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Kamanzi, A.; Dede, K.S; Haan, L.J. de

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Kamanzi, Adalbertus
Dede, Kwalu Samwel
de Haan, Leo

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African Studies Centre Leiden

P.O. Box 9555

2300 RB Leiden

The Netherlands

Telephone +31-71-5273372

Website www.ascleiden.nl

E-mail asc@asc.leidenuniv.nl

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K.S. Dede, L. de Haan

Modern transformation of rural livelihoods in Africa: the case of the Dodoma Region, Tanzania

Adalbertus Kamanzi¹, Programme of Development Studies, University of Namibia, Namibia.

Kwalu Samwel Dede, Institute of Rural Development Planning, Dodoma, Tanzania.

Leo de Haan, International Institute of Social Studies, The Hague, Netherlands.

Abstract

Nowadays, urban-rural connections are accelerating in sub-Saharan Africa resulting in agricultural transformations, which in turn lead to the transformation of rural livelihoods. This paper examines agricultural transformations in the Dodoma Region, Tanzania, and their impact on local rural livelihoods. Triggered by transportation development and rising demand for agricultural produce on the national and international level, the transformation of rural livelihoods on the village level entails: the application of more advanced methods and organisation of agricultural production; the increased use wage-labour; considerably higher agricultural revenues; a distinct rise of livelihoods partly or exclusively based on small-scale industry, petty trade and other businesses; and a distinctively higher level of incomes and consumption.

Keywords

Agricultural transformations, rural livelihoods transformation, sub-Saharan Africa, Tanzania

Introduction

Urban-rural connections are accelerating in sub-Saharan Africa nowadays, resulting in agricultural transformations, which in turn lead to the transformation of rural livelihoods. To examine agricultural transformations and their impact on rural livelihoods, we started a research project in the Dodoma Region, Tanzania. In this paper, we report on the findings of the first field survey in 2017, pending the analysis of findings of a follow-up survey. Our central research question “what is the impact of agricultural transformations on rural livelihoods at the local level” was broken down into three sub-questions in this survey: (1) “which were the main regional historical events and what was their effects on local communities”; (2) “what are local people’s perceptions on these effects”; and (3) “what are the characteristics of the transformation of local rural livelihoods”.

In the following section, the theme of acceleration urban-rural connections and resulting agricultural transformations will be discussed through a brief literature review, followed in section 3 by an overview of rural livelihoods transformations in the Dodoma Region of Tanzania. In section 4 the methodology and results of Focus Group Workshops (FGWs) in case-study villages are discussed. The section maps the agricultural transformations in the villages and the impact of these transformations on rural livelihoods. Moreover, some methodological issues of the FGWs in practice are explained and some central concepts are critically discussed. Finally, section 5 summarizes the results and looks forward to the research agenda of the follow-up survey.

¹ Corresponding author A. Kamanzi,
e-mail: kamanzi.unam@gmail.com

Modern transformation of rural livelihoods in sub-Saharan Africa

The orthodox dichotomy between urban and rural, in which ‘urban’ represents ‘modern’, ‘advanced’ or ‘progressive’ and ‘rural’ represents ‘traditional’, ‘backward’ or ‘conservative’, is increasingly superseded also in sub-Saharan Africa. Triggered by economy and technology, societal transformations are currently emerging all over the continent. As a consequence, received wisdom about the urban-rural dichotomy is now being challenged by conceptualisations of the urban-rural in terms of ‘continuum’ and ‘connections’, not in the least with respect to livelihoods.

In a ground-breaking research report on these matters, Agergaard (2016) argues that currently in sub-Saharan Africa urban expansion and urban sprawl, the growth of secondary cities, agricultural and rural transformations and increased mobility and migrations are interconnected and driven by domestic, regional as well as international demand as well as population growth. Cities transform through the increasingly mobile livelihood arrangements of their residents and increased connections cum interactions with secondary cities and rural areas. Moreover, “migration is no longer a one-way flow from rural to urban but has turned into a chain of mobilities in which rural and urban livelihoods interact on a movement continuum” (de Haan 2017: 134). As a consequence, mobility and migration often result in multi-local livelihood arrangements contributing to both urban and rural transformations (Agergaard and Ortenbjerg 2017: 64 and 66).

