

APPENDIX 2

The Makanya Scenarios

Agricultural advance

It is 2030 and a lot of things in the Makanya catchment have changed. The economy of Tanzania has improved over the past years as a result of good national policies and a beneficial economic climate internationally. However, leadership in the community has been weak for long and people are not really cooperating. Young people are abandoning the traditional way of life, and there has been no success in controlling the spread of HIV. Rains have been reliable, and were especially good between 2010 and 2020, resulting in high and stable yields.

The good national economy have led to investments in rural areas such as Makanya, in terms of infrastructure and communication, and also in input subsidies for agriculture. The increased connectivity has made it appealing for businessmen (Tanzanian) to establish themselves in the area, and they have started up both food processing industries in Same, and sugar cane plantations for bio-fuel production here in the catchment (the produce is handled by cooperatives and exported to Europe). The cultivation of other cash crops has also taken off and the farming systems are becoming mechanized and intensified, relying on external inputs to a higher degree than previously. Thus, people live from agriculture and this is still very much a farmers' community, but the production is clearly market-oriented, and farmers don't rely to the same extent on livestock as they used to do. It is mainly individuals who have driven this change, by adopting new technologies brought into the area by the businessmen. The technologies then have spread since others have mimicked what the early adopters have done. Although agriculture is the dominating income source the economic development has also led to an increase in other forms of business and petty trading. Housing becomes better and better, and living standards increase for many, but things also become more expensive. The beneficial climate (economic and biophysical) means that hard work gives good returns, with the consequence that the area becomes more stratified economically. The increasing competition over land, which has followed the agricultural expansion, also leads to rising inequality. However the local government (which initially was quite weak, but has been trained in good governance by NGOs that nowadays mostly focus on empowerment and democratic rights issues), tries to balance these sorts of things, and tries to make sure that the investors who come into the area follow the local rules and laws. The success is quite limited though, especially since the investors often deal directly with the District. Traditional values are actively nurtured, but modernization occurs anyhow as young people are attracted by a more modern lifestyle and can do what they want now that they have money of their own. There is less drug use and criminality, partly as a consequence of law enforcement but primarily due to the employment opportunities. The fact that there are jobs here also has led to population growth: young people choose to stay to a higher degree, and there is in-migration. The health situation is improving, mainly as a result of clean water and proper nutrition. The exception is HIV, which still is increasing, and problems stemming from pesticide use. The

local environment has undergone quite some changes: land use have become more homogenous, forest and bush-land have decreased following the agricultural expansion, pesticide and fertilizers from agriculture end up in the water, and there are clear problems of waste handling.

Managing on the margins

It is 2030 and a lot of things in the Makanya catchment have changed. In the beginning of the century (2004-2010) several NGO's and research programs tried to initiate various projects, and there was a high attendance to seminars and workshop. But the farmers did not really see the benefits of the suggested projects and therefore the new agricultural techniques never made any break-through. However, people still continued to work hard on their fields. The only real impact that the NGO's had was that they gave the farmers access to micro credits and loans. Thanks to this people had the opportunity to invest and try new ideas. And a few innovative villagers took advantage of this opportunity, started new businesses, and got really good results. Between 2013-2018 it became very dry and yields failed. This led to severe food shortages for everyone except for people with other income sources. The local government was relatively weak during this period.

Since the agricultural techniques tested and proposed by NGOs and researchers did not function as well as hoped for in this area, people continued with small-scale subsistence production, largely relying on traditional practices. However, the long drought made farming increasingly difficult. This, and the fact that people could get smaller credits and loans, led to that some innovative people decided to leave agriculture altogether and instead try out new things. So they invested in new types of businesses, such as packing and selling drinking water, and opening hardware shops. This paid off for them, but in the community the feelings about the rising entrepreneurs were mixed. Some people appreciated them and meant that you can learn plenty by looking at what they do, whereas others thought that it is unfair that they earn a lot when others are suffering, and felt that they were using the people they employed. In summary, although some people in the community managed to improve their living standards, a lot of people still made their living from low-productive farming with livestock keeping functioning as an insurance to crop failure, and also got some smaller incomes from beekeeping, logging, charcoal production, and remittances, and did not improve their livelihoods in any substantial way (for some people things even became worse due to the drought). The local government turned out to be weak when it really mattered, and did not do much to improve the situation for the poor. Problems of both corruption and civil rights violations were common in government offices, and local government employees such as extension officers frequently neglected their duties, as they had to concentrate their efforts on getting food for their own families. From the national government not much assistance was coming, neither to help dealing with the corruption nor with the drought. There were still a fair number of NGOs in the area, but their role became more reactive than proactive, as most of their efforts were directed towards handing out relief food (and they were often run by people who were more interested in keeping their jobs than changing anything to the better). Although traditional values still were

