

**SEMINAR: SUSTAINABLE ACCESS
AND LOCAL RESOURCE SOLUTIONS****Date : 28 – 30 November 2005****TITLE: The Potential for IMT Hire Centres to Improve Rural Access and Mobility: The Case of Community Hire Centres in Northern Region, Ghana.****AUTHOR:** Rachel Flanary, I.T. Transport Ltd. & Ron Dennis, Developing Technologies**1. Introduction**

The initial purchase cost of an Intermediate Means of Transport (IMT) is a crucial issue, particularly in rural areas where purchasing power is generally weak. For a large number of rural people, the purchase of an IMT represents a huge financial undertaking requiring months, and in some cases, years of saving. For rural women, whose purchasing power is generally much lower than men, the cost represents a particularly major outlay and is often not considered to be a priority, with their limited funds rather being spent on food and other necessities. IMT promotion projects have used a number of funding mechanisms to try and resolve this issue, including: individual credit schemes (sometimes linked to a road maintenance programme); group credit schemes; revolving funds, and; hiring centres. The availability of credit is often considered to be the most important input needed to promote greater ownership of IMTs, although this is not always the case, particularly in areas where IMT ownership is of high priority and status, such as Burkina Faso. In Burkina Faso, ownership of IMT is very high despite the limited availability of credit.

Hire centres are perhaps the newest mechanism for providing IMT. They have been put forward as a way of avoiding the problem of cost of IMTs among very poor populations and a way to increase access to a wider audience. Informal hire of IMT by owners is quite common, particularly for animal-drawn carts, and can be a valuable source of income to the owner. Barwell¹ in fact estimates that 19% ownership of carts in a village can make them available to the whole village through hire. However, no recorded instances of setting up more formal hire centres in rural areas have been found. In 2001, IT Transport introduced a wheelbarrow for water carrying in Tanzania, but found little demand due to low purchasing power. Surveys suggested a demand for the wheelbarrows on an hourly basis and hire centres were subsequently set up. These were found to be reasonably successful and ITT suggested that hire centres had much potential, particularly in areas with access to markets and adequate economic activity. Hire centres have the advantage of being able to provide access to IMT to a larger number of individuals than would be the case with individual or group credit. This is especially important for women, who tend to have much less access to IMTs than men. A traditional credit approach is less likely to benefit women and poorer households because of lack of affordability.

Under the DFID-funded Feeder Road Programme (FRP) in Ghana, Hire Centres have been trialled in a number of communities in Nанumba District, Northern Region, since October 2001. These hire centres were initially set up in seven communities. The aim was to 'add value' to the road improvements on the understanding that improvements to feeder roads may have limited impact unless accompanied by a modal shift from walking and head-loading to use of personal transport or transport services. The other key aim was to make improved means of transport more readily available to the community to reduce the time and effort involved in transport, to improve opportunities for marketing of crops and trading, and to generally improve the mobility and access of rural people.

¹ Barwell, I., 1996: Transport and the village; World Bank Discussion Paper No. 344, Africa Region Series, The World Bank, Washington D.C.

This paper reviews the experience of the Nanumba hire centres and discusses the potential for establishing IMT Hire Centres in rural areas, focusing largely on viability, sustainability and the ability to promote greater access to women, who generally have more limited purchasing power to invest in an IMT.

2. Nanumba District

Nanumba District was considered to be an ideal location for trialling the hire centres partly because of the high levels of poverty evident in the district (making credit schemes difficult to sustain) and the high demand for transport for moving the staple crop of yam, which is both high yielding and bulky. Nanumba also provides the ideal terrain for IMTs. It is a flat, savannah area, and is almost entirely rural with a population density of around 45 persons/km². Partly as a consequence of terrain and population density, the area is characterised by a high ownership of bicycles: about 70% of households owning a bicycle, with larger households owning two or more.

Initial investigations indicated that substantial resources would have been needed to administer credit schemes to achieve reasonable repayments. These and other problems were also evident from group credit schemes used in the Village Infrastructure Programme (VIP) in Ghana. Preparatory discussions with the communities revealed a preference for credit, particularly by men, but there was general agreement that hire centres would be a good approach to making IMTs more widely available, particularly to women.

