

POLICY VOICES SERIES

Africa Research Institute



GRAIN REVOLUTION FINGER MILLET AND LIVELIHOOD TRANSFORMATION IN RURAL ZIMBABWE

By Dr Chidara Muchineripi

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AUTHOR

Dr Paul Chidara Muchineripi is executive chairman of Business Training and Development, a management consultancy firm based in Harare. He established the Chinyika Communities Development Project in 2005 with the initial aim of encouraging five villages to grow finger millet to improve household food security and counter over-dependency on maize cultivation in a low rainfall district. By 2014, more than 40,000 households in Gutu district had participated in, or benefited from, the project.

Chidara was born in Gutu district of Masvingo province in southern Zimbabwe and lived there until he completed primary education. Following the death of his father, he was employed as a house worker by a colonial police officer. He achieved O-level and A-level qualifications largely through self-education and distance learning. In 1972, he gained a diploma in agricultural support and subsequently spent six years training agricultural extension workers.

In 1979, Chidara enrolled in the University of Rhodesia to study for a bachelor of administration degree. He graduated with honours in 1981, shortly after Zimbabwe's independence. He spent six years at Anglo American, the resources and mining conglomerate, and 14 years at Astra Corporation, the construction and manufacturing group. In 2001, he founded Business Training and Development.

In 2007, Chidara completed an MSc in Social and Economic Transformation at Buckingham University in the UK; he was awarded his doctorate in management of technology and innovation by the DaVinci Institute, South Africa, in 2012.

Chidara is the head of Tavengwa village and heir to the paramount chieftainship of Gutu.

THE POLICY VOICES SERIES

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In publishing these case stories, ARI seeks to identify the factors that lie behind successful interventions, and to draw policy lessons from individual experience.

The series also seeks to encourage competing ideas, discussion and debate. The views expressed in the *Policy Voices* series are those of the author and other contributors.

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FOREWORD

Driving south from Harare into Masvingo province it becomes immediately clear why agriculture and land are such hotly contested subjects in Zimbabwe. Vast swathes of semi-arid grazing lands, interspersed with communal farms and the remnants of the country's agricultural industries, fill the landscape. Zimbabwe's economy is, and will remain for the foreseeable future, one in which agriculture plays a dominant role. The symbolic significance of the sector far exceeds its 20% contribution to GDP.

Over the past 15 years, it has been almost impossible to discuss agriculture in Zimbabwe without being drawn into heated debates about the controversial Fast Track Land Reform Programme (FTLRP). Rhetoric and emotion feature prominently, understandably, but often at the expense of evidence and objective assessment. These debates will not draw to a close anytime soon. Although new research has consistently shown that land reform has not been an unmitigated disaster, in many respects this story has only just begun. It will continue to unravel and evolve.

There are, however, examples of change in rural Zimbabwe that fall outside the binaries of the land reform debate. The Chinyika Communities Development Project (CCDP) is a noteworthy one. In the district of Gutu, Masvingo province, rural families have managed to overcome the persistent threat of food shortages – and even famine – thanks to the vision, innovation and leadership of Dr Chidara Muchineripi.

The son of a chief and a village head, Chidara has used his standing within the community to encourage farmers dependent on maize production to plant finger millet, a neglected crop that is indigenous to Zimbabwe. His rationale is simple: finger millet is naturally drought-resistant and better suited to areas of low rainfall than maize. Although more labour-intensive than maize cultivation, finger millet requires fewer expensive inputs and can be stored for up to 25 years. Numerous studies have shown finger millet to be very nutritious; it also contains high levels of calcium, carbohydrates, iron and amino acids.

This narrative is about much more than just switching from one crop to another. For Chidara, the root cause of poverty in Zimbabwe is food insecurity. Rural households that are dependent on maize production regularly experience shortages of food due to erratic weather conditions and limited access to agricultural inputs. It is this

reality that cripples innovation and investment, whereas if households have a stable supply of food their capacity to transform their livelihoods increases dramatically. Rather than looking to science and technology for solutions, Chidara has found inspiration from within his community.

Transforming Africa: a case for agriculture

Chidara's passion for traditional crops and knowledge is not based on nostalgia, harking back to the 'good old days'. After all, he is a management consultant based in Harare who has spent most of his career working for large multi-national companies. It is partly through these experiences, however, that Chidara believes he has understood why so many Western approaches to business have failed to take hold in Africa – a structural failure to recognise and incorporate traditional knowledge and culture.

This logic could quite easily be applied to ongoing debates about economic development throughout sub-Saharan Africa. As academics, researchers and development agencies look to apply 'lessons learned' from successful economic transformations in Asia or Latin America, they routinely ignore existing local knowledge systems and local cultures. It often seems as if Africa's 'lion' economies are expected to copy Asia's 'tigers' if they want to replicate their success.

At the heart of the debates about economic development in Africa is a call for greater industrialisation to drive economic and societal transformation. When countries make the transition from low-productivity to high-productivity economic activities, job creation and wealth accumulation follow, the argument goes. The subtext to this is that African countries must prioritise a shift away from agriculture into higher-value industry, as occurred in the developed world and most recently in a number of Asian countries.

There are three immediate ripostes to this argument. First, industrialised Asian economies only began diversifying away from agriculture into industry once they had neared – or even reached – their productive capacity. Agriculture in most African countries, with the notable exception of South Africa, lags far behind its potential in terms of output per hectare. The reasons for this differ widely, but smallholder farmers across the continent are constrained by a familiar combination of diminishing access to essential agricultural inputs, non-existent irrigation facilities and a dearth of credit provision. Furthermore, most people who leave agriculture

in search of employment in urban areas join the informal service sector, which has even lower levels of labour productivity.

The second point worth remembering is that when Asian governments pursued concerted industrial strategies that absorbed labour and encouraged rural-urban migration, they did not ignore agriculture. In China, for example, the government continues to spend at least 8–9% of its budget on agriculture, despite industrialisation.

Finally, industrialisation alone will not solve the unemployment crisis or eradicate poverty in Africa. One recent study has shown that even if Africa's low- and middle-income countries had successfully pursued labour-intensive manufacturing over the past decade, and had achieved growth rates comparable to Vietnam, only seven million additional waged jobs would have been created among a workforce of more than half a billion.¹

Agriculture employs two-thirds of Africa's workforce and accounts for a third of the continent's GDP. In many countries it remains the largest economic sector, trumping banking and other services, mining and telecoms. It would logically seem to follow that any government in Africa that neglects its rural population is sowing the seeds of its own demise.

Despite commitments made in the 2003 Maputo Declaration on Agriculture and Food Security in Africa, only 13 African governments have contributed more than 10% of their national budget to agriculture in one or more years since 2003.² Donors have not performed any better. A study by the UK's Overseas Development Institute found that development assistance for African agriculture has fallen by half since the late 1980s.³

The paucity of investment in agriculture in most African countries is reflected in the under-performance of the sector. The agriculture sector's share of GDP is lower in nearly all African countries than would be expected based on per capita income levels.⁴ Unless governments and donor agencies can design measures to promote productive – as well as modern – enterprise in household farms then talk of 'African lions' is likely to remain hyperbole.

Zimbabwe: new dawns, old horizons

There was a time when Zimbabwe was an exception. In the first decade after independence in 1980, the government of President Robert Mugabe pursued bold and ambitious policies aimed at stimulating the smallholder farming sector to great effect.

The supply of essential farming inputs and the expansion of agricultural extension services saw smallholder farmers become a linchpin in the food security of Zimbabwe. Over the years, this early legacy has unravelled due to a combination of structural adjustment programmes, land reform, political stalemate and corruption.

However, even in its heyday Zimbabwe failed to adapt the structures of the colonial economy to serve the needs of the majority rural population. In the 1990s, for example, 74% of maize purchased by the Grain Marketing Board came from just 5% of all farmers. In the 1993–94 season, the bulk of the maize harvest was produced by 1,360 predominantly white-owned commercial farms and 4,470 smallholder producers. Most farmers continued to work their land within the confines of subsistence agriculture.

In 2014, most rural dwellers still live on communal lands – areas allocated to 'natives' when land was racially segregated by the colonial administration in the 1930s. The FTLRP might have helped, partially, to redress historical injustices relating to land ownership, but a harsh reality remains intact: the majority of smallholder farmers subsist on small plots with poor soils in densely populated communal areas.

Despite the wholesale restructuring of the agrarian system, the commodity composition of Zimbabwe's agricultural sector has remained largely unchanged. Smallholder farmers are hooked on maize production. As in much of east and southern Africa, maize has become a synonym for food. As the commercial agricultural sector begins to rise from the ashes, it is on the back of cash commodities introduced to Zimbabwe during the colonial era – tobacco, cotton and coffee.

A focus on higher-value export commodities is fine for modern agricultural enterprises that aspire to compete in lucrative global markets. But this is not a viable livelihood for all farmers. New thinking is desperately needed to devise strategies to build sustainable and prosperous livelihoods for rural households living in marginal areas that will never be able to grow for lucrative export markets.

Rediscovering tradition

The narrative in the following pages recounts a bold and sustained effort to mitigate the structural imbalance of Zimbabwe's agriculture sector in one location. For Chidara, rural communities have continually failed to embrace a fundamental resource that can enable them to thrive: their indigenous culture. If agriculture is to lead to wider societal

transformation, it must look, feel and ultimately be Zimbabwean. Furthermore, the momentum cannot come from outside: it must come from within. These are the values that Chidara and his team have sought to impart to their local communities in Gutu through a combination of consistent engagement, participatory research and local ownership.

This is an account of a community coming together and collectively dealing with common problems. There are no NGOs, development agencies or external sources of funding driving this initiative. Time and again, the people of Gutu have seen promises of more help ring hollow and have become passionate advocates of self-reliance. In the context of a wider economic crisis and political stalemate, the desire for self-sufficiency at a local level has seldom been greater. The context cannot be ignored when seeking to understand what has been accomplished in Gutu.

The achievements of the CCDP have been vast. Chidara estimates that since its inception some 40,000 households throughout Gutu have participated in the project by growing finger millet. As families average five or six individuals, the total number of beneficiaries is considerably higher. They are all self-sufficient in food and have built the foundations, at least, of productive family farms. But the real success of the CCDP is much more profound than securing the food supply. It is the realisation by a community of the need to adapt to its natural environment, embrace community structures and find solutions to hardship from within.

The lessons of this *Policy Voice* about the CCDP are clear. Instigating behavioural change requires consistent and sustained engagement with people. It also demands that the likely beneficiaries are involved in every aspect of a project, from research to implementation. Above all, it is imperative to understand that traditional knowledge has a leading part to play in addressing 'modern' problems.

