Community Access Development

Background paper for LCIP

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RURAL ACCESS – THE CONCEPT[1]

RURAL TRANSPORT AND ACCESS

Transport is essential in the process of economic and social development. This is true for the country as a whole as well as for rural areas. To facilitate the full participation of the rural population, and particularly the poor, in the country's economic development, the specific transport requirements in the rural areas need to be addressed.

Rural Transport relates to the provision of infrastructure (roads & bridges, footbridges & tracks, boat landings) and to the availability of transport services. However, it also relates to the availability and location of (basic) services and hence how far people need to travel. It is therefore perhaps better to think in terms of Rural "Access".

There is considerable evidence to suggest that lack of access of people to goods and services is a major factor impeding the integration of the rural population in the national economy. This restricts the pace of innovation and limits the potential for growth in production and income. Isolation contributes to poverty[2]; hence, poor Access is a contributing factor to poverty among the rural population.

Accessibility is defined as the ease or the difficulty to reach or use a facility or service. It relates to the availability of services and to the *proximity* of facilities as well as to the mobility aspects.

Mobility (being mobile) is defined as the ease or the difficulty with which people and goods move from one point to the other (origin and destination). Mobility is associated with the transport infrastructure (roads, bridges, etc.) and the means of travel and transport.

Rural people are handicapped by limited access to motorized -and sometimes even non-motorized- transport, inadequate community roads, poor condition of footpaths, tracks and footