Poverty-Reducing Effects of Agricultural Development in Tanzania

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Executive Summary

Does agricultural development lead to poverty reduction – and what are the mechanisms through which this happens? The present project addresses these questions through a study focusing on a few selected areas where a process of agricultural development has taken place over recent years. The areas selected for the study were Mgeta and Mtibwa in Morogoro Region, and Moshi Rural in Kilimanjaro Region.

The objectives of the study were:

- To analyse the causes of agricultural development in selected areas of Tanzania, and to document the extent to which this development has led to poverty reduction.
- To identify the mechanisms which have ensured that the poor have taken part in this development.
- To evaluate what implications these findings may have for NORAD support to the agricultural sector.

The selected case studies illustrate that agricultural development can be brought about by several means. They highlight the importance of market access for produce, of transport infrastructure and of world market prices. But they also underline the importance of marketing networks, and of improvements in production technology, i.e. high yielding crops and livestock, and improved production practices. The constraining effects of lack of capital for the poor in gaining access to more profitable enterprises emphasises the importance of a functioning capital market, and the potential for micro finance.

The very poorest primarily benefit from agricultural growth through increased demand for their labour. Agricultural growth increases the probability of obtaining employment, and it may increase the salary level, thereby increasing the income that can be accrued from selling labour. The processes generating increased demand for labour seem very evident in our study areas.

Processes that could lead to increased differentiation and marginalisation of the poorest are primarily that communal assets, such as clan land, becomes individualised and that the poor sell out or lose access. In our study areas it seems that land is still not sufficiently of a marketable asset for such processes to take place on a large scale. There are social limits on the extent to which land can be sold or placed as collateral for loans, and thereby on the possibility of the poorest loosing their land.

The moderately poor are better placed to take advantage of the opportunities for enterprise development offered by agricultural development than are the poorest of the poor. Most opportunities require an investment to be made, and even if this investment may appear very tiny to others, it is beyond the means of the poorest. Most investments also entail some risk, and this risk may be too high to the poorest.

Poverty is often combined with having little or no education and little knowledge of the outside world, and thus low ability to comprehend and utilise the extension advice being offered. When insufficient understanding of the extension advice is combined with insufficient capital to undertake the full investment in inputs required for successful

implementation, or lack of a market for surplus output, the result is frequently failure, discouragement, and a return to the well known, safe and tested practice. The constraints the poorest have to face in adopting new practices mean that reaching them is a very challenging task for the extension service. One implication may be that extension should not be targeted to the very poorest, but to those who have more resources and fewer constraints to successful implementation. The poorest can then adopt the practice when it has been thoroughly tested and adapted. Linkages between the poorest and the less poor farmers or traders and processors can be explored to reduce capital and market access constraints.

Our small study is obviously not sufficient to give very specific advice on how NORAD should prioritise its use of funds. Such priorities would depend on what the Government of Tanzania and other donors are doing. Moreover, we have only studied a few cases and not done a survey of all of Tanzania. Still, we believe that there are some useful implications that can be drawn, although they have to be quite general in nature.

1. Support to the agricultural sector leading to agricultural development is inherently conducive to poverty reduction.
2. Which kind of support will have the largest impact on agricultural development will be location specific, depending on what constitutes the most important constraint to growth in a specific locality.
3. Support to agriculture should not be restricted to issues that are typically within the domain of the Ministry of Agriculture. Our study brings out the importance of including other issues:
   a) Without access to markets for outputs and inputs, growth is severely constrained. Poor infrastructure leads to high transport and other transaction costs, and high marketing margins. When the marketing margin is sufficiently high, producers become unable to produce at a profit. Marketing margins can be reduced by several means. The most obvious way is investment in improved roads (not forgetting the organisation of maintenance of existing roads.
   b) An alternative to costly road construction might be the improvement and dissemination of "intermediate technology" solutions to reducing transport cost, e.g. using donkeys.
   c) High marketing margins are not only due to high transport cost, but also weak market institutions for providing transparency and reduced risks. For instance institutions for improving dissemination of market price information or guaranteeing market linkages may contribute to lower marketing margins.
   d) Appropriate government policies in marketing, international trade, monetary and fiscal policies are crucial to the development of agriculture. NORAD's role in relation to such issues would primarily be one of policy advocacy and dialogue with the Government of Tanzania in seeking to improve agricultural and other policies.

e) When asked to rank development interventions in terms of the benefits they had obtained, a focus group of Mgeta farmers ranked the savings and credit bank as the most important – even though the bank was charging interest rates of up to 60% per annum. This points to the importance of developing savings and credit facilities tailored to the needs and opportunities of poor farmers.

4. Agricultural research and extension play an important role in agricultural growth. In areas such as the most remote villages of Mgeta it could be an issue of finding productions for which the agro-ecological conditions are particularly suitable and that have a high value to weight ratio, so that they may be profitable in spite of high transport costs. In other areas it may be an issue of increasing profitability through innovations for increased productivity of livestock and crops. Continued efforts to improve quality and branding, may also contribute to improving profitability. In sugar production too there is a need for enhancing productivity if Tanzanian sugar producers are to be able to compete with imports, should sugar tariffs be reduced or removed.
5. Efforts to improve product quality and processing may enable farmers to obtain higher price for their produce, by targeting consumers with willingness to pay for quality and diversity. Developing networks and partnerships with retail chains may be an instrument in such a strategy. Strengthened extension is required for achieving this. Development of farmers' organisations may also play a role.
6. The importance of farmers' education for their ability to utilise efficiently the advice and information offered by the extension service and development projects, points to the importance of current efforts to provide universal primary education, and to improve the quality of the education offered. Free primary education also has a direct effect on poverty alleviation, as paying school fees has been a big part of the expenditure budget of the poor (for those poor who could afford to send their children to school). Improvements in basic health facilities in Morogoro Region have also contributed to relieving the situation of the poorest.

1. Background

Researchers and aid practitioners have long argued that agricultural development is an effective means of reducing poverty. Still, aid to agriculture has shown a declining trend. One of the factors contributing to the decline in agricultural aid relates to incomplete knowledge in donor agencies, both in terms of what are effective ways of promoting agricultural development, and in terms of the mechanisms through which agricultural development leads to poverty reduction.

The present study therefore aims to address the latter of these areas of uncertainty by focusing on a few selected areas where a process of agricultural development has taken place recently. By focusing on the extent to which agricultural development has resulted in poverty reduction, and the ways in which this poverty reduction has been achieved, the project aims to produce findings of relevance for NORAD when designing strategies for support to the agricultural sector.

2. Objectives

The objectives of the study are:

1. to analyse the causes of agricultural development in selected areas of Tanzania, and to document the extent to which this development has led to poverty reduction.

2. to identify the mechanisms which have ensured that the poorest have taken part in this development.

3. to evaluate what implications these findings may have for NORAD support to the agricultural sector.

3. Definition of concepts

In addressing the objectives of the study, it may be useful to set out by defining the important concepts of agricultural development and poverty.

3.1 Poverty

The choice of definition of "poverty" has important implications for how we measure poverty, how we describe it, and how we analyse it. We will therefore briefly discuss some of the issues involved.

Poverty might seem like a straightforward concept. The original meaning, e.g. as defined in a dictionary focuses on income and wealth, e.g. the "lack or relative lack of money or material possessions." Over the last decades, however, there has been a trend towards a

broadened definition of poverty, including also non-material aspects of human well-being. This reflects changes in development theory, but also a general tendency of policy pressures for broadening concepts important in international policy debates, incorporating new concerns until the point where the concept becomes so all-encompassing as to be devoid of content. The concept of "sustainable development" has been subject to such a process. "Poverty" seems also to be undergoing one.

