

# **Constraints and Opportunities to Feeding Zimbabwe<sup>1</sup>**

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## **1. INTRODUCTION**

Zimbabwe and, indeed the larger part of southern Africa, has experienced increased drought over the past thirty years. Rainfall distribution within seasons has also become more uneven. This notwithstanding, there has been no season in the past thirty years that Zimbabwe has received less rainfall than the cumulative amount required to mature a maize crop – some 250 to 300 mm. In fact, the country has, on average, received rainfall amounts in a season enough to mature two maize crops in a season. But national food security and food sovereignty have remained elusive for the past decade.

The horticultural industry, despite modest recovery, is still well below its potential. The livestock situation has been slightly better, with a sustained albeit marginal increase in the national herd over the past few years. The country is becoming self-sufficient in poultry production and there is a steady increase in annual milk production.

## **2. CONSTRAINTS AND OPPORTUNITIES**

Constraints to increased agricultural production have been researched, framed and classed in a variety of ways. However, there is an increasing consensus that a value chain approach to solving these problems instead of the disjointed and often perfunctory approaches of the past must be adopted urgently. This is the emerging consensus on the plausibility of the approaches to reversing this perennially insalubrious food security situation.

## **2.1. Policy Environment**

It is indisputable that governments must create an enabling environment in which business must operate, survive, thrive and prosper. Relating to land, this spans legal and regulatory frameworks for example regarding land and tenure, water abstraction and use and utilities levies and taxes.

It has been argued that 99 year leases are a requisite to accelerating agricultural development and unlocking funding potential and, yet, the tobacco and some livestock sub-sectors are thriving under the current tenure system. Leases are required, but they are not the panacea to unlocking agricultural potential. Dishearteningly, at the current pace, it will probably take 120 years to provide the leases for the land acquired to date.

Other policy issues impacting on agriculture relate to provision of adequate and holistic education, social services, and infrastructure development, and promotion and preservation of peace and stability. A literate human resource base is a catalyst for development. The provision of social security nets through interventions at various points of the value chain should, ideally, be promotive of increased food security and must be output - oriented. To be sustainable, the intervention must not weaken any part of the value chain.

Debate is heating around the difficulty of doing business in Zimbabwe, dubbed euphemistically “ease of doing business”, with multiple taxes and levies coming to the spotlight. It has been reported that upwards of 25% of costs maybe taxes and levies by various arms of government and local authorities.

Research, development, technology transfer and extension issues are also paramount. Participatory policy making, and thereafter policy clarity and, of paramount importance, policy consistency, are also key to ensuring revival of the agricultural sector. New technologies for novel plant and animal genetics for better performance in drier environments and information communication technology issues will increasingly come to the fore and challenge current policy and thinking on these issues.

Policies too, on subsidies, including their target along the value chain will be discussed more vehemently in the light of minimal evaluation of historical and current impacts of such interventions. This should include when and how to intervene and who should be targeted to benefit from this intervention. In some

instances, the most vulnerable people lack the capacity to produce sufficient food even in the light of such subsidies.

Indigenous knowledge systems and the recognition, conservation and preservation of traditional agricultural crops, varieties, values, cultures, norms, practices and systems must be mainstreamed as key components of a national heritage policy. The crop diversity at most rural homesteads is based on these cultural issues and, in many aspects, household food security has been attained this year because of these traditional crops and varieties, and cropping and livestock practices.

## **2.2. Inputs and Finance**

The availability of affordable inputs timeously where they are required should go a long way in assisting in food security. However, the most vulnerable households lack the capacity to purchase such inputs, and models of how they could benefit from subsidies have been suggested. These have included physical input provision while others have suggested linking and involving local dealers through a coupon system so that current value chains can be strengthened. The latter could strengthen current value chains and lead to sustainability-oriented agricultural recovery.

The availability, cost and tenor of finance are major issues in the absence of long term financing due to heightened country risk. The current land tenure is not promotive of long term thinking and capital financing by farmers. Infrastructure and irrigation development in the absence of a lease or other more secure tenure arrangements are, therefore, considered too risky.