Details of the villages are shown in Table 1. Bimbilla is the district centre which provides a good supply of bicycle parts but very limited workshop facilities.

Table 1: Details of Project Villages

Village	Kpaliga	Lefaldo/ Bondando	Garikpe	Buli	Jinjinabane	Chichagi	Pudua
Population	450	2,000	390	3,000	760	700	2,263
No. of hhs	20	145	80	500	40	50	350
Distance to market	4 km	5.6 km	6 km	8 km	4 km	24 km	20 km
Distance to Bimbilla	4 km	36 km	18 km	40 km	48 km	24 km	20 km

The average production of crops is around 15 tonne per household of which about 10 tonne are marketed. Although a significant part of the yam crop is collected from the villages by trucks, there is a high demand for transport for collecting crops from the fields, taking yams to collection points and other crops to market.

2.1 Choice of IMTs

The choice of IMTs to be introduced through the hire centres was established through a consultative process with the communities involved and discussions on the transport and access problems faced by community members. The needs of both men and women were considered during this process.

The main transport need for men was identified as being able to transport more produce to the local market where they would be able to get higher prices. To address this need, a number of IMTs were considered: bicycle panniers; extended bicycles; bicycle trailers, and; hand-carts. Panniers are suited to heavy, concentrated loads such as water containers and yam tubers, but the load needs to be balanced either side of the wheel. This is a low-cost option. The extended bicycle is a bolt-on extension to a standard bicycle, which moves the wheel back about 250mm allowing an extra-long carrier of 700mm length. The extension does not require any permanent change to the bicycle and can be removed if, or when, not

needed. This is also a low-cost option. Bicycle-trailers can carry loads of about 150kg on good, relatively flat roads. However, the cost is high, about the same price as a bicycle, making it a less popular choice. Hand-carts are also a costly option, similar in price to the bicycle-trailer, and requiring a track at least 1.5m wide in reasonably good condition. Through discussions with community members, the bicycle extension was considered to be an option prior to road improvement and the handcart as a phase 2 IMT, after road improvement.

Women are responsible for the majority of the transport in and around the village and much of the transport of agricultural produce to the market. Women generally have very limited access to means of transport and therefore rely on head-loading to move their goods. Three possibilities were proposed to relieve this burden: wheelbarrow; hand-cart, and women's bicycle. The proposed wheelbarrow was a modified device capable of carrying heavier loads, especially water containers, and easier to push on rough roads/footpaths. It was felt that a handcart was capable of carrying at least 6 times the load that can be carried on the head and would therefore provide opportunities for women to carry more produce to the market. Most women in the community discussions preferred the light 2-wheel handcart to the 4-wheel handcart, perhaps because the latter was associated with use by men. Women felt that their mobility would be greatly increased if they had access to bicycles. However, the standard 'Phoenix' type was felt to be inappropriate because of the cross-bar and the women's bicycle or 'home-use' type was not robust enough for load-carrying. A prototype was developed, in collaboration with a Tamale-based workshop (Goodman & Son), which features both front and rear carriers and a much stronger frame. All three IMT types were trialled through the hire centres.

IMTs were introduced in two stages: stage one introducing IMTs that were felt to be more suitable for unimproved roads and stage two providing IMTs suitable for improved roads to be introduced after the road improvements. The table below shows the IMTs proposed for trialling and the reasons for each.

Table 2: Proposed IMTs

	Type of IMT	Main aims
Phase 1	Extended Bicycle	<ul style="list-style-type: none"> To make a bicycle available to those who do not have access To provide bicycles with increased load-carrying capacity
	Wheelbarrow	<ul style="list-style-type: none"> To facilitate the transport of various loads, particularly water and crops, on narrow paths in and around the village
Phase 2	Women's Bicycle	<ul style="list-style-type: none"> To increase the mobility of women To increase the load-carrying capacity of women
	Women's Handcart	<ul style="list-style-type: none"> To increase the capacity of women to transport goods to market
	4-wheel handcart	<ul style="list-style-type: none"> To improve the capacity of the community to transport goods to market to increase incomes.

