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Zambia: Towards Inclusive and Sustainable Rural Transformation

Country Study

Alfons Üllenberg, Margitta Minah, Theo Rauch, Daniela Richter

In collaboration with Gabriele Beckmann



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The objective of the research project “Towards a Socially Inclusive and Environmentally Sustainable Rural Transformation in Africa” is to identify strategies, instruments and measures that will help to forge a more socially inclusive and environmentally sustained rural transformation in sub-Saharan Africa. The project itself is a constitutive component of the Special Initiative ONE WORLD, NO HUNGER financed by the Federal Ministry for Economic Cooperation and Development (BMZ).

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The views and opinions expressed in this Discussion Paper are those of the authors and do not necessarily reflect the official position of the BMZ.

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Summary

Despite extensive research into rural development in sub-Saharan Africa, little is known about structural transformation¹ in rural areas on the continent. Zambia was chosen as one of three case study countries² in order to identify and to analyse rural transformation processes and their main influencing forces aiming at defining strategies and measures to influence such processes towards social inclusiveness and environmental sustainability until 2030³.

Zambia shows a persisting copper-dependent mono-structure with selective transformation processes towards commercial agricultural production in specific regions. It thus follows a very different trajectory than historical transformation processes in Europe or East Asia – it is neither characterized by increasing agricultural productivity and depopulation of rural areas, nor by an increasing share of industry for Gross Domestic Product (GDP) or employment, and neither by declining birth rates.

1. Trends

Macro-economic

After going through economic crises from 1975 to 2002, due to low world market prices for copper and poor economic governance, the Zambian economy experienced high growth rates between 2002 and 2013 with copper prices and a boom in the privatized copper industry. While this period of economic growth resulted in a boom of the urban economy, in particular in the construction and services sectors, it did not provide sufficient employment opportunities for the rapidly growing labour force. So, its impact on poverty reduction remained limited.

Facing the structural challenge of diversifying the copper-dependent economy, rural/structural transformation in Zambia has been sluggish at best. There was a modest decline in the share of agriculture in GDP and employment, along with increasing shares of services and construction. But there was neither a broad based and dynamic development of the country's rich agricultural resources, nor were there successful approaches to creating productive and reliable income opportunities outside the agricultural sector. Agriculture continues to provide the basis of survival for the majority of the growing population, but – with the exception of a few dynamic subsectors in central locations – did not develop in such a way that the majority of rural people can escape from poverty and food insecurity. Manufacturing industries failed to provide non-farm job oppor-

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- 1 Rural transformation is understood as a long-term, multidimensional process of change affecting the basic livelihoods characteristics of people in rural regions, taking into account their interaction with societal and global dynamics (Rauch, Beckmann, Neubert, & Rettberg, 2016).
 - 2 The other countries were Benin and Ethiopia, selected to reflect the diversity of situations on the continent.
 - 3 The team conducted a scenario workshop with 27 participants from ministries, civil society, researchers, and the private sector. This workshop developed different scenarios of rural transformation in Benin until 2030. The results of the workshop were underpinned, strengthened and enhanced (USE) in a subsequent phase of 109 expert interviews and Focus Group Discussions in two provinces – selected for their different agro-ecological and socio-economic conditions, and further validated and substantiated with literature studies.

tunities because most of them were not competitive after having been exposed to global competition through trade liberalization.

Agricultural sector

A trend towards increasing involvement of smallholders in market-oriented farming could be observed during the last three to four decades, but in particular after 2005. This was primarily based on the increasingly large labour force using more of the available agricultural land and partly by a selective process of intensification using high yield hybrid maize varieties with mineral fertiliser application. This trend, however, depends on market and service conditions and related government policies, such as fertiliser subsidies (see section on “drivers” below). Only the growth of the large-scale commercial farming sector in central regions can be regarded as a sign of transformation.

Within that overall trend, the following changes of the specific indicators for rural transformation were observed after 1970:

- The number of farms and of people engaged in farming has been increasing in Zambia. The rural areas are absorbing a high share of the population growth.
- Agricultural production has been growing roughly in line with the growth rate of the Zambian population. Zambia has turned from a staple food (maize) deficit to a surplus country in recent years.
- The growth of agricultural output is mostly going along with an expansion of cultivated land and an increasing number of agricultural labourers.
- The contribution of the agricultural sector to the GDP is strongly fluctuating, depending on the value added for the copper mining sector (which is extremely volatile, depending on fluctuating copper prices and values added within the mining companies).
- Generally, land is still available, although not in every region, leading already to rural-rural migration in some areas. However, with growing numbers of farmers, and the leasing of land to foreign and national investors, pressure on land and forests is increasing, especially on prime sites or around urban centres.
- Most smallholder households tend to maintain subsistence production. But their engagement in market-oriented production is increasing (though with fluctuations depending on market conditions).
- Agricultural productivity is still very low, e.g. for maize it is about 2-3 tonnes/ha, which is far below the potential. It has so far been possible to expand production by using available land and the growing labour force. Yields tended to increase in periods when cash crop production was made attractive by offering access to subsidized inputs and safe market outlets.
- The structure of farm sizes has slowly changed over the past ten years: the share of very small farmers (< 2 ha) has decreased and the number of emergent and commercial farmers has increased. But this increase is mostly due not to expanding small-scale farmers, but to citizens/pensioners who invest their earnings from urban income sources in agriculture.

- The expansion of cultivated land together with insufficient/simplified conventional production methods is leading to increasing pressure on natural resources, especially forests and soils. The dissemination of sustainable farming methods, such as Conservation Farming, is hampered by labour shortages and financial constraints as well as the lack of soil rippers (which can be used instead of ploughs in order to prevent erosion).
- Though diversification of farming by involvement of small-scale farmers in value chains such as cotton, sugar and tobacco has made some progress, with roughly 300,000 participating farmers (approximately 25% of the farm households), the sector is still dominated by maize production. This is a consequence of state interventions in favour of national staple food security.

Non-Agricultural Sectors

The mining sector is still the engine of the Zambian economy, despite low and declining share in national employment and GDP. It contributes more than 80% of foreign exchange earnings. Business volumes of other sectors such as construction, services and trade (and consequently the state revenues) depend to a large degree on mining revenues and therefore on the world market price for copper. Moreover, the exchange rate of the Zambian Kwacha and with it the import capacity of the country increased with rising copper prices. On the other hand, exports in sectors other than mining, e.g. agricultural products are getting more expensive and less competitive.

After an attempt at import-substituting industrialisation (protected by high import duties) in the two decades after independence, the period since 1990 has been characterised by de-industrialisation, indicated by declining shares of the manufacturing sector in GDP and employment, due to lack of competitiveness of Zambian industries within a globalising economy.

The share of the service sectors in GDP and employment has increased considerably since 1990. Most of that increase reflects the expansion of informal economic activities. As most of these informal employment opportunities are unproductive as a result of abundant labour supply, the shift in favour of the service sector cannot be considered as an indication of structural transformation. The dynamics in large sections of the service sector tend to depend on aggregate demand, i.e. economic growth, which fluctuates with copper revenues. A real diversification of the economic basis away from the mining sector has not taken place.

Population and migration dynamics

The share of urban population in Zambia in 2015 was slightly above 40% and hence nearly at the same level as in 1980. This, however, is not to be seen as a symptom of stagnation, but as a result of strong fluctuations in rural–urban population movements. People moved to towns and cities during the 1960s and 70s and again after 2003, when high copper prices resulted in boom periods of the urban economy. But they preferred to stay in or move back to rural areas, when low copper prices resulted in a decline of urban income opportunities. Regarding rural transformation, the urbanization processes are therefore rather related to economic cycles than structural in nature.

To a high degree, rural-urban migration in Zambia is part of diversified rural-urban livelihood systems rather than representing a genuine urbanisation trend. People tend to move between rural and urban areas responding to changing opportunities in labour demand and supply. The

prices for agricultural products, especially for the major staples maize and maize flour, also play an important role. Households tend to split their economic activities between vulnerable low productivity farming and vulnerable low productivity non-farm activities, thereby keeping themselves in a position to flexibly adjust to a volatile economic environment. If at all, one can identify a negative structural transformation resulting in a move towards even less productive activities.

As long as urban income opportunities depend to a high degree on fluctuating world market prices for copper and as long as so many of these opportunities are informal and precarious, urbanisation in Zambia will be fragile. The agricultural sector will continue to function as a buffer, because land and water resources are still available in most parts country.

Natural Resource Management

According to the expansion of agriculture, there was a slow and unsteady transformation of **natural resource management** systems regarding agricultural and forestry resources. More of the abundant rural natural resources were used by a fast-growing number of users without major and broad-based changes of resource utilisation technologies. This resulted in soil and forest degradation in the more densely populated areas.

- **Soil fertility** is managed in the remote and sparsely populated regions by fallow periods, which have been steadily shortened over time or in the more densely populated agricultural zones by the continuous application of nitrogen fertilizer. In some of the very remote areas (e.g. North-Western Province) there has been a gradual transformation over the past five decades from shifting cultivation to a semi-permanent cultivation system.
- **Water:** Small-scale crop cultivation for staple food crops relies on rain-fed agriculture with only a limited number of farmers practising improved soil and water conservation techniques (such as conservation agriculture). This is certainly a result of a situation of high water availability and sufficient rainfall in many areas.
- Though Zambia is still blessed by seemingly abundant **forest resources**, the forest cover has declined from 75% of the total land area in 1970 to 66% at present, which corresponds to an annual deforestation rate of 0.3% (current estimates: 0.3 to 0.6%). In addition, qualitative degradation by selective cutting is a huge problem in Zambia. The main causes for deforestation are wood extraction for charcoal production, uncontrolled commercial exploitation of high value species for export, and agricultural expansion.
- **Climate change** already has significant negative impacts on Zambian agriculture. Climate variability will further increase, while water availability will decrease as a result of rising temperatures and changing precipitation patterns, especially in Southern Province. The challenges (and new opportunities) for farmers will vary from place to place and from crop to crop. Thus, climate change is likely to become a driver for rural transformation in the future.

Altogether, the abundance of natural resources in Zambia gave most resource users the chance to continue resource utilisation without intensifying their resource management methods or technologies. Nevertheless, natural resources became increasingly scarce in densely populated areas in the proximity of urban centres. There, the traditional extensive management practices became less and less sustainable, resulting in resource degradation and depletion.

Regional differentiation of trends

The dynamics and the path of structural transformation depend on the availability of natural resources and on market opportunities for agricultural products and urban job opportunities. Accordingly, one can distinguish:

- Central regions with suitable precipitation patterns for agriculture and a relatively high population pressure with favourable incentives towards intensification and diversification of agriculture (i.e. Central Province, parts of Eastern Province).
- Central low rainfall regions with increasing pressure towards more drought tolerant agriculture and irrigation.
- Remote areas with sufficient rainfall, but with little population pressure and limited incentives towards transformation.
- Remote low rainfall areas with high pressure towards intensified and resilient forms of subsistence farming and/or towards out-migration.

2. Influencing Factors (“drivers”)

Asked to name the most important factors influencing rural transformation directly, the participants of the **scenario workshop** identified the following factors:

- Access to water, energy, financial services, agricultural inputs and practical knowledge & skills
- Health status
- Prices for agricultural products
- Youth empowerment (including employment)
- Sustainable use of agricultural resources
- Smallholder productivity

Distinguishing between more “active” and more “passive” variables, factors related to access to services and resources as well as producer prices were concentrated on the active side. In contrast, the variables such as agricultural productivity, sustainable natural resource management and youth empowerment/employment are grouped as passive factors.

By aggregation of factors and by inclusion of factors influencing rural/structural transformation indirectly, the following factors have been further analysed:

- International markets, with special consideration of world market prices for Zambian agricultural and mineral resources and the competitive environment for non-agricultural employment opportunities.
- National policies with special consideration of access to services and natural resources
- Infrastructure development with special focus on transport, communications, and electricity

- Education and skills development
- Availability of natural resources

It is a combination of these interrelated factors, rather than one single key factor, which hampered structural transformation in Zambia.

International markets: The single most important factor preventing structural transformation was probably the self-perpetuating dependency of the country on the fluctuating world market prices for copper. When the copper price was high (e.g. 1965–74 and 2003–13), there was an economic boom and thus no incentive for transformation. Moreover, the exchange rate of the Zambian Kwacha increased with the consequence that imported commodities became cheaper and non-mineral export products became less competitive on international markets. When the copper price was low, the need for diversification and structural transformation was generally recognised and the exchange rate became more favourable for local producers, but there were no financial resources for transformation. Furthermore, a long period of low world market prices for agricultural commodities with global surplus production did not create incentives for increasing agricultural surplus production and productivity until 2005. Regarding the opportunities for non-farm employment, stiff international competition, especially for food products (South Africa) and textiles (China) discouraged efforts to diversify the economy in the absence of possibilities to protect the emergence of labour-intensive local industries generating mass-employment.

National politics and access to services and natural resources: Within that global economic environment, the Zambian government's policies did not show any serious attempts to diversify the economy. Services for small-scale farmers were focussed on maize production based on subsidised inputs and assured sales at fixed prices. Efforts to capacitate small-scale farmers to diversify, to cope better with the challenges of soil degradation and climate change and to meet the increasing urban demand for food products other than staples were limited. The donor-led "structural adjustment programmes" initiated in the 1990s as a response to the economic crisis did not aim at structural transformation, but rather the stabilisation of the economy. Privatisation and market-orientation did not work in favour of transformation either, as private investors tended to take immediate market chances in the trade and service sectors (such as water supply, trading companies) taking over existing state ventures, rather than investing in new sectors. While policies were more or less successful in adjusting social and economic services to the demands of a fast-growing population, thereby achieving self-sufficiency in staple food supplies and stabilising the socio-economic situation, they failed to transform the vulnerable and non-competitive mono-structured economy.

Infrastructure development: Long transport distances in the still sparsely populated country result in high infrastructure development costs, poor market access, and reduced competitiveness especially for the remote rural regions – a serious constraint on diversification through rural development. Accessibility will probably continue to remain a challenge for an increased market integration of the peripheral rural regions in Zambia. Nevertheless, the fast spread of mobile phones and the slowly progressing dissemination of regenerative energy in rural areas are presently reducing locational disadvantages and are opening new opportunities for local processing and for improving market access for competitive local products.

Educational levels and professional skills have not improved in quality despite considerable investments in the expansion of the educational system. While primary school enrolment rates are close to 100%, quality of teaching is poor and drop-out rates are high. Moreover, there is a mismatch between the type of education provided and the actual requirements of the local context and the labour market, in particular regarding vocational training. While skills were not a major constraint on structural transformation in the past, given the lack of market opportunities and the policy framework, they definitely represent a stumbling block for structural transformation in future. Young Zambians are not well prepared to cope with new challenges or to make use of opportunities in a changing economic environment. As poor quality of teaching tends to have a multiplier effect regarding the qualification of future teachers, trainers and advisors, these deficiencies face a high risk of being perpetuated.

The **abundance of natural resources** has been a retarding factor for structural transformation through intensification of agriculture and other resource-based rural activities. The increasing scarcity and degradation of these resources in many locations might become a driving factor for rural transformation in future. As shown by the experiences in other countries characterised by high rural population densities and resource scarcity (e.g. neighbouring Malawi), this is an important, but definitely not a sufficient condition for a change towards sustainably intensified agricultural production systems.

Conclusion regarding the role of influencing factors: Due to its wealth in minerals and agricultural land Zambia has neither felt a strong pressure towards structural/rural transformation nor were there strong incentives, taking into account the locational disadvantages within an increasingly competitive market environment and a long period of low agricultural producer prices. In such a constellation, a really visionary policy and strong governance for its implementation would have been required to take the hard route of transformation by making Zambia's farmers and manufacturing industries internationally competitive. However, this has not been the case.

3. Strategies

Scenarios elaborated in the workshop: The workshop participants developed two different scenarios for the expected future of rural regions in Zambia in 2030. One scenario was based on the assumption that things will go on as they did in the past ("business as usual scenario") and this scenario is also judged as the most probable. The more optimistic, but still realistic scenario was based on the assumption that all necessary efforts will be undertaken to improve things in line with the Zambian government's "Vision 2030":

The **"business as usual" scenario** does not anticipate any major changes. Within a growing population, increasingly erratic rainfall and unchanged markets for copper and agricultural products, the scenario expects only gradual improvements regarding market integration of agriculture, along with some trends of natural resource degradation and increasing social differentiation within the farming and the urban population. There is no expectation, however, that "business as usual" would result in a dramatic deterioration for the poorer sections. The scenario will definitely not result in a transformation of Zambia's mineral dependent economic structure, neither by a socially inclusive and environmentally sustainable intensification of

agriculture nor by a significant increase in urban income opportunities for the additional young labour force.

The “**optimistic scenario**”, guided by the principles of social inclusiveness and sustainability, envisages a situation with better and socially inclusive access to necessary social and economic, public and private services for people living in rural regions. Based on better service access, in particular regarding skills and education for the youth, natural resources will be used more productively and more sustainably, agriculture will be diversified and will thereby meet increasing urban demand. In addition, the youth will get better access to jobs created by rural industrialisation (mainly agro-industries) based on rural electrification. This scenario would imply a significant structural transformation of the Zambian economy through agro-ecological intensification and more diversified agricultural production systems. It would be accompanied by small type agro-processing industries based on rural electrification, skill development for the youth and value chain development. It is based on the assumption of improved governance ensuring better public and private services for everybody, with a special focus on young people.

Our **strategy guidelines** for promoting an environmentally sustainable and socially inclusive structural rural transformation process in Zambia consider the “optimistic scenario”. They go, however, beyond the rural focus by including necessary transformation processes in the urban industrial sectors and by considering the wider economic and policy framework as outlined in the set of influencing factors above. The strategy guidelines include a problem statement, a vision, a strategic framework including strategy components, external factors to be considered and the proposed fields for strategic interventions. It is well understood that these strategy guidelines cannot be used as a blueprint for programme planning, but need to be specified and modified to suit the specific context.

Problem statement and vision: Zambia’s structural problem is its mineral dependent economic mono-structure. The Zambian economy is in need of structural transformation in terms of a diversification. In line with the Zambian Vision 2030, the vision for structural transformation is a diversification of the economy through “a strong industrial sector, a modern agricultural sector and an efficient and productive service sector”.

The envisaged transformation process should be based on **two major components**:

- **Component 1: Agricultural development**

Taking the problems of low smallholder productivity, degradation of natural resources and mono-cropping into account, agricultural development (including forestry and fisheries) needs to pursue sustainable intensification and diversification.

- Sub-Component 1.1: Sustainable intensification of agriculture and the use of other rural resources (e.g. forest resources)
- Sub-Component 1.2: Diversification of agriculture

- **Component 2: Off-farm income and employment opportunities**

While everybody stresses the necessity of promoting off-farm income and employment opportunities, achievements in that field are less than impressive. This has much to do with international competition and international control of value chains, in particular through international supermarkets as well as global agro-business companies. The challenge here is to

identify productive and competitive processing and other value-adding opportunities which are labour-intensive. In order to create a positive net-employment effect, these activities should be innovative in the local context. For instance, they could replace imported products or services and those value-adding stages that have been located abroad, rather than replacing existing local income-generating activities by labour-saving technologies. Two major fields fit these criteria:

- Sub-Component 2.1: Agro-based industries, preferably in rural areas, or value-adding activities related to existing agricultural and forestry products
- Sub-Component 2.2: Labour-intensive industries and services for domestic demand

The major target group for those opportunities are the young people entering the labour market.

Both components have to come together in order to make significant steps towards the vision of providing sufficient opportunities for improving the well-being of all.

The role of external influencing factors: Experience in the past has shown that a diversification of the Zambian economy is not an easy task. External factors have to be taken into account, as they can promote or hinder the transformation process. Among the most important factors are:

- **Copper prices:** Their fluctuation may influence the incentive system and the resources for promoting transformation.
- **World market prices for agricultural products:** Unless they increase in the long-run, there will be little incentive for increased agricultural surplus production or for investments in sustainable agricultural intensification.
- **High infrastructure costs in sparsely populated remote areas:** This factor implies competitive disadvantages for transport-intensive products in those areas. These are felt more strongly if agricultural prices are low.
- **Climate change:** Adverse climatic condition will increase pressure on transformation either by adaptation (which would mean here intensification) or by migration.
- **Stiff international competition for tradable manufactured products:** This factor needs to be taken into account when identifying appropriate off-farm income and employment opportunities.

It is important to consider these factors carefully when deciding on how best to promote transformation. Investments in increasing agricultural productivity will be wasted if the market cannot absorb the surplus production at reasonable prices. And training and finance for trades which cannot compete against imports will be in vain.

Fields of strategic interventions

Access to agro-services: Providing services not only for the existing agricultural and rural production systems, but for promotion of a socially inclusive and sustainable rural transformation process cannot rely on existing private commercial services. Rather, the Zambian government must adopt responsibility for a politically-supported change process, for sustainable development, and for poverty reduction. This relates to requirements for improved governance.

Improved rural infrastructure: While improved communication and energy generating technologies can help to facilitate a socially inclusive and sustainable transformation process even in remote rural areas, transport infrastructure will probably continue to be a constraining factor for a market-oriented transformation of the economy in those regions. High road construction and maintenance costs will hinder a full-scale opening up of sparsely populated remote regions. There, it seems to be more promising to adjust the way of resource utilisation and the means of transport to given transport costs.

Quality education, practical knowledge and skills: The example of Zambia, like those of many other African countries, has shown, that investments into the quantitative extension of the school system and high enrolment rates in line with millennium goals are not sufficient to improve the outcome of the system, in particular the literacy rates and practical skills. The youth and their families will only benefit from participating in an educational system if education increases the chance to get employment. As this is not sufficiently the case anymore, the perception of the value of education is low, especially if costs are involved and if opportunity costs in terms of using the young people for farm work are high. While it is true that education is crucial for development and transformation, it is equally true that the preparedness for education depends on the development and transformation dynamics and the employment opportunities created.

Industrial and trade policy: Sustainable income and employment opportunities will not emerge as a result of hundreds of uncoordinated initiatives promoting “income generating activities”. Neither will they be a result of private investments alone. They require a distinct transformation policy and well-tailored context specific transformation strategies based on sound analysis, which aim at a targeted promotion of promising economic sub-sectors as identified in Sub-sections 2.1 and 2.2.

Governance/Policy implementation: Rather than waiting for a long-term process of improving general governance performance, the promotion of the structural transformation process needs special institutional arrangements, e.g. in the shape of well-funded and coordinated multi-stakeholder action programmes (e.g. “Green Innovation Centres”, semi-autonomous multi-stakeholder management units or focussed and labour-market demand oriented vocational training programmes). This is not in contradiction to the long-term nature of transformation processes. The role of short-term special initiatives is, to push-start the process and to identify appropriate directions and paths for that process. Once the transformation process has gained speed, such special initiatives may become redundant.

Key Words

Structural change; rural development; social inclusion; environmental sustainability; natural resource management; rural livelihoods; agriculture; small-scale farmers; intensification; migration; urbanization; policy; industrialization; trade; decentralisation; governance; education; infrastructure

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Abbreviations

AEZ	Agro-ecological zone
BMZ	German Federal Ministry for Economic Cooperation and Development
CAADP	Comprehensive Africa Agriculture Development Programme
CF	Conservation Farming
CFU	Conservation Farming Unit
COMESA	Common Market for Eastern and Southern Africa
CP	Central Province
CSO	Central Statistical Office
EAC	East African Community
EPA	Economic Partnership Agreement
EU	European Union
FAO	Food and Agricultural Organization of the United Nations
FISP	Farmer Input Support Programme
FRA	Food Reserve Agency
FSP	Fertilizer Supply Programme
GDP	Gross Domestic Product
IAPRI	Indaba Agricultural Policy Research Institute
ICT	Information and Communication Technology
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
IRDP	Integrated Rural Development Programme
LGEF	Local Government Equalization Fund
MAL	Ministry of Agriculture and Livestock
MMD	Movement for Multiparty Democracy
NGO	Non-governmental Organization
NWP	North-Western Province
REDD+	Reducing emissions from deforestation and forest degradation Programme
REMP	Rural Electrification Master Plan
RT	Rural Transformation
SADC	Southern African Development Community
SEWOH	Special initiative “One World, No Hunger”
SLE	Centre for Rural Development
SLIP	Smallholder Livestock Investment Programme

SSA	Sub-Saharan Africa
TVET	Technical and Vocational Education and Training
USE	“Underpin, Sharpen and Enhance” research approach
WS	Workshop
WTO	World Trade Organization
ZMK	Zambian Kwacha
ZNFU	Zambia National Farmers Union

1 Introduction to the research project

1.1 Context of the research

This study is part of a larger research project implemented by the Centre for Rural Development (SLE) at the Humboldt Universität zu Berlin with the title “Towards a socially inclusive and ecologically rural transformation in Africa”. It is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) as part of its special initiative “One World, No Hunger” (SEWOH), which was launched in 2014. Through this initiative, the BMZ intends to make a significant contribution towards eradicating global hunger and malnutrition, especially in the poorest countries of the world.

The main objectives of this research project are

- The analysis of past and current trends of rural change, and
- The identification of different scenarios of rural transformation until 2030, in order to
- Develop context-specific strategic recommendations for suitable strategies and instruments that contribute to a socially inclusive and environmentally sustainable rural transformation.

In the context of this research project, three empirical country studies were implemented (Ethiopia, Zambia, and Benin). The studies aim to deliver practice-oriented research results. Applying a comparable qualitative methodological approach, all country studies worked on the same research questions concerning major trends and future scenarios of rural transformation. The empirical country studies were supplemented by two desk-studies which provided the conceptual foundations (Rauch, Beckmann, Neubert, & Rettberg, 2016) and methodology (Berg, Beckmann, & Schelchen, 2016).

Rural areas in sub-Saharan Africa (SSA) are changing, but there are strong indications that these changes do not follow the historical patterns of industrialization, consisting of a sectoral shift towards industry and services as dominant economic sectors accompanied by urbanization, an industrialization of the agricultural sector, and massive changes in the social texture. Instead, we find only a minimal transition from rural-agricultural to urban-industrial societies, while small-holder structures of society have survived even though there are social and spatial distinctions (Rauch et al., 2016). The present study contributes to a better understanding of transformation processes in order to move towards socially inclusive and environmentally sustainable rural transformation.

1.2 Rural transformation

"Rural transformation is a long-term, multidimensional process of change affecting the basic livelihoods characteristics of people in rural regions, taking into account their interaction with societal and global dynamics." Rauch et al. (2016, p. 3)⁴.

Rural transformation is usually part of a wider process of structural transformation that involves the entire economy and society. The dynamics and the nature of rural transformation are dependent on the development dynamics in other sectors (such as the copper mining sector in Zambia) and they are embedded in a continuum of rural-urban linkages. Though this study focusses on rural transformation, it will analyse it in the wider context of a structural transformation of the Zambian economy, including urban sectors. Whenever that wider perspective is taken, we will use the term "structural transformation", understood as "a long-term process of change in the essential features of human existence". Such a process of change may occur within certain sectors of society or it may involve the relationship between sectors.

Rural transformation is influenced by a range of factors, including market and ecosystem dynamics, national politics, and local capacity for action. These factors interact and play out at various levels, for example linking global dynamics with local household decisions. Thus, rural transformation has to be understood as the interplay of structural framework conditions and the agency of social actors. Not all the current changes necessarily contribute to transformation – they may lack the amplitude, the long-term character, or the multi-dimensionality to significantly impact the way societies are organized and interact. However, the various trends may combine to form a structural transformation due to their interlinkages and the various feedback mechanisms. The main features of the ongoing trends thus need to be evaluated in order to assess the degree to which they constitute parts of a long-term transformation process.

Rural transformation is usually associated with changes in the distribution of economic, environmental, socio-cultural and political-institutional resources. These processes should therefore be assessed not only on the basis of the overall economic effects on welfare and growth, but also in terms of their consequences for groups which are vulnerable or threatened by poverty. The social consequences of observed trends, especially for vulnerable groups, are assessed by analysing related processes of inclusion or exclusion. Social inclusion refers to the capabilities and structural conditions of a person or a social group to participate in political, economic, social and legal terms in a given society. The concept of social inclusion focuses on social relations which are regulated through institutions, rules and regimes. Key aspects of social relations which determine inclusion in or exclusion from certain social, economic and political spheres are participation, access and entitlements to various resources. Different degrees of exclusion/inclusion may affect groups in some of these spheres but not in others. Exclusion/inclusion is a result of processes of societal change and the policies guiding these processes. Consequently, exclusion cannot be prevented by the actors themselves. The question is how inclusive/exclusive the effects of rural transformation are over time (Rauch et al., 2016).

⁴ An introduction to the concept of rural transformation and a general analysis of transformation processes in sub-Saharan Africa is discussed in detail in Rauch et al., 2016.

Many of the current processes in rural areas contribute to changed patterns of settlement and land use, thus exerting varying pressure on natural resources, e.g. water, soil, forest, ecosystems, and biodiversity. Sustainable development is used in the sense of the World Commission on Environment and Development (1986): a sustainable use of natural resources refers to use patterns which meet basic human needs of current generations without destroying or degrading the natural environment so that resource needs of future generations can be met. Change processes in rural areas also influence carbon emissions and the way local resource users are able to cope with or adapt to increasing climate variability. Consequently, sustainable development is not only a technical challenge but also a political question as it is subject to decisions on the way rural transformation processes are shaped (Rauch et al., 2016, p. 63).

1.3 Objectives and research questions

While the conceptual study on Rural Transformation in sub-Saharan Africa (Rauch et al., 2016) was based on aggregated data, the country case studies are meant to differentiate that picture, as examples of the wide variety of geographical, historical, cultural, political and socio-economic realities in Africa. Moreover, the concept paper presented only some generic, internationally discussed strategic options for shaping the transformation process, while the country case studies are intended to develop context-specific strategies with the involvement of national and regional stakeholders.

Accordingly, the following research questions were developed for the country studies:

- Which trends characterize past and present processes of change in rural areas and to what extent can these trends be considered as structurally transformative, socially inclusive, and environmentally sustainable?

This question aims at the identification of major trends over the past 30 years. It is assumed that an historical understanding on past trends (economic, institutional, political, environmental, and social) is an essential foundation for the development of scenarios until 2030. These past and ongoing trends will be assessed regarding their economic, social and environmental impacts regarding sustainability, social inclusiveness, and transformative character.

- What are the main factors influencing these trends?

The trend analysis is supplemented by the identification of major influencing factors based on a multi-dimensional framework analysis and on insights from the scenario workshops.

- What is the currently most probable scenario for future processes of rural transformation until 2030? What is an optimistic scenario considering the normative directions of social inclusiveness and sustainability? And which main intervention areas should be considered for a mid- and long-term strategy for shaping the future transformation process?

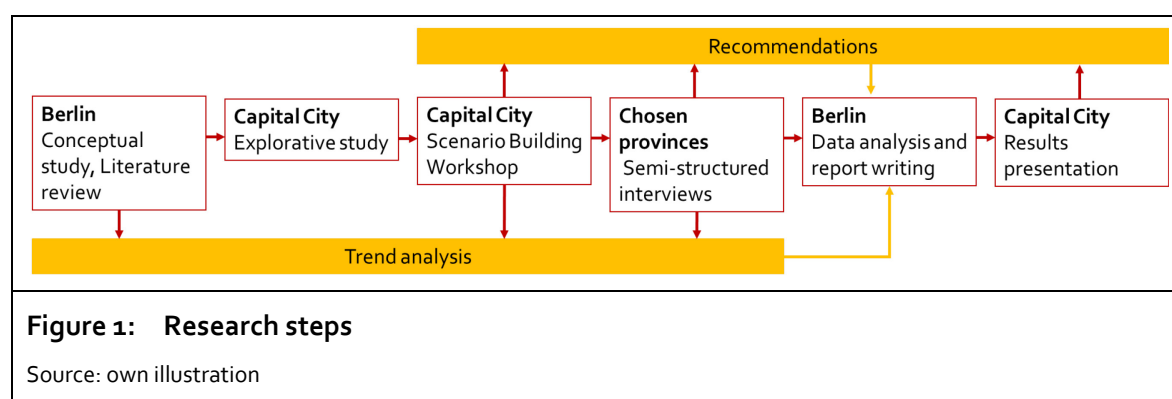
These questions will be addressed and discussed on basis of the results of the scenario workshops, taking into account common perceptions of local stakeholders. The intervention areas will be developed based on the main influencing factors. Related to those intervention areas, con-

text-specific strategies on various scales will be developed, indicating which concrete interventions could support a strategic reorientation.

By answering these questions, the country study wants to contribute to the objective of showing context-specific ways and means to shape the rural transformation process in Zambia in an economically viable, socially inclusive and environmentally sustainable manner.

1.4 Research concept and methodology

In order to arrive at practical, political and innovative strategic recommendations, the study teams followed a comprehensive research approach. A scenario building workshop resulted in the identification of major influencing factors for rural transformation, their mutual interdependencies as well as relevant current and future processes (Berg et al., 2016).



Scenarios relate to multiple plausible futures; unlike forecasts based on trend extrapolation, they do not predict what will happen but tell what could happen within a certain probability space over time, depending on more realistic or more optimistic assumptions (Berg et al., 2016). The findings of the national-level scenario workshops have been verified, substantiated and supplemented by field assessments in two selected provinces according to the USE (underpinning, strengthening and enhancing) method and by an analysis of documents.

1.4.1 Scenario workshop

The scenario-building workshop was carried out in Lusaka according to the methodology described in (Berg et al., 2016). There were 24 Zambian participants, mostly from national level, representing a variety of sectors (cf. Table 1).

Table 1: Overview workshop participants by sector

Ministries <ul style="list-style-type: none"> ▪ Agriculture and Livestock ▪ Lands, Natural Resources and Environmental Protection ▪ Labour and Social Security ▪ Central Statistical Office ▪ Zambia Development Agency 	Research <ul style="list-style-type: none"> ▪ University of Zambia, Department of Agriculture Economics ▪ Mulungushi University ▪ Centre for Labour Studies ▪ Zambia Institute for Policy Analysis and Research ▪ Zambia Agriculture Research Institute
Private sector <ul style="list-style-type: none"> ▪ Japan Tobacco International ▪ AgDevCo ▪ NWK Agri-Services ▪ Community Markets for Conservation (COMACO) ▪ Zambeef 	Civil Society <ul style="list-style-type: none"> ▪ Civil Society for Poverty Reduction (CSPR) ▪ National Union for Small-scale Farmers (NUSFAZ) ▪ Wildlife and Environmental Conservation Society of Zambia
Source: own illustration	

The workshop participants listed factors they considered relevant for rural transformation, from which they identified the most influential ones. Their mutual inter-relations were identified and weighted by an "Influence Matrix"⁵. This shows the degree of sensitivity (passive sum) a factor has towards all other factors and the cumulative degree of influence of a factor (active sum) in the system. Multiplying the sums of the active and passive links of each factor discloses the overall influence the factor has on the system:

- **Active factors** have much influence, but are hardly influenceable in the system (e.g. climate, global markets). If they change in a desirable way, they will have positive effects on rural transformation, with few repercussions on the factor itself; however, if their influence is negative and we cannot change them, we need to develop strategies to mitigate their influence.
- **Passive factors** are highly influenced by the other factors without having much influence (e.g. child nutrition). If they are to become more stable and autonomous within the system, other factors which have a strong influence on them need to be influenced.
- **Inert factors** are hardly influenceable by the other factors and do not have much influence in the system (e.g. religion); they can help to calm down or buffer the system; we may ignore them but have to be aware that they can also tip over.
- **Critical factors** have much influence and are highly influenced, hence move the system most (e.g. agricultural policies); when changing them, they will exert a lot of effects on rural transformation but we need to carefully assess the feedback loops.

The factors with the highest active sum are those which can serve as entry points for the recommendations (cf. section 5.1).

⁵ Cf. section 5.1 for a selection of workshop results.

A key output of the method is the interdependency diagram or “the system”. It depicts the results of the influence matrix in a systemic way. The two most critical factors are depicted in the centre of the diagram. Arrows indicate the direction of very strong influences between the factors. Moving along the arrows, mutual influences can be seen and thereby systemic scenarios are developed. For example, an improved level of knowledge and skills will enhance financial literacy, enabling people to access loans. The capital can then be used to obtain necessary equipment or agricultural inputs, enhancing their productivity etc. The narrative scenarios from the scenario workshop (cf. section 5.1.2) will directly contribute to the recommendations (cf. chapter 5).