While the initial understanding of poverty was centred on monetary income or consumption, the concept was soon expanded also to embrace non-monetary income and consumption. In areas that are not well integrated in markets, the non-monetary income is often more important to the household economy than cash income. With the concern for human development of the 1970's the poverty concept was expanded to also embrace indicators related to health, education and nutrition - as reflected in the Human Development Index published annually by the UNDP. In the World Development Report 2000 the World Bank expanded the definition of poverty further, by maintaining a focus on the materialistic core, but encompassing wider concerns (World Bank 2000). The three dimensions included in the World Bank definition are:

- Opportunity – which includes income, education and health as measures of well-being.
- Security – which refers to the risk of experiencing periods of income shortfall, or shortfall in other indicators of well-being. The level of security will depend on the probability of experiencing shortfall, the severity of potential shortfall, and the ability to cope with such shortfall.
- Empowerment – which covers access to and control over local resources, public services, and influence in decision-making. Power can be seen as a means to create opportunities, but also as an end in its own right.

The World Bank's "Voices of the Poor" report (Narayan et al. 2000) placed great emphasis on the power aspect of poverty. But it is worth noting that in most of its analytical and quantitative work the World Bank uses a more narrow income-centred concept – as reflected in the much used measure of "a dollar a day". This can be justified on several grounds. Firstly, many of the wider indicators are hard to measure, and it is hard to justify any choice and weighting of indicators to create a joint index. Secondly – and more important – in the long run it seems that there is a fairly good correlation between increase in income and improvement in other poverty indicators such as health, life expectancy, education, vulnerability, and political influence. This applies both at the individual level and at the national level. In the present study we will therefore adopt the approach of defining poverty as a lack or relative lack of income (monetary and non-monetary), while acknowledging that other aspects of opportunity, security and empowerment are also important determinants of human well being[2].

Poverty may be understood either as absolute poverty or relative poverty. Absolute poverty is defined in terms of a fixed poverty line, e.g. as having an income of less than

[2] This choice is also in accordance with the Terms of Reference, which state that "Income poverty is the relevant form of poverty for this project. Access to basic services, and the dimensions of exclusion and marginalization, will not be investigated."

one dollar per person per day. Relative poverty would be defined as having income falling below some fraction of the average (mean, median or mode) income of the population, or by belonging to some lower percentile of the income distribution. Thus a person living in a rich society may be poor in a relative sense, although having income well above e.g. ten dollars per day. Conversely, in a poor society persons falling below a poverty line of one dollar a day may still be considered as well off compared to neighbours with even lower incomes. In the present study we will be referring to "the poorest" as those who have very few assets beyond their own labour, i.e. those who own less land than needed to satisfy food needs for most of the year, and also own few or none other capital assets. We may also refer to other households, owning more land or other assets, as relatively well off, even though they may fall somewhat below a poverty line of "a dollar a day".

3.2 Economic growth and poverty reduction

Economic growth can be defined as an increase in the total income of a specific community. With a given population, increased total income also implies an equal percentage increase in mean per capita income. Moreover, if the income distribution remains unchanged, economic growth also necessarily implies reduced (absolute) poverty. The only way economic growth can fail to reduce poverty (measured as the number of people with income below a given poverty line) is by the income distribution becoming more unequal, i.e. by the incomes of the poorest stagnating or declining. Analysis of the large living standards measurement surveys that have become available for a large number of developing countries during recent years indicate that there is no general trend of economic growth leading to increased inequality. In some countries inequality increases with growth, in others it decreases, and in others there is no discernible effect (Fields 2001). The literature indicates several factors which may influence whether growth will reduce or increase inequality. High initial inequality in land holding and human capital is associated with increased inequality, while a more egalitarian initial land distribution is associated with reduced income inequality (Ravallion 2001). Ravallion and Datt (2002) found literacy to be the overwhelming explanation of the differences between the states of India in the impact of growth on poverty reduction. Good universal primary education contributes to reduced inequality through making opportunities available also to the poorest. The sectoral composition of growth also matters. There is strong empirical evidence that rural growth tends to reduce poverty more than growth in other sectors does (Mellor 2000). This should not come as a surprise. The large number of people involved, and the fact that many of them have incomes below the poverty line, means that even capital intensive growth in agriculture can improve income distribution. The primary mechanism through which the poor benefit is through increased demand for their labour. There are strong multipliers from increased farmers' incomes. Small scale farmers will typically spend a large share of their extra income on locally produced goods and services, thus increasing the demand for labour for supplying these goods and services, and thereby creating new employment and income.

3.3 Agricultural development

Agricultural development refers to a process of growth within a specified area in (net) incomes from agriculture. The area could be a country, or a smaller part of a country, e.g. a region, district or ward. Such growth may come about by many means. It may be due to increasing product prices in international or domestic markets, or due to improved market access increasing producer prices locally. Reduction in input prices may also play a role in increasing net income. Technological change that increases production and productivity is an important source of agricultural development. Such change can take the form of adoption of new crops and crop varieties, the adoption of new or improved livestock, or the adoption of new management practices of soils, water, crops or livestock. In addition to the factors mentioned above, there may be areas where production can increase through more land being taken into cultivation, even without changes in prices or technology used. This requires that there is unutilised land available of roughly the same suitability as currently cropped land.

A frequent misconception is that higher labour productivity in agriculture must necessarily mean that labour demand (employment possibilities) decreases. Whether this will happen depends on the source of the productivity increase. If the increase is due to mechanisation, with machines replacing human labour, reduced labour demand may indeed result. But productivity increase may also be due to higher crop yields and improved livestock productivity, in which case increased labour productivity may go hand in hand with increased production and increased labour demand. Whether agricultural development in a region has led to decreased, or increased labour demand is thus an empirical question that we will seek to explore in our case studies.

4. Methodology and selected cases

The study is based on secondary and primary data. Secondary data were collected during the month of November 2002. The source of secondary information included theses, Village government and District council records, research reports from organizations working in the study areas and other relevant literature. A case study approach was used to collect primary data. Primary data was collected using informal methods of data collection including focus group interviews, key informant interviews, observation, pair wise ranking and individual interviews. Through the interviews farmers in the case study areas were requested to categorise farmers into three wealth categories according to their criteria. This categorisation basically provided an indication for the extent of poverty in relative terms. The categories were (i) Low level of poverty (better-off) (ii) Medium and (iii) High (very poor). It could have been appropriate to determine absolute poverty levels, but given the time frame for the study it was not possible to do so. However, relative poverty levels are adequate in determining changes over time in poverty levels and factors influencing the changes.

Three cases were selected for the study: Mgeta (Horticulture and dairy goat project), Mtibwa (sugarcane out grower scheme) in Morogoro Region and Moshi rural (coffee production) in Kilimanjaro region. The Mgeta case was selected because of having

substantial external interventions on agriculture. The interventions were based on improvements of the existing opportunities in the area. Such opportunities include a climate that favours production of temperate fruits and vegetables and existence of a traditional irrigation system. The interventions included introduction of new crops, crop varieties, and animal breeds (dairy goats, donkeys). These were complemented with interventions for better market access, and training using various agricultural extension approaches (such as farmer groups, farmer exchange visits and demonstration). Most of the interventions directly or indirectly focused on increasing agricultural productivity.

The Mtibwa case was selected because a sugar estate located in the area has influenced the agricultural activities in the area. Together with the estate's sugar cane the estate's sugar factory processes sugar cane from out growers that reside in the neighbouring villages. This case illustrates possibilities that farmers can have when a ready market exists for farm output. Together with economic activities (sugar production), the estate also has social obligations in that it contributes to education, health facilities and rural road improvements in the area.

The Kilimanjaro case illustrates how price levels of agricultural products can influence agricultural development and poverty levels. The economy of most farmers in Kilimanjaro has depended on production and sale of coffee. Coffee is the traditional cash crop in the area. Farmers have depended on this single crop for many years. The role of this crop for agricultural development is highly dependent on the world coffee prices.