Conventional lending models are largely collateral-based. So banks have been reluctant to lend in the absence of collateral. But the maize production boom of the 1980s and early 1990s was on the back of communal and small scale production, who were to some extent financially supported by Agribank. There was a known, secure and paying market at the Grain Marketing Board for the maize. Group lending and peer risk management worked - Farmers had GMB cards and access to a variety of services on the back of this card. This value chain has been disrupted. The Agricultural Marketing Authority was very active, sourcing funds for GMB and other parastatals, but a solid, transparent and trusted value chain was in place.

Tobacco production has increased during the last decade on the back of secure and strong value chain actors and traceability, trust and confidence. Contract growing now accounts for upwards of 70% of the crop – the contractor borrows from banks, funds the crop, provides the technical back up to increase production and productivity, and purchases the entire crop. A fair but sometimes disputable payment system is in place with the Tobacco Industry and Marketing Board being the regulator and arbiter.

The tobacco model has been replicated in banana production in Honde Valley, where production has grown astronomically when growers were linked to a market at FAVCO and finance was ring-fenced and extension and capacity building efforts were targeted at growers.

Aspects of this value chain approach to enhancing growth is also operational in poultry, barley, cotton, tomato, beans, peas and grain production. Various other contract growing schemes of different shapes and sizes seek to mimic this value chain approach to enhancing production and productivity. There has been discussion on a warehouse receipting system, but not much progress has been made, as a source of securing funding for agriculture. These value chains have a few aspects in common: an assured market, traceability, standards, technical back up, a strong grower base, solid funding and trust and confidence.

### **2.3. Production and Productivity**

A comparatively well developed, research, development, technology and knowledge transfer network has bestowed Zimbabwe with some historical advantage over its neighbours but, sadly, this competitive advantage is not translating to more productivity. The average maize yields are currently 0.4 t per hectare nationally, and maize is retailing at USD0.30 to USD0.70/kg during 2016. The cost of production wildly varies from USD 0.20 to USD 1.35 per kg depending on yield per hectare. To put things in context, if we require 1.5 million tonnes annually, we would need 3.75 million hectares planted to maize at a cost of USD 937 million. By only getting back to the productivity levels of the 1980s and 1990s of 1.6 t/ha, we can reduce the hectareage for the same national yield to 937 000 ha, at a much reduced and affordable cost of USD 234 million. We can imagine what it would cost to produce at 2t or 3t/ha national average.

Imagine if we had annual and long term targeted contracting for the national strategic grain reserve of 500 000 metric tonnes, we would require only 500

farmers at 10 tonnes per hectare and 1000 farmers at 5 tonnes per hectare at 100 hectares each.

We need to be clear at what cost we must achieve food security and food sovereignty. For example, can winter maize be an option in the Lowveld at the current production cost of USD 478 per tonne, or could we have requested the money and imported maize here at even USD 250 per tonne? Is it an issue of low productivity? These are all national issues, but if they are dealt with at a community level then there is a different perception of the values we impute.

The foremost issues, clearly, are increasing productivity per unit area, increasing the quality of the unit produced, reducing the costs per unit, and hoping that there would be an attendant response positively in price. I have called this “The Quadruple 10 Principle” or “Q10 Principle” for short. The Q10 Principle posits that to increase your bottom line by 40 % you need to:

1. Increase quantity produced per unit area by 10 %
2. Reduce the cost of producing this quantity per unit area by 10 %
3. Increase the quality per unit product by 10 %
4. You will hopefully simultaneously get a 10 % increase in Price !

All better said than done! Yes the hard work then begins with the “cause-effect relationship”, a scientific approach to farming, to actualise the Q10 Principle. What exact intervention or activity or action will lead to what outcome or proportion of the outcome in order to achieve 10 % yield, for example. This might be a change of variety, this might be a new agronomic approach, it might be herbicide versus weeding, time of planting, fertiliser levels etc.