1.4.2 USE Phase

In order to **underpin, sharpen and enhance (USE)** the workshop results, qualitative interviews and focus group discussions were carried out. According to the multi-level approach, data obtained at national level was further detailed and validated in two provinces (cf. section 3.6). Interview partners were selected to represent the regional/departmental level and the local/municipal level; they were identified on the ground and recommended by contact persons. For the transition from the workshop to the USE phase, the research team reviewed the main influencing factors for rural transformation as identified in the workshop, as well as information collected through literature analysis.

Influencing factors from the scenario workshop provided the analytical starting point for the trend discussion in the country studies. Primary data was enriched, triangulated and complemented with further information obtained from individual interview partners or the secondary literature. The main results and findings were discussed and validated in a sequence of presentations involving ministries and donors as well as the participants of the scenario workshop. The main trends, as well as knowledge gaps were transferred into guiding questions for semi-structured interviews or Focus Group Discussions and complemented by a set of research questions derived from the concept paper on rural transformation.

The **North-Western Province (NWP)** and the **Central Province (CP)** were selected as **study regions for the USE phase**. They represent typical but different aspects of the country. Both provinces are relatively sparsely populated, although density in CP with 13.4 people/km² is more than twice as high as in NWP with 5.6 people/km² (CSO, 2011b, p. 5). While the CP is characterised by a favourable climate, a relatively well developed infrastructure and a predominance of large-scale commercial farms, NWP is a peripheral region with poor infrastructure, dominated by small-scale farming with high dependence on subsistence production. Recently mining has become a fast-growing activity in a few locations. CP is mostly located in agro-ecological region II, which has the country’s most fertile soils and most of the country’s commercial farms. The area experiences 800 to 1,000 mm annual rainfall and growing season is 100-140 days. NWP in agro-ecological region III is characterised by an annual rainfall between 1,000 and 1,500 mm, but it has predominantly acidic soils. The cultivation season ranges from 120 to 150 days (Chikowo, 2015). The poverty rates are at the national average.

The research team consisted of 4 permanent SLE team members. During field visits, they were accompanied by local contact persons, who provided access to farmers for individual or group

interviews (cf. Table 2) and translation services where necessary. Remaining interviews were conducted in English.

Table 2: Overview of interviews by region		
	Expert interviews	Farmer Focus Group Discussions
Central Province	41	1
North-Western Province	30	2
Lusaka	14	
Total	85	3 (N farmers = 52)
Source: own illustration		

The country case study is structured according to the research questions outlined in section 1.3. After providing a geographical and historical country background in chapter 2, the structural transformation trends will be analysed in line with the common rural transformation variables and indicators in chapter 3. Chapter 4 deals with the major influential factors related to those trends, differentiated by economic, political, social and environmental dimensions. Chapter 5 is about future directions of structural transformation and about strategies of influencing them in a socially inclusive and sustainable manner. Based on the results of the scenario workshop (cf. section 5.1), strategic guidelines for promoting and shaping the transformation process will be elaborated (cf. section 5.2 and 5).

2 Zambia – Country background

2.1 Geographical context

Zambia is a large, sparsely populated, landlocked and resource-rich country in southern Africa. It is politically stable and ethnically diverse. Land and water resources are abundant in the northern parts of the country, while the southern regions suffer occasionally from droughts and irregular rainfall. Soils within the densely-populated areas are rapidly degrading. Agriculture is characterised by a commercial large-scale farming sector concentrated in a corridor along the “line-of-rail” (Southern, Lusaka and Central Provinces) and a partly subsistence-oriented small-scale farming sector that is dominant in the peripheral provinces. The small-scale farming sector is characterised by rain-fed agriculture, hoe cultivation, and poor access to markets and services. As a result of a combination of these constraints, the country faces chronic food and nutrition insecurity in spite of its abundant agricultural resources.

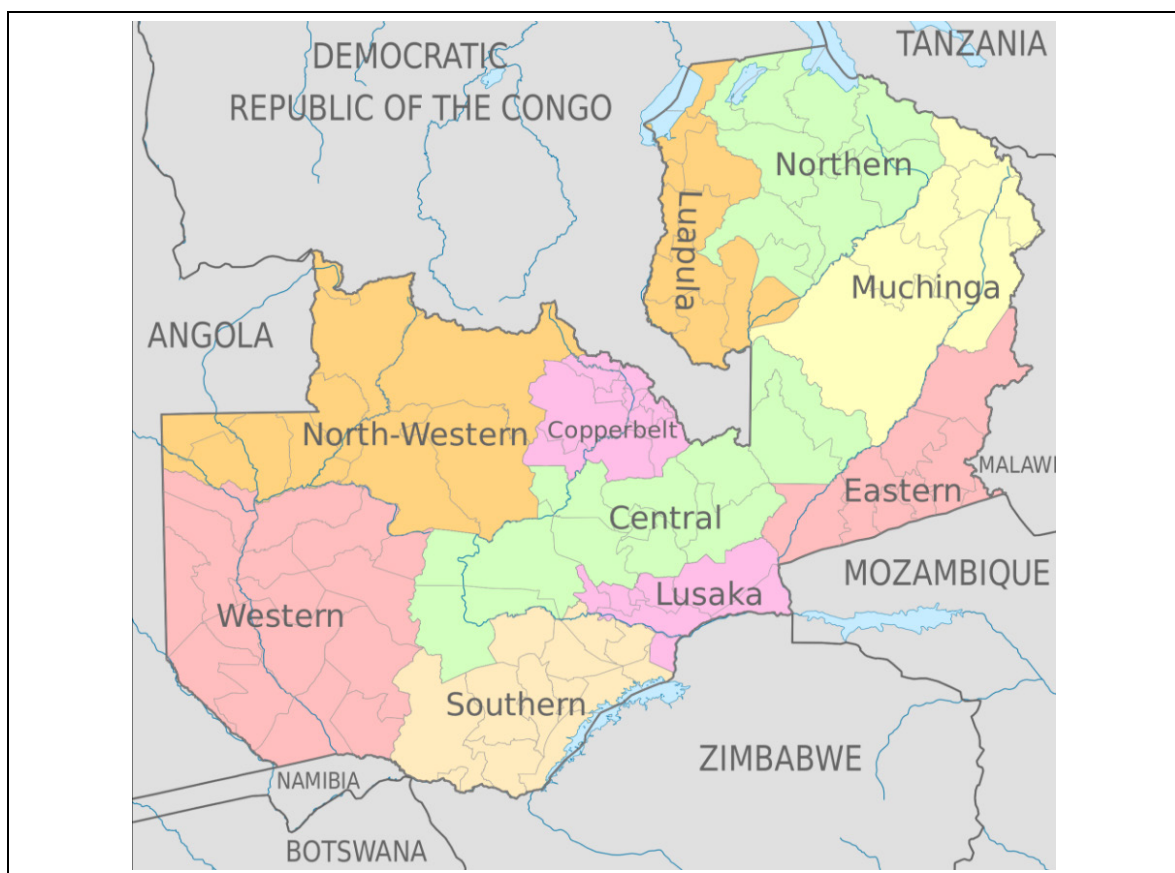


Figure 2: Map of Zambia

Source: Wikimedia (2015)

Country fact sheet Zambia

Area:	752,618 km ²
Terrain:	Mostly high plateau with some hills and mountains
Climate:	Tropical; modified by altitude; one rainy season (October to April)
Capital:	Lusaka
Government:	Presidential Republic
Administrative divisions:	10 Provinces
Population:	16,211,767 (2015); Growth rate (2015): 3.1%; Rural pop.: 59% (2015)
Age structure:	0-14: 46%; 15-24: 20%; 25-54: 28%; 55 and over: 3%; median: 16.7 years
GDP per capita (PPP; 2015 est.):	USD 3,900
Gini index:	Distribution of family income: 57.5 (2013), ranks 141 of 187
HDI:	Index 0.586; rank 139 (2014; behind Namibia, Republic of Congo, Equatorial Guinea; before Ghana, São Tomé and Príncipe, Kenya)
Food Security:	Prevalence of undernourishment in the population: 35% (very high)
Global Food Security Index:	Rank 102 of 113

Sources: adapted from CIA (2016), Economist Intelligence Unit & DuPont (2016), FAO (2016), UNDP (2015)

2.2 Historical background

Before the area of what is called Zambia nowadays was colonised by the British, it was a sparsely populated rural region settled by many different ethnic groups who made their living from subsistence farming, mostly through extensive shifting cultivation (mainly millet and cassava) supplemented by hunting and gathering. The colonial power was predominantly interested in the rich copper resources of the region they called Northern Rhodesia. The major interest in rural regions was focussed on their role as a labour reservoir for the mines and for other sectors of the emerging urban colonial economy. The function of providing the urban and mining population with food products was given to some hundred large commercial farms owned by European settlers who were encouraged to settle within agro-ecologically favourable and infrastructural well equipped locations along the line-of-rail. The masses of peasant farmers were not encouraged to produce an agricultural surplus. They were not supposed to compete with the commercial farms, but rather earn cash income as workers within a system of circular labour migration.

Thus, the colonial period resulted in a transformation of the economy from a predominantly subsistence-based peasant economy to an export-oriented mining economy. On the micro-level, this shift went along with a transformation of rural livelihood-systems from an extensive subsistence-oriented village-based survival economy towards a semi-commercialised mixed system based on the two pillars of (widely unmodified) subsistence production and labour migration.

2.3 Attempted structural transformation after independence

The period after independence (1964) was a period of high and increasing copper prices. The Zambian economy and the government budget depended to a large degree on the export of copper and other minerals like cobalt. In 1969/70, minerals contributed 93% of foreign exchange earnings, 41% of the Gross Domestic Product (GDP) and 56% of government revenues (Rauch & Weyl, 1978). Taking into account the multiplier effects of copper revenues (e.g. in the field of construction), the economy depended on copper exports to a much higher degree than these figures indicate. During that period, the Zambian government aimed at diversifying the highly resource dependent economy through industrialisation and import-substitution. Promotion of agriculture was largely limited to the large-scale farming sector. The smallholder sector was still neglected.

With the sharp decline of world market prices for copper 1974/75, this development model collapsed and ended in a debt crisis. Most of the import-substituting industries, which depended on imported inputs, spare-parts and equipment, had to scale back their production. As a consequence, in its Third National Development Plan (1979–83) the government went for a new diversification strategy aimed at transforming the rural economy through the promotion of smallholder agriculture, including agro-based industries. However, implementation was half-hearted. Donor-supported Integrated Rural Development Programmes during the 1980s helped to increase the market integration of small-scale farmers, providing modest new options for migrants who failed to find income opportunities in the cities. Still, world market prices for agricultural commodities remained at a low level and government support for agriculture was reduced again as a result of indebtedness and structural adjustment programmes in the 1990s. As a consequence, diversification of the mining-based economy did not go beyond a slightly greater degree of market integration of an increasing number of smallholder households and the emergence of some pockets of cultivation of non-traditional export crops in central locations.

A period of increasing copper prices between 2003 and 2014, along with the privatisation of the copper industry and investments in improved mining technologies resulted in a booming urban economy, improvement of the infrastructure and improved off-farm income opportunities. Still, the Zambian economy is overly dependent on copper and its volatile world market price.

3 Trend analysis: Structural transformation 1970–2015

Before considering future scenarios until the year 2030, it is important to understand past and current developments. Therefore, trends of the past 15-25 years are described – depending on availability of data. The trend analysis will focus on the most important aspects of structural transformation processes with special emphasis on the rural-agricultural economy. It will include the following variables and indicators:

- Sectoral shifts of the composition of the Gross Domestic Product (GDP) and employment (cf. 3.1)
- Development of agricultural productivity and farm size (cf. 3.2)
- Development of production and productivity in non-agricultural sectors (cf. 3.3)
- Population dynamics with special consideration of migration and multi-local livelihoods (see 3.4)
- Environmental dynamics with regard to sustainability (cf. 3.5)

Considering that transformation processes may differ between different regions, the regional differentiation of the identified trends will be analysed with special consideration of the two case study Provinces (cf. 3.6).

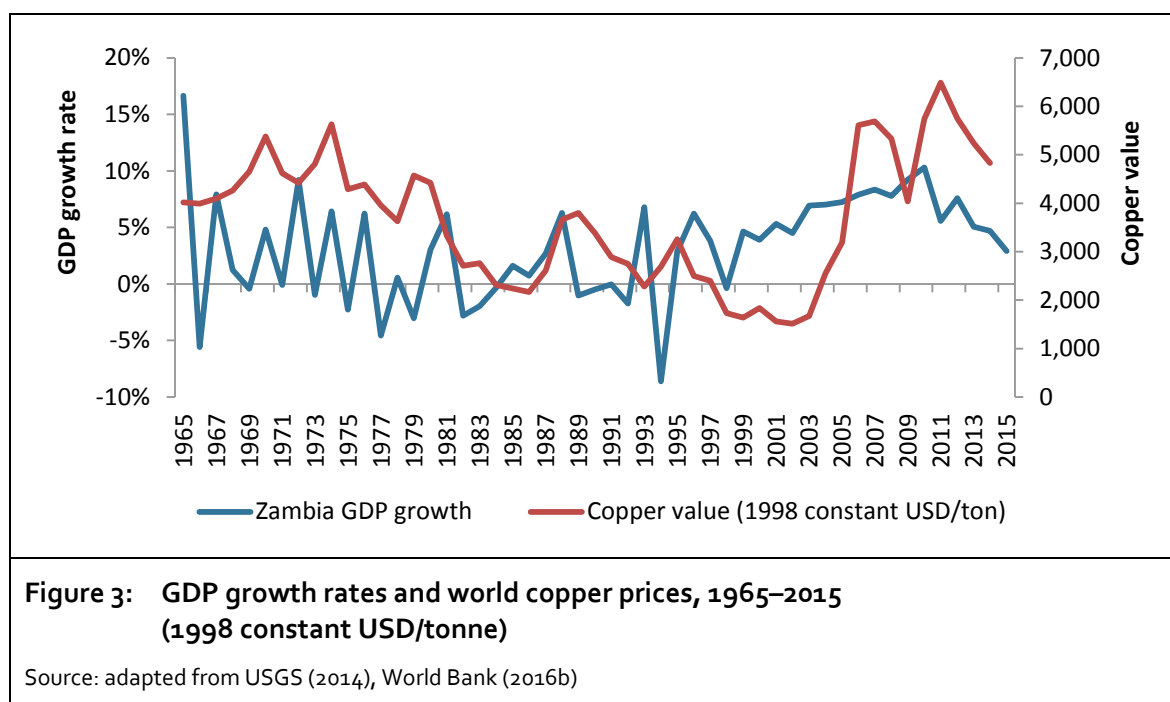
3.1 General macro-economic trends

This section will focus on the growth pattern of the Zambian economy. Economic growth may happen within a given economic structure or it may go along with a transformation of that structure. Therefore, the analysis of changes in the sectoral composition of the GDP and employment will be embedded in a general description of the growth path of the Zambian economy. Thereby, the major point of interest is to find out in how far Zambia has managed to overcome its inherited copper dependent mono-structure.

3.1.1 Economic growth

Zambia's economic growth rates over the past five decades were characterized by high volatility. This reflects the typical problems of a national economy predominantly based on extractive industries and the export of mining products. Economic growth in Zambia correlates to a high degree with fluctuating world market prices for copper.

Figure 3 gives an overview of GDP growth rates in Zambia for the past 30 years in comparison to sub-Saharan Africa and the world.



While Zambia was still one of the wealthiest African countries during the 1960s with above average economic growth rates, the GDP growth rates started to decline from beginning of the 1970s onwards. Highly dependent on the export earnings of copper, the economy was hit by low world market prices from 1975 onwards, but also by mismanagement and inefficiency in the state controlled mining sector. Low copper prices combined with rapidly increasing import prices (especially for oil products) and mismanagement of public resources in a state controlled economy resulted in a high level of indebtedness. As a consequence, Zambia had to implement structural adjustment programmes accompanied by democratic reforms. In 1991, the democratically elected second president of Zambia implemented a process of economic reforms towards a market economy including the privatization of the copper mines. This process turned out to be a huge challenge and the Zambian government was not able to overcome the economic crisis and meet public expectations. Additionally to the difficulties of this transition period, the agricultural sector was hit by bad weather conditions in the early 1990s, worsening the economic situation (Thurlow, Zhu, & Diao, 2009). Generally, economic growth rates were still too low to significantly raise the living standard.

It was not until 2003, after a new government had taken over and when copper prices started to go up again that the economy grew and growth rates were substantially higher than the average of SSA and the World. Even during the world financial and economic crisis, Zambia's economy developed quickly with growth rates reaching a level of 6-10% annually⁶. Copper still dominates the economic development, leading to the recent decline in economic growth rates following a renewed decline in copper prices. This has led to a reduction of export earnings, reduction of the national budget, and a rapid decline in the exchange rate of the national currency. As import

6 As Zambia was not fully integrated in the world financial markets, effects of the world financial crisis were limited.

goods (such as agricultural inputs) are getting more and more expensive, the scope for government action to develop the national economy is shrinking.

3.1.2 Sectoral shifts of the Gross Domestic Product

The analysis of sectoral shifts in the Zambian economy is complicated by the fact that official GDP-data for the mining sector do not adequately reflect the real importance of the sector as a driver of the Zambian economy. While the total production value of copper has increased substantially over the past decade due to considerable increases in production volume and dramatically rising prices (cf. Table 4), the net value added figures indicate a decline, which can be attributed to high investment costs, the externalisation of a wide range of value-adding contributions and distorted cost calculations of the mining companies, which leaves the lion's share of the rent from mining in the hands of foreign private mine owners (Adam, Collier, & Gondwe, 2014). The changing calculations concerning the contribution of the mining sector to the GDP tend to distort the shares of all other sectors. Ignoring that statistical distortion, we can confidently say that the Zambian economy has not undergone a significant diversification process during the decades after independence and still cannot be considered as highly diversified. The relative importance of the agricultural sector has fluctuated over the decades in relation to the mining sector and it has slightly declined in relation to the growing services sector (cf. Table 3). The manufacturing sector has lost importance as a result of dramatic de-industrialisation together with a period of increasing integration in international markets and growing imports after 1990. In contrast, the construction sector benefitted from spill-overs of the copper boom and related investments (cf. section 3.3.2).

Table 3: GDP by subsector from 1965–2013 (in % of national GDP)						
Subsector	1970	1990	2000	2005	2010	2013
Agriculture, hunting, forestry, fishing	13.2	18.8	16.1	14.6	9.9	9.1
Mining	27.0	7.8	6.9	7.5	12.9	8.3
Manufacturing	9.8	24.1	9.5	9.8	7.9	7.7
Electricity, gas and water	2.0	2.2	2.8	2.3	1.9	2.1
Construction	4.8	2.8	4.1	7.2	10.9	13.8
Services, trade, hotels and restaurants	11.8	10.4	21.1	22.8	20.1	19.5
Transport, storage and communication	5.1	4.9	7.7	6.4	7.6	7.9
Finance, real estate and business services	7.4	10.9	14.9	13.2	11.8	12.2
Public administration, education, health and social work, community, social and personal services	15.0	16.7	10.5	10.2	14.2	16.6
Other services	3.3	1.4	6.4	6.0	2.8	2.2
Gross domestic product at basic prices/factor cost	100	100	100	100	100	100
Sources: adapted from CSO (2014)						

3.1.3 The role of the mining sector

The mining and quarrying sector is a major driver and catalyst for new or additional economic development in Zambia. Copper exports still contribute to 80%–90% of Zambia's foreign exchange earnings and account for about 30% of Zambia's GDP (Gondwe & Pamu, 2014). According to the International Council on Mining and Metals, the value-added by the mining and quarrying sector is estimated to contribute at least 12% to Zambia's GDP (ICMM, 2014, p. 7).

Moreover, mining activities are a trigger for high investments in infrastructure. Where new mines are developed, as during recent years in North-Western Province, new houses had to be constructed, infrastructure built and services provided (trade, hospitality, public services) resulting in the creation of jobs. The high growth rates in sectors such as construction, transport and services are largely a consequence of the growing mining activities. However, direct government revenue from mining has been extremely low due to a very generous taxation system.

Only 8% of the formal labour force is employed by mining companies. The development of new mines in NWP has induced further migration: skilled labour moved from the Copperbelt to NWP, unskilled labour left rural areas to find jobs in the emerging mining cities. But the high dependence on copper also has negative impacts, because it makes Zambia vulnerable to price developments on the world market. In 2015, Zambia's GDP grew only by 3.7%, mainly due to the fall in the copper world market price.

Table 4: Indicators for the role of the mining sector

	1970	1990	2000	2007	2014
% of export value	98	93			80
% of GDP	27	8	7	12	12
Copper export value in % of GDP					32
% of government revenue	55	28			10
% of employment	4.5			1.5	1.5
Copper value (1998 USD/ton)	5,380	3,380	1,840	5,690	4,830

Sources: adapted from Adam et al. (2014), CSO (2014), ICMM (2014), Meyns (1993), USGS (2014)

3.1.4 Employment trends by sector

With high population growth, the supply of labour has grown fast over recent decades. From 1970 to 2012, the number of people of working age⁷ grew by approximately 3% per annum from 2.2 million to 7.8 million people. Annually, more than 200,000 young and often unskilled workers

7 The "labour force" in the Zambian Labour Force Survey is result of statistical calculations rather than empirical assessment. So the labour force, defined as people available for the labour market was estimated as 80% of the working age population until 2008, while thereafter the percentage was reduced to 75%. So the figures for 2012 and those for earlier years are not comparable.

are coming onto the labour market. Of these, less than 10% can find formal employment. The large majority try to make a living in the informal economy. The figures given by the Zambian Labour Force Survey for “informal employment” include all working age people who are not formally employed or registered as unemployed (which is only the case if people had been in formal employment before) or in higher education. Informal employment includes a range of income sources such as subsistence farming, street vendors, assisting family members and successful informal entrepreneurs.

These types of employment can conceal a high degree of under-employment as well as marginal or illegal income generating activities. The general long-term trend can be described as an informalisation of the Zambian economy and labour market, which started already in the late 1980s as a result of de-industrialisation and retrenchments from public sector as part of the structural adjustment policy (cf. section 3.3.2).

In accordance with the long-term urbanisation trend, the urban labour force and consequently urban informal employment grew faster than the labour force in rural areas. However, this has not been a linear trend over the decades. Rather, the rural-urban labour force ratio fluctuated along with economic growth rates. In periods of high economic growth (e.g. 2005 to 2012), when rural farming activities were less attractive, an increasing share of the labour force engaged in informal urban activities (cf. section 3.4.3 on migration).

Table 5: Labour force in Zambia, 1970–2012

	1970 in '000	1990 in '000	2000 in '000	2005 in '000	2012 in '000	change in % 2005-12
Population (total)	4,200	7,800	9,900	11,470	14,366	25.2
Working age population	2,250	4,210	5,350	6,203	7,837	26.3
Labour Force	-	-	4,000	4,962	5,845	17.8
Employed population	-	-	-	4,131	5,386	30.4
- in rural areas	-	-	-	3,032	3,462	14.2
- in urban areas	-	-	-	1,099	1,924	75.1
- in agriculture	-	-	-	2,984	3,006	0.7
- in non-agriculture	-	-	-	1,147	2,380	107.5
Formally employed	328	360	400	495	610	23.2
- in % of working age population	14.6	8.6	7.5	8.0	7.8	-
Unemployed population	-	-	-	831	467	- 43.8
Unemployed youth (15-24)	-	-	-	-	264	-
(-) Data is not available.						
Source: adapted from CSO (2005, 2011a, 2013c)						

The formal unemployment rate was nearly halved between 2005 and 2012 which is possibly a result of the boom situation in urban areas, though the validity of the unemployment figures is questionable. Youth unemployment rates account for more than half of the official unemployment, demonstrating the problem of the young generation: The formal sector is growing too slowly to absorb the mass of young people entering the labour market. Most of them, especially those who are unskilled and have left the rural areas, end up in precarious and informal jobs e.g. petty trading.

According to our interviews in Central and North-Western Provinces, many formal jobs have been destroyed in the recent past (after 2012); both in the private sector (mining) and in the public sector (Interview No. 18). Among the main reasons are the difficulties the mining sector is facing (falling copper prices, inadequate power supplies, etc.). As a consequence, the share of workers in informal jobs today is even higher than reflected in the figures for 2012.

As can be seen in Table 6, by far the most important sector from the point of view of occupation is the agricultural sector: 56% of employed people are making their living in this sector, in rural areas this share is 80%, in urban areas 12% of the labour force. Second most important is the service sector, especially wholesale and retail trade (+53.4%), transport, storage and communication (+162.1%) and public services (-5.1%)⁸. It is not possible, however, to distinguish marginal and unproductive activities in the informal service sectors from highly productive informal trades and businesses.

Table 6: Sectoral shifts in employment			
	1970	2005	2012
Agriculture (%)	70	72.2	55.8
Manufacturing (%)	3.3	4.0	4.1
Mining (%)	4.5	1.4	1.7
Construction etc. (%)	5.6	4.7	4.3
Private Services (%)	6.8	13.6	17.2
Public Services (%)	9.6	7.0	6.8
Other (%)	-	-	9.8
Total labour force ('000)	1,362	4,131	5,390
Sources: adapted from CSO (2005, 2013c), StatBA (1981)			

⁸ The quality of data of the Labour Force Survey “is not good enough to estimate how many jobs are created in what sector” (World Bank, 2013, p. 17). This is due to a labour market situation where the informal sector is characterised by people who are engaged in a variety of different temporary and seasonal activities throughout the year.

3.1.5 Income distribution and poverty

The prospering economic growth between 2003 and 2014 resulted in a corresponding increase in the per capita income: From a low level of USD 365 in the year 2000 the per capita income grew significantly up to USD 1,740 in 2011, resulting in a reclassification of the country as a lower middle-income country (World Bank, 2016b). But the economic disparities grew as much as the per capita income. The GINI coefficient, as a measure of inequality of income distribution, grew continuously from 0.57 in 2002 (CSO, 2012) to 0.69 in 2015 (CSO, 2016b). That means that income inequality in Zambia, although already very high in comparison with other countries, has further grown in the past decade. The World Bank states that the “benefits of gross domestic product (GDP) growth have accrued mainly to the richer segments of the population”. As creation of jobs did not go along with economic growth, the majority of the working population, mainly the less educated and those living in rural areas, has not benefitted.

According to the *Zambian Living Condition Report*, the average monthly income for Zambian households in 2010 was about ZMK 1,112,000 (ca. USD 227) with K 664,000 (ca. USD 135) in rural areas and K 1,917,000 (ca. USD 391) in urban areas (CSO, 2012). Within the rural strata, the income gap between large scale and small-scale farmers has widened. Men headed households have a higher monthly income than female headed households (K 1,188,000 (ca. USD 242) to K 861,000 (ca. USD 175)). In general, it can be said, that the younger the head of the household the lower the monthly income. Not surprisingly, the income level corresponds with the educational level. A household whose head had completed only Grades 1-7 earned on average K 531,000 (ca. USD 108), whereas a household with at least a secondary degree has an income of K 5,894,000 (ca. USD 1,202), or roughly eleven times as much. Nevertheless, income has increased for all groups since 2006, though with significantly differing growth rates. Trickle down-effects were limited and economic growth so far has hardly linked up with the rest of the economy.

As the majority of the labour force was excluded from the strong economic growth over the past decade, the impact of the booming economy on the **poverty level** remained limited. On the national level, the rates of “moderate poverty” have declined by roughly 10% in 12 years – and still reach a level of 60% (rural: 74% as against urban: 35%). Nearly 40% of the population are still affected by “extreme poverty”.

According to FAO, Zambia is still one of the five countries world-wide most seriously affected by **undernutrition**. The share of undernourished people was at 47.8% in 2016 (FAOSTAT, 2016; von Grebmer et al., 2016). It increased from a modest 34.9% in 1991–93 to 42.9% in 1999/2001, and then up to an alarming 53.5% in 2007/09 before declining again to 47.8% in 2014/16. This extraordinary trend cannot easily be explained. The dramatic increase between 1991–93 and 2007–09 does not correlate at all to the development of any other related indicators over that period such as food production (cf. section 4.2), life expectancy (cf. section 3.4), or child mortality (which declined steadily from 18.9% to 6.4%). While there was a serious food crisis in 1991–92, the country was producing an increasing food surplus from 2010 onwards and was unaffected by severe droughts. Thus, there was definitely a deterioration of food availability compared to the early 1990s. But as well for other factors affecting “undernutrition” beyond food availability such as quality of food intake, food preparation, access to clean drinking water and hygiene such drastic drawbacks could not be observed. Reduction of social services in the 1990s, the effects of

HIV/AIDS, and increasing cash needs forcing farmers to sell off part of their crops cheaply (cf. section 4.2) probably contributed to a deterioration of the nutrition situation after 1990. These factors, however, were wide-spread in SSA and are unlikely to explain such an exceptional drop of Zambia's position in relation to other African countries. The likeliest explanation lies in the methodology of data collection and analysis⁹. In any case, it is not related to food production and availability.

Table 7: Poverty incidence in Zambia, 1996–2010

	Method A ¹				Method B ¹	
	1996	1998	2004	2006	2006	2010
Moderate poverty rates ²						
– national level	68.1	67.0	58.4	59.3	62.3	60.5
– urban	40.5	39.5	29.1	26.7	38.7	35.3
– rural	84.2	83.2	77.4	76.8	75.1	73.9
Extreme poverty rates ³						
– national level	44.5	43.5	36.3	36.5	40.4	39.3
– urban	15.8	16.5	11.2	10.2	14.8	12.8
– rural	61.3	59.5	52.4	50.7	54.2	53.3

1) Methodology to measure poverty used by CSO changed, The World Bank used a survey-to-survey-imputation-methodology to track poverty over the first period (1996–2006) making 2006-data comparable with 2010.

2) People living in moderate poverty are those who live below the national poverty line (in Zambia, poverty is estimated by comparing consumption with household needs of food and non-food items).

3) People living in extreme poverty have expenditures below the food-poverty line.

Source: adapted from World Bank (2012)

Effects on rural transformation

After long periods of economic crisis (from 1975 to 2002) along with low world market prices for copper and poor economic governance, the Zambian economy experienced high growth rates between 2002 and 2013 when there were high copper prices and a booming development in the privatised copper industry.

While this period of economic growth resulted in a boom of the urban economy, in particular in the construction and services sectors, it did not provide sufficient employment opportunities for the fast-growing labour force. So its impact on poverty reduction remained limited.

⁹ The FAO figures are the more puzzling, the more one looks into country details. While Zambia's share of under-nourished people increased by 41.4%, the corresponding shares of Zimbabwe declined by 21.9%, Malawi 53.7%, Ethiopia by 57.2% (FAO, IFAD, & WFP, 2015). During the 1990s, Zambia had to import maize from Zimbabwe, after 2010 it exported maize to Zimbabwe.

Zambia, like so many other sub-Saharan countries, was not successful in diversifying its mineral-based economy significantly during the period of low copper prices. Most of its manufacturing industries were not competitive after having been exposed to global competition through trade liberalisation. Agriculture continues to provide the basis for survival for the majority of the growing population, but – with the exception of a few dynamic subsectors in central locations – did not develop in such a way that it provides a basis for the majority of rural people to escape from poverty and food insecurity and to contribute to the wealth of the Zambian nation.

Consequently, Zambia's recent growth period (which seems likely to end in a crisis again with falling copper prices) did not result in a transformation of the inherited colonial resource dependent structure of the economy. This preliminary finding needs to be examined by looking more deeply into the trends in the various economic sectors.

3.2 Agricultural sector

The major staple food crop in Zambia is maize, and along with groundnuts and various varieties of beans and sweet potatoes it is grown partly for subsistence and partly as a cash crop for the national food market. In some regions, cassava, millet or sorghum is still important as subsistence crops. Cotton and tobacco are the most important cash crops, while in central locations non-traditional export crops (mainly horticulture) have begun to play an increasing role.

In the following section, maize is taken as the key indicator for the analysis of development trends in crop production due to its importance as an income source for small-scale farmers and for national food security.

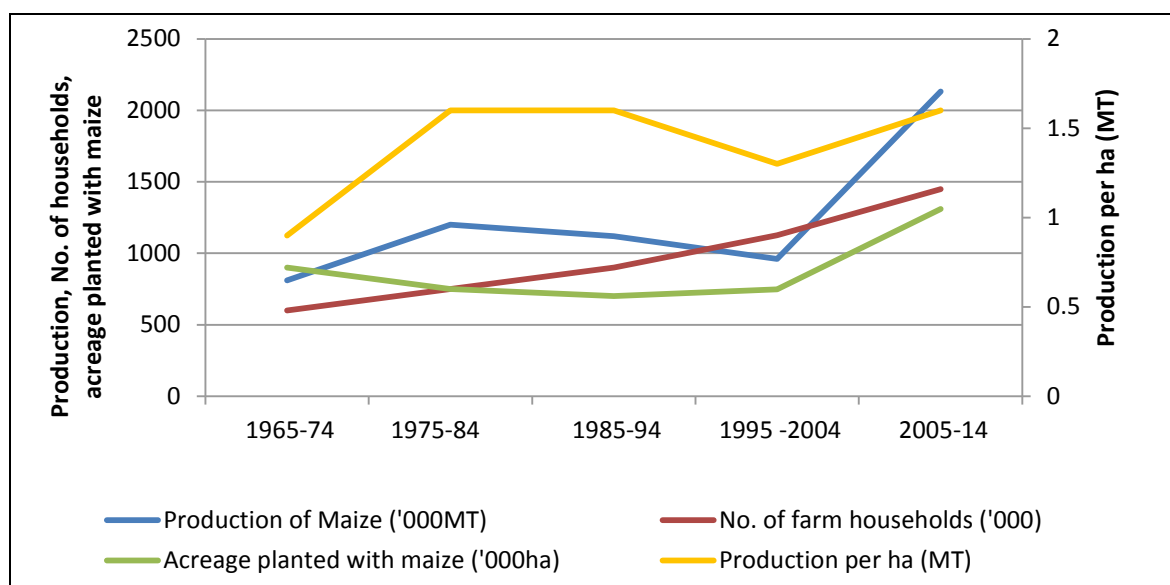
During the decades after independence, maize production tripled more or less in line with population growth. So the overall domestic maize supply per capita remained roughly constant. This was not a linear process, however. While until the mid of 1980s the production grew more or less steadily at an average annual rate of 3% (with the usual climate-related fluctuations), it experienced a rapid increase during the second half of the 1980s, followed by a sharp drop from the beginning of the 1990s. Reasons for the expansion in the late 1980s were high investments in agricultural services (provision of subsidised fertiliser, fixed government prices and support by donor-aided Integrated Rural Development Programmes) resulting in a corresponding expansion of the number of smallholders who engaged in commercial maize production. The sharp drop at the start of the 1990s was mainly because the Zambian government and donor agencies withdrew support for agricultural and rural development in general and maize subsidies in particular (cf. chapter 3). During the late 1990s, this was partly compensated by a rapid growth in the production of other crops like cassava, groundnuts or cotton (Jayne et al., 2007). It was only from 2009 onwards that maize production started to grow fast. Production doubled from 2008 to 2011.

Table 8: Trends and average changes in maize production, 1965–2014

	1965–74, av.*	1975–84, (av.change)	1985–94, (av.change)	1995–2004, (av.change)	2005–14, (av.change)
Production of maize ('000 MT)	810	+48% (1200)	+38% (1119)	+19% (961)	+163% (2132)
No. of farm households ('000)	600	+25% (750)	+50% (900)	+88% (1127)	+142% (1450)
Area planted with maize ('000 ha)	900	-17% (750)	-22% (700)	-17% (748)	+46% (1311)
Av. area cultivated/ farm household (ha)	1.5	-33% (1.0)	-48% (0.78)	-56% (0.66)	-40% (0.9)
Production per farm household (MT)	1.35	+19% (1.6)	-8% (1.24)	-37% (0.85)	+9% (1.47)
Production per capita of total population (MT)	0.13	+8% (0.14)	+8% (0.14)	-31% (0.09)	+15% (0.15)
Production per ha (MT)	0.90	+78% (1.6)	+78% (1.6)	+43% (1.28)	+81% (1.63)

* Changes are calculated according to the average values of the period and compared to the reference period 1965–74. Data for the 1965–74 period is not compatible with those of later decades due to different methods of calculating subsistence production.

