Analysis of an agrarian system in the mid-mountain regions of Wolayita in southwestern Ethiopia

Summary

Introduction

The study was carried out in 2020 in the mid-land areas of Wolayta Zone, Ofa district, where Inter Aide and its partner organisation RCBDIA are working to support family farmers. It consists in an agrarian diagnosis drawing up a socio-economic typology of family farms (classified in 7 groups, from the most vulnerable to the well-off). It is based on an in-depth survey of 127 households. 47 qualitative interviews were conducted at different scales of analysis in two villages, then 80 quantitative to broaden the sample and find out the proportion of each type of household (exhaustive sample in 2 villages, total population 127 households).

The landscapes of the mid-altitude areas of Wolayta (1600/2200 m), subject of this study, comprise a continuous mosaic of small farms with an average surface area of 0.4 hectares in a mountainous and highly populated context (400 inhabitants/km2, reaching sometimes 600 inhabitants/km2 in places). Each farming family cultivates a home garden, composed of ensets, coffee trees and fruit trees, plots of annual crops and a fodder meadow, all closely associated with livestock (cattle and goats).

The situation of these family farms is still marked by the agrarian and political history of a country under feudal rule from the 18th century until the advent of the Marxist Derg regime in 1974. Neither the regime of Emperor Menelik in the 19th century, who integrated Wolayta into the Ethiopian Empire and introduced the plough and teff cultivation, nor Haile Selassie (1892-1975) succeeded in challenging the privileges of the large land owners

The Derg regime created a socio-historical break by abolishing the feudal system, redistributing farmland and implementing programmes to modernise agriculture (crossbred cattle breeds, "improved" crop varieties and techniques, introduction of mineral fertilisers).

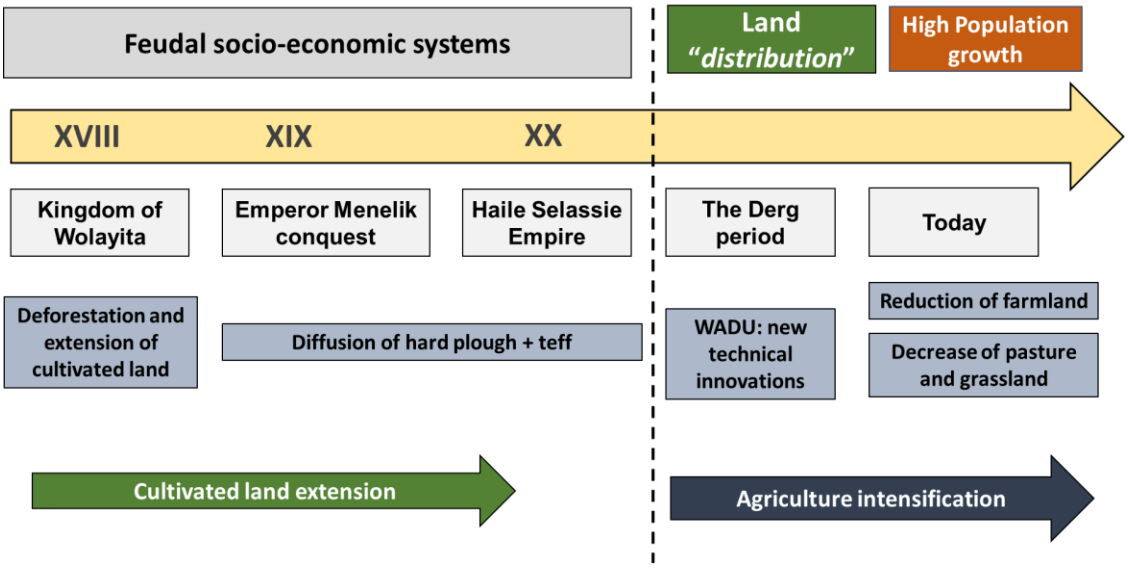

Figure 1: timeline of agricultural evolution in Wolayita

The farming families, formerly in a situation of semi-serfdom with landowners, have now an access to a small plot of land. But beyond the effects of the agrarian reform, the soaring demography in these rural areas leads to changes in the occupation of space: a fragmentation and miniaturisation of farms from one generation to the next occurs, together with an increasing occupation of forest areas, meadows and cattle rangelands. By the 1980s, this pressure on resources also led to technical transformations: an increase in the number of crop cycles per year, the abandonment of fallow land, and the concomitant intensification of livestock systems thanks to the collection and distribution of fodder in the stable… Although agrarian reform and intensification of cropping practices resulted in an increase of land productivity (creation of wealth per unit area), the gains generated were not enough to improve the economic and food situation of a population that doubled in 35 years.