Jonathan Bhalla
Africa Research Institute
August 2014

¹ Fox, Louise, "What will transformation do for today's African youth?", blog posted Jan 4th 2014 <http://blogs.worldbank.org/futuredevelopment/what-will-transformation-do-today-s-african-youth>

² "CAADP 10 Years Out: How Have Countries Fared in Agricultural Development?" IFPRI press release, Nov 12th 2013

³ Lidia Cabral, "Funding agriculture: Not 'how much?' but 'what for?'" Opinion Paper 86, Overseas Development Institute, 2007

⁴ Speech by Ousmane Badiane, Director for Africa, IFPRI, at "Agricultural Growth Recovery and Economic Transformation" conference, Nairobi, Dec 2013

1: Introduction

For the past 30 years I have worked as a management consultant in Harare for international and domestic companies. Like many Zimbabweans agriculture plays a fundamental role in my life. I am an active local leader and heir to the chieftainship in my home district of Gutu in Masvingo province, southern Zimbabwe. Since 2005, I have been working with farmers in Gutu to overcome the most pressing issue that stifles rural livelihoods – recurrent shortages of food.

Food shortages are the root cause of poverty in Gutu. When people do not have enough food to eat rates of malnutrition, maternal and infant mortality and illness rise. The perennial fear of experiencing shortages of food undermines agricultural and economic innovation. Subsistence farming has become the dominant mode of agricultural production in Gutu. As a result, many households struggle to afford basic healthcare and education.

There are historical, cultural and geographical factors that underpin food insecurity in Gutu. The area is not well suited to growing food crops. Rainfall is

generally low and erratic. A majority of soils are sandy and over-cultivated. High population density means that most families are restricted to farming on small plots of between two and six hectares.

Of principal concern is the over-reliance on growing maize, a crop that requires high rainfall to produce a good harvest. This has undermined the ability of families to achieve self-sufficiency in food. The region's hostile weather conditions dictate this reality. Nevertheless, over the past century, successive governments have actively promoted maize production as the nation's staple crop. This has been to the detriment of smallholder agriculture and local food security in Gutu.

Food insecurity in Zimbabwe has been more frequent since 2000. National economic decline has coincided with four severe droughts that have decimated harvests in the region. Rainfall has been below 600mm every year since 2000, with the exception of 2013–14. The government's land reform programme has also radically transformed Zimbabwe's agrarian structure. Many new farmers on resettlement lands lack the necessary financial capital, technology and labour to make productive use of their farms. Both of these factors have

Land reform in Zimbabwe

At independence in 1980, 6,000 white farmers occupied 15m hectares – 42% of Zimbabwe's agricultural land. An estimated one million black families lived on 16.4m hectares under communal tenure. A 'willing seller, willing buyer' programme outlined in the 1979 Lancaster House Agreement aimed to resolve the imbalance in landholdings. The process was slow, expensive and poorly planned. In 1992, compulsory acquisition with compensation was introduced. By 1996, 3.5m hectares had been shared among 71,000 households – far below the target of 8.3m hectares and 162,000 households. Only 19% of the land transferred was classified as prime agricultural land.¹

Incursions onto white-owned farms commenced in 1999, against a backdrop of discord between donors and the government over how to implement land reform, a series of high-profile protests by war veterans, and growing support for the opposition Movement for Democratic Change in rural areas – particularly among white farmers. The Fast Track Land Reform Programme (FTLRP), launched by the ZANU-PF government in 2000, legalised land invasions. About 10m hectares of white-owned agricultural land were expropriated and redistributed among 175,000 black households. By 2011, 70%

of Zimbabwe's agricultural land was cultivated by smallholder producers and 13% by medium-scale farmers. Large farms and estates occupied 11%.²

A debate about the justification and efficacy of the FTLRP intensified in the context of a wider economic crisis, drought and a lack of reliable data. Dispossessed farmers decried the violence and illegality of land seizures. The Commercial Farmers Union of Zimbabwe maintains that 70% of white-owned farms were purchased legitimately after 1980 – and only after the government had issued 'certificates of no interest'. Commercial agricultural production fell by more than 60% between 1998 and 2008, and an estimated 150,000 black commercial farm workers lost their jobs. Zimbabwe has imported food every year since 2000.

By 2010, three major studies³ had challenged assertions that land reform has been an unmitigated disaster or primarily for the benefit of ZANU-PF cronies. In 2010-11, maize production was 1.5m tons, only marginally short of the average in the 1990s. In 2012, 72,000 smallholders produced 170m kg of tobacco, triple the output of 2006. Farmers today receive negligible support from the government and donors. The outcomes of land reform to date vary considerably depending on geography, quality and size of land, and local politics.

¹ Chiremba, Sophia and Masters, William, "The experience of resettled farmers in Zimbabwe", *African Studies Quarterly*, Vol. 7, Nos. 2 and 3, 2003.

² Moyo, Sam, "Three decades of agrarian reform in Zimbabwe", *The Journal of Peasant Studies*, Vol. 8, No. 3, July 2nd 2011.

³ Moyo, Sam, *Agrarian Reform and Prospects for Recovery*, African Institute for Agrarian Studies, 2009; Matondi, Prosper (ed.), *Inside the Political Economy of Redistributive Land and Agrarian Reforms in Mazowe, Shamva and Mangwe Districts in Zimbabwe*, Ruzivo Trust, 2010; and Scoones, Ian et al., *Zimbabwe's Land Reform: Myths and Realities*, James Currey, 2010.

contributed to an increase in food imports to meet national demand. Semi-arid areas like Gutu have been disproportionately affected.

It is my duty as the son of a chief and traditional leader in Gutu to help my people overcome these challenges and build sustainable and prosperous livelihoods. I take this responsibility very seriously. After a severe drought in 2005, I established the Chinyika Communities Development Project (CCDP), which encourages smallholder farmers to grow finger millet as their staple crop. The aim of the project is to ensure that rural households achieve self-sufficiency in food, and for this to provide the foundation for economic development through agriculture. The lack of a stable food supply has undermined innovation in agriculture at a household level.

Finger millet is the crop given to the people of southern Zimbabwe by Nature. It is a small grain that is naturally drought-resistant, requiring considerably less water than maize to produce a healthy and productive harvest. It can be stored for long periods – up to 25 years – and is highly nutritious. Its main disadvantage is that it is more labour-intensive to grow and process than maize. Finger millet is indigenous to southern Zimbabwe, but has largely been forgotten by farmers, the government and donor organisations alike.

Since its inception, the CCDP has grown from a modest 50 farmers in Tavengwa village to span the entire district of Gutu. We estimate almost all of the 40,000 households in Gutu have participated in the project. This does not mean they all grow finger millet every year. Some farmers will break for a season or two, having built up sufficient reserves. Those farmers who, at the very least, have a nucleus of finger millet production no longer experience shortages of food. In fact, they have 3-5 years of strategic food reserves.

The benefits of the CCDP are experienced more widely than in Gutu alone. There are as many as 70,000 people from the district living in the larger cities who retain some dependence on the agricultural output of their families at home. The project has also been replicated in a number of neighbouring districts as well as in Inyanga district, about 400km to the north-east in Manicaland, and Zvishavane/Mwenezi district, south-west of Masvingo province. While it is impossible to be precise, the number of beneficiaries – direct and indirect – of the CCDP must exceed 200,000 people.

The revival of finger millet cultivation has provided households with the confidence – knowing they have a stable supply of food – to pursue income-

generating activities like maize production or livestock rearing. Farming is a business. In Gutu, finger millet has been the key to a diversified and innovative family farming system. In the long term, the aim is to develop a vibrant cash market for finger millet in Zimbabwe and the wider region.

Farmers in Gutu have transformed their livelihoods. The process of instigating behavioural change within the everyday lives of smallholder farming families has been a considerable challenge. But by adhering to the principles of participatory research, consistent community engagement and local ownership, we have – together – managed to overcome such obstacles.

2: Climate, agriculture and the rural economy

Gutu is the most northerly district in the southern province of Masvingo. It is about 7,000 km² and made up of 44 wards. During the 1980s, Masvingo was home to some of the best-educated people in Zimbabwe. The province had the highest number of primary schools in the country and a literacy rate above 90%. Methodist and Catholic missionaries established a network of good schools, many of which still operate today. But the lack of opportunities to earn a steady income has led many of the educated people to leave for towns and cities – or abroad – in search of employment.

Cash remittances from migrant family members are a vital source of income for rural households. The demise of manufacturing industries and paucity of liquidity within the economy has put a strain on these transactions in recent years. People have responded to the lack of money circulating in the rural economy by trading among themselves. While barter trade is an effective livelihood strategy in times of hardship, it cannot be mobilised to promote the investment necessary for agricultural development.

There are few formal sources of employment in Masvingo. The sugar plantation on the Triangle Estate owned by Tongaat Hulett, a South African agro-processing company, is the biggest single employer in Masvingo with about 6,000 staff. The Renco gold mine operated by Rio Tinto employs some 2,000 people, but operations have been disrupted due to political disputes. Mining remains an important employer. Although a number of asbestos and iron ore mines have closed in recent years, informal artisanal mining has increased. Smallholder farming and cattle ranching are the dominant livelihoods.

Most farmers live on densely populated communal lands, a reality that is rooted in Zimbabwe's colonial history. The 1969 Land Tenure Act concluded a 40-year process to legalise the division of land by racial groups. A majority of the rural African population were confined to 165 Tribal Trust Lands – referred to since independence as communal lands – on 46.6% of agricultural land, mostly of the poorest quality.

Communal lands are technically owned by the president, but they are governed by a plethora of indigenous and state administrative arrangements. Over the years, natural population increases have put further strain on land and resources. The controversial Fast Track Land Reform Programme (FTLRP) initiated in 2000 has not led to 'decongestion' or a significant exodus from communal lands.

According to official data, 186,146 hectares – or 20% of land in Gutu – has been redistributed under the FTLRP. Many of the beneficiaries were either landless or urban dwellers. The new farming units rely predominantly on family labour, and have not employed large numbers of people from communal areas. Population pressure is fundamental to every

environmental problem in these areas.

Zimbabwe is divided into five natural regions. About 80% of land in Gutu falls within natural regions IV and V, where it is hot and dry for most of the year. Annual rainfall levels are 400mm–600mm. Most of the soil is of poor quality and unsuitable for intensive agriculture. Large quantities of inorganic fertilisers are required to replenish nutrients and sustain crop production, particularly for maize. Of course fertilisers are expensive, and beyond the reach of most families in Gutu.

