

Transport as a Factor and Constraint in Agricultural Production and Marketing

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The key findings of this report are:

1. The need to travel and to transport goods to and from the field is an essential task associated with the agricultural activities of all income groups. For the majority, this travel is associated with household subsistence in which the need to transport produce is greatest during the harvest period. Only in the successful category is there significant production of marketable surplus which enables the study to examine in more detail the role of transport as a factor and constraint in agricultural production and marketing as a whole.

2. The successful have achieved their increased agricultural production by increasing the number and area of cultivated plots. This in turn involves making more and longer journeys during the agricultural cycle. There is considerable evidence that IMTs have been adopted by households to address the travel problems and transport burdens arising from this trend.

3. In general, during the land preparation, planting and weeding stages of crop cultivation, most households walk to the fields. There are two important exceptions to this pattern. The first occurs in Dedougou (Burkina Faso II) where IMTs are regularly used to travel to the fields in all stages of the agricultural cycle. Secondly, the transport of fertilizer and manure inputs is often sufficiently burdensome for it to be transferred to animal carts in the areas where these are available.

4. Harvesting presents the greatest transport problem for all households and, in weight and volume terms, the successful have to move the greatest amount —over eleven tons of produce per successful household in Kasama. This represents a substantial logistical problem or burden for this group. It is a burden to which IMTs have been applied in three study areas; Lusaka Rural, Kaya and Dedougou. Elsewhere, other strategies are employed to reduce the burden, for example in Kasama framers are obliged to live adjacent to their fields.

5. The crop marketing stage of the agricultural cycle mainly involves the transport of produce from the homestead to the co-operative buying points. For the successful, this is a logistical problem exacerbated by the requirements, in some areas, for crops to be handled in 90 kilogram bags. The accessibility of the buying point is crucial and for the dispersed settlements, IMTs and hired labor are used intensively during the marketing stage. Conversely, access by trucks is crucial for the timely evacuation of produce from the co-operative buying

point. In the Kasama Co-operative Union, for instance, the shortage of lorries meant that maize was not collected from the remoter villages and the crop was left to spoil.

6. From the above observations we can identify agricultural activities where the successful households are substituting IMTs for household labor. In this substitution process, the role of IMTs is four-fold. First, they shorted the time over which a journey is made. Secondly, they increase the efficiency with which loads are carried. Thirdly, they reduce the effort and drudgery involved in the human portage of inputs to, and produce from, the fields. Finally, they help reduce the pest damage and spoilage at harvest time.

7. In economic terms, these benefits of IMTs can be considered as releasing latent factors of production, principally land, and increasing the efficiency with which the existing labor resources are utilized. In land terms, the evidence from Dedougou suggests that IMTs are closely associated with the exploitation of new lands, i.e., the flood plain of the Black Volta. IMTs have enabled households to extend the effective distance over which agriculture is practiced. They seem to have added an extra two kilometers to the radius of agricultural operations around the sample settlements in Dedougou compared with other study areas.

8. In labor terms, we can also assume that IMTs have the potential to release household time which can then be spent on more productive activities. This is most obvious in periods of peak labor demand, such as harvest time. Transferring harvested crops by donkey cart (a load factor of 250 kg.) rather than headload (a load factor of 20 kgs) reduces the number of harvesting trips dramatically. The Dedougou harvest is one of the heaviest and bulkiest of the five studies, yet its transport is less time consuming than other study areas.

9. In these situations, we can assume that the opportunity cost of agricultural labor is high enough to make investment in the IMT an economically justified household decision. Certainly, the high agricultural income of the most successful farmers in Dedougou is closely associated with the highest levels of IMT ownership encountered in the research project.

10. The IMT, particularly the donkey cart, also enables the successful farmers to intensify their agricultural efforts without compromising their access to social services and facilities. In other words, households can live in nucleated settlements, which enhances the efficiency of social welfare planning, and still be able to increase their use of agricultural inputs and transport the resultant harvest.

11. In terms of road transport and accessibility, the use of the road network reflects the strength of the household's agricultural links with the wider economy. These seem to strongly developed in only two of the study areas - Kasama and Dedougou. Here, the successful are concentrated in the more accessible villages. The input intensive modern farm systems that characterize agricultural activity in these areas is crucially dependent on vehicle access. In Kasama, the fertilizer needs of the area are brought in by rail and distributed by lorry. The marketed surpluses are collected from the village godowns (warehouses) and individual farmers'

storage racks by lorry. In Dedougou, lorry delivery and marketing is focused on co-operative buying centers in the villages.

12. In both cases, co-operative take full transport responsibility from the buying point and their efficiency is influenced by roadside location. In the Kasama Co-operative Union, for instance, the shortage of transport meant that maize was not collected from the remoter villages, where spoilage losses were high. In this sense, it is not just road access, the timely availability of transport services that is important.