2.2 Supply of IMTs

Four out of the five IMT introduced were based on designs developed and tested by ITT in other projects. These were manufactured by two workshops in Tamale, about 150km from Bimbilla but the closest centre where suitable manufacturing resources were available. The other IMT, the 4-wheel handcart, is a local design that is used widely in towns but not much in rural areas. These were obtained from Kumasi where there are several manufacturers in

the informal sector so that prices are kept down by stiff competition. The carts are made from scrap materials and components and there was some concern over their reliability and durability. However, a survey of cart users in Bimbilla showed that there were adequate local repair facilities and running costs were acceptable, justifying the selection of these carts. Even though additional transport charges were incurred it was still much cheaper to acquire these carts than to have them made in Tamale. The costs of the IMT were – extended bicycle, \$85; woman's bicycle, \$95; light handcart, \$100; 4-wheel cart, \$90; giving the cost of the IMT package as \$370 per village. The IMT were donated to the villages to promote the chances of achieving economic sustainability of the Hire Centres without the need for further inputs.

2.3 Project Implementation

A local consultant, Self-Help International, was given responsibility for the implementation of the hire centres, with periodic support from an international IMT specialist. Self-Help were involved in initial selection of communities, the selection and procurement of the IMTs and liaising with village leaders to introduce the IMT and set up the centres. However, it soon became apparent that a half-day visit per month from the local consultant was inadequate and much more input was needed in sensitising the villages to the idea that the hire centres provided the opportunity for the communities to help themselves in overcoming their transport problems on a long term basis. A Bimbilla based NGO, TIDA, was therefore brought in to work with the villages on two half-days a month with overall supervision from the Self-Help consultant. It was also considered that this would have the advantage of building up local capacity to provide ongoing support to the hire centres. TIDA carried out bi-monthly visits to the villages for sensitisation and monitoring for 10 months, followed by monthly visits for 6 months and finally visits every 2 months over a year mainly for monitoring.

Each village selected three persons to run the hire centres as a service to the community, a caretaker who was responsible for the upkeep and hire of the IMT, a treasurer who was responsible for the money collected by the caretaker and a secretary who kept a record of the running of the hire centre and reported to both the village leaders and the TIDA consultant. These were mainly young men. Only in one village where a woman's group was responsible for the hire centre were women involved.

Record books were initially provided to the communities so that information on usage of IMT and income collected could be logged, but in most cases, data was not regularly recorded. A simple form was therefore prepared in order to collect more accurate data on usage. This worked well.

'The amount you charge depends on the distance and the time. If you have it for a long time, we will charge more. Also, if the person is using it to carry a load, we will have to charge. This is the same whether the person is rich or poor'. (Hire Centre caretaker, Bondando, 08/06/05).

2.4 Hire Centre Performance

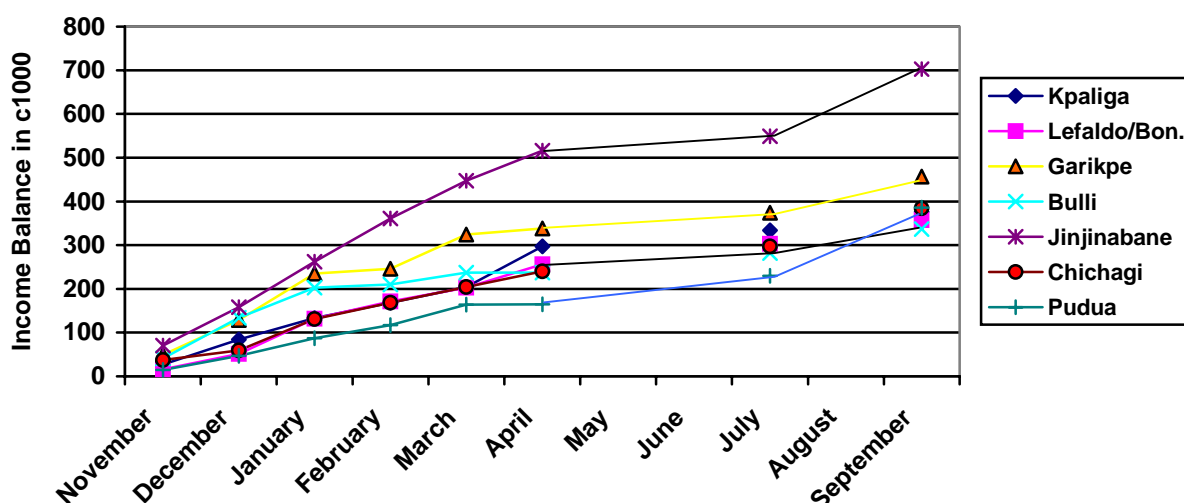
Monitoring of the hire centres revealed that, on the whole, the concept of the hire centre had been quite successful. On average, about 70% of households were hiring IMT and the use by women, mainly of the women's bicycle, was particularly encouraging. A significant number of women reported that they had learnt how to ride the bicycle through the hire centre and were now using it to improve their mobility. However, there were variations in the acceptability and use of the IMT from village to village.