There are some areas where the soil is darker and more fertile, which allows for different types of agricultural production, such as growing maize or even maintaining an orchard. Farmers tend to work the soil in these areas season after season. The scarcity of fertile land has meant that households no longer leave good plots fallow for vegetation to recover and nutrients to be restored. Unregulated cutting of trees for firewood and construction and overgrazing by livestock have further contributed to land degradation as vegetation cover, which attracts rain, is eroded.

Agriculture and colonialism in Zimbabwe – a timeline

1930: The Land Apportionment Act formalised a process already under way of segregating agricultural land by racial groups. White-owned estates increased in number and size to cover 50% of agricultural land, in the most fertile regions of the country. The majority of the rural African population were confined to 'native reserves', which occupied 21% of agricultural land. Under the LAA, Africans could buy plots in designated African Purchase Lands, which comprised 7% of agricultural land.

1936: The Maize Control Act introduced a dual-pricing system for maize, paying higher prices to white farmers than to African farmers. The act allowed the State to subsidise white farmers, while also ensuring a cheap supply of food.

1940: New legislation allowed private traders authorised by the Grain Marketing Board (GMB) to purchase maize directly from African farmers. Native reserves were mostly located in remote parts of the country far from marketing centres. The limited number of approved private traders increased their bargaining power, and African smallholder farmers often had to sell their maize at a price below that stipulated by law.

1949: A 10% marketing levy was introduced on all produce originating from African farms, to increase state revenues.

1951: The Land Husbandry Act divided the African population into two categories: 'farmer' and 'non-farmer'. Small plots of land were allocated to farmers in the native reserves. Farmers temporarily working in towns or on commercial farms were placed in the non-farmer category and denied access to agricultural land.

1966: The 10% marketing levy was lifted in APLs, but maintained in native reserves.

1966: The Grain Marketing Act divided the maize industry in two: white farmers were legally required to sell their produce to the GMB; Africans were allowed to trade without restriction within native reserves. In order to sell outside native reserves, African farmers were required to sell directly to the GMB at a fixed price below that offered to white farmers.

1969: The Land Tenure Act, which replaced the 1930 Land Appropriation Act, legalised a new division of land. White farmers were allocated 46.9% of the 33m hectares available for agriculture. The majority of Africans were allocated plots in 165 Tribal Trust Lands, covering 46.9% of agricultural land. APLs covered the remaining 4.5% of agricultural land.

Sources: Stoneman, C. (ed.), "Agriculture", in *Zimbabwe's Inheritance*, Macmillan, 1981.

Amin, N., "Maize Production, Distribution Policy and the Problem of Food Security in Zimbabwe's Communal Areas", Development Policy and Practice Working Paper No.11, Open University, 1998.

Before the introduction of the FTLRP, all white-owned commercial farms in Gutu were cattle ranches. Many people argue that this is the best use of the land in the region. In an ideal world, that may be the case. But the desire to achieve self-sufficiency in food is ingrained in the culture and identity of smallholder farmers in Zimbabwe. Indigenous crops like finger millet also play an important cultural role in communicating with our ancestors and the spirits in local religions. While livestock rearing is vital for economic development, farming is an integral part of life in rural areas.

Farmers need to adapt to their environment because it cannot be changed. An appropriate analogy would be the baobab, a species of tree that acclimatises to harsh surroundings by storing hundreds of litres of water. In order for people to survive in Gutu, they must understand their natural environment and respond accordingly. This is the premise on which I initiated the CCDP. Its aim is to provide people with the knowledge to build sustainable livelihoods and generate wealth from the natural resources around them.

3: Maize dependency

Colonial agricultural policy radically altered Zimbabwe's agrarian structure and the production systems employed by rural households. It stifled the cultivation of indigenous crops like finger millet, pearl millet and sorghum. From the late 1920s, there was a steady shift away from growing these small grains to the production of commercial cash crops. The authorities were keen to establish an agricultural economy that would provide a cheap source of food for urban areas and mines, and also a reliable source of revenue to support nascent manufacturing industries. Revenues from agricultural commodities were directed towards modernising the predominantly urban industrial economy.

Government marketing boards dictated demand for key commodities by creating monopolies in maize, cotton, groundnuts, sunflower and tobacco markets. Households that needed money for health, education or tax obligations were compelled to grow these cash crops. Cash markets for alternative crops were suffocated. Finger millet was unmarketable.

Institutions established to regulate agricultural activity determined prices. The 1931 Maize Control Act was the first in a series of laws that promoted a dual-pricing system for maize, resulting in white commercial farmers receiving a higher price than African farmers. Agricultural subsidies were

targeted at white-owned farms through access to affordable credit and the provision of cheap inputs.

Maize was actively promoted as the nation's staple crop at the expense of all other grains. In addition to production incentives, consumer subsidies were provided to ensure cheap food for urban dwellers and the non-farm workforce. Research by seed companies and government parastatals focused almost exclusively on maize and other cash crops. Farmers in arid and semi-arid areas were given false hopes that they could beat Nature by using hybrid seeds and new technologies.

Although many discriminatory agricultural policies were reversed after independence in 1980, with the notable exception of land tenure arrangements, state support for maize production continued unabated. The priority for the government was to stimulate agricultural production in communal areas to improve national self-sufficiency in food and raise rural incomes. The subsidies targeted at smallholder producers favoured maize production and processing. Agricultural extension services were also greatly expanded. But extension workers assigned to arid and semi-arid areas were trained in schools that embodied the institutional bias towards maize production.

The government's commitment to a cheap food policy also ensured the continuation of consumer subsidies for maize. As the urban population grew, so did the demand for maize. Its pure white colour and fluffy, clean texture meant that maize became associated with affluence and modernisation. Traditional crops such as finger millet were not promoted and therefore had no market. Over time, the diets of rural and urban populations have narrowed substantially. In 2004-08, for example, maize products accounted for 70% of total dietary energy supply.¹

In response to efforts to promote smallholder food production, large-scale commercial farms began to diversify away from maize production into higher-value crops, such as coffee, tobacco and horticulture. The proportion of maize grown by smallholder farmers increased considerably, but these gains were not evenly spread. In the 1990s, three-quarters of maize purchased by the Grain Marketing Board (GMB) came from just 5% of all farmers. In the 1993-94 season, for example, the majority of maize was produced by 1,360 predominantly white-owned commercial farms and 4,470 smallholder producers. Productivity advances by farmers growing maize on marginal lands were negligible.

¹ Ward Anseeuw, Tinashe Kapuya and Davies Saruchera, "Zimbabwe's agricultural reconstruction: Present state, ongoing projects and prospects for reinvestment", Development Bank for Southern Africa, 2012

The maize economy and potential for small grains

By Sam Moyo, executive director of the African Institute for Agrarian Studies, Harare

Since 1910, the government of Zimbabwe has actively promoted maize production as its principal strategy for achieving national food security. It was part of a cheap labour policy for farms, mines and cities – supplying large volumes of maize, which could be processed and commercialised with relative ease.

A whole host of policies were pursued to further this end, including infrastructure development, research into improved seed varieties, agricultural extension services, currency manipulation, protection of industries processing grain, and producer and consumer subsidies – all of which were initially targeted at large-scale, white, commercial farmers. Maize was regarded as the magic bullet for ensuring an efficient supply of high-value, bulky food.

At independence in 1980, the newly elected government continued in the same vein and prioritised maize production in food policy. New investment and sources of support were targeted at smallholder farmers, with the aim of increasing production and raising rural incomes. Over time, large-scale white farmers began to diversify away from maize and cotton production into higher-value alternatives, such as horticulture, tobacco and coffee. By the late 1980s, about 80% of Zimbabwe's maize output was grown by smallholders, although most of it by a small minority of them.

While Zimbabwe achieved its ultimate goal of producing enough food to feed its population, small grains played a peripheral role. Maize out-competed small grains on all fronts of the value chain. The infrastructure established for maize production, processing and marketing guaranteed it was the principal staple food for all Zimbabweans.

Small grains have been marginalised over the past century, in terms of policy but also physically – production is scattered in more remote areas. This is a disincentive for buyers, except on a very small scale.

Self-sufficiency

In the 1990s, with the adoption of the Economic Structural Adjustment Programme, the majority of agricultural subsidies were removed or significantly scaled back. This had a significant impact on the performance of smallholder farmers, as they did not have access to important agricultural inputs, such as fertiliser and improved seed varieties. Economic crisis and the reconfiguration of agricultural production systems under land reform in the 2000s have put further strain on the maize economy. Zimbabwe's national maize output has become characterised by volatile harvests and declining productivity.

The biggest problem with growing maize efficiently at scale is access to affordable inputs, namely fertiliser. This is the principal constraint for small farmers. In dry and marginal areas, smallholders are cash-poor and have almost no access to irrigation facilities. The contraction of the formal economy has resulted in a notable fall in remittances to rural areas, further diminishing the purchasing power of small farming households.

A good harvest is almost entirely dependent on healthy rainfall. Since 2000, Zimbabwe has experienced four severe droughts, which have wiped out resources and the resilience of small farmers. In the absence of concerted state support for agriculture in all areas, household food security has been compromised.

These realities have, in my view, generated a greater incentive to achieve self-sufficiency in food production at a household level. In turn, this has sparked a renewed interest in small grains. People are starting to realise the benefits of expanding their production beyond maize. It is a livelihood strategy in the context of reduced subsidies, support and finance for agriculture.

Small grains are becoming a safety net for some farmers. These developments are not just restricted to natural regions IV and V. In our studies, we have seen the production of small grains rising on resettlement lands that were previously the preserve of commercial cash crops. Land reform has broken down the stark geographical divisions that existed for more than a century. There has been a reconfiguration of grain markets in Zimbabwe, which many people do not recognise.

Markets and growth

A positive shift in demand for traditional foods has been taking place, gradually, over the past decade. One major reason for this is the shortage of maize and wheat on the market. Many families have filled this gap with small grains. There are, however, other factors at play.

The government's nutrition policy has certainly had an influence on appetites and demand, despite being poorly funded. Generally speaking, there has been a realisation that traditional foods are important for a healthy and balanced diet. Small grains, in particular, are also thought to possess a number of medicinal properties. Under-resourced hospitals often use finger millet and other traditional foods as their front-line treatments for HIV/AIDS. This was especially the case before universal access to antiretroviral drugs.

Middle-class Zimbabweans are important sources of this new demand for small grains. Since about 2007, a new generation of African restaurants serving traditional foods has emerged in urban areas, popularising the consumption of small grains. There are also a handful of companies supplying these foods in supermarkets, nicely processed and packaged. In the past, you would have had to travel to township markets to purchase these traditional foods.

It is difficult to give precise figures on the volumes being consumed, and the scale of the increase, but it is clear that a change has taken place. At the moment, it is probably not displacing 5% of grain consumption, but it is significant enough to notice. More importantly, it has the potential to grow.