important and many objected to the local government and the economic stratification that has occurred, the community spirit was low and that meant people did not really manage to do anything to change the situation. The hardship led to an increase in criminality, and the entrepreneurs were afraid of theft. Drug abuse and prostitution also became more common, with increasing HIV problems as a consequence. Some of the poorest people became malnourished over time, and their children stopped attending school regularly as they had to help provide for their families. Quite a number of people decided that things were simply not working out here any longer and decided to migrate to other areas where they could engage in irrigated agriculture, and many young people left to seek employment in urban centers. Thus, locally labor availability was declining, and over time population also declined. Looking at the local environment, the area under cultivation has decreased as many fields were abandoned during the drought years. Since people have to struggle to get food, depleting farming methods are commonly used, and cultivation in riverbeds have increased, with known effects on downstream water availability. Logging and charcoal making is also becoming more common, and there seems to be a reinforcing feedback between declining on-farm yield levels and the agro-ecological productivity of surrounding support systems, leading to an increasingly degraded catchment under current management and climate conditions.

Community cohesion

It is 2030 and a lot of things in the Makanya catchment have changed. In the beginning of the century (2004-2010) investments were made in informal education in the area. People started cooperating more, and this improved local governance and created an enhanced work ethics. Research and development projects were mostly concerned with small-scale agricultural technologies like rain water harvesting and conservation tillage. The farmers started to see some results from their efforts, and by 2012 the average yields had increased by 20%. However, between 2013-2018 it became very dry and yields failed. Although the community had a good work ethic, good governance and worked relatively well together, this long drought caused severe food shortages.

The introduction of small-scale water system technologies has improved agricultural outputs in the area to a certain degree, but people still mainly produced maize for home consumption with some supplementary vegetable growing (irrigated) for the market, the difference being that they attained higher food security (at least after the drought, since people were so badly affected then that they decided to construct communal storage facilities for the maize so that this tragedy would not repeat itself). Livestock keeping continued to be important, but instead of having large herds of local breeds, people increasingly went for smaller numbers of dairy animals, which they kept stabled. Although the national government did not pay a lot of attention to rural areas such as Makanya, the local government was very active and stimulated the start-up of many community projects and self-help groups (including saving and credit schemes), which engaged in a variety of small-scale income generating activities (poultry keeping, dairy goats, fish farming etc.). The success of them varied, some worked quite well, but others were inefficient as there

were constant negotiations among the members. Within the groups the opinions about their effectiveness also differed; some people felt that they gained a lot from being in them, whereas others felt that it would have been more efficient to do these things on an individual basis, but since the NGOs are so fond of working with groups they don't have much of a choice other than staying with them. One thing that the groups did, however, was to bring people closer to each other. At this time a German NGO also started an eco-tourism hotel in the Shengena, and with tourists coming this way there was all of a sudden a small market for handicrafts, something that people here soon realized. The eco-hotel also meant that there was a market for organic produce (and over time the local demand also grew), and some farmers subsequently steered their farming systems in that direction. In addition to handicrafts and organic farming, a few people were also employed as staff at the hotel and others as nature guides in the area (primarily in the Shengena forest, which had become a community reserve). Part of the money generated at the eco-hotel was re-invested in the local community, primarily in the different self-help groups. In summary, although people by no means became rich and life still was tough from time to time, these changes led to that many people managed to improve their living standards a little bit, with daily incomes up from 2000-3500 Tsh per day, and a slow but steady improvement in health due to improved diets. The society worked fairly well, there was a quite good community spirit and people tried to work together even during the crisis years. Traditional family values were nurtured, but all the same people were open to some 'fair type' of life-style modernization (which followed with the influence of the tourists coming to the eco-hotel). There were still some problems of drugs and criminality (especially among the young men who worked as tour guides), but the relatively strong social control meant that these problems at least did not increase. Over time the infrastructure became a bit better, especially as the local road was improved so that the tourists could easily be transported up to Shengena, which meant that people more easily could go to the markets e.g. in Same and Makanya. Population also increased a bit, mainly as young people decided to stay to a somewhat higher degree than previously. All in all more land was brought under cultivation, but the new farming techniques, the organic farming movement, and the efforts made by the local government led to that agriculture in general was less depleting than previously. The government also made by-laws properly protecting water sources and initiated tree-planting campaigns, and made sure that these laws were followed, especially during periods of drought.