Source: 1965–94: adapted from Jayne et al. (2007); 1995–2014: adapted from FAOSTAT (2016); Mason, Burke, Shipekesa, & Jayne (2011)

**Figure 4: Trends in maize production, 1965–2014**

Source: adapted from USGS (2014), World Bank (2016b)

Considering the trends over the past five decades, the expansion of maize production (and of crop production as a whole) went along with a corresponding increase in agricultural labour (number of farm households) and of the cultivated area. Nearly every agricultural household grows maize and the number of agricultural households has increased from ca. 0.5 million in 1970 to 1.4 million in 2013, while there has been an increase in the harvested area from 0.5 million ha (1978) to 1.3 million ha.

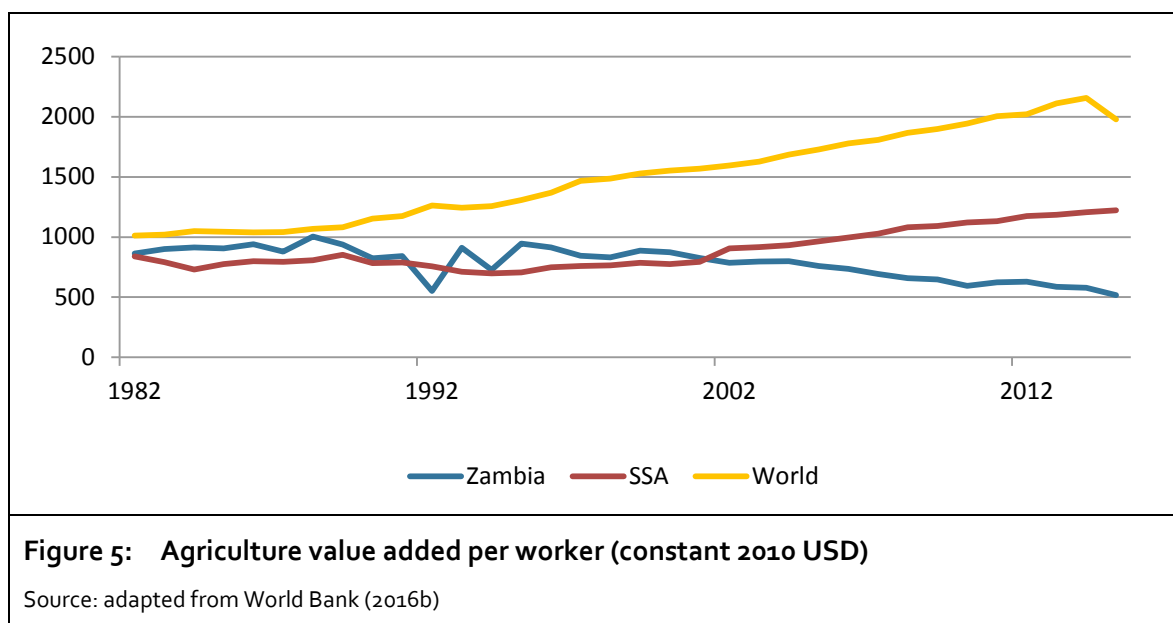
3.2.1 Limited increase in productivity

The increase in production over the past five decades resulted from more farmers cultivating more land without changing much in their production methods and without significantly increasing their yields per hectare and output per worker. The recent yield increases for maize requires a more differentiated explanation, however. Besides good overall weather conditions from 2009 onwards, it was the national government's maize promotion programmes with supply of subsidized inputs and guaranteed selling and sales prices that has facilitated an increase in the use of fertilizer and thus contributed to an increase in maize yields (Mason et al., 2011) during that period. Moreover, the government's maize promotion policy made maize production more attractive and increased the proportion of market-oriented farmers as well as the share of maize as part of total cash crops. The number of smallholder households receiving fertiliser through the Fertilizer Input Support Programme (FISP) increased from approximately 100,000 to more than 420,000 between 2003 and 2012, along with an increase in the number of individual beneficiaries from 120,000 to over 900,000 (cf. Table 17). The amount of fertiliser distributed increased correspondingly. While in 2007 the percentage of smallholders selling some of their maize was estimated at 30% (Neubert et al., 2011), this percentage had more than doubled by 2014 as a result of fertiliser subsidies and fixed sales prices (cf. section 4.3.6). Farmers in CP and NWP confirmed a shift towards maize cultivation going along with increased fertiliser subsidies and neglecting other crops such as cassava, sorghum, and beans (in NWP) or cotton (in CP).

Average area productivity of maize cultivation in Zambia is less than 2.0 t/ha, which is still comparatively low compared to other African Countries. The average figures, however, reflect widely differing yield levels of different farming systems ranging from extensive shifting cultivation systems in remote and sparsely populated areas, through semi-permanent, semi-commercial up to commercial systems (Neubert et al., 2011) with different input levels¹⁰. In periods when maize production is highly subsidized and farm inputs are made available by government programmes (such as in the late 1980s and during the last decade again), more small-scale farmers go for maize as their major income-generating activity. Consequently, the use of high yielding varieties with fertiliser application is expanding and the average yield is rising. Without such specific maize promotion programmes, other crops like sweet potatoes, groundnuts or soy beans are becoming more popular among small-scale farmers, and the share of market-oriented maize production and with it the average maize yield is falling. Therefore increasing average maize yields in Zam-

10 Within semi-commercial farming systems, subsistence and cash crop production can be interrelated in different ways. This is true in particular in regions where maize is the major subsistence crop and at the same time the major cash crop. In those farm households it is typical that part of the maize production is sold after harvest to meet urgent seasonal cash requirements, while later in the year, when staple food is getting short, maize has to be bought from the market at higher prices (Neubert et al., 2011).

bia are usually linked to the degree of promotion of maize production. This needs to be taken into consideration before adopting widespread interpretations which tend to relate low productivity levels to limited natural, human or institutional productive capacities. Low average land productivity in Zambia is primarily related to the high share of subsistence production with very limited amounts of external inputs. Increasing average land productivity, as seen over the past ten years, tends to reflect a higher share of market-oriented production based on higher amounts of fertilizer. For example, the share of smallholders using hybrid maize seed increased from 24% in 2003/04 to 38% in 2009/10 (World Bank, 2011, p. 8).



Like area productivity, labour productivity has not significantly increased over the five decades since independence. The increases in the late 1980s and from 2009 onwards can be mainly attributed to the increasing use of mineral fertilizers along with the spread of the semi-commercial farming system. The majority of Zambian small-scale farmers, however, still depend on hoe cultivation, which tends to limit area expansion. More than 60% of the farmers still use the hoe on 28% of the total cropping area, while 36% use oxen on 54% of the area (CSO, 2016a)¹¹. About 2% use tractors for 18% of the cultivated land. Hoe cultivation, as the traditional minimum-cost technology, is usually appropriate for subsistence-based farming systems. The high degree of hoe cultivation reflects the high share of subsistence cultivation as well as the limited and insecure market access, which is a prerequisite for affording the investment costs for mechanisation (compare analysis of influencing factors in chapter 4). Moreover, the use of oxen was affected by cattle diseases and the withdrawal of state veterinary services under structural adjustment programmes in the 1990s.

¹¹ Part of the area cultivated by oxen (or by tractors) is done on basis of contract ploughing arrangements. In some Districts of NWP, where oxen were introduced with the support of German development cooperation in the 1980s, a pair of oxen ploughs an area of 6–8 ha for 5 to 10 farmers.

3.2.2 Changes in farm-size structure

Though the average farm size in Zambia has not changed much over the decades, it is interesting to have a closer look into changes of the composition of the farm size structure. While Zambian agriculture continues to be dominated by smallholder farms (with < 5 ha) and a small large-scale farming sector (with more than 100 ha), some significant shifts have taken place during the last ten years.

Table 9: Changes in farm structure in Zambia, 2001–2012					
Landholding size category¹	Number of farms		% change (2001–2012)	% of total landholding cultivated (2012)	% of total cultivated area (2012)*
	2001	2012			
0–2 ha	638,118	748,771	17.3	91.2	29
2–5 ha	159,039	418,544	163.2	66.4	35
5–10 ha	20,832	165,129	692.6	49.5	24
10–20 ha	2,352	53,454	2,272.7	36.7	10
20–100 ha	9,030 ²	13,839	53.3 ³	10.9	2
Total	820,341	1,399,737	70.6		100
<p>1 Farms in Zambia are categorized as follows: < 5 ha: smallholder farm 20–100 ha: commercial farm 5–20 ha: emergent farm > 100 ha: large scale farm The size of a farm is not equivalent to the area of cultivated land, but to the size of the controlled land.</p> <p>2 for 2009 (no information for 2001); 3 % change 2009–2012; * calculated values</p> <p>Source: adapted from Janye et al. (2014)</p>					

Major developments in the farm structure are:

- The number of small-scale farms (< 5 ha) increased by 46% in the last decade (2001–2012), in line with the population growth in rural areas. Small-scale farmers still manage more than 60% of the cultivated area.
- Within the category of small-scale farmers, a significant shift (by more than 160% within the last decade) has taken place from those below 2 ha to those above 2 ha in recent years.
- The number of “emergent farms” (5–20 ha) has grown tremendously in the last decade, from 23,184 in 2001 to 218,583 in 2012. Sitko and Jayne (2014) found that this is not the result of a transition by small-scale farmers, but mainly a result of investments of urban people. According to Sitko and Jayne (2012) people who accumulated capital as employees in urban areas are investing in land as a secure investment. Off-farm income is the main source of this investment. Most of the emergent farmers stated that “*they have held or continue to hold off-farm employment*” (Sitko & Jayne, 2014, p. 198). According to our findings in NWP, another reason is rural to rural migration. Some better educated farmers moved from disadvantaged

areas (less rainfall, degraded soil, no land available) to more favourable regions to acquire larger areas of land (between 10 and 100 ha) and to get a title deed.

- The number of “commercial farmers” increased by more than 50% between 2009 and 2012. Although not further analysed, this development probably has similar roots to the increase of emergent farmers.
- There are estimated to be less than 1,000 “large scale farms” (not included in table 9). They own or lease roughly one third of the registered land under property titles. They include traditional large-scale farmers and new investors who acquired land recently due to the drastic price hike of agricultural products in 2007/08. According to Landmatrix (2017), various international companies have invested in agricultural land in Zambia. They control roughly 0.6 million ha of land. Whether these investments constitute the starting point to a major rural transformation process remains to be seen.

Summing up, while small-scale farmers are still cultivating most of the land and providing the largest share of crop production, there has been a shift in recent years towards emergent, commercial and large-scale farms. This shift mainly results from urban and external investors and it is more pronounced in terms of shares of land holdings so far, than in terms of actual production. The factors hindering existing small-scale farmers from further expansion of production will be analysed in chapter 4. At this stage of trend analysis, it can be concluded from the increased sizes of smallholder farms over the past 10 years, that reliable access to inputs and markets may play a major role.

3.2.3 Cropping pattern: Growing importance of value chains

While Zambia’s economy as a whole is still characterised by the high dependence on copper, the agricultural sector suffers from wide-spread maize mono-cropping, which is not environmentally sustainable, is inappropriate for the local context, and highly vulnerable to market fluctuations, political interventions and changing rainfall patterns. Consequently, the diversification of the cropping pattern has always been a major agricultural policy issue in Zambia. Shifts in the cropping pattern can be considered as a relevant part of a rural transformation process. One important approach towards promoting other cash crops than maize is the promotion of value chains.

Three major value chains have been further developed in Zambia during recent decades: cotton, sugar cane and tobacco (and lately soy bean).

Cane sugar has continuously gained importance during the last 50 years (with production capacity of 450,000 MT of sugar in 2015). During the 2014/15 season, the Nakambala sugar factory produced a record of 424,000 tons of sugar of which 174,000 tons was exported¹² (Zambia Daily Mail, 2015). Sugar is produced on large-scale farms with nearly 2,000 permanent employees, up to 4,000 seasonal farm workers and 145 outgrowers (Illovo Sugar, n.d.).

¹² This represents roughly 6% of export earnings.

Cotton production under contract farming schemes has also gained importance and is providing an income for roughly 250,000 farming households. For a few cotton farmers, contract farming is providing the opportunity to develop from small-scale to emergent farmers. Besides the provision of a market, the advantages are manifold, such as access to inputs and finance but also extension services. Chapoto et al. (2012, p. v) estimate that “20% of cotton farmers succeed as top-tier commercial farmers”. Cotton production is highly volatile, however, and yields are comparatively low. Besides weather conditions and developments on the world market, limited use of fertilizer, government interventions and other frictions such as corruption play an important role (Tschirley & Kabwe, 2009).

Tobacco production has increased from less than 10,000 MT in the year 2000 to 62,000 MT in 2013 (FAOSTAT, 2016), contributing significantly to export earnings (2.2% in 2014, according to the Observatory of Economic Complexity (2014)). Comparatively few farmers are involved in tobacco production: 23,000 small-scale farmers and 300 large scale farmers¹³ (thebusinessyear, 2015).

The expansion of sugar, cotton and tobacco production went along with the introduction of contract farming. The shift from independent market-oriented small-scale farming to contract farming constitutes a major change in the rural production system and can therefore be seen as a dimension of rural transformation. According to a World Bank analysis, smallholders benefit in monetary and non-monetary terms from contract farming in the three value chains (World Bank, 2009). However, because none of the value chains offers guaranteed prices, the farmers bear the risk of price volatility on the international market. An attempt of the cotton industry to find a compromise and to share the risk between farmers and their contract partners has been rejected by the national competition authority.

All in all, effects of contract farming on rural transformation are limited as long as the number and percentage of participating farmers is still low. There are various reasons for that: In the case of cotton, the participation in contract farming is socially inclusive but contract conditions are not attractive, whereas in other fields like tobacco production the contracting companies follow a strong selection procedure and only more advanced farmers who perform well get a chance.

3.2.4 Shift of cultivation methods: Conservation farming

Among the manifold efforts to facilitate a change towards more sustainable and climate-smart farming practices, conservation farming is the most prominent. The Conservation Farming Unit (CFU), with support from the Norwegian Government and a huge network of Non-governmental Organizations (NGOs) including FAO and private companies, has been promoting conservation farming since 1996.

Conservation farming aims at improved soil and water conservation combined with reduced dependence on mineral fertilizer resulting in increased and more stable yields (Neubert et al., 2011).

¹³ This is due to the higher skill and management requirement of tobacco production compared to cotton or maize.

The three pillars of CF are:

- Minimising soil disturbance (minimum tillage, no ploughing),
- Maintenance of carbon in the soil¹⁴ (permanent soil cover), and
- Crop rotation including legumes.

According to CFU, they are reaching roughly 200,000 smallholder farmers every year.

Nevertheless, the actual adoption rates of CF practices are low considering the efforts made to promote conservation farming in Zambia since the 1990s: “Nationwide only 5% of the households practiced minimum soil disturbance/planting basins in 2008, down from 13% in 2004, which raises the question of the widespread suitability of this practice...” (Arslan, McCarthy, Lipper, Asfaw, & Cattaneo, 2013, p. v). Among several factors causing the low adoption rates, two main reasons have been identified in an in-depth-analysis (Ngoma, Mulenga, & Jayne, 2014):

- High labour requirements of some practices like basins and more weeding during the first years after adoption
- High cash costs associated with purchase of implements (Chaka hoes for basins and ox-drawn implements for ripping) and inputs like herbicides, hybrid seed and mineral fertilizers¹⁵ (unless subsidised)

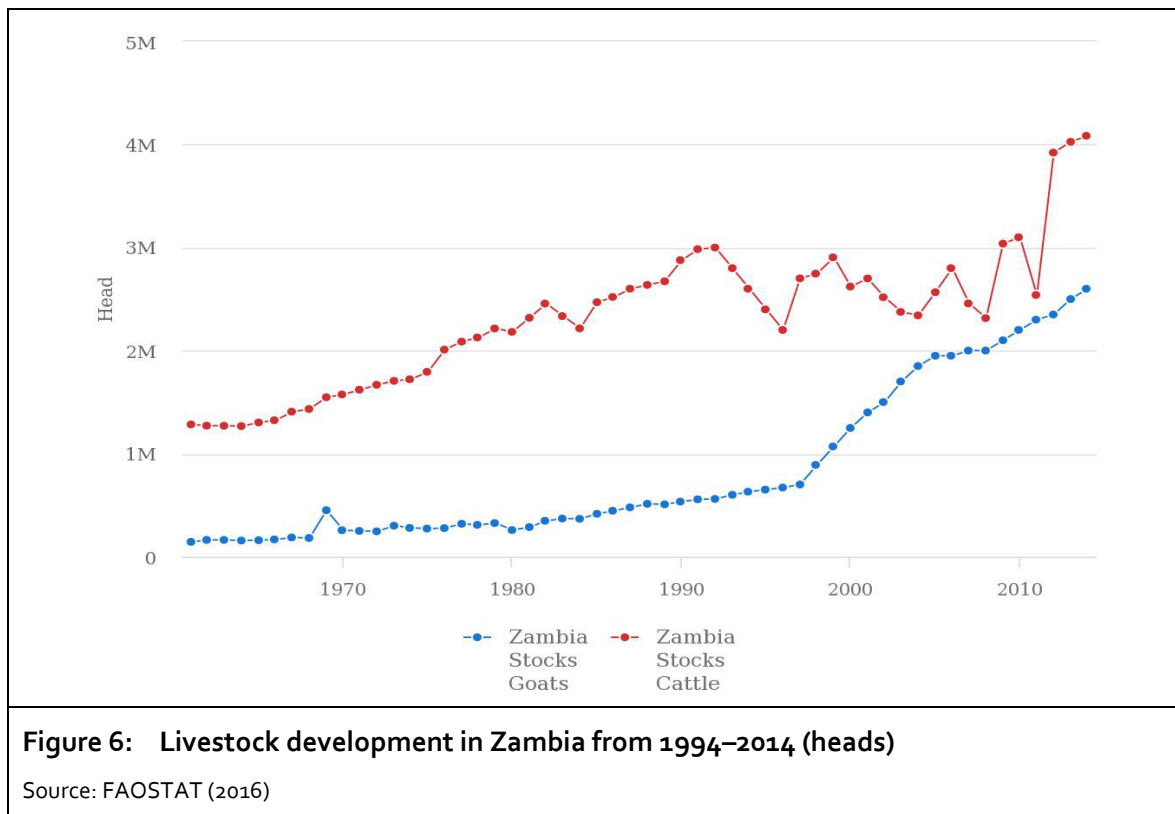
3.2.5 Increasing livestock production

Traditionally, cattle breeding is related to ethnic groups (Tonga, Lozi, Cewa, Namwanga and Mambwe) and the majority of traditional cattle herds are found in the Southern, Eastern, Western and Central provinces (Lubungu, 2013). In other regions, most small-scale farmers do not keep cattle. The system of small-scale cattle farms is characterized by low input and low output with correspondingly low productivity, but the livestock plays an important role in providing employment, food, and a source of cash, as well as draught and manure for crop production. 70% of livestock is kept in a mixed crop-livestock production system (Lungu, 2000). Livestock from small holders provides 40% of domestic beef consumption, milk is produced only for own consumption. The national market for milk and beef is served mainly by commercial farmers located along the line-of-rail. Commercial farmers provide 90% of national milk for consumption and 60% of national beef (Aregheore, 2009).

In contrast, the keeping of small ruminants is practised by the vast majority of small-scale farmers all over the country. On average, farm households own two goats. Usually they keep local breeds based on extensive management, i.e. leaving them roaming around unattended. They are used to provide meat on special occasions like weddings or funerals. In case of emergencies they are sold, thereby buffering the vulnerability of the households.

¹⁴ CFUs approach differs from the FAO definition of conservation agriculture, in which the second pillar is permanent organic soil cover (FAO, 2015).

¹⁵ Although fertilizer costs are lower for CF compared to conventional farming methods.



In the livestock sector, two main developments can be observed:

- The cattle subsector was hit by several crises and diseases which repeatedly led to brief dips (between 1994 and 1996, between 2007 and 2008 and in 2011; see Figure 6). Only in the recent past, have the numbers of livestock increased significantly. This could be due to donor-funded livestock promoting programmes such as the Smallholder Livestock Investment Programme SLIP (IFAD), or the Livestock Development and Animal Health Project (World Bank).
- The situation for small ruminants, especially for goats, is different. The numbers of goats were continuously increasing well above the growth rate of the rural population.

These two trends in livestock production are however not so significant as to indicate a transformation of the Zambian farming systems in the direction of a spread of mixed crop-livestock systems.

Effects of trends in the agricultural sector on rural transformation

- The number of farms and of people engaged in farming is still increasing in Zambia. The rural areas are still absorbing a high share of the population growth.
- Agricultural production is growing roughly in line with the growth rate of the Zambian population.

- The growth of agricultural output is so far mostly due to the expansion of cultivated land and the increasing agricultural labour force.
- The contribution of the agricultural sector to the GDP is strongly fluctuating with the value added created in the copper mining sector (which is extremely volatile depending on fluctuating copper prices and the share of profit sent abroad).
- Generally, fertile land is still available although not in every region, leading already to rural-rural migration in some areas. With the growing number of farmers, leasing land to foreign (and national) investors and the conversion of community land into state land, pressure on land and forests is increasing especially on prime sites or around urban centres.
- Most smallholder households tend to maintain subsistence production. But their engagement in market-oriented production is increasing (with fluctuations depending on market conditions).
- Productivity is still very low. Expansion of production is still possible by using available land and the growing labour force. Yields have tended to increase in periods when cash crop production was made attractive by access to subsidized inputs and to safe market outlets.
- The structure of farm sizes is slowly changing: the share of very small farmers (< 2 ha) has decreased over the past decade and the number of emergent and commercial farmers has increased. But this increase is mostly due not to expanding small-scale farmers, but due to town-dwellers/pensioners who invest their earnings from urban jobs in agriculture.
- The expansion of cultivated land together with conventional production methods are leading to increasing pressure on natural resources, especially on forests and soils. The dissemination of sustainable farming methods such as Conservation Farming is hampered by labour and financial constraints.
- Though diversification of farming by involvement of small-scale farmers in value chains such as cotton, sugar and tobacco has made some progress, with roughly 300,000 participating farmers (approximately 25% of the farm households), the agricultural sector in Zambia is still dominated by maize production. This is a consequence of state interventions in favour of national staple food security objectives that tends to neglect the importance of legumes.

Altogether, a clear trend can be observed towards increasing involvement of the smallholder farming sector in cash crop production going along with the use of maize hybrids and application mineral fertilizer. This trend, however, is unstable as it depends on market and service conditions and related government policies.

Bhorat et al. (2015, p. 14) argue: "The extent to which agriculture still dominates the Zambian economy relative to manufacturing suggests that the economy has not undergone a sufficiently meaningful structural transformation."

3.3 Non-agricultural sectors

The dynamics in the non-agricultural sectors will be analysed briefly regarding their growth rates, major technology and institutional changes and their labour absorption capacity.

3.3.1 Mining

Though this is not reflected in the sectoral shares in GDP and employment, the mining sector is still the engine of the Zambian economy (cf. Table 4 in section 3.1). Foreign exchange availability, state revenues and the business volumes of other sectors such as construction, services and trade depend to a high degree on mining revenues and therefore on the world market price for copper. The copper price also determines the economic viability of exploiting various deposits. Hence the copper production volume fluctuates in accordance with the price, aggravating the effect of price variations.

During the 1980s, the mining sector was under state control. It was characterised by a considerable level of mismanagement accompanied by losses, lack of reinvestment, and outdated technology. Therefore, the share of Zambian copper in the copper world market declined. As a consequence, Zambia privatised its copper mining sector in the course of structural adjustment policies in the 1990s. International companies took over on basis of extremely favourable tax conditions. However, the mines were rehabilitated and modernised. Moreover, new mines were opened and closed mines were reactivated. When copper prices increased again during the first decade of this century, copper production and exports expanded. Economic growth was stimulated, but the government's revenue share remained low. The direct employment effect was limited, but linkage and multiplier effects to other sectors were significant. The exchange rate of the Zambian Kwacha and with it the import capacity increased. However, this resulted in a "Dutch disease" effect on other, mostly agricultural, export products, which had emerged during the decades of the copper crisis. Their competitiveness deteriorated. As a consequence, agricultural diversification slowed down.

The renewed decline of the copper prices after 2013 showed the degree to which the Zambian economy is still dependent on the copper price.

3.3.2 Manufacturing and construction

The first efforts of Zambian government in favour of a diversification of the economy addressed industrialisation. Like many other developing countries, Zambia followed a strategy of "import-substituting" industrialisation. The strategy was based on state owned companies and high rates of protection against international competition. The focus was on consumer goods like textiles, beer and other beverages, food products, plastics, and construction materials. Due to bureaucracy and mismanagement, the protection did not result in growing efficiency and competitiveness but rather was misused for rent-seeking purposes and nepotism. The factories ran below capacity resulting in losses and thereby contributing to the debt crisis of the 1980s.

As a result of structural adjustment policies, state owned manufacturing industries were privatised in the 1990s. This resulted in closing down of non-competitive industries (such as most of the

textile sector) and the modernisation and rationalisation of competitive branches (such as breweries). The effect was one of de-industrialisation as indicated by the declining shares of manufacturing in GDP and employment (cf. section 3.1, Table 3 and Table 6). The number of private investments in new manufacturing enterprises remained limited. Supermarkets and wholesale shops are flooded with Chinese and South African products. Even local carpenters, tailors, blacksmiths, fruit processors and potters could no longer compete against cheap imported mass products. Some branches of small-scale, decentralised processing industries, such as grinding mills or vegetable oil mills, benefitted from the collapse of big monopolistic state enterprises. Businesses which are locally based and therefore not subject to international competition have been benefiting from their proximity to their customers. Among these are repair shops, welding shops and producers of construction materials.

Construction is one of the major boom sectors in periods of high economic growth rates. Much of the urban employment boom in Zambia's cities is related to that sector. Its share in GDP increased from 5.6% in 1990 to 29.1% in 2013 (cf. Table 3). As it depends on the overall growth in purchasing power and in government revenues, it is likely to decline with the downturn in the GDP growth rate.

3.3.3 Services sectors

The services sector is the most heterogeneous sector of the economy. It consists of a formalised government and banking sector and formal businesses like supermarkets, hotels and restaurants on the one hand and a wide range of informal businesses on the other. Even within the informal sub-sector, there are highly productive and profitable businesses in the small-scale and micro enterprise sector, creating full-time and reliable employment on the one end of the continuum, with marginal and precarious petty-businesses (like mobile street vendors) and daily labourers on the other end, and a growing labour market for domestic workers in between.

There are no statistics which differentiate between productive/dynamic informal services and unproductive/marginal activities. According to the results of Africa-wide surveys and general observations, it can be assumed that the majority of the labour force finding income opportunities in this sector will be in the low-productivity/low-income segment. Further focused research would be required, however, to find out whether the higher productivity segment has expanded dynamically during the recent boom period and whether it has good prospects. In general, the trade and services sector is strongly fluctuating with private and public demand. Consequently, it is highly dependent on the performance of other sectors like mining.

Effects of Trends in Non-Agricultural Sectors on Structural Transformation

There have been significant shifts in the composition of economic sectors in Zambia in favour of the service sectors, along with a dramatic decline of manufacturing industries. The dynamics within large sections of the service sector tend to depend on aggregate demand which is to a high degree influenced by copper world market prices. A real diversification of the economic basis away from the mining sector has not taken place. As most of the service sector income and employment opportunities are unproductive because of the abundant labour supply, the shift in favour of the service sector cannot be considered as an indication of structural transformation.

3.4 Population dynamics

3.4.1 Population growth and dynamics

The Zambian population has quadrupled since independence. This is a result of average annual growth rates of roughly 3%. Nevertheless, Zambia is still a sparsely populated country (with 20 inhabitants per square kilometre), not only compared to European standards (Germany: 225), but also compared to many African countries (Malawi: 140, Kenya: 78, Ethiopia: 80, Benin: 85). Low population densities represent a problem for the development of a country because they imply long transport distances and tend to restrain market development and the establishment of a cost-effective system of social and economic services due to limited economies of scale. This is especially true for rural areas like NWP with a population density of less than 10 people per square kilometre.

After a period of reduced population growth in the 1990s (as a result of the HIV/AIDS pandemic), the rates have been increasing again over the past decade (cf. Table 10). While fertility rates are still at a level of more than 5 births per woman, the mortality rates have been drastically reduced, especially for children under 5 years (cf. Table 11) due to improved access to health services¹⁶. Life-expectancy at birth has increased from around 40 years in 1990 to 60 years in 2014 and is now back to where it was before the HIV/AIDS pandemic.

¹⁶ Critical success factors regarding reduction of mortality rates were, besides successful treatment of HIV/AIDS, increased immunization coverage, improved breast-feeding practices, malaria prevention, treatment and intake of vitamin and mineral supplements (UNDP, 2013, p. 13).

Table 10: Population indicators, 1990–2014						
	1980	1990	2000	2005	2010	2014
Total population (millions)	5.9	8.1	10.6	12.0	13.9	15.7
Population density (people/sq. km)	8	10.8	14.1	16.0	18.5	20.9
– urban share (% total)	39.8	39.4	34.8	36.6	38.7	40.5
– SSA* urban share (% total)	22.2	27	30.8	32.9	34.7	37.2
Population growth rate (%)	3.5	2.8	2.6	2.7	3	3.1
SSA* population growth rate (%)	2.9	2.8	2.7	2.7	2.8	2.8
– urban growth rate		2.6	1.3	3.8	4.1	4.2
– SSA* urban growth rate		4.9	3.9	4.1	4.2	4.2
– rural growth rate		2.9	3.3	2	2.3	2.3
– SSA* rural growth rate		2.1	2.2	2	2	1.9
Fertility rate (births per woman)	7.2	6.5	6.1	6	5.7	5.4
SSA fertility rate (births per woman)	6.8	6.4	5.8	5.5	5.2	5.0
– rural fertility rate			6.7		7.0	6.6
– urban fertility rate			4.9		4.6	3.7
* Sub-Saharan Africa (SSA), developing only						
Sources: adapted from CSO (2014), Ministry of Health & ICF International (2014), World Bank (2016b)						

As a result of these population dynamics, Zambia is a very young society. Nearly half the population is younger than 14, while 66% have not reached the age of 25 years. Accordingly, the dependency rate is high and the education system is overstressed.

Table 11: Health indicators, 1990–2014					
	1980	1990	2000	2010	2014
Life expectancy at birth (years)	52	44.3	43.5	56.4	60 ¹
– male	50	42	43	55	58
– female	53	46	44	58	62
Mortality rate (under 5), per 1,000 births	157	191	163	82	67
– rural			206	148	
– urban			155	118	
Maternal mortality ratio (modelled estimate, per 100,000 live births)		577	541	262	224
Prevalence of HIV, total (% of population ages 15–49)		12.7	21.5	14.3	12.4 ²
– male				12.3	10.8
– female				16.1	14.1
<p>1 Life expectancy figures differ greatly. While WHO-figures indicate an increase from 43.5% in 2000 to 60% in 2014, Index Mundi and UNAIDS data show an increase from 37% to 52% during the same period.</p> <p>2 Estimates differ by 6 percentage points.</p> <p>Sources: adapted from Harasty, Kwong & Ronnas (2015), UNICEF (2013), WHO (n.d.), World Bank (2016b)</p>					

There is a strong rural-urban gap regarding fertility and mortality rates. Rural women have far higher fertility rates than their urban counterparts. These are not only associated with poor education and poor access to health services, especially for quality family planning (Bongaarts, 2010), but also with the rationale of rural social security systems, which depend on children who can care for parents when they get old. Typically, it takes some time until fertility rates adjust to reduced mortality rates. Mortality rates have been significantly reduced in both urban and rural areas but are still lower in urban areas, which is most likely not only a result of better access of urban people to health services, but also to the different age composition (higher share of old people in rural regions).

3.4.2 HIV/AIDS remains a challenge

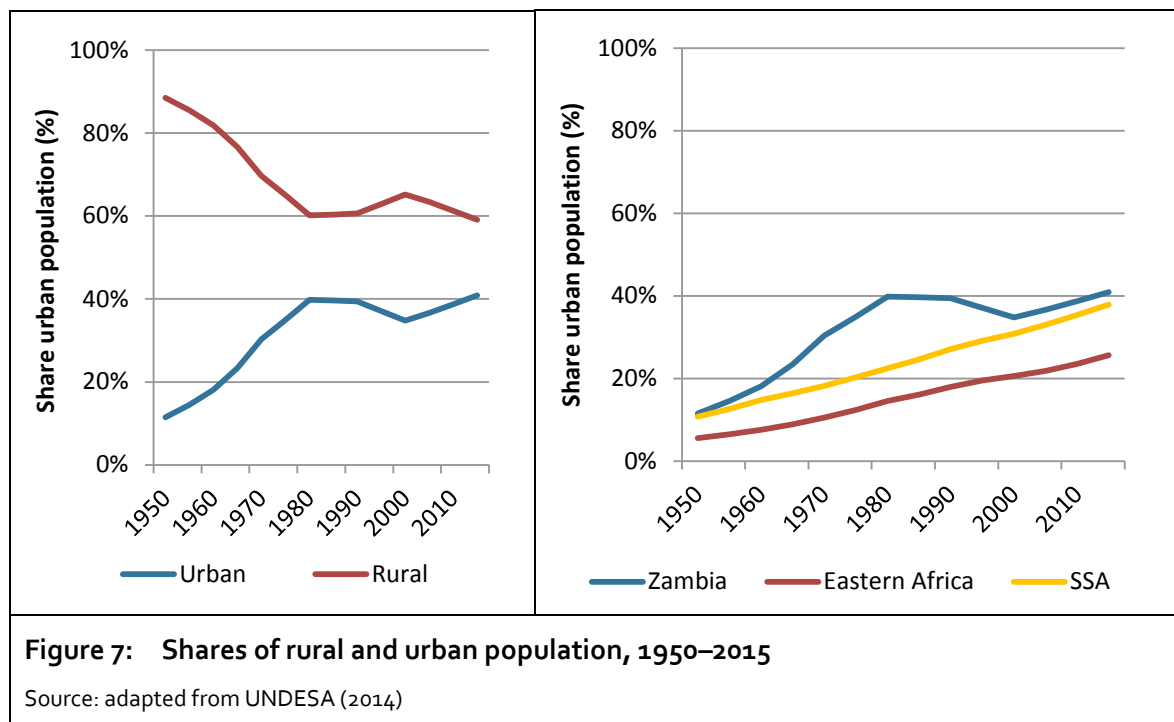
Zambia still has one of the highest HIV/AIDS prevalence rates and as of 2014 was the seventh highest in the world (CIA, 2016). In 2013, HIV/AIDS made up close to 23% of all deaths in Zambia and remained the leading cause of death (Institute for Health Metrics and Evaluation, 2013). The probability of dying of illnesses related to HIV/AIDS before the age of 15 is extremely high and calculated at 31% for males and 27% for females (UNAIDS, n.d.). Whereas the number of people living with HIV is still increasing, the number of new infections started to decline in 2003. The major reason for this development is the notable improvement in treatment coverage (a 92% treatment coverage of eligible adults) (UNICEF, 2013). Infections are more common in towns and cities than in rural area and more common amongst females than males. While North-Western Province records one of the lowest prevalence rates (7% in 2007), Central Province has one of the highest rates (17% in 2007) (NAC, 2009).

3.4.3 Migration

Rural-urban migration and the growth of the urbanisation rate are among the key indicators for rural transformation. Some authors even take the increasing urbanization rates in most of the sub-Saharan countries as proof of a dynamic transformation process. It is necessary to analyse the migration dynamics in Zambia and shed light on the nature of the processes indicated by the urbanisation rates.

Migration has been a prominent feature of Zambian society from colonial times. As the British colonial government required labourers for the mines, for large-scale agriculture and for the urban service sectors in the administrative and mining sectors, they enforced migration from the rural areas by imposing monetary taxes which could only be paid if subsistence farmer households got involved in the cash economy. Consequently, systems of institutionalised circular migration were installed. Young men in particular were recruited for temporary employment, usually for a period of two to five years (Fischer, 1970). Along with the involvement of family members in the monetary economy, farm households increasingly developed a demand for commercial commodities. As access to markets was very limited for most of the peasant farmers, the migration of young family members became something like a family obligation and a firm part of the livelihood system of rural families in Zambia (Oppen, 1985). Thus, the system of colonial circular labour migration was the historical starting point of what emerged as a multi- or trans-local livelihood system (Steinbrink, 2017).