We are at the stage where the production of small grains could really take off. Policy is edging in the right direction, demand is growing and new businesses are emerging. While there is a need to develop a critical mass in terms of volumes, traders and buyers are starting to see these opportunities. It would not surprise me if an entrepreneur or influential person triggered this growth.

The market incentives for farmers are currently not always there. Over the past century, patterns of demand and consumption adapted to these investments, with people becoming increasingly reliant on eating white maize. In many rural areas, the price offered to farmers for small grains by traders is often about 30% of the retail price in towns, whereas it should be at least 60%. The idea of exporting small grains is not even on the cards.

Capital investment – whether domestic or foreign – in small grains is almost non-existent. The only exception to this is when breweries have launched out-grower schemes for sorghum to produce low-cost beer. The vast majority of private finance and credit in Zimbabwean agriculture is still targeted at traditional export crops, such as tobacco and cotton, and the hybrid maize seed industry. In fact, investors are more interested in importing cheap genetically-modified maize into Zimbabwe than investing in diverse nutritious foods like small grains and pulses. International donors have not appreciated this reality, nor have they sought to change it.

Many people believe that small grains should fill the 20%-30% deficit in maize production to satisfy the national demand for food. The fact this has not happened has a lot to do with inefficiencies on the production side, as well as the market. The seed varieties and agronomy underpinning the production of small grains have not received adequate support. This is reflected in the poor prices offered to farmers. Farmers cannot rely entirely on traditional seeds. There needs to be some investment in hybrids. The prototypes exist, but they have not been commercialised.

In Gutu, the combination of scant agricultural resources and the over-reliance on maize has meant that many rural communities now consume more food than they produce. The regulation and politicisation of agricultural markets over the past century has encouraged an assumption that traditional crops no longer have a place in the formal agricultural economy. Where these crops are found, they are grown sporadically. Farmers are too reliant on maize, at the expense of growing a variety of crops including those that are suited to their natural environment.

4: Food shortages

The negative impact of an over-dependence on maize became apparent in Gutu in 2005, when a severe drought was experienced against a backdrop of national economic decline. Rainfall for the entire agricultural season was only 400mm, which is far too low to sustain a healthy maize harvest. In the wake of widespread crop failure, rural families lost half their livestock. Households struggled to feed themselves, let alone their animals. Even those families that had cash were unable to obtain any grain. The stores were empty. The GMB had depleted its strategic grain reserves. There was nothing.

The lean season in Zimbabwe lasts from January to March in the run-up to the national harvest in April and May. This is when most instances of hunger occur. Many families will have run out of food, either because their harvests were inadequate or because they sold their surplus grain to pay for necessities, such as education or health. Food prices are higher – and more volatile – due to the limited availability of grain on the market. In 2005, the lean season in Gutu started much earlier than usual.

The drought was particularly severe in my home village of Tavengwa. My first response was to acquire five 50kg bags of maize and take them to my mother as her food reserves were running low. When I arrived, a number of local villagers came to my home and appealed for similar assistance. They stressed that there were many families that were worse off than my mother. Some had barely eaten in the past week. I was so moved by their plea that I agreed to give them four of the bags to distribute among themselves according to who was most in need.

I returned to Harare and discussed with my wife what to do about all these people who were starving. We were able to acquire five tons of maize from Mtoko in the north-east, where the

maize harvest had been reasonable, and arrange transport to Chinyika. We provided one 50kg bag of maize to each family in Tavengwa and the neighbouring village where my wife was born – enough to feed them for about two months. The need, however, was much greater than this. There were food shortages in the whole district.

5: Community research

In late 2005, with the impact of food insecurity in Gutu weighing heavily on my conscience, I was invited to enrol for an MSc in Social and Economic Transformation at CIDA City Campus, a non-profit higher education institution in Johannesburg. The course was run in conjunction with the University of Buckingham and TRANS4M, a Geneva-based research and education institute. I was fortunate to receive funding from the Kellogg Foundation for tuition fees and travel expenses.

One of the requirements was for each student to address a ‘burning’ societal issue, and improve the quality of life of a community or organisation. For me, the burning issue was crystal clear: how do you achieve sustainable food security in a region that is prone to low rainfall and drought? My initial response had been necessary, but distributing food grown elsewhere was only a temporary solution. I had to address the wider systemic problems underpinning shortages of food and hunger.

My MSc course emphasised the importance of local knowledge in instigating social and economic change. Governments, donors and non-governmental organisations (NGOs) tend to ignore this knowledge when designing aid programmes and responding to crises. Too often we look to western or eastern countries for inspiration about how to develop and prosper.

All societies have a wealth of expertise specific to their history and experiences that can guide modern processes and innovation. By engaging with local cultures and traditional knowledge, we are able to gain a better understanding of how to address local needs. I was determined to find the solutions to food insecurity in Gutu from within.

I returned to Gutu and established a series of local research communities in five villages. I asked each village to select suitable people to assist in our initial research. Seven farmers – men and women – were selected, all of them mature people between 60 and 90 years of age. They had not experienced shortages of food over the previous five years,

TRANS4M and the Chinyika Communities Development Project

By Ronnie Lessem, co-founder, TRANS4M

Chidara Muchineripi and Steve Kada first appeared on our doorstep in South Africa as participants in a Masters in Social and Economic Transformation programme that my organisation, TRANS4M, was running at CIDA (Community and Individual Development Association) City Campus in Johannesburg.

CIDA City Campus was developed early in the millennium by Taddy Blecher, a management consultant and education specialist. Its aim was to provide opportunities for marginalised youth from rural South Africa, but the more profound results of CIDA's endeavours may ultimately be found in Zimbabwe.

TRANS4M is an international research and education organisation based in Geneva. My co-founder, Alexander Schieffer, and I believe that the proper role of a university should be that of a catalyst for the transformation of society – a promoter of transformative research, innovation and education. TRANS4M's reason for being, therefore, is to enable the release of the potential – or 'genius' – of particular people, enterprises and societies in Africa and the Middle East. That potential is rooted in local nature and community, alongside culture and spirituality.

When I first met Chidara and Steve, they were both working for large, western-orientated companies and were largely disconnected from their local culture, traditions and knowledge systems. They were products of the city. The starting point for them was to recognise fully who they were – as Karanga and Baremba, Zimbabweans, and Africans – and to identify Chinyika's unique gifts, both natural (finger millet) and cultural (village democracy). Everything built from there.

Communal self-sufficiency is the foundation of a knowledge-based, social – and ultimately development – economy. The Chinyika Communities Development Project (CCDP) started out by pursuing self-sufficiency because people were starving. It has succeeded not because Chidara and Steve were rescuing people from their plight, but because the community has identified and built on its unique gifts. In the next stage of development, the indigenous community and exogenous technology – ICT and mobile telephony – will shake hands with one another.

In conventional wisdom, technology and economics are portrayed as the principal drivers of development, with a good dose of politics to boot. If you get these right, the story goes, the rest will follow. In Africa, this is completely the wrong way round. Nature and culture should be the foundation stones for technology, the economy and the polity. This is what the CCDP is all about and it demonstrates that it works in practice.

despite the poor weather conditions. They were regarded by the community as good farmers.

The aim was to inquire, in partnership with residents, about the nature of food insecurity in the area. We discussed in detail what exactly was happening and explored potential solutions. During these consultations, three elderly farmers expressed the view that households experienced shortages of food because indigenous crops, like finger millet, were no longer grown. They said that reliance on maize had left them vulnerable due to its poor performance when rainfall was inadequate.

For these elders, finger millet remained the backbone of their farming system. In fact, they were able to show the research communities finger millet grain that was more than 10 years old. They were also passionate believers in local customs and traditions. Everyone was reminded that it is not possible to speak to the ancestral spirits or ask for rain without finger millet. Listening to them talk so passionately triggered memories from my childhood. My father grew finger millet as his principal crop and we never experienced shortages of food. The natural environment, however, was much the same.

This was when I started to explore the potential of finger millet to transform livelihoods in Gutu. First of all, I wanted to discover why most people no longer grew finger millet. My ambitions were quite modest at the outset. I initially planned to ensure that families in my village and the neighbouring village where my wife was born were self-sufficient in food. This soon changed when I realised the interconnected nature of food insecurity in Gutu. Families rely on one another in times of hardship. Addressing food insecurity in two villages would not solve the wider, systemic problem of poverty in Gutu.

6: Rediscovering finger millet

As I have explained, over the past century food security in Zimbabwe has become synonymous with maize production. Rural communities have completely neglected the value and versatility of finger millet and other small grains. It has become a marginal crop. This has contributed to the demise of rural livelihoods in Gutu.

The principal advantages of finger millet for farmers in dryland areas are its resilience and versatility. Finger millet is actually a small-seeded grass. It adapts naturally to harsh climatic conditions and porous soils. In times of low rainfall or drought it wilts and goes into hibernation, just like any other grass, but it has the capacity to regenerate when it does receive moisture. When maize suffers from moisture stress it dies within days. It cannot be revived. You can also produce an excellent finger millet crop in high-rainfall and high-altitude regions. This is why I say it is the grain given to us by Nature.

Finger millet is one of the best grains for maintaining a healthy and balanced diet. It contains 40 times more calcium than maize, and is higher in protein, fat and minerals than rice, maize or sorghum. The absence of gluten and its low fat content make it easy to digest. Finger millet is also rich in iron and has better energy content than other cereals, making it a particularly good source of food for infants and the elderly. The high zinc content can help reduce stunting in children. By contrast, staples like maize and wheat are rich in calories but deficient in many of these proteins and nutrients.

Finger millet has been used for centuries as a traditional remedy to treat a variety of illnesses and ailments. It contains high levels of important amino acids – particularly methionine – that do not exist in other cereal grains and are good for lowering cholesterol. Finger millet has anti-diabetic, antioxidant and antimicrobial properties, due to its high content of polyphenols and dietary fibre. It is extremely effective at strengthening a person's immune system. But the medicinal properties of finger millet have largely been forgotten by rural households in Gutu.

As it is a small grain with a hard husk finger millet is naturally resistant to weevils and other insects. Its natural durability means finger millet can be stored for up to 25 years. In fact, there are some documented cases where grain was recovered from caves and found to be more than 100 years old, yet still perfectly edible.

The most common use of finger millet is to make a thick porridge – known locally as *sadza* – which is eaten as a main meal. It can also be made into a thinner porridge at breakfast time. For special occasions, finger millet is fermented and made into a traditional beer, but it can be used to prepare a sweet non-alcoholic drink too. Its versatility as a food source remains underexplored and underexploited. From research conducted with Cairns Foods, an agricultural wholesaler and food-processing company based in Harare, we discovered that finger millet can be used to make a variety of cereals, breads and sweets.

