any miller who is fortunate enough to have advance knowledge about impending duty changes.

Source: Coulter and Onumah (2001)

4.3.2 Legal limitations on the negotiability of warehouse receipts

Legal aspects of the WR system need to be carefully studied, with a view to identifying factors which diminish the holder's title to the underlying goods and/or security interest in them. The desirable state of affairs is one where the holder of the receipt need not carry out searches to establish the absence of previous charges on the goods, such as could lead to lengthy litigation. Often this is not the case, but as noted by Coulter and Shepherd (1995), lenders may be able to live with a certain amount of legal ambiguity, where the economics of the scheme are strong enough and they are confident that the practical risks are small, a case in point being silo receipt system that took off in South Africa in 1996.

In the case of Zambia, there is a lack of local custom and practice^{xv} or statute, allowing title of warehouse receipts to be confirmed, so banks need to carry out

searches of a kind not required under a fully negotiable system. Stakeholders are, therefore, actively lobbying for legislation that recognises WRs as documents of title.

4.3.3 Engendering confidence among bankers

Experience in Africa shows that engendering confidence among bankers is a major challenge. In Zambia, the situation has been transformed since November 2000, from one where the Bankers' Association of Zambia (BAZ) was reluctant to consider the proposed model, to one where an international bank is willing to finance stocks of maize deposited by farmers at an advance rate of 70% of the market value of the crop in US dollars. Two other international banks are showing strong interest. The key to this transformation has been involving the banks in the scheme design; demonstrating over time that ZACA is a disciplined and well supported non-political, non-governmental body; and the use of a receipt system, which minimises the risk of fraud and facilitates liquidation of collateral.

4.3.4 Scale economies

WR systems involve major scale economies, both in terms of managing warehouses and providing regulatory oversight or certification. Indeed the management and regulatory costs associated with 2,000 and 20,000 tonne warehousing sites are not very different. In Zambia, this challenge is being addressed by: (a) making the system open to all players including large millers and commercial farmers who should be encouraged to participate from the outset, and; (b) starting with large warehouses in major places of concentration.

4.3.5 Increasing smallholder involvement

There is no doubt that smallholders will benefit indirectly from the system, through its aggregate impact on price stability and the transparency of price formation. The experience of some developing countries indicates that there is considerable potential for the direct involvement of smallholders in the WR system, especially as members of marketing groups. In India, both small farmers and traders deposit crops with warehouses owned by the Central Warehousing and State Warehousing Corporations, even though seasonal price variability is low compared to most African countries. Smallholders have participated directly in a small scheme in Niger, which allowed them access to inventory credit in the form of fertiliser. Smallholder coffee producers are likewise involved in some Latin American countries, for example in Guatemala.

There are major political pressures to fast-track direct smallholder participation in the Zambian project, from donors and Government. The underlying concerns over smallholder welfare are legitimate, but it is important to avoid short-term fixes to the detriment of long-term viability^{xvi}. Notwithstanding the positive examples mentioned above, the level and type of direct smallholder involvement in Sub-Saharan Africa remains to be established in practice. Hence, the Zambian scheme may be seen as action-research, the outcome of which will inform long-term strategy for smallholder involvement.

5. Conclusion

Sustainable provision of rural financial services continues to be hampered by such problems as high intermediation costs and peculiar difficulties in the rural financial environment, including high and covariant risks, missing markets for risk management instruments and lack of suitable collateral. It has been argued in this paper that giving the rural population opportunities to manage and reduce the risks to which they are exposed, will reduce the “wrinkles” on their faces (i.e. perception of being high risk borrowers) and improve their chances of obtaining formal credit. It is within this context that the warehouse receipt (WR) system has been suggested as a means of improving access to rural finance.

The system can contribute to increased rural farm income by improving agricultural commodity trade. With rising per capita household income, financial fragility in the rural economy will be reduced, thereby enhancing the scope for borrowing by the rural population. The system will contribute directly to improving the chances of accessing credit for rural borrowers by providing a database of transactions that will ease screening by FFIs. Even more crucially, rural borrowers can secure bank loans with acceptable collateral which is readily available to them.

