

Chapter 13

Agriculture for Rural Development in Tanzania

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His Excellency President John Pombe Joseph Magufuli's speech given during the dissolution of the 11th parliament in Dodoma, Tanzania, on 16th June 2020

“Along with other things, we have continued to place emphasis on agriculture and livestock keeping. As you may know, agriculture is still the backbone of our country's economy. It contributes approximately 25 per cent of foreign exchange, 30 per cent of the GDP, 65 percent of industrial raw materials, 70 per cent of all employment in the country and 100 per cent of our food needs. Thus, in the past five years we have continued to prioritise the agriculture sector. We have increased the amount of agricultural inputs and equipment (quality seeds, fertilizers, pesticides, tractors, etc.), we have increased the production of strategic crop seedlings, we have built and renovated the irrigation schemes and crop storage facilities, and we have looked for markets and strengthened the cooperatives. In addition, we have expanded the pastoral farming areas from 1.4 million hectares in 2015 to 5 million hectares in 2020, thus helping to reduce the number of conflicts between farmers and pastoralists. We have also built 104 new dipping troughs; we have increased the number of cows in artificial insemination from 105,000 in 2015 to 514,700 in 2020, we have provided livestock dipping chemicals and we have distributed veterinary drugs.

We have also strengthened the protection and management of fishing resources by establishing three main special zones: Lake Victoria, Lake

Tanganyika and the Coast. In addition, we have controlled the use of illegal tools. (I remember the time when the Minister for Fisheries and Livestock, Honourable Mpina, was carrying a ruler with him to restaurants). In addition, we have encouraged and successfully increased the number of fish breeders from 18,843 in 2015 to 26,474 in 2020; we have increased the number of dams from 22,545 to 26,445, fish cages from 109 to 431 and the production of chicks from 8,090,000 to 14,531,487.

In line with that, we launched the Second Agricultural Development Programme (ASDP - II) in 2017 with a view to making our agriculture more modern, commercial and productive. In addition, we have added TZS 208 billion to the Agricultural Development Bank (TADB) as capital through a loan from the African Development Bank. The government has also given TADB US\$ 25.0 million (equivalent to TZS 57.8 billion) so that it can run the Smallholder Farmers' Credit Guarantee Scheme (SCGS) aimed at setting up banks and financial institutions to increase lending to farmers and small- and medium-sized agricultural enterprises (SMEs). This means that in the past five years, the Government has given TADB TZS 324.8 billion to enable the bank to provide direct loans with lower interest rates to farmers, pastoralists and fishers worth TZS 166.9 billion. As a result of these steps, great achievements have been made.

For example, food production increased from 15,528,820 tonnes in 2015/2016 to 16,891,974 tonnes in 2018/2019. Our annual demand for food is less than 14 million tonnes. In terms of commercial crops, production has increased from 796,502 tonnes to 1,144,1631 tonnes. In fisheries, the amount of the Nile perch from Lake Victoria increased from 417,936 tonnes in 2016 to 816,964 tonnes in 2020, and the length of fish has increased from an average of 16 centimetres to 25.2 centimetres. In addition, fish exports have increased from an average of TZS 379 billion in 2015 to TZS 692 billion in 2019. These are not trivial achievements."

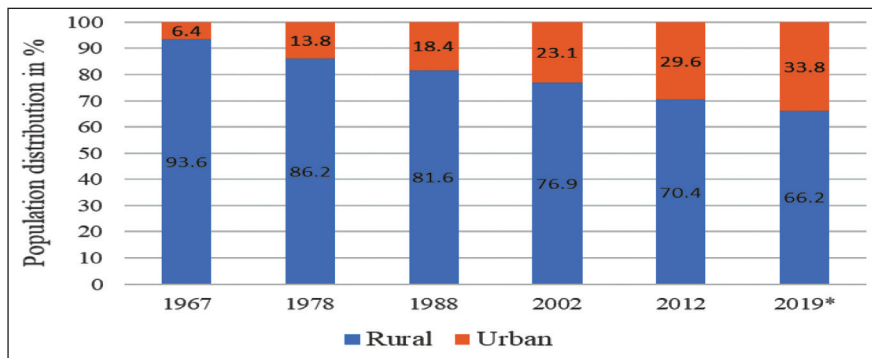
Introduction

Agriculture remains the largest sector in Tanzania's economy as it is the main source of food, raw materials for industries, employment and foreign exchange. It contributes about 30% of the Gross Domestic Product (GDP), 25% of export earnings and 65% of raw materials for industries. Agriculture employs about 67% of the employed population and contributes about 70% of the income of the people in the rural areas. About 70% of Tanzania's population lives in rural areas which, according to the National Bureau of Statistics (NBS), is estimated to be 56 million people in 2020. The

2017/2018 Household Budget Survey (HBS) shows that 81% of the poor people in Tanzania live in the rural areas and are engaged in subsistence agriculture as their main economic activity. These subsistence farmers usually farm small and fragmented plots of about 0.9 to 3 hectares, mainly for food and partly for sale to meet their immediate cash requirements.

Notwithstanding the fact that most of the food is produced by subsistence farmers, the rural population is less food secure than the urban population. According to the 2017/2018 Household Budget Survey, extreme food poverty levels are higher in the rural areas (10%) than in the urban areas (4%). Although Tanzania is able to provide 120% of the country’s food needs, the poorest and most marginalised households struggle to meet their basic food and nutrition requirements on a regular basis.¹ Owing to poor livelihoods in the rural areas, masses of youth and energetic people are moving from the rural areas to urban areas to seek alternative employment (Figure 1). Nonetheless, the urban industrial sector in Tanzania cannot absorb this wave of people from the rural areas either because the sector is undeveloped or because the majority of them are unskilled or both. Since most of the migrants do not successfully get the opportunities they are looking for, they’re unable to send remittances to their places of origin, remittances which could be invested in agriculture or in non-farming activities. As such, the exodus of young and energetic people is considered as one of the pressing challenges facing rural development.

Figure 1: Rural-urban population distribution trends



*Source: NBS and *World Bank estimates (World Development Indicators)*

¹ World Food Programme (WFP), 2016, Country Programme - Tanzania (2011-2015): Standard Project Report.

Often, agriculture is used to define rurality, but it is not necessarily the only component of rural development as rural development are not solely confined to agriculture.² However, agriculture is the main economic activity of the rural population in Tanzania; thus, rural development entails, among others, the transformation of subsistence agriculture. Rural development is a strategy for improving the economic and social life of people in rural areas by increasing agricultural production and productivity, providing basic services such as health, education, water and sanitation, financial services, infrastructure, access to land and enforcement of land rights. Indeed, existing evidence shows that countries with high agricultural growth per worker reduce rural poverty faster than those with low agricultural growth.³ Agricultural transformation plays an important role in rural development in developing countries like Tanzania. Secure and equitable access to assets, particularly land, which is the most immediate asset for many of the rural population, is critical to rural development. Moreover, access to education, credit, infrastructure and markets is essential in increasing rural incomes.

Since its formation in early November 2015, Tanzania's Fifth Phase Government has sought to transform agriculture from being mostly subsistence to being commercial in order to provide food, rural incomes and raw materials to the envisioned semi-industrialised economy.

The Fifth-Phase government understands that, if self-sustaining development is to be achieved, it will have to start in the rural areas, particularly in the agricultural sector. In the speech which he gave while inaugurating the 11th Parliament of the United Republic of Tanzania, His Excellency Dr John Pombe Joseph Magufuli pointed out that his government intended to build an industrial economy; improve agriculture, livestock and fisheries; create employment; improve health services; produce stable and adequate electricity; and fight against corruption. With respect to the agriculture sector, President Magufuli said that "the government will strengthen extension services, facilitate supply of

2 Nchuchuwe, F.F. and Adejuwo, K.D., 2012, The Challenges of Agriculture and Rural Development in Africa: The Case of Nigeria. *International Journal of Academic Research in Progressive Education and Development*, 1(3): 45-6.

3 World Bank, 2005, *Agriculture, Rural Development, and Pro-Poor Growth: Country Experiences in the Post-Reform Era*. The World Bank, Washington, DC.

inputs and equipment, facilitate access to credit and markets, and enhance secure land tenure to farmers and redress land conflicts between and among farmers, pastoralists and investors.”

The president’s speech is reflected in the Agriculture Sector Development Programme – Phase II (ASDP II), and the National Five-Year Development Plan 2016/2017 – 2020/2021 (FYDP II). It is envisaged that, by 2025, the agricultural sector will have been modernised, commercialised and made highly productive and profitable so that it provides food the people and raw materials to industries, and contribute to improved livelihoods in the rural and urban areas. The Magufuli administration regards the agriculture sector as being central to industrialisation. Indeed, industrialisation is dependent on agricultural development. Agriculture is important in the industrialisation process in three different ways.⁴ First, agriculture produces food necessary for feeding the growing urban population, which forms the industrial workforce. Secondly, agriculture produces raw materials such as cotton, sisal, tea and coffee for industries. Thirdly, agriculture provides a market for industrial goods such as equipment and inputs.

Since the first term of the Magufuli administration is ending, this chapter uses a three-element approach to assess the development attained and the current state of agriculture and rural development. First, we assess the development attained and the current state of agriculture by looking at factors for agricultural production and ways of improving productivity and exploring strategies for enhancing agriculture for rural development. Second, we evaluate the options available for future development. Third, we discuss the implications of agricultural development for the sectors with which agriculture interacts. In addition, the chapter attempts to assess the involvement of the Magufuli administration in the development of the agriculture sector and uses this assessment to assess the extent to which Present Magufuli has been “The Game Changer” Tanzanians have been waiting for.

Factors affecting agricultural production

In this section we analyse the factors affecting agricultural production in Tanzania and attempt to relate the efforts of the

⁴ Maliyamkono, T. and Mason, H., 2019, *Viwanda Moving Tanzania Forward*. TEMA Publishers, Dar es Salaam.

Magufuli administration to enhance them. The production of crops and livestock is determined by farmers' interaction with a number of factors. Some of the factors include land tenure, transport infrastructure, capital, technology, markets, soil and the environment, skills, knowledge, expertise and leadership. Since most of these factors are outside the farmer's control, it is necessary to understand how government policy plays a role. An understanding of the interrelations between factors affecting production is an essential prerequisite for an accurate assessment of production. Since the Fifth Phase Government came to power, it has undertaken a number of deliberate measures to improve agriculture as a source of food, income and raw materials for the industrial economy. Some of the notable efforts took the form of rural land survey, titling and rural road infrastructure through the Tanzania Rural Roads Agency (TARURA). Others are agricultural credit provided through the Tanzania Agricultural Development Bank (TADB) and other microfinance institutions, technology, the facilitation of farmers' access to input and markets, to mention but a few. In the following sub-section, we discuss these initiatives in detail.