This approach allows for seasonal incremental gains by farmers and has been used successfully in a few large corporates in their turnaround strategies. The danger, too often, is that we want transformation and not the small incremental and steady and irreversible steps that this approach takes. So back to basics, is the way to increase production and productivity in Zimbabwe. This is also a business approach to farming. At the household food security level, crop diversity is key to survival although there would be some key cereal or livestock enterprise.

Stinted efforts at banning imports at all costs pervade the corridors of our minds intermittently. Imports are cheaper, in many aspects, because the cost per unit produced is lower on account of higher productivity per unit area. To counter this we must attend to the Q10 Principle. Imports may also be cheaper because

of trade and export incentives in the exporting country. Counter measures could be put in place. Informed interventions, based on accurate value chain information of the crop or livestock enterprise, is being used to regulate quantities of imported goods into the country, but this should be linked to a policy and strategy of increased productivity and production locally, which should be monitored for adherence. This must be transparent with all key stakeholders aware of their obligations.

#### **2.4. Transport, Logistics and Storage**

Once we have secured that yield, we must secure this harvest so that it eventually ends on the table. Up to 25% loss can occur post-harvest due to a combination of poor infrastructure, non-availability of suitable transport and poor or inefficient storage systems. Storage pest and diseases, causing irreversible deterioration in grain are commonplace in Zimbabwe. Better, efficient and cost-effective storage facilities, with attendant periodic use of grain protectants, are a necessary part of securing harvests.

With lower production and food deficits, we encounter the double negative effect of imports and increased road traffic and accelerated road wear and tear. This compounds the logistical nightmares at ports and on roads, especially when several countries have food deficits in the region and must import food offshore.

#### **2.5. Markets and Market Linkages**

The availability of trusted, formal and informal markets, with fair and equitable payment systems for various farm produce can provide the impetus for enhanced production. With stronger value chains, trust and confidence will breed transparency that can lead to databases of productions areas, by grower by crop and by month, upon which even financiers could rely upon to provide funding for growers. The entry point of this financing could be at market level, as is the case with tobacco and poultry systems. We require accurate information on demand for various products in order to inform production trends on the ground. We have seen the good work that Knowledge Transfer Africa's eMkambo has initiated with informal markets. And, in this regard, a multiplier effect is required, for replicability is the basis for sustainability. The need for collateral at farmer level would fall away, when viability and farmer and market trust have taken over.

## 2.6. Climate Change

Changing weather and climate patterns are part of the global phenomena, but in the past six decades there has been accelerated human-induced global warming with attendant changes in climate patterns that threaten survival of many species on this planet. The Paris Summit last December where 195 countries agreed to limit global warming to 1.5 °C is a stunning revelation and consensus and awakening and tacit agreement that because everything is connected everything is vulnerable. Events and activities in some remote part of the globe will affect us climatically in the years ahead. Africa is most vulnerable because of its inability to respond, adapt and mitigate the effects of climate change at the desired pace to sustain livelihoods. But there are a few things we can do if we look at issues more closely to limit the dangers and effects of climate change.

There are four issues that influence production in any area:

1. The geographic space, that is Zimbabwe and its unique climate and various and shifting agro-ecological regions. The southern parts of the country do receive earlier rains while the northern parts have latter and more consistent higher and better distribution of rainfall on account of the inter-tropical convergence zone. This must inform, broadly, what crops/livestock should be grown and when, in these regions.
2. Within a season, weather variability must be taken into account and forecasts must be the guiding parameter, and both traditional and modern forecasting systems must be used. There is increasing convergence that the Chiefs Council and Meteorological Services, must meet ahead of the season and share notes on their forecasts and then communicate this effectively to stakeholders such as farmers organisations, bankers, and other critical value chain actors, and government, for the benefit of all Zimbabweans.