'The women's bicycle is too heavy. Also, when you are riding it, people will be looking at it. It should be made so it looks nicer. People will be looking at it and laughing at it. It's not very fashionable. We prefer the 'home use' type of bicycle because when you are riding it you will look beautiful and it also goes faster'. (Young village woman, focus group discussion Chichagi- 09/06/05).

All villages were using income from hiring to repair the IMT and to build up a small surplus, the maximum being about 700,000 cedis (\$82). One of the communities showed a very encouraging development in that 400,000 cedis of hire income had been used to complete the construction of a house for the village teacher. This demonstration of the benefits of the hire centre to the community has increased support for the centre, resulting in a rise in income. This model was used to try and motivate improved performance in other communities in an effort to encourage sustainability. Periodic checks on the condition of the IMTs showed them to be in reasonable mechanical order.

The monthly income from the hire centres is shown in Figure 1. The seasonality of demand is clearly seen with highest demand in the harvest season from around October to March and little demand between April and August. The main uses of the IMT were found to be transport of crops from the field followed by transport of crops to market.

Figure1: Monthly Balance of Hire Centre Income



The range of hire charges for the IMT and the average income earned per IMT for each type are shown in Table 3. The hire charges range for a few hours up to a full day. The charges are about half of those recommended by the project and represent what the IMT caretakers could negotiate as being acceptable to the villagers. At the time the income figures were collated the extended bicycles had been in use for 12 months and the other IMT from 4 to 6 months. It is seen that the 4-wheel handcart is by far the major earner.

Table 3: Hire Charges and Income for the IMT

Item	Extended Bicycle	Woman's Bicycle	Light Handcart	4-Wheel Handcart
<i>Hire charge (\$)</i>	0.24 – 0.32	0.21 – 0.27	0.15 – 0.27	0.54 – 0.65
<i>Average income per IMT (\$)</i>	16.7	13.6	5.3	26.9

Initially there was good use of the extended bicycle and light handcart but when the 4-wheel carts were introduced they tended to take over and reduced the use of the other IMT. The extended bicycle was found difficult to push because of the length of the carrier and these were reduced to 600mm in length. Some villages also found the carrier unstable and when the pushcarts were introduced removed the extension as there was no longer the need to

carry extra yam tubers on the bicycle. However, there continued to be good use of the extended bicycle in Pudu which was late in receiving a push-cart.

Some women found the woman's bicycle disconcerting to ride because the front carrier did not turn with the front wheel and it was removed in one village although it provides a much better balance of the load on the bicycle. Women also found the light handcart difficult to push on the rough tracks because of having to balance the load and push at the same time. The 4-wheel cart only needs to be pulled and has the advantage that one person can pull and two can push, making it easier to use on rough tracks.

2.6 Evaluation of Hire Centres in Nanumba District

The project evaluation carried out in October 2003 found that hire centres had the following advantages:

- The onus is put on the community to secure the success of the hire centres. This gets away from the culture of depending on outside inputs that has been created by some IMT promotion schemes;
- If the schemes are run effectively, they provide the potential for sustainability and
- They provide better access to IMTs for women than the traditional credit schemes, since women generally have much lower purchasing power than men;
- They can be linked to credit (i.e. repayable loan) for the initial investment and provide a regular income to meet repayments.

However, in spite of encouraging findings, it was clear that the income collected was far below expected from the evident level of hiring, mainly due to the low or no fees that were being charged and the personal way in which the centres were being managed. None of the villages could be persuaded to open bank accounts for the income from hiring, which created some concern over the long-term sustainability of the centres.