At the same time, the lack of reallocation of the landlords' herds by the Derg is still reflected in the multiplication of animal-sharing contracts, which create interdependence between the poorest and the wealthiest families. The reason why is that former landlords, confronted to a strong land reduction, are no longer able to feed their herds on their own plots. The result is a paradoxical situation: unable to extend their land, while possessing a pair of oxen allowing to cover much larger areas, the better-off grow crops on the land of the poorest through a "reverse sharecropping": It is not the poor who works on the land of the rich to obtain half of the harvest, but the wealthy who works on the land of the poor, unable to do so for lack of labour force, draft animals, capital and necessary inputs. This mechanism can drive the poorest abandoning the cultivation of their land in a context where the absence of cash prevent them to face the unforeseen.

Livestock ownership is an economic determinant for a second reason: it provides the manure that is essential for the maturation of enset, a perennial crop highly resistant to drought and contributing to household food security in this region of southern Ethiopia.

In Ofa, owning an animal is therefore a factor of peasant differentiation (a determinant of wealth) that is often more important than the amount of land owned. However, it implies having sufficient access to fodder, illustrating the strong interdependence between agriculture and livestock within farms and at the territorial level.

1- The agrarian system

Agriculture in Wolayita is diversified and finely combines crops and livestock.

Farming households combine perennial and annual crops and livestock in a common topographical pattern, but with variations of surface allocation depending on the household. From upstream to downstream of the farms, we find :

- The enset plantation in the area close to the house, which ensures substantial food production and contributes to the resilience of the families, particularly in times of drought. A mature enset (6 years old) provides up to 60 kg of Kotcho, a paste produced after fermentation of the trunk, which can be processed all year round. The plot fertility is ensured by a massive input of animal manure, hence a strong variability in production according to the economic situation of the households. The most vulnerable have a corresponding small amount of manure and are unable to wait for the enset to mature before consuming it. As a result, they get only 12 kg of Kotcho per enset on average. The enset also plays a major role in the feeding of livestock in the dry season, partly because of its high moisture content. The enset plantation is complemented by a small home garden (coffee, fruit, cabbage, etc.) located nearby.
- Further down, the annual crop fields are ploughed in several passes. The main crops are maize, beans, sweet potatoes, taro, teff and cassava. Vulnerable farmers cultivate manually with hoes with lesser results. Several cropping cycles follow one another on the close fields, unlike the far fields, which are farmed by better-off farmers and reserved for cash crops with lower labour intensification and the use of chemical fertilisers.
- The permanent grasslands below the crop fields are dedicated to feeding livestock. Most of the time, they occupy insufficient areas to meet the needs of the animals, hence the existence of an active market for the sale of fodder.
- Eucalyptus plantations, not labour intensive, are located at the bottom of the plots and provide timber for household needs or stand as an additional source of income.

It can be seen that the level of labour and organic manure intensity and land productivity (creation of wealth per unit area) decreases as one moves away from the dwelling (very high in the enset plantation and lower for the eucalyptus), while labour productivity (creation of wealth per working day) follows the opposite trend, as the eucalyptus requires little work in relation to the income generated.

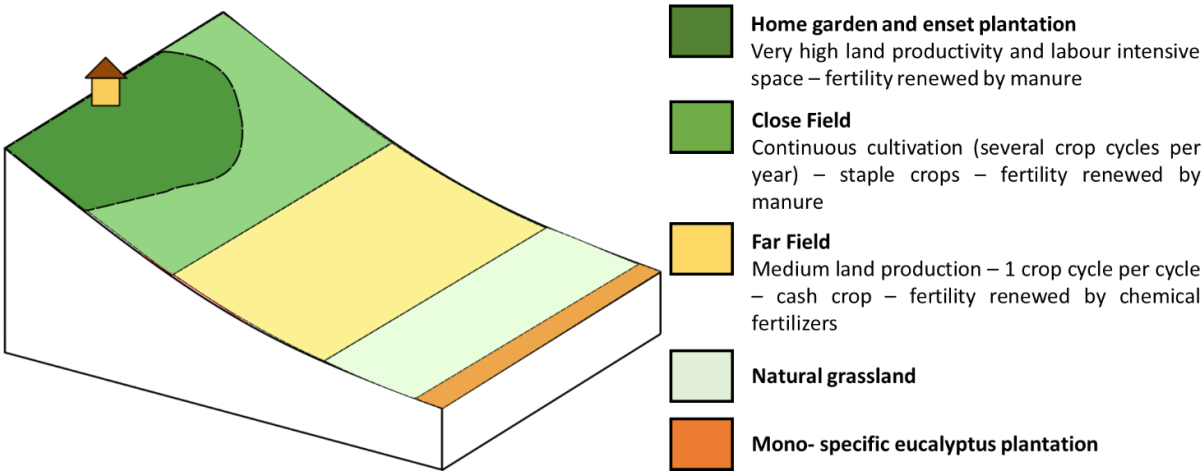

Figure 2: Agrarian structure of farms

Livestock farming is the mainstay of the agrarian system, since each farm raises one or more head of cattle (either fully owned or shared). It allows the renewal of fertility on the farm while providing cash flow and a source of protein for families through the consumption of dairy products.