Industry imperial

It is 2030 and a lot of things in the Makanya catchment have changed. The national economy of Tanzania is improving as a result of Asian countries investing in Eastern Africa. In the beginning of the century (2004-2010) there was a lot of investment in participatory approaches and collective action. People worked efficiently together when cooperation was requested from NGO's and governments, but they rarely initiated things on their own, thus agricultural development was quite slow. The young people get good formal education, and become more and more attracted by a modern life-style. The climatic conditions continue to be highly variable, making agricultural outputs uncertain.

The good economy has made Makanya more connected to the rest of the world, and new income opportunities therefore arise. As this coincides with a period of unreliable rainfall agriculture and livestock keeping loses importance as income sources in the catchment. People who still want to farm either move to other areas where irrigation is possible or they focus their efforts on drought tolerant crops. There are several foreign companies in the area (mainly Asian, but also a few Kenyan) that have started up industries or that are prospecting. The new industries produce tiles and cement, and mine iron ore and tanzanite. A new big (German-owned) hotel is also established in the area catering for foreign tourists (package tours) visiting Mkomazi National park. The fact that NGOs previously have worked with groups in the area provides a convenient entry-point for the foreign investors. People are used to working with international organizations, but not very active when it comes to initiating their own projects. This means that they welcome the initiatives made by the foreign investors as job opportunities. However, this also makes people vulnerable to exploitation. Although the local government tries to set up contracts with the foreign investors, many decisions are made at higher levels, which means that in reality the local government is often by-passed, and over time it loses power. While lots of new jobs indeed are created, and there is a marked economic growth, a substantial part of the money generated leaves the area. Young people have better education, and stay in the area to a higher degree than previously since there are jobs. Those who are not working in the industries or with tourism do vocational training, or work with wholesale business and transport, or they have office jobs. The diversification leads to a more stratified local society, and there is a clear difference between those who can influence their work situation and those who cannot (e.g. miners). Housing improves for many, as do the roads and telecommunication, and there is even a computer center. Bangalala and Mwembe more or less grow together and form a small town similar to Same (but smaller). With all this development living expenses in the area increases. The population grows since young people stay and since people who want to work in the industries move here. The increased mobilization leads to an initial increase in HIV, but the fact that young people get better formal education counteracts this trend after a while. Health in general is improving with two exceptions: respiratory problems related to mining increase, as do cardiac diseases, which is a result of increasing obesity. For better and worse, life in Makanya becomes increasingly modernized. There are fewer persons per household, traditional values lose importance, people are less religious, and elderly people have little influence over the area's development as the younger generations have money of their own and can do as they please. After retiring, many people move to the highlands, and consequently elderly people dominate this part of the catchment. They engage in a bit of Ndiva-irrigated vegetable production and keep a few dairy animals, although their main income source is remittances from their children. There are still problems with drugs and criminality in the area, but they are not really worse than in the past, since although the social control is much weaker than it used to be and more outsiders are coming here there is also less desperation since most people who want to work actually can do so. Less land is under agricultural production, and there is less destructive use of bush-land and forests (since people do not use these sources directly any longer), but instead there are environmental problems associated with industrialization, such as pollution from the mines.