The active promotion of maize as Zimbabwe's staple crop meant that little money has ever been made available for developing more productive finger millet seed varieties. Private and government seed companies have shown little interest. Some NGOs – notably the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) – have made efforts to breed new varieties and promote good agronomic practices by farmers, but have been constrained by limited funding.

As a result, farmers rely solely on local seed varieties which yield on average about 0.3 tons per hectare, although there is considerable variation depending on farming and soil management practices. With adequate rainfall, hybrid maize varieties will produce a much higher yield of about 0.8 tons per hectare or more in Gutu. It should be noted that a measure of finger millet produces almost twice the amount of food as a measure of maize.

The risk of crop failure in Gutu is too high to rely on maize as the staple crop. By planting finger millet, even using poor-quality seed, farmers will nearly always produce a harvest that will satisfy their basic needs and build strategic food reserves. Even in the worst years, farmers will always harvest something rather than nothing at all.

After the drought of 2005, I sought to prevent a repeat scenario from unfolding in the next agricultural season. My objective was not to end the production of maize in Gutu. I simply wanted to reduce the dependence on this single crop by encouraging farmers to revert to growing finger millet as a basic staple.

7: Small grains, habits and stigma

I wanted to make sure that each household in Gutu had enough food to eat – not just for one year, but for 3-5 years. Ensuring that each family had strategic grain reserves would help mitigate shortages of food in years when it did not rain adequately. But I knew that to achieve this objective I would have to overcome a number of obstacles.

Over the past 100 years, the behaviour of rural communities in Gutu has changed considerably. Most families could no longer remember how to grow finger millet and other small grains, or how to store them properly. Finger millet must be kept in a closed and entirely dry environment. Food security would therefore require each household to own or have access to adequate storage facilities.

The plan to move away from reliance on maize production also entailed risks. If you produce a

surplus harvest of maize you know that there is always a ready market offering a good price. The market for finger millet and other small grains is narrow, although sorghum is a slight exception as it is sometimes bought by commercial brewers. For many years, small grains were not sold through the GMB. This policy was revised in 2009, with the aim of incentivising production in marginal rainfall areas, but to little effect.

An additional complication was that tastes have changed. Over the years, people have grown accustomed to eating maize. They like the flavour and it fills them up. When we started the CCDP, the villagers were not convinced that they would enjoy eating finger millet. Many young people had never even tried it and were put off by its dark brown colour, which they likened to boot polish. Whereas maize is associated with modernity, finger millet was seen as a food of the past. Furthermore, when it is not prepared properly, it can be grainy and quite unappetising. Many people assumed this grainy texture was inevitable.

Some families that have converted to Christianity – particularly evangelical denominations – displayed resistance to finger millet because of its role in traditional religious ceremonies. They felt that because finger millet is used to talk to the spirits and our ancestors it is at odds with the teachings of the Bible. In recent times, people have tended to shun their cultural beliefs and heritage.

Finger millet is more labour-intensive to produce. The processing of maize is much more straightforward. Once the grain is removed from the husk, it is dried and then taken to the hammer mill for processing. While finger millet is cheaper to grow, farmers must be willing to invest the necessary additional time.

Once finger millet is harvested and separated from the sheath, the hard shell of each grain needs to be removed manually by pounding the grain. It is then sieved to remove any sand or sediments present. After this, the grain needs to be roasted and then finally ground into a fine powder. If you get any of these processes wrong, you end up with a grainy mealie meal, which further perpetuates the stigma. Unfortunately, this additional work often falls on the shoulders of women, who contribute the majority of agricultural labour.

8: Community planning

Solutions and innovation cannot be imposed. The CCDP had to take account of the opinions and beliefs of rural families – and actively involve them in the design of the project – if it was to stand any

chance of being successful. Answers to problems and obstacles had to be found in partnership with the communities.

It was particularly important to secure support from two sets of people. Firstly, local chiefs and village heads, as they are highly regarded in Chinyika. They receive considerable respect even though they have not always best served the interests of the Chinyika people. The second group is local agricultural extension officers. Gutu has more than 100 extension officers working in all 44 wards. Smallholder farmers in Zimbabwe rely heavily on the advice and expertise provided by local extension officers and they trust them. I knew that local families would not embrace the project unless the aims and objectives were endorsed by their extension officers.

We invited the local chiefs, village heads and agricultural extension officers to a series of meetings at Machingambi secondary school in 2005 and 2006, along with the seven farmers who assisted in our initial research. Given the poor weather conditions over the previous five years, everyone was very open to discussing new ideas to address the problem of food shortages.

Our early discussions involved an assessment of the positive features of Gutu. There are good roads that connect to major cities, namely Masvingo, Gweru, Harare and Bulawayo. The district has a highly educated population by African standards, as most people are literate. The local business centre, schools and health clinics all have access to electricity, with good telecommunications networks. We all agreed that food shortages were becoming more common and that the annual maize harvest was not large enough to satisfy the food requirements of the villagers.

I presented my idea of encouraging rural families to grow finger millet and other small grains. It soon became evident that local leaders were aware of the advantages of these crops. They could remember eating traditional foods when they were younger and expressed disappointment that most farmers no longer grew indigenous crops. We documented techniques for growing them and exchanged recipes.

The local leaders agreed that the only way to convince people of the merits of growing indigenous crops would be to engage with them directly and address concerns by demonstrating the benefits first-hand. We decided to hold a field day on one of the most successful farms in the Chinyika communities.

9: Trial run

I purchased three 50kg bags of finger millet seed from some of the older farmers who participated in the research communities. This was sufficient for starting the project. After the harvest, I had plenty of seed to distribute to others. I felt that if I provided farmers with seeds – free of charge – they would be more willing to try planting a finger millet crop. I teamed up with local extension officers and visited each household in my village and that of my wife to encourage them to try growing finger millet. About 50 households participated in the project's inaugural year.

The results were almost instantaneous. In 2006, as if to prove our point, there was another very dry season and once again maize performed very poorly. But for the farmers who planted finger millet,

it was as if rain had poured from the skies to irrigate their fields. They were able to meet their basic food requirements that year. This confirmed my faith in finger millet.

The following year we set out to scale up the project by holding field days at which farmers could interact with one another and share their experiences. The first field day was held on April 13th 2007 and attended by people from seven villages in the Chinyika area. The owner of the farm, Mrs Mlambo, described to everyone her experiences of growing indigenous crops. She explained that traditional crops were easier and cheaper to grow than maize, and that healthy crop yields did not require expensive fertilisers. The guests were able to see the food reserves stored by her family and asked a lot of questions. We treated all the guests to traditionally prepared foods and drinks.

The production of finger millet

By Mrs Mlambo, co-ordinator, Chinyika Communities Development Project (CCDP)

I am a smallholder farmer in Chinyika. I became involved with the CCDP from the very beginning and the project's first pre-harvest field day was held on my farm in 2007.

I am passionate about growing finger millet, because I believe it is the only crop that can remove the shortage of food in this area. I myself have experienced shortages of food in the past. But since I started growing finger millet, I have become entirely self-sufficient in food and even produce a surplus of grain each year.

Gutu is a poor-rainfall area. In recent years, rainfall has been particularly inconsistent and generally lower than in the past. Maize is not well suited for intensive production here. The only crop that can make a difference to the lives of the people is finger millet. It performs well with little rainfall and can be stored for longer than maize. It does not require a lot of investment in terms of fertiliser or manure. These are the reasons why I am passionate about encouraging people to switch from growing maize to finger millet.

The best way to do this is to show them the advantages first-hand. People are inspired when they see the benefits.

People can be slow at accepting new ideas. This has been a real obstacle. It takes time for people to embrace new ways of farming. At our pre- and post-harvest field days, various agricultural skills and techniques are demonstrated. These are

also various ways that farmers can share their experiences and learn from one another – through speeches and presentations, but also music and theatre. Those who attend quickly become motivated to put new skills into practice.

Not all the village heads and local elders are enthusiastic about the CCDP. Some have not taken the time to engage with it or do not see the benefits. Traditional leaders play an important role in motivating families. If they recommended that households attend the field days, people would listen. The approval of the local leadership is very important.

It is not difficult to grow finger millet, but it must be done in the correct way. Those who attend the field days get to know the easiest way to grow it and other traditional foods.

The CCDP has eliminated severe food shortages in Gutu. This is its biggest achievement. Farmers who have achieved a surplus have been able to sell their finger millet at a profit, although demand is not very consistent. Markets are crucial for the long-term sustainability of the project. We have enough food, but we do not have a regular demand to sell surplus grain.

It is difficult to say exactly how many people have benefited from the CCDP. It now covers the entire district which has a population of more than 225,000. We have held field days in almost all wards.

My dream is to have a proper training and learning centre where we can train farmers on various agricultural practices and techniques, including growing finger millet. This is the most important thing we need.

Mr Rugare Gumbo, the then Minister of Agriculture, Mechanisation and Irrigation Development, and two senior officials from his ministry, were the guests of honour at the inaugural field day. They were able to see first-hand how well finger millet performed in Gutu's challenging environment. We also walked through fields of maize that were complete write-offs. Mr Gumbo gave an impassioned speech calling on farmers to embrace their culture and grow crop varieties suited to the climatic conditions. His presence was a source of great encouragement for me, the extension officers and farmers alike.

Speech at the Small Grains Field Day, Chinyika, Gutu

By Honourable Rugare E. N. Gumbo, MP, Minister of Agriculture, April 13th 2007

"I wish to thank the organisers of this field day for inviting my staff and me to witness this success story in growing small grains. Farmers are now heeding the call to return to our traditional roots and grow crop varieties that match our climatic conditions.

Long before the advent of colonialism, small grains constituted the staple diet for the people of Zimbabwe. These crops were well adapted to the local environment, growing in drought-prone parts of the country. The introduction of maize and its promotion by the colonial authorities resulted in small grains being relegated to the periphery of the agricultural economy. Maize crop failure has been widespread for those living in low-rainfall areas.

There is a poor understanding of the benefits of growing small grains. Research and development organisations have reduced them to 'the poor man's crop'. Smallholder farmers are the backbone of our Zimbabwe's food security. They should be encouraged to grow small grains.

Once more, let me thank the organisers and the Chinyika farmers who have made this day a success. Let us all participate in the massive production of small grains."

Field days play a crucial role in motivating farmers. Each ward holds its own, both pre-planting and pre-harvest, although sometimes two or three neighbouring wards will hold one jointly. The number of people attending varies between 50 and 500, depending on the size of the ward.