However, WR finance is often unavailable to rural producers, especially smallholders in Africa; being used mainly by a few large borrowers, usually importers, under expensive collateral management agreements involving international inspection companies. Models targeting small farmer groups and funded by donors/NGOs have often failed because of scale economies and disabling government policy. The *Zambian model, a regulated WR system open to all-comers*, offers hope of a sustainable system that makes commercial finance more readily available to otherwise excluded borrowers. Based on lessons from neighbouring South Africa, Zambian banks are considering providing production credit tied to contracts for crop delivery to certified warehouses. Rural finance supply can only improve with the success of these initiatives.

The most significant challenge in establishing WR systems in Africa remains the disabling elements in the policy environment, particularly ad hoc interventions occasioned by short-term reactions to symptoms of market inefficiency. The Zambian experience in programme implementation demonstrates that building stakeholder consensus and policy coherence is critical to reducing the risk of disabling Government interventions, and that it is a long haul process. There is more to learn from the Zambian project, as its implementation proceeds, particularly on how to ensure that smallholders participate directly in a regulated, national WR system that is also sustainable.

ⁱ About 73% of the population of developing countries live in rural areas, compared with only 32% in developed economies (Human Development Report 1997). Furthermore, due to the high incidence of poverty in rural areas (Asenso-Okyere et al. 1993), any sustainable poverty alleviation strategy has to be rural-biased and incorporate measures to raise agricultural output and productivity.

ⁱⁱ Bank lending to agriculture was almost halved with the abolition of sectoral lending quotas (Shepherd and Onumah, 1997). In Nigeria, most commercial banks prefer paying penalties to complying with agricultural lending quota regulations (*pers comm*).

ⁱⁱⁱ This compares with 8% and 31% respectively for developed countries (Human Development Report 1997).

^{iv} But this option is quite clearly not sustainable – at the 1999 levels of imports, the proposed subsidies would cost Government over \$5 million per annum^{iv} (*estimated by Onumah and Coulter (2001) at about 23% of total Government of Ghana expenditure on agriculture*).

^v Al-Hassan and Jatoe (2002).

^{vi} In many countries WRs are transferred to lenders under pledge, an arrangement whereby title to the goods remains with the borrower. However, the authors find lawyers in several African countries favouring full transfer of title under mortgage, since in the event of default this allows the lender to rapidly realise the asset without risk of drawn-out legal battles.

^{vii} Most of these are companies with headquarters in Europe, including Société Générale de Surveillance (SGS), Bureau Veritas, Socotec/ITS and Audit Control and Expertise (ACE).

^{viii} A more favourable conclusion might be drawn by weighting benefits to the small farmers in the light of their social, i.e. poverty-alleviating, aspect. Notwithstanding one needs to search for ways of achieving the same objectives at lower cost.

^{ix} We consider South Africa and Zimbabwe as ‘cases apart’ in SSA, because commodity exchanges have established regulatory arrangements for warehouses used for delivery against contracts – in South Africa in 1996 and in Zimbabwe in 2000. The existence of exchange trading in these countries can be attributed to the existence of large-scale commercial farming interests which are lacking in the rest of SSA, as well as to more developed financial systems. The Zimbabwe Agricultural Commodity Exchange (ZIMACE) was recently closed down by Government, leading to the suspension of its silo certificates programme.

^x Discussed in Case Study I in Coulter and Shepherd (1995).

^{xi} It is significant that this centrally-controlled system was developed in the United States, because it shows just how seriously legislators and officials took the limitations of the neo-classical market model.

^{xii} The fees are assessed on the basis of the certified storage capacity of each warehouse.

^{xiii} This contrasts to minimum net worth requirements of upwards of US\$1 million established by the South African Futures Exchange (SAFEX) and the Zimbabwe Agricultural Commodity Exchange (ZIMACE).

^{xiv} Coulter and Poulton (2001) found that the average real increase in wholesale maize prices over a six-month period was 80% between 1994/95 and 1997/98.

^{xv} Though in such cases Zambian courts sometimes refer to foreign custom and practice.