The macro-economic rationale of the system was to keep the labour supply for the capitalistic sectors cheap by accessing labourers who still were embedded and socially cared for by rural systems of subsistence production. The micro-economic rationale was to have diversified income sources in an environment where neither farming nor urban employment nor petty businesses were able to guarantee a safe and sustainable livelihood.



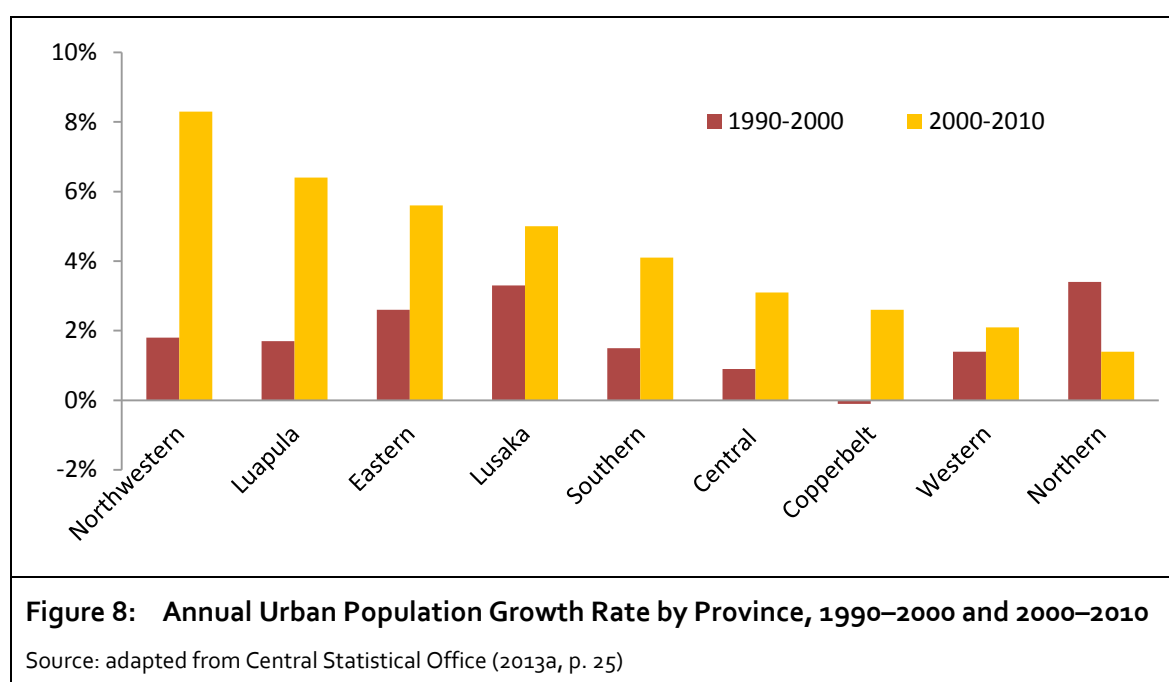
Zambian urbanisation dynamics after independence (cf. Figure 8) indicate that urbanisation underwent different phases. Between 1960 and 1980, Zambia showed an extraordinary increase in its urban population, with an urbanisation rate rising from 20% to 40%. In that period, Zambia was one of the most urbanised countries in SSA. This was a result of the mining-based economy of the country and the considerable wealth created in a period of high copper prices and used for expansion of the urban economy (including state administration). During the 1980s the urbanisation rate stagnated while in the 1990 it even dropped to 35% (Lohnert, 2016). This was obviously a result of the copper crisis, which turned into an urban crisis and a crisis of the state, followed by structural adjustment policies with retrenchments, declining wage levels and improved terms of trade for agricultural products (Black, Crush, Peberdy, & Ammassari, 2006; Potts, 2005, 2015). From 2000 onwards, the privatisation and revitalisation of the copper industry accompanied by rising copper prices provided the basis for a boom of the urban economy and urbanisation rates started to rise again. In 2014, they reached the level of 1980 again. Meanwhile, the average urbanisation rates of eastern African countries have caught up with those of Zambia and urban areas in Zambia are growing as quickly as they do on average in SSA.

The urbanisation dynamics of Zambia provide evidence for a close interrelation of rural and urban income and employment opportunities and a high degree of flexibility of the population to respond to shifting opportunities. As soon as urban income opportunities begin to become too

meagre and the consumer prices for maize meal shoot up while at the same time agricultural producer prices increase, people are prepared to go back to rural areas. This is a clear indication of the fact that migration in Zambia takes place to a high degree within a persisting system of rural–urban livelihoods (Black et al., 2006, p. 129; Steinbrink, 2009, 2017).

Urban population growth rates are higher than those in rural areas at present, but the rural population is still growing in absolute terms. While the rural share of the population decreased from 65.2 to 59.5% between 2000 and 2014, the absolute number of rural residents increased from 6.9 to 9.5 million people.

The migration pattern has always been and is still characterised by an above-average share of young people looking for better opportunities in urban areas. 38.6% of migrants belong to the 25–44 age group, 21.7% in 15–24 age group (CSO, 2013a, p. 14). In contrast, the older generation is overrepresented among the migrants from urban to rural areas. While migration in the past has been a predominantly male domain, there is a clear trend towards women following the men to towns. Among the urban destinations of migrants, the share of mid-size towns has been steadily increasing in recent years. This is indicated by the above average urbanisation rates of rural provinces such as Eastern, Luapula and North-Western since 2000 (cf. Figure 8).



There are different perceptions in the literature and among Zambian interview partners about the **causes of out-migration** of the youth from rural areas. Many share the view that young people tend to turn their backs to village life, are attracted by the “lights of the cities”, “are not interested in agriculture anymore”, at least not in the way their forefathers farmed. Some feel that young migrants move to town because they are especially attracted by jobs in offices or in the mining sector, by educational opportunities or the social amenities (Interview Nos. 6, 11, 16, 53, 58, 71, 77, 78). Definitely, Zambian youth would have access to land if they want to remain in agri-

culture (Kristensen & Birch-Thomsen, 2013, p. 190). While it may be true that most young people in Zambia would prefer a life in urban areas and are desperately trying to make their fortune in cities and towns, the actual migration patterns show that migration is not determined by the dream of a better life: young people migrate because economic opportunities in rural areas are mostly neither sufficient nor attractive (Interview Nos. 63, 70, 78). But their desire to find an alternative and better living in town is restricted by the limited economic opportunities there (cf. section 3.1 on labour markets).

While economic opportunities in urban areas have improved and chances for working in professional, technical and service-related employment has increased considerably since 2005 (Bhorat et al., 2015; CSO, 2005, 2011a, 2013c), most unskilled labourers still end up in precarious and informal work arrangements, e.g. in the services or construction sector (Interview Nos. 53, 54, 61, 69). This is particularly true for male migrants (Interview No. 80). Skilled jobs in the mining sector are taken by experienced migrants from the Copperbelt Province rather than by newcomers from rural areas (Interview Nos. 54, 64, 71). As the increase in urban income opportunities between 2005 and 2014 was a reflection of an economic boom period going along with a copper boom and the related employment opportunities both upstream and downstream (cf. section 3.1), it remains to be seen whether the urban centres will still attract migrants in the upcoming period of economic crisis.

As most of the migrants to urban areas do not find safe and gainful employment, the number of urban poor, i.e. people who have to survive on basis of marginal income opportunities is increasing (Hove, Ngwerume, & Muchemwa, 2013)¹⁷. At the same time, urban municipalities do not have the funds and technical staff to cope with the rising need for more and better housing, sanitation and basic social infrastructure.

There are not any precise statistical data on recent trends regarding the nature of rural-urban linkages. Translocal rural-urban livelihoods in Zambia usually did not take the shape of separated nuclear families with a husband working in town leaving his wife together with the children back in the village doing subsistence farming. Rather it has been a system of single young men searching for income in town and coming back to rural areas after a couple of years to marry or staying in town if they had made their way and had found a spouse there. Income transfers from towns and cities to villages did usually not take the form of regular remittances, but of presents on occasion of visits, contributions to funeral or wedding expenses of family members and the (often considerable) bride price to be given to the parents-in-law, or investment money for establishing a farm (Oppen, 1985). There are indications that these rural-urban links tend to weaken for two main reasons. Firstly, the importance of nuclear families increases amongst those who have established themselves and their family in town (WS results). They often tend to minimise their social obligations towards their rural parents and extended families (but mostly without breaking their family ties completely). Secondly, there are those who failed to earn sufficient income to support kin in the home village or to return with savings. Their only contribution to the rural-

¹⁷ For example, Kabwe town recorded a population of 208,049 in 2010. This is predicted to grow to 269,759 in 2030 (CSO, 2013b, p. 41). Government officials estimate that Kabwe's population could double by 2020 and small surrounding towns are said to have increased within the past 3 years by 90%. At the same time, there is little chance for a corresponding gain in employment opportunities. On the contrary, formal employment is on the wane in cities like Kabwe (Interview Nos. 19, 44).

urban livelihood system is to care for their own survival. Maintaining the option of returning to the village is still an important livelihood strategy for those who did not make their big fortune in the cities (Tekülve, 1997). Whether or not their share has been reducing in recent years cannot be said on the basis of available information.

Population and migration dynamics and rural transformation in Zambia

The urban share of the population in Zambia in 2015 is slightly above 40%, nearly the level it had reached in 1980. This, however, is not to be seen as a symptom of stagnation, but is a result of strong fluctuations in rural–urban population movements. While people moved to towns and cities during the 1960s and 1970s and again after 2003, when high copper prices resulted in boom periods of the urban economy, they preferred the rural areas when low copper prices resulted in a decline of urban income opportunities. In terms of rural transformation, the mining sector triggered urbanization is therefore rather related to economic cycles than structural in nature.

As long as urban income opportunities depend to a high degree on fluctuating world market prices for copper and as long as so many of these opportunities are informal and precarious, urbanisation in Zambia will be fragile. The agricultural sector will continue to function as a buffer, as land and water resources are still available in most parts of the country.

Thus, migration in Zambia is still to a high degree part of multi-local rural-urban livelihood systems (Steinbrink, 2017). People tend to move between rural and urban areas responding to changing opportunities in labour demand and supply. The prices for agricultural products, especially for maize and maize flour as the major staple food, also play an important role. Consequently, unless people are successful in finding a safe economic basis in urban areas, they tend to maintain their urban-rural livelihood systems, thereby keeping themselves in a position to adjust to a volatile economic environment. Zambia's urban economic opportunities have been a response to booms and shocks in the mining industry rather than a reflection of a long-term transformation trend, so that there is no steady process of urbanisation as a part of structural transformation.

3.5 Environmental and natural resource management dynamics

Environmental dynamics may be symptoms of structural transformation processes, in particular if they are man-made, i.e. if they go along with major changes in the system of natural resource management. Resource degradation may be an indication either of a lack of transformation of a given extensive resource management system despite rapid population growth. Or it may be an indication of an unsustainable structural transformation process towards commercialisation of resource exploitation.

On the other hand, environmental dynamics may become drivers of structural transformation processes. For example, climate change or soil degradation may cause either a transformation

towards intensified resource management systems or towards out-migration and shifts to other income sources.

While environmental dynamics as symptoms of structural transformation will be dealt with in this chapter, their role as drivers for structural and in particular rural transformation will be analysed in section 4.6.

With a population density of 21 people per square kilometre, forest coverage of still roughly 70% and a water surplus situation in most regions of the country, Zambia is blessed with an abundance of underutilised agricultural resources. This statement needs some regional differentiation, because most of the southern parts of the country fall in a zone with lower rainfall (approximately 700 mm per annum and insufficient number of days with rainfall) and occasional droughts. Moreover, Zambia's wealth in mineral resources has reduced the pressure on agriculture-related natural resources. Thus, natural resources in general have not been a limiting factor for economic development. As far as their structural influence is concerned, they may even have restricted change. The relative abundance of natural resources and agricultural resources has contributed to structural persistence, because it did not provide any force or incentive for structural change. Wealth from copper has created little pressure towards diversification of the economy. The wealth of rural resources has not created incentives to invest in an intensified use of such resources. Zambia's economic advancement is based on extractivism, not on changes in the mode of production (with the exception of new technologies in the mining industry).

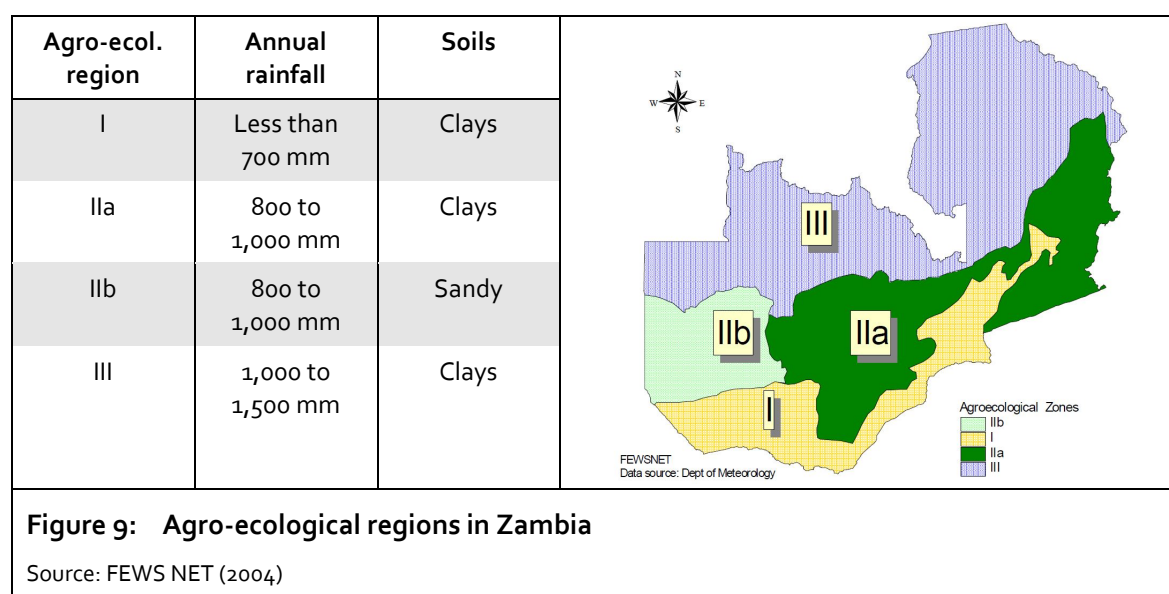
While resource wealth had a retarding impact on structural transformation, sluggish transformation had repercussions for the unsustainable use of natural resources:

- Soils under permanent cultivation are being degraded by mono-cropping combined with wrong or insufficient fertilisation or manuring.
- Forest resources, though still seemingly abundant, have been strongly degraded by continuing dependence on charcoal and by excessive commercial exploitation and degradation of forests by timber companies.
- Game resources have been almost eradicated by illegal commercial hunting.

Summarising these trends, one can hypothesise that the abundance of resources has tempted decision makers and resource users to pursue an extensive and wasteful exploitation of these resources.

3.5.1 Land availability and soils

Zambia can be divided in three main agro-ecological regions:



Considering soil quality and climatic conditions approximately one third of the Zambian land area is assumed to be suitable for perennial crop cultivation. Of this land only 16% is actually under cultivation according to FAO data (cf. Table 12).

Table 12: Land use in Zambia, 1970–2014

	1970	1990	2000	2014
Agricultural Land (km ²)	200,000	210,000	223,000	238,000
– in % of total land area	27	28	30	32
Arable land (km ²)	54,000	58,800	66,900	76,200
– in % of agricultural land	14	13	12	16
% planted with maize				50
% land irrigated	0.3	1	4	4
Forest area in % of total land area	75	71	69	66

Source: adapted from FAOSTAT (2016)

This reflects the high share of semi-permanent cropping systems. The proportions are much higher in the densely populated zones of Southern, Central, Copperbelt, and Eastern Provinces, while they are much lower in the sparsely populated and peripheral areas in the west and the north of the country. Thus, the Central Province offers fertile soils and favourable climate, suitable for all common crops (Neubert et al., 2011), while in North-Western Province, the predominantly sandy soils are unsuitable for permanent farming. Roughly half of the arable land is usually

cultivated with maize. This percentage is lower in those regions where cassava, millet or sorghum are the major subsistence crops (such as in the NWP).

The densely-populated farming zones of the country suffer from soil degradation, in particular a loss of nutritious content and organic matter. Conventional farming based on mono cropping of maize and the application of nitrogen fertilizer had led to significantly leached soils (Neubert et al., 2011). NWP in particular suffers from increasing soil acidity. Another wide-spread problem is that smallholders do not apply enough fertiliser to maintain soil fertility in the absence of other soil fertility management practices. Even in less densely populated areas, such as NWP, soil fertility is decreasing, when fallow periods are shortened and where neither fertiliser nor lime, neither manure nor compost are applied (ibid). Other reasons for soil degradation and erosion are over-grazing and the ploughing of slopes without measures to conserve soil and prevent erosion.

The fact that only 4% of the cultivated area is actually irrigated (NECZ, 2008) indicates that in most locations irrigation is not necessary or would not be economically viable.

3.5.2 Water resources

Zambia has a highly diverse and extensive system of rivers and water bodies. The country is estimated to hold 45% of the surface water resources of the entire Southern African region. Storage capacity per capita is lowest in the Southern African Development Community (SADC) region. In general, there is considerable spatial, seasonal and annual variability in water availability in Zambia. The south of the country experiences water deficits during the dry season (Climate Investment Funds, 2011).

No distinct long-term trend can currently be deduced. Rainfall data indicate significant annual fluctuations, but no trend towards reduced precipitation (cf. section 3.5.4). Interviewees frequently mentioned the lowering of water tables and a periodical drying up of perennial rivers and dambos¹⁸ (Interview Nos. 16, 26, 39, 56, 61, 72, 88, WS). This can be seen especially for Lake Kariba, where energy production had to be cut back due to a low water level in recent years. The low water level of the lake was mostly explained by higher temperatures and less rainfall because of climate change or the 2015 El Niño (Interview Nos. 26, 56, 78) (Jeffrey, 2015; Scheumann, 2016).

Despite regulations for fishing in the rivers, the natural fish stock is depleted as the restrictions (e.g. seasonal fishing bans) are not followed by the fishermen (Interview No. 18).

Water pollution is a particular problem in the mining areas. This is a result of weak implementation of environmental impact assessments (Interview Nos. 59, 62) as well as reluctance to take disciplinary action against the mining companies (Matakala, Kokwe, & Statz, 2015, p. 9).

It can be concluded that Zambia has still sufficient surface and ground water resources. Apart from the more drought-affected south and some heavily farmed areas with good market access (around Lusaka and the international airport and along the railway), water availability has not been a limiting factor for the expansion of agricultural production. Thus, efforts to invest in more

¹⁸ Dambos are seasonally or permanently wet grassy valleys, depressions, or seepage zones on slopes (Kiai & Mailu, 1998).

effective utilisation of the water resources, e.g. by irrigation or improved methods of water conservation, remained limited.

3.5.3 Forests – Continuing deforestation

Around 49 million hectares in Zambia are covered by forests (World Bank, 2016b). This equals 66% forest cover of Zambia's land area making Zambia one of the most afforested countries in the region. Growing stock is estimated at 2.9 billion m³ of timber (ILUA II & UN-REDD, 2010). The major forest type in Zambia is Miombo: open woodland often on nutrient-poor soils. Zambian forests have considerable economic importance. The main human use is extraction of wood for timber, charcoal, firewood, furniture and construction material. Zambian forests, in particular the Miombo woodlands of North Western and Western Provinces include considerable quantities of precious indigenous hardwood species such as rosewood, teak and mukwa. Besides, forest covered areas are used for grazing and harvesting of non-timber forest products (Day, Gumbo, Moombe, Wijaya, & Sunderland, 2014, p. 2)

As forest inventories have produced quite different estimates of the forest cover, depending on the definitions of forest, it is difficult to analyse trends on the basis of the available data. The estimates for deforestation range from 0.33% p.a. (FAOSTAT, 2016) to 0.6% p.a. (Mongabay, 2005). Varying figures also reflect different assumptions on regeneration (e.g. in case of firewood collection and charcoal burning) and different methods of separating deforestation from forest degradation (e.g. through selective exploitation of high value species). Using cautious assumptions, forest coverage in Zambia has been reduced from 75% in 1970 to 66% at present. Deforestation has accelerated after 2010 according to a recent analysis of Kasaro et al. (2015). This has serious effects on the availability of a range of food and income sources¹⁹.

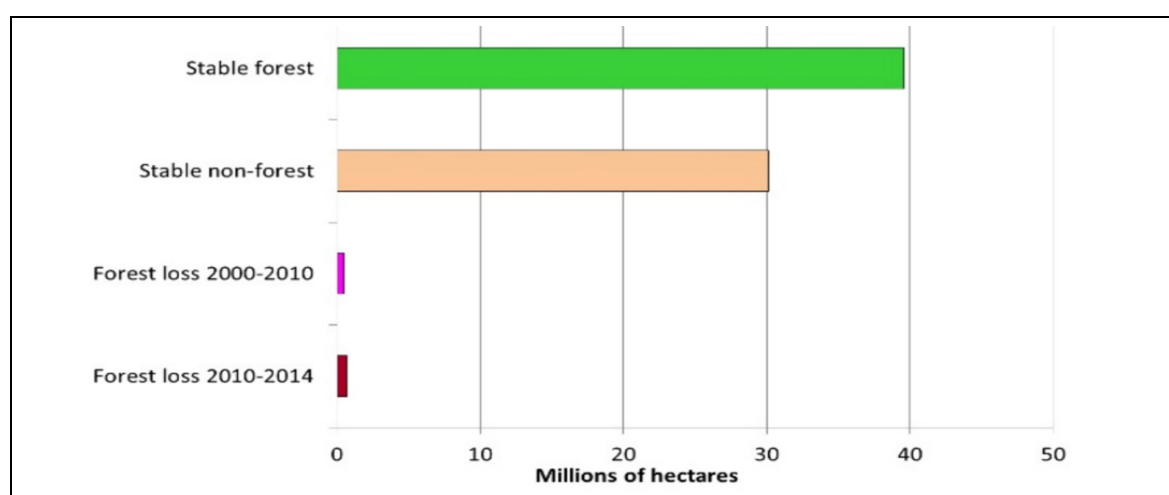
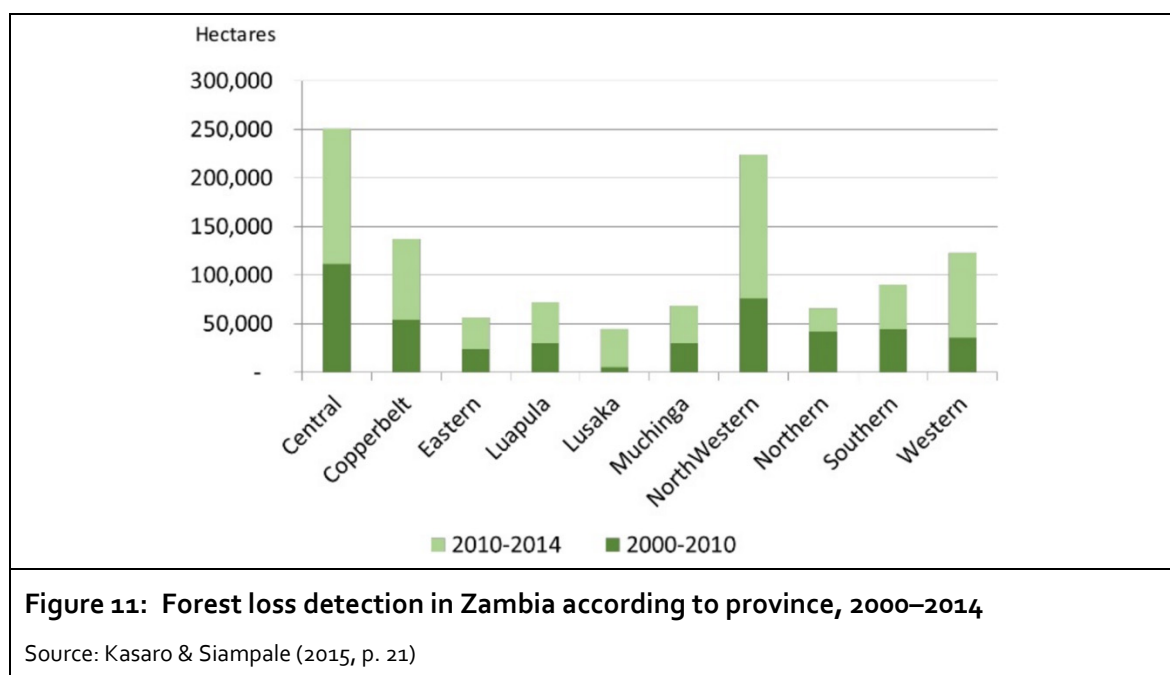


Figure 10: Forest loss compared to stable forest (2014, preliminary results)

Source: Kasaro & Siampale (2015, p. 22)

¹⁹ For example, the Mopani tree is an emblem for Zambia because it hosts a specific sort caterpillar which is a main protein source for the rural poor. The caterpillar is endangered, because the tree also serves as a source for charcoal production.

Loss was highest in Central and North-Western Province. In most provinces, except the Northern Province, loss increased in 2010–2014, compared to 2000–2010.



The main causes for deforestation are:

- Wood extraction for charcoal production
- Uncontrolled commercial exploitation of high value species for export
- Agricultural expansion

Charcoal production is usually identified as the major contributing factor to deforestation, in the literature as well as by our interview partners and workshop participants. Charcoal consumption increased from 330,000 tons in 1969 to 1.4 million tons in 2008 according to an IAPRI study (Mulenga, Richardson, & Tembo, 2012), more or less in accordance with the urban population growth. Extrapolating at that growth rate of 4% gives a current annual production of 1.9 million tons, which corresponds roughly to 1,000 km² or 0.2% of the forest area. In recent years, charcoal consumption in urban areas has increased at higher rates, due to the current Zambian energy crisis (see below).

Zambia's energy crisis

Almost all of the country's electricity generating capacity is hydroelectric. The largest proportion comes from Lake Kariba dam, which currently holds low water levels and has been over-exploited by both riparian countries Zambia and Zimbabwe. While power demand has exceeded supply since 2007 as a result of fast economic growth and the expansion of the mining sec-

tor, power generation has decreased significantly since 2015. At the same time, falling world market prices for minerals from 2014 onwards has hit the economy hard. The depreciation of the Kwacha against the US Dollar added to the problem by increasing import prices. Now the government is set to sell the limited power supplies to neighbouring countries to make good the loss in foreign exchange. Daily load shedding, i.e. restrictions of the power supply for up to 16 hours are hitting households, (commercial) farms, small businesses and the mining sector. The charcoal demand for cooking rose dramatically in urban areas, thereby spurring deforestation (Jeffrey, 2015; Scheumann, 2016).

Another cause for deforestation is agricultural expansion. The cultivated area has been extended by approximately 500 km² per annum on average between 2000 and 2010 (cf. section 3.2). However, this is not more than 0.1% of the area covered by forests. Even if agricultural growth continued to expand at the same rate for another 50 years, forest cover would only be reduced from 66% to 62%. Moreover, it can be assumed that a considerable part of the forest cleared for farming is used for charcoal burning and firewood consumption. Thus, there may be a considerable overlap between the two causal factors.

A very serious cause of degradation of forests is commercial cutting of valuable hardwood species such as rosewood, teak and mukwa which grow mainly in Miombo forests of which a third are in North-Western Province. These trees which are usually hundred years old or even older are selectively cut by logging companies for the Chinese and the South African markets. As some of the licenses have been acquired illegally, there are no official figures about the cutting rates. Estimates for annual cutting range from 50,000 m³ to 130,000 m³, corresponding to between 75 and 200 km². As only large, valuable trees are taken out, this does not reduce the forest coverage. But due to use of heavy machinery, the forests are considerably devastated. As species like rosewood provide important forage for bees, the resources for beekeeping are depleted. Local experts fear that in a few years, the forests of North-Western Province will have been completely exploited without leaving any economic benefit for the region (HTSPE, 2014).

3.5.4 Climate and climate variability

Significant parts of Zambia have suffered over the past two decades from adverse climatic effects. Since the late 1980s, total rainfall decreased slightly. This trend has been observed by several studies “showing that the country is getting drier with a North-South declining gradient” (Phiri, Moonga, Mwangase, & Chipeta, 2013, p. 11). Generally, rainfall has become more erratic. There is a trend towards later and shorter rainy seasons in many regions. In addition, the number of years with prolonged dry spells after the planting season has been increasing in recent decades. Thus, there are clear indications that rainfall variability has increased. Since the 1980s, the average summer temperature has increased across all zones during the main cropping period. Zambia, therefore, is considered to be one of the five countries in the world whose agriculture is most vulnerable to uncertainty arising from climate change (Neubert et al., 2011).

For the future, climate change models for the whole country project that total annual precipitation amounts will not change significantly through to 2100. But precipitation patterns may

change and the variability increase. In the first three months of the 7-month rainy season (October–December), precipitation levels are projected to decline. In contrast, the proportion of heavy rainfall events is projected to increase, particularly from December to May (Climate Investment Funds, 2011). For the inner country distribution, projections point to increasing rainfall for the wetter regions (including Central Province and North-Western Province) and reduced rainfall for the drier regions. For all regions, temperature scenarios predict an increase in temperature for the period 2010 to 2070 by an average of 2°C. The largest increases will be in the northern and eastern regions (Climate Investment Funds, 2011; MTENR, 2007). This will result in increased evaporation. Due to Zambia's location on a high plateau, however, "it may well be the case that Zambian temperatures could still remain tolerable despite climatic changes" (Neubert et al., 2011, p. 122). This means that, given enough water, biomass growth could be boosted by higher temperatures. Crops preferring higher temperatures could be used to adapt to the changing climate.

"In sum, it can be concluded that climate change does already have significant negative impacts on Zambian agriculture and its overall development" (Neubert et al., 2011, p. 126). Furthermore, it can be concluded from the various projections that climate variability will further increase, while water availability will decrease as a result of rising temperatures. The challenges (and new opportunities) for farmers will vary from place to place and from crop to crop. But it is more than likely that major adaptations of farming practices will be required. Thus, climate change may become a driver for rural transformation.

Effects on rural transformation

The impression of a sluggish structural transformation process of the Zambian economy (cf. section 3.1 and 3.2) going along with the evidence of a similarly restrained and unsteady migration dynamics (cf. section 3.4) is confirmed by a hesitant transformation of natural resource management systems – at least as far as agricultural and forest resources are concerned. More of Zambia's rich land, forest and water resources have been used by rapidly increasing numbers of users without major changes in the resource utilisation technology:

- Soil fertility is managed by fallow periods in the remote and sparsely populated regions or by application of small amounts of fertilizer in the densely populated agricultural zones. In some of the very remote areas (e.g. NWP) a gradual transformation from shifting cultivation to a semi-permanent cultivation system has taken place over the past five decades. The slowness of the change process can be interpreted as a result of land availability. As cultivation practices have not been adequately adjusted to increasing population densities, deterioration of soils is a widespread problem. Increasing average yield levels in maize production should not be taken as an indication that this problem is being resolved; they result from an unsustainable application of subsidized fertilizer.
- Crop cultivation relies on rain-fed agriculture with only a limited number of farmers practising improved soil and water conservation techniques (such as conservation agriculture). This is certainly a result of a situation of generally high water availability.

- The continuing dominance of hoe cultivation has been primarily a result of availability of human resources, i.e. labour availability.
- The highly ineffective methods used to make charcoal and its use as a fuel (including firewood utilisation techniques in villages) can be seen as a result of the wealth of forests in most parts of Zambia.

Altogether, the abundance of natural resources in combination with low population density in Zambia (in combination with limited increase of demand for agricultural/rural products), has allowed most resource users to use resources without raising resource use efficiency or intensifying their resource management methods or technologies. Zambia's abundance of natural resources includes the wealth of mineral resources, which reduced the dependency on agriculture-related resources.

The only major transformation in resource utilisation technology has actually taken place in the mining sector: As copper deposits were depleted or their exploitation no longer seemed to be profitable, investments were made in innovative technologies along with institutional transformations.

Despite the relative abundance of natural resources, supplies in places became outstripped by the demands of the increasing population. Especially in densely populated areas in the proximity of urban centres, the traditional extensive management practices became less and less sustainable, resulting in resource degradation and depletion. Where increasing scarcity of quality soils, water and forest resources meets with the adverse effects of climate change, resource users become more vulnerable. Such a constellation tends to create pressure but also incentives for change. The same is true regarding labour availability. Improved resource management practices tend to require higher labour inputs. Despite a growing population, labour has become a bottleneck factor for accomplishing crucial farm activities during specific periods of the cropping season.

Altogether, the ecological dynamics may become a major driver towards rural transformation in future.

3.6 Regional differentiation of dynamics

Though the country has managed to become "One Zambia", it is economically, demographically, and climatically divided into different, but interconnected zones or regions. The most relevant differences have been pointed out already in the descriptions given above, in particular for the Central and North-Western Provinces. They will be summarized in this sub-section as far as they are relevant for future structural transformation processes.

The differentiation and related zoning will be made according to the following criteria: Population density, urbanisation, income levels, access to infrastructure facilities and markets and rainfall pattern. Two major regional differentiations can be undertaken:

1. The socio-economic differentiation between the densely populated, highly urbanised, well equipped (as far as infrastructural facilities and access to services and markets is concerned) and comparatively wealthy line-of-rail Provinces on the one hand and the sparsely populated, remote, predominantly subsistence-oriented, less commercialised and poorer rural provinces on the other.
2. The climatic differentiation between the drier, partly semi-arid regions in the south of the country (agro-ecological zones I and IIb) and the wetter regions in the northern and eastern parts of the country (agro-ecological zones III and IIa).

Central Province belongs to the more central line-of-rail Provinces, while North-Western Provinces is (perhaps with the exception of the mining exclaves near Solwezi) the remotest region in Zambia according to all criteria. Both provinces belong to the high-rainfall-zone. Combining both differentiation criteria, we can distinguish four categories with different prerequisites for structural and rural transformation.

Zone A: Central/high rainfall²⁰

In this zone, market opportunities (access to urban and international markets) are comparatively favourable, while natural resources are becoming increasingly scarce. There is increasing pressure for an environmentally sustainable transformation. At the same time, there are market incentives and better access to economic and institutional resources (e.g. finance, services) for such a transformation process, provided the market and institutional conditions are favourable. Climatic conditions are not expected to form an obstacle to such a transformation process²¹. Climate change may rather work as an incentive for relevant adjustment and intensification measures. Whether the transformation process will take the path of intensification and diversification of agriculture or of a shift towards non-farm economic activities will depend on the market situation. This can only be discussed with due consideration of the influencing factors (cf. Chapter 3). In many places in Zone A, commercialisation and intensification of agriculture has already been taking place since late colonial times and is still in progress, although confronted with an unstable economic and policy environment.

Zone B: Central/low rainfall

This zone, which consists mainly of the commercial farming areas in the Southern Province, shares most of the characteristics with Zone A. The major difference is that it is a drought affected area with a high degree of exposure to risks related to climate change. Consequently, there is a particularly high pressure towards a sustainable transformation and more drought-resistant agriculture.

Zone C: Remote/high rainfall

In this zone, market opportunities are limited as local demand is low and the high transport costs tend to reduce competitiveness on external markets. In contrast, land, water and forest resources

²⁰ Including medium rainfall (800–1000 mm) with good soils.

²¹ The higher and more intensive rainfalls expected as a result of climate change may pose a problem for crops like maize.

are still available and easily accessible. Therefore, rural households in these vast and sparsely populated regions continue to depend partly on non-agricultural, mostly urban income sources within their trans-local rural-urban livelihood systems. The farming systems in those zones have experienced a modest transformation from mainly subsistence-oriented households towards increasing but fluctuating surplus production. Fluctuations correlate clearly with agricultural prices and market/service conditions. It is unlikely that these zones will experience major transformation processes unless there were a “job-miracle” in the towns and cities.

Zone D: Remote/low rainfall²²

Farming in this zone is highly vulnerable with an increasing risk of prolonged hunger periods and starvation. The options are low-cost (low external input) intensification and diversification of subsistence-oriented farming through improved water and soil conservation (perhaps combined with off-season horticulture and better livestock integration, and out-migration (including rural to rural as long as income opportunities in urban places are limited).

It is obvious that the dynamics and the path of structural transformation depend on the availability of natural resources on the one hand and on market opportunities for agricultural products and urban job opportunities on the other.