Mobility and multi-local livelihoods contribute to diversifying income sources and more secure livelihoods. In rural areas, this translates into increased off-farm employment. Moreover, increased demand for agricultural produce attracts external investments in land and production. This creates new livelihoods too or make existing livelihoods more diverse and dynamic. Sometimes land tenure arrangements become more flexible and local farmers’ access to land improves (Agergaard and Ortenbjerg 2017: 66; de Haan 2017: 133). Improved accessibility and connectivity through new roads and ICT infrastructure increase farmers’ access to markets and enhance their bargaining position, again contributing to more dynamic rural livelihoods (Steel et al 2017). In addition, rising demand for wage labour create new rural livelihoods for seasonal labour migrants. These findings are confirmed by Jayne et al (2019) who not only conclude that sub-Saharan agriculture is rapidly transforming and but specify that most of the dynamics seems to originate from medium-scale farm landholding.

Interestingly, the dynamics in the rural economy triggered by increased demand very much depend of the type of crop: “perishable crops like vegetables - requiring dedicated harvesting, handling and transport - rather than industrial crops like palm oil, contribute to the local economy in terms of diversification, retaining added value and local reinvestments in processing and thus to the rise of non-agricultural livelihoods and the growth of rural centres and small towns” (de Haan 2017: 133 referring to Agergaard 2016).

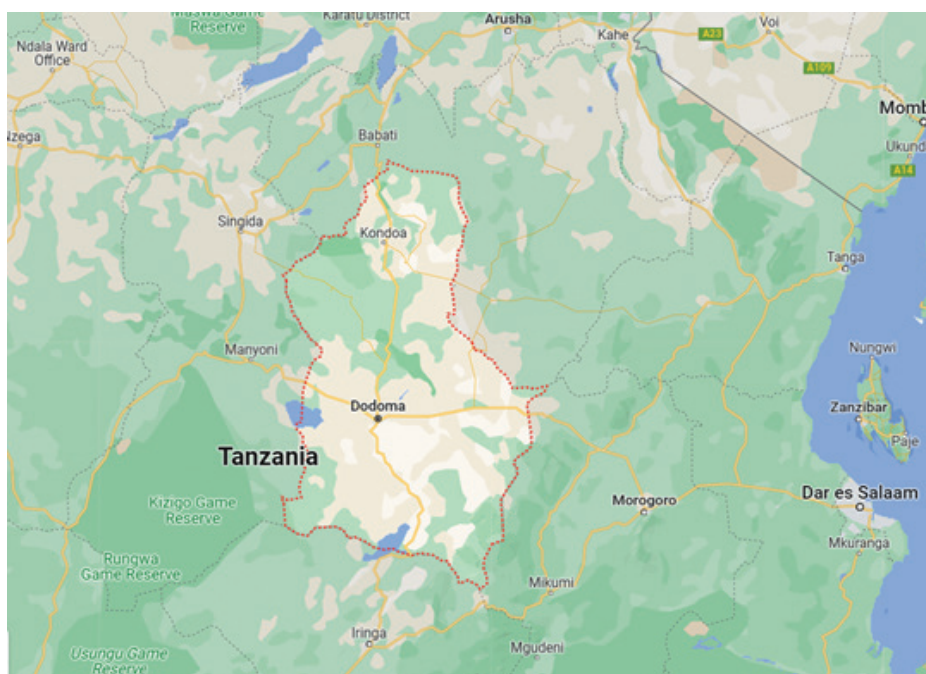
Obviously, these urban-rural connections are closely related to infrastructure networks and infrastructural development. In fact, economic development like the observed intensifying connections cannot take place without an infrastructural base (Rodrigue 2020) nor without an urban network, in which small towns - according to Agergaard (2018) - play a major role. In this respect, it is worth echoing Esson’s et al. (2016) who warn that the recent “mobility turn” fails to engage with transport geography. They argue, supported by a study on urban transformations in Accra, Ghana, that a precise understanding of mobility requires an examination “of both the systemic features of

transport structures and operations, and the perceptions, attitudes and often flexible livelihood-related decisions made by individual transport users” (Esson et al. 2016: 183). Livelihoods, in other words, are influenced by interactions with and perceptions of the transportation system.

It should be reminded, that these transformations of rural livelihoods do not necessarily entail an end to social exclusion of the rural poor. Ortenblad et al (2019), when analysing modern livelihood transformations in the Njombe Region, Tanzania, conclude that economic growth triggered by intensification and commercialisation of agricultural production and diversification of household activities in the region, open new avenues for enhancement of livelihoods, but that successful exploitation of these avenues depends on households access to land, human capital and productive assets, as well as on age and gender. As a consequence, considerable numbers of rural poor do not profit from the accelerating urban-rural connections. According to the authors, new social inequalities arise and old inequalities are continued. Also Agergaard et al (2021:1) conclude, when examining recently accelerating urban-rural connections in sub-Saharan Africa, that the resulting “income diversification varies substantially among population groups, depending on economic and migrant status, gender, and age”.

In other words, new forms of social exclusion may occur out of the recently accelerating rural-urban connections: rising land prices may block local farmers’ access to land; and differentiated access to ICT infrastructure and smartphone connectivity produce new exclusions of livelihoods opportunities (Steel et al. 2017). Following Esson et al (2016), the same goes for transportation. Even mobility engenders new exclusions: “one person moving to access new livelihoods opportunities relegates another household member to immobility, compelled to take care of the children, the house and the plot” (de Haan 2017: 134 referring to Steel, Cottyn & van Lindert, 2017).

Rural livelihoods transformations in the Dodoma Region of Tanzania



Map 1
Dodoma Region, Tanzania

The Dodoma Region in Central Tanzania (map 1) is in many ways resonating the accelerating urban-rural connections as explained in the previous section. Its limited agri-

cultural potential due to low rainfall and its geographical remoteness from the country's economic centres impeded for decades its economic development, despite the fact that since 1973 Dodoma is officially Tanzania's capital. However, in the last decade and especially during the mid-2010s, transformations intensified. In full accordance, with our discussion of Esson (2016), Agergaard (2016) and Rodrigue (2020) on the relation between transportation, accelerating urban-rural connections and agricultural transformations in section 2, growing domestic and international demand for agricultural produce exerted its impact, first of all along the eastbound road to Dar es Salaam, for a long time the sole bituminised road that connected the region with the rest of the country. When subsequently - thanks to Chinese support - the east-, south- and westbound trunk roads became upgraded and bituminised, other parts of Dodoma Region transformed too. Moreover, the city of Dodoma is rapidly growing because the current Magufuli/Suluhi administration deals instantly with the devastating congestion in the country's de facto capital Dar es Salaam. After the previous Kikwete administration already established - again with Chinese support - the huge University of Dodoma, the current administration is relocating entire ministries to Dodoma.

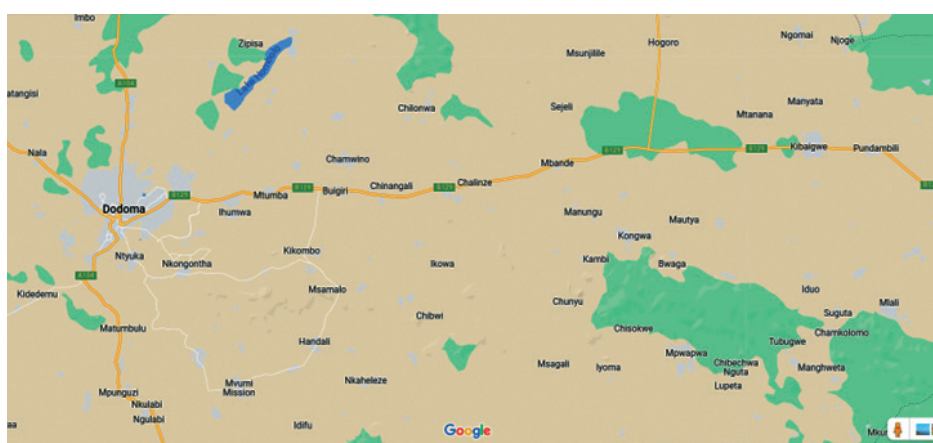
As a result high-rise buildings appear on Dodoma's skyline and house-construction booms. Apartments blocks for army personnel are under construction on the outskirts of the city, urban sprawl is accelerating and already extends eastwards over 20 km. Land speculation is apparent everywhere. Planning authorities try to get a grip on urban and peri-urban expansion by proclaiming zoning regulations, like for residential areas and industrial zones, and even the creation of suburban satellite towns. Shops and other amenities servicing the growing middleclass pop up in the city centre. More and more hotels and guesthouses appear, accommodating members of parliament, politicians, civil servants and businessmen from Dar es Salaam on their increasingly frequent visits to Dodoma.

On the basis of numerous interviews with government and university experts and field trips throughout the Dodoma Region in 2017, we established that agricultural transformations are occurring simultaneously in many locations.

In a dry zone like Dodoma Region dominated habitually by livestock keeping and rainfed agriculture, transformations are primarily emerging in locations with sufficient water resources, i.e. in valleys close to (semi-) permanent rivers and water reservoirs or with deep wells. Nevertheless a new abattoir in Dodoma, exporting fresh beef to the Middle-East, started to exploit the region's livestock supply, while near Kikombo (map 2) hides are being processed for leather. In the east of the region irrigated maize and horticulture production east of Hongoro and around Chalinsi (map 2), profiting from the water of permanent rivers and its location along the road to Dar es Salaam, were already well established and attracted investments from numerous businessmen. But with production still increasing in the area, new crops like sunflower and sesame expanding and trunk roads improving, the maize market of Pandambili (map 2) now has an international stature with produce being exported to Burundi, Ruanda and Congo. The area continues to attract seasonal labourers and immigrant-farmers, small- and large-scale farms alternate, mechanization is increasing and local processing of agricultural produce has started. Due to the expansion of farms into Masai pastures, violent resource conflicts are occurring more frequently and more violently. South of the trunk road - between Kongwa and Mlali (map 2) - groundnuts production is flourishing since early independence. However, recently sunflower production took off. Interestingly, women have taken

over commercial production here, since their men migrated to the maize production area. Wine production around Dodoma was established long time ago, according to local oral tradition initiated by catholic priests in need of mass wine. But now with the growing Tanzanian middle-class feels like drinking wine, production is on the rise. The Italian owned Hombolo winery just North of Buigiri is being modernized and attracted the interest of South African investors. In Buigiri (map 2), some 300 farmers and businessmen alike, took loans from a development bank to buy themselves into a new irrigated vineyard, cultivating one acre each. However, most grapes are being produced directly south of Dodoma around Mpunguzi (map 2), where also many new plantings

can be noticed. Finally, along the eastbound trunk road to Dar es Salaam many small commercial and market centres grew thanks to increased traffic and lower transportation costs. Worth mentioning in this respect is the thriving goat breeding around Sejeli (map 2). It attracts a great deal of attention of truckers and other customers for its choice of roasted goat meat. Various greenhouses and irrigated horticulture have been established closer to Dodoma.



Map 2
Dodoma Region, Tanzania: East and South

The western bound trunk road leading to Singida (map 1) and subsequently to northern Tanzania and Central Africa, was only upgraded in 2005 and immediately triggered land speculation and Dodoma's urban expansion in easterly direction. Livestock sales are on the rise as can be noticed at the animated market of Kigwe (map 3). Of particular interest is the area around Bahi (map 3). Its centre on the trunk road has developed into a transportation hub with all sorts of activities servicing heavy trucks passing through, as well as into an agro-commercial and processing centre based on the rice production in the surrounding villages. Here, rice production started already in the 1980s, with the establishment of an irrigation scheme supported over the years by various donor agencies. In the last decade, irrigation infrastructure has been modernized with concrete canals. Small-scale mechanisation started and new, more effective farmers organisations emerged. Falling transportation costs because of bituminisation and increased connectivity went hand in hand with increased demand from eastern Tanzania and Central-Africa. All this generated a vibrant rice producing space, involving some 8,000 most local farmers. Moreover, artisanal gold mining, a completely new livelihood rather alien to the area, emerged as a typical extension of gold mining in Singida.

As mentioned above, southbound to Iringa (map 1) mainly grape production profited from improved transportation and increased demand. Grapes are locally processed for

juice, but wine production is located in Dodoma. Finally, northbound the road to Arusha – or to be more precise the Dodoma-Babati section (map 1) connecting Dodoma to the already existing Arusha tar road from Singida - was the last of the Dodoma trunk roads to be upgraded and bituminised. It connects Dodoma now directly to Arusha instead of the detour via Singida. Because of the recent completion, its agricultural transformation effects are still limited. But Kondoa (map 1), in the past an isolated and politically marginalized town, already shows a sense of awakening. Closer to Dodoma, an international airport is planned, now leading to land evictions. Still closer to Dodoma, land speculation along the road is apparent.



Map 3

Dodoma Region, Tanzania: West and North

In this regional inventory we clearly established that agricultural transformations are occurring simultaneously in many locations in the Dodoma region. However, it also became clear that because infrastructural development, especially the upgrading and bituminising of trunk roads, took place at different points in time agricultural transformations are not evenly distributed over the region. To the east, they occurred first and often intertwined with already well-established agricultural commercialisation practices. On the contrary, to the west agricultural transformation are more recent and easier to pin down. Finally, to the south they are pretty much limited to grape production, while to the north agricultural transformation are yet to take off.

The COVID-19 pandemic unmistakably interrupted rural-urban connections and agricultural transformations in the Dodoma Region. Although President Magufuli, who died in 2021 allegedly of COVID-19, alternately denied or downplayed the occurrence of the disease in Tanzania and refused to impose a lockdown, the pandemic affected the country in various ways, not in the least because of COVID-19 policies in neighbouring countries. Local markets declined because of the absence of foreign traders and the loss of trade impacted negatively on rural employment and farm production. The supply of agricultural inputs like fertilizers also fell. Moreover, voluntary isolation prompted by the fear of infection led to a reduction of farm work (Mugabe 2022).

Taking a closer look: rural livelihoods transformations in the Bahi area of the Dodoma Region

Accelerating urban-rural connections and agricultural transformations in the Dodoma Region, as shown in the previous sections gave rise to agricultural transformations. In order to investigate the precise impact of agricultural transformations on local rural livelihoods, we zoom in on a case-study location. From our conclusion in the previous section, it becomes clear that the zone to the west of Dodoma offers the best opportunities for such a case-study. In this zone, especially the Bahi area, west of Dodoma on the trunk road to Singida, presents itself as a typical case of agricultural transforma-

tions. In section 3, Bahi was already characterised as an emerging transportation hub and as an agro-commercial and processing centre.

Methodology

Data collection in the area took place in August- September 2017 and started with a reconnaissance by foot, motor cycle and car through all the wards of Bahi district to refine the general picture of agricultural transformations and to introduce the upcoming fieldwork to all formal and informal key-persons in the respective villages and wards. On the basis of information collected, Bahi ward was selected to represent wards with agricultural transformations. Chipanga ward was selected to represent wards with few or none agricultural transformations. Bahi ward consists of three villages: Bahi Sokoni, Uhelela and Bahi Nagulo. Bahi Sokoni was selected to represent Bahi ward (see map 3). Chipanga ward consists of the Chipanga A, Chipanga B and Chiguluka villages. We choose Chipanga A (see map 3) to represent this ward.



Map 4
Bahi Sokoni



Map 5
Chipanga A

In order to determine the impact of agricultural transformations on rural livelihoods we organized a number of focus group workshops (FGWs) in Bani Sokoni and Chipanga A.

We expected to find “transformed” rural livelihoods in Bani Sokoni and more “conventional” rural livelihoods in Chipanga A. The methodology of these workshops was loosely based on Westley and Mikhalev (2002) and Dietz et al. (2013). The overall objective of the workshops was to take stock of both the aggregated collective knowledge of the area’s recent history and of people’s perceived assessment of changes. More specifically, three objectives were formulated: (i) to reconstruct the most important historical events in each ward selected and assess their effects in the community; (ii) to detail people’s positive and negative perceptions on changes in their communities; (iii) to identify the specific characteristics of the “transformed” and “conventional” livelihoods through a detailed understanding of the ward’s livelihood resources and the various households’ livelihood activities.

We aimed to select workshop participants carefully to include specific groups of people such as old and young, female and male, officials and non-officials. When officials and other influential people and opinion leaders would dominate discussions too much, we would establish a separate subgroup for them. From each of the two villages, twenty participants were identified for the three subsequent focus group workshops, striking a balance on gender and on age (below and above 40 years). Women and men took part in separated workshop sessions. In Bahi Sokoni village, a third group of male community leaders was created, while in Chipanga A the few (three) community leaders were part of the male focus group. In Bahi Sokoni, participants were distributed into three groups: the first group of participants had six community leaders, the second group had seven female participants and the third group had seven male participants. In Chipanga A, we had one female and one male group of ten participants each. Despite our efforts to have a cross-section of the wards’ population to participate in the workshops, the most rich and influential businessmen did not participate (too busy) nor did the most excluded (self-exclusion). For various practical reasons, we did not manage to repair this omission yet.