To sum up, the three cases illustrate different kinds of opportunities and threats for agricultural development. For Mgeta, the opportunities for agricultural development depend largely on the productivity of the production system and local market for the products. The opportunities that exist for the sugar cane out grower farmers in Mtibwa depend on the sugar import tariffs set by the government, productivity of the sugar factory and the productivity of their sugar cane farms. In the Kilimanjaro case on the other hand, the opportunities for agricultural development largely depend on the world coffee price. Coffee being a perennial crop, it takes several seasons before farmers can make agricultural production adjustments following changes in world market price.
The three case studies are presented in the following sections.

5. Mgeta

Mgeta Division is located in the Mvomero District, on the Western slopes of the Uluguru Mountains. Three villages of Mgeta are covered by the study – Langali, Nyandira and Tchenzema. The villages are located along the road from Mzumbe (and from there to the district and regional capital Morogoro). Langali has relatively better communications, as it is closest to Morogoro, and there are regular bus services and more frequent visits from buyers of agricultural produce. From Langali, the road condition deteriorates, and the accessibility of the other villages is poorer, particularly for Tchenzema. The distance from Morogoro to Langali is about 40 km, with an additional 7 km to Nyandira and 14 km to Tchenzema.

The Uluguru Mountains are highly undulating with steep slopes and narrow valleys. The study area is in the temperate zone, and altitude ranges from 1,400 up to 2,000 meters above the sea level. Rainfall is bimodal ('short rains' from October to December and 'long rains' from March to May), with unreliable onset and varying levels from year to year. Average rainfall ranges from 1,000 up to 2,000 mm, with higher levels and more reliable seasons at higher altitudes.

The inhabitants of the Uluguru Mountains mainly belong to the Uluguru tribe, and speak Kiluguru. The population in Langali is reported as approximately 2,200 (2002), in Nyandira 2,500 (1993), and in Tchenzema 2,400 (2000).

5.1 Production system

The area is endowed with relatively abundant water resources, with much of the agricultural land having traditional irrigation systems fed by streams and springs. Soils are also relatively fertile. Land is scarce, however, and the steep hillsides are intensively used, leaving virtually no land for agricultural expansion and only minimal areas for animal grazing.

<u>Crop cultivation</u>
Maize is the staple subsistence crop, and is cultivated by most households. Still, the amount produced is rarely sufficient to cover food needs throughout the year.

Cash crops – crops grown for sale – are important in the production system. Vegetables are produced in all the villages, and are mainly aimed for the market. Cabbage is the most important crop, along with tomatoes, cauliflower, lettuce, carrots, peas, bee troot, cucumber, radishes, sweet pepper, leeks and onion. On irrigated land these can be grown the whole year round, and dry season cultivation is preferred both because of lower infestations of pests and diseases and higher demand in the market. Carnation flowers are a relatively new cash crop, grown on small scale by some farmers.

Beans and root crops (Irish potatoes, yams, cassava and sweet potato) are grown both for consumption and sale. Bananas are common around the homestead, and also temperate

fruits, such as peaches, plums, pears and apples are grown by some. There is also some cultivation of trees for timber.

Fertilizer and pesticides are used by some farmers on the cash crops, but the uncertain market situation discourages others from investing in purchased inputs for the production.

Livestock

Pigs, goats and poultry are the most important livestock in the Mgeta area. Lack of pastures limits the potential for keeping larger livestock. Pigs for fattening are kept by most households. They are an important source of income and protein in the diet. Stall-feeding is the most important management practice. Pigs are fed mostly on maize bran, cabbages and local beer brewing byproducts. Poultry are largely of local breed and kept under free-range production system.

Traditionally, goats have been kept for meat production, but over the last decades dairy goats have become an important source of income for some farmers in some of the villages after a Sokoine University of Agriculture (SUA) project has introduced a new breeding stock based on Norwegian goats. The project has introduced new practices of stall feeding, and breeding management. These goats are highly sought after and command a high market price. They also combine well with agricultural production, supplying manure and a regular income that helps the owners buying other inputs. Tethering is the most common feeding system for goats due to limited grazing lands.

There are also some donkeys for transport kept in the upper villages. They haul produce from the fields to the farmers, and are used to carry less bulky agricultural products to the market in Langali. Given the topography of the area donkey carts are not common.

Land tenure

There are three different categories of land: village land, clan land and purchased land. Village land seems to be minimal and mainly restricted to areas for public buildings. Clan land is held individually and passed on by inheritance. As the Uluguru are matrilineal, clan land is passed through the female line. While clan land still accounts for the majority of the land (reportedly 60 % for the Uluguru Mountains as a whole), the share is declining as clan land is being sold off – often, apparently, to solve disputes over rights to the land. Bought land is titled and individually held, and can be used as collateral for credit. Due to the scarcity of land in the villages, many have apparently bought or opened land in other villages or in the forested areas higher up in the mountains – sometimes at a considerable distance from their village.

Sizes of land holdings vary. We have not had access to data on the distribution of land, but differentiation still appears to be relatively limited. There seems to be no very large owners, and the number of landless is probably fairly low. An estimate by village leaders in Langali suggested 15%; in Nyandira it was claimed that there were none; discussions on poverty in the three villages visited did not make a link to landlessness (but to small and non-irrigated holdings, among other things); and we did not come across any landless households in our interviews and group discussions. In Langali we were told that some

clans held more land than others, which is probably due to different times of settling in the area. Overall, average holdings for a household were estimated as being between 3 and 5 acres, while less would be considered as little, and more as a larger property.

Land rental is possible, with varying prices depending on the quality of the land and the relationship between the parties. Prices reported ranged from TAS 1,000 per year for an acre of non-irrigated land up to a maximum of TAS 10,000 for irrigated land. Land hiring did not seem very widespread, however. Poor farmers interviewed in Nyandira, with landholdings of 1.5 – 2 acres, stated they were not interested in renting additional land, due to the perceived low profitability and high uncertainty of agricultural production.

Labour organization

Agricultural work is primarily based on household labour, but hired labour is also used in peak periods. Exchange labour through labour parties based on the serving of beer is reported from Tchenzema (Mtenga 1993). Transporting produce – from the fields to the houses, or to be marketed in Langali – is an employment opportunity for some. From Nyandira, this involves carrying up to 80 kg by head for 7 km down steep hills.

While hiring out their labour is an important source of income for some households, the demand seems to be relatively limited. At least, poor households reported difficulties in finding work, while better off households with larger land areas to cultivate claimed to be managing with family labour. Probably this reflects the uncertain market situation, making farmers averse to monetary outlays in production. The reported rate for daily labour was TAS 600-700.

Market access

Cash crops constitute an important part of the production in the area, and much of it is destined for the market in Dar es Salaam and Morogoro. However, access to the market is difficult, particularly for the upper villages. The poor road means that transport costs are high. For the same reason, buyers come in small numbers and sometimes not at all. This varies somewhat throughout the year, depending on market demand. Still, it means that most of the time it is a buyer's market, where farmers are forced to sell at low prices. Their products are perishables that need to be marketed quickly, and they cannot afford to wait. In many cases there are no buyers at all, and much of the produce – for instance large amounts of cabbage -is not sold. In Tchenzema we observed a lot of cabbages rotting in the fields and we were told that even the pigs were now so fed up with cabbage that they would not eat, even if it was boiled and salt added. Often they must sell on credit, accepting payment the next time the buyer comes, the price then depends on what the buyer claims to have received for the products in the city. There is generally little trust between farmers and buyers, and the former often feel that they are cheated in these deals.

The price differentials between Mgeta and the Dar es Salaam market are high. One kg of cabbage, which fetches TAS 100 in the city, is sold for TAS 10 in Nyandira. Some farmers – and also a few local middlemen – therefore prefer to take the products to Dar es Salaam and sell them there themselves. However, they are still dependent on the

availability of transport, and they face the risk of difficulties in selling their produce there. With the high transport costs they must assume, and their limited knowledge of the market situation there, most are not willing to take the risk involved. Another option that is more frequently used is to hire somebody to carry the products to Langali where there are more buyers. But this adds another cost and means reduced profit.