3.7 Conclusion: the sluggishness of rural transformation in Zambia

1. Considering the structural challenge of diversifying the copper-dependent economy, structural transformation in Zambia has been sluggish at best. Neither was there a broad based and dynamic development of the country's rich agricultural resources, nor were there successful approaches of creating productive and reliable income opportunities outside the agricultural sector. Even the recent period of accelerated economic growth did not result in a significant transformation of the inherited colonial resource dependent economy.
2. In agriculture, a significant trend could be observed towards increasing involvement of small-holders in market-oriented farming. This was primarily based on using more of the available agricultural land by the increasing number of labourers and partly by a selective process of intensification on the basis of high yielding varieties with mineral fertiliser application. Only the growth of the large-scale commercial farming sector in central regions can be regarded as a symptom of transformation.
3. After an attempt of import-substituting industrialisation in the two decades after independence, the period since 1990 was characterised by de-industrialisation due to lack of competitiveness within a globalising economy. The quantitative growth of low-productivity jobs in the service sector is dependent on the aggregate national demand, which is fluctuating with copper revenues and therefore highly vulnerable.

²² Off-line-of-rail areas in the south-west, Gwembe Valley, agro-ecological zone IIb in the western parts.

4. Rural-urban migration in Zambia is to a large degree part of diversified rural-urban livelihood systems rather than of a genuine and steady urbanisation trend. This reflects an insufficient development of economic opportunities, neither offering a reliable economic basis in the farming sector nor in the non-farm sectors. Households tend to divide their economic activities between vulnerable low productivity farming and non-farm activities. If at all, one can identify a negative structural transformation resulting in a move towards less productive activities.
5. With the expansion of agriculture, there was a slow transformation of natural resource management systems. More of the abundant rural natural resources were used without major and broad-based changes of resource utilisation technologies to increase efficiency. This resulted in serious soil and forest degradation, particularly in the more densely populated areas.

4 Influencing factors

In this chapter we consider the factors that have been influencing structural and rural transformation in Zambia, including factors which are expected to influence ongoing or future trends.

We have used two different approaches for identifying the influencing factors. First, factors were identified and prioritised in a participatory manner in the scenario workshop. These factors were perceived by the workshop participants (as a group of representative Zambian stakeholders at national level) as crucial influencing factors for the dynamics and direction of the future rural transformation and/or development process²³. Secondly, those factors which have played a major role for the Zambian transformation trends during the past decades were identified through field visits with focussed interviews during the USE-phase and through literature research.

4.1 Influencing factors as identified in the scenario workshop

When asked what determined rural transformation in Zambia, the participants identified a wide range of factors. These were condensed to ten particularly relevant factors by clustering and prioritising. Each of the ten factors was defined precisely in order to establish a common understanding of what was really meant (Berg et al., 2016). The results are summarized in Table 13. Six of the ten factors relate to access to productive capacities and inputs (health, skills, water, energy, inputs and finance), one is about agricultural producer prices, two reflect the performance of agricultural and other natural resource based activities (smallholders' productivity and sustainable management of natural resources), while one is a hybrid which includes skills and access as well as the level of economic activities for the specific target group of young people (youth empowerment). Obviously, agricultural development and related fields of rural production were in the centre of the focus of the participants when they identified influencing factors for rural transformation.

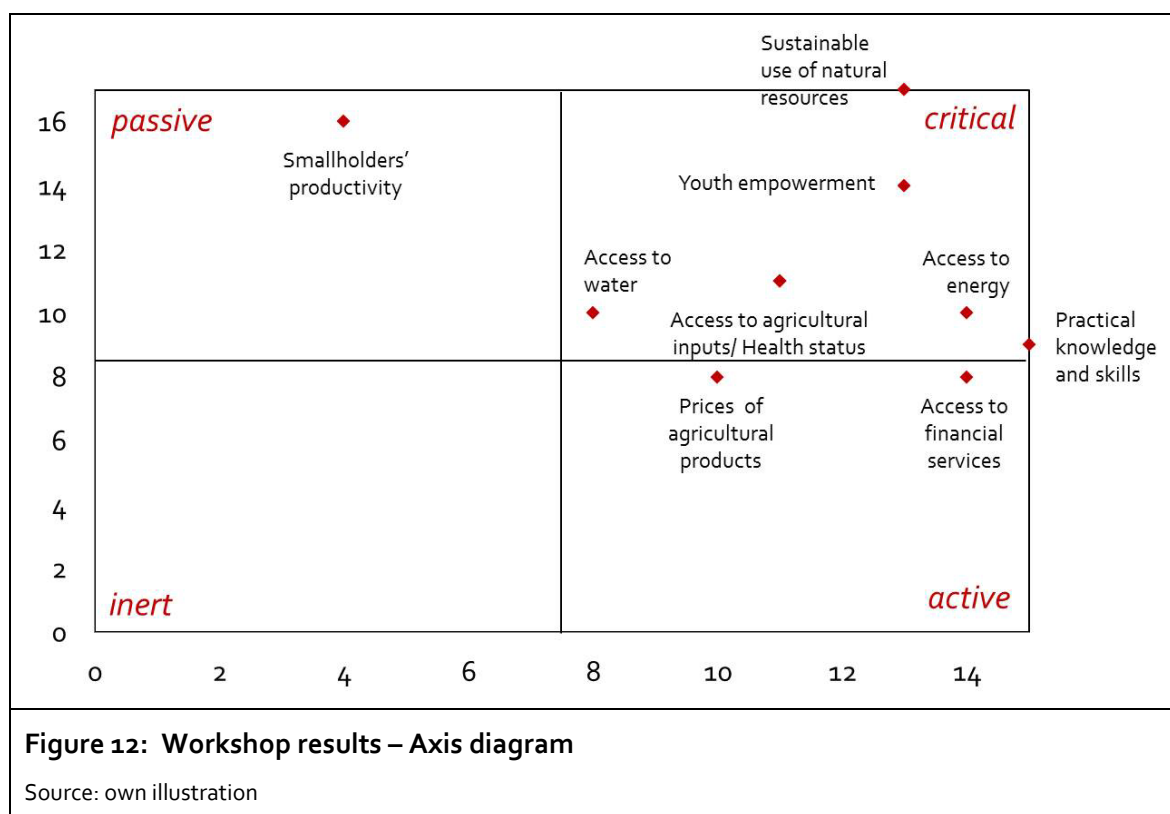
²³ Though the workshop was about rural transformation, it was not always easy to distinguish between the more general rural development agenda and the more specific issue of rural transformation. Moreover, the focus of the workshop was clearly on "rural" transformation rather than on the wider structural transformation of the national economy as a whole.

Table 13: Workshop results – Influencing factors on rural transformation in Zambia and their definition	
Influencing factor	Definition
Access to water	Availability, affordability and reliability of water for economic production including irrigation, energy, industry
Access to energy	Availability, affordability and reliability of energy for productive and domestic purposes
Prices of agricultural products	Average farm gate prices of crop, livestock and fisheries products. Average prices (money or in kind)
Access to agricultural inputs	Availability, affordability and reliability of seeds, feed, drugs, chemicals, fertilizer. (This excludes “labour” and “capital” from inputs.)
Access to financial services	Availability, affordability and reliability of credit, savings, sending, insurances
Practical knowledge and skills	Level of literacy, artisanal, technical, entrepreneurial and agricultural skills and knowledge
Health Status	Level of physical and mental well-being of people
Youth Empowerment	Opportunities to participate in the economic and social decision-making and activities of 18-35-year-old Zambians (with a focus on skills for self-employment, literacy, practical skills. It also depends on access to finance and information)
Sustainability of natural resources	Stewardship/management of natural resources in a sustainable way
Smallholders’ productivity	Unit of crop livestock and fishery production per unit of area
Source: own illustration	

The identified factors were interrelated by assessing their cause-effect relations. Participants were asked to determine which influence (none/medium/high) a factor had on each of the other factors, and how they in turn were influenced. The results can be seen in the influence matrix (cf. Table 14). Factors with a high active sum are highly influential (e.g. knowledge/skills, energy, and financial services), while factors with a high passive sum are highly dependent on other factors (e.g. sustainability of natural resource management practices and agricultural productivity). Factors with a high active score can be considered as key variables because they are highly influential. In contrast, if a factor has a low active sum it is considered to have a low influence and might be less critical as an entry point for interventions. While the low scores for water access may indicate that in most parts of the country water is still not a limiting factor for agricultural production, the low active scores for smallholders’ productivity is due to its limited influence on most of the other variables, despite the obvious influence on the sustainability of natural resource management.

Table 14: Workshop results – Influence matrix											
	Access to water	Access to energy	Prices of agr. products	Access to inputs	Access to financial services	Practical knowledge and skills	Health status	Youth empowerment	Sust. of nat. resources	Productivity	Active sum
Access to water		1	2	0	0	0	0	1	2	2	8
Access to energy	1		2	2	1	1	2	1	2	2	14
Prices of agricultural products	1	1		2	1	0	1	1	2	1	10
Access to agricultural inputs	0	0	2		0	2	1	2	2	2	11
Access to financial services	2	2	0	2		1	1	2	2	2	14
Practical knowledge and skills	2	1	1	1	2		2	2	2	2	15
Health status	1	1	0	1	1	2		2	1	2	11
Youth empowerment	1	1	0	2	2	2	2		2	1	13
Sustainability of natural resources	2	2	1	1	0	1	2	2		2	13
Small-holders' productivity	0	0	0	0	1	0	0	1	2		4
Passive Sum	10	10	8	11	8	9	11	14	17	16	
Source: own illustration											

According to the results of the influence matrix, the team decided to consider all ten factors in the axis diagram. The diagram shows that productive resources such as access to energy, finance, practical knowledge and skills are rated as more active than passive. On the other hand, productivity, and to a lesser extent sustainability of natural resources and youth empowerment, score more on the passive than active side (cf. Figure 12).



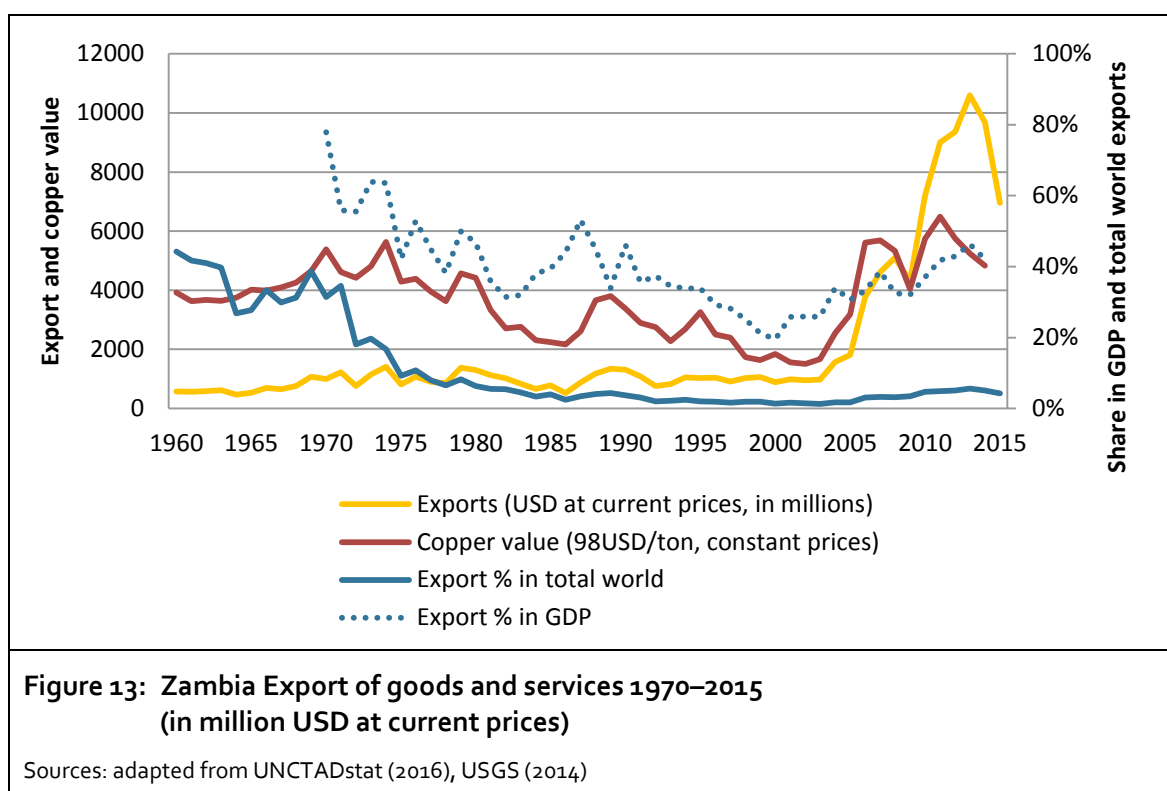
These factors will be further analysed in the following sections. It has to be taken into consideration that in the workshop, factors were clustered to reflect how they were experienced by farmers. The underlying political, institutional and global economic factors will be considered in the subsequent multi-level analysis.

4.2 Global markets: Market integration and trade dynamics

Zambia's integration in the world economy is clearly a reflection of the development of copper prices and the volume of copper exports. An increase of Zambia's share in the total world exports between 1965 and 1974 was followed by a sharp decline as a result of a drop of copper prices from 1975 onwards, with stagnation at a low level until 2002 and then a significant increase, reaching a peak in 2013. With falling copper prices, the export and import values went down again in 2014 and 2015.

While Zambia's foreign trade level is much higher than during the first copper boom phase in absolute terms (USD 7,000 in 2015 versus USD 1,400 in 1974), Zambia's share in the world economy has declined dramatically over the decades from 0.31% in 1970 to approximately 0.04% at present (2015), though it increased after bottoming out around the year 2000. This reflects the reduced relative importance of raw materials in general and of Zambian copper in particular within the world economy. The share of exports and imports in the Zambian GDP, which reflects the degree of Zambia's integration in the global economy, has remained by and large constant over the decades, at approximately one third of the GDP, with some fluctuations. This can be partly related to the fluctuations in the copper price. The recent decline of the export rate after

the copper peak in 2013 shows clearly that Zambia's economy is not characterised by a long-term trend of increasing world market integration. Instead it has always been characterised by integration as an exporter of natural resources and as an importer of manufactured products. In 2014, 80% of the export earnings were generated by copper. As a result, the Zambian economy is still extremely vulnerable, as can be seen from looking at the recent economic crisis. After the dramatic fall of copper prices 2014 and 2015, Zambia's economy is struggling again: the depreciation of the currency makes imports like fertiliser and fuel more expensive and increases the debt burden.



The export of agricultural goods has substantially increased during the past decade²⁴. But the share in total exports is still below 10%. Major agricultural export products are maize, sugar, tobacco, and cotton. Since 2010 Zambia has become a maize surplus country. Maize exports, however, fluctuate strongly year by year depending on the rainfall conditions in Zambia and its neighbours (ITC, 2016). Maize, sugar and most of the cotton goes to other countries within the region (Zimbabwe, Malawi, and South Africa). The export values of horticulture and animal products are well below 10% of agricultural exports and below 1% of total exports.

The share of manufactured exports is still negligible. Nearly all agricultural exports, among them tobacco and cotton, cross the Zambian border as raw materials.

²⁴ %-figures do not adequately reflect the steady increase of exports as they are distorted by the strong fluctuations of the copper exports.

Table 15: Exports of selected goods, 1995–2014 (in % of total merchandise exports)					
	1995	2000	2005	2010	2014
Ores & metals (%)	86.5	65.5	62.8	82.7	76.9
Vegetables (%)	0.9	6.6	4.9	1.5	2.3
Food products (%)	2.0	4.7	8.7	4.4	5.1
Food, total (%)	2.7	9.4	13.2	5.9	7.3
Agricultural raw materials (%)	0.6	4.4	5.6	1.0	1.5
Source: adapted from World Bank (2017)					

In contrast, manufactured products still make up the largest share of commodity imports. This includes most of the industrial consumer goods like vehicles, electronics and textiles as well as machinery, equipment and trucks for the mining and construction sector.

Table 16: Imports of selected goods, 1995–2014 (in % of total merchandise imports)					
	1995	2000	2005	2010	2014
Animals (%)	0.4	0.6	0.5	0.6	1.3
Vegetables (%)	8.0	5.4	4.5	2.5	1.9
Food products (%)	1.9	2.5	1.4	1.9	1.9
Food Total (%)	9.9	8.1	6.0	4.7	4.8
Manufactured goods (%)	72.3	72.6	78.1	61.6	63.2
Fuel (%)	13.2	12.2	10.5	11.6	14.1
Source: adapted from World Bank (2017)					

Looking closer at the food sector, Zambia's maize production programmes have managed to make the country self-sufficient in the main staple food, but other imports such as beef and milk have increased, especially after the year 2000 (cf. Table 16)²⁵. The majority of imports of manufactured food products, but as well of fresh fruits and vegetables are supplied by South Africa (ITC, 2016). In 2014, the Zambia National Farmers Union (ZNFU) complained that imports of milk and beef were flooding the domestic markets (legally and illegally) and called for market regulation to protect national producers (ZNFU, 2014). The growing import quantities reflect the increasing demand of the urban population for higher value food products, but also the dominance of South African supermarkets throughout the urban Zambian wholesale and retail sector, favouring South African food products along the value chains. Facing the competition of well-

²⁵ The import statistics are distorted by strongly changing imports of copper from neighbouring DR Congo for re-export which made up 2-3% in 1995, 2000 and 2005, but 21% in 2010 and 17% in 2014.

established South African brands for dairy products and processed food items, it is extremely difficult for Zambian producers within the Southern African Development Community (SADC) free trade zone to get into the domestic markets. It seems to be easier to gain a higher share for Zambia's agricultural raw materials in regional and global markets, than to get access to Zambian urban markets for high value food products.

Effects of international markets on rural transformation

The major single influencing factor for the performance and the direction of the Zambian economy is still the world market price for copper. Like in many other resource based sub-Saharan economies, this is a constraining factor for the transformation of the economy. During phases of high copper prices (e.g. 1965–1974 and 2003–2013) there was an economic boom and nobody felt a need to diversify the economy. Moreover, the exchange rate of the Zambian Kwacha increased with the consequence that imported commodities became cheaper and non-mineral export products became more expensive and thus less competitive on international markets. But when copper prices were low, the necessity of diversification and structural transformation was generally recognised and the exchange rate became more favourable for local producers. In such phases of economic crisis there were not enough resources available to support transformation processes, e.g. by promotion of diversified and intensified sustainable farming practices for smallholders. Thus, structural transformation in Zambia is constrained by the country's dependence on copper world markets, which can be interpreted as a trap of self-perpetuating structures.

The escape from that trap is blocked by the competitive advantages of South African food products, reinforced by the control of the value chains by South African supermarket companies in the absence of political options to protect emerging local producers.

Opportunities for diversification of the economy in the field of promotion of non-traditional export products like honey, flowers or horticulture products and the development of value chains with a higher local value addition need to be further explored. Whether or not Zambia (and other sub-Saharan countries) will get a chance of taking over labour-intensive manufacturing industries (like production of textiles) from China and other Asian countries within the foreseeable future, remains to be seen.

Escaping from the trap of a colonial-type resource based economy is not only a question of global market mechanisms, enforced international trade policies, and unequal power relations in the governance of international value chains, but also a question of how the government uses the political space available to them. This will be dealt with in the following section.

4.3 Political and institutional framework and important policies for the rural society

Policies and institutions are considered as crucial framework conditions for social and economic development dynamics in general. They can facilitate or prevent structural changes. So we can assume that Zambian governments and state institutions play a central role for the dynamics and direction of structural transformation. So far, it has become evident, that structural transformation in Zambia is about a diversification of the mineral-based Zambian economy. Furthermore, it became clear that there is a good potential for agricultural and rural development as one possible path of diversification. Moreover, there is a necessity to create productive and safe income and employment opportunities outside agriculture – as far as this is possible and feasible within the competitive global market environment. But what policies and which institutions are relevant for such a diversification process based on rural development and promotion of non-agricultural economic opportunities?

The scenario workshop identified some of the most crucial factors for rural development. These are facilities and services (provision of skills and knowledge, health, productive inputs, finance, water and electricity) and producer prices aiming at increased productivity, sustainable natural resource management and youth empowerment/employment. All these facilities and services as well as the producer prices are to a greater or lesser degree subject to government policies and the performance of government institutions:

- The quality of public services and facilities in general is assumed to depend on democratic accountability of state agencies towards the citizens as service users. Consequently, **democratic governance** is to be considered as a major influencing factor on the right policies and effective services required for any transformation processes (cf. 4.3.1).
- The quality, effectiveness and the social inclusiveness of services is subject to the institutional arrangements for service provision. There is some controversy about the advantages and disadvantages of **public or private service providers**. This goes along with the debate on superiority of **state-determined versus market-regulated** setting of producer (and input) prices. Zambia has undergone institutional transformation process from a state-regulated economy to a privatised and market-regulated one (and half-way back). It remains to be analysed in how far these institutional transformations have had an impact on socio-economic transformation processes (cf. 4.3.2).
- Another institutional transformation which may influence service delivery is the **decentralisation** policy. In how far has decentralised provision of public services promoted or prevented transformation dynamics, especially in rural areas (cf. 4.3.3)?
- Agricultural producer prices and the competitive environment for non-farm income opportunities and value-chain development are to a high degree subject to the government's **trade policies**. In how far have Zambian trade policies made use of the (limited) policy space left by the global economic environment (cf. 4.3.4)?
- The way the **access to land and water** is regulated is crucial for the dynamics, the inclusiveness and the sustainability of transformation processes (cf. 4.3.5).

- Services depend **on sectoral policies**: Agricultural (cf. 4.3.6), forestry (cf. 4.3.7), industrial and others (cf. 4.3.8). Electricity and transport will be dealt with under infrastructure (cf. 4.4).
- Prices, service conditions and thus rural transformation depend on how **farmers are organised** (cf. 4.3.8).
- **Policies need to be implemented** effectively in order to show impact (cf. 4.3.9).

4.3.1 Democratic governance

A few years after gaining independence in 1964, President Kaunda established a single party system (1969) with the president as head of state, head of government and head of the party. Kaunda believed in a state controlled planned economy (BST, 2006). In the 1980s, pressures rose because of an economic crisis and Kaunda paved the way to a multi-party system. In 1991, a new constitution was enacted followed by the first free elections in Zambia, which were won by the leader of the opposition party (Movement for Multiparty Democracy, MMD), Frederick Chiluba. Since then, Zambia has had six democratic elections, resulting in two peaceful changes of power. While all Zambian governments have managed to maintain peace and stability in the multi-ethnic country, they were not successful in promoting structural change through diversification of the economy. Governments tend to gain popular support by short-sighted populist policies (such as fertiliser subsidies or provision of infrastructure facilities before elections) rather than engaging in complicated long-term ventures such as a restructuring the economy under difficult and partly unfair global market conditions.

4.3.2 Privatisation and deregulation

With the transformation to a multi-party system and the change in government in 1991, the process of transformation of the economic system into a market-regulated system began, along with the privatisation of state-owned companies. As a result of indebtedness and in order to combat a serious economic crisis, the International Monetary Fund and World Bank urged the government to implement economic “structural adjustment” reforms. These included the privatisation of the copper mines, and of the manufacturing, trading, transport and communication sectors (BST, 2006, p. 3) including agricultural services and marketing. These reforms were not only expected to reduce state monopolistic powers but also to make the state more effective by reducing the wide range of responsibilities. The longer-term aim of the reforms was to mobilise private sector initiatives and thereby to facilitate processes of dynamic change.

The most far-reaching change has taken place as a result of the privatisation of the copper industry. Foreign private investors who took over the mining sector modernised the mining technology and set the basis for opening new deposits and regaining global competitiveness of the Zambian copper which, together with the copper price hike during the past decade was one crucial prerequisite for the recent copper boom. This resulted in a period of high economic growth rates but not in a structural transformation of the Zambian resource biased economy. Moreover, the Zambian state had to pay a high price for attracting investors during a period of low copper prices in the late 1990s: Investors insisted on exemption from revenue-based fees and taxes and on liberal rules for the repatriation of profits. As a result, the state’s share in the economic growth

was very limited while the employment in the mining sector decreased as a result of modern technologies and due to the need to increase efficiency.

The privatisation of manufacturing industries in combination with reduction of import tariffs resulted in a process of de-industrialisation and the loss of ten-thousands of industrial jobs. In contrast, the privatisation of trade, transport, communication and services contributed not only to a significantly improved supply of commodities and services, but also to expanding employment in those sectors (cf. section 3.3). Deregulation of agricultural markets and privatisation of agro-services remained controversial issues. After it became obvious that – due to high transaction costs – the private sector was not keen on dealing with the masses of small-scale farmers in the more remote rural parts of the country, thus leaving them in a service vacuum, the government started re-establishing state-managed agro services at least for staple food production (cf. section 4.3.6).

Altogether, the market forces tended to consolidate and optimise the resource and consumer services oriented economic structure rather than transforming it. “We have become a nation of traders”, complained a Zambian politician in 2015 (anonymous interview).

4.3.3 Decentralisation

Decentralization of public administration and government functions has been part of Zambian policies since 1968. Further decentralization policies were adopted in 1980 and 1993, along with a public sector reform (UCLG, n.d., p. III). Along with Local Governments it is set out in the constitution, the Local Government Act and the National Decentralisation Policy approved in 2013 (Ministry of Local Government and Housing, 2015a). While there are democratically elected local councils with planning and coordination powers towards deconcentrated national government departments since 1991, those were never provided with the necessary financial resources to fulfil their responsibilities. Without the necessary resources, it is difficult for the local governments to meet their statutory functions and obligations. In response to that, one of the most recent developments within the decentralization process is the establishment of a Local Government Equalization Fund (LGEF) in 2015. The government proposed the fund to provide a sustainable source of financing for local government services, to attract investments and sustain qualified human resources (Republic of Zambia, 2013). However, in mid-2015 the LGEF was not yet fully operational and impacts on the districts remain to be seen (IMF, 2015, p. 31).

During the past two decades, decentralisation has been a stop-and-go process. Again and again decentralisation policy papers were drafted with the support of donor agencies without being implemented (YEZI Consulting, 2013, p. 46). A recent assessment study found that Zambia has in fact seen a centralisation of powers over the past three decades (UN HABITAT, 2012). At present a total of 13 ministries and the Office of the Vice President are in the process of devolving some important functions to Local Government (Ministry of Local Government and Housing, 2015a), among them the Department of Agriculture. As line departments are reluctant to devolve functions and the government as a whole lacks political will to really push decentralisation, it remains to be seen whether this new attempt will be successful (Mfune, 2013, p. 64).

As decentralisation policies have not been consequently implemented, local governments in Zambia were never in a position to shape the system of service delivery and thereby to play a relevant role in influencing the process of structural transformation in the country.

4.3.4 Trade policy

Zambia has signed various trade related agreements. In 1995, Zambia became a member of the World Trade Organisation (WTO) and since then has substantially reduced tariffs on trade. According to the Zambian National Farmers Union (ZNFU), tariffs have since then been reduced by 70-80%. Besides fostering international trade, the abolishment of tariffs has had a substantial impact on government revenues.

As a member of the Southern African Development Community (SADC), which introduced a free trade zone in 2008 (with a further transition period until 2012), nearly all trade within this union (except Angola, Democratic Republic of Congo (DRC) and Seychelles) is exempted from tariffs on goods and services (Sandrey, 2013). In Zambia, the only exception is fuel and for some years, a tariff was imposed on wheat imports to promote wheat production within Zambia (Interview No. 82). Nevertheless, there are still some agreements concerning regional integration (finance, free movement of persons etc.) which have not yet been implemented. Bilateral trade agreements with DRC and Angola are on-going. So far most of the trade with DRC and Angola is still informal cross-border trade. The reluctant implementation of trade agreements, together with non-tariff-barriers such as import and export licenses, are still hindering free trade of goods and services and the creation of a fully integrated common market in that area (Munyuki, 2011). A new trade agreement with SADC, the Common Market for Eastern and Southern Africa (COMESA) and the East African Community (EAC) is under negotiation in order to create a bigger free trade market, which has not been agreed on yet.

SADC and the European Union (EU) signed an Economic Partnership Agreement (EPA) in June 2016 to foster trade relations between these two regions. But Zambia together with the Democratic Republic of Congo, Madagascar, Malawi, Mauritius, and Zimbabwe did not sign up to this agreement. They are negotiating an Economic Partnership Agreement with the EU as part of COMESA. Zambia may wish to defend its farmers and emerging processing industries (e.g. meat and dairy production) against imports from the EU, or at least to extend the adaptation period for Zambian farmers²⁶.

Zambia faces the challenge of avoiding illegal imports. According to ZNFU, it is not known whether imports from the EU are legal or illegal, e.g. whether the tariff of 25% on milk products is paid or not. The problem here is the free SADC market, which allows the import of products via South Africa, creating additional competition for Zambian farmers (Interview No. 82). Many industrial products from Asian countries (especially textiles and clothing from China and electronic consumer goods from South Korea and China) seem to by-pass Zambian tariffs via DR Congo, Tanzania and Kenya according to Zambian import statistics.

²⁶ In 2015 only 5% of agricultural imports and 3.5% of food products were imported directly from Europe. By far the greatest share (76% of food products) came from South Africa. In how far European products were imported via South Africa or Kenya could not be established (World Bank, 2017).

Looking at effects of Zambian trade policies on structural transformation processes within the country, a closer look into Zambian import statistics reveals that South African duty-free imports of food products are probably the most important single factor preventing a diversification of Zambian economy based on available local resources (e.g. for dairy products, processed fruits and vegetables, edible oils, processed cereals, furniture) and oriented towards the fast growing urban domestic market). It remains to be seen how far other value chains (e.g. for processing of cotton, or leather products) could be further developed with a perspective of becoming competitive, if Zambian government would make more effective use of its trade policy space. It is quite obvious, however, that regional trade agreements which include an industrially advanced country are not necessarily conducive for structural transformation of countries which want to overcome their dependence on primary products.

4.3.5 Land tenure

Zambia is considered a land-abundant country (cf. section 3.5), where everybody still has the possibility to gain access to more or less suitable and favourably located farm land, but land is in increasingly high demand. Regulation of and access to land decides whether farmers can expand their field sizes or new farmers can establish themselves. Furthermore, the rules for a rural land market decide about social inclusiveness of land access in future, in particular in the relatively densely populated and centrally located areas. At the same time, the nature of land rights will increasingly influence the sustainability of farming practices. Thus, land rights can provide incentives for intensification and transformation of agriculture and can be used to force the poorer and marginalised smallholders off the land and out of agriculture. So land rights may become a crucial influencing factor for rural transformation.

In Zambia, the dual land tenure system in the form of state and customary land – as in many other African countries – is administered by central government and traditional authorities respectively. In contrast to customary land titles, state land and related leasehold titles can be marketed. The Land Act of 1995 recognized the dual system and authorizes the conversion from customary to leasehold tenure for a maximum of 99 years.

Around 60% of Zambia's population live on customary land covering approximately 90% of the total land, while 40% live on leasehold tenure covering 10% of the area. While the majority of leaseholds are held in towns and peri-urban areas, and are used also for industrial purposes and commercial agriculture, most of the customary land is located in remoter, less favourable areas²⁷. Land administration in customary areas is a prime responsibility of traditional leaders. They allocate land use rights to small-scale farmers. These rights are usually of a long-term nature and can often be inherited, but they cannot be sold. Consequently, members of rural farming communities can usually not become landless. Even if they have been in towns for a long time, they can reactivate their land rights when they come back to their rural home areas.

27 Sitko and Chamberlin (2016, p. 54) have calculated that 69% of customary land is located more than 6 hours away from an urban centre (more than 20,000 inhabitants), resulting in high transaction costs, i.e. making access to inputs and marketing more difficult for small-scale farmers.

However, since the enactment of the Land Act of 1995, Zambia has experienced a shift in distribution and a rush to gain leasehold land titles (Harasty, Kwong, & Ronnas, 2015, p. 12). As rural households tend to cluster in areas with good market access and good agro-ecological conditions (ibid), the highest land pressure was felt in locations close to urban areas (Chapoto & Zulu-Mbata, 2016). There, land conversions for agricultural purpose from customary to leasehold tenure have increased considerably. As the process of attaining formal leasehold titles is very time and resource consuming, it is usually the better-off urban population that engage in this process (Sitko & Jayne, 2014, p. 196). So far, this has excluded the majority of rural households from formally secured land titles²⁸. As a result, land in productive areas especially in peri-urban areas and with good access to infrastructure has become scarce with land speculation²⁹ also being an issue (Sitko & Chamberlin, 2016; USAID, n.d.). Here, rural households on customary tenure are starting to be pushed into migration into towns, to less favourable areas or even into forests or land reserves (Black et al., 2006; Sitko & Chamberlin, 2016)³⁰.

As an attempt to resolve these problems, a new Draft Land Policy was issued in October 2015 (MLNREP, 2015). The major aim of the new policy is to go for a unified approach towards land management by fully recognising land rights arising from customary tenure. This implies a legal recognition of customary land rights combined with their formalisation. Customary lands shall be managed through a multi-stakeholder approach including local communities, traditional authorities and state land administration. This tends to limit the rights of the chiefs as custodians of the land. Land use planning principles shall be applied throughout the country, including customary lands. Individual land rights will be made transferable (MLNREP, 2015, p. 17 ff).

Regarding structural transformation, there is a clear trend towards acquisition of formal leasehold titles in central, densely populated and semi-urban areas of Zambia. This trend is being reinforced by the new land rights. Whether the formalisation of land titles will be used as a basis for rural transformation by increasing the proportion of land used in an intensified and commercial manner or whether it will be used for non-agricultural purposes (e.g. dwellings) will depend on other influencing factors like agricultural prices. The same is true regarding enforced evictions of smallholders in the process of privatisation of land in the densely-populated regions. It is the market opportunities for agricultural and non-farm activities which decide whether those evicted will search for farmland elsewhere or for jobs in town.

28 Experts from Northwestern Province have observed smallholder farmers starting to procure formal land titles. This strategy is closely linked to long-term migration to more favourable land. Because of low incidences, this does not constitute a trend at this moment.

29 The 1995 Land Act provides a conducive environment for land speculations as it allows investors to acquire formal land titles and to leave the land idle. Before this Land Act came into force, such behaviour was punished. Therefore, the number of absentee owners, waiting for the right moment to sell or develop their land has increased over the past twenty years (ibid). This also at least partly explains the upsurge of emerging and commercial farmers (cf. section 3.2).

30 No recent empirical studies have examined the relationship between land distribution and food/nutrition security. Therefore only vague assumptions can be made. Whether or not national food security or specific availability is affected strongly depends on whether or not formally titled land is used productively. On the other hand, household food security is negatively affected if rural households have to be resettled, maybe to less favourable areas or if agricultural practices (e.g. shifting cultivation) is increasingly restricted, thus affecting productivity levels.

4.3.6 Agricultural policies

Agricultural policies are not the only important tools for the government to influence rural transformation, but probably the most important ones. All its different elements such as land policy, agricultural services, agricultural price policy and subsidies etc. have an impact on the profitability, social inclusiveness and sustainability of agriculture and thus also on the transformation processes. Through incentives or disincentives, they influence the crops grown, the productivity achieved, the farming and marketing systems and the investments taken into agriculture etc. So most of the crucial influencing factors identified during the scenario workshop (cf. section 4.1) are strongly influenced by agricultural policies.

Zambian agricultural policies have changed over time. During the 1970s and 1980s most agro-services, including research, extension, input supply, credit and marketing, were provided by government or parastatal agencies at government fixed prices. While in the 1970s only the upper strata of the small-scale farmers ("emergent farmers") were addressed, the target group was extended to a much wider group of subsistence farmers in the 1980s with the assistance of donor-funded Integrated Rural Development Programmes (IRDPs)³¹. Already during that period, the government support was strongly focussed on maize production, aiming at staple food self-sufficiency of the country and provision of staple food at affordable prices. From 1991 onwards, government and donor support to agriculture and rural development was sharply reduced. Most agro-services were privatised and there was almost no support for small-scale farmers during the 1990s.

During the past decade, public support to agriculture was revitalised as a result of the Comprehensive Africa Agriculture Development Programme (CAADP)-initiative of SADC. In line with the CAADP agreement of 2004, the Zambian government has committed itself to spending 10% of its total government budgetary resources on agriculture. In fact, the budget allocation to agriculture rose from 3.2% in 2012 to nearly 9% in 2015 (Chapoto, 2014, p. 37). That makes Zambia to one of the top 10 countries in agriculture spending as a share of government expenditure (FAO, n.d.). Nevertheless, the actual amounts available for the promotion of agriculture continue to fluctuate considerably along with state revenues.