'The push cart has been the most beneficial IMT of the ones we have received. People use it to carry foodstuffs from the farm to the main road. Although women are not as strong as men, if the load is light, women will also use it. When it is heavy, the men do it'. (Hire Centre caretaker, Jinjinabane, 09/06/05).

'The light handcart is not being used at all. It has no impact on us. The roads are rough and rocky so it is difficult to push. The other IMTs have been very useful for us, although the push truck earns the most. We charge different rates depending on the peoples' needs- it is not fixed. It would also depend on the persons' ability to pay'. (Hire Centre Caretaker, Buli, 08/06/05)

A final project evaluation carried out in June 2005 revealed that the IMTs were still being used by the communities and most were still being maintained and repaired. Although some of the lesser used IMTs in some communities were in need of attention, this was not considered a priority at the time since the demand for the IMTs was at a

seasonal low. However, a number of the hire centre caretakers discussed the possibility of purchasing new IMTs, particularly push carts, which generally earn the biggest income in most communities, although no specific action had been taken in this regard.

In summary, the hire centres appear to be working reasonably well in Nanumba District, despite the problems of income not matching usage. However, all of the hire centres are making a profit and using some of the income to

Afia Musah is a 29 year old woman who is married with 4 children. She learnt to ride a bicycle when she was a young girl living in Tamale when she was able to use her father's bicycle. Although she doesn't own a bicycle, she is sometimes able to use her husband's bicycle or if unavailable, will hire the women's bicycle from the hire centre. During peak periods, Afia will use the bicycle frequently, sometimes twice a day. She mainly uses it to travel to farm to transport produce and also to make the journey to the local market in Nakpali. She reports being able to carry about 15 bowls of maize or 10-15 tubers of yam on the back of the bicycle.

finance repairs to the IMTs, some of which are costly repairs, such as replacing tyres on the push-cart. Some of the communities, notably Garikpe, Buli and Chichagi, expressed an interest in using income from the hire centres for the purchase of more IMTs and specifically push-carts. This indicates some level of understanding of the hire centre concept and is a positive sign for the sustainability of these centres.

3. Hire Centres as Small Enterprises

The mismatch between evident usage and income created some uncertainty about the long-term sustainability of the centres. It was considered that these problems resulted from the personal nature of the way the centres were managed on a voluntary basis by persons selected in the villages. It was therefore felt that a more effective and sustainable method of running the hire centres was to set them up as small business enterprises. It was suggested to the villages that the IMT caretakers could run the hire centres as small businesses, taking a percentage of income as their payment. This was rejected by all villages on the grounds that this would absorb too much income and inhibit the expansion of the centres through buying more IMT or using income for the benefit of the community. All villages considered that the centres should be run as a community service.

A follow-up study was therefore carried out to evaluate the potential for the enterprise concept in Atebubu and Sene districts in Brong Ahafo Region, Ghana. These are districts where a number of feeder roads have been improved by the project, where agriculture is similar to Nanumba and where there is high use of IMT in the form of bicycles. Following an economic evaluation of a small sample of communities in the two districts, the report concluded that the Hire Centres as small business enterprises would not be feasible at village level in the context of Sene and Atebubu. This was thought to be largely due to the particularities of the area, the low population densities and the distances between communities and to market centres.

Having hire centres at village level provides the best service for the community as the IMT are in the community and can be used for transport around the village such as collection of crops from the fields. However, there are limitations in that demand and income at village level can support only low-cost IMT such as bicycles, handcarts and possibly donkey carts. These are not generally suited to the transport needs in Sene and Atebubu where there is much more use of motorised means of transport than in Nanumba. Although bicycles are used for carrying loads, communities are not wholly reliant on IMT and large amounts of produce are transported by trucks and tractors. Of the 5 feeder roads surveyed there was only significant use of IMT (bicycles) to transport crops to market on 2 roads. On the other roads about 90% of crops were transported by motorised vehicles, mainly tractor-trailers hired in the market centres. Only one location was found where there seemed to be potential for setting up a village IMT Hire Centre. Also, although bicycles are widely used, you rarely see women riding them.