In sum, while Mgeta offers good conditions for the production of vegetables to the market in Dar es Salaam, the difficult transport situation means that the potential is far from fulfilled. Furthermore, the high transport costs mean that the villages only receive a small fraction of the town market price from these sales.

Household strategies

Under these conditions, different kinds of households seem to opt for different strategies. For the better-off households, market-oriented strategies dominate. While they will dedicate part of their land to maize production, they will give more priority to cash crops. With their relatively larger land holdings, they are able to allocate larger areas for the latter, and they are the ones who will be able to use some amount of chemical inputs. As they have irrigated land, they are also able to produce vegetables in the dry season, when market demand is better. They will consequently have significantly larger amounts of produce for the market, and are therefore in a better position to cultivate relationships with specific traders. Their uncertainty is thus reduced. Moreover, they are also in a better position to hire a car to take out their produce, should the buyers fail. It is among these farmers that one finds those who have started with dairy goats. This activity is closed to those who cannot raise the necessary capital for the initial costs. Once started, however, keeping dairy goats is highly profitable, and implies diversification, increased incomes and higher security.

Among the poorer households, on the other hand, priority in own agricultural production is given to the subsistence production of maize. Small parts of their land will usually also be set aside for cash crops, but with few assets and high vulnerability, they are not in a position to risk too much on crops they might not be able to sell. However, in spite of giving priority to subsistence production, they are still dependent on buying maize and other foods throughout a period of the year. Usually, some cash income is secured through pig fattening, and maybe also from food processing, beer brewing and similar activities. From our limited sample, however, wage labour appeared to be most important as a source of monetary income. Most households are probably between these two types, combining aspects of both.

5.2 Poverty levels

The categorization used above – into poorer, medium and better-off households – is recognized locally. In describing the poorest households, informants would describe two different types of the poorest, corresponding to two different concepts of poverty. On the one hand there were those who were old, sick, disabled and widows – characterized by a lack of labour power. The Kiswahili term *masikini* was used to refer to this group. On the other hand, there were people who had labour power, but for some reason were unable or

unwilling to commit many resources to own agricultural production, and for whom daily labour was a major source of income. This group was characterized as *hali duni*, often translated as poor due to 'laziness'). This group commonly had little and only rain-fed land, little education and little knowledge of new crops and marketing. Thus lack of human capital (other than physical labour) and of land seemed to be characteristics of this group. In estimating the relative weight of the different wealth groups, village leaders of Langali gave the figures of 10-15% in the two poorest groups combined, 65% in the middle group, and 15-20% among the better-off. (The fact that the figures do not add up to 100% underlines that these estimates – from elite representatives – should in no way be taken as exact figures.)

These assessments refer to relative poverty. Information on absolute poverty levels is difficult to find, but a little can be inferred from the poor households interviewed. As they are dependent on buying food, and as their main source of cash income is from wage labour, their ability to secure such work is crucial. In general, they said they could not find enough work to cover their needs – in one case physical disability was given as a main reason, while others said there was too little demand. As the lean months – October to January – are also months of much agricultural activity – land clearing, planting, weeding for important crops – one might have expected it to be easier to find work. However, if, most farmers prefer to avoid cash outlays in production, it is not surprising that there is a limited demand for daily labour.

The consequence is that many of the poorer households are not able to cover their food needs throughout the year. According to one informant, at some times of the year he is only able to eat a little yam once a day. Poor housing – with old and leaky thatched roofs – and less schooling for their children, are other aspects of the situation of these households.

5.3 Agricultural development over the last decades

Agricultural development in the Mgeta area has not been a steady process of progress. Rather there have been different phases – some characterized by increasing production for the market, shifts to new cash crops and a general intensification of production. Other phases have seen a decline in this intensive cultivation for the market. The key factor behind these changing trends has been the quality of the road, and the consequent market access for the Mgeta farmers. A high point was reached in the period 1996-98. During this time the road was in fairly good condition, buyers appeared relatively frequently in the upper villages, and there were even a few vehicles owned by Mgeta villages. The latest 3-4 years, on the other hand, have seen a deterioration of the road, with a direct impact in terms of reduced market access for the farmers of the upper villages. Thus, less agricultural produce is sold from Mgeta, vegetables are spoilt or fed to animals, and farmers become more reluctant to invest in the inputs necessary for intensive cultivation.

Even though there have been ups and downs in this way, there is still a clear trend towards increased commercialization if one looks at the evolution over the last couple of decades as a whole. Most importantly, this involves a larger share of the output being

marketed outside the division – mainly in the form of vegetables sold in Dar es Salaam and Morogoro town. There is a greater emphasis on (cash) crops that were previously of less importance, as well as a switch to new (cash) crops, and this has probably been accompanied by increased intensification and production volumes.

Maize – the basic subsistence crop – has declined in relative importance, while vegetable production has become more important. Cabbage has been grown for commercial purposes for a long time in the area, and the first period of increased commercialisation was based on expanding production of this crop. Later other, less traditional crops have also assumed importance, such as a range of other vegetables. According to one report, over the last years, tomatoes and Irish potatoes are the fastest growing 'exports' of the zone. Other new cash crops include some fruits and carnations. Also the dairy goats are a new and important source of income for some. While milk is sold locally, sale of kids seem to account for the larger share of cash income, and they are to a large extent sold out of the area.

It is difficult to give figures on the extent of the changes this process of commercialization involves. A survey in Langali in 1981 indicated that two thirds of agricultural production (by value) was for subsistence (Due et al. 1985). We have no comparable data for today, but it seems clear that even in some of the upper villages, with less favourable market access, cash crops constitute the major part of production. Taking into account the multiple cropping of vegetables, the value of the cash crops produced should be substantially greater than that of subsistence production.

Improved market access has undoubtedly been a key element in this process. While the road into the area is from before the Second World War, it has undergone improvements over the years. This has been an uneven process, however, with deterioration of road conditions also taking place in some periods, such as from 1998 to today. (While labour parties for road maintenance have been organized, they have suffered from lack of knowledge and inappropriate advice, and have therefore not been able to prevent the deterioration of the road.) Furthermore, different villages and cooperatives at different times owned their own vehicles, which have greatly contributed to the farmers' access to markets. Currently, however, due to deficient management, none of the villages possess such means of transport. These processes have different implications for the different villages, depending on their position along the road. Langali is probably not very affected. For Nyandira there are reduced incomes, but Tchenzema seems hardest hit (after heavy rains, the road to Tchenzema becomes impassable), and the physical appearance of this village clearly indicates a drop in fortunes.

Still, the general trend towards increased market production is well established. Nevertheless, for the upper villages, the current bad road conditions, consequent unreliability of buyers and lack of own means of transport have resulted in a (temporary?) setback, where cash crop production continues but there seems to be a reduced willingness to invest money in production.

While changing market access undoubtedly has been the primary mover in these processes, development interventions have also been important factors. Road improvements are of course directly tied to increasing market access, as is also the case of the donkey transport project. Moreover, extension efforts, especially in the form of Sokoine University of Agriculture's UMADEP project (the Uluguru Mountains Agricultural Development Project), have undoubtedly been instrumental in introducing new crops and improved varieties of vegetables, fruits and flowers, as well as improved farming practices. The project has also supported the development of savings and credit organizations in the villages. Also extending the dairy goats project – for milk, manure, the sale of breeding stock, and meat – has contributed to the development processes of the area. The proximity to the Sokoine University of Agriculture may thus be seen as an important contributing factor to agricultural development in Mgeta.