The most important governmental agricultural programmes are the Farmer Input Supply Programme (FISP) and the purchase policy of the Food Reserve Agency (FRA), both concentrating on maize as the most important staple food crop in Zambia³². On average over recent years, these two programmes accounted for roughly 70% of the agricultural budget (Interview No. 90), and in 2010 these expenditures made up even 90% of the agriculture budget, leaving little room for investments in research, extension or other agriculture programmes (Tembo & Sitko, 2013, p. 15).

³¹ One of these IRDPs, the IRDP in NWP was supported by German Development Cooperation from 1977 to 1990.

³² Agricultural extension is dealt with under "skills development" in Section 4.5.

4.3.6.1 Farmer Input Supply Programme (FISP)

The Farmer Input Supply Programme (FISP) was introduced in 2001 under the name Fertiliser Supply Programme (FSP)³³. Under this programme farmers received subsidized input packages (400 kg fertiliser and 20 kg maize seeds per farmer, corresponding to the recommended quantities for 1 ha of maize) in order to increase agricultural production. In 2009, the name and extent of the programme changed: The programme was renamed FISP and the package was reduced by half (200 kg of fertiliser and 10 kg of maize seeds). The idea was to use the inputs more efficiently and to increase the number of beneficiaries by including those with smaller cash crop areas of 0.5 ha.

As can be seen in Table 17, the number of the target population and the quantities of subsidised fertiliser has increased significantly over time. Especially the reduction of package per household led to a sharp increase in the number of beneficiaries, hence, leading to less quantity per hectare³⁴. Nevertheless, there is a huge gap between targeted and effectively reached smallholders.

According to Kuteya et al. (2016, p. 15), FISP reached nearly 441,000 smallholder households in the 2013/14 agricultural season. With perfect targeting, this would be roughly 38% of all smallholder households cultivating between 0.5 and 5 ha of land, thus fulfilling the prime eligibility criteria. However, targeting is not perfect and a large number of non-eligible households (less than 0.5 ha and more than 5 ha) access FISP. There is also evidence that larger farmers access comparably larger quantities of subsidised inputs. Kuteya et al. (2016) calculates that non-poor households received on average close to 150 kg of fertilizer from FISP, while the extremely poor households only received one third of this amount.

FISP is part of the agricultural sector poverty reduction programmes. Initially, the programme was targeting smallholder farmers growing between 1 and 5 hectares of maize able to pay a share of the input costs. The subsidy level increased over the years from 50% in 2002/03 to 79% in 2012/13, but was reduced back to 50% in 2013/14 (Kuteya, Sitko, Chapoto, & Malawo, 2016) while the target group was extended to those farmers with a cash crop area of 0.5 ha. So, farmers currently have to pay only 50% of the market price. Participants of the programme need to be a member of a farmer's cooperative and must not be beneficiaries of another government subsidy programme (Mason & Jayne, 2012).

Realising that FISP's exclusive focus on maize production has some negative side effects such as the loss in soil fertility because of mono-cropping and erosion, the government included other crops in their programme. In the 2010/11 agricultural year, rice packages were included, in 2012/13 also sorghum and groundnut packs, and in 2015/16 an even wider range of crops including sunflower, beans and soy beans. Nevertheless, FISP is still confronted with criticism such as "late delivery of inputs, distribution of standardized inputs that might not be appropriate for all agro-ecological zones or soil types, crowding out of private sector, poor targeting, and high cost of government treasury" (Sitko, Bwalya, Kamwanga, & Wamulume, 2012, p. 1; Neubert et al., 2011).

33 Fertilizer support programmes have existed for a longer time in Zambia. During the 1980s farmers received subsidized farm inputs on a credit basis. From 1997/98 until 2001/02 the fertilizer credit programme was in place. Volume and number of targeted beneficiaries have systematically increased over time.

34 The aim of the programme is to target the subsidies on the poor by limiting the subsidized amount to the quantity required for 0.5 ha (which roughly corresponds to the maize cash crop area of the average smallholder). Farmers with a higher acreage, rather than buying fertilizer on the market, tended to reduce amounts applied per ha.

Table 17: Fertilizer subsidy programme beneficiaries and quantities distributed according to official Ministry of Agriculture and Livestock (MAL) records vs. nationally representative surveys of smallholder farm households (2001/02–2014/15)

Year	Allocated amount of subsidised fertiliser (in MT) according to MAL	No. of intended beneficiaries according to MAL	Received amount of fertiliser (in MT) by smallholder households according to household survey	No. of actual beneficiary smallholder households acc. to household survey
2002/2003	48,000	120,000	31,722	102,113
2003/2004	60,000	150,000	33,372	101,139
2004/2005	46,000	115,000	16,792	64,854
2005/2006	50,000	125,000	23,595	74,040
2006/2007	84,000	210,000	58,404	164,229
2007/2008	50,000	125,000	43,596	140,612
2008/2009	80,000	200,000	55,114	192,860
2009/2010	100,000	500,000	69,103	292,685
2010/2011	178,000	891,500	116,116	430,141
2011/2012	182,454	914,670	108,275	422,393
2012/2013	183,634	877,000	33,657	122,533
2013/2014	188,312	900,000	115,341	440,810
2014/2015	208,236	1,000,000	-	-

Source: adapted from Kuteya et al. (2016), Mason, Jayne & Mofya-Mukuka (2013, p. 616)

Because of these critics, the government is currently testing an e-voucher system in 13 districts to increase the efficiency of FISP. The e-voucher system is based on a web application for delivery and tracking to distribute subsidised products via private suppliers to the recipient farmer. It allows broadening the range of subsidised products and is strengthening the private sector (suppliers, seed producers) which has been neglected by FISP. It also could help to reduce the delay in delivery and the cost for the whole administration process. A further benefit of the e-voucher is the empowerment of farmers: With the e-voucher it is the farmer who decides (within a range of subsidised crops) what to grow, as far as other seeds are available and a market for other products exists. On the other hand, beneficiaries need a mobile phone and a bank account to participate, which is a potential barrier for most of the smaller farmers. The Indaba Agricultural Policy Research Institute (IAPRI) concluded after an analysis of existing systems in Zambia, that e-vouchers might be able to overcome many of the problems of the current distribution system (including corruption), especially in high potential and easily accessible agricultural regions. Whether or not the private sector will be able to fulfil the expected role for the masses of marginal smallholders in the more remote rural regions is questionable considering the experience with privatisation of agricultural services in the 1990s (Sitko et al., 2012).

4.3.6.2 Purchasing policy of the Food Reserve Agency

The idea of the Food Reserve Agency (FRA) intervention is to assure the national food security by securing the availability of maize during all months of the year by buying a strategic reserve of 500,000 MT per year. Another objective is to stabilise the maize prices for producers as well as consumers. With this purchase programme, the government assures a market for smallholders even in remote areas providing cash income and reducing the volatility of the maize price. Generally, maize is bought by FRA above the market price. The provision of a market and being a reliable source of cash income is making FRA so important for farmers who have barely an alternative to get cash money. That is, why FISP has to be seen in the context of the purchase policy of the FRA.

On the other hand, the instrument has been politicised. The government has exceeded the quantity of purchased maize in many years over the limit of 500,000 MT. Consequently, the budget allocation to FRA increased and less money was available for other important agricultural services such as research in the field of sustainable farming practices. Another problem was that farmers were paid late, thereby reducing their capacity to buy inputs in time for the next season.

Despite these problems, maize production has more than doubled since 2005, making the country self-sufficient in staple foods³⁵, while the proportion of small-scale farmers engaged in market-oriented production has quadrupled over that period. So, agricultural policy has proved to be a decisive factor for the attractiveness and feasibility of agricultural market-oriented production. During the past few years, agricultural policy has been directed towards expansion of production rather than towards structural transformation. Depending on the direction of promotion, agricultural policies, however, can play a crucial role for structural transformation as well.

4.3.7 Forest governance

Forest governance in Zambia has always been characterised by the lack of a clear policy and legal framework, lack of political will and administrative capacity for policy and law enforcement and dispersed and unclear institutional responsibilities. A new forest policy in 1998 foresaw a revision of the Forestry Act aiming at decentralizing forest management. In the end, the policy was never implemented (Leventon, Kalaba, Dyer, Stringer, & Dougill, 2014, p. 12). It took until 2015 to get a new Forest Act adopted. This promotes and enhances the decentralised and participatory management of natural resources. The provisions for Community Forest Management, Joint Forest Management and Private Forests are supposed to overcome the lack of capacity of the governmental institutions and to encourage better local control. As this act is only starting to be implemented, results remain to be seen.

For a long time, the forest sector had been considered as a low priority in Zambia. In a restructuring process of the forestry sector, all field extension workers were laid off after 1997. Since then, local management and regulation of resources has been lacking. Applications for timber exploitation must be filed centrally in Lusaka. This lack of local control along with some corruption has encouraged uncontrolled exploitation of valuable forest resources (cf. 3.5). With emerging issues

³⁵ The high rate of undernutrition and its possible causes are dealt with in 4.1.

such as climate change, carbon trading and the energy crisis, however, the sector has started to gain importance and receive greater international attention.

Coordination of policy implementation remains a problem. The responsibility for the management of natural resources is dispersed amongst at least ten line ministries and oriented along more than 20 international treaties and various acts of Parliament. This spread of laws together with stretched human resources leads to a lack of consistency in implementation and enforcement of laws (Sekeleti, 2011, p. 17). Charcoal production, one of the main drivers for deforestation, faces a similarly complex institutional system with overlapping mandates of different government bodies (Matakala et al., 2015, p. 20). While the programme on reducing emissions from deforestation and forest degradation (REDD+) tackles the lack of intersectoral coordination between the forest sector and related ones at national level, it has not yet trickled down to the district and local level (Kalaba, 2016, p. 43).

Altogether, forest governance has not managed to ensure a sustainable management of Zambia's rich forest resources so far, and has failed to prevent the unrestricted commercial exploitation of natural resources. It has not been directed towards local value-addition to produce a more diversified rural economy. Consequently it has not contributed to a structural transformation of the rural economy.

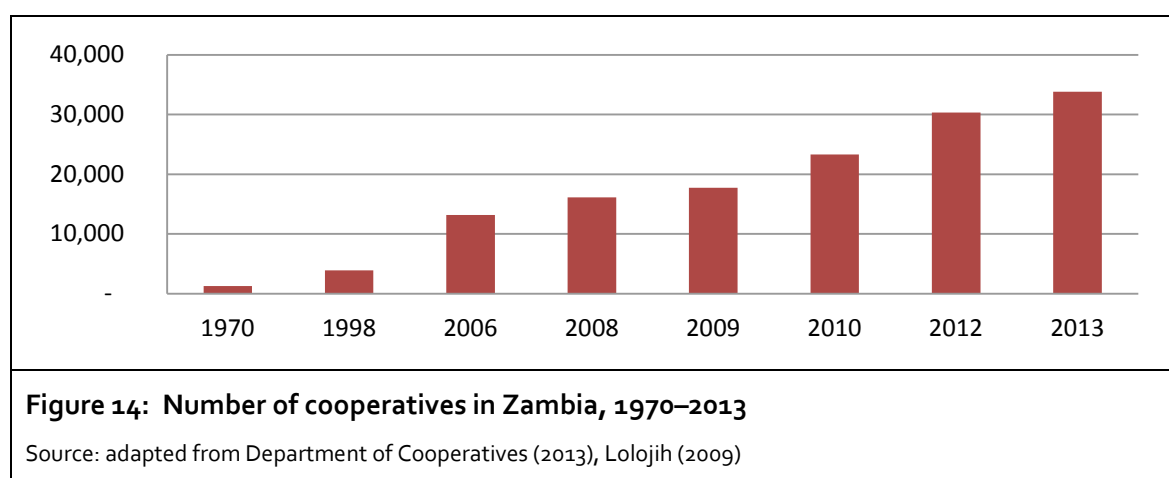
4.3.8 The role of agricultural cooperatives

In Zambia, the formal cooperative landscape consists primarily of agriculture-related organisations. The role of these cooperatives has been an ambiguous one throughout Zambian post-independence history. On the one hand, they were supposed to be genuine self-help organisations doing joint business operations (like milling) or services (like tractor-hire services) for the benefit of their members. On the other hand, they were used as an agricultural service providing organisation for all smallholder farmers, members and non-members, by the government, being provided with the mandate of monopolistic crop marketing and input supply organisation. During the 1970s and 1980s, Zambian cooperatives controlled more than 90% of the agricultural services through their provincial cooperative unions. They were highly protected and government-dependent. They did not adhere to core principles of cooperatives and they also lacked an entrepreneurial orientation. As private rural markets in Zambia for inputs, outputs and financial products were considered imperfect and constrained by high transaction costs, the prime objective of agriculture cooperatives was (and still is) to provide organised small-scale farmers with cost-effective access to markets and services (Sitko & Chamberlin, 2016, p. 55). The performance of the cooperative sector affects rural transformation because it is a key factor for a reliable and rewarding market integration of the majority of small-scale farmers.

Institutional changes during the 1990s affected the "rules of the game" for the cooperative movement as a whole. In an effort to liberalize markets and trade, the government passed the Cooperative Societies Act of 1998, which withdrew the mandate of a state marketing agent from the cooperative sector, and cancelled direct government and donor support. Instead the government's role was restricted to providing an enabling environment for a self-determined cooperative movement. As a result, agricultural cooperatives had not only lost their market monopoly, but failed to deliver services to their members such as inputs on credit-basis. In the perception

of their members, the majority of cooperatives had lost their relevance. Consequently, a great number of cooperatives had collapsed by the end of the 1990s.

The revival of cooperatives is a result of the re-engagement of Zambian Government in agricultural marketing and input supply through FISP and FRA during the last decade (cf. subsection 4.3.6). In an attempt to ensure proper management of the distribution of subsidised fertiliser and the purchase of maize for FRA and to revamp the cooperative sector, the government made it obligatory for subsidy beneficiaries to prove cooperative membership. This resulted in an upsurge of newly registered cooperatives (cf. Figure 14). Between 1998 and 2015, the number of registered cooperatives increased from 3,000 to 37,000.



The majority of them can be considered opportunistic cooperatives, whose existence is merely to access public subsidies like FISP. There are hardly genuine and business-oriented cooperatives in the agricultural sector that provide services which go beyond FISP. Consequently, cooperative performance is considered to be weak and very FISP-centred; members have little trust in their organizations (Lolojih, 2009, p. 6).

Not everyone wanting to get access to FISP has the opportunity to join a cooperative. Recent figures showed that only 43.6% of Zambian smallholder farmers were members of a cooperative or farmer association (IAPRI, 2016). While there is anecdotal evidence that the annual membership fees are rather low, members are also encouraged to buy annual shares that are generally more costly. In many cases, buying shares is a pre-requisite for members to participate in FISP. Therefore, calculating membership costs is complicated by the fact that some organizations enforce the buying of shares while others do not. In any case, around 21% of surveyed smallholder farmers cite non-affordability of cooperative membership as the second most frequent reason (after non-affordability of FISP down-payments, 31.4%) why some farmers have not received FISP inputs in the 2015 agricultural season (IAPRI, 2016).

Despite the fact that FISP has extended its outreach and serves a much larger number of farmers (cf. 4.3.6) the programme still does not serve all cooperative members. As a result, cooperatives agree on internal arrangements to distribute the number of subsidized packs amongst their members. It is common practice that members split their packs. Because allocation of input

packs to individual cooperatives is not related to the size of the organization, this leads to a situation in which cooperatives become more restrictive in allowing new members to join. As mentioned before, it also creates an incentive to form new cooperatives by members who split off their old organization when they fail to acquire enough subsidized inputs, or by non-members who might not be able to join a cooperative in their own community.

However, costs of participation and restrictive organizations in combination with other administrative and social rules constitute barriers to a more inclusive participation³⁶. Although there is no data on the heterogeneity of cooperative members, experts assume that the poorer strata of the small-scale farmers and the youth³⁷ are under-represented in cooperatives (Interview Nos. 7, 46).

Currently, the cooperative sector is undergoing changes that are yet to become effective. The E-Voucher system for disseminating subsidies for agricultural inputs, which is piloted by the Government at present may soon allow farmers to by-pass cooperatives. The new system is expected to slowly reduce the number of opportunistic cooperatives (only created to access FISP) and at the same time encourage cooperatives to venture into new business areas, e.g. trade, transport or processing. Accordingly, in 2015, the Cooperative Department was transferred from the Ministry of Agriculture and Livestock to the Ministry of Commerce, Trade and Industry. This shift is expected to promote diversification of cooperatives into the non-agricultural sector.

So far, cooperatives in Zambia have mainly been a tool for providing agro-services to small-scale farmers, and they have contributed to the process of increasing market integration and commercialisation of the smallholder sector. Irrespective of the appropriateness of the institutional frame of cooperatives and the opportunistic character of most cooperatives (which is nothing but a result of the farmers' adaption to the requirements for access to services), the majority of small-scale farmers are able to fulfil necessary organisational requirements for getting access to inputs and markets, for which they would not qualify on an individual basis. This can be considered a prerequisite for any socially inclusive rural transformation process.

4.3.9 Policy implementation and public spending

Zambia is one of the many cases in Africa which demonstrate that democratic elections in a multi-party system do not necessarily contribute to improved governance. Of the wide range of promising reform policy papers, some have only been produced to fulfil donor agencies' requirements, and many are not being implemented. According to a report on Zambian governance "it has become clear that the production of policy statements does not represent a serious intention to implement policies" (YEZI Consulting, 2013, p. 42). So it is not surprising, that the 2006 Afrobarometer observed a dramatic decline in citizen's trust in legislation and implementation. A report of Diakonia Zambia (ibid) argues that policy choices and resource decisions are made in:

³⁶ Also see Minah, Malvido & Hanisch (forthcoming) on the inclusion of vulnerable farmers in maize farmer organizations in the North-Western Province, Zambia.

³⁷ Experts from both study provinces have indicated that youth are under-represented in cooperatives as a result of an intergenerational conflict. The decisions of older farmers are still more respected in society and younger farmers feel less empowered to participate in decision-making. Low participation rates of young farmers might therefore be a result of self-exclusion (not interested in participating) and not being able to participate (exclusion from the group). In any case, the outcome reflects that current cooperative structures as self-help organizations do not represent the interests of the youth.

“arenas that provide political leaders (Ministers) with an opportunity to compete for political gain and public expenditure” and that “political elites do not feel that the provision of (all) services are crucial to retaining power”. As a consequence, around 75% of Cabinet decisions are not implemented. Politicians rather try to get popular support by implementing some selected showpiece programmes such as road construction and subsidies for fertilisers.

Moreover, an audit report for 2010 showed that funds in various public institutions were often misappropriated in various ways: excessive expenditure, misapplications, unretired imprest, unvouchered expenditures, or delayed banking. Often, this was due to a failure to adhere to regulations, tender procedures or contract terms (YEZI Consulting, 2013, p. 43).

Citizens, on the other hand, lack adequate and useful information to engage with government representatives, particularly public service officials at district and provincial levels (YEZI Consulting, 2013, p. 63). Consequently, there is no functioning system of democratic accountability which could help to improve government performance.

Effects on rural transformation

Government policy-makers in Zambia were never seriously concerned about a transformation of the Zambian economy and society. From the first copper crisis in the mid-1970s until today all governments paid lip services towards the necessary diversification of the economy. But, except of some isolated donor-supported rural development programmes in the 1980s aimed at a modernisation of agriculture and contributing to the increased share of market-oriented farmers, there were no serious attempts towards implementing a consistent diversification strategy. During phases of raw material booms, governments enjoyed the fruits of copper revenues and associated growth dynamics and did not see any incentive to embark on structural changes. During phases of raw material crises, the state was highly indebted and did not have the necessary resources to stimulate transformation processes. During such phases, donor agencies' conditionality aimed at economic stabilisation rather than transformation. The privatisation and market-orientation did not work in favour of transformation either, as private investors tended to take immediate market chances in the trade and service sectors and to take over existing state ventures, rather than going for risk ventures in a highly competitive international market environment.

This does not mean, however, that nothing has been achieved in terms of economic and social development. Besides improving the physical infrastructure and the social services for a rapidly growing population, self-sufficiency in the staple food supply has been a result of government efforts. But these achievements were successes in stabilising rather than transforming the country.

4.4 Economic infrastructure and market integration

Economic diversification and transformation through rural and agricultural development in Zambia is hampered by poor access many rural producers have to markets and services, partly a result of global food markets and of Zambian government policies. Another important factor, however, is the economic infrastructure, with transport infrastructure, power grids, and communications playing crucial roles. In general, providing the vast remote areas in Zambia with adequate infrastructure is challenging. With population densities of 5 to 20 people per km² in the off-line-of-rail provinces and highly dispersed settlement structures in those rural areas, distances are a tremendous problem and costs of providing road, communications and power supply networks are extremely high due to low economies of scale. Therefore, low population density is an obstacle for affordable access to markets and services and, thus, for rural development.

4.4.1 Access to markets and agricultural services

In general, access to markets and private services has increased dramatically after privatisation and market deregulation in the early 1990s. Agricultural tools including spare-parts, bicycles, inputs like vegetable seeds and a wide range of consumer goods are nowadays available in all district centres and other rural centres even in very remote rural districts. At the same time, there is access for farmers to local markets for agricultural surplus. Along main roads it has become possible to sell products to private traders and purchasing agents. But due to long distances not all products are competitive at external markets. This applies in particular to staple crops such as maize, where economic viability on the farm-level in remote locations can only be achieved through uniform government purchase prices, which implies subsidised transport costs in case of production for external (non-local) markets.

Access to markets for agricultural products and inputs is still strongly influenced by government interventions. While FISP and maize marketing by the FRA led to improved market access for maize production after 2004, access to inputs and crops through private marketing channels deteriorated over the same period, as the improved provision of a market for maize and by the government has reduced business opportunities for private sale and thus put sellers and buyers out of the business³⁸. As a consequence, smallholders today are even more focusing on maize production³⁹.

4.4.2 Road network

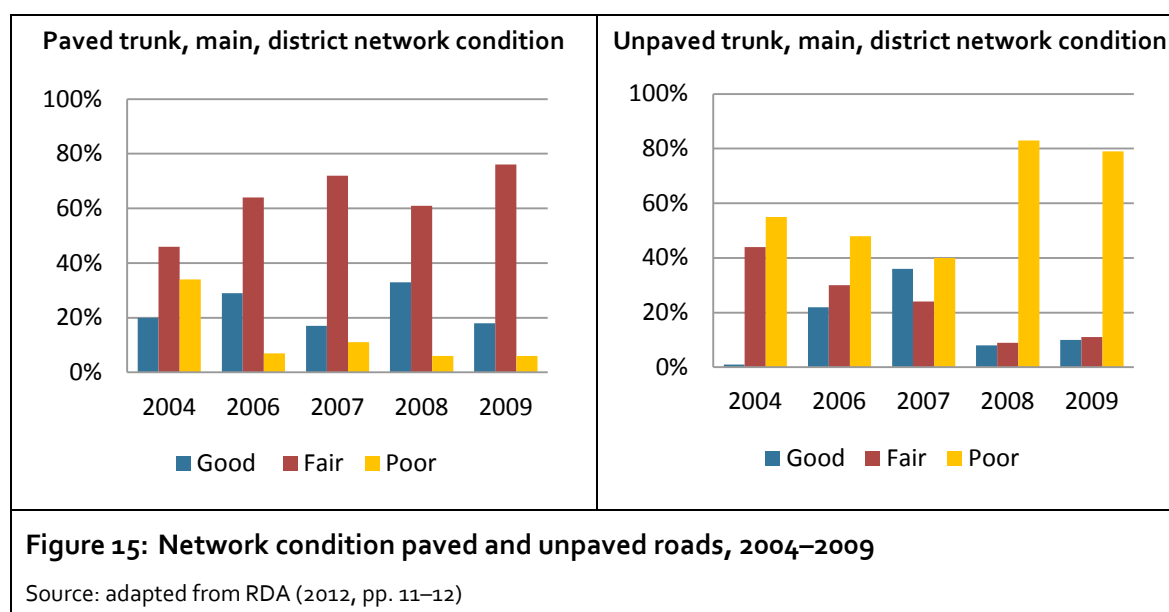
Zambia has a road network of approximately 10,000 km of tarred roads and another 10,000 km of all-weather gravel roads. Most of this network was established between 1964 and 1975. Since then, roads have become degraded and rehabilitated again and again due to lack of proper maintenance. As government did not have sufficient funds for costly road construction projects and as donors refused to provide loans for tarmac roads to sparsely populated areas with limited

³⁸ As an example, the average distance of farmers to the nearest private fertilizer seller has increased from 16 km to 35 km between 2004 and 2015 as a result of state subsidization of fertilizers (Chapoto & Jayne, 2011, p. 9; IAPRI, 2016, p. 96).

³⁹ The impact of recent government decisions to diversify the input packages (cf. section 4.3.6) was yet apparent in 2015.

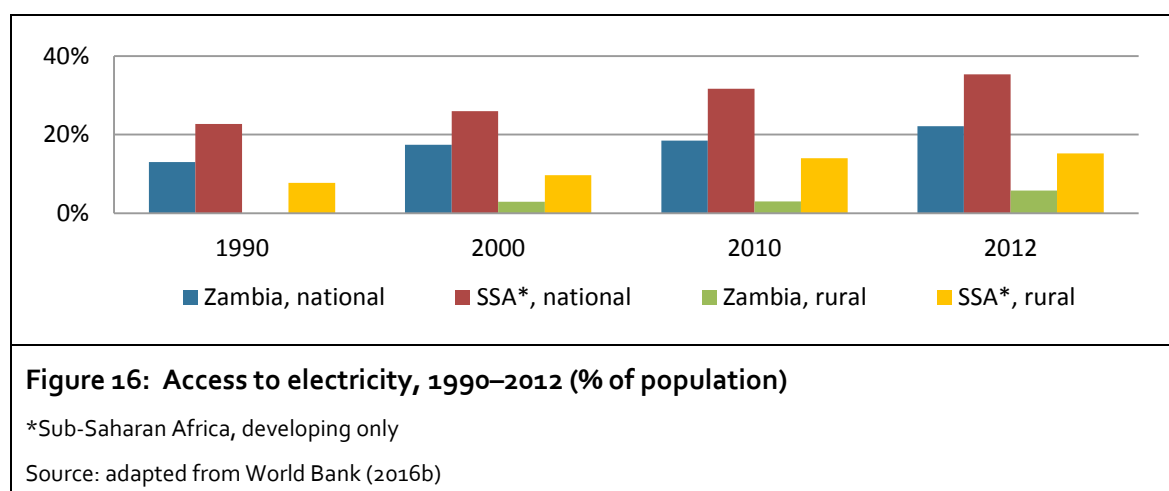
resources, there were hardly any major road construction projects between 1975 and 2005. During the recent copper boom, the government did invest in some long-delayed projects like the tarring of the Solwezi–Chavuma road to the remote western parts of NWP.

The efforts of road maintenance are clearly biased towards tarred roads, while unpaved and mostly feeder roads are widely neglected as Figure 15 clearly shows.



4.4.3 Rural electrification remains at a low level

Rural electrification plays a key role in rural transformation processes as it provides services in multiple social and economic spheres of life including “lightning, cooking, mechanical power, transport and telecommunication services” (IEA, n.d.). Despite having high potential for hydro-power, Zambia performs below the sub-Saharan African average.



Only the big cities, the densely-populated regions along the line-of-rail and the mining areas are connected to the national grid. 68% of electricity is consumed by copper mines. Smaller district centres are usually equipped with diesel-engine driven power stations. After 2000, the expansion of electrical power capacity remained far behind the requirements of a fast expanding mining industry and a rapidly growing economy. In 2012, 78% of the population still did not have access to electricity.

Villages, except some chief residencies and schools, were left without electricity until 1990. Although there were some slow improvements until 2010, mainly reflecting the electrification of some rural centres, about 97% did not have access in 2010. In recent years, the rapid spread of cost-effective solar power has contributed to a virtual doubling of those with access to electricity within two years (cf. Figure 16). Meanwhile at least schools, health centres and rural commercial centres with shops, mills, and recharging stations for mobile phones are equipped with small solar power stations. The Rural Electrification Master Plan (REMP) aims at increasing the coverage of the rural population to 51% by 2030 based on solar energy, micro hydro power stations and extension of the national grid to rural development centres.

4.4.4 Increasing use of information and communications technology

All over sub-Saharan Africa, the spreading/dissemination and use of information and communications technology (ICT) has resulted in an increased information base and provides knowledge about markets. ICT has lowered transaction costs and created information goods. Thereby it has increased the organization and cooperation between economic agents (e.g. firms, citizens, governments) (World Bank, 2016). Most importantly, ICT has become affordable for the majority of small-scale farmers including even some of the poor rural households.

In Zambia, there has been a tremendous spread of ICT during the last 15 years. While in 2000 only 1% of the population were using mobile phones, that proportion has increased to 8% in 2005, 41% in 2010 and 70% in 2015 (ZICTA, 2015). Network coverage is high, and about 84% of the rural population can receive a signal (which is better than the accessibility in some rural areas of eastern Germany). There remains a rural-urban gap (World Bank, 2016b). As of 2015, only 38.8% of rural households were registered as active users⁴⁰ of mobile phones compared to 68.3% of their urban counterparts (ZICTA, 2015). A challenge remains with limited access to power in order to fully use electronic devices. With rapidly increasing coverage, ICT-services such as Digital Financial Services may become accessible for smallholder households.

⁴⁰ The discrepancy between these lower figures of *active* users compared to the figure of 70% of total users may indicate that a considerable proportion of users are not registered.

Effects of infrastructure development on rural transformation

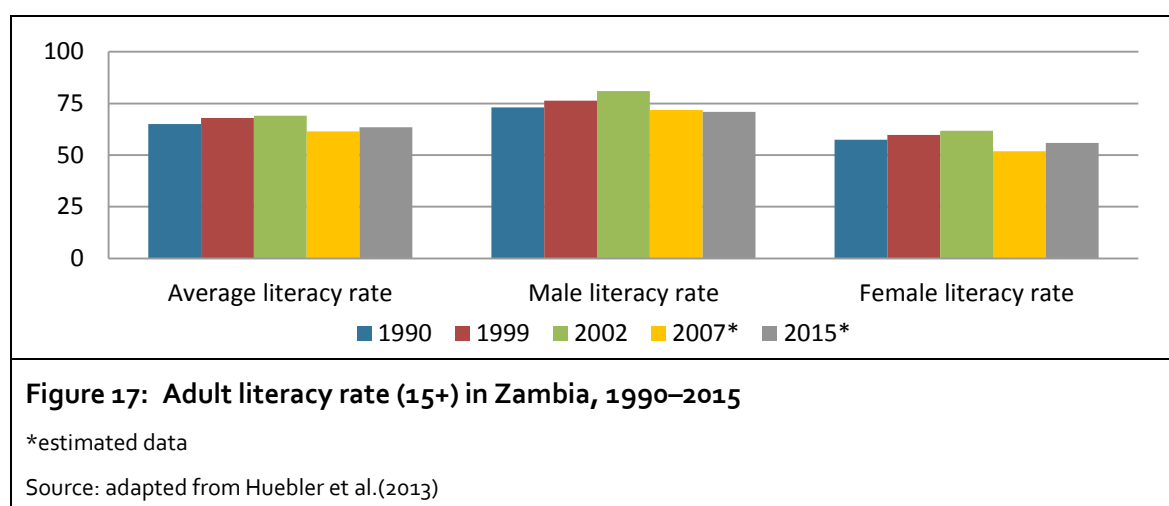
Accessibility will remain a challenge for an increased market integration of the peripheral rural regions in Zambia. Long distances and correspondingly high infrastructure development costs are likely to remain factors that reduce the competitiveness of remote rural locations at external (national and international) markets, while rural incomes may remain too low for using distance as an advantage for a rural development strategy focussing on local/regional markets. Nevertheless, the increasing availability of affordable regenerative energy sources and ICT is presently reducing locational disadvantages and is opening up new opportunities for local processing and for improving market access for competitive local products.

4.5 Skills and education

The role of education and skills development for transformation is ambiguous. On the one hand, they are necessary for the application of intensified farming practices, market-oriented production and for the successful take up of non-agricultural income opportunities. On the other hand, education and skills as such do not create viable income and employment opportunities. In most African countries, many people with adequate educational levels and relevant skills do not find appropriate employment (cf. 3.1), while at the same time job opportunities remain unused (e.g. due to a lack in local technical and engineering skills) and certain functions are inadequately performed (e.g. teaching) due to insufficient education. Consequently, education/skills development and economic opportunities/skill requirements have to be related to one another.

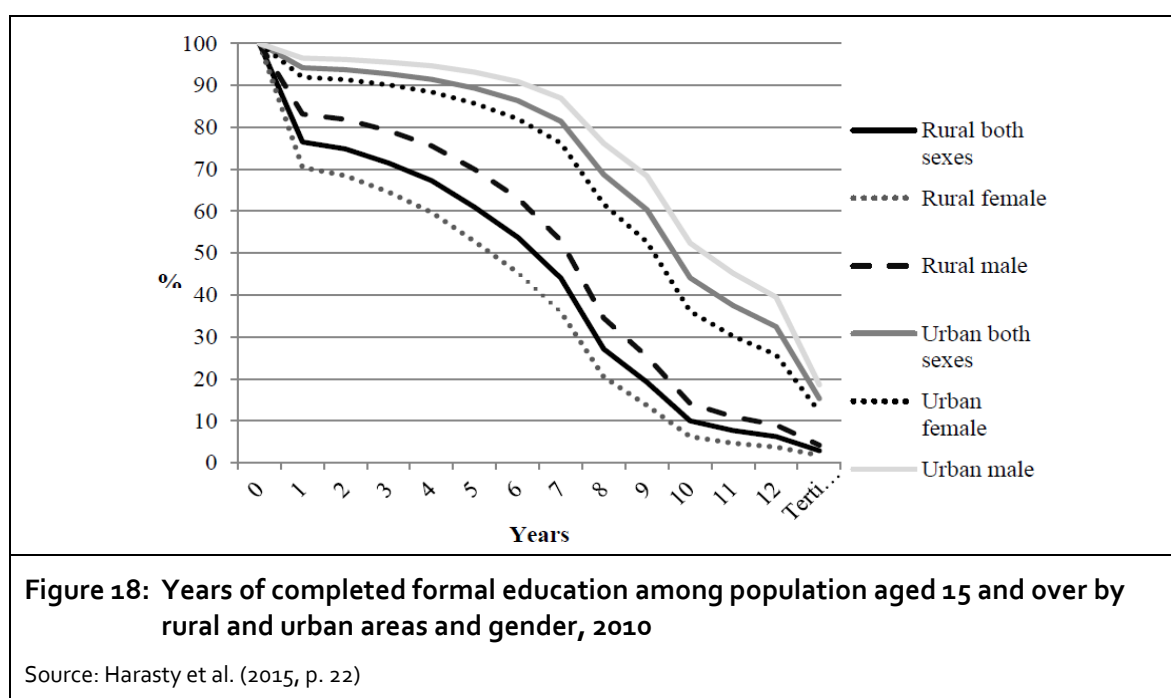
4.5.1 Primary and secondary education

Zambian education statistics reveal seemingly contradictory trends. While primary school enrolment figures were steadily increasing and nearly all children have access to primary education (Harasty et al., 2015, p. 20) and secondary school enrolment is also increasing, the adult literacy rates have been declining since 2002 (Huebler & Lu, 2013, p. 10).



These diverging trends clearly indicate that a quantitative expansion of schools through rising numbers of pupils, class rooms and teachers went along with a deterioration of the quality of teaching. Parents complain that their kids leave primary school without learning basic skills in reading, writing and arithmetic.

The poor quality of teaching in primary schools is contributing to the high drop-out rates. Less than 50% of rural pupils and roughly 80% of those in urban areas finish grade 7 of their primary school⁴¹. Only 27% of rural adults have completed seven years of schooling, compared to 69% of their urban counterparts (Harasty et al., 2015, pp. 20–21).



Secondary school enrolment is still much lower in rural areas than in urban. In 2010, only one third of all rural children were enrolled in secondary education compared to two thirds in urban areas.

A key reason for extremely high drop-out rates in rural areas is the deplorable quality of teaching⁴². Parents are often not prepared to meet the costs of teaching materials and school fees, long distances to be covered by their children (sometimes even accommodation costs), and missing the children's assistance in their field work (Reich et al., 2013).