Land tenure

It is widely acknowledged that improving farmers' access to secure land is necessary for promoting agricultural production and eradicating poverty. Indeed, land is the key resource that defines the identity and livelihood of rural people, their food security and the prospects for economic development. Access to secure land is one of the most important conditions for agricultural production and sustainable rural development. The literature provides compelling evidence of the benefits arising from equitable land distribution, in which farmers with more egalitarian land access are characterized by higher levels of participation and collective action. When smallholder farmers' land rights are guaranteed, the total surplus production derived from land increases more quickly and the resulting earnings are distributed more fairly. However, before the Magufuli administration was formed evidence showed that smallholder farmers were being deprived of land for many reasons, including land grabbing by elites and commercial farmers, conflicts over natural resources, conflicts with pastoralists, land degradation,

and land expropriation and privatisation. Rural farmers lost land to investors, elites and politically powerful individuals as most land acquisitions were made in the name of investment. This deprived smallholder farmers of access to the resources that they depend on for their livelihoods.⁵

The eventual effect of land acquisition by both local and foreign investors is to extinguish customary land rights, which implies less access to land among smallholder farmers. Even when compensation was paid, its ultimate impact on the livelihoods of the dispossessed people and whether or not a one-off payment for land compensation was satisfactory in the long run. Moreover, some 'investors' fenced the land, which resulted in rural communities walking longer distances, going around the fenced areas to get to their farms, water sources and natural foods such as wild fruits and mushrooms. As a result, smallholder farmers had no assurance that they would have the right to use the land in future.

There are two contradictory schools of thought on land acquisition by large investors and elites. One school of thought holds the view that land acquisition is essential in promoting agricultural investment and productivity as land is transferred from the hands of perhaps less productive smallholder farmers to more productive investors. The proponents of this view argue that leaving the single most important sector of the economy almost exclusively to smallholders will threaten the performance of agriculture, thereby limiting growth and ultimately agriculture failing to bring about large-scale poverty reduction. However, they fail to account for the issue of whether or not a one-time payment in compensation for the acquired land will result in sustainable livelihoods to smallholder farmers. Another school of thought holds the view that smallholder farm production is the major means of securing livelihoods and food for the rural as well as the entire population. Indeed, there is no compelling evidence which shows that land fragmentation reduces land productivity.⁶

5 Mpogole, H., 2019, Effects of large-scale land acquisitions by local elites on small-holder farmers' access in Tanzania. In: *Land Tenure Dynamics in East Africa: Changing Practices and Rights to Land*. (Edited by Otto, O., Isinika, A., and Musahara, H.) The Nordic Africa Institute, Uppsala, pp89-98.

6 Kadigi, R. M. J. *et al.*, 2017, Land fragmentation, agricultural productivity and implications for agricultural investments in the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) region, Tanzania. *Journal of Development and Agricultural Economics*. 9(2):26-36.

This viewpoint considers land fragmentation as a positive situation which allows smallholder farmers to cultivate many environmental zones, minimise production risks and optimise the schedule for farming activities. Since smallholder farmers produce 90% of all the food consumed in Tanzania, they cannot simply be marginalised and displaced from their customary land. Thus, the Magufuli administration has made deliberate attempts to protect the land rights of smallholder farmers.⁷ The Magufuli administration has resolved a number of long-standing land-related conflicts between smallholder farmers and investors on the one hand, and conflicts between smallholder farmers and pastoralists on the other.

President Magufuli has used his powers to revoke a number of title deeds of undeveloped estates. For example, in January 2016 the President revoked the title deeds of seventeen farms in Coast Region, five estates in Tanga Region and at least seven farms consisting of about 1,881 hectares in Morogoro Region. In addition, a total of 549,000 hectares of land in Morogoro Region were in the process of being revoked. Furthermore, the Magufuli administration has revoked the title deeds of unutilized land which used to belong to other investors and politically powerful individuals in an attempt to tackle land conflicts and to redistribute the land to smallholder farmers for agricultural production purposes.

Apart from revoking title deeds, the government has successfully surveyed farmers' fields and issued hundreds of thousands of Certificates of Customary Right of Occupancy (CCRO) to smallholder farmers. This was aimed to eliminate conflicts over land and to enable the farmers to access loans from financial institutions using CCRO as collateral. Between 2016 and 2019, the government in collaboration with Tanzania Land Alliance (TALA), implemented the Land Tenure Support Project (LTSP) in the districts of Malinyi, Ulunga and Kilombero with funds from DANIDA, DFID and SIDA.

The three-year project was aimed at improving smallholder farmers' income by addressing land conflicts and reducing the cost of preparing village land-use plans and issuing CCRO. In total, 129 village boundaries were surveyed, 110 village land-use plans were developed, 147 village land certificates and 168,571 CCRO

⁷ Sulle, E., 2017, *Of Local People and Investors: the dynamics of land rights configuration in Tanzania*. The Danish Institute for International Studies (DIIS) Working Paper 2017:10.

were issued, and over 300,000 plots of residential and farmland were surveyed.⁸ Furthermore, owing to the high prevalence of land conflicts, the Magufuli administration directed the establishment of a Special Land Zone in Morogoro Region, which will deal with all land disputes without reaching the headquarters of the Ministry.⁹

With respect to livestock, the Magufuli administration has identified and marked animals, identified and allocated grazing areas to minimize conflicts between pastoralists and farmers, and put in place mechanisms to prevent the outbreak of diseases. In total, more than two million hectares of pastoral land in over 700 villages of Mainland Tanzania have been allocated to pastoralists?. In addition, a number of CCROs have been issued to pastoralists in the districts of Monduli, Ngorongoro, Hanang, Simanjiro and Karatu.

Indeed, we find that the Magufuli administration has addressed the problem of land conflicts and malpractices, which were apparent in the recent past. In the recent past, land acquisition was characterised by coercion, non-adherence to procedures, collusion, corruption and other unfair practices, some of which were promoted by government officials.¹⁰ Unethical government officials coerced people in the rural areas to accept and welcome 'investors' by giving them land, and when land had already been acquired, the government officials shielded investors against the local people. This made it easier and cheaper for the local elites and 'investors' to acquire chunks of land in Tanzania.

The examples given and other efforts of the Magufuli administration make us believe that the administration has been effective in addressing conflicts over land between smallholder farmers, pastoralists and investors. Surveying village boundaries and farmers' plots of land, preparing village land-use plans and issuing CCRO provide sustainable solutions to rural land disputes. In an attempt to find a lasting solution, the Magufuli administration

8 Habari Leo Newspaper, 3rd January 2020, *Urasimishaji Ardhi Unavyopunguza Migogoroya Ardhi Morogo*. <https://www.habarileo.co.tz/habari/2020-01-035e0ed37a054be.aspx#>

9 Mwananchi Newspaper, 5th December 2019, *Kanda maalum kushughulikia migogoro ya ardhi Morogoro yanzishwa*. <https://www.mwananchi.co.tz/habari/kitaifa/Kanda-maalum-kushughulikia-migogoro/1597296-5374668-6rupq3/index.html>

10 Isinika, A.C., Myenzi, Y., and Msuya, E., 2019, When customary land tenure meets land markets: Sustainability of customary land tenure in Tanzania. In: *Land Tenure Dynamics in East Africa: Changing Practices and Rights to Land*. (Edited by Otto, O., Isinika, A., and Musahara, H.) The Nordic Africa Institute, Uppsala, pp29-45.

prepared a National Land Policy in 2016. The draft policy was aimed at, among other things, addressing land grabbing by investors and local elites in villages, which is a major threat to land tenure security.¹¹

Rural transport infrastructure

One of the main differences between urban and rural areas is the presence of infrastructure. The shortage of transport infrastructure such as road networks hinders the development of rural areas. Transport infrastructure is particularly essential as the supply of all other services are dependent on it. For example, there may be agricultural produce in some rural areas, but in the absence roads the produce cannot be transported to the market or to other places where there is a shortage of food (e.g. maize from Rukwa to Mara). In general, limited access to road networks significantly increases the cost of agricultural production and livelihoods in rural areas.

Development of the rural transport infrastructure will lead to a favourable environment for production and enhance access to markets. In addition, the availability of the necessary infrastructure in the rural areas will reduce migration of the youth to the urban areas, and thus increase the workforce in agricultural production and other activities. Transport infrastructure increases efficiency in production activities. For instance, studies show that agricultural productivity in rural areas decreases as the distance from paved roads increases.¹² The productivity of households that are far from paved roads is lower than that of similar households that are close to paved roads. Access to good transport services enables farmers to transport their produce to the market, which increases the use of fertilizers and other kinds of input, all of which increase productivity and employment along the agricultural value chain.

Experience from countries such as China shows that, for the most part, development was realised as a result of investment in road and communication networks. Investment in road infrastructure not only improves productivity, and transport and communication services, but also helps to attract investment from public and private

11 Sulle, E., 2017, Of Local People and Investors: the dynamics of land rights configuration in Tanzania. The Danish Institute for International Studies (DIIS) Working Paper 2017:10.

12 Gabagambi, D.M., 2003, *Road Infrastructure Investment and its Impact on Agricultural Productivity and Equity in Tanzania*. Beuren, Hohenheim.

institutions from inside and outside a given country. Roads and communication infrastructure reduce production costs and thus reduce the price of goods. The decrease in the prices of domestic products enhances competitiveness WHOSE COMPETITIVENESS? against imports from foreign countries, which will eventually reduce the demand for foreign currency.

The Magufuli administration considers the construction and improvement of roads in the rural areas as being very important in bringing development to the rural population.