Another process that seems to have taken place is an increasing scarcity of land. Hard data on this are not available, but some figures from the 1980's seem to indicate average holdings of at least 6 to 7 acres (Due et al (1985); Moulton (1988), quoted in Kiango (1996)). Taking villagers' estimates of current average holdings of 3 to 5 acres as a comparable number, would imply a substantial drop in land available per household.
Establishment of community based organisations is another important development that has contributed to agricultural development in the Mgeta area. Following an emphasis on a group approach by development and extension agents, a number of associations have emerged. For example, the Dairy goat producers have formed an association called *Twawose,* and vegetable producers*,* formed *Twikinde.* Such organisations are important in building social capital that can be an important asset in poverty reduction.

5.4 Impacts on poverty levels

New crops and increased production for sale have resulted in higher incomes for the households involved. While we have no means of quantifying this, it is clear from interviews with successful farmers that their incomes and assets have increased, in some cases quite dramatically. In general, however, these households are not among the poorest. As discussed above, the better-off households are in a better position to take advantage of the new opportunities, and better able to limit the effects of deteriorating market conditions. Some of them are able to improve their situation even under these periods. Others – maybe largely the middle group – experienced increased farming incomes mainly in the good periods. Still, also among these households there should be many that have improved their asset levels throughout the period in question. It should be kept in mind that none of these households are rich by international standards – most of them would probably be considered poor by such criteria. Thus, there has been a direct poverty reducing effect of this process of agricultural development.

For the poorest households, dependent on wage labour, their fortunes have largely depended on the demand for labour. This demand seems to have been highly sensitive to the risks inherent in market production, as perceived by the farmers. Thus, in the periods of good market access, employment opportunities have been relatively good. (This should relate not only to agricultural labour and the transport of produce to the market, but also

to non-agricultural crafts and services.) Conversely, when road conditions deteriorated and transport availability was reduced, demand for their labour decreased. They are consequently the ones most directly exposed to the effects of the changing fortunes.

Processes of agricultural development and commercialization may sometimes lead to increased differentiation and to marginalization of the poorest. The classic scenario involves the concentration of landholdings among a limited group of increasingly rich farmers, while the poorest lose their land and are turned into landless labourers. In Mgeta one could say that there has been a process of differentiation in that the better-off groups have benefited more, and that relative differences have increased. Still, the fact that the incidence of landlessness remains low means that this effect has not been very pronounced. The fact that, at least in the periods of economic progress, the poorest seem also to have improved their conditions implies that redistributionary or multiplier effects have been the most important. Therefore, while one could make a case for increased differentiation, this does not imply a marginalization of the poorest.

The mechanisms described have played out differently in the different villages. Langali, with its favourable location, has probably not experienced significant downturns in market access, and one would expect improvements for all groups, including the poorest. Data from Ponte (2002) seem to confirm this, as he reports increases in incomes and asset levels for all groups, including the poorest. His data are difficult to apply directly, however, as his figures from Langali are only given together with those from two other Morogoro villages. In Nyandira, it seems that the better-off households have been able to limit the effects of the deteriorating market access of the last 3-4 years. For the poorest households there seems to have been a decline in living standards over this period, while the question of whether there has been an improvement in their conditions over the larger period is difficult to answer. In Tchenzema, it seems to be the case that all households have lost over the later years.

In conclusion, the Mgeta case shows that agricultural interventions have resulted in technological changes and increases in agricultural production and productivity. This case also indicates that there are both direct and indirect poverty-reducing effects of agricultural development. While the poorest face constraints to utilizing the new opportunities directly, they also benefit through increased employment opportunities in periods of general growth. Still, they remain the most vulnerable, and are the ones most directly exposed to the effects of downturns in the market. Finally, the case indicates that for an area such as Mgeta, roads and transport are vital factors affecting these processes. These factors also influence the extent to which agricultural development translates to higher income level for the poor.

6. Mtibwa

Mtibwa area is about 100 Km northwest of Morogoro town. The altitude varies from 340m to 380m above sea level. The area is bordered by the Nguru Mountains, which rises to about 2,135 meters, to the west. To the south-eastern part are the Wami, Diwale and Mjonga rivers. From the north the Mjonga River, a tributary of the Wami River, borders the area. Mtibwa has a bimodal rainfall pattern. The short rains start in November and end in January while long rains begin in March and continue up to May. Generally the rains are irregular and unreliable; unpredictable drought and floods are quite common. The temperature ranges from the minimum average of 19.3° C to maximum average temperature of 30.5°C.

6.1 Production system

As in many farming systems in Tanzania, the Mtibwa farming system has very much been determined by the natural resource endowments that are available and by the marketability of the crops that low resource small-scale farmers can easily produce given the soil and climatic conditions. The area became relatively more developed compared to many rural areas in Tanzania following the establishment of the sugar-processing factory in the early 1960's. Crops grown include sugarcane for the sugar-processing factory, paddy rice for food and cash income, maize and other food crops such as cassavas, yams, fruits and vegetables, bananas, and beans. Cropping patterns have changed over the years in favour of sugarcane production and thus more and more land has been shifted from growing food crops such as bananas, vegetables and paddy to sugarcane production. The presence of a ready market and higher profit margins from the sugarcane production are the main factors that have led to the present crop pattern.

The sugar estate and sugarcane out-growers' scheme forms a major part of the production system in Mtibwa area. The estate and the out-growers' scheme were established as the main sources of raw materials to the factory. However, many small-scale farmers continue growing food crops for subsistence as diversification and food security strategies. These strategies are used to reduce the risks of depending on a single crop. A typical small-scale farmer may grow around 2 acres of paddy, 2 acres of sugarcane and 2 acres of other food crops, such as yams, maize and cassava[3].

Most low resource farmers use manual labour to perform most or all the production activities on the farm. Use of machinery is limited to land preparation and ridging for new sugarcane plots. Only medium and large-scale farmers have the required capital to hire machinery. A few small-scale farmers, who by chance have access to capital through loans or remittances from family members, are also sometimes able to use machinery to

[3] Small-scale farmers in this case study refer to farmers who cultivate less than10 acres. Low resource farmers are farmers who are highly constrained in terms of cash capital for starting sugarcane production. Such farmers are able to start producing one acre of sugarcane with cash capital of Tsh 40,000/= to 80,000/= or less, using family labor in all of their operations. Yield from such plots are usually much lower than the yield obtained from mechanized plots.

open-up new plots for sugarcane production. Use of irrigation is limited, although all the river tributaries have water throughout the year.

Sugarcane is a semi-perennial crop. With good management (weeding and fertilizer application are critical) it can be harvested annually for up to 5 years without replanting. It has a peak production in the second and third year after replanting. However, low resource farmers keep their sugarcane on the farm for more than 5 years, during which productivity declines.

Paddy rice is produced for food and for cash income. However due to uncertain marketability of paddy, most farmers resort to sugarcane as the main cash crop. A second crop (tomatoes, potatoes and cabbages etc) is possible after a paddy crop on plots that are close to river tributaries. Nevertheless, some farmers are reluctant to plant crops in the off-seasons because of the lack of security due to uncontrolled livestock grazing during the dry seasons, and theft of the produce.

Livestock keeping is one of the important activities in Mtibwa area especially in drier villages, where nomadic keeping of cows, goats and sheep is practiced. Other livestock, such as pig and chicken are also kept, but in limited numbers.

Non-farm activities are limited to providing trade services to residents in the area as well as seasonal labourers who emigrate for casual jobs in weeding sugarcane farms and sugar harvesting operations (e.g. sugarcane cutting, loading and transporting activities). Also, following the development of a boomtown close to the processing factory, demand for civil and carpentry works, and other services has increased off-farm employment to Mtibwa residents.

6.2 Land tenure

Around 90% of farmers do individually own land for crop production. Those who do not have enough land, have access to rented land at a reasonable fee or some pay in kind. Land for growing sugarcane is rented on 3 to 5 year contracts, the time long enough for a farmer to realize reasonable returns from initial investment. Rents were estimated to be around TAS 10,000/= per acre per harvest. Some contracts are based on agreed portion of the harvested sugarcane or cane from specified land area. It is still relatively easy to acquire rented land,but availability of such lands has become more difficult over the years, particularly in areas close to the factory. A few large-scale farmers cultivate 50 to 100 acres.