Field days are lively affairs and each takes on a life of its own. It is very common for the organising committee to think of creative ways of capturing the minds of those attending in the form of theatre, song and dance. Performances are choreographed to educate people about the merits of finger millet, good agricultural practices or the importance of utilising local resources. These occasions are rooted in local cultures and traditions, which give people the confidence to engage in discussion and debate. The district agricultural officer for Gutu has declared our field days a requirement for each ward, due to the role they play in promoting shared learning and good agricultural practice.

10: Cairns Foods

A central aim of the CCDP is to fuse traditional knowledge with modern innovations and business concepts. For this reason, I wanted to make sure that the people of Chinyika received training and advice from the business world. I decided to approach Steve Kada, a long-term friend and a director at that time of Cairns Foods, to explore whether he could offer any practical assistance to the project.

Steve and I had studied together for our MSc in Social and Economic Transformation. He was interested in why the senior management team at Cairns Foods was struggling to motivate its workers. His belief is that western motivational approaches – centring on targets and incentives, for example – have failed in Africa because they do not recognise traditional culture. There was nothing in the way Cairns Foods was structured as a business that reflected the lives or culture of its workers, from the paintings on the walls to the production systems. Steve wanted Cairns Foods to embark on a new relationship with agricultural producers, one based on partnership and mutual benefit. The CCDP provided the perfect opportunity for Steve to pursue this objective.

Cairns Foods contributed vital technical support to the project. A group of seven agronomists from the company attended pre-harvest field days and pre-planting demonstrations. In various locations across Gutu, families were taught a wide variety of skills and techniques, including how to select the best seeds, prepare the land and fertilise it with cattle manure, and plant in such a way as to maximise yields.

The Chinyika Communities Development Project (CCDP) and the private sector

By Steve Kada, transformation consultant and retired human resources director

I have been involved in the CCDP since its inception. One thing that was immediately clear at the beginning of the project was that rural communities in Gutu barely had any interaction with the private sector. My belief is that poverty in Gutu could be further alleviated if the private sector partnered with smallholder farming communities to offer a reliable market for their crops, and in this instance, finger millet. I sought to initiate and strengthen these relationships as a director at Cairns Foods, an agricultural wholesaler and processing company based in Harare.

I have long been interested in why big corporations have failed to motivate their workers in Africa, and why continuous strife has existed between management and workers. This is something I experienced at Cairns Foods, and Anglo American before that. For my PhD, I explored the use of western motivational approaches in business in an African context with the aim of understanding why they have been so ineffectual. From my experience, these approaches left employees feeling alienated and completely detached from their employer.

My conclusion was that the chief inadequacy of western motivational approaches was the failure – and even refusal – to recognise traditional culture. Neither Cairns Foods nor Anglo American ever acknowledged the cultural background of their staff. There was nothing in either organisation that symbolised their lives or culture, from the products they produced to pictures on the walls.

For my PhD, I sought to change this reality at Cairns Food. I believed that Cairns Foods should not be an African organisation only by name but also in how it operates. To do this I wanted to change fundamentally the relationship the company had with rural communities, and I wanted to use the CCDP as a test case. It was not just about sourcing raw materials from rural areas, but also doing this with the aim of transforming the communities and Cairns Foods in the process. In order to achieve this objective, I knew that my company had to engage with – and learn from – the rural people in Gutu.

Smallholder farmers in Gutu had important knowledge about growing finger millet. They

did not, however, possess modern technologies or knowledge about how to increase their yield through improved planting techniques or efficient use of fertilisers. I took a group of agronomists from Cairns Foods to work with the Chinyika farmers to offer this type of guidance, but also to fuse it with traditional knowledge.

Initially, the local people were not very confident about engaging in such an initiative. They did not know the agronomists from Cairns Foods and so were wary about their intentions. Until then, they had only ever received agricultural advice from their local Agritex extension officers: the rural communities in Gutu trust them and wanted to know they approved. This is why we spent a long time discussing the project in detail with local people and Agritex staff.

The agronomists didn't just tell farmers how to work their fields; they engaged with them and listened to their views. The farmers and agronomists would discuss the advantages and disadvantages of a variety of agricultural techniques, including broadcasting vs. planting in rows; hand-weeding vs. using ash to kill weeds; manure vs. chemical fertiliser; and the best techniques for recognising and selecting seeds. It was about sharing indigenous and exogenous knowledge.

The beauty of this interaction was that it was not only local people who were learning. The agronomists from Cairns Foods were also learning traditional methods of how people grow these crops. Of particular interest to them were the local recipes for preparing finger millet and other small grains. The elders in the communities were highly enthusiastic about explaining what types of traditional relishes and vegetables they eat with finger millet.

As soon as rural communities realised that we were not looking down on their culture, but were actually admiring it, they were inspired and became very confident. The process of listening to them helped restore their self-respect and dignity. Without restoring this self-confidence, it is not possible to achieve long-term change.

When the agronomists returned to the Cairns Foods headquarters in Harare they were transformed people. They had a new sense of motivation about their jobs and the company. As a result, Cairns Foods began to explore avenues for processing finger millet into modern consumable items, such as breakfast cereals, cakes and bread. The company amended its mission statement to incorporate the maxim: 'Together we grow'.

Finger millet has to be grown in the correct manner to achieve the best harvest. It was common for farmers to treat finger millet as if it was maize and cover the seeds with far too much soil. Finger millet is a small seed, and requires minimal soil cover to germinate when it rains. Seeds also need to be planted early, before the rains come. This is what we call dry planting. Harmful weeds thrive in finger millet fields so they need to be weeded on a regular basis. If farmers plant in rows 45cm–60cm apart they are able to pull an ox-drawn cultivator or plough through their fields and dig up the weeds more easily and much more quickly than doing it by hand. These kinds of basic techniques and mechanisation make it easier for farmers to plant larger fields.

The relationship between the agronomists and local farmers was not simply one of teacher and student. The farmers, extension officers and agronomists would collectively discuss the advantages and disadvantages of each technique, whether it was the efficacy of using ash to destroy weeds or the best fertilisers to use in particular locations. These discussions were about sharing indigenous and exogenous knowledge. As soon as local people realised that the agronomists were not looking down on their culture but actually admiring it and learning from it, they were inspired. It restored their self-confidence and dignity.

The agronomists gained a huge amount from reconnecting with Zimbabwean traditions and culture. They were taught recipes for preparing finger millet and the various relishes and vegetables that often accompany it. When they returned to Cairns Foods, they were transformed people. The company began developing a number of new products, including breakfast cereals made from finger millet, but since the demise of the Zimbabwean dollar the company has fallen on hard times.

The assistance from Cairns Foods was limited to technical expertise. They did not provide financial help or physical inputs such as chemical fertilisers or farming equipment. It was important that the relationship between Cairns Foods and CCDP farmers was based on equality if it was to be successful. I wanted to ensure that the Chinyika communities became self-reliant and not reliant on external benefactors.

11: Behavioural change and transformation

Transformation of people and attitudes is a process, not a single event. You cannot just give people seeds, tell them to grow finger millet and expect results. Instigating real behavioural change requires long-term and consistent engagement between people. I am a strong believer in the Japanese philosophy Kaizen, which promotes incremental but continuous change in all walks of life. I want the people of Gutu to embrace this notion in their everyday lives.

The guiding principle behind the CCDP is known as participative action research (PAR). PAR places emphasis on developing solutions with local communities to address everyday problems. Our aim was to engage the whole community at every level of the decision-making process, from discussing their problems collectively to agreeing on practical solutions.

We decided to establish a permanent village learning centre in Chinyika to enable people to attend meetings, learn more about the projects and exchange views and ideas in a neutral setting. I wanted families to embrace the CCDP as their own, not as something imposed on them by me or by the traditional establishment. Although I instigated discussions about how to address food insecurity, everything else – from research to evaluation – has been done together with the communities. The energy and momentum to achieve the goal of food security has to come from local people. Local ownership of the project, and its long-term sustainability, are inextricably linked.

Over the years, small groups of farmers from across Gutu – men and women – have come to the learning centre. In presentations and workshops hosted by local farmers, we have been able to show families that small grains are cheap to grow and economically viable. For example, it costs on average US\$80 to plant 0.3 hectares of maize, compared to just US\$20 to plant the same area of finger millet. While maize requires the application of costly fertilisers, finger millet can thrive on manure. There is no guarantee maize farmers will see a return on their US\$80 investment. They could lose it entirely.

Cooking demonstrations at the learning centre have enabled families to see how finger millet and other small grains should be prepared, and to sample different dishes. Some of the older farmers were able to demonstrate how it can be made into the traditional beer or non-alcoholic sweet drink mentioned above. People have been shown how

to ensure that *sadza* made from finger millet does not contain sediments that make the final product grainy. Some people have even experimented with making cakes and bread from finger millet.

When villagers participate in demonstrations of how to remove the husk from finger millet grains and prepare traditional foods, they criticise each other's techniques and make recommendations for improvement. People are very forthcoming about their preferences and how the food should be prepared. They discuss the pros and cons of finger millet compared to maize passionately.

All of these activities have been collective. Farmers have attended of their own free will, and all have given as much as they have taken away. The village learning centre has played a crucial role in unlocking the creativity of the communities. By encouraging participation and interaction in such activities, local people have been able to develop practical solutions to everyday problems. When I embarked on this endeavour, I knew little about the transformative potential of finger millet. I have since learned with the people.

12: Diversification and economic self-sufficiency

Households need a reliable supply of food. This is why the CCDP promotes finger millet production. It can almost guarantee self-sufficiency in food at a household level and should be the mainstay of every smallholder farmer in Gutu. But food self-sufficiency alone is not enough to promote sustainable rural livelihoods. People need cash to pay for education, healthcare, and the maintenance – or development – of their farm. This is why the second stage of the CCDP has centred on building economic self-sufficiency for rural households.

Smallholder farmers can be quite risk-averse at times. Small mistakes can be extremely costly when you operate on very tight margins. However, when farmers are confident in their food security prospects, they respond positively. In recent years, CCDP consultations and discussions have increasingly focused on business opportunities. When their food supply is secure, farmers can pursue income-generating activities like chicken farming, livestock rearing or additional crop production. There are now poultry and fish-farming projects in the CCDP.

I also believe in the commercial potential of finger millet itself, and other small grains. Our finger millet farmers are faced with considerable constraints

when they want to sell surpluses, including high costs of transaction, low prices offered by traders and poor access to market information – not to mention the various commercial and institutional biases towards maize production. We therefore need to do as much as we can to develop a market ourselves. It is important to focus on both the supply and demand sides of the market. Farmers need to produce high-quality grain in reliable quantities. They must be organised to co-ordinate planting and bulk their harvests, if necessary.