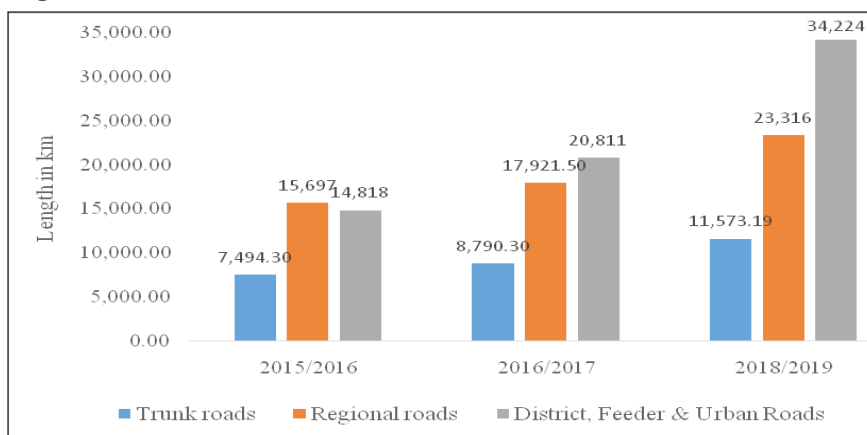
The long-term goal of the Fifth-Phase Government is to build roads in all villages in Tanzania. Rural road networks are an important way of bringing development to the country. For the rural population, development can be measured in terms of increased access to various facilities and services that help people enhance their standards of living and participate fully in the economy. During the Magufuli administration the public have witnessed massive rural road construction projects implemneted by both TARURA and TANROADS.



Up-grading of the Njombe-Ludewa into tarmac road, 2018.

In the 2019/2020 budget speech, the Minister of State, President's Office Regional Administration and Local Governments (PO-RALG) reported that TARURA had constructed a total of 5,565.30 km long roads, 167 bridges, 27 box culverts, 59 drifts and 51,347 metres of road-side runoff drainage systems. Figure 2 shows the trend of road maintenance during the first three years of the Magufuli administration. The construction and maintenance of trunk, regional, district, feeder and urban roads has nearly doubled over the three-year period. The actual increase is 1.54, 1.46 and 2.31 times for trunk, regional and district/urban categories of roads?, and the overall increase is 1.82 times.

Figure 2: Road Maintenance in the 2015/2016–2018/2019 Period



Source: Roads Fund Board

Recent reports show that the roads which have been constructed have a positive impact on access to agricultural markets, the reduction in transport costs, access to education, improvement in the investment climate and the growth of non-farming activities. All this enhances economic growth and reduces poverty. For instance, the World Bank notes that there has been a decline in rural poverty, a decline which is associated with an increase in consumption among rural households. The increase in consumption among rural households and a decline in poverty are partly driven by improved access to communication and transport infrastructure such as feeder roads.

Capital

In order for farmers to use inputs and improved agricultural technologies, they need some form of capital. The capital given to farmers largely depends on the availability of credit, which plays an indispensable role in agricultural development. Agricultural credit is critical to enhancing productivity and developing rural areas. Of course, agricultural credit can help to break the vicious ‘grow-eat-grow’ circle, which is common among smallholder farmers.¹³ This is achieved by removing financial constraints among smallholder farmers and accelerating adoption of improved technologies. All

¹³ Memon, Q.U.A. *et al.*, 2016, Role of Agricultural Credit in Improving Agricultural Productivity of Pakistan. *Developing Country Studies*, 6(6): 99-103.

this enhances the commercialisation of rural economies. Essentially, the basic role of credit in agricultural production is to provide the capital required to acquire productive assets, including land, labour, machinery, seeds and other inputs, which help farmers to improve their operations. Needless to say, progress in agricultural production is largely determined by the availability of affordable credit.

In Tanzania, the availability of credit to farmers was a long-standing challenge. With a shortage of affordable credit, farmers cannot obtain the capital that is needed to purchase productivity-enhancing inputs and technology.¹⁴ Commercial banks, which are mainly concentrated in urban areas, did not provide credit to farmers; they perceived agriculture as a high-risk venture owing to unpredictable weather and other forms of interference such as sporadic market restrictions. Other microfinance institutions, although seemingly aimed to reach the poor in the rural areas, were fraught with many challenges, including a limited capital base and high interest rates, which smallholder farmers could not afford. As such, smallholder farmers' access to formal financial institutions remains low.

Statistics show that only about 3% of agricultural households have access to formal financial institutions. Because of limited knowledge of financial institutions other needy farmers rely on informal sources of finance such as individual money lenders and traders (suppliers of inputs and buyers of agricultural produce) who set exorbitant interest rates. For instance, rice farmers in Iringa borrow inputs from suppliers and give them an agreed amount of rice in the next harvest season. In that case, if a farmer borrows inputs worth TZS 30,000 from a trader, for example, then the farmer would be required to pay back a bag of rice worth between TZS 50,000 and TZS 75,000, depending on the market price when the repayment is made. This makes smallholder farmers unable to break the vicious circle of poverty. In recognition of these challenges, the Magufuli administration has taken various initiatives to facilitate small farmers' access to capital, including strengthening cooperatives, the warehouse receipt system (WRS), Agricultural Marketing and Cooperative Societies (AMCOS), Village Cooperative Banks

¹⁴ Wolter, D., 2008, Tanzania - Why a Potential Food Exporter is still Importing Food. OECD Development Centre, Paris. www.oecd.org.

(VICOBA), Savings and Credit Cooperative Societies (SACCOS) and the Tanzania Agriculture Development Bank (TADB).

According to the Ministry of Agriculture, the number of cooperatives increased by 47%, from 3,998,193 in December 2018 to 5,880,736 by February 2020. The loans extended by the Savings and Credit Societies increased by 15%, from TZS 1.3 to TZS 1.5 trillion between December 2018 and March 2020. Furthermore, the savings and deposits of SACCOS members increased by 25% in the same period. To ensure that the cooperatives are economically and functionally viable, the Magufuli administration has strengthened management and control by conducting regular inspections and audits.

As of March 2019, 2,964 cooperatives, equivalent to 44%, were audited. There is no readily available information on the number of cooperatives that were audited in the past. In the course of conducting the inspections and audits, the Magufuli administration identified and legally abolished over 3,300 non-performing or ghost cooperatives. In addition, the Prevention and Combating of Corruption Bureau (PCCB) recently recovered about TZS 8 billion that was reportedly lost to dishonest farmers' cooperatives and government leadership.¹⁵ The fact that the Co-operative Audit and Supervision Corporation (COASCO) has been in existence since 1982 and that there were 2,844 dormant and 2,103 ghost cooperatives that could not be traced implies that the current efforts to identify and abolish them are attributable to the Magufuli administration.¹⁶

As shown in the Agricultural Sector Development Programme Phase II (ASDP II), one of the priorities of the Magufuli administration is to provide the support needed to establish stronger and well-capitalised grass-roots micro-finance institutions such as VICOBA and SACCOS as first-line providers of financial services to smallholder farmers. Through ASDP II, the government envisions that the credit given to agriculture will increase from 6.7% in 2017/2018 to 50% by 2025. According to the 2019/2020 budget speech by the Minister for Agriculture, Tanzania Agricultural

15 Mwananchi Newspaper, 14th March 2020, *Takukuru yaokoa Sh8 bilioni ya vyama vya ushirika*. <https://www.mwananchi.co.tz/habari/kitaifa/Takukuru-yaokoa-Sh8-bilioni-ya-vyama-vya-ushirika/1597296-5490944-format-xhtml-no2cnxz/index.html>

16 The Citizen, 27th November 2019, PCCB to probe loss of Sh120bn. <https://www.thecitizen.co.tz/news/PCCB-to-probe-loss-of-Sh120bn/1840340-5364146-ojtw8bz/index.html>

Development Bank (TADB) provided loans amounting to over TZS 160 billion to small, medium and large-scale farmers, some of which was used to buy tractors.

The objective of the TADB is to provide short-, medium- and long-term financing to the agriculture sector. According to the second National Five-Year Development Plan 2016/2017–2020/2021 (FYDP II), the Magufuli administration is committed to supporting TADP so that it increases financial lending to the agriculture sector and the poor sections of the rural populations. To enable the TADB carry out this function effectively, the Magufuli administration is committed to increasing its capital to TZS 3 trillion in the next five years.

Thus, the efforts of the Magufuli administration hold the key to faster rural development. This will undoubtedly help the rural communities by stimulating the production of more agricultural products and increasing farmers' prosperity. To be meaningful, however, the credit should go hand in hand with the training of farmers in finance and business management, including record keeping.

Arguably, even with the presence of affordable credit, not all rural farmers will access the credit given by formal financial institutions. The majority subsistence farmers with limited literacy levels who can hardly fill in a loan application form will inevitably be left out of that. For these groups of farmers, there is a need to continue to mobilising and to strengthening the relevant institutions such as VICOBA and other informal savings and lending groups (see, for example, Tanzania Social Action Fund (TASAF), illustrated in Box 1).

Box 1: TASAF's Contribution to Rural Families on Capital Formation

The Tanzania Social Action Fund (TASAF) extends indirect capital to eligible beneficiaries through Tanzania's Poverty Reduction Project (TPRP). The TPRP is one of TASAF's projects operating under the OPEC Fund for International Development (OFID). It is implemented in phases; Phase I covered nine rural LGAs in the regions of Mtwara and Lindi between 2005 and 2010. Phase II covered community sub-projects in all rural and urban LGAs in the regions of Mtwara and Lindi between 2009

and 2015. Phase III (TPRP III) covered community sub-projects in all the Project Area Authorities (PAAs) or the councils in Arusha and Njombe between 2015 and 2019. The objective of TPRP III was to improve households' access to enhanced socio-economic services and income generating opportunities. Through this project, communities that lacked basic social services such as education, water and infrastructure, and poor individuals doing labour-intensive activities through temporary employment and income generating activities (IGAs) were supported.

TPRP III provided to poor families indirect capital in monetary terms through Public Works Programme (PWP) and in-kind capital through income generating support activities. In PWP the beneficiaries were provided with temporary wage employment in the rehabilitation of economic infrastructure such as irrigation schemes and earth or gravel roads. In the income generating support activities eligible beneficiaries were provided with in-kind capital so that they could carry out income generating activities (IGAs), mainly poultry and livestock keeping. The beneficiaries were given either two goats/sheep or two pigs or five chickens. Furthermore, TPRP III mobilised PWP and IGA's beneficiaries to form savings and lending groups so that they could make savings and access credit for reinvesting in IGAs.

For the most part, the chickens and animals reproduced and multiplied (see pictures below). The beneficiaries sold some of the animals and chickens. The wages received from PWP and the income earned from IGAs increased households' income, which helped the beneficiaries to meet their immediate needs such as food, purchase of fertilizers and school requirements for their children, build houses and invest in savings and lending societies. As members of the savings and lending groups, the beneficiaries were supported to register and access interest-free loans from councils' development funds which target women, the youth and vulnerable groups. Undoubtedly, these efforts increased the beneficiaries' incomes and improved their livelihoods.