Focus groups were facilitated by members of the research team to ensure that every member had chances to contribute her/his ideas and to avoid one person to dominate the discussion. All workshop discussions and outcomes exercises were noted by literate participants on sheets of wall paper and read during interludes of syntheses. Each workshop ended with a plenary during which results were presented and comments discussed. The workshop facilitators triangulated notes and worksheets after each workshop.

The first workshop aimed to reconstruct the most important historical events in the ward and to assess their most important effects on the community. We intended to differentiate between local and extra-local events and between sudden events, as a disease, a conflict or the construction of a dispensary, and gradual changes, but in practice the distinction turned out less relevant. In the second workshop, participants were asked to impulsively describe any changes that have occurred, from whatever domain they deemed important. Participants were then asked to rate these changes as very positive, positive, negative or very negative. Eventually, participants were asked to come to a negotiated consensus. Only after this exercise was finalised, facilitators asked participants to express their opinion about possible changes in domains not mentioned but occurring on our check list, such as new agricultural production systems or existing agricultural production systems becoming more dynamic; external investments in land and production; or possible changes in domains like migration and remittances, infra-

structure, education and health, and cultural behaviour. In the third workshop, participants were asked to identify the ward's livelihood resources and the various households activities. Then they were asked to identify changes in their livelihoods, to relate these changes to domain changes discussed in the second workshop and to position them on the time-line of historical events discussed in the first workshop.

Results

Despite our efforts to keep deliberations focussed on the topic of each workshop (events – changes – livelihoods) in practice, they overlapped and distinctions between them became fluid from the start. Soon, the workshop facilitators decided not to adjust discussions continuously, as this would be detrimental to the creativity and enthusiasm of the participants. The distinction between local and extra-local events and between sudden events and gradual changes turned out irrelevant to the participants, who easily toggled between different levels of scale and time. In the first instance, the establishment of an irrigation project was considered as important as a plague or a drought. The only point that really mattered to the participants was the impact of events or changes on their livelihoods. Even so, two types of events stand out in both villages: hazards like drought, famine, flood, plague or disease (and a bumper crop as their flipside) and developmental interventions, either the start of an agricultural project or the construction of a road, bridge, headquarter or clinic. Hazards tend to be preponderant in Chipanga A and development interventions as agricultural projects more important in Bahi Sokoni (see appendix 1).

Already during the first workshop economic, social and cultural changes, roughly starting around the turn of the millennium, became visible. These were more articulated and detailed in the following workshops on changes and livelihoods. Standing out decisively were improvements in communication and transportation resulting in augmented level of intra-local, intra-regional and intra-national connectivity. Costs of transportation fell but frequency rose. Roads are passable in the rainy season. Mobile connectivity improved dramatically and so did the use of mobile telephones and even smart phones. Mobile banking services, for payment, savings and loans alike, have been generally adopted.

Secondly, service provision expanded. Educational and health services, including reproductive and child healthcare, have improved and universalised. Family planning is more common and husbands are allowing wives to use contraceptives. Moreover, electricity became available and water supply systems upgraded. Traditional grass thatched and mud houses gave way to modern permanent houses. In the same breath, it was noted that traditional values were deteriorating due to globalisation.

Thirdly, agricultural transformations became apparent: farms and pastures expanded, also due to immigration and leading to land degradation in some places; land value increased; land tenure arrangements improved, i.e. the establishment of customary land ownership had enabled many people to access and possess land.

Much to our surprise, these economic, social and cultural changes were clearly noted by participants in both Bahi Sokoni and Chipanga A. Participants in Chipanga A were fully aware of the changing world in which they are living. But the scale and the intensity of these changes were more outspoken, much bigger and more profound in Bahi Sokoni.

Strikingly, participants in Chipanga A noted another change, unknown in Bahi Sokoni, i.e. the arrival of artisanal gold mining. It emerged as a typical extension of similar production in Singida. Production was driven by Singida business people and implemented by immigrant Sukuma miners from the shores of Lake Victoria. Except for some food purchases at local markets and an unknown amount of mercury pollution, this enclave dominated by immigrant-miners had virtually no effect or multiplier on the economy.