Ownership of a draft ox allows timely tillage over a narrow calendar window, which has a positive impact on the harvest. It also offers these owners to increase their cultivated area by working the land of farmers in an insecure situation who do not have traction animals. The very high variability of livestock performance is due to the socio-economic situation of the families: the poorest, who do not have a draft ox, get almost no milk from a shared cow, due to their chronic shortage of fodder and the lack of cash to purchase it. In the dry season, resort to borrowing becomes necessary, and expenditure on fodder purchases is sometimes higher than on household food! Underfeeding of livestock results in weight loss and high mortality rates among calves. Conversely, better-off farmers have sufficient means to feed several animals, providing them with a regular monetary return from the sale of butter and substantial income from the annual sale of fattened calves/beef. As a result, the gross value added per dairy cow varies from 1 to 4!

2- Farm Typology

The three main types described below are based on several differentiating factors: the size of the farm, the possession - or not - of a draft ox, which determines the capacity to extend the area under cultivation, the quality of the livestock feed, sharecropping, the number and status of the animals on the farm (owned or shared).

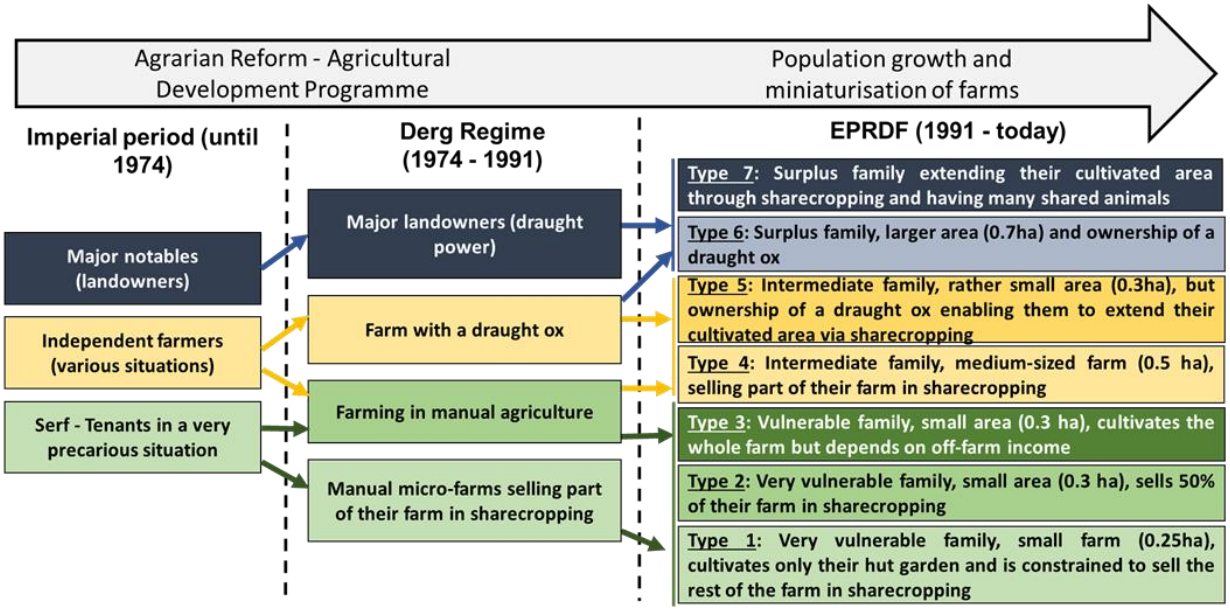

Figure 3: Evolution of the farm diversity over the past 50 years

Families in a highly vulnerable situation (types 1, 2 and 3) represent 50% of the sample studied. They are characterised by a limited agricultural area (less than 0.3 ha per family) and lack of traction animals. The enset house and home garden do not exceed 500 m2 in total. The manually cultivated fields are limited to food crops (taro, sweet potato, maize) and exclude all cash crops. They are supplemented by a small meadow at the bottom of the plot. The low productivity of enset adds to the vulnerability of the households: this is due to the lack of organic manure, excessive use of leaves for cattle feed and early consumption before the trunk matures, resulting in 5 kg harvests per enset (compared to 15 kg at 3 years and 60 at 6 years!). These families raise a dairy cow, generally in sharing, with very small amount of fodder in the dry season, which hampers milk production and increases the mortality rate of calves.