Technology

Access to mechanised farm equipment is essential to increasing agricultural productivity, but the level of agricultural mechanisation in the country is very low. Although recent statistics could not be obtained, only 18.6% of farms used an ox and 3.1% used a tractor.¹⁷ On average, 98% of farmers in Mainland Tanzania use hand hoes.¹⁸ Arguably, subsistence farming with rudimentary technology cannot improve people's livelihoods or guarantee sustained food security of the rural population. 'Appropriate' mechanised farm equipment is necessary, if we are to increase agricultural production.

The appropriate technology referred to here is the pro-poor technology that focuses on the crops and livestock that are primarily produced and/or consumed by the rural population. Such technology can be adopted in varying amounts and without requiring large initial capital. It maximizes the use of locally available resources such as labour; and, focus on the constraints that are most important for smallholder farmers, such as machines that are compatible with farm landscapes.¹⁹ For instance, while tractors do well in some parts, it may not be the case in other areas such as Makete and Rungwe Districts, which are characterized by spontaneous mountain chains such as steep hills, ridges, valleys and escarpments.

Appropriate agricultural technology should be affordable, easy to operate and cheap to maintain. There are examples of situations in which agricultural technologies were provided to farmers, but did not last because of smallholder farmers' limited capacity to operate or maintain them. For instance, smallholder rice farmers in Iringa were constrained by a shortage of reapers and threshers in their attempt to reduce harvest and postharvest losses. In most areas, farmers used hand-sickles and knives, which resulted in high losses at the time of harvesting their rice.

Through the Policy and Human Resource Development (PHRD) project, the Ministry of Agriculture provided combined harvesters to farmer groups to several rice irrigation schemes.

17 Gaddis, I. *et al.*, 2013, Land of opportunity: Should Tanzania encourage more large-scale farming? World Bank Tanzania

18 Agricultural Sector Development Programme Phase II (ASDP II), 2016

19 Matlon, P., 2003, The role of agriculture and rural development in eradicating hunger and poverty. ECOSOC ministerial roundtable discussion, "The role of agriculture and rural development in the eradication of hunger and poverty," hosted by FAO, IFAD and the World Bank, 30 April, pp.42-44.

However, in some cases farmers were unable to maintain the combined harvesters. In several other areas the combined harvesters did not reach the farms either owing to the nature of the landscape in such areas, which did not allow the use of such machine or owing to the fact that other farmers on the surrounding farms were not ready to harvest their crops. This situation calls for a number of things, including training farmers on how to operate the machines, fee collection mechanisms to service and maintain the machines, provision for byways or lanes to facilitate passage of the machinery without crossing into other people's planted farms; and, strengthening relevant institutions for farm technologies.

Strengthening complementary institutions, including the National Development Corporation (NDC), the Vocational Education and Training Authority (VETA), the Small Industries Development Organization (SIDO) and the Centre for Agriculture Mechanization and Rural Technology (CAMARTEC) is essential.

These complementary institutions and policy are needed to ensure broad adoption of improved technologies. For instance, CAMARTEC undertakes research and development (R&D) in Agricultural Mechanisation and Rural Technologies so as to provide high quality technical services to farmers, develops and manufactures approved prototypes and evaluates their suitability for farmers; and, to adapt foreign designs to suit local conditions of manufacture and conditions. On the other hand, SIDO is best known for activities such as technology development centres, training cum production centres, technology development, and technology transfer. Thus, building the capacity of these institutions will spur agro-technology and lead to the realisation of the dream of the Magufuli administration of 'made in Tanzania.'

The Magufuli administration has undertaken various initiatives to revive and strengthen the complementary institutions, including NDC. As a result of such initiative, NDC has, among other things, begun to assemble tractors at the TAMCO Industrial Estate in Kibaha District. By 2018, the corporation had assembled 770 tractors and 240 ploughs.²⁰ Owing to the high demand for tractors and associated equipment, the Minister of Agriculture said that the government had imported additional 2,476 large and 586 small tractors. Agricultural machinery such as tractors and associated

20 The Economic Survey, 2018, Ministry of Finance and Planning Dodoma-Tanzania.

equipment are necessary for mechanising and commercialising agriculture.²¹ As mentioned above, farmers need affordable credit for modernising agriculture and improving production, which is vital in supporting the efforts to build an industrial economy.

There is also a need to adopt a technology that adds value to agricultural produce. The adoption of a simple value-adding technology will help farmers to improve the quality of their produce before they take it to the market, which will increase prices and help them earn higher profit margins.

In addition, such a technology enhances the backward and forward linkages between agricultural production and agro-industries. There are examples showing farmer groups have been supplied with agro-processing machines so that they sell value-added or semi-processed products.

For instance, in Iringa the Magozi Rice Scheme was provided with the modern rice milling and grading machine shown on the sidebar. This helps farmers to sell value-added rice, thereby fetching better prices. Another good example is the Makete District Council, which has been collaborating with SIDO to establish and improve small-scale fruit processing industries. Makete was constructing a fruit processing plant and a temperature-controlled storage facility that can store up to 60 tonnes of fruit at Madihani village. Under the Market Infrastructure, Value Addition and Rural Finance (MIVARF) project, the district procured a fruit sorting, washing and waxing machine to help farmers add value to fruits which are in high demand such as avocados, apples, pears and peaches.

Similar efforts are being made elsewhere in Tanzania. The Minister of State, President's Office Regional Administration and Local Governments (PO-RALG) mentioned in his 2019/2020 budget speech that the government has continued to improve the business and investment environment through the Local Investment Climate (LIC) in which the agriculture sector is one of the priorities. Within the agriculture sector the priority areas include the production and processing of palm and sunflower oilseeds, grapes, cassava, and rice. The Minister said that about 44 projects worth TZS 6.2 billion had already been identified in the regions of Dodoma and Kigoma.

21 Maliyamkono, T.L. and Mason, H., 2006, *The Promise*. TEMA Publishers, Dar es Salaam.

These initiatives are crucial for agro-industrial development in the rural areas. Agro-industries are characterised by a high degree of interdependence in relation to agriculture. Such industries can play a very important role in speeding up economic activity and growth, which are necessary for achieving the middle income status.

Soil and environment

Soil is a crucial resource in agricultural production. Although Mainland Tanzania has a great variety of soils, the soils that are most suitable for agriculture are found in a few areas, including Arusha, Kilimanjaro, Morogoro, Rukwa and Mbeya.²² Generally, the soils of Tanzania are said to have a low nutrient content, particularly with respect to nitrogen and phosphorus. The major threats to soil fertility are erosion by water and wind owing to loss of vegetation cover, overgrazing, deforestation and little use of inputs, including organic manure. It is estimated that nearly 400,000 hectares of trees are cut down in the country a year. Furthermore, drought, pressure on land owing to high population growth (about 2.7% per annum) and other human activities have contributed to the reduction in soil fertility.²³ This makes agricultural production costly to smallholder farmers, since they need to use a big amount of fertilizer and other kinds of inputs.

In dealing with soil infertility, Tanzania is implementing the Abuja Declaration on Fertilizer for an African Green Revolution Initiative. The Declaration recognises fertilizer as being vital to Africa's economic growth, food security and environmental health, amid rapid population growth and deteriorating soil fertility.

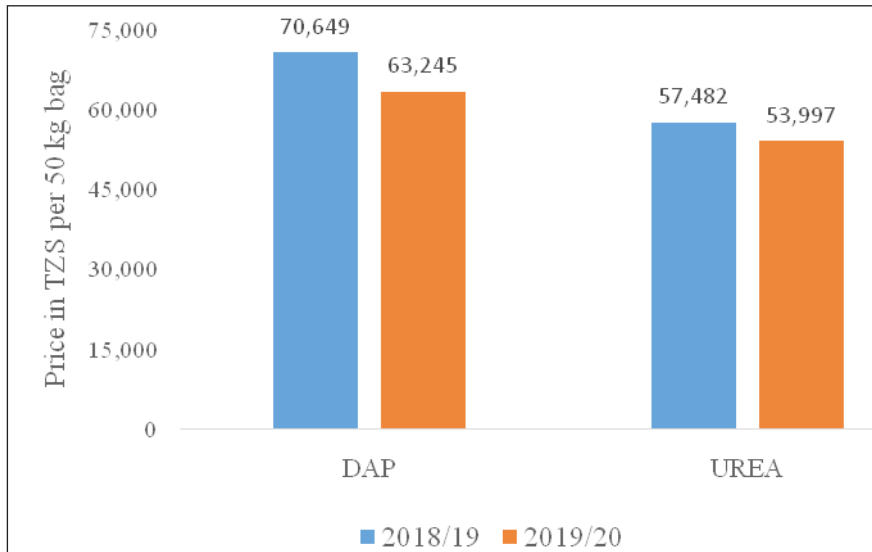
The Declaration aims to improve farmers' access to fertilizer by reducing national and regional procurement-associated costs and by harmonising the policies and regulations governing fertilizer. Consequently, the Magufuli administration amended the 2011 Fertilizer Regulations and introduced the 2017 new Fertilizer Regulations in an attempt to increase farmers' access to affordable

22 NBS, 2015, Environment Statistics 2014, Tanzania Mainland, National Bureau of Statistics, Dar es Salaam.

23 CIAT; World Bank, 2017, Climate-Smart Agriculture in Tanzania. CSA Country Profiles for Africa Series. International Center for Tropical Agriculture (CIAT); World Bank, Washington, D.C.

fertilizer. The results are shown in Figure 3. The average national indicative prices of DAP and UREA have declined by 10.5% and 6.1%, respectively, making the fertilizer more affordable than before.

Figure 3: Changes in Prices of Fertilizers 2018/2019



Source: Ministry of Agriculture

Concerted efforts are needed to conserve the environment and reduce the vulnerability of smallholder farmers to water shortages and drought caused by climate change. Climate change causes uncommon weather patterns, including drought, prolonged rainy seasons as experienced in 2019/2020 and other problems. All these affect crops and livestock, hence lowering agricultural production. Helping smallholder farmers adapt to climate change is one thing. The Magufuli administration is committed to ensuring that various environment protection measures are adopted as a remedy to the effects of climate change. Since one of the major threats to the environment is deforestation, the Magufuli administration is committed to reducing dependence on firewood and charcoal by constructing the 2,100 megawatt Julius Nyerere hydropower plant. The Magufuli administration has also imposed a ban on the production, supply and use of plastic bags. This ban, which placed Tanzania among the countries that fared well in the implementation

of Sustainable Development Goal (SDG) number 11, is aimed at protecting the environment and natural resources.²⁴

Markets

Farmers' access to national and international markets is crucial, if agriculture is to have a considerable impact on economic growth and the livelihoods of the rural population. Helping farmers to have increased access to markets is an important condition for agricultural productivity and the development of agro-industries. However, it is estimated that less than one third of farmers' produce reach commercial markets in Tanzania. This is so perhaps because only a few smallholder farmers in the rural areas understand how markets work, and even when they do, they do not have the right information which might enable them to participate effectively markets. Smallholder farmers' crop production is constrained by the presence of 'predatory' intermediaries or middlemen. The dominance of middlemen in agricultural marketing is a common phenomenon in Tanzania and elsewhere in East Africa. These middlemen are seen as 'necessary evils', since they exploit smallholder farmers while at the same time helping them to market their produce. Furthermore, farmers' limited ability to connect to the market chain, the shortage of credit and poor physical infrastructure are some of the factors that prevent them from having access to input and output markets and connecting to the urban centres.