^{xvi} Fortunately, in Zambia, ZACA has important allies sharing a similar vision in the Zambia Agri-Business Forum (ABF), an association of companies and NGOs concerned with smallholder outreach with which it would work in the run-up to the 2002.

REFERENCES

Al-Hassan R. and Jatoe J.B.D (2002) "Adoption and impact of improved cereal varieties in Ghana", *Paper presented at Workshop on the Green Revolution in Asia and its Transferability to Africa*, December 2002, Tokyo, Japan.

Asenso-Okyere K. et al (1993) "Policies and strategies for poverty alleviation in Ghana", *Institute of Statistical, Social and Economic Research, University of Ghana, Accra, Technical Publication No.57, 1993.*

Badiane O., Goletti F., Kherallah M., Berry P., Govindan K., Gruhn P., and Mendoza M. (1997) "Agricultural input and output marketing reforms in African countries", Final Donor Report, International Food Policy Research Institute (IFPRI), 1997.

Bernanke B.S. and Getler M. (1990) "Financial fragility and economic performance", *Quarterly Journal of Economics Vol..55, No.1.*

Bessis J. (1998) "Risk management in banking", John Wiley & Sons, England.

Budd N. (2001) "The legal and regulatory framework for warehouse receipts in commodity distribution, credit and hedging", Paper presented at Workshop on Warehouse Receipt Financing: making the difficult deals easier and more profitable, Amsterdam, July 9-11, 2001.

Coulter J. and Onumah G.E. (2001) "The impact of government policy and regulation on the effectiveness of warehouse receipt systems: the case of Africa", Paper presented at Workshop on Warehouse Receipt Financing: making the difficult deals easier and more profitable, Amsterdam, July 9-11, 2001.

Coulter J. and Onumah G.E. (2002) "The role of warehouse receipt systems in enhanced commodity marketing and rural livelihoods in Africa", *Food Policy Vol.27, pp.319-337.*

Coulter J. and Poulton C. (2001) "Cereal market liberalisation in Africa", in *Commodity market reforms: lessons of two decades*, Akiyama T., Baffes J., Larson D. and Varangis P. (eds.), Regional and Sectoral Studies, The World Bank, Washington, D.C., 2001, pp.191-271.

Coulter J. and Shepherd A.W. (1995) "Inventory credit: an approach to developing agricultural markets" *NRI/FAO, Rome.*

Goodland A., Onumah G. and Amadi O. (1999) "Rural finance", DFID/NRI Policy Series No. 1.

Kwadjo G.T-M. (2000) "Inventory credit: a financial product in Ghana", Paper presented at conference on "Advancing micro-finance in rural West Africa", Bamako, February 22-25, 2000.

Murdoch J. (2000) "The microfinance schism", *World Development*, Vol.28, No.4, pp.617-629.

Onumah G. E. (1995) "Challenges of rural financial intermediation: the experience of rural banks in Ghana", *Paper presented at Workshop on Finance Against Poverty at the University of Reading, April 1995*.

Onumah G. E. (2001) "Facilitating smallholder access to the WR system: which smallholder group model is suitable?", Report of study undertaken for ZACA under the CFC-funded project in Zambia, December 2001.

Onumah G. and Coulter J. (2001) "The maize commodity system in Ghana: a review", *Discussion Paper, NRI, Chatham, UK*.

Pinstrup-Andersen P., Pandya-Lorch R., and Rosegrant M.W. (1999) "World food prospects: critical issues for the early twenty-first century", *Food Policy Report*, IFPRI, Washington.

Shepherd A. and Onumah G. E. (1997) "Liberalised agricultural markets in Ghana: the role and capacity of government", *The Role of Government in Adjusting Economies Studies Paper 12*, DAG, University of Birmingham.

UNDP (1997) "Human Development Report 1997", *UNDP, New York*.

Varangis P. and Larson D. (1996) "Dealing with commodity price uncertainty", Working Paper 1667, Washington D.C.: The World Bank.

World Bank (2001) "World Development Report 2001", *World Bank, Washington*.

Yaron J., McDonnald P. B., and Piprek G. L. (1997) "Rural finance: issues, design and best practices", *Environmentally and Socially Sustainable Development Studies Series No.14*, The World Bank, Washington.