The differentiation between the three sub-categories of these small farms is based on the share mode of the farm: the poorest (type 1) only cultivate their home garden and sell the rest of the farm in sharecropping because they do not have the labour force to cultivate it nor the cash to buy the inputs. They only receive half of the harvest. Type 2 families share half of their land, while Type 3 generally includes households with smaller areas that manage, sometimes with difficulty, to cultivate all of their land manually.

For these three types, resorting to multiple activities appears as the only possible alternative to reduce vulnerability. These farmers depend on extra-agricultural activities for almost half of their income: purchase and sale on local markets, daily sale of labour force in the area (cassava chopping, teff harvesting, etc.), seasonal migration to employment pools (state farm, industry) or government programmes (safety net). Their fragility is extreme, including for type 3 farmers who may be forced to borrow to feed themselves in times of drought or in the event of a hard blow, often resulting in an inability to get inputs and the obligation to share part of the farm in return (transition to type 2). When reaching its peak (indebtedness, chronic food deficit), this situation then forces the families to leave the countryside and migrate to the towns.

The families in an intermediate situation (types 4 and 5) represent 30% of the sample studied. Type 4 farmers are less vulnerable, either because they have an acceptable amount of land (0.65 ha on average), which allows them to dedicate a larger part of the farm to enset production, but also to fodder production, thus limiting external purchases and ensuring better milk performance. Households of type 5 are in the opposite situation: they have little land (0.3 ha on average), but own a draft ox, enabling them to increase their crop production by using neighbouring farmers' land, and to have the cash flow to buy fodder for their cattle (one ox and one or two dairy cows). In both cases, these farmers are forced to seek income from outside, mainly through the sale of their labour power, for almost a quarter of the resources needed for their subsistence.

The larger farms with agricultural surpluses (types 6 and 7) represent 20% of the sample studied. These families, descendants of former landlords or independent farmers, have larger areas (1 hectare per household), allowing them to raise one or two draft cattle and 2 or 3 dairy cows, plus some shared animals. The presence of this livestock and the cash income available to buy additional fodder, when self-sufficiency is not achieved, provides a significant amount of manure to the enset plot, which sometimes produces more than the family needs. The close fields are also more extensively manured and provide other household food production. The area devoted to cash crops is greater than that for food crops. The families of type 6 cultivate only on their own farm, while type 7 families extend their area to other farmers, generally for cash crops, which allows them to make use of their entire team (pair of oxen). Surpluses are reinvested in agricultural inputs (tools, animals), in off-farm activities or to finance the higher education of some of their children. These families are more resilient to unforeseen events, but are not totally immune to a series of severe difficulties (death, loss of livestock, etc.) that could force them to share part of the farm (decapitalisation), which could lead them to a type 4 situation. Sharing can also result from other events, such as the ageing of the farmers and the absence of young people to take over the farm, but in this case, sharing is not accompanied by economic insecurity.

Ofa district/Woreda is thus marked by a strong socio-economic disparity between households, illustrated by a ratio of 1 to 12 between the average farm income of the most vulnerable households and those who are better off. Paradoxically, this inequality is associated with a very high level of interdependence at all levels: type 5 and 7 families depend on poorer farms (types 1, 2 and 4) to extend their cultivated areas with their draft animals, while the poorest depend on the better-off for access to shared livestock, the purchase of fodder or the cultivation of plots by reverse sharecropping. This interdependence between families is symmetrically coupled with another interrelationship, between agriculture and livestock: access to fodder, a very tough task for households of types 1 to 5, determining the productivity of the enset, which is in turn vital for the food security of the families.

3- Perspectives

This study of household typology could be supplemented by additional research conducted among farmers located in other agroecology (altitude), a determining factor in particular for enset cultivation.

The role played by demographic pressure on the territory, as well as the dynamics of rural exodus, are aspects that could be tackled only on the fringes of the present study, although they may account for the phenomena of decapitalisation of land among the poorest. In another area, the use of loans, the rates charged and the methods of repayment make a separate chapter. While it has been taken into account in the income calculations, the interdependence mechanisms deserve special attention.

A closer look at these different parameters should help to better define actions specifically adapted to the problems of families in a very fragile situation, who have a shortage of fodder for their livestock and food resources for themselves, and who are therefore condemned to search for intractable trade-offs between their own food and their animals' feed.