To overcome the gap in terms of practical skills, two career pathways were introduced in the schooling system in 2014. After Grade 4, pupils can choose between an academic and a vocational path. The vocational path includes home economics, industrial arts design and technology, and

⁴¹ Girls tend to drop out earlier than boys.

⁴² According to SACMEQ data, Zambia performs below the average of Southern and Eastern African countries concerning reading and mathematical skills of grade 6 pupils. Reading skills have even dropped since 1995 (SACMEQ indicators, n.d.).

expressive arts such as arts and drama. Special resource centres have been established to qualify teachers for these subjects. The necessary rooms with equipment can so far only be found in urban areas (Interview No. 67).

Private schools have tried to fill gaps left by public schools, but they can mostly only be afforded by higher income families. In rural areas, village self-help schools were initiated by civil society organisations, but were usually not in a position to provide better teaching quality than government schools.

4.5.2 Adult education and vocational training

In a situation of poor primary and secondary education in rural areas, quality and access to training facilities for adults play a particularly important role in the preparation for economic activities. Quality of vocational training and extension services are even considered to be worse than in the 1990s, as interviewees stated. Also, the technical and vocational education and training (TVET) system remains poor and fails to prepare students for labour market demands (Harasty et al., 2015, p. 21).

4.5.3 Agricultural extension

In the 1980s, Zambia had an agricultural extension system with a good coverage of about 300–500 small-scale farmers per extension field staff member. The system was based on the “Training & Visit” approach of the World Bank, combined with a group extension approach. Approximately 20 extension groups were visited by the extension agents once a month, while nominated delegates from those groups were occasionally sent for training courses in order to disseminate their acquired knowledge to their fellow group members. Often, these “master or model farmers” took over the role of test-farmers for adaptive and participatory on-farm research. That system was rather expensive, however, and could not be continued after cuts in agricultural budgets and donor support in the 1990s and proposals to privatise agricultural services.

Since that time, the majority of small-scale farmers have remained without extension services. The main challenge for the government extension department lies in poor resource endowments and allocations. Govereh et al. (2009) calculated that as of 2006, nearly 70% of the extension service budget was allocated to salaries. Little funding has been left for programme operations, resulting in poor mobility of extension officers (Ministry of Agriculture and Livestock, 2013, p. 55). In addition, it is estimated that between August and January, i.e. when advice is most urgently needed, extension officers dedicate 75–80% of their time to FISP related logistical activities (Ministry of Agriculture and Livestock, 2013, p. 42).

Since 1990, extension methods have become more participatory and effective for the few farmers who are reached by these services (Govereh et al., 2009; Interview No. 69). New delivery strategies have emerged such as farmer study groups and Farmer Field Schools (Interview No. 86). However, the effects remain limited to those farmers that can be reached and have the human and financial capacities to translate improved farming practices into action.

Non-governmental and private sector providers are generally perceived to be better in teaching new technologies, yet on an even smaller scale than public structures (Ministry of Agriculture and

Livestock, 2013, p. 55; Interview No. 63). Moreover, service providers often disseminate contradictory training contents and methodologies, resulting in confusion about which agricultural approach to follow (Interview Nos. 4, 63, 75, 78, 77).

4.5.4 Growing role of media in knowledge dissemination

Zambia has invested in new ICT to disseminate information more effectively (worldwide-extension, n.d.). Before Zambia was reached by the digital revolution, radio played a major role in dissemination of market information, technical knowledge and awareness, but since the year 2000 mobile phones and the internet have played an increasing role in Zambia's agricultural extension and TVET systems.

There are an increasing number of private, public or social internet-based applications to provide information (e.g. market or weather information), advisory and exchange platforms, and financial services or transport services to farmers (Interview No. 68). According to local experts, there is an increase in literacy accompanying the use of mobile phones as people want to be able to make use of the phones.

Effects of education and skills development on rural transformation

Despite all efforts towards achieving universal primary education, the Zambian youth are not well prepared to cope with new challenges or to make use of possible opportunities in a changing economic environment. In other words, even if there was a policy for the diversification of Zambia's economy and towards a necessary intensification of agriculture offering better market opportunities, Zambia's young generation would still not be well equipped to take such chances.

This is due to a tragic misunderstanding. The Zambian government and the donor community increased investment in more educational facilities in the expectation that this alone would improve literacy rates and skill levels. Furthermore, the skills provided were not adapted to the local requirements (regarding farming practices) and of markets.

Therefore, the capacity to respond flexibly to a changing economic environment has not really been enhanced over recent decades. And the poor quality of teaching tends to have a multiplier effect regarding the standards of future teachers, trainers and advisors.

4.6 Conclusions: Influencing factors

A range of interrelated factors have which prevented structural transformation in Zambia:

1. The single most important factor preventing structural transformation was probably the self-perpetuating dependency of the country on the **fluctuating world market prices for copper**. If the copper price was high, there was an economic boom and thus no incentive for trans-

formation. If it was low, there were no financial resources for transformation. **Stiff international competition**, especially for food products (South Africa) and textiles (China) discouraged efforts to diversify the economy in such fields in the absence of possibilities to protect the emergence of labour-intensive local industries. A long period of low world market prices for agricultural commodities along with global surplus production did not create incentives to increase agricultural surplus production and productivity in the period until 2005.

2. Within that global economic environment, **Zambian government** did not make any serious attempts to effectively diversify the economy. Services for small-scale farmers were highly focussed on maize production, with subsidised inputs. Efforts to enable Zambian farmers to diversify their farming systems, to cope better with the challenges of soil degradation and climate change and to meet the increasing urban demand for other food products were limited. The donor-led structural adjustment programmes initiated in the 1990s were aimed at stabilising the economy rather than at structural transformation. Private investments were focussed on taking over urban consumer related services (such as water supply, transport and trading companies) rather than investing in sectors relevant for the transformation of the economy (with few exceptions in the fields of links to international value chains and advancements in ICT and transport systems). While policies were more or less successful in adjusting social and economic services to the demands of a fast growing population and thereby stabilising the socio-economic situation, they failed to overcome the colonial legacy of a vulnerable and non-competitive mono-structured economy.
3. **Long distances** within the sparsely populated country, resulting in **high infrastructure development costs** and reduced competitiveness were a serious constraining factor for diversification through rural development, especially for the remote rural regions. The fast spread of mobile phones and the slowly progress in introducing regenerative sources of energy in rural areas might facilitate rural transformation in future if the economic and political environment is conducive.
4. **Educational levels and professional skills** have not improved in qualitative terms, despite considerable investments in the expansion of the educational system. Moreover, there was a mismatch between the type of education provided and the labour market requirements, in particular regarding vocational training. While the lack of market opportunities in the past meant that skills were not a major constraining factor for structural transformation in the past, they will definitely be a constraint on responding to any economic opportunities and incentives arising in future.
5. The **abundance of natural resources** has been a retarding factor for structural transformation through intensification of agriculture and other resource-based rural activities in the past. The increasing scarcity and degradation of these resources in many locations might become a driving factor for rural transformation in future. As experience in other countries, characterised by high rural population densities and resource scarcity (e.g. neighbouring Malawi) shows, this is an important, but definitely not a sufficient condition for a change towards intensified agricultural production systems.

In short: Zambia has neither felt a strong pressure towards structural transformation (due to the wealth in minerals and agricultural land and water) nor have there been strong incentives taking

the locational disadvantages within an increasingly competitive market environment and a long period of low producer prices into account. In such a constellation, a really visionary policy and strong governance for its implementation would have been required to go for the hard route of transformation by making Zambia's farmers and manufacturing industries internationally competitive.

5 Scenarios of rural transformation

5.1 Results of the scenario workshop

This chapter describes two scenarios for rural transformation in Zambia until 2030 developed by local experts with the help of the scenario technique described at the beginning of this paper (cf. section 1.4.1; Berg et al., 2016):

1. A “Business as usual” scenario, named “Ifiintu Ta Fili Bwino” – Things are not okay
2. A “Best practice” scenario towards a socially inclusive and environmental sustainable rural transformation: Optimistic scenario for 2030, named “Ili Che” – Cool!”

Both scenarios have been enriched by ideas from interview partners in North Western and Central Province. Recommendations for interventions on the three most influential factors noted above towards the realization of such a best-case scenario are discussed in section 5.1.2.

The **“Business as usual” scenario 2030** for rural areas in Zambia in 2030 is also seen as the most likely scenario by the scenario workshop members.

The **“Best practice” scenario** is still achievable if action is taken with a focus on sustainable and inclusive rural transformation, comprising all factors of the developed systems and paying special attention to the sustainable management of natural resources, the levels of knowledge and skills, and youth empowerment.

5.1.1 Realistic scenario “Ifiintu Ta Fili Bwino” – Things are not okay

Ambiguous decentralisation and weak policy implementation

The decentralisation process continued to move back and forth as central government showed reluctance to devolve functions and responsibilities. Local governments and administrations were unable to generate sufficient revenue to stand on their own feet and address growing spatial differentiations. Natural resource governance could not disentangle competencies and responsibilities and continued to be highly sectoral. Thus, the severe degradation that was spurred by migration and agricultural expansion could not be slowed down. Neither could necessary incentives be set for a sustainable intensification. These processes encouraged migration to urban or more favourable rural areas and the formation of multi local livelihoods.

Changes in agricultural structures

In 2030, there are more small-scale and emerging farms. The number of commercial farms has increased slightly. Farmers make use of the e-vouchers and have slightly diversified their production. The government has slowly reduced its focus on maize production. However, farmers still have difficulties marketing their products due to poor infrastructure. Contract farming has not increased but contractors intensified their existing relationships. Their farmers produce commercially. However, contract farming is restricted to an exclusive minority of farmers.

Farm blocks have not developed as expected because it was difficult to attract investors. Co-operatives became more and more business oriented with the passage of the Cooperative Act. They were able to offer services that are more adapted to the farmers' needs. However, in remote areas cooperatives still struggle to access necessary inputs and markets to improve their members' situation.

Exclusive development of new value chains

The value chains for sugar cane, tobacco and cotton did not expand, but relationships with existing farmers were intensified. In 2030, meat and milk value chains have developed but they face strong competition from other markets like South Africa or the EU. They also face challenges with regard to transaction and production costs, availability of productive and adapted breeds and veterinary services. Big commercial players like Zambeef can cope but small-scale farmers cannot. Overall effects are limited and development is rather exclusive.

Further impoverishment of small-scale farmers and ongoing resource degradation

For small-scale farmers it is still difficult to access inputs like seeds, fertilizers, lime and manure, technologies like irrigation, and appropriate equipment. This prevents them from increasing productivity. FISP and FRA have remained. They reach more of the poorer strata of the farmers. The E-Voucher system was slowly scaled up, thus farmers are little by little diversifying their production, but they often hesitate to diversify because of lack of access to markets. Unsustainable practices due to lack of access to adapted agricultural extension advice persist. Farmers remain vulnerable to climate and other shocks. Rainfall has become more erratic and eco-system services have been reduced due to environmental degradation. More and more rural dwellers are searching for alternative income opportunities such as charcoal production, with negative consequences for natural resources. In general, risks for rural livelihoods have increased.

Urban growth without sufficient employment

High birth rates and population growth persist, and the number of young people looking for employment has increased. More non-farm job opportunities were created, mostly in urban areas, but not enough to absorb the young labour force. High unemployment rates persist and the risk to be unemployed is higher for young people than for elderly. Most employment is informal and precarious – especially for the uneducated and under-skilled rural youth. As urban areas promise a better lifestyle, rural to urban migration has continued. Also, more rural and urban households form part of multi-local livelihoods. Although towns are better prepared, urban service providers continue to struggle to keep pace with the uncontrolled growth of urban population. However, the rural urban service gap in terms of health care and education has further widened, further encouraging migration. The growing urban population keeps demanding charcoal, as no adequate alternatives exist. This remained a more profitable income opportunity for the rural poor than practising agriculture in many places, so that deforestation persisted.

Increased demand of food but not everyone benefits

In line with urbanization, the demand for food products has continued to increase. Local farmers living close to urban centres have increased production of vegetables, and are able to supply towns. There are more emerging farmers with formal land titles, but few smallholders have

formal land titles and the number of land conflicts is increasing. Smallholders are still not organized in effective, business-oriented cooperatives to compete with farmers located in more accessible areas.

Widening spatial differentiation due to migration and land development

Rural migration to agriculturally more favourable areas has continued⁴³. Land speculation amongst urban investors in these areas has increased and more people have learned about the value of land. Land and infrastructure development is still inadequate and some areas are neglected and will remain difficult and expensive to access due to the absence of feeder roads and the high transport costs. As conservation and sustainable intensification practices did not reach a broad scale, soil degradation continues. Regions with seasonal water shortages experienced conflicts between different users.

Partial development in rural regions

Conservation agriculture has spread and productivity has increased slightly also due to a gradual dissemination of the E-Voucher system to more districts. Conservation agriculture has led to a more sustainable use of natural resources in agriculture on these specific sites. But the significance/scale of dissemination is still very limited because the challenges linked to the implementation of conservation agriculture have not been resolved (need for more labour and inputs per unit of land or for mechanical equipment and seeds). Information and communication technologies have further improved and spread to the rural areas. More farmers are connected and receive market information. While they are also more connected with each other in remote areas, here they are still challenged to access markets. Rural poverty and the hunger index have remained at a high level. The HIV/Aids prevalence continued to decline slowly just as other health indicators made slight improvements.

To sum up, the “Business as usual” scenario developed by the workshop participants reflects the path of development during recent decades. With a growing population, increasingly erratic rainfall conditions and an unchanged market environment for copper and agricultural products, the scenario expects only slight improvements in market integration of agriculture along with some trends of natural resource degradation and increasing social differentiation within the farming and the urban population. As neither agriculture nor non-agricultural economic activities are expected to provide new income opportunities beyond the rate of population growth, diversified rural-urban livelihood systems will continue to be necessary for the majority of households with limited access to product and labour markets. As there are still sufficient underutilised natural resources, there is no expectation – among those who drafted the scenario – that “Business as usual” may result in a dramatic deterioration for the poorer sections. Taking the increasing pressure on natural resources in some regions into account, this may only be possible on the basis of inner-rural migration.

⁴³ Generally from the South to the North and moving closer to towns.

5.1.2 Optimistic scenario for 2030 “Ili Che” – Cool!”

Natural resources are being managed in a sustainable way, national tree planting programmes are leading to forest restocking which by 2030 has started to provide wood for charcoal, timber for construction and other purposes⁴⁴. Such programmes contribute to the creation of formal jobs and apprenticed vocations. Overall resource management becomes more sustainable through community management of forests, wildlife/national parks and improved watershed management as foreseen in the new Forest Act. In the mining areas (Copperbelt and North-Western Province), mining operations are controlled in a proper way to reduce negative impacts on water bodies. Together with fish restocking programmes and the promotion of aquaculture, fish production increases and higher consumption of fish has a positive impact on nutrition and thus on the health status. An improved management of wildlife and national parks together with successful restocking of national parks contributes to more tourism and to the creation of formal jobs in the tourism industry.

Although wood and charcoal remain the most important sources of domestic energy in rural households, investments in clean **energy** by the private and public sector including public private partnerships is increasing as is electricity generation. There are fewer power cuts and every village has access to electricity. That does not mean that every rural household is connected to the power grid, but at least schools, hospitals and manufacturing/processing companies have access to electricity. Cooling of drugs and vaccines contributes to improved health, lighting in schools to better education, and the newly created processing units will reduce costs for the processing of agricultural goods. This in turn requires higher education graduates and skilled personnel provided by newly created training centres.

Generally, the level of literacy has risen over the whole country. Special attention is given to rural areas to diminishing the urban-rural education gap. Smallholder farmers have **better knowledge and skills** for soil management and they apply improved technologies. They will use improved seed varieties and conservation farming methods with low soil disturbance, timely weeding and planting, proper use of herbicides and fertiliser, soil covering and crop rotation including the cultivation of nitrogen fixing crops. They have access to equipment in order to replace the hoe without necessarily intensifying their manual labour force.

All these measures are positively impacting **soil fertility and land productivity**. Conservation farming methods will be especially adopted in the more drought prone areas such as in agro-ecological zones (AEZ) 1 and 2, because these methods are addressing the issue of maintaining moisture. The application of these methods will lead to increased production and wealth and at the same time will reduce farmers' vulnerability to climatic shocks. In addition, farmers bargaining power will be improved with a higher level of education, which allows them **to achieve better prices**. Farmers will diversify their production with the focus on produce which meets demands of the growing population with higher incomes to spend, especially in urban centres. The necessary transaction costs in terms of transport, communication and bargaining have reduced considerably as the market infrastructure has developed.

⁴⁴ The afforestation programme is to be based on fast growing species that can be harvested after ten years.

The Zambian Government and other stakeholders are **addressing the issue of youth empowerment**. Programmes are successfully implemented, improving access to financial support but also providing necessary skills. Formal primary and secondary education have improved in their outreach and quality – more students, especially females, transfer to secondary schools and graduate from technical and vocational education. This will create a high level of civic awareness and reduce youth unemployment. Value chains based on agricultural products will be developed and processing plants will create jobs in rural areas. These and other jobs created in the non-agricultural sector are helping to decrease the pressure on land and forests as land is left for those farmers who want to expand. There is less need to convert forests into agricultural land.

Furthermore, a larger variety of **agro-inputs is affordable, accessible**, and is supplied in time. This is because the Zambian government has strengthened the private sector by extending the e-voucher system. Agro-dealers are accessible in nearly every village, improving the access to inputs but also providing markets for agricultural produce at fair prices. Agricultural cooperatives increasingly participate in agro-dealership and successfully link farmers to input and output markets. With all these measures, agricultural production is more diversified and contributes significantly to a better livelihood of smallholder farmers.

Farmers, including smallholders and especially the youth, have **access to financial services**, particularly to loans by an improved network of banks but also by further expansion of mobile banking services as well as saving and credit groups. Accompanied by government programmes to serve as collaterals, banks develop new financial products especially for smallholders. This leads to mechanisation (rippers, tractors, etc.) allowing cultivation of more land. Close to markets, intensification will take place and production of high value crops (legumes, leaves etc.) will be increased. Here, investments in irrigation facilities will be made, **improving the access to water** (developing of water resources) and reducing dependence on rainfall. Thus, production is becoming more effective and more reliable. These are important measures especially in the drought prone areas (AEZ1 and AEZ2).

To sum up, the “Optimistic scenario”, guided by the principles of social inclusiveness and sustainability, envisages a situation with better and socially inclusive access to necessary social and economic, public and private services for people living in rural regions. Based on better service access, in particular regarding skills and education for the youth, natural resources will be used more productively and more sustainably, agriculture will be diversified and will meet increasing urban demand, and young people will get better access to jobs created by rural industrialisation (mainly agro-industries) based on rural electrification. That scenario is in line with the objectives of the Zambian development policy and corresponds to the objectives of most development programmes. Though it is focussed on rural and agricultural development, it would imply a significant structural transformation of the Zambian economy as a whole.

5.1.3 Zambia’s Vision 2030

The optimistic scenario overlaps to a certain extent with Zambia’s Vision 2030, a national strategy document, that serves as the guide for all development efforts and that sets goals and targets in various spheres of socio-economic life. The scenario is less abstract than the Vision 2030, and is strongly linked to the living conditions of Zambia’s rural population.

To become a “strong and dynamic middle-income industrial nation that provides opportunities for improving the wellbeing of all” (Republic of Zambia, 2006, p. 8) the government envisions among other things:

1. A common and shared destiny, united in diversity, equitably integrated and democratic in governance, promoting patriotism and ethnic integration;
2. Devolved political systems and structures while retaining the roots and positive aspects of their own mould of social, cultural and moral values;
3. A continuous path of ever refining, ever advancing and ever consolidating democratic dispensation and progressive adaptation from global best practices;
4. Economically, socially and politically integrated within the sub-region, Africa and the rest of the world;
5. Diversified and balanced and strong industrial sector, a modern agricultural sector and an efficient and productive services sector;
6. Technologically proficient, fully able to adapt, innovate and invest using its human and natural resources;
7. Strong and cohesive industrial linkages in the primary, secondary and tertiary sectors;
8. Sustained high and increasing productivity levels with regard to every factor of production;
9. Well developed and maintained socio-economic infrastructure;
10. A robust and competitive transport and communications network that services the region;
11. Strong entrepreneurial capabilities, self-reliant, outward looking and enterprising, where nationals take advantage of potential and available opportunities;
12. Exemplary work ethics, honesty, high human and ethical values, quality consciousness and the quest for excellence;
13. A macroeconomic environment conducive for growth;
14. Development policies consistent with sustainable environment and natural resource management principles;
15. Access for all to good quality basic human necessities such as shelter, titled land, health and education facilities and clothing;
16. Diversified education curricula that are responsive to the knowledge, values, attitudes and practical skill needs of individuals and society at large;
17. Regional centre of excellence in health and education;
18. Decent work opportunities that ensure respect for fundamental human rights and principles;
19. Opportunities for all citizens to become resourceful and prosperous nationals;
20. Decentralized governance systems; and,
21. Safe and secure social environment.

5.2 Assessment of the scenarios with regard to structural transformation

Both scenarios refer to the rural development agenda in general, rather than to specific issues of rural or structural transformation. The focus is on improving the performance of existing systems and less on a debate on the directions of changing the existing system. Questions such as whether or not small-scale farmers shall still rely strongly on subsistence production or become fully integrated into the market economy – to take one example only – are not explicitly touched. Nevertheless, the scenarios developed are highly relevant for structural transformation in the particular Zambian case, as the diversification of the economy, moving away from copper mono-structure has always been and still is a major issue of structural transformation in Zambia. Taking the country's underutilised rural resources into account, rural development would mean a structural transformation of an important part of the Zambian economy.

Considering the specific situation of Zambia and our normative framework of social inclusiveness and environmental sustainability, an assessment of the two scenarios designed in the workshop needs to be related to three major criteria:

1. The envisaged situation for 2030 should represent a fundamental **diversification** of Zambia's copper-dependent and consequently highly vulnerable economy by providing productive, safe and competitive income and employment opportunities in other economic sectors.
2. The change process should be **socially inclusive**. Nobody should be left behind. Everybody should be involved in and benefit from better income and employment opportunities.
3. The change process should be **environmentally sustainable**. Natural resources should be used in a way to allow eco-systems to regenerate and remain productive for future generations. Moreover, their utilisation should be adjusted to changing environmental conditions.

The **"business as usual" scenario** would definitely not result in a transformation of the mineral dependent economic structure of Zambia. It would not contribute to a broad-based and environmentally sustainable intensification of agriculture and it would not result in a diversification of agricultural production, except for some small commercialized sub-sectors. There would be little investment into innovative non-farm activities and urban income opportunities will remain precarious for most of the additional young labour force.

The **"optimistic scenario"**, though not explicitly designed with reference to a transformation process towards a more diversified economy⁴⁵, implies a number of processes which can contribute to such a transformation process. The scenario includes a distinct vision for a process of agro-ecological intensification of agriculture and related sub-sectors such as forestry and fisheries. It envisages more diversified agricultural production systems, clearly going beyond maize monoculture. Furthermore, it foresees a chance for agro-processing based on rural electrification, skill development for the young people and value chain development. This scenario is based on assumptions of improved governance, ensuring better public and private services for everybody,

⁴⁵ This was a consequence of the focus on *rural* transformation.

with a special focus on the youth. However, it does not refer to the necessary macro-economic environment and factors such as competitiveness of envisaged processing activities and the development of global markets and price levels for agricultural products and for copper, which will influence the viability of investments into an intensification and diversification of farming⁴⁶.

Guidelines for a transformation strategy as outlined in chapter 5 in line with the “optimistic scenario” will have to consider the macro-economic framework as well as the Zambian political framework in order to be based on realistic assumptions, thereby avoiding wishful thinking.

⁴⁶ Again, this was a result of a focus on factors that are *directly* influencing rural development rather than due to a lack of consideration of external factors by the participants.

6 Way forward towards a more sustainable and socially inclusive transformation

In order to arrive at appropriate strategic guidelines for promoting and/or shaping structural transformation in a developmental, socially inclusive and sustainable way, it is important to recall the character of structural/rural transformation (Rauch et al., 2016):

- Structural transformation needs to be defined in a historically specific manner. Consequently, transformation patterns like that of European countries during a historical period of national economies cannot be taken as models for the transformation process of post-colonial economies within a globalised economy such as present day Zambia.
- Transformation should not be considered as an objective on its own. Objectives such as sustainable and socially inclusive development with a focus on poverty reduction may be achieved with or without structural transformation⁴⁷. Sometimes, there is much scope for improvement within the framework of existing socio-economic structures.
- Structural transformation is a complex, long-term process requiring engagement in many policy areas and at different intervention levels.
- Transformation processes can be influenced and shaped by policies to a certain degree, but the societal processes depend on many factors which are not directly subject to policy interventions.
- Rural transformation is usually part of a more comprehensive process of structural transformation of the whole economy that is often including its institutional framework and political system.

The strategy guidelines in this chapter are therefore related to structural transformation of the Zambian economy in general with special focus on rural transformation.

This chapter focuses on economic dynamics and their political and institutional prerequisites of structural transformation, with due consideration of the environmental and social implications.

The transformation process will take different concrete shape in different regions. It may be more dynamic in the densely populated central places along the line-of-rail compared to sparsely populated remote rural regions. Interventions and programmes will have to be designed in a context-specific manner based on local and regional-level analysis.

Due to the long-term and complex nature of structural transformation processes and the diversity of the country, these strategy guidelines refer to national policy levels and generic sector strategies rather than to specific regional, sub-sectoral and programme strategies. There will,

⁴⁷ In some constellations, simple technical innovations such as improved varieties or new energy sources may increase efficiency and improve living conditions without fundamental changes of the agricultural system.

however, be some hints on necessary regional differentiations of strategies related to the macro-regions outlined in 3.9.

While sub-section 6.1 will provide a strategy framework, sub-sections 6.2 and 6.3 will deal with the external influencing factors to be considered and the components of the intervention strategy.

6.1 Strategy framework for structural transformation in Zambia

6.1.1 Zambia's structural problem

Zambia, as many other low-income countries, has definitely got a structural problem – its mineral dependent economic mono-structure⁴⁸. It is beyond any doubt, that the Zambian economy is in need of structural transformation and diversification. A continuing dependency on copper, with its fluctuating world market prices, will not allow for a steady, sustainable and socially inclusive development process. The relevance of this problem can be seen when the drop in copper prices on the world market is immediately followed by an economic crisis.

6.1.2 Vision

The Zambian government wants to address this structural problem by aiming at a diversification of the economy through “a strong industrial sector, a modern agricultural sector and an efficient and productive service sector” (Republic of Zambia, 2006). Such a diversified economy is expected to contribute to the overall vision of becoming a “strong and dynamic middle-income industrial nation that provides opportunities for improving the well-being of all”.

This general vision of a diversified and dynamic economy requires three major structural shifts:

1. **Agricultural and rural development** through a more efficient and more sustainable utilization of under-utilized rural resources. For Zambia, it is not necessarily a reduction of the share of agriculture in GDP and employment, which would reflect structural transformation. It might be even an increase of that share.
2. **Industrialisation** resulting in reduced dependence on resources (including unprocessed agricultural and forestry products) and in a higher share of productive non-farm employment opportunities.
3. Development of an **efficient and productive services sector**.

⁴⁸ While this may not be reflected in the shares in GDP, it becomes clear if one considers the share in foreign exchange earnings and the share of the value of production of mineral exports in the GDP.

6.1.3 Strategic framework

Figure 19 provides a strategic framework for structural transformation in Zambia. The framework is composed of the two⁴⁹ major areas of the envisaged transformation/diversification of the Zambian economy, the external influencing factors to be taken into account, and the major influencing factors which are subject to national or sub-national policy interventions. The factors identified in the scenario workshop are in some cases grouped together for systematic reasons.

The way the Zambian economy is supposed to be transformed is guided by the two major principles of a socially inclusive and an environmentally sustainable transformation process. These principles will be specified for each of the strategy components.

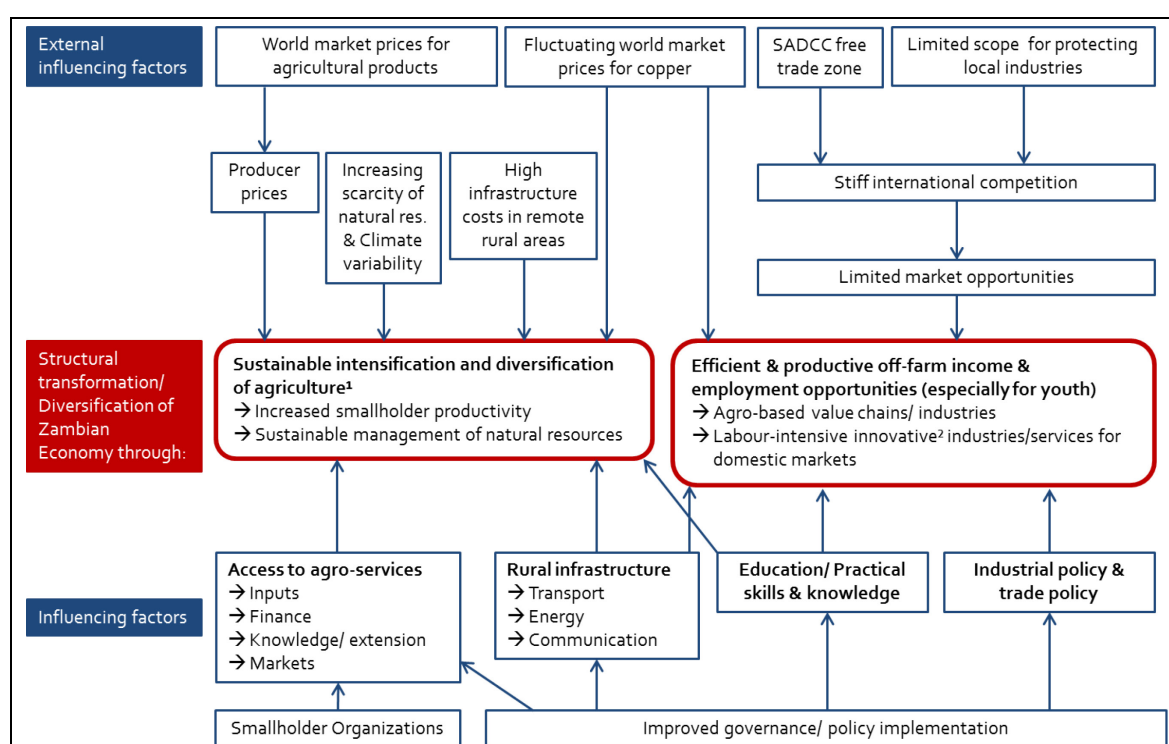


Figure 19: Framework for a transformation strategy for Zambia

- 1 Including forestry, fisheries and primary production based on other natural resources;
- 2 Innovative economic activities within the range of economic activities in Zambia (e.g. by substituting imports), rather than replacing existing activities

Source: own illustration

⁴⁹ The envisaged shifts towards industrialization and towards a more efficient and productive services sector are combined here under "off-farm income and employment opportunities".

The envisaged transformation process should be based on **two major components**:

1. **Sustainable intensification** and **diversification** of agriculture through increased smallholder productivity and sustainable management of natural resources.
2. Creation of efficient and productive **off-farm income and employment opportunities** (especially for young people) through promotion of agro-based value chains and labour-intensive industries and services for domestic markets.

Both components have to come together in order to make significant steps towards the vision of providing sufficient opportunities for improving the well-being of all.

6.1.4 Component 1: Agricultural development

Taking the problems of low smallholder productivity, degradation of natural resources and monoculture into account, agricultural development (including forestry and fisheries) needs to move towards sustainable intensification and diversification. Both sub-components need to be shaped in line with the principles of social inclusiveness and environmental sustainability.

6.1.4.1 Sub-Component 1.1: Sustainable intensification of agriculture and the use of other rural resources

As land and other natural resources become scarce, at least in the more densely populated central regions, and in order to cope with changing climatic conditions, a sustainable intensification of agricultural production/use of natural resources will become crucial for a growing rural population. Intensification implies an increase in productivity, in particular land and water productivity. The scope for such increases is not limited to more commercialised farming systems. It is as important for marginal and subsistence focused farms, which aim at stabilising yields to provide increased food and nutrition security under adverse climatic conditions⁵⁰.

Considering the principle of **sustainable management** of natural resources and the high costs of external inputs and transport in Zambia, the productivity should be increased as far as possible by environmentally friendly agricultural practices with low external inputs. That means an intensification that stresses sustainable resource management to support resource regeneration and halt the degradation process. This includes promoting agricultural practices adapted to climate change (e.g. improved methods of soil and water conservation such as conservation agriculture, agro-forestry, inter-cropping).

Considering the principle of **social inclusiveness** two aspects need to be considered:

1. Zambia has a labour-surplus economy with a continuously growing labour force. This favours using labour-intensive technologies for sustainable intensification.
2. From a farm-level perspective, labour shortages in farm households at times of peak workloads (e.g. for land preparation) and for specific activities (e.g. grinding, transport of crops)

⁵⁰ Halving the probability of crop failure through improved soil and water conservation will double the average yield and reduce vulnerability.

are hindering especially poorer smallholder households (e.g. those with a woman as head of household) from adopting sustainable agricultural practices, that are sometimes more labour-intensive compared to conventional farming (e.g. inter-cropping, mulching, conservation farming). This tends to be a point in favour of labour-saving technologies, i.e. mechanisation.

Considering both perspectives, a socially inclusive approach to environmentally sustainable intensification calls for a context-specific mechanisation focussed on assisting households to overcome peak workloads by appropriate equipment, while avoiding replacing available labour. As long as market opportunities for agricultural products are a limiting factor (cf. chapter 5), a type of mechanisation that goes beyond overcoming labour bottlenecks related to sustainable intensification and enables better-off farmers to expand their farms bears a high risk of excluding poorer smallholders from those markets (cf. section 6.2).

Key indicators for agricultural sustainable intensification in Zambia should consequently be land productivity and reduced soil and forest degradation.

6.1.4.2 Sub-Component 1.2: Diversification of agriculture

The one-sided promotion of maize cultivation in Zambia helped to achieve a high degree of national food self-sufficiency, but it is neither environmentally sustainable, nor does it fit into the local farming systems and seasonal labour requirements. Moreover, mono-cropping is vulnerable to market fluctuations (unless the government was willing and able to maintain minimum prices). Consequently, the agricultural sector requires a diversification away from maize monoculture by integrating cassava, beans, cow peas, sun flower, or legumes, according to the ecological zones. This would offer sustainable resource utilization and create a wider range of local income opportunities for farmers.

Such an **environmentally sustainable and socially inclusive diversification** needs to be context-specific. It has to consider local farming systems (which were usually highly diversified), soil fertility requirements (e.g. integration of legumes, no ploughing where possible, livestock integration), market opportunities (which need to be widened through focused value chain promotion) and seasonal labour availability of poorer and female-headed farm-households (e.g. off-season horticulture products with high water productivity).

A key **indicator** for a more diversified agriculture should be the decreasing share of maize in total cultivated area and farm income.

The aims of intensification and diversification are positively interrelated as a more diversified agriculture will contribute to sustainable intensification.

6.1.5 Component 2: Off-farm income and employment opportunities

While everybody stresses the necessity of promoting off-farm income and employment opportunities, achievements in that field are less than impressive. This has got much to do with international competition and international control of value chains, in particular through international supermarkets and wholesale/retail companies and global agri-business companies. The challenge

is to identify productive and competitive processing and other value-adding opportunities which are also labour-intensive. In order to create a positive net-employment effect, these activities should be innovative in the local context, i.e. should replace imported products or services and those value-adding stages that were done abroad so far, rather than replacing existing local income-generating activities by labour-saving technologies. Two major fields fit these criteria:

1. Agro-based industries or value-adding activities related to existing agricultural and forestry products.
2. Labour-intensive industries and services for domestic demand.

The major target group for those opportunities is the young people entering the labour market year by year.

6.1.5.1 Sub-Component 2.1: Agro-based trades and industries along the value chains

Agro-based value chains have a high potential of becoming internationally competitive. They are usually labour-intensive, often off-seasonal, suitable for rural centres (small and mid-size towns) and require comparatively low skills. Last but not least, they can stimulate and facilitate agricultural production and productivity. Value-adding may include further handling, storing, processing and transporting of raw materials for export or domestic markets as well as production of agricultural inputs and equipment. Some activities may be done on-farm by the producers (e.g. grading, shelling, and packing), others need specialized production units. Many of the product-specific off-farm activities require contract-based forms of value chains to ensure reliable marketing and supply channels.