Over the years availability of new land for individual ownership has decreased especially the prime land for growing sugarcane or paddy. This has happened very rapidly due to migration into the area. Immigrant families acquired land through purchases from the village government at a small fee, or from residents at a relatively higher rate. Currently village government land is highly limited in the villages that are within a 20km radius from the sugarcane processing factory, but available in villages beyond this area. Farmers have started acquiring farmland in the more distant villages as they anticipate

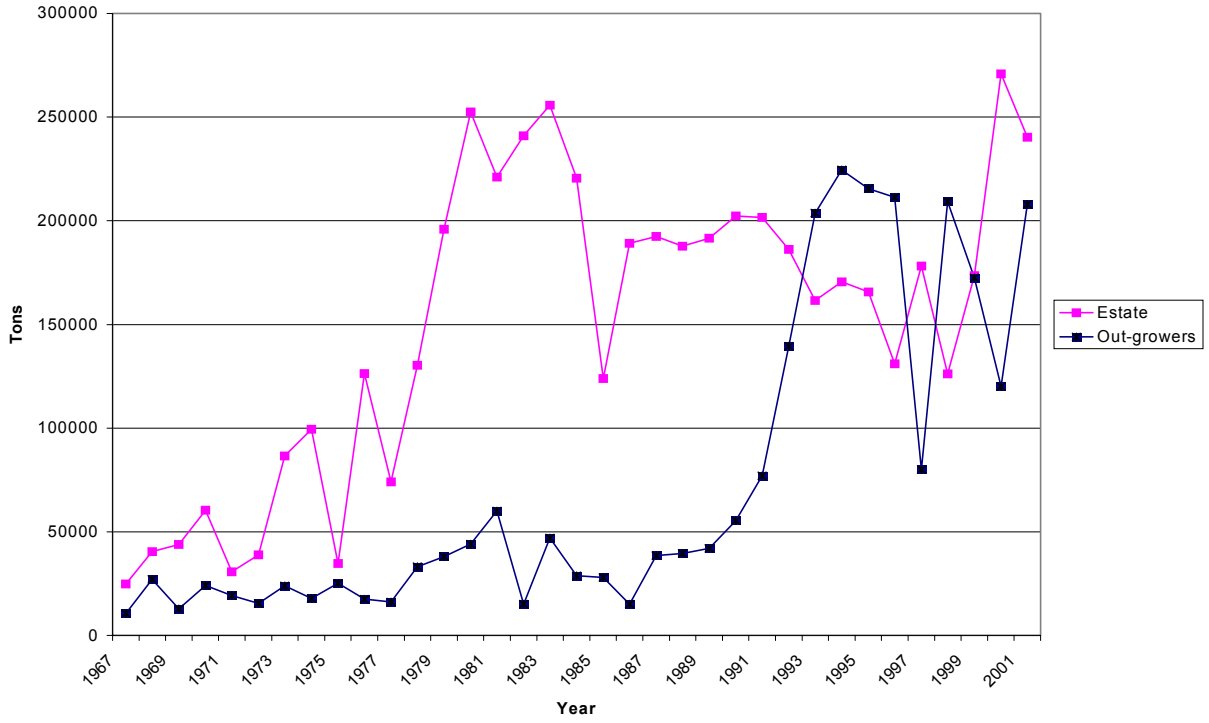
expansion in sugarcane production in the near future. An outgrower must cultivate at least one acre of sugar cane.

6.3 Crop production levels

For low resource farmers, sugarcane yields range from 20 to 30 tons per acre, maize yields range from 0.8 to 1.2 tons per acre, and paddy yields range from 1 to 1.5 tons per acre. These yields could be increased to as high as 50, 2.0 and 2.5 tons per acre of sugarcane, maize and paddy respectively if farmers were willing and able to follow extension recommendations and use the necessary inputs (discussion with Agricultural Extension Officer, 2002).

An agricultural development project in the Mtibwa area of special interest to this study is the sugarcane outgrower scheme that currently covers 12,000 hectares owned or cultivated by 3,500 farmers. The scheme started in the 1960's and it has been sustained over the years. This case study was basically interested in the sugarcane outgrower scheme and its relation to the poverty in the area. Other development projects are extension-education-types projects for paddy, poultry and dairy recently introduced. The following subsection provides a brief background to the Mtibwa sugarcane outgrower scheme.

Figure 1. Mtibwa: Crushed Sugarcane Production, 1967 to 2001



6.4 Mtibwa Sugarcane outgrower scheme

People around the factory started growing sugarcane as out-growers for the factory in 1962 when the first factory was established. The farmers in the area quickly adopted the idea of contract farming for the factory. Over time people from other parts of Tanzania have migrated to the Mtibwa area for the purpose of becoming contract farmers. Thus, the Mtibwa area is composed of people from different regions and tribes. The village Executive Officer recalled that Mtibwa area is composed of more than 20 tribes, a characteristic that is more common in urban areas, and rarely found in the rural areas of Tanzania. Currently the out-growers scheme generates around TAS 2 billion per annum value based on the cane-sugar content of 9% and prevailing average out-growers' price. The share of raw materials from out-growers has been fluctuating over the years, with an average share of 27% in the 70's, 15% in the 80's and 45% average in the 1990's. The shares and acreage and production levels and trend over the years are shown in Figure 1.

6.5 Poverty Level and the Impact of the Out-growers Scheme

Compared to many other areas in Tanzania, Mtibwa demonstrates a good example of agricultural development that could lead to alleviation of poverty. The ready market for sugarcane and relatively high returns to labour as well as stability of prices have the effect of reducing poverty to farmers in the area. The out-growers scheme has contributed to community development through council levy, income tax, and special contributions (e.g. education and health service-improvement contributions) that are used for rural development. Organizations and the institutions that have developed in relation to the scheme have made it possible to collect taxes and levies at lower transaction costs. Cane out-growers contribute 1.6% and 2% of their gross returns to their local and central governments respectively. These contributions amounted to TAS 12.8 and 15.9 million in the 1997/98 marketing year.

<u>Organization and Institutional Development</u>

The Mtibwa sugarcane out-growers' scheme demonstrates a good example of institutional and organizational development that is desirable for effective production and marketing improvement. These include the out-growers associations; vertical linkages between growers and buyer, and interlinkages between output markets and credit markets that are beneficial to both parties.

Following the increase of capacity and commercialization of sugarcane production in Mtibwa, the out-growers saw the need of forming an association. In 1996 the association was formed with 25 founder members. It is known as the Mtibwa Out-growers Association (MOA). The aim is advocacy in cane production and business, fair play in price regulations, contractual agreement, payment, and sustainable development of cane production, credits, input supply, extension services and training. Currently MOA has 3,500 members.

MOA has managed to motivate its members to start a Savings and Credit Cooperative Society (MOA SACCOS), which is operating under the consultation of CRDB Bank Ltd. The Minister of Agriculture and Food Security (Hon. Charles Keenja) launched the organization on 28th June at Madizini village in Mtibwa, where the head office is situated.

The organization has plans to become a leader on credit facilities in Morogoro region. The organization will have 65,000 shares worth TAS 10,000 each. MOA SACCOS is visioning to offer all bank services, like other commercial banks in the future. It expects to accumulate a capital worth TAS 1,761 million from the members' shares, financial institutions, grants and customers' savings.

6.6 Direct and indirect impact of the outgrower scheme

The major source of income to the people of Mtibwa is sugarcane growing. They earn TAS 10,954/= per tonne for sugarcane with 10% sucrose content. In direct employment to the factory (MSE), the salary varies depending on the position, education and qualification. Other employment opportunities are cane cutting, transportation of cane from the outgrowers farms to the factory, shops and rest houses (the income varies depending on the capital invested), transportation activities upcountry and to Morogoro town. Most of these activities are the result of sugar cane production.