From discussions with Self-Help Foundation in Kumasi, they felt that the type of IMTs being proposed in Nanumba were inappropriate for Sene and Atebubu and that a MoT² such as power tillers may be more suitable (Wilberforce Ansah, 13/06/05). There is a highly successful hiring system in the Kumasi area using power tillers. In more central areas of Kumasi they are used as a taxi service and in other areas to cart wood, sawn timber and water. In other words, they were taking over some of the functions previously carried out by push trucks. This is an understandable modal shift to a less labour-intensive means of transport in a situation where there is a high population density and therefore a high transport demand that can support more costly means of transport. Based on data obtained from Atebubu and Tamale it was estimated that the break-even annual income to cover repayment of a loan, yearly operating costs and eventual replacement of the IMT was

² Motorised Transport

around 1.5 million cedi (US\$175) for a donkey and cart and 10 million cedi (US\$1170) for a power tiller and trailer. The annual income from the best performing village hire centre in Nanumba district was 0.8 million cedi, so that a donkey cart may just be viable but a power-tiller seems considerably out of the range of economic feasibility at village level.

The concept of Hire Centres as small business enterprises could therefore work in situations in other areas where demand for IMT is much higher to cover the costs of more high value IMTs such as power-tillers or donkey/bullock-carts. This may mean that in rural areas they need to be located in centres where they can serve a number of villages and markets to create sufficient demand to make the services profitable. Unfortunately this may rule out one of the advantages of the village hire centres in providing transport for around the village such as collecting crops from the fields. It is noted above that this was the main use in Nanumba district. There may, therefore, still be a role for village hire centres in providing IMT for transport around the village. This is happening to some extent in Atebubu and Sene districts where some persons own 4-wheel handcarts which they hire out to collect crops from the fields and also to transport goods to collection points

4. Spontaneous Hire Centres in Tanzania

An example of a local initiative where hire centres have been established as small enterprises is in Iringa District, Tanzania. Donkey-carts were introduced under the Danida-funded Road Sector Programme Support (RSPS). Under the Village Travel and Transport Project (VTTP), 30 donkey carts and 43 donkeys were provided to 4 villages. These are provided on a credit basis and beneficiaries paid 50% of the total cost of the cart and the full cost of the donkey. From discussions with some of the beneficiaries in Uhominya village, the donkey owners have formed a group, opened a bank account and were hiring out their donkeys for transport of firewood (for sale), building products, farm produce etc. The money earned was deposited in the bank account and is intended to be used to purchase further donkeys and carts to expand their business.

5. Conclusions and Recommendations

- A project in Nanumba district in Northern Ghana has demonstrated that village hire centres can provide wide access of IMT to the community, particularly to women and poorer households who may not be able to afford access through credit schemes.
- Hire centres at village level have the advantage of providing IMT for transport around the village, such as collection of harvested crops, and also to market if markets are within the range of the IMT. However, hire demand is likely to support only non-motorised IMT, limiting the feasible distance to markets.
- Also demand and income may not be sufficient to run the hire centres on a fully commercial basis and they may have to be run at least partly as a community service. Experience from Nanumba has shown that with good village leadership this can work well. However, if the community agrees, it may be possible to have an IMT caretaker who receives some income as an incentive to ensure that correct charges are made for the hire of the IMT.
- In spite of initial consultations, some of the communities in Nanumba felt that other types of IMT would have been more appropriate for their needs, such as donkey-carts. One possible solution to this is, rather than assigning a set of IMTs decided largely by 'outsiders', the community should be given a budget and a choice of IMTs from which to spend that budget. A community might decide to purchase only push carts, or a range of IMT, depending on their needs. The community should be facilitated in this process through demonstrations in the use and benefits of the various IMT. Care should also be taken to involve a broad range of community members, including women, so that the needs of all are taken into account.
- Many of the communities had to travel considerable distances to carry out repairs to their IMTs. Although it is unlikely to be economically viable to establish repair centres

in all communities, a possible solution could be to establish local repair centres that would service a number of communities.

- In areas where communities and markets are scattered, motorised IMT may be needed to provide practical access to markets. It is unlikely that these can be supported at village level and hire centres will need to be located at rural centres where they can serve a number of villages and markets. In this case they are likely to take the form of a transport service run by an operator who hires out his vehicle. However, there may still be a role for village hire centres in providing IMTs for transport around the village and carrying goods to collection points.
- The hire centre model has been discussed at length with other donors. Danida have shown particular interest in the model and intend to apply it to their current support to the road sector in Volta Region.