Access to locally produced products is now particularly essential following the outbreak of the contagious new corona virus (COVID-19). At the time of COVID-19 we have witnessed border closures, quarantines, and transport, market, supply chain and trade distractions. Increasingly, industries and local traders face shortages of goods from China, India and other countries. As a result, there is a need to put more emphasis on the local than global markets. On the other hand, the outbreak of COVID-19 may cause food shortages in countries which have been hit hard by the virus. This may be an opportunity for Tanzanian farmers to increase production and export surplus food.

Another factor limiting farmers' access to the market is

²⁴ The Daily News, 23rd January 2020, JPM weighs in on climate change. <https://dailynews.co.tz/news/2020-01-235e292a08531c9.aspx>

farmers' inability to add value to their produce in terms of quantity and quality. A good example for this is the production of avocados by smallholder farmers, including those in Rungwe, Mbeya. The smallholder farmers in Rungwe were linked to investors, including Rungwe Avocado Company (RAC), Kuza Africa and Lima Kwanza, which sorted, graded, packed and exported Hass avocados. However, it was reported that about 50% of the avocados were rejected owing to their poor quality.

This may imply that bringing the market to smallholder farmers may not be enough if other complementary services such as entrepreneurship education and extension services are not provided. Similarly, the efforts being made by the government to establish an international banana market at Bujonde village in Rungwe should also focus on supporting farmers to adhere to the export quality standards.

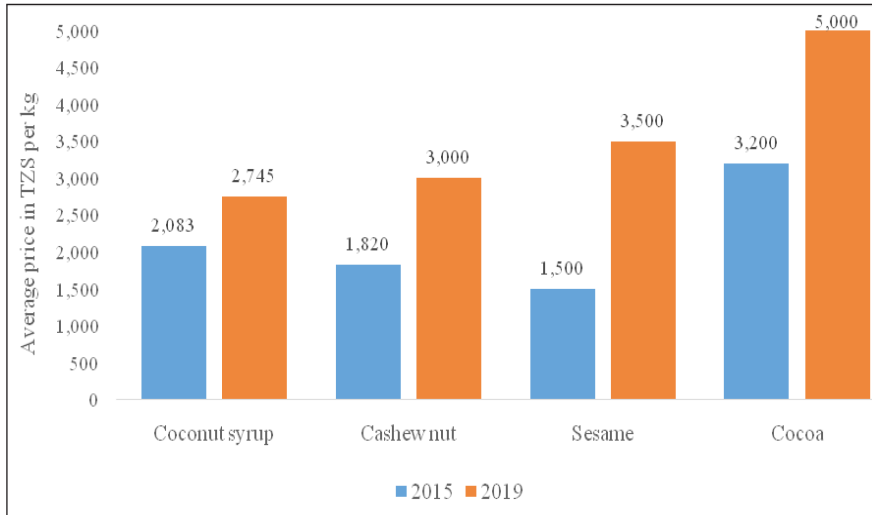
Putting farmers into groups or associations and helping them acquire skills relating to the marketing and post-harvest handling of their produce may be helpful in addressing some of the marketing challenges that they face. Since meaningful change takes time to happen the adoption of Kaizen's philosophy might help to reduce waste and the amount of rejected products, increase productivity and marketing systems. Kaizen's philosophy is a concept, which sees improvement in productivity as a continuous, gradual and methodical process. Thus, there is a need to train smallholder farmers before, during and after production, including postharvest management.

In the past few years, the Magufuli administration has strengthened agricultural commodity marketing systems by targeting farmers with a reliable market and better prices. A variety of market systems for locally produced crops, including an auction system, a direct market system, a commodity market system, a warehouse receipt system (Tanzania Mercantile Market - TMX) and a free market system are used. These systems have led to the increase in the prices of cash crops, as shown in Figure 4.

The price of cocoa 1.6 times, sesame 2.3 times, cashew nut 1.6 times and coconut syrup 1.3 times between 2015 and 2019. Furthermore, the price of Arabica coffee at the domestic market has increased to US\$ 112, as compared to US\$ 107.04 (4.7%) at the

world market and that of Robusta has increased to US\$ 87.13 at the domestic market, as compared to US\$ 73.90 (17.9%) at the world market for a 50kg bag.

Figure 4: Improvement in price of selected crops between 2015 and 2019



Source: Ministry of Agriculture

The Magufuli administration has entered into trade agreements with consumer countries and buyers of agricultural products to secure a stable market for crops. They include the signing of a deal for the sale of dried cassava to China. According to the Ministry of Agriculture, about 2,240 tonnes of cassava have been bought and shipped to China. Furthermore, the country has continued to benefit from conditional export markets that have no limit on goods and customs duties (Duty Free Quota Free - DFQF).

The markets include China, India, Japan, Switzerland, Norway, Turkey, New Zealand, Iceland, Brazil, Morocco, the Republic of Korea, the USA through the African Growth Opportunity Act (AGOA), the European Union, which allows the sale of all products, except for weapons (Everything but Arms), the East African Community (EAC), the Southern African Development Community (SADC) and other international markets through the World Trade Organization (WTO).

In collaboration with the Tanzania Horticultural Association

(TAHA), the government conducted a market research on agricultural products focusing on commercial, food and horticultural crops. The study revealed that contract farming is one of the most reliable agricultural commodity markets. Following the findings of the study, the government is providing education to farmers in an effort to promote the contract farming. Since infrastructure and an enabling business environment are essential, the Magufuli administration has heavily invested in rural road infrastructure and energy, and abolished government regulations and informal taxes that limited farmers' and traders' access to markets.

The Magufuli administration has also invested in the construction, expansion and rehabilitation of airports to facilitate the export of fruits and vegetables. In collaboration with TAHA, the government has secured a reliable cargo flight for transporting high-value perishable crops to overseas markets from Kilimanjaro International Airport (KIA) in an attempt to rescue the horticulture sub-sector from sinking owing to the outbreak of COVID-19. Moreover, the government plans to purchase a cargo aircraft to facilitate the same.²⁵ These and other similar efforts will enhance access to foreign markets and raise productivity, income and earnings.

Increasing agriculture productivity

Although the agricultural productivity of smallholder farmers has increased, the output per hectare remains low for many crops compared to what obtains in other countries.

For example, the production of round potatoes is estimated at 6.5 tonnes per hectare as compared to 7.0 tonnes in Uganda, 9.0 tonnes in Rwanda, 11.9 tonnes in Malawi and 34.0 tonnes in South Africa.²⁶

The average production of cereal crops in Tanzania, like in most other sub-Saharan African countries, is around 1.7 tonnes per hectare compared to the global 3.9 tonnes per hectare. If good

²⁵ Habari Leo, 19th April 2020, *Serikali kununua ndege ibebe matunda, maua*. <https://www.habarileo.co.tz/habari/2020-04-195e9bed3b89ffe.aspx>

²⁶ Mpogole, H., 2013, Round potato production in Southern Highlands of Tanzania: Market preference, variety selection and profitability. PhD Thesis, Sokoine University of Agriculture, Morogoro, Tanzania.

agronomical practices, coupled with optimal use of quality inputs, improved seed varieties and appropriate farm technologies were employed, productivity would rise to 3.5 to 4.0 tonnes per hectare.

This implies that it is possible to increase production without unnecessarily expanding the size of the land under cultivation. If we are to make agriculture a meaningful and remunerative investment for farmers, we need to increase productivity. This can be achieved by addressing several issues that affect agricultural productivity in Tanzanian. We have already discussed some of the issues; they are rural road infrastructure, land tenure, mechanisation of agriculture, affordable credit, soil fertility and environment, and access to markets. In this section we discuss other issue that help increase agricultural productivity.

One of the causes of low productivity in Tanzania is the use of low, and perhaps, counterfeit inputs. Fertilizer use stands at about 9kg/ha while the average for SADC countries is 16 kg/ha; in China it is 279kg/ha. In addition, the annual supply of improved seeds is only about 10% of the total estimated requirements of 120,000 tonnes a year. While the supply and use of inputs are low, a TCCIA study on enhancing the tomato value chain which was done in Iringa Region in 2015/2016 shows the existence of counterfeit inputs on the market. It has also been reported that about 40% of the agro-inputs used in Tanzania are counterfeits.²⁷ Yet, farmers lack knowledge of proper use of inputs and can't distinguish between genuine and counterfeit inputs. The influx of counterfeit, cheap inputs such as seeds and pesticides lowers agricultural productivity, hence lowering farmers' income and their ability to farm in the next production season.

For instance, owing to counterfeit inputs and poor agronomic practices, farmers were producing about 7.0 tonnes of tomato per acre (nearly 3.6 times less) of tomato as compared to 25 tonnes per acre, which would be possible under best practices, thus losing up to 18 tonnes per acre (72% less than expected) in just one season. Furthermore, the presence of counterfeit inputs and high input prices make farmers recycle their own seeds, instead of purchasing other seeds. Justifiably, recycled seeds are less productive than purchased seeds. Thus, one way of improving agricultural productivity is

27 The Guardian (2020, February 26). TTCL and TPRI in innovative digital verification solution of pesticides, <https://www.ipmedia.com/en/features/ttcl-and-tpri-innovative-digital-verification-solution-pesticide>

to regulate the input supply market so as to control the import, production, supply and use of counterfeit products.

The Magufuli administration has taken some measures to address the problem of counterfeit products. One of the notable measures taken is the collaboration between the Tanzania Telecommunications Corporations (TTCL) and Tropical Pesticides Research Institute (TPRI) for the purpose of launching the innovative digital verification of pesticides known as T-Hakiki. Through T-Hakiki, farmers can verify pesticides by dialing USSD code *148*52# and entering the verification serial number of the product. This service, which will significantly reduce the quantity of counterfeits and save the lives of farmers and consumers, is available to all mobile network operators and is provided free of charge.