The commercial production of sugarcane is a major factor that has led to expanded commercial activities in the division. The demand for food crops and other consumer items, as well as farm inputs (agrochemicals and fertilizers) has also expanded providing market for local, as well as outside traders. Employment in construction, carpentry and other services has been increasing. These trends are expected to continue given the expected expansion of sugar production. It has been projected that the Mtibwa sugar estate is going to more than double the current level of production in the coming five years period. The plan is to expand the sugarcane production area from the 20 km radius to 40 km radius from the factory.

6.7 Development efforts

Development in the area has been initiated first and foremost by the government through the construction of the sugar factory in 1962. The Mtibwa Sugar Estate was a state owned farm until it was privatized in 1998. The government saw the need to motivate the farmers in the area to produce sugarcane as a source of raw material to the factory and for their livelihood. Since then sugarcane production in the area has been the key source of income to the farmers and the development of Mtibwa area.

Related to this development is the emergence of organizations and institutions, with the aim of reducing poverty and improve the welfare of the farmers. As described above they facilitate production, marketing and community development efforts as they lower transactions costs. Mtibwa Outgrowers Association has facilitated acquisition of grants and loans from various organizations. For example, African Development Foundation provided a grant amounting to TAS 192 million to MOA in 2001/02. This loan was

partly used in the establishment of the MOA-SACCOS. A total of TAS 83 million had already been loaned to members at 18% interest rate per year. Similarly, CRDB Bank has provided TAS 300 million to be loaned to farmers through MOA-SACCOS.

The Government and non-governmental organizations have volunteered in promoting the development projects in the area. The government extension officers in Mtibwa work in partnership with MOA, to ensure sustainable sugarcane production. In November 2001, the Sugar Act was established to ensure fair play in sugarcane business. In July 2002, the Sugar Board was launched. MOA participated in this process to ensure that farmers are represented in such forums.

6.8 Challenges and Opportunities

Apart from all these efforts, the war against poverty is still ongoing. It is estimated that 40-60% of people who are engaged on the scheme live under the poverty line, although they are not among the poorest of the poor nationally. In addition, for outgrowers there are several risks associated with participation. These risks include the following:

- Over-dependence on a monopsony buyer without legal mechanisms for back-up. Late payments to out growers for sugar cane delivered is a good example of this threat. Out growers indicated late payments limiting their opportunities, and sometimes resulting into reduced investments in agriculture.
- Some small-scale farmers, who are in most cases also low-resource, have experienced special problems such as loss of produce as they are denied harvesting services. This problem may be associated with high per unit cost of harvesting due to bad plot conditions (e.g. when flooded), long distances, small farm size and poor crop. This is a significant source of risk to poor farmers.
- Most of the production area is prone to natural disasters (such as drought, floods, and accidental burning). Families that grow sugarcane on marginal lands have, from time to time, experienced crop losses due to these problems.
- Farm sizes and availability of credit are important factors that determine the profitability of the farm and its sustainability. Small-scale low resources farmers have continued living under undesirable conditions. For some they have worsened due to their inability to re-invest in their sugarcane plots. For such farmers, the sugarcane crop remains on the farm for too long leading to a 60% decrease in yield and decline in sugar content to as low as 3%.

There are considerable opportunities to farmers in the Mtibwa area to increase agricultural productivity through irrigation and improved farm management practices. The area has a significant potential in terms of control of moisture, given Wami River and its tributaries in the area and possibilities of constructing drainage systems. In addition, the outgrowers have not yet realized the maximum yield potentials. Sugarcane yields can be more than doubled from 20 to 50 tons per acre, and cane sugar content can be increased from 9% to 13% through better farming practices. Furthermore, land expansion is a possibility with increased access to machinery and credit services, which MOA is trying to facilitate. Given MOA efforts to secure grants and loans for

development of sugarcane production, this is certainly an opportunity for the Mtibwa farmers to be freed from poverty.

Although, Mtibwa has relatively good access to Morogoro town, the access roads to farms that are far from the factory are often not so good. Improvement of such roads may lead to better harvesting operations and less frequent denial of harvesting for farms that are now less accessible. Construction of roads to improve access to the prime land suitable for sugarcane production will make it possible to expand the out growers scheme to the 40 km radius by 2007 as envisaged by the estate.

In conclusion, the Mtibwa case shows that agricultural product market access results into increases in agricultural production and productivity. This has taken place through changes in production pattern (shift from food crops to sugarcane) and also increases in levels of sugarcane production (expanding area under sugarcane and use of inputs). This process is highly supported by the development of a strong organization such as MOA and institutions such as the vertical linkages between individual farmer and the buyer of his/her product. Emergence of the organizations and institutions ensures an environment for increases in returns to farmers and possibilities for alleviating poverty. The synergies that develop between sugarcane outgrowers (individual farmers), the association and the processing factory (buyer of farmers' produce) are the keys to success of development efforts and thus possibilities of reducing poverty.

7. Moshi Rural, Kilimanjaro Region

For decades coffee has been the main Tanzanian export. Much of it is grown on the slopes of Kilimanjaro in Hai, Moshi Rural and Rombo Districts. In these districts the coffee-banana production system has been the mainstay of the economy. Coffee is grown intercropped with bananas, often in combination with fruit trees such as avocado. Crop production is often combined with dairy cows and goats kept in stall feeding systems. The production system is intensive and has supported a high population density. The area has also been among the wealthiest of agricultural communities in Tanzania. Incomes, primarily from the cash crop coffee, have enabled the coffee farmers to invest in higher quality housing, livestock and off-farm enterprises, and not least: education for their children. The result is that people from the area can be found in all parts of Tanzania, occupying important positions in trade, administration, and academia. Rapid population increase has led to sub-division of farms up to the point where some farms are no more than house plots, with little or no land for crop production. This may be an important partial explanation of the migration away from Kilimanjaro. But the farming incomes have also provided local employment and income for those with small or no landholdings. Coffee farmers with large holding have frequently needed to employ workers on their farm for tasks such as pruning and harvesting. And much of the farmers' expenditure is directed towards locally produced goods and services, providing local employment and incomes.

Coffee producers are subject to the vagaries of changes in the world coffee market supply and demand. Periods of boom are followed by bust. Currently, following the entry of Vietnam as a major coffee exporter, coffee prices are very low.
For the population of the coffee-growing areas of Kilimanjaro region the depressed coffee price has represented development in reverse. The income of coffee growers is obviously depressed when coffee prices are low, but they are not the only ones to be affected. Those whose incomes depend on multipliers from coffee incomes also feel the effects.

Coffee prices are currently so low that most small scale growers find it unprofitable to continue growing the crop. The bushes are usually not uprooted, but they are left untended. They are not pruned and not sprayed, and when bushes die, they are usually not replaced by new plantings. Farmers are letting their banana plants grow big, completely overshadowing the coffee bushes. Consequently small-holder coffee yields are only a fraction of what they would have been with more intensive management. This also has consequences for labour demand. In our survey we interviewed an old couple who had a farm of only half an acre. They complained that in earlier years they had been able to secure sufficient income by working as labourers for other farmers in the village, pruning coffee bushes and picking coffee. Now there was little or no demand for their services, as coffee farmers were not investing in their bushes and harvests were small. Another woman we spoke to described the effects in the following way: "When income from coffee is low, we grow more bananas in our gardens, but banana prices too become low when people grow more of them. What is worse, when the coffee farmers have so little money, they buy less beer, the brewers buy less bananas, and banana prices get even lower." Thus the beer brewers and the banana growers are also affected by the low price of coffee. We also interviewed a man who was trying to supplement income from his tiny farm by working as a carpenter, producing simple furniture and house building components such as window frames, doors and roof constructions. Previously this had given him and his family sufficient income, but currently there was very little demand for his products, as coffee farmers had little income to undertake investments in home improvement. It was evident that when we visited him the family had insufficient food supply and had to get by with only one meal per day.