It is crucial that the wider population, particularly in Zimbabwe's urban areas, is educated about the nutritional value – and versatility – of finger millet. This is starting to happen. A businesswoman from Harare, Mrs Nherera, has been buying finger millet from Gutu, which she processes and sells to hospitals in Harare. Mrs Mhenzi, a local farmer, has found buyers in South Africa. In general, people in Harare are becoming increasingly interested in healthy living. Local agro-processing companies, like Utsanzi and Savannah Foods, have responded by offering a range of traditional foods, including finger millet, for sale in supermarket chains. But promotion of these foods is not done in a systematic or structured way. The market is not functioning as well as it could. The government could usefully play a more active role in promoting finger millet as a national staple.

There is a need to 'think outside of the box' in seeking to build a larger market for small grains. For example, the market for animal feed is an untapped source of demand. Finger millet could be used much more widely as a supplementary feed for livestock because of its relatively high protein and fibre content. In America and Australia sorghum is used as cattle feed, whereas in Zimbabwe the feed market is dominated by maize.

Smallholder farmers in Gutu now have the capacity to produce up to 2,000 tons of surplus finger millet grain in addition to grain reserves of 3-5 years for each family. This surplus could increase tenfold if reliable markets existed. In the resettlement areas to the north of Gutu, where soils are a bit more fertile, farmers have managed to produce excellent crops. But at the moment, we are in a chicken-and-egg situation. For farmers to scale up production, they need to know there is demand for finger millet. In order to generate adequate demand, the structural factors holding back finger millet production need to be addressed.

We are conscious of the danger that promoting small grains may cause farmers to swing from one extreme to the other – from relying on maize to relying on finger millet. In the past, NGOs and

Marketing finger millet

By Bertha Nherera, Sales and Marketing Executive, ORSHA Wholesome Foods

My commercial interest in foods that are indigenous to Zimbabwe started when I worked for Participatory Ecological Land Use Management (PELUM), a network of African civil society organisations and non-governmental organisations that work with smallholder farmers. I ran a project that promoted the production and consumption of traditional foods as a means to improve nutrition in rural and urban areas. I also grew up with my grandmother, so I consumed many of these foods from a young age.

The market for finger millet and other small grains is quite narrow, but it has the potential to grow significantly. For this to happen, there needs to be a concerted effort to change people's attitudes and tastes. People aged 35 years and above are already very familiar with these foods; they just need to be reminded about why they should consume them. Many of the younger generation, however, did not consume these foods when they were growing up. There needs to be a more concerted effort to educate younger people about these foods.

One of the main advantages of traditional foods is their high nutritional content. People in Zimbabwe are increasingly concerned with health and nutrition. For example, finger millet is recommended by the Ministry of Health for people with diabetes because it releases sugar slowly into the blood stream. For the same reason, it is also recommended for people who are trying to control their weight. It is high in calcium and iron, and thus is also recommended to those that are anaemic and for healthier teeth and bones, better heart and muscle functions, better immune defences and to mitigate blood-clotting and high blood pressure. Traditionally, people would be given finger millet if they were very sick in order to strengthen their immune system.

charities have sought to promote the production of small grains in dryland areas by dictating to farmers what they should and should not grow. This is not my intention nor that of the CCDP. I am not on a mission to eradicate maize from Gutu. Local people like maize. I like maize. Our goal is simply to mitigate food shortages and poverty by reducing over-dependence on this single crop and diversifying farming activities.

There needs to be a greater awareness about the nutritional benefits of traditional foods if people are going to start consuming them on a greater scale. While it is important for the government to support farmers who produce these crops, it needs to promote consumption as well. Otherwise there will not be markets for farmers to sell their produce. At the moment, it is not doing this in a concerted or joined-up manner. If you are going to change people's diets, a strategy needs to be in place. It will not happen automatically. This takes time, but also considerable effort in educating people.

I have been buying finger millet from about 15 women farmers in Chinyika since 2011. The biggest procurement challenge I have experienced relates to quality. I buy grain that has been removed from the sheath, but before the husk has been removed. The process of separating the grain from the sheath is done manually by women on the ground. As a result, it is common for sand and grit to get mixed up with the grain, which impacts significantly on the final mealie meal product. This means I must spend extra resources on removing these sediments from the grain.

I am now working directly with five farmers to improve the quality of the grain they produce for me. The reputation of my business is at stake. In rural areas, many people accept that finger millet contains sediments. They think it is inevitable. But people in urban areas, and the younger generation, will not accept this. The market for finger millet and other traditional foods will not grow unless the issue of quality is addressed. New products also need to be introduced, such as biscuits, breads and cakes.

When tourists visit Zimbabwe, it is not easy for them to sample our traditional foods in most hotels, which is a real shame. There is an opportunity here. This is why I am trying to convince more hotels and restaurants to supply traditional foods. I explain that, when people visit Zimbabwe, this is what they want to sample.

13: A new model for livelihoods

I want every farmer in Gutu to embody a social entrepreneurial mentality. Innovation is about doing things differently. It does not mean doing away with traditional practices or culture; rather it is about complementing them with new and progressive ideas that can benefit the entire community.

Families should specialise in crops and livestock that suit their circumstances. There is a niche for all types of farmers. Not every household in

Gutu can grow tomatoes, for example, because of obvious climatic and agronomic factors. These farmers might be better positioned to raise day-old chicks, which take 6-8 weeks to mature and sell for US\$8–10 each. Goats are also a very good opportunity for smallholders to participate in cash markets, as they are traded informally throughout rural Zimbabwe.

As I have said, the most effective way of persuading farmers to innovate is by showing them – first-hand – how things can be done differently. Since 2011, we have been working with five households to build ‘model families’. The aim was to create a nucleus of households that are entirely self-sufficient – and profitable – by relying on local resources. Each model family is different depending on the size of its farm, quality of the soil and location. But finger millet production is the core activity in all of them.

It is important to integrate livestock into the family-farming system in a sustainable and mutually reinforcing manner. For example, local breeds of chicken that are kept primarily for producing eggs respond very well when they are fed with finger millet. They lay more eggs and are generally healthier. The straw and by-product from harvesting finger millet can be used as feed for livestock.

The ultimate objective of the model family scheme is to ensure that every family in Gutu has a brick house, a thatched roof and its own water source – a well or a borehole. Households should be business units as well as social units, with an annual work plan, income targets and strict budgeting. We have encouraged each model household to open a bank account so that it can monitor all its transactions and its cash flow.

14: Local governance

For the CCDP to be sustainable it had to be governed locally. It could not rely on me. Gutu’s 44 wards are home to almost a quarter of a million people. In each ward, farmers have voluntarily – and through their own initiative – organised themselves into committees of five to ten 10 people. These committees are responsible for the day-to-day running of the project. They organise field days and pre-planting demonstrations, judge which farmers have produced the best finger millet crop and encourage new farmers to join the project.

The committees were formed through the existing structures of the Zimbabwe Farmers Union (ZFU). With more than a million members, the ZFU is

the country’s largest organisation representing smallholder farmers. It seeks to promote farmers’ interests by disseminating information, helping to link farmers to markets and promoting progressive policies. All sorts of farmers are members, from tobacco to cotton to maize growers. So we established special committees dedicated to promoting finger millet production and the values of the CCDP. We worked with structures that already existed, and have tried to enhance them.

The ZFU was initially not interested in finger millet, preferring to champion maize and other commercial crops. This all changed when one of their senior local members in Chinyika, Mrs Mlambo, became involved with the CCDP. From the outset, Mrs Mlambo understood and embraced the transformative potential of finger millet for the people of Gutu. She has been able to articulate the aims and objectives of the project to the ZFU in ways they understand. This sort of local support has been crucial.

Mrs Mlambo has also been highly effective at managing the various political agendas that exist locally. When large groups congregate, especially during elections, political parties will seek to hijack such occasions to their advantage. This has certainly been the experience of the CCDP during our field days and pre-planting demonstrations. But due to her standing within the community, Mrs Mlambo has been able to assert her authority and ensure that the project remains wholly non-partisan. She has been on the frontline, insulating the project from political interference. This is why Mrs Mlambo has been made the leader and co-ordinator of the CCDP.

I am only the spirit behind the project now. That is all. I attend some of the field days and pre-planting demonstrations to show my continued support. The farmers are happy to see me and I want to motivate them. I still help to raise money for the prizes and other incentives given to the best-performing farmers at the field days. But I am not involved in the day-to-day organising of the project or field days.

15: Conclusions and recommendations

The biggest achievement of the CCDP has been to foster a growing realisation that **poverty is not inevitable in semi-arid areas**. Households can be both self-sufficient in food and earn cash income from agriculture; but to achieve these ends they must adapt to their natural environment. People in Gutu now understand the fundamental role that finger millet plays in adapting agriculture to the local environment and building sustainable livelihoods. They have reconnected with tradition and the aspects of their culture that have seen people survive in this challenging environment for centuries.

The CCDP is operational in all of Gutu's 44 wards. Almost all of the district's 40,000 households have participated in the project at some stage. Some farmers will stop growing finger millet for a year or two when they have built up a surplus. Numbers peaked in 2012 and have since dropped off a little due to the limited marketing options for surplus finger millet. My estimate is that each year 20,000-30,000 households are growing finger millet that did not do so before the CCDP. In 2014, the surplus available for sale exceeded 2,000 tons. **Total reserves of finger millet accumulated in Gutu since the project began now stand at about 20,000 tons. This is a noteworthy achievement by farmers.**

Furthermore, as the average family size is five or six individuals, and families from other districts, including urban areas, travel to Gutu to procure supplies of finger millet, it is plausible to say that **not less than 200,000 people have benefited** in some way or another from the project.

For too long, **the potential of small grains has been overlooked in favour of maize**. In Zimbabwe, maize has become a synonym for food. This reality has been artificially constructed. It has caused appetites to change and led to an over-reliance on maize that is the root cause of food shortages in Gutu. Small grains are wrongly regarded as inferior crops.

I firmly believe that **finger millet and other small grains have a crucial role to play in African agriculture**. They can demonstrably improve household food security in arid and semi-arid lands. In addition, they are highly nutritious and possess a number of medicinal properties.

The CCDP is an indigenous initiative. We have not sought assistance from the government or donors. But there are measures that would help us and others

in a similar position. The government of Zimbabwe is in the midst of a fiscal crisis. Nevertheless, there are **practical ways of supporting greater production of finger millet and small grains at minimal cost**. These include:

- Declaring finger millet a strategic staple grain for arid and semi-arid areas.
- Guaranteeing the purchase of all surplus small grains by the GMB.
- Educating farmers and consumers about the nutritional value and versatility of small grains.
- Supporting the development of community seed banks, so that farmers in arid and semi-arid zones are able to maintain adequate stocks, even in years of drought.
- Tailoring existing agricultural input programmes to the agro-ecological locations of farmers.
- Developing simple and affordable means to increase efficiency in processing small grains, such as de-husking machines.