Agricultural education is a widely known factor for agricultural production and productivity. Despite this knowledge agricultural extension still needs improvement. According to ASDP II, the government aims to have at least one extension officer in each village. The Ministry of Agriculture wants the country to have 15,082 extension officers by 2020. Currently there are about 9,000 (equivalent to 53% of the needs) across the country; they lack expertise in marketing and value chain approach required to advise farmers on commercial, agricultural production. This may imply that, to some extent, agriculture is being supervised by non-experts or inexperienced people. Some of the officers have some knowledge which they acquired from colleges, but they lack the relevant practical experience. Extension and agriculture officers, ought to have farms or at least demonstration plots.

In the past, non-traditional crops such as horticulture, were not regarded as a priority in extension services.²⁸ As a result, smallholder horticultural producers are practising traditional farming, using more or less trial and error methods, thereby making it a risky investment. Since evidence shows that contact with extension officer influences farmers' choice and use of improved technology, including crop and animal varieties, there is a need to improve.

²⁸ URT, 2009, Iringa tomato value chain analysis for local market and value chain development investment plan. MUVI-SIDO, Ministry of Industries, Trade and Marketing.

There is a need to revitalise agricultural extension through the deployment of human resources with expertise not only on crop and animal husbandry, but also on other aspects such as appropriate technologies, farm mechanisation, post-harvest crop management and crop marketing. Apart from skilled extension officers, other resources, including transport facilities, equipment and funds, need to be mobilised to enable officers to do their job. This is especially so with respect to the establishment of farmer field schools or demonstration farms which have recently been proven as being one of the effective ways of training and learning.

Irrigation is another area to look at in the efforts to increase agricultural productivity. Despite the potential of irrigation, farmers have continued to practise the traditional rain-fed agriculture, which lowers productivity. Irrigation has great potential in Tanzania, but it is yet to be harnessed. Statistics show that there are 29.4 million hectares which can be irrigated. Nonetheless, out of this potential area, only 468,338 hectares (equivalent to 1.6 % of the potential irrigated area) is under irrigation.²⁹ Since the industrial economy can hardly be achieved by practising rain-fed agriculture, investment in irrigation infrastructure is greatly important.

Agricultural productivity depends not only on quality inputs, but also on irrigation facilities. Irrigation is particularly a suitable alternative the areas which experience a shortage of rainfall, but have abundant water sources such as ground water, rivers, lakes and dams. Currently, the average annual irrigation development is 19,620 hectares. The Magufuli administration planned to attain 700,000 irrigated hectares by 2020 and 1,000,000 hectares by 2025.

However, with the current increment rate of 19,620 hectares a year more concerted efforts are needed to reach the target by 2025.

Dairies, poultry and small ruminant husbandry and high-value commodities such as fruits and vegetables constitute an area in which we have not invested. This area has great potential, mainly owing to increased urbanisation and communicable and non-communicable diseases, which require changing lifestyles, including increasing the intake of vegetables, fruits and white meat. Women and the youth should be encouraged to participate in fruits and vegetables (*e.g.* production of onion Quality Declared Seeds (QDS on the sidebar). Since poultry and small ruminant husbandry

²⁹ NBS, 2018, National Environment Statistics Report (NESR, 2017): Tanzania Mainland

and fruits and vegetables require low initial investment and have shorter maturity and gestation periods than other traditional commodities, they're likely to enhance productivity, increase incomes and contribute the achievement of the middle income status.

Although inputs play an important role in production, productivity may not increase if there are poor harvest and post-harvest crop handling practices. Due to poor harvest and poor post-harvest crop handling practices, and poor storage and transport facilities, farmers and traders lose over 40% of their horticultural produce. The same goes for traditional cereals such as maize and rice. In the case of rice, it is estimated that post-harvest losses account for over 40% of all the harvest volume. Undeniably, this amount of post-harvest loss is significantly high, which poses challenges to farmers and other actors in the value chain. Given that over 40% of the produce is lost after inputs, labour and other costs have been incurred, it follows that investment in harvest, post-harvest crop handling practices and storage facilities is necessary if productivity is to improve. This may include provision of efficient harvesting technologies, packaging and storage materials, warehousing and transport infrastructure. Although some counter-measures have been taken, they're either at slow pace or centralised. For example, most of the public warehouses are centralised (one warehouse in a ward in most cases), making them inaccessible to distant farmers. Even when farmers are able to transport their cereals to the public warehouses, they use dilapidated packaging. Thus, continuous improvement in terms of orienting farmers to harvest and post-harvest crop handling practices is essential.

Participation of women and the youth agribusiness is vital in an effort to improve agricultural productivity. Nearly 52% of the people in the country are women. According to the NBS, the youth who are aged between 15 and 35 account for 35% of the total population. However, the involvement of the youth in agricultural production and the agribusiness is limited. There is a need to encourage the youth who are in the majority to participate in the agricultural value chain in order to increase productivity. The Sokoine University Graduate Entrepreneurs' Cooperative (SUGECO) and the Magfuli administration's initiated National

Strategy for Youth Involvement in Agriculture 2016-2021 (NSYIA) are examples that should be encouraged.

Other issues to consider in improving agricultural productivity include relief measures, population pressure on land, cottage and small-scale agro-industries, cooperative farming and commercialisation of smallholder agricultural production.

The absence of agricultural insurance and/or relief measures in case of natural disasters such as drought, heavy rainfall or the outbreak of locusts make agricultural production a risk venture. Some form of relief for farmers needs to be put in place so that people, especially the youth, may engage in agricultural production. There is also a need to reduce population pressure on agricultural land. The increase in population pressure on land increases the division and fragmentation of the farm land per farmer. Since farming on small and fragmented plots is one of the reasons for low production, there is a need to encourage the people in the rural area, including women and the youth, to seek employment in the subsidiary sectors, including cottage and other small-scale agro-industries.

Cottage and small-scale agro-industries will keep smallholder farmers busy during non-cultivation seasons and gradually help them to graduate from farming to industries. This will eventually create more room for medium-sized and large-scale agricultural production. Thus, investment in cottage and small-scale agro-industries will undoubtedly increase the incomes of the people in the rural areas and contribute to the building of the industrial economy.

Another way to address the issue of the sub-division and fragmentation of land holdings is by establishing and strengthening cooperative farming. Evidence shows that cooperative farming increases the adoption of improved technologies and opportunities for credit, collective storage and marketing, all of which increase productivity. If cooperative farming is established and/or strengthened, agriculture will become a profitable undertaking through economies of large-scale production and marketing.

Finally, we look at the commercialisation of smallholder agriculture as an approach to improving productivity. Evidence shows that Tanzania has the potential for becoming a major food exporter and to feed itself and the whole of East Africa, but struggles to meet its own food requirements owing to dominance

of subsistence farming.³⁰ Agricultural commercialisation remains to be a challenge as the majority of farmers produce for their own consumption and sell the little surplus so as to meet their immediate needs.³¹

The existing literature shows that there is a link between the commercialisation of small-scale agriculture and the income levels of rural populations. Smallholder farmers with a commercial orientation have more land holdings, hired labour, purchased inputs and mechanisation, assets and access to credit or savings than other farmers.³² Thus, one of the approaches to improving agricultural productivity, income and the livelihoods of rural populations is the commercialisation of agriculture, especially food crops in which the majority of smallholder farmers is engaged. Farm mechanisation, especially in land preparation, planting and harvesting, is also one of the elements of the commercialisation of agriculture.

Concerted efforts need to be made to address institutional, environmental and individual farmer constraints that prevent them from producing for the market. The role of the National Food Reserve Agency (NFRA) is essential in commercialising cereal production. The NFRA can help ensure food security as well as act as a marketing agency for smallholder cereal producers.

We have seen that increasing production and productivity, marketing and cottage and small-scale agro-industries are key to improving rural incomes and building the industrial economy. Since most of the issues discussed are reflected in FYDP II, ASDP II, the President's speech mentioned earlier and the achievements mentioned, there is no doubt that the Magufuli administration is on track for addressing issues of agricultural production and productivity. The challenge ahead is ensuring effective implementation and monitoring if successes are to be realised. However, effective implementation and monitoring largely depends on the skills/expertise, confidence and self-discipline of lieutenants in carrying out their tasks. For instance, in the past five years we

30 Wolter, D. (2008). Tanzania - Why a Potential Food Exporter is still Importing Food. OECD Development Centre, Paris. www.oecd.org

31 Mpogole, H. et al., 2012, Round potato production in southern highlands of Tanzania: Are smallholder farmers becoming commercial? *Journal of Agricultural Extension and Rural Development*, 4(8): 385-391.

32 Wiggins et al., 2013, Cautious commercialization: Findings from village studies in Ethiopia, Ghana, Kenya, Malawi and Tanzania. FAC Working Paper 82, Brighton, UK: Future Agricultures Consortium.

have witnessed three changes in the leadership of the Ministry of Agriculture. These and other ministers were primarily sacked owing to unsatisfactory performance.³³ There is a need, therefore, to build the capacity of the ministry's leadership in terms of skills, confidence, self-discipline and decision-making based on informed evidence.

Enhancing rural development

We have already discussed the important factors for agricultural production and explored ways of improving productivity. In particular, we have discussed the efforts made by the Magufuli administration to improve agricultural production and productivity. All the issues discussed so far have lingering influence on rural development. A sustained increase in the level of production and productivity will raise the per capita income and improve the overall wellbeing of farmers. In this section we draw on examples, experiences and lessons to discuss current and future improvement in rural development. We also explore some policy implications FOR WHAT? and analyse particular issues which will need to be addressed so as to enhance agriculture for rapid growth of the rural economy.

As mentioned above rural development is not only related to an increased level of agricultural production and productivity of farmers, but it also relates to the overall physical, social and economic improvement of rural populations. Rural transformation is the modernisation of the rural areas and the transition from its isolation to integration with the national economy. This implies that relevant policies should not treat agriculture and rural development separately from such other sectors as the industrial sectors and the urban sector. There is a need to strengthen the rural-urban and agriculture-industry linkages for sustainable rural development (Ref. [2]).