Cloud seeding can assist in enhancing rainfall activity. Too often, however, cloud seeding is advocated only in drier years whereas this should even be more pronounced in good years when rainfall chances are higher and the season more favourable to crop growth for higher yields. This is making hay while the sun shines. Cloud seeding is affordable, at USD

0.4million for a season, to assist the country to secure perhaps a USD 1 billion investment in agriculture annually.

The role of ICTs in weather information dissemination and use by farmers should be key policy focus areas, while ensuring that the requisite weather forecasting resources are upgraded and improved to world standards.

3. The variety choice or breed choice are critical in changing weather patterns. In many instances the variety grown by the farmer is based on what is available rather than what is suitable for the area. Indigenous crops and varieties, and livestock, are resilient and should be promoted at the local level for food security.
4. Of the three above, on a scale of 1 to 100, perhaps 51 percent of the success in the season is dependant on the farmer. The aptitude and attitude, understanding the choices made, the errors - both by omission or commission - within a season all affect productivity.

Investment in irrigation of any type is the logical first step towards guaranteeing food security at household, community and national levels. Too often, however, we focus on the big projects when, in fact, the smaller household projects can be equally more effective. With investment already in over 10 000 dams, of various yields and silted and maintained to different levels, Zimbabwe has a very real opportunity to turn around its food security fortunes through focused irrigation rehabilitation first and foremost, and, secondly, irrigation expansion programmes.

### **3. FOOD SECURITY AND FOOD SOVEREIGNTY**

The startling revelation that a household's annual food requirement of 4 00 kg per year can be met from 1/16 of a dryland planting hectare, at Foundations for Farming, is insightful. This is equivalent to 2 500 maize plants! If we think of climate smart and conservation agriculture, and that a household investment of a peddle pump of USD 150 could be used for supplementary irrigation for some 3 000 maize plants, and horticultural crops, then we are on our way to achieving food security. Irrigating once a week during summer when rains are not adequate, this pump could perhaps be shared among five families. If we want to

reach to some 1.6 million rural households in Zimbabwe over a ten year period, then we could be looking for an investment of USD 4.8 million a year! We obviously, have to work around the water storage receptacle, but not the catchment as we receive enough downpours at some stage during the season that simply runoff to streams, rivers and eventually oceans.

Obviously, irrigation at any scale larger than this could have even a bigger impact on food security.

We can also think of food security, from an expanded concept not just a maize- or cereal-based concept, to include a change in food habits, focusing on crop diversity and nutrition-based food security. This area requires both policy and scientific exploration but, clearly, we already see this operational at household level and in many towns and cities where health-conscious citizens are beginning to demand healthier foods.

If we look at other countries, but predominantly gulf countries, we note some lessons. With over 90% of their food and feed requirements being imported, these countries achieve food security differently. Could we have a mix of food security strategies thus (1) using food crops to achieve food security (2) using cash crops, for example tobacco, tea, etc for food security and (3) using natural resources to achieve food security ? It seems plausible that we should perhaps have a paradigm shift towards how to attain food security. Tobacco already provides USD 200 million gross annually to communal and small scale households. It must certainly have a major food security impact and a massive economic multiplier effect. Broadening our thinking to take full advantage of our competitive edge seems a fundamental and philosophical issue from afar but, at a practical level, we already utilise this approach when we marshal and redirect resources from other sectors towards food imports during unfortunate episodic and catastrophic droughts. To what extent this should be a central policy and planning issue is determined by our willingness to move beyond the past and present and comprehend the worsening climate change effects on Zimbabwe in the years and decades ahead.

#### **4. CONCLUSION**

Zimbabwe can and must produce and feed itself. It must even produce for export. But we need a back to basics approach to find our feet, and morph and map a solid, sustainable and practical way for enhancing production and

productivity in the reality of climate change, and the current land tenure system, while invoking a value chain approach with shared accountability and responsibility, to lift ourselves out of this food insecurity quagmire and elevate Zimbabwe's standing and status as a robust and formidable agricultural nation.