Social inclusiveness needs to be considered in two different ways: To ensure a broad-based involvement of farmers, including the poorer strata of smallholders, the farmers involved in these value chains have to be well organized in order to reduce transaction costs for suppliers and buyers and to strengthen their negotiation power as market partners to bargain for fairer deals. To ensure a broad-based income and employment effect, the agro-industries themselves should use the most labour-intensive technologies that are feasible. For the sake of **environmental sustainability**, agro-industries need to undergo an environmental impact assessment not only of their processing activities, but for the whole value chain (e.g. in order to avoid monocultures or to regenerate exploited forest resources).

Suitable indicators the development of agro-based industries could be the number of off-farm income and employment opportunities, the number of smallholders involved in value chains established through agro-industrial investments and the number of effective marketing organizations and their members.

6.1.5.2 Sub-Component 2.2: Labour-intensive industries and services for domestic markets

Despite stiff and often unfair international competition, there are under-utilized options for import substitution in the field of labour-intensive trades. These businesses include localised manufacturing enterprises that require proximity to the consumers (e.g. bakeries), repair business, construction-related trades, labour-intensive infrastructure project services, and tourism. In oth-

er words, the focus is on non-tradables (products and services which are not exposed to international competition) and sectors where labour-intensive technologies have a high chance to become competitive. In these fields, local small-scale entrepreneurs can be successfully enabled through focused skills development and provision with necessary starting capital to compete with imports or with large-scale capital-intensive investors. For the sake of **social inclusiveness** and a broad-based net employment effect, the focus needs to be on trades that can replace imported and capital-intensive products, rather than replacing local income-generating petty businesses. There are no specific aspects related to sustainability to be considered except general environmental impact criteria.

The appropriate **indicator** for this sub-component is the increase in non-agricultural employment opportunities in productive sub-sectors. As many of these opportunities may be informal, it will not be easy to assess this indicator.

Job and income opportunities under sub-components 2.1 and 2.2 may overlap where import-substituting opportunities are agriculturally-based (e.g. dairy products or processing of fruits and vegetables).

Within the framework for a diversified Zambian economy, there may still be a necessity for maintaining multi-local livelihoods, including maintenance of a share of subsistence production for some time to come (e.g. until 2030). Even for poorer, highly subsistence-based smallholders in remote areas, sub-component 1.1 would result in a higher degree of food and nutrition security and a higher resilience to adverse climatic conditions. But the share of rural households who can rely on their agricultural income and specialize on farming will increase, as will the share finding a secure and sufficient income basis outside agriculture. Consequently, the combination of agricultural intensification and development of productive non-farm income opportunities would go along with a process of specialization. With increasing rural and urban purchasing power that is not related to revenues from copper, the country's dependency on copper prices will steadily be reduced.

6.2 The role of external influencing factors

Experience in the past (not only in Zambia, but also in many other African countries) has shown that a diversification of the economy is not easy. There are external factors which have to be taken into account as they can promote or hinder the transformation process. Their possible role is outlined, before dealing more in detail with those influencing factors which are subject to political strategic interventions.

Copper prices: They influence the overall economic performance and thereby the policy space for Zambian governments. Moreover, they influence the preparedness and the capacity for change. If copper prices are high and there is overall economic prosperity, at least in the urban areas, everybody is optimistic and nobody sees the need for change. If prices are low and there is economic crisis, everybody talks about the need for transformation and diversification, but the capacities for promoting change are limited. Consequently, it is necessary, first of all, to recognise that crucial role of the fluctuating copper prices and agree on a long-term transformation

strategy to be followed irrespective of copper price cycles. Donors will have to play an important role in maintaining the governments' policy space for implementing such transformation programmes in periods of low copper prices and shrinking government revenues.

World market prices for agricultural products: These are crucial for transformation within the agricultural sector. They influence agricultural producer prices not only for export-oriented products but also on domestic markets. Only if terms of trade for agricultural commodities improve and global demand for agricultural products continues to increase, there will be an incentive for investments into intensification of farming, and only then will there be a chance for remote locations (with their higher transport costs) to become competitive. While the issue of rural transformation became prominent on the agenda of international development debates as a result of increasing food prices, the scope for rural transformation may diminish in the event of oversupply and falling prices for agricultural products. Consequently, the success of any efforts towards rural transformation will depend on a positive development of world market prices for agricultural commodities in the medium to long term. While this applies to market-oriented production, there is still a scope for intensification of subsistence production, e.g. towards improved soil management and increased climate change resilience⁵¹.

Increasing scarcity of natural resources and increasing climate variability: As shown in subsection 3.6, Zambia is still characterised by an abundance of natural resources for agricultural and forest related production. However, as a result of extensive and sometimes exploitative use of these resources, along with population growth and commercialisation the pressure on natural resources is increasing, while climate change means that rainfalls are unpredictable. The impact of this factor is ambiguous. On the one hand, it limits further growth within the existing resource utilisation systems⁵². On the other hand, it creates the necessary pressure for intensification of the farming system and related investments into increasing land productivity. As population density in Zambia will continue to increase along with the challenges of climate variability, we can assume that scarcity of land, forests and water will become more important as drivers of intensification, i.e. transformation of rural resource utilisation systems. As scarcity of natural resources differs greatly between central and remote regions, it is likely that the progress in agricultural intensification will proceed at different rates from region to region. It is important to keep in mind that there is no automatic or deterministic link between scarcity of natural resources and preparedness of human agents for intensification. Resource availability is just one of several factors.

High infrastructure costs in sparsely populated remote areas: The remote rural regions of Zambia will continue to suffer from higher transport costs and related competitive disadvantages on external markets despite technical progress in the communication and energy sectors. As a consequence, the opportunities of these regions for commercially viable forms of intensification will be more restricted than in densely populated well connected regions. Therefore, there will probably be different speeds of rural transformation depending on location and distance. Never-

51. Improvements in subsistence cultivation, however, will depend on government intervention. The preparedness of governments (and donors) to invest in agriculture tends to depend on prices for agricultural commodities, however.

52. A prominent example for this is shifting cultivation: While with up to 10 residents per km² it was sustainable for subsistence farming, with 20 or more residents per km² it is no longer sustainable for regular surplus production.

theless, the situation of the farming population of these regions should not be regarded as hopeless. They usually have a good potential for improved food self-sufficiency, import-substituting processing activities (like grain mills, oil mills, carpentry, decentralised energy production) and for exports of high-value-per-weight products (e.g. honey, beeswax, other non-timber forest products).

Stiff international competition for tradable manufactured products: Under free trade conditions, it will be extremely difficult to create income and employment opportunities through labour-intensive development in processing and manufacturing industries. South Africa, as a member of the SADC free trade zone, is dominating the markets for agro-based products (dairy products, processed fruits, and vegetables) and furniture. Chinese textiles, besides European worn-clothes dominate the Zambian markets for textile products since the international textiles agreement restricts trade barriers. Industrialisation strategies need to take such restrictions for national trade policies into account, when deciding which industrial sectors or sub-sectors can be promoted with a reasonable chance to make them competitive at least on domestic markets. In addition, such strategies need to include ways and means to use the policy space of international trade agreements in a creative manner.

These examples clearly demonstrate how important it is to take such factors into account when deciding on the ways and means of promoting transformation. Investments into increasing agricultural productivity will be wasted if the market cannot absorb the increasing surplus production at reasonable prices. And provision of training and finance for trades which cannot compete against imports will be in vain.

6.3 Fields of strategic interventions related to the promotion of a socially inclusive and sustainable transformation process

In this section we highlight the influencing factors related to agricultural/rural development (intensification, diversification, sustainable natural resource utilisation) and to creation of non-farm income and employment opportunities which are subject to national or sub-national policy interventions. Factors have been selected which have the strongest influence on the two major areas of transformation and upon each other. They form the most suitable entry-point for strategic interventions. The factors are highly interconnected; influencing one will cause a chain of reactions on other factors.

The strategy recommendations presented in this section are of a long-term nature, aiming at a gradual country-wide transformation process until 2030 (and beyond). They are in line with national policy guidelines and the Zambian Vision 2030. Consequently, they do not aim to affect the concrete level of short-term programme strategies or instruments. Those need to be designed in a context-specific manner. The strategy recommendations are not necessarily bound to existing Zambian development strategies and approaches, but are meant to encourage innovative approaches showing new ways of solving problems.

Strategies deal predominantly with “how” questions. They are supposed to show directions towards transformation, more specifically towards a socially inclusive and environmentally sustain-

able path of transformation. It is not just about doing things better, but different. The focus is therefore not so much on self-evident improvement requirements, but rather on shifts in direction.

6.3.1 Access to agro-services

Relevance of services: Services are the key to rural transformation. Small-scale farmers and other rural small-scale producers will not be in a position to increase their production without any access to agro-services such as input supply, finance, innovative knowledge or marketing. Accordingly, agro-services, such as input supply, financial services and provision of knowledge and skills were among the most important influencing factors identified by the workshop participants (cf. section 4.1).

Services for transformation: While services are necessary for any economic development and part of any effective value chain, a transformation process in general and a socially inclusive and environmentally sustainable transformation requires specific service designs. The focus of rural transformation in Zambia needs to be on intensification of the predominantly extensive resource utilisation system and a diversification of the mostly maize-focussed farming systems. Intensification usually requires more local or external inputs, more labour (or labour-saving equipment) and some new knowledge related to the application of new production methods. Access to inputs, equipment or labour may require additional finance. And the intensification will only be economically viable if there is reliable and easy access to markets for the additional surplus. For better access to inputs and markets, including on-farm transport requirements, improved means of local non-motorised transport are crucial. Diversification of the production pattern will have similar service requirements: new seeds or varieties or species, some start-up capital, new knowledge, and access to markets for the new products. In other words, intensification and diversification rely on new value-chains, with some focus on the input side for intensification and on the marketing side for diversification.

Social inclusiveness: Social inclusiveness of agro-services means that all farmers or producers who want and need to be part of the transformation process must get access to the services they require. Not all small-scale farmers need sustainable intensification and diversification. Some may have increased their productivity already; others may still be able to set some land aside for extended fallow periods. Some may have practiced a diversified farming system. Moreover, not everybody may need access to all services. Some may have their own cow dung and green manure, including necessary means of transport, so that they are not in need of commercial fertilizer; others may confidently rely on their existing local knowledge and experience. Therefore, socially inclusive service provision should be designed in a needs-oriented and targeted manner. The major challenge will be to reach the poorer, more marginal farmers. Their requirements may be most urgent, as they have limited resources on their own. But for them, service provision is usually more expensive, as they need only small service packages, i.e. economies of scale for service systems are quite low. Providing loans of USD 50 to 10,000 scattered farmers and collecting 0.5 tons of surplus from each of them is much more expensive than providing loans of USD 500 to 1,000 farmers and collecting 5 tons from each. Providing local means of transport like ox-carts will not be economically viable for farm-households with only one hectare; it may require systems for joint utilisation of means of transport on village or neighbourhood level in order to be

socially inclusive. The only way of getting cost-effective services to the poorer farmers is getting them organised as service user groups. Organized in 500 groups, 10,000 farmers can receive joint loans of USD 1,000 and sell 10 tons per group at one spot. Thus, while services are the key to transformation, farmers service user organisations are the key to socially inclusive services. This requires low entrance barriers and improved incentives, in particular for women and young people. Besides their contributing role in pro-poor service systems, producer organisations are a tool for enhancing the capacities of rural households to demand policy implementation and can help to prevent them from being pushed out by resource-rich stakeholders. Even if farmers' organisation help to contain service costs and staff requirements for service providers in general and extension staff in particular, a socially inclusive service system will result in higher budget requirements for increasing the outreach of the field staff.

Sustainability: Environmentally sustainable agricultural and resource utilisation practices often tend to be more knowledge-based and labour-intensive, while being less dependent on external inputs and finances. Moreover, they tend to be more location-specific and less standardised. While conventional farming practices based on high yield varieties and mineral fertiliser may be applied in a similar manner world-wide, organic farming practices may differ from place to place, depending on the agro-ecological zone. Consequently, service systems need to be differently designed for intensification and diversification. The focus is more on knowledge generation and dissemination, i.e. on adaptive agricultural research and extension. Consequently, extension staff has to be trained and sensitised for sustainable management (including for conservation agriculture). This has implications for the extension methods. As climatic variability requires high flexibility, the adaptive capacity of the farmers needs to be strengthened. In order to be environmentally sustainable and socially inclusive, adaptive research needs to be adapted to the location and to the limited potentials of the poorer strata of smallholders.

Institutional aspects: Agro-services can be provided by private business service providers, by NGOs, or by government agencies. Which of these is better depends on the country (is there more of a state-failure or a market-failure?), on the type of commodity, on the location and on the target groups. The only rule which can be generalised is the principle of subsidiarity: The state should only do what private agents cannot do at least as well. Experience from value chain promotion in sub-Saharan countries shows that private business providers are better suited for commodity-related services, in central and densely populated areas and for better-off target groups. In contrast, they are less interested in services related to sustainable soil conservation or rehabilitation, as well as in remote areas and marginal farmers. Accordingly, services for environmentally sustainable and socially inclusive rural transformation are a public responsibility. This means that governments have to ensure that these services are provided according to ecological requirements and are accessible for all who need them. The way in which governments fulfil their responsibility, whether in partnerships with private business, with non-profit organisations or through public providers, may differ according to available capacities. Government policies should create an enabling regulatory framework for the private sector instead of creating barriers as at present because of the shape of FISP and FRA. Moreover, it is important to coordinate and harmonize activities and content of different service providers. This includes the need for an institutionalised cooperation of the respective ministries and agencies in charge of natural resource management. But a transformation-oriented service system is about innovative service

solutions, so that donors and technical cooperation partners may be required to promote innovation, which private business and state bureaucracies often fail to do.

Conclusion: Providing services not only for the existing agricultural and rural production systems, but for promotion of a socially inclusive and environmentally sustainable rural transformation process cannot rely solely on existing private commercial services. Rather, it needs the Zambian government to take on responsibility for a politically wanted and supported change process, for sustainable development, and poverty reduction. This relates to requirements for improved governance (see below).

6.3.2 Improved rural infrastructure

Relevance of infrastructure: High transaction costs are a major factor reducing the competitiveness of agriculture and off-farm businesses in remote rural regions of Zambia. They tend to reduce producer prices and, as a consequence, the economic viability of investments in intensification or diversification of production. Transport and communications infrastructure are also crucial if services are to reach remote farmers. This applies to feeder roads for the transport of produce and improving the mobility of farmers wishing to access markets, as well as ICT to disseminate information to remote farmers.

Infrastructure for transformation: In the Zambian context, market-oriented rural and agricultural development is one cornerstone of a diversification and transformation of the mono-structured Zambian economy. Since a large proportion of Zambia's underutilised rural resources are to be found in the more remote rural regions, economic infrastructure is the key for development of the rural economy, but also for the effective provision of social services such as health and education. The most important infrastructure components of the rural economy in need of improvement are:

- **Transport infrastructure** to increase the competitiveness of market-oriented agricultural and non-agricultural production and to reduce the costs for production-related and social services. For regions with high potential for export-oriented fields of production, transport links to the central regions and market outlets (harbours, airports) are more important, for regions which rather depend on development of local and regional markets inner-regional rural access roads ("feeder roads") are more effective.
- **Communications** are of great importance for reducing transport costs and for improving market information, allowing informed production decisions. Being connected to the wider world contributes to cultural modernisation, which is also part of a rural transformation process. Whether the feeling of "being part of the world" will result in increased attractiveness of rural places and a preparedness to invest in improvements there or whether it will increase the incentive to leave the rural reality behind will depend on the economic opportunities there.
- **Electricity** is a major driver of rural development: Economically it opens new opportunities for off-farm processing activities and for more productive and market-oriented farming (e.g. through irrigation or as a basis for better communication). Socially, it improves conditions for education, communication, health services and social life in the villages.

While transport infrastructure will remain a major constraint for rural transformation in the remote regions of Zambia due to the high costs of road or railway construction, the technical progress in communications and regenerative energies resulting in a dramatic cost reduction as well as improved availability of local means of transport will be a dynamic driving force towards rural development and transformation.

Social inclusiveness: The high costs of transport infrastructure are an obstacle for a socially inclusive transformation process in Zambia, as residents in the more remote locations are usually among the more poverty-affected population groups. In those places, social inclusiveness cannot be achieved by more roads, but only by allocating a greater share of the transport budget to better maintenance of the feeder roads. Community managed road maintenance funds could open opportunities for labour-intensive and thus socially inclusive approaches of road maintenance for village roads. This, however, would require some social organisation efforts and some testing. A second way towards inclusion of the people living in these remote areas is to search for environmentally adapted and commercially viable high-value-per-weight products. The use of the forests in remote parts of North-Western Province for production of honey and beeswax for external markets through marginal small-scale farmers are an example of the possibility of market integration even of very remote locations. The cost reductions of mobile phones and the future cost reduction potentials of solar energy offer scope for decentralised and therefore accessible supply systems.

Environmental sustainability: A rural transport system based on non-motorised local means of transport (animal traction, bicycles), the dissemination of regenerative energies and irrigation techniques based on increased water productivity can help to improve rural infrastructure through environmentally sustainable means.

Institutional aspects: Rural roads are and will probably remain (local) government responsibility as they are usually not profitable and have no chance to attract private investors. New forms of government – community partnerships for road maintenance could, however, help to overcome the government failure in rural road maintenance while at the same time provide off-season income opportunities for rural families. Supply with regenerative decentralised electricity can be managed in a profitable manner by private business, but will need state subsidies and an encouraging regulatory framework in an initial phase during an initial phase to take off. The further spread of ICT is commercially viable and does not require much government involvement.

Conclusion: While improved communication and energy generating technologies can help to facilitate a socially inclusive and environmentally sustainable transformation process even in remote rural areas, transport infrastructure will continue to be a constraining factor for a market-oriented transformation of the economy in those regions. High costs of road construction and maintenance will hinder a full-scale opening up of sparsely populated remote regions. It seems more promising in these locations to adjust resource utilisation to take this into account.

6.3.3 Quality education, practical knowledge and skills

Relevance: The provision of at least basic levels of literacy and numeracy is generally accepted as a basic prerequisite for economic and political development as well as for human freedom. In

addition, practical knowledge and skills⁵³ are of special importance for taking up opportunities to generate off-farm income and to gain employment in a market economy based on division of labour and specialisation. In Zambia, the quality of primary and secondary education is declining despite high primary school enrolment rates even in remote rural areas. Moreover, the knowledge and skills provided through secondary education and vocational training are often not sufficiently practical to meet labour market requirements. Any transformation of an economy beyond the level of a village economy based on subsistence production, however, needs people who are equipped with the necessary education and skills to adjust flexibly to new vocational requirements and to make use of new opportunities. Transformation happens if capabilities match changing opportunities.

Knowledge and skills for transformation: Literacy and numeracy are prerequisites for any transformation, whether it is directed towards intensification, diversification and increased market-orientation of agriculture or for improving the chance to make effective use of non-farm income and employment opportunities. Skills to read, write and calculate are multi-functional. Specialised professional skills, in contrast, are mainly relevant for getting access to the more productive and better paid segments of the non-farm sector, whether as a skilled labourer or an informal small-scale entrepreneur. Education and practical skills alone will not boost transformation. They have to meet with market opportunities and incentives to end up in a transformation process. Therefore transformation oriented provision of knowledge and skills have to be adapted to the needs of the product and labour market. That means investments in the whole education system need to be based on labour market information systems which will help to bring jobs and applicants together but also to identify the demand for skills. Specialised training needs to be part and parcel of economic promotion programmes and based on a proper analysis of economic opportunities. Such programmes need to include complementary support such as funding for starting a business.

Improvements of the quality of basic education: Only if the quality of teaching improves will there be a chance to reduce drop-out rates from primary schools and to increase literacy levels. Quality education is strongly related to teacher qualifications and motivation⁵⁴. Teacher performance should be evaluated. Responsibility for teacher hiring and firing should be with the lowest administrative level possible (the school committees and local governments), combined with reward systems for good performance. According to a recent World Bank study (2016a), a contract teacher programme can help to fill in for missing teachers in remote areas and community schools where voluntary teachers' commitments cannot be sustained forever (MESVTEE, 2014, p. 35). Attractiveness of the teacher's job in rural areas will rise with better rural services, in particular in the fields of electrification and communications. Access to textbooks and learning materials in local languages is also linked to learning outcomes. Therefore, access to finance for individual households via grants or innovative systems⁵⁵, e.g. for purchasing textbooks but also

53 Practical knowledge and skills include artisanal, technical, entrepreneurial and agricultural skills and knowledge. They include formal and informal ways of knowledge sharing

54 See Teacher Incentives to Students' Test Scores in Kenya (<https://www.povertyactionlab.org/evaluation/teacher-incentives-based-students-test-scores-kenya>)

55 See Primary School Saving in Uganda (<http://www.poverty-action.org/study/smoothing-cost-education-primary-school-saving-uganda>)

going beyond, has a strong effect on raising practical knowledge and skills⁵⁶. However, broad-based improvements in primary education will necessarily be of a long-term nature as only better teaching can increase the number of better teachers. More investments in teacher training colleges may be the key to speed that process up.

Social inclusiveness: It will be crucial to take account of existing inequalities of the education system in poorer regions and lower primary school completion rates for girls to avoid a highly exclusive transformation process which would leave females and smallholders in remote rural areas behind and thereby further widen existing social disparities. Most likely, however, drop-out rates of girls and children from poorer rural households will decline as soon as the quality of teaching improves again and as soon as there are more opportunities for school leavers. For vocational training, a pro-poor targeting of students, financial support for participants and short, practically focussed courses can help to involve candidates from poorer households and avoid that they take the short-cut of going for quick cash in unskilled jobs.

Environmental sustainability: Environmental education is a prerequisite for people's willingness and competence towards sustainable management of their natural resources.

Institutional aspects: The level of knowledge and skills has a strong influence on many other decisive factors for rural transformation (cf. Table 5). Yet, knowledge and skills are hardly influenced by other factors, one reason being the dependency on public service delivery in the education and extension sector and thus on institutional and government capacities. The institutional dilemma of education and training systems is that private schools usually provide better quality, but are socially exclusive, while government schools are accessible for everybody, but tend to provide poor quality. The only way of bringing quality education to everybody is to increase government budgets and to encourage decentralised control and management through communities and school committees.

Conclusion: The example of Zambia, like those of many other African countries, has shown, that investments in the quantitative extension of the school system and high enrolment rates in line with millennium goals are not sufficient to improve the outcome of the system, in particular literacy rates and practical skills. The young people and their families will only benefit from participating in an educational system, if education increases the chance of gaining employment. As this is no longer the case, the perceived value of education is low, especially if costs are involved and if opportunity costs in terms of using the young people for farm work are high. While it is true that education is crucial for development and transformation, it is therefore equally true that the preparedness for education depends on the development and transformation dynamics and the employment opportunities it creates.

6.3.4 Industrial and trade policy

Relevance: The creation of non-farm income and employment opportunities is a widely-accepted strategy for structural transformation. Nonetheless, achievements in Zambia so far

⁵⁶ This is supported by the experience that children of families participating in social protection programmes stay longer in school (Interview No. 89).

have been modest (as in most other sub-Saharan countries). This is due to a very difficult global economic environment for job creation in economically and technologically less advanced countries. While job creation requires labour-intensive technologies, these are often (but not always) less competitive against highly automated production processes in advanced industrial economies. To identify and promote such labour-intensive but competitive opportunities needs a distinct and considerate industrial policy, accompanied by a supportive trade policy.

Industrial policy for transformation: Any productive and economically viable job or income opportunity in Zambia's manufacturing and services sector is a positive step towards structural transformation/diversification of the resource dependent Zambian economy.

Social inclusiveness: The key to a socially inclusive transformation process is creation of jobs (BMZ, 2017, p. 16), in particular for the 200,000 young people entering the labour market every year. Investments do not necessarily result in a positive employment effect. If an investment based on labour-saving technologies creates 100 new jobs while replacing 1,000 local craftsmen, the contribution to the Zambian GDP may be positive, but the employment problem will be aggravated. It is the *net*-employment effect which counts! Thus, the challenge for a socially inclusive industrial and service sector development is an investment promotion strategy focussing on sub-sectors that:

- Are innovative for Zambia or the envisaged location,
- Replace imports or bring export-oriented value-adding activities for local raw materials (including agricultural or forestry products) from abroad to Zambia,
- Have a fair chance to become internationally competitive within the foreseeable future,
- Are as labour-intensive as possible with due consideration of labour bottlenecks which may prevent necessary practices of intensified farm management.

These criteria for a socially inclusive investment promotion demonstrate that it is not enough for Zambian government to create a positive business climate for private investors. Rather, social inclusiveness, i.e. job creation for the (low skilled) youth, requires a well targeted steering of investment towards creation of a sustainable positive net-employment effect. This needs proper analysis of markets. Furthermore, it needs a trade policy that is suitable to protect these specific markets temporarily (in line with BMZ 2017, p.17). As the employment effects of such industrial and trade policies in the private sector will most likely still lag behind the demand for jobs, at least in the short term, these policies will have to be supplemented by labour-intensive public infrastructure programmes based on cash-for-work. Again, this will have trade policy implications: The markets for public orders cannot be unconditionally liberalised.

Environmental sustainability: Investment promotion policies should be in line with the concept of a "Green Economy". Negative impacts should be minimised by strict environmental impact screening. Moreover, environmentally friendly sub-sectors, such as regenerative energies or non-motorised means of transport, should receive special promotion and protection.

Institutional aspects: A transformation oriented industrial and trade policy needs more than just a conducive framework for the private sector. It needs targeted state interventions. Experience in

Zambia and elsewhere shows that this is a highly sensitive issue. In the past, state bureaucracies tended to misuse their regulating powers in favour of their rent-seeking interests or of their clientele networks, rather than towards creation of competitive jobs. Consequently, new institutional arrangements are required in order to avoid the traps of state failure and market-failure. These might be semi-autonomous management units or task forces (“Transformation Steering Centres”) with representatives from government agencies, academic institutions, economic advisory units, private business, selected civil society organisations, and international advisors from contributing donor agencies. Their task would be to identify context-specific industrial and service sector promotion strategies and related action programmes. These units need to be accountable to the parliament, but not subject to direct political interventions. As international know how can play a strong role, such units should be financially and technically supported by international development cooperation.

Conclusion: Sustainable income and employment opportunities will not emerge through hundreds of uncoordinated initiatives promoting “income generating activities”. Nor will they be a result of private investments alone. They require a distinct transformation policy and well-tailored context specific transformation strategies based on sound analyses which aim at a targeted promotion of promising economic sub-sectors.

6.3.5 Governance/Policy implementation

All key intervention areas require improved governance, and a serious commitment to policy implementation. The on-going debates in Africa about the pros and cons of more authoritarian, but development-oriented governments in countries like Ethiopia or Rwanda against the democratic, while less policy implementation focussed countries like Zambia or Ghana cannot be taken up within the framework of this study. It has to be accepted that changes in governance performance are long-term processes which are subject to factors beyond control of developmental interventions.

Accepting this does not mean, however, assuming that effective support of the Zambian policy for a transformation process as outlined in this chapter is nothing but wishful thinking. Experience shows that relevant improvements in certain fields are possible without improving governance performance in general. This was the case for the transformation of the copper sector in Zambia, for the containment of the HIV/AIDS crisis, and with regard to increased food self-sufficiency. In all these fields, special action programmes beyond the routine of bureaucratic policy implementation procedures played an important role. Such special initiatives – similar to the German SEWOH-initiative of the BMZ under which this research is being promoted – can help to promote the strategic interventions outlined here:

- **Socially inclusive access to agro-services:** This requires a well-funded coordinated multi-stakeholder action programme within which all service tasks are allocated according to the principle of subsidiarity. Green innovation centres can play a strong role in helping to identify context-specific service system solutions. Promotion of socially inclusive small-scale farmers’ organisations through non-governmental agencies will have to play a key role.

- **Rural infrastructure improvement:** A new regulatory framework for government-financed, community-based rural feeder road maintenance programmes can help to overcome the persistent transport problem in remote rural areas. For the fields of regenerative decentralised energy and telecommunications it may be sufficient to further improve or adjust the regulatory framework for private initiatives.
- **Improved literacy and market oriented practical skills:** While an improvement of primary education towards achieving general literacy will remain a long-term effort beyond the scope of short-term action programmes, focussed vocational training programmes might be a case for special initiatives, coordinated by special task forces and supported by donors. These programmes should be embedded within the framework of transformation oriented industrial policies.
- **Industrial and trade policies:** As already stated above, designing and implementing an industrial and trade policy towards structural transformation will require a semi-autonomous multi-stakeholder management unit.

Conclusion: Rather than waiting for a long-term process of improving general governance performance, the promotion of the structural transformation process needs special institutional arrangements. This is not in contradiction to the long-term nature of transformation processes. The role of short-term special initiatives is to push start the process and to identify appropriate future paths for that process. Once the transformation process has gathered speed, such special initiatives will have served their purpose.

7 References

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8 Annex

Annex 1: List of interview partners, Focus Group Discussion and Codes

Code Nr.	Region	District	Institution
1	Lusaka	Lusaka	AgDevCo
2	Central Province	Serenje	Community Markets for Conservation (Comaco)
3	Central Province	Serenje	Department of Community Development
4	Central Province	Kabwe	Provincial Planning Unit
5	Central Province	Mkushi	Emerging farmer
6	Central Province	Kabwe	Citizen Economic Empowerment Fund (CEEC)
7	Central Province	Kabwe	Cooperative Office
8	Central Province	Kabwe	Farm management unit
9	Central Province	Kabwe	Fisheries office
10	Central Province	Kabwe	Forestry Department
11	Central Province	Kabwe	Livestock Production Office
12	Central Province	Kabwe	Ministry of Chiefs
13	Central Province	Kabwe	Ministry of Local Governments and Housing
14	Central Province	Kabwe	Provincial Water Affairs Office
15	Central Province	Mkushi	Commercial farmer/Water User Association
16	Central Province	Mkushi	Chowe Farm Block
17	Central Province	Kabwe	Conservation Farming Unit
18	Central Province	Kabwe	District Fisheries Office
19	Central Province	Kabwe	Municipality
20	Central Province	Kabwe	Ministry of Community Development
21	Central Province	Kabwe	Ministry of Education
22	Central Province	Kabwe	MUSIKA
23	Central Province	Kabwe	Land Resettlement
24	Central Province	Kabwe	Youth Empowerment Fund
25	Central Province	Kabwe	Zambia Electricity Supply Corporation Limited (ZESCO)
26	Central Province	Serenje	Community Markets for Conservation (Comaco)
27	Central Province	Serenje	United Nations Development Program (UNDP)
28	Central Province	Kabwe	Small-scale irrigation Unit
29	Central Province	Mumbwa	NWKAgr-services
30	Central Province	Kabwe	NWKAgr-services

Code Nr.	Region	District	Institution
31	Central Province	Kabwe	Farmer
32	Central Province	Kapiri	National Union for Small Scale Farmers in Zambia (NUSFAZ)
33	Central Province	Mumbwa	District Ministry of Agriculture
34	Central Province	Mumbwa	Distributor NWKAgri-services
35	Central Province	Mumbwa	Contract farmer NWKAgri-services
36	Central Province	Mumbwa	Zambia National Farmers Union (ZNFU)
37	Central Province	Mumbwa	Farmer Group Discussion: 7 farmers
38	Central Province	Kapiri	Agro-dealer
39	Central Province	Kapiri	Farmer
40	Central Province	Mokonchi	Community Markets for Conservation (Comaco)
41	Central Province	Mokonchi	Tobacco Farmer
42	Central Province	Mumbwa	Amatheon
43	Central Province	Mumbwa	Conservation Farming Unit
44	Central Province	Mumbwa	District Planning Unit
45	Northwestern Province	Solwezi	Citizen Economic Empowerment Fund (CEEC)
46	Northwestern Province	Solwezi	Cooperative Office
47	Northwestern Province	Solwezi	GIZ
48	Northwestern Province	Solwezi	Ministry of Agriculture, Coordination Unit
49	Northwestern Province	Solwezi	Meteorological Department
50	Northwestern Province	Solwezi	Ministry of Chiefs
51	Northwestern Province	Solwezi	Ministry of Lands
52	Northwestern Province	Solwezi	NUSFAZ
53	Northwestern Province	Solwezi	Department of Housing and Infrastructure
54	Northwestern Province	Solwezi	Provincial Planning Unit
55	Northwestern Province	Solwezi	Resettlement Programme
56	Northwestern Province	Solwezi	Farmer Group Discussion: 31 farmers
57	Northwestern Province	Solwezi	IDE
58	Northwestern Province	Solwezi	Provincial Planning Unit
59	Northwestern Province	Solwezi	Crop Office
60	Northwestern Province	Solwezi	Forestry Office
61	Northwestern Province	Solwezi	Provincial Water Authority
62	Northwestern Province	Solwezi	Workers compensation Fund Control Board
63	Northwestern Province	Kasempa	DACO Kasempa
64	Northwestern Province	Lumwana	School director
65	Northwestern Province	Solwezi	Energy Regulation Board

Code Nr.	Region	District	Institution
66	Northwestern Province	Solwezi	Livestock Office
67	Northwestern Province	Solwezi	Ministry of Education
68	Northwestern Province	Solwezi	ZNFU
69	Northwestern Province	Kasempa	Community Development
70	Northwestern Province	Kasempa	Farmer Group Discussion: 14 farmers
71	Northwestern Province	Solwezi	Central Statistics Office
72	Northwestern Province	Solwezi	Fisheries office
73	Northwestern Province	Solwezi	PACRA Patents and companies registration agency
74	Northwestern Province	Solwezi	Labour Office
75	Northwestern Province	Solwezi	SeedCo
76	Lusaka	Lusaka	GIZ
77	Lusaka	Lusaka	Caritas
78	Lusaka	Lusaka	Preliminary results presentation to donors
79	Lusaka	Lusaka	Preliminary results presentation to IAPRI
80	Lusaka	Lusaka	Ministry of Sports and Youth
81	Lusaka	Lusaka	Friedrich Ebert Stiftung (FES)
82	Lusaka	Lusaka	ZNFU
83	Lusaka	Lusaka	Preliminary results presentation to GIZ
84	Lusaka	Lusaka	Bank of Zambia
85	Lusaka	Lusaka	Forestry
86	Lusaka	Lusaka	Farm Management
87	Lusaka	Lusaka	Musika
88	Lusaka	Lusaka	Zambia Environmental Management Agency (ZEMA)
89	Lusaka	Lusaka	Irish Embassy

Annex 2: Scenario Workshop Program

Workshop Title: Building Scenarios of Rural Transformation in Zambia	
Participants	Representatives from the Government of Zambia and from Research Institutes, Private Sector Companies and Non-Governmental Organisations working in Zambia
Time	Monday, October 19, to Friday, October 23, 2015 (9:00-17:00)
Facilitator	Christian Berg, comit GmbH Berlin Co-Facilitation by Erik Engel, SLE/Humboldt-Universität zu Berlin
Objectives	The participants have built scenarios of rural transformation in Zambia until the year 2030 and developed strategic recommendations on how to work towards a socially inclusive and ecologically sustainable rural transformation

Programme of activities	
Day 1: Monday, 19 October	
<ul style="list-style-type: none"> ▪ Registration ▪ Welcome address by German Embassy, Lusaka ▪ Introduction to the Workshop, participants, research background and topic ▪ Identifying and weighting of factors relevant to rural transformation in Zambia 	
Day 2: Tuesday, 20 October	
<ul style="list-style-type: none"> ▪ Describing alternative developments in factors relevant to rural transformation in Zambia ▪ Developing a business-as-usual, best-case and worse-case scenario for rural transformation in Zambia 	
Day 3: Wednesday, 21 October	
<ul style="list-style-type: none"> ▪ Analysing the mutual influences of factors that determine rural transformation in Zambia ▪ Reviewing factors in a systems approach 	
Day 4: Thursday, 22 October	
<ul style="list-style-type: none"> ▪ Analysing passive and active scores of factors to determine their power ▪ Developing strategies and recommendations for a more inclusive and sustainable rural transformation 	
Day 5: Friday, 23 October	
<ul style="list-style-type: none"> ▪ Developing strategies and recommendations for a more inclusive and sustainable rural transformation ▪ Reviewing scenarios, outlook and follow-up to the workshop 	