Although some people argue that agriculture is the key to development and others believe that industrialisation is the only path to development, we argue that they are not mutually exclusive. Economies in which agriculture is stagnant do not show industrial development.³⁴ Indeed, President Magufuli was quoted

33 The Citizen (2019, Jan 9). Tanzania: What Mini Cabinet Reshuffle Means

34 Kay, C., 2009, Development strategies and rural development: exploring synergies, eradicating poverty. *The Journal of Peasant Studies*, 36(1):103-137.

as saying that the challenges facing agriculture are exacerbated by the shortage of industries in the country.³⁵ So, it is not a question of either agriculture or industry. As stated above sustainable industrialization is largely dependent on agricultural development.

This calls for a rural development strategy which strengthens the synergies between agriculture and industry in an attempt to increase income and the overall wellbeing of the people. Since the raw materials from agriculture to, for example, food, textile, leather, and wood industries leave the country with no or limited processing, there is a need to enhance the agribusiness through cottage and small agro-industries.

If promoted, cottage and small agro-industries will offer one of the immediate starting points in the creation of the synergy between agriculture and industry, since they do not require large capital investments. Small-scale agro-industries are considered essential in transforming the wealth of the country from the predominantly agricultural economy to a semi-industrialised economy. These industries provide market outlets to farmers within the surrounding areas. When farmers are assured of markets, they expand their production capacity, which leads to increased income and living standards. It is estimated that small-scale agro-industries account for over 80% of all the firms in Tanzania. However, owing to low growth the small-scale agro-industries have not contributed much to employment and income. If promoted, these industries will have a multiplier effect on the rural incomes and the overall economic growth. Agro-industries generate backward and forward linkages by creating employment and markets for raw materials from agriculture. As mentioned earlier, the government has made a deliberate effort to increase and improve the processing of agricultural produce, including palm and sunflower in a bid to reduce the edible oil import dependence.

Furthermore, other public and private sector institutions have also been promoting agro-industries. One example is the Institute of Rural Development Planning (IRDP) as illustrated in Box 2.

35 The Citizen, 26th April 2019, Magufuli outlines hurdles impeding agriculture. The Citizen, <https://www.thecitizen.co.tz/news/Magufuli-outlines-hurdles-impeding-agriculture/1840340-5089200-xdalt8/index.html>

Box 2: IRDP in Promoting Agro-industries and Rural Development

Despite abundance of natural resources such as land, forests, rivers and lakes, oceans, and minerals the level of domestic investments in Tanzania including agro-industries is remains relatively low. This makes the country to continue to export raw materials instead of processed goods. The sale of raw materials mainly from agricultural products reduces employment opportunities to people who would otherwise be employed in various processing industries. Also, exports of raw materials allow Tanzania to continue importing essential commodities such as textiles and edible oil which could be produced locally with surplus exported. Studies show that one of the main causes of persistent poverty in Tanzania is limited entrepreneurship skills and creativity among rural communities and graduates of higher education. Thus, the creation of entrepreneurial and creative capacities among college students and rural communities is central to efforts to bring about the development of the semi-industrial economy in Tanzania.

People with positive mindset, entrepreneurship skills and creativity have the best chance at identifying and taking advantage of various economic opportunities including starting and operating own businesses. Since small and medium scale enterprises provide the largest share of employment and income for most people it is important to train and encourage college students to consider self-employment. Various national policies including Education and Training Policy 2014, Agricultural Marketing Policy 2008, National Strategy Growth and Reduction of Poverty (MKUKUTA); Tanzania Vision 2025; The National Five Year Development Plan 2016/17-2020/21 and the United Nations Sustainable Development Goals (SDGs) define that entrepreneurship and creativity are key to increasing employment, income and a rapidly growing economy. Cognizant of this and in attempt to support the efforts of the Magufuli administration on enhancing industrial economy the Institute of Rural

Development Planning (IRDP) established the Mipango Entrepreneurship and Innovation (MEI) Center in 2019.

MEI provides practical training and mentorship to students and rural communities specifically aimed at helping them to engage in both farm and non-farm income generating activities. Youth in rural communities especially in semi-arid areas, which are prone to recurrent drought are trained and encouraged to do commercial agriculture, add value, seek markets, and engage in agro-processing. Through the leather factory in Idifu Village in Chamwino (pictured below), which was established by the European Union funded Eco-village Adaptation to Climate Change in Central Tanzania (Eco ACT) project, IRDP through MEI Center is training and supporting youth to make leather products.

Some of the leather products produced include shoes, sandals, balls, belts, and key holders. A total of 24 youth (8 female) from Idifu and surrounding villages have been trained to make the leather products. Also, the Chamwino District Council has supported this youth group with an interest-free loan of 15 million shillings to expand production. The made leather products find their markets in schools (especially for shoes and balls) and other regular retail shops in Dodoma.

Apart from the leather factory, IRDP through the European Union funded Eco-ACT is also supporting rural communities to engage in various income generating activities as one of the climate change adaptation strategies in semi-arid areas. Some of the activities include beekeeping, livestock (twinning goats), and horticulture through the constructed irrigation dams.

We use the example of the dairy sub-sector to explain how policy actions can be used to promote agro-processing industries in Tanzania. The sub-sector is one of the areas that have the great potential for increasing rural incomes and economic growth. Despite having 22 million cattle, 720 of which over 720 are dairy, Tanzania is still a net importer of milk. Milk consumption per capita stands at 47 litres a year, below the WHO recommended consumption of 200 litres a year. The local supply of milk is low, thereby making dairy

processing plants operate at about 30% of their installed capacity. In an attempt to stimulate local dairy production and processing in the country, the Magufuli administration introduced the 2018 Animal Diseases and Animal Products Movement Control Regulations, which raised the milk import fees from TZS 150 per kg to TZS 2,000 in order to protect the local dairy industry.

As a consequence, there was a drastic decrease in the import of milk. As a result, local milk processors, including Asas Dairies and Tanga Fresh, reported an increase in the production of milk by 47% between October 2018 and February 2019.³⁶ Similar examples are found in other products, including edible oil, in which production and processing of local edible oil seeds increased when import tariffs were imposed on imported crude edible oil. Thus, firm policy actions such as those taken by the Magufuli administration are needed if we're to improve agriculture and agro-industries.

Another approach to strengthening the synergy between agriculture and industry is through skills development and technology upgrading throughout the agriculture value addition chain. Skills and technology development will promote small-scale production units such as cottage and small agro-industries, which will eventually help diversify the rural economy and reduce stress on agriculture. Notwithstanding the ongoing government efforts to improve agricultural technology, there is a need for further capacity enhancement for the relevant institutions, including research and training institutes and centres, NDC, CARMATEC, SIDO and VETA, and for the introduction of hands-on vocational training in the schools located in the rural areas. In the case of vocational skills, VETA colleges should be established at the lower levels, for example in districts or wards, so that they are accessible to the youth from the rural areas. This proposition is not entirely new. During the State of the Union address on 4th February 2020 the President of the United States expressed the need to provide vocation education in public high schools in an effort to promote self-employment in the USA. Increasingly, the industry prefers skills over academic certificates in employment opportunities.

36 The Citizen, 27th February 2019, Milk output soars after steep increase in import fees. <https://www.thecitizen.co.tz/News/Milk-output-soars-after-steep-increase-in-import-fees/1840340-5001528-fi8ufb/index.html>

This necessitates expanding vocational training in various areas, including agriculture-related activities such as horticulture, food processing, field crop production, and animal husbandry, where there is increasing demand for skills. For this, it is encouraging to learn that VETA planned to establish a vocational center of excellence for training in agricultural occupations.³⁷

The role of VETA and SIDO in skills development and technology transfer cannot be over emphasised. A good example is the smallholder soap manufacturer pictured below. He was trained by SIDO before opening his small soap factory in Kyela. This soap factory uses kernel oil (*mise*), a byproduct of the palm produced in Kyela. Farmers produce palm, which is then sold to smallholder processors of palm oil (*mawese*), kernel oil and palm cakes.

Owing to the absence of quality plants for refining the oil for human consumption, the smallholder processors sell the raw palm/kernel oil to small-scale soap manufacturers or to other large-scale industries such as Muza Oil, Bidco and Mohamed Enterprises.

The locally manufactured soap is sold in local shops in Kyela and some of it is transported to Mbeya and other parts of the southern highlands. This illustrates a simple agriculture (farmer) and industry synergy, which, if promoted, will transform the livelihoods of the people in the rural areas and contribute to the building of the industrial economy. According to Ref. [2], a government strategy, which creates and enhances the synergies between agriculture and industry, offers the best possibilities for generating the process of rural transformation and reduction of poverty.

Arguably, the challenges facing farmers in the rural areas are many and multifaceted, since the challenges facing agriculture tend to be context specific. Not all farmers across the country face the same challenges. For instance, support infrastructure may be relatively developed in one location but not in others. There are challenges that are specific to a certain sub-sector, crop or livestock. Furthermore, the agriculture sector is not isolated from the other sectors of the economy, and not all rural issues are confined to agriculture. This makes the identification of policy priorities a difficult process. Thus, it is important for the public sector to

³⁷ The Citizen, 19th December 2019, Tanzania, China vocational training authorities target agriculture sector. <https://www.thecitizen.co.tz/news/1840340-5391822-9wrvqe/index.html>

put emphasis on the provision of public goods, enhance market efficiencies and institutional reform to encourage the participation of the private sector in agriculture. Some of the public goods that the government may provide include: policies for the provision of education such as the Magufuli administration's fee-free basic education; rural infrastructure and communication; water services; friendly policies for business operation; formalisation of informal businesses such as the Magufuli administration's issuance of special identification cards to petty traders (also known as small entrepreneurs' identification cards); and the funding of agricultural research as spelt out in various policy documents.

Indeed, Tanzania has a clear policy framework for agriculture and other sectors of the economy. The government has adopted a number of macro-level, sector and sub-sector policies to improve the state of agriculture. Some of the key policies relating to the agriculture sector are: the 2013 Agriculture Policy, the 2006 National Livestock Policy, the 2008 Agricultural Marketing Policy and the 2010 National Irrigation Policy 2010. These and other related policies address various issues pertaining to agriculture, which is multifaceted and strongly linked to other sectors of the economy. As stated in the 2013 National Agriculture Policy, the government is committed to bringing about a green revolution that entails transforming agriculture from subsistence farming into commercialised and modernised farming through crop intensification, diversification, technological advancement and infrastructural development. Some of the achievement of the Magufuli administration include, i security of land tenure, increased financing through TADB and other financial institutions, construction of rural communication and transport infrastructure, rural electrification, f Fertilizer Regulations of 2017 and strengthening of the agricultural commodity marketing systems.

