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Challenges and Constraints to Agricultural Mechanization in Zimbabwe: A Dealers' and Manufacturers' Perspective

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***Abstract* – Sustainability of agricultural mechanization programs in Zimbabwe, as elsewhere, hinges significantly on the performance of agricultural machinery dealers and manufacturers. Understanding the challenges and constraints faced by these entities will thus shade light on the weaknesses of current mechanization programs. In this study data was collected using focus group discussions and key informant personal interviews to investigate the challenges and constraints faced by agricultural machinery dealers and manufacturers in Zimbabwe. The results of the study reveal that the actions of the government of Zimbabwe are viewed as most significant in hampering the contribution of dealers and manufacturers to the mechanization of Zimbabwean agriculture. In addition to the government withdrawing from active participation in the agricultural machinery supply chain, the study recommends for dealers and manufacturers to invest more in research and development of lowly priced, high quality machinery that is compatible with small land holdings.**

***Keywords* – Agricultural Machinery, Agricultural Mechanization, Dealers, Manufacturers, Government of Zimbabwe.**

I. INTRODUCTION

Increasing agricultural production and productivity is an important and strategic concern for the government of Zimbabwe (GoZ). This is not only because the government wants to ensure national food security but also because the performance of the economy as a whole is significantly dependent on agriculture. Since independence in 1980, the GoZ has pursued a number of approaches to boost agricultural production and productivity but has, especially with the conclusion of the Fast Track Land Redistribution Program (FTLRP), concentrated on agricultural mechanization [1]. It is a well documented assertion that agricultural mechanization contributes significantly to improving both production and productivity in agriculture [2]. However, there are principles that ensure success and sustainability of mechanization programs, amongst them is the presence of government policy supporting local mechanization industry, availability of markets for the produced equipment, active research and development to keep abreast with clientele needs and the availability of after sale services like repair, maintenance, training and extension services [3].

In Zimbabwe, even though agricultural output over the years has been increasing it cannot be ascribed to improvement of agricultural mechanization [4]. Variations in agricultural output are more accurately attributable to the availability of other production inputs such as seeds and agro-chemicals as well as to favorable seasonal climatic conditions than to mechanization inputs. This is because the GoZ has been the major player in the provision of mechanization inputs in the years since the FTLRP but audits to trace these inputs indicate that most are defunct or simply missing [5].

According to Clarke's [6] agricultural mechanization strategy recommendations, the success of any agricultural mechanization intervention is dependent, not only on the government, but also, on the private sector: agricultural machinery dealers and manufacturers. This is because agricultural machinery dealers and manufacturers play a pivotal role in supplying the optimal machinery mix and requisite maintenance services for each production unit in the agricultural sector. It is thus essential to identify the constraints and challenges being faced by these players if a holistic understanding of the underlying causes of failure of recent mechanization programs in Zimbabwe is to be obtained. Such an understanding will go a long way in informing government agricultural mechanization policy and increasing the probability of success in future mechanization programs.

II. MATERIALS AND METHODS

The research was carried out in the capital city of Harare and relied on two data collection techniques – personal interviews and focus group discussions. The focus group was made up of four representatives from the Agricultural Dealers and Manufacturers Association of Zimbabwe (ADMA). ADMA is constituted of 17firms involved in the manufacture, importation and distribution of various mechanization inputs and is the main organ via which the sector lobbies government. In addition, other participants in the focus group included two owners of firms involved in the manufacture and distribution of tractor powered equipment but who are not members of ADMA and four owners of small artisanal firms involved in the manufacture and selling of reverse-engineered manual and low horsepower equipment. Personal interviews were held with key informants: current as well as former top and middle management level employees of closed or downsized firms, government extension officers, farmer organization representatives and loan officers at various financial institutions.

III. Results and Discussion

The results of the study showed that the problems affecting the dealers and manufactures mainly orbited around the lack of credit and ineffective government intervention as discussed below.

3.1 Lack of credit

The inability of most farmers to acquire adequate cash or access credit to purchase mechanization inputs was a constraint unanimously identified by all participants. This was identified as the fundamental challenge to widespread agricultural mechanization and to the viability of firms in the mechanization sector; a view also shared by Iqbal et al [7]. The reasons advanced for this state of affairs are highlighted and explained below.

3.1.1 Farmers' lack of collateral

Mechanization inputs are generally high cost capital investments and are thus normally acquired via debt financing. For financial institutions to provide farmers with the requisite finance to purchase agricultural machinery the farmers need to have collateral against which to borrow. In the years before the FTLRP farmers were able to offer their farms as collateral and obtain the loans they needed to finance the purchase of agricultural machinery. This situation has however changed due to the changes in Zimbabwe's land tenure laws which forbid private ownership of farm land [8][9]. This development has especially hamstrung the majority of the newly resettled farmers (who are supposed to be the backbone of agricultural production in post-FTLRP Zimbabwe) as they lack any other form of capital that could be offered as collateral besides their farms [10]. This situation thus leads to dead demand for agricultural mechanization inputs: farmers need agricultural mechanization inputs but cannot translate this demand into actual purchases.

To remedy this situation a proposal similar to that advanced by Atwood [11] was suggested; that the government should commoditize land by giving farmers title deeds.

3.1.2 Risk management by financiers

The general economic environment in Zimbabwe is considered risky due to a number of factors which include political and policy uncertainty. Financial institutions are thus limiting their exposure to risk by lending at high interest rates (in some cases above 20% per annum) and for periods less than two years. Loans of this type are incompatible with the production cycles in agricultural production and are thus not favourable to farmers [12]. This situation affect even those farmers who might have adequate collateral to obtain the loan: the period to pay back the principal is short and interest so high that it increases the risk of default and thus jeopardizes the farmer's assets. As such most farmers do not even bother to seek credit to finance the purchase of machinery.

In addition, most financial institutions categorize farmers as high risk clients and will thus automatically disqualify them from obtaining loans. This is because farmers have a significant default rate. The reasons for these high default rates include reliance on vulnerable rain-fed production systems that concentrate on low-margin staple grains (such as maize) and a pervasive attitude among farmers that loans are their portion of the national cake.

3.1.3 Lack of customer requirements research

If customers cannot afford goods and services offered by a sector of the economy then that sector will tend to perform poorly. This does seem to be the case with the agricultural machinery sector in Zimbabwe. There is however the alternative explanation that the sector is performing poorly due to its own lack of innovativeness and ubiquitous resistance to change [13].

The majority of machinery inputs on the formal market are priced well above what most farmers desirous to acquire such inputs can afford. This shows that most firms in the sector are offering machinery that is not congruent with the capital endowment and production systems of most farmers. Most dealers and manufacturers are still enamored to the pre-FTLRP situation in which there existed capital endowed, high-paying large scale commercial farmers who consumed large horsepower motorized machinery and are thus concentrating on producing/importing and marketing such machinery. However, this is clear evidence that such firms are out of sync with the reality of the agricultural machinery market that now exists in Zimbabwe [9]. Large scale commercial farms are by-and-large extinct having been replaced by the less resourced A1 and A2 farmers whose low scale of production and lack of capital does not make them consumers to large horsepower tractor based machinery as their predecessors [10].

Agricultural machinery dealers and manufacturers thus need to realize that the business model they are insisting on pursuing is a relic of a by-gone era. They need to adapt to the new situation and develop not just the appropriate technology but also the proper business models to cater for the needs of the "new farmer" [12]. This blindness to developing trends in the market and a lack of strategies to take advantage of them is also evidence to a lack of investment in research and development (R&D) by firms in this sector[14]. To support this assertion, most of the designs for equipment that is locally manufactured were found to have been developed in the 1950s and 1960s and were hardly ever changed or modified since then [15].

It would seem that the needs of the "new farmer" are clustered around smaller sized and lower priced motorized equipment [12]. Most firms that have identified this trend are concentrating on importing this type of equipment mostly from China and selling it on the local market as is. Though the equipment is made available at low prices it has a very low durability due to low quality materials or simply because the equipment was not designed for harsh local conditions. Farmers are thus being forced to purchase new equipment every season which is not the ideal situation. Machinery should be a capital investment and not a recurrent expenditure item. This however, indicates that there is demand for this type of equipment to be made compatible to local conditions. Local firms should thus take advantage of this demand by engaging in R&D that will result in the production of more durable local versions of the preferred type of equipment [16].

3.2 Ineffective government intervention

It would seem, from the focus group discussion that local firms are not insensitive to the need for higher quality machinery expressed by farmers. The lack of localization of machinery was viewed to be a problem that sprouted from a lack of investment in R&D which itself stems from the precarious financial position that most firms in the sector find themselves in. Stiff price competition from low priced imports has made it strategic not to manufacture locally. Companies that used to manufacture now just import low quality machinery because it is considerably cheaper than manufacturing. The government was singled out as the force behind this state of affairs.

The tariffs regime was cited as the main contributor to the prevailing scenario in which imported equipment lands on the local market being multiple times cheaper than similar equipment manufactured locally. This situation comes about because importing finished agricultural machinery attracts no import duty taxes. The GoZ adopted such a policy as a way to encourage agricultural mechanization but without considering the viability of local manufacturers. Manufacturers indicated that virtually all their mechanization equipment require steel; however, Zimbabwe does not produce high quality steel and as such all such steel has to be imported. The unfortunate thing however, is that high grade steel is not covered under any import duty exemption program. Steel, because of its multiple industrial uses, is not defined as an agricultural mechanization input as such its importation is levied an import duty tax of 35%. These taxes translate into high manufacturing costs which then are reflected in the prices of locally manufactured agricultural machinery. The end result is that locally manufactured machinery will be multiple times more expensive than similar imports.

3.2.1 Direct competition from government

The actions of the government in the agricultural machinery sector are viewed by all private players in the sector as being counterproductive to promoting widespread agricultural mechanization in general and to the financial viability of private sector. This view is contrary to the findings of [16] and [14] but the dissimilarity is due to the nature of government intervention. The GoZ, as part of ways of improving agricultural production, has embarked on a number of mechanization programs. These programs have all involved the government disbursing agricultural machinery to farmers at very concessionary rates, for all practical purposes the government simply gave agricultural machinery to farmers for free [5].

This approach has heavily distorted the market for agricultural mechanization inputs and has been highly unfavorable to private firms in the sector. In all of these mechanization programs the government has virtually taken on the role of importer, financier and distributor of agricultural equipment and in so doing has severely compromised the viability of all firms that normally play such roles in the agricultural machinery supply chain [6]. When private sector participation is required in such programs, the contracts to import the machinery inputs are awarded to newly formed entities that have no history in the supply of such equipment [5]. This does not just increase competition in the highly crowded sector but also increases the probability of failure of government mechanization programs as the new companies usually do not have adequate technical and administrative capacity to satisfy the demands placed upon them.

The importation of power sources such as tractors and engines under mechanization programs is understandable as Zimbabwe cannot manufacture these devices, but the importation of implements is highly questionable as local manufacturing firms have both the expertise and capacity to manufacture most of the implements being imported such as disc ploughs and harrows, cultivators, threshers etc.

It would seem that the only portion of the value chain that local dealers and manufactures of agricultural machinery can participate in is after sales service provision. But even here their participation is severely restricted as the majority of equipment being imported into the country by government comes from mostly China and Brazil; equipment manufacturers that most local dealers are not familiar with. There are hardly any local dealers that are officially accredited or affiliated with any original equipment manufacturers in China or Brazil. Indeed, as previously highlighted most of the beneficiaries of government mechanization programs are either not engaged in financially viable enterprises or cannot access credit and as such cannot afford or are unwilling to pay for after sales services.

The actions of the government are thus seen as being directly and actively against local agricultural dealers and manufacturers. The actions of the GoZ are thus viewed as having stifled the organic growth of demand for agricultural mechanization inputs by creating a culture, among the majority of farmers, of dependence on the government. This renders agricultural machinery dealers and manufacturers largely irrelevant and thus threatens their existence [6].

IV. Conclusion and Recommendations

Agricultural machinery dealers and manufacturers identify the actions of the government as being the main deterrent to the success of agricultural mechanization programs in Zimbabwe. This is because the actions of the government are viewed to foster a culture of dependence on government hand-outs among the majority of farmers. This effectively kills farmer initiative by dampening farmer profit-seeking behavior which in turn lowers the effective demand for agricultural mechanization inputs and their supporting services. As agricultural mechanization is a farmer-demand-pulled process, the reduced demand for mechanization inputs invariably leads to the failure of any agricultural mechanization program in the current environment.

It is thus recommended that the GoZ seizes to actively participate in the agricultural machinery supply chain and instead concentrate its efforts on the creation of an agricultural mechanization policy and associated

legislation along the lines advocated by [6] and [12]. In addition, to support local dealers and manufacturers, the government should scrap import duty taxes on steel imports. On their part, local firms should invest in R&D so as to produce lowly priced, high quality equipment that is congruent with farmer needs.

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