The above cases illustrate some of the important multiplier effects of agricultural growth, how growth in farmers' incomes can also benefit the landless and those with little land by increasing the demand for their most important asset: their labour. This is not to say that there cannot be destitute people in the coffee growing areas of Kilimanjaro even during coffee booms. Households that have no capital assets (e.g. land), limited labour assets due to disability or disease, and weak kinship network, can still experience destitution and starvation (Howard and Millard 1997). In these cases stronger social "safety nets" are required. But agricultural growth can go a long way towards increasing income opportunities for those households that have some labour to offer.

In the coffee growing areas land can be sold and bought and used as collateral for loans. The number of land transactions is, however, very low as there are social constraints to selling off the family land. But many of the coffee growers own land in the lowlands.

These lowland areas are not suited for growing coffee, but are used for cultivation of maize, beans and other crops. These lowland areas seem to be more marketable, as we recorded many more transactions in such lands than in the lands at higher altitudes.

8. Conclusions

The selected case studies illustrate that agricultural development can be brought about by several means. The cases bring out the importance of market access for produce, the importance of transport infrastructure and effects of world market prices. But they also highlight the importance of marketing networks, and of improvements in production technology, i.e. high yielding crops and livestock, and improved production practices. The importance of lack of capital as a constraint to the poor in gaining access to more profitable enterprises, highlights the importance of a functioning capital market, and the potential for microfinance.

The very poorest primarily benefit from agricultural growth through increased demand for their labour. Agricultural growth increases the probability of obtaining employment, and it may increase the salary level, thereby increasing the income that can be earned from working as a labourer. The processes generating increased demand for labour seem very evident in our study areas.

Processes that could lead to increased differentiation and marginalisation of the poorest are primarily that communal assets, such as clan land, becomes individualised and that the poor sell out or lose access. In our study areas it seems that land is still not sufficiently of a marketable asset for such processes to take place on a large scale. There are social limits on the extent to which land can be sold or placed as collateral for loans, and thereby on the possibility of the poorest of loosing their land.

The moderately poor are better placed to take advantage of the opportunities for enterprise development offered by agricultural development than are the poorest of the poor, i.e. the landless. Most opportunities require an investment to be made, and even if this investment may appear very tiny to others, it may be outside the means of the poorest. Most investments also entail some risk, and this risk may be perceived as too high by the poorest.

Even when initial assets are distributed for free as part of a development project, the generally poor asset situation of the very poor means that they have few reserves that can be mobilised in case of misfortune and distress (e.g. for buying medicines during illness, or repaying input loans in case of yield failure), and may thus be forced into selling the assets they were given – returning them to the situation of having to rely solely on their labour.

Being very poor is often combined with having little or no education and little knowledge of the outside world, and thus low ability to comprehend and utilise the extension advice being offered, and successfully implement a new practice. When insufficient understanding of the extension advice is combined with insufficient capital to undertake

the full investment in inputs required for successful implementation, the result is frequently failure, discouragement and a return to the well known, safe and tested practice. The constraints the poorest have to face in adopting new practices mean that reaching them is a very challenging task for the extension service. One implication may be that extension should not be targeted to the very poorest, but to those who have some more resources and fewer constraints to successful implementation. Let them carry out the initial experimentation needed to adapt the new practice to local conditions, and let them bear the risk inherent in such experimentation. The poorest can then adopt the practice when it has been thoroughly tested and adapted.

9. Implications for NORAD support

Our small study is obviously not sufficient to give very specific advice on how NORAD should prioritise its use of funds. Such priorities would depend on what others are doing: the Government of Tanzania[4] and other donors. Moreover, we have only studied a few cases and not done a survey of all of Tanzania. Still, we believe that there are some useful implications that can be drawn, although they have to be quite general in nature.

1. Support to the agricultural sector leading to agricultural development is inherently conducive to poverty reduction.

2. Which kind of support will have the largest impact on agricultural development will be location specific, depending on what constitutes the most important constraint to growth in a specific locality.

3. Support to agriculture should not be restricted to issues that are within the domain of the Ministry of Agriculture and Food Security. Our study brings out the importance of also other issues:

    a. Without access to markets for outputs and inputs, growth is severely constrained. Poor infrastructure leads to high transport and other transaction costs, and high marketing margins (the price differential between farm gate or local market price and price in the consumer markets). When the marketing margin is sufficiently high, producers become unable to produce at a profit. Marketing margins can be reduced by several means. The most obvious is investment in improved roads (not forgetting the organisation of maintenance of existing roads.) Our study does not have a sufficient extent to make judgements on which road investments in Tanzania should have priority. Cost benefit analysis of the alternative investment projects would be necessary for this purpose.

    b. An alternative to costly road construction might be the improvement and dissemination of "intermediate technology" solutions to reducing transport cost, e.g. using donkeys.

[4] Cfr. The United Republic of Tanzania: Agricultural Sector Development Strategy (2001), and Agricultural Sector Development Programme (2002).

c. High marketing margins are not only due to high transport cost, but also weak market institutions for providing transparency and reduced risks. Institutions for improving dissemination of market price information may thus contribute to lower marketing margins.

d. Appropriate government policies in marketing, international trade, monetary and fiscal policies are crucial to the development of agriculture. One example is the following: The fact that Kilimanjaro coffee farmers can obtain better prices selling their coffee via Kenya (or Uganda in the case of Bukoba farmers), i.e. smuggling, indicates that there may be room for improved efficiency in the Tanzanian coffee marketing system. As the buyers are all selling their coffee on the same world market the price differential must reflect differences in marketing margins, in prices obtained in international markets, or in taxes. NORAD's role in relation to such issues would primarily be one of policy advocacy and dialogue with the Government of Tanzania in seeking to improve agricultural and other policies.

e. When asked to rank development interventions in terms of the benefits they had obtained, a focus group of Mgeta farmers ranked the savings and credit bank as the most important – even though the bank was charging interest rates of up to 60% per annum. This points to the importance of developing savings and credit facilities tailored to the needs and opportunities of poor farmers.

4. Agricultural research and extension play an important role in agricultural growth. In areas such as the most remote villages of Mgeta it could be an issue of finding productions for which the agro-ecological conditions are particularly suitable and that have a high value to weight ratio, so that they may be profitable in spite of high transport costs. In other areas it may be an issue of increasing profitability through innovations for increased productivity of livestock and crops. Thus, for instance the competitiveness of Tanzanian coffee in international markets (and thereby the profitability for Kilimanjaro smallholders) could be improved by research for developing and adapting coffee varieties that have higher yield potential, or have resistance to common pests so that costly pesticide applications can be avoided. Continued efforts to improve the quality of Kilimanjaro coffee (e.g. by improved processing and grading), and to brand it as a high-quality product, may also contribute to improving profitability. In sugar production too there is a need for enhancing productivity if Tanzanian sugar producers are to be able to compete with imports, should sugar tariffs be reduced or removed.

5. Efforts to improve product quality and processing may enable farmers to obtain higher price for their produce by targeting consumers with willingness to pay for quality and diversity. Developing networks and partnerships with retail chains may be an effective instrument. Strengthened extension is required for achieving

this. Development of farmers' organisations may also play in part in such a process.

6. The importance of farmers' education for their ability to utilise efficiently the advice and information offered by the extension service and development projects, points to the importance of current efforts to provide universal primary education and to improve the quality of the education offered. Free primary education also has direct effect on poverty alleviation, as paying school fees was a big part of the expenditure budget of the poor (for those poor who could afford to send their children to school). Improvements in basic health facilities in Morogoro Region have also contributed to relieving the situation of the poorest.

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