Other sector and sub-sector strategies, programmes, initiatives and plans that address agriculture include the 2025 Tanzania Development Vision (TDV), the National Strategy for Growth and Reduction of Poverty (NSGRP), Agricultural Sector Development Strategy II (ASDS-II) 2015/2016-2024/2025, the Tanzania Agriculture and Food Security Investment Plan (TAFSIP) and the National Five Year Development Plan 2016/2017-2020/2021 (FYDP II). The development vision is aimed at transforming the economy from

a low productivity agricultural economy to a semi-industrialised one, which is led by modernized and highly productive agricultural activities. According to FYDP II, the agriculture sector is seen as a crucial area in which strategic interventions should be implemented to build a strong foundation for a highly productive, competitive and dynamic economy.

Integrating the objectives of the Comprehensive Africa Agriculture Development Programme (CAADP), ASDS II sets a new direction for the development of the agriculture sector for a ten-year period. ASDS II has identified four but overlapping strategic areas for intervention. The first is the promotion of sustainable water and land-use management. It focuses on appropriate use of land, water and forestry, including mitigation of, and adaptation to, climate change to enhance productivity and profitability. The second strategic area of intervention is improvement of productivity and the profitability of priority commodities (crops, livestock and fishery) and enhancement of the commercialisation of agriculture to accelerate the adoption of improved technologies, access to credit, reduction of on-farm and post-harvest losses, and increasing the pace of mechanisation of farm technology, research and extension services. The third area has to do with the strengthening of the value addition chains, farmer groups and agribusiness, including promotion of agro-processing; promotion of a favourable business environment for agricultural investments, including the import of agro-processing equipment and parts; and, promotion of private sector investment in agriculture through the ongoing efforts of the SAGCOT initiative, financial services and access to markets through improvement in rural and marketing infrastructure, warehouses and other storage facilities. The fourth area of intervention is the strengthening of institutions, enablers and a coordination framework. Irrigation, finance, mechanization and agro-processing are identified in the four strategic areas as further priorities of ASDS II.

ASDS II reflects most of the vision and principles enunciated in the Tanzania Agriculture and Food Security Investment Plan (TAFSIP). TAFSIP is used to operationalise the CAADP framework formulated to help achieve TDV 2025. There are a number of other sector programmes, projects and initiatives, including ASDP II and SAGCOT. ASDP II is a results-oriented sector programme, which serves as the main vehicle for implementing ASDS II. ASDP

is implemented at national and local levels. At local level, LGAs implement ASDP through the District Agricultural Development Plans (DADPs). DADP is a key instrument used by ASDP for agricultural and rural development.

Most of the initiatives of the Magufuli administration pertaining to agriculture are reflected in ASDP II and FYDP II in terms of promoting economic growth and industrialisation through manufacturing and agriculture. With respect to manufacturing, FYDP II is intended to promote agro-industries and agro-processing for adding value to agricultural products including: livestock, forestry and fisheries products; revamping textile, garment and clothing industries; establishment of leather factories, edible oil industries, metal silos for smallholders, sisal processing and food processing training cum production centres. In the case of agriculture, the key interventions are those outlined in ASDS II. Given the central role of agriculture in industrialisation, FYDP II emphasises the strengthening of SAGCOT.

SAGCOT is a Public-Private Partnership initiated at the World Economic Forum (WEF) Africa (WEFA) Summit in 2010. Covering about one third of Mainland Tanzania, SAGCOT aims to expand investment in agribusiness, thereby leading to income growth among smallholder farmers and employment generation across agribusiness value addition chains in the southern corridor. It focuses on value addition, infrastructural development, agricultural production and productivity, and public-private partnerships; all of which are consistent with ASDS. SAGCOT evaluation report shows that productivity has increased in the target areas. For instance, rice production has doubled from 4 tonnes to 8 tonnes per acre through the introduction of the System of Rice Intensification (SRI).

This increase in productivity in the corridor is partly due to the identification of clusters with potential for growth in commercial production, mobilising smallholder farmers for economies of scale and linking agricultural production to agro-processing industries. SAGCOT intends to produce US\$ 2.1 billion in private investment, increase the size of the land under cultivation by 350,000 hectares, create direct and indirect 420,000 new job opportunities and lift 2 million people out of poverty by 2030 (Ref. [4]).

As shown above, Tanzania has sound albeit overlapping policies and strategies intended to address issues of agriculture

and rural development. It has long been said that Tanzania has no pronounced challenges in terms of a policy framework but rather the implementation of the same. Limited policy implementation is due to many issues, including inadequate use of policy research, stakeholder involvement (top-down approaches vis-à-vis bottom-up approaches) and malpractices such as corruption. Despite the studies done by research and training institutions and individual professionals, limited research has been done on agricultural policy and use in policy decisions. Even when policy research is conducted, studies tend to be sporadic and their influence on agricultural policymaking cannot be determined.³⁸ This implies that despite the studies, dissemination and utilization remain relatively low. It has long been stated that most of the research outputs in Tanzania remain in shelves.

Inadequate involvement of stakeholders IN WHAT? is another factor that limits the implementation of policies and strategies. Although there are possibilities of transforming agriculture from subsistence to market-oriented production, the change cannot be imposed on the farming communities; it has to evolve from the bottom up (Ref. [4]). Indeed, significant change cannot happen overnight; it is a gradual process. However, change can be fast tracked through the establishment and strengthening of farmer groups or cooperatives. As discussed above, cooperatives enhance the adoption of improved technologies and help smallholder farmers to get access to input and output markets at lower transaction costs. Therefore, farmer groups and cooperatives can help to transform smallholder agriculture from the bottom up.

Another factor for limited policy implementation is the prevalence of corruption, collusion, lack of commitment and other malpractices. We mentioned earlier that the PCCB rescued billions of shillings from cooperatives. However, that is just one case of corrupt practices among many others. President Magufuli has relentlessly been fighting the corruption that was rampant in the country. In addition, the Magufuli administration has restored responsibility, accountability and discipline in the public service, something which has enhanced effectiveness and efficiency in policy implementation.

38 Isinika, A.C. *et al.*, 2016, Agricultural Policy Analysis Studies in Tanzania: A Historical and Thematic Perspective with Implications on Future Policy Research for Crop Production and Marketing. *Tanzania Journal of Agricultural Sciences*,15(1): 51-68.

Effectiveness and efficiency in policy implementation also requires knowledge as well as expertise/skills in the field of agriculture, livestock and fisheries. As pointed out above and apart from the shortage of extension officers and other kinds of personnel in the agriculture sector and fisheries, residing officers have inadequate expertise and limited field experience and confidence to fulfill their responsibilities. Agricultural extension personnel need skills such as communication skills, problem-solving skills, managerial skills and team-work skills to educate and persuade farmers to adopt modern and improved technologies, to learn, disseminate and implement emerging agricultural research findings. Literally, the success of agricultural programmes largely depends on extension services. Of course, processes do not fail, but people do. Moreover, the frequent leadership changes at the Ministry of Agriculture may also explain the limited policy implementation as each new minister takes time to learn, adjust and move forward.

In the view of the foregoing analysis, discussion and examples of the various efforts made by the Magufuli administration to improve agricultural productivity for the purpose of building the semi-industrialised economy, it is evident that President Magufuli has been walking his talk. The administration has demonstrated its commitment to protect and support smallholder farmers by issuing CCROs to them so that they secure land rights and use the same to get access to the credit provided by formal financial institutions, including microfinance institutions and TADB. Long-standing land conflicts between and among farmers, pastoralists and investors have been addressed and efforts to survey all village land and develop land-use plans are going on. The Magufuli administration has heavily invested in rural infrastructural development, including rural roads and electrification, which increases farmers' access to input and output markets and promote the development of agro-processing industries. The Magufuli administration has enhanced farmers' access to inputs by amending fertilizer regulations, which has resulted fertilizer prices decline and stabilise. In addition, the Magufuli administration revived NDC and empowered CARMATEC, SIDO, VETA and related institutions to develop and provide appropriate farming technologies. As a result, we have witnessed tractors being assembled at the TAMCO industrial area in Kibaha. The list is long. Although change is a gradual process,

we believe that the efforts of the Magufuli administration will bring about a lasting change not only in the agriculture sector and in the area of rural development, but also in the overall economy of the country in pursuit of the semi-industrialised economy. The recent World Bank classification of Tanzania as a lower middle-income economy is yet another piece of evidence of the achievements made under the Magufuli administration. Tanzania attained the status in July 2020. President Magufuli is credited for spearheading key economic reforms and leading the country towards achieving the lower middle-income status.³⁹

Conclusion

The strategic importance of agriculture to rural development and the achievement of the middle-income status cannot be overemphasised. Agriculture is food, agriculture is life and agriculture is connected to everything else. It is the source of food for the rural and urban populations, the source of raw materials for industries and a market for industrial products. Transforming the livelihoods of the rural people who are engaged in farming, fishing and livestock keeping entails improving agricultural production and productivity. Improvement in agricultural production and productivity can only happen if we move away from the tradition subsistence farming to market-oriented commercial production.

The Magufuli administration has been working on the transformation of agriculture from subsistence to commercial production by addressing such challenges as insecure land tenure; poor road and communication infrastructure; limited rural electrification necessary to promote agro-industries; rudimentary technology in terms of improved inputs and mechanization; limited access to finance; poor linkages between agriculture and industry; negative effects of climate change; corruption; and, poor policy implementation and regulatory environments. The efforts made are aimed at creating a conducive agricultural and business environment for increased income, which is necessary to transforming the lives of the rural and urban populations and to achieving the middle-income status. Given the myriad achievements of the Magufuli administration during the first five years, we conclude that President

39 Daily News, 2nd July 2020, Middle Income Status: Dar feat beats vision.

Magufuli is a 'game changer.'

Notwithstanding the fact that President Magufuli is a 'game changer,' the outbreak of the coronavirus (COVID-19) pandemic may necessitate changing priorities, including providing more support to farmers such as credit, markets and other services to continue production. More support to farmers will help to ensure there is sustained production and supply of the needed food and raw material to industries during the pandemic. Thus, there is a need to look at what is required and at how to produce it at the time of COVID-19. As COVID-19 is expected to cause food shortages in the countries hard hit by the pandemic farmers in Tanzania could increase production for export purposes. To achieve this, farmers need to be oriented to strategies to continue production amid COVID-19. The government should also increase support to the private sector in terms of creating an enabling environment and giving it access to affordable credit and farm equipment. More importantly, the government should increase investment in infrastructure, agricultural education, and research and development.