The third workshop on livelihoods and livelihoods resources refined the outlook on similarities and differences in livelihoods between the two villages. In both villages, agriculture was the main livelihood activity, with livestock keeping being more pronounced in Chipanga A than in Bahi Sokoni. But agricultural production methods, organisation of production, market orientation and use of non-household labour were more advanced in Bahi Sokoni and agricultural revenues were considerably higher. Moreover, livelihoods partly (and sometimes even wholly) based on small-scale industry, petty trade and other businesses were well established in Bahi Sokoni and virtually absent in Chipanga A. As a result, incomes and consumption were distinctively higher in Bahi Sokoni than in Chipanga A. Artisanal gold mining in Chipanga A was a completely isolated livelihood.

Discussion

To confirm that Bahi Sokoni is characterized by “transformed” livelihoods and Chipanga A by “conventional” livelihoods, i.e. livelihoods that have not or hardly been touched by agricultural transformations, is like knocking down an open door. After all, both villages were selected for the FGWs to represent these particular livelihoods. Moreover, while the concept of “agricultural transformations” refers to an ongoing process, the term “transformed” suggests that the process of transformation has been completed. So, the term is ill-chosen. In addition, dichotomies sound good but prove false in reality: boundaries are often fuzzy and distinctions vague, like in the case of Bahi Sokoni and Chipanga A. Important economic, social and cultural changes, among which agricultural transformations, were occurring in both villages, though in Bahi Sokoni on a larger scale and more intense than in Chipanga A. Already in section 2 we argued that the orthodox dichotomy between urban and rural is increasingly superseded. Thus, instead of listing the characteristics of livelihoods in terms of the dichotomy, we should rather focus on the process and typify the consequences of the transformation process for people’s livelihoods. From that perspective, the transformation of rural livelihoods firstly means the application of more advanced methods and organisation of agricultural production, using wage-labour and resulting in considerably higher agricultural revenues. Secondly, it means a distinct rise of livelihoods partly or exclusively based on small-scale industry, petty trade and other businesses. Thirdly, as a result incomes and consumption levels are distinctively higher. Unfortunately, our data are yet inconclusive with respect to the multi-local aspects of local rural livelihoods, especially incomes from non-local wage labour and remittances from (temporary) migrants.

Conclusion: looking back and looking forward

In line with the recent view on the urban and the rural in sub-Saharan Africa as accelerating urban-rural connections, we have recorded in the second decade of the 21st century in the Dodoma Region of Tanzania, important economic, social and cultural changes, including agricultural transformation. These changes have resulted in the transformation of rural livelihoods. Triggered by transportation development and rising demand for agricultural produce on the national and international level, the transformation of

rural livelihoods on the local level entails: the application of more advanced methods and organisation of agricultural production, using wage-labour and resulting in considerably higher agricultural revenues; a distinct rise of livelihoods partly or exclusively based on small-scale industry, petty trade and other businesses; and a distinctively higher level of local incomes and consumption.

Though we argued in section 2 that the transformation of rural livelihoods may well involve new forms of social exclusion, we failed to identify processes exclusion through our FGWs, because our research project prematurely halted. With the prospect of a restart of the research project, we will certainly address that omission. We intend not only to scrutinize processes of social exclusion within families and within village communities, but also between villages. To be precise, at the background of agricultural transformations occurring in Bahi Sokoni on a larger scale and more intensively than in Chipanga A is not only Bahi Sokoni's proximity to the bituminised trunk road, but - most likely - also its favourable agricultural potential, which was already recognized by the FAO irrigated rice project in the 1980s. Though since then irrigation and rice production in Bahi Sokoni suffered from all sorts of ups and downs, some kind of historical path dependency may have contributed to the successful agricultural transformation we noted in our FGWs. It follows that an update of the state of agricultural transformations in the area, intra-community social exclusion and historical-locational path dependency are on the top of the agenda of our follow-up survey. This survey will also make clear to which extent the COVID-19 pandemic led to declining markets, rural employment, farm production, incomes and consumption, and if so, whether this paused, stopped or even reversed the process of agricultural transformation and the transformation of rural livelihoods.

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Appendix I

Table 1
Historical Events in Bahi Sokoni

Event(s)	Year	Effect/Impact
FAO project	1983-1984	Positive impact: farmers were provided with skills on rice production
Disease outbreak (Cholera)	1992-1993	Negative impact: Deaths of people
IFAD project	1993-1994	Positive impact: skills and farm inputs on rice production
Elinino	1998	Negative impact: Floods, destruction of farms and houses. Deaths of livestock and human beings
PIDP and NPA Projects	2000	Positive impact: Farming skills on rice production
Good harvest of crops	2001	Positive impact: Improved nutrition to children and other community members in their respective households
Moderate harvest	2002	Neutral: 50 percent of the community members experienced famine
Cholera outbreak	2003	Negative impact: Loss of lives of some individuals in the village
Drought	2004	Negative impact: Insufficient food production which lead to famine and hunger in most of the households in the village
Tar marked road constructed	2005	Positive impact: Improved transportation of farm products. Easy access to markets
Establishment of District Head-quarter	2007	Positive impact: Improved administrative and social services compared to the past when someone was required to travel far to Dodoma town.
Good harvest of crops	2008	Positive impact: Improved nutrition to children and other community members in their respective households
Nutrition program	1985-2017	Positive impact: Improved nutrition status to under five children. The program was initially introduced by Anglican church but later the government through the Ministry of Health, Community Development, Elderly and Children.
Lutheran World Relief (LWR) project	2012-2014	Positive impact: Knowledge and skills on irrigation and value addition of farm products
Floods	2014	Negative impact: -Destruction of buildings and farm crops which resulted into low production. -Construction of a storehouse for farm harvests
Kilimo Trust	2014-2016	Positive impact: Knowledge and skills on value addition of farm products
Quelea Quelea (plague of red-billed weaver)	2016	Negative impact: Destruction of farm crops

Table 2
Historical Events in Bahi Sokoni

Event(s)	Year	Effect/Impact
Hunger (“Ndomekwii”)	1984	Negative impact: Many households starved of having no food. The event was locally named as “Ndomekwi” to imply where should I go? This resulted into poor health status especially to children
Hunger (“Kombele”)	1988	Negative impact: Less food in many households. Poor health status especially to children
Quelea quelea (plague of red-billed weavers)	1992	Negative impact: Destruction of crops, poor harvest
ADP	1993	
Elinino	1993	Negative impact: Floods, destruction of farms and houses. Deaths of livestock and human beings
Heavy rain	1999	Positive impact: Good harvest of rice, plenty of fish and good circulation of money among community members
DCT	1999/2000	Positive impact: Production of sorghum seeds
Green grasshoppers	2001/2003	Negative Impact: Destruction of farm crops
Rift vallyeny disease	2006	Negative impact: Death of cattle
Elected member of parliament of Bahi constituent from Chipanga A	2010	Positive impact: Improved roads, construction of bridges and availability of essential drugs at the health center
Drought	2011	Negative impact: Insufficient food production which lead to famine and hunger in most of the households in the village
Theatre room constructed	2012	Positive impact: Improved maternal and health care. Reduced maternal mortality due to pregnancy complications
Population and Housing Census	2012	Positive impact: Improved data for village development planning
Commencement of small mining activities	2016	Positive impact: Employment opportunities. Opportunities for petty business activities
Resolution of the land conflict between Chipanga A and Chali villages	2016-2017	Positive impact
Beginning of the construction of the bridge connecting Chipanga A and B	2017	Positive impact: Easy transportation of commodities from either of the two villages and from other places. Easy commuting among community members throughout the year as compared to the past

Appendix II

Table 1
Livelihood activities by Estimated Percentage and Importance

S/N	Livelihood Activity	Average percentage of people engaged		Importance of Activity	
		Bahi Sokoni	Chipanga A	Bahi Sokoni	Chipanga A
1	Farming	80	93	Food & Income	Food & Income
2	Livestock Keeping	25	47.5	Income, milk, hides, manure	Income, milk, hides, manure
3	Business and petty trading	37	7.5	Income, service to community members	Income, service to community members
4	Fishing (seasonal)	5	0.2	Food & Income	Food & Income
5	Other Agr. Income Generating Act.	-	26	-	Individual and house-hold income
6	Artisan Gold Mining	-	1	-	Income, business and employment
7	Small-scale Industry	15	-	Processing and value addition of farm crops (rice and sunflower)	