In the medium term, the government should commit financial and technical resources to:

- Develop, trial and disseminate new, more productive, seed varieties. This breeding process needs to be tailored to local contexts. Currently, the genetic variety of finger millet is quite narrow, and this limits adaptability and flexibility.
- Promote scientific research into the medicinal properties of finger millet and other small grains.
- Revise the training curriculum for agricultural extension officers to contain specific guidance on the production of small grains in arid and semi-arid areas.

I am not seeking to eliminate maize production in Gutu or anywhere else. But in the absence of substantial investments in small-scale irrigation systems, maize cannot guarantee food security in areas of low rainfall. The risk is too high. **Rural households should be actively encouraged to grow a variety of crops that are suited to the natural environments in which they reside.** Farmers who diversify are better able to respond to external shocks or changes in market price and demand.

Households which are unable to produce enough food to meet their basic requirements also experience difficulties in acquiring food, because of inadequate incomes and the activities of traders who sell food at inflated prices. Very often, households are forced to sell their livestock in order to make ends meet. **If markets were a bit more efficient farmers of finger millet and other small grains would respond positively.** I have no doubt they would play a much greater role in improving livelihoods in arid and semi-arid areas.

In order to reduce transaction costs in food markets and ensure greater availability of grain at affordable prices, investment from the private or public sector is needed to:

- Improve rural road networks and other market infrastructure.
- Support and provide advice for the development of local farming organisations to enable households to co-ordinate harvests, identify buyers, negotiate fairer prices, trade among themselves, and bulk-buy agricultural inputs, among other things.
- Promote mobile information platforms to help farmers to identify markets and exploit opportunities.
- Strengthen the value chains for finger millet and other small grains through access to affordable credit and reliable supplies of low-cost agricultural inputs.

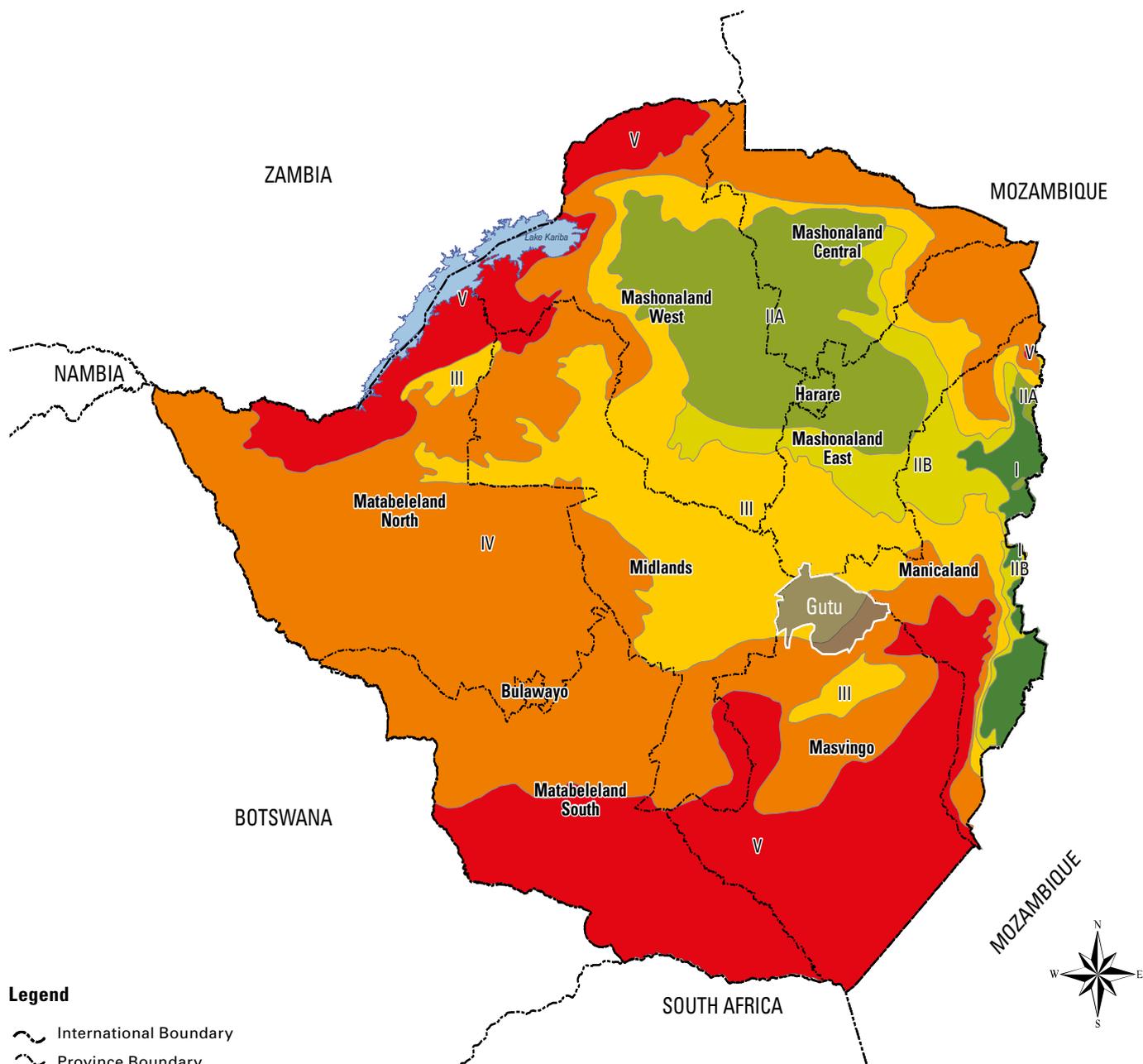
Self-sufficiency in food is imperative. But **more is required to ensure sustainable development and prosperity in rural areas – principally job creation and the establishment of more income-generating enterprises.** In Gutu, many young people leave for urban areas as soon as they are of working age because they do not believe they can earn a living from agriculture. Rural areas throughout the country are deprived of many of their brightest and most able people, as well as much-needed agricultural labour. **Farming can pay, even in the harshest environments.** Projects like the CCDP are demonstrating that this is the case, and we are now developing fish farming, poultry-rearing and beekeeping initiatives. But the government, donor organisations and private investors must also play a part in building sustainable livelihoods. It does not all come down to money: flexibility, adaptability and innovation are even more important.

Most of the growth and development in Zimbabwe's agricultural sector in the next few years will take place in the new resettlement areas. However, **communal lands should not be neglected**; the majority of the rural population still lives in these areas. In order to combat urban as well as rural poverty, resources and expertise need to be targeted at communal lands. These can play a useful and productive role in the Zimbabwean economy by specialising in small grains and livestock production.

Smallholders are not averse to trying new things, but they are often afraid of taking risks. **For farmers to innovate, they must be able to witness innovation for themselves.** When they see a neighbour engaging in a successful and profitable venture, they are far more likely to try it themselves. This is what we have sought to do in the CCDP and why we are now promoting 'model families'. My next ambition is to develop a rural 'university', a working farm that offers practical and structured learning to local farming households in Gutu.

This account is about transformation – of people, behaviour and the economy. Such a **transformation is a long-term process and can only be brought about by sustained, consistent and participatory engagement with local communities.** It cannot be imposed from outside; it must come from within a community. Governments and development agencies seeking to replicate the transformation brought about by the CCDP must start by understanding the culture, identity and traditions of the people they are trying to assist – and work with them.

ZIMBABWE - Agro-ecological Zones Map



Legend

- International Boundary
- Province Boundary

Natural Farming Regions

- I Specialised & Diversified Farming Regions (>1000 mm)
- IIA Intensive Farming Region (750 – 1000mm)
- IIB Intensive Farming Region (750 – 1000mm)
- III Semi-Intensive Farming Region (650 – 800mm)
- IV Semi-Intensive Farming Region (450 – 650mm)
- V Extensive Farming Region (<650mm)
- Lake / Water Body



Source: United Nations Office for the Coordination of Humanitarian Affairs (OCHA, 2009)

GRAIN REVOLUTION

FINGER MILLET AND LIVELIHOOD TRANSFORMATION IN RURAL ZIMBABWE

By Dr Chidara Muchineripi

Food shortages are the root cause of poverty in Zimbabwe's Gutu district. Rainfall is generally low and erratic. In most places the soil is sandy and over-cultivated. High population density means that the vast majority of the district's 40,000 households are restricted to farming on small plots. By the mid-2000s the effect of an economic crisis on the government's agricultural budget and an over-reliance on growing maize, a crop that requires high rainfall, had drastically undermined food security in Gutu. The perennial fear of food shortages in turn stymied agricultural and economic innovation, ensnaring the population in increasingly precarious subsistence farming.

Following a severe drought in 2005, the Chinyika Communities Development Project was conceived by Dr Chidara Muchineripi as a means to overcome the persistent threat of food shortages – and even famine – in Gutu, his home district. His objective was to persuade farmers dependent on maize production to plant finger millet, a neglected crop that is indigenous to Zimbabwe. Chidara's rationale is simple: finger millet is drought-resistant and better suited to semi-arid and arid areas than maize. Although its cultivation is more labour-intensive, it requires fewer expensive inputs than maize. It is also highly nutritious and can be stored for up to 25 years.

By 2014 almost every household in Gutu had participated in the project. Farmers with a nucleus of finger millet production each have 3-5 years of strategic food reserves and the collective capacity to produce a surplus of up to 2,000 tons a year. Accumulated reserves of finger millet exceed 20,000 tons. Families in Gutu now have a stable, dependable supply of food. This has been achieved without any external intervention or funding. As Chidara makes clear in this timely and instructive *Policy Voice* publication, the success of the Chinyika Communities Development Project is grounded in participatory research, community engagement and local ownership. Traditional knowledge and culture have been very much in the vanguard in addressing Gutu's predicament.

The narrative is about much more than switching from one crop to another. A stable supply of food – and behavioural change – has imbued farmers with the confidence to pursue various income-generating activities. Chidara is adamant that farming is a business. In Gutu, finger millet has been the key to the emergence of a diversified and innovative family farming system. Elsewhere the transformative crop – or animal – might be different.

In the long term, Chidara's aim is to develop a vibrant cash market for small grains in Zimbabwe and the wider region. While optimistic about the potential, he is candid about the obstacles and delivers clear recommendations regarding the practical and policy measures that would further transform the livelihoods of farmers in Gutu and other rural districts of Zimbabwe.

"Grain Revolution" is a sequel to Chidara's *Policy Voice* "Feeding five thousand: The case for indigenous crops, in Zimbabwe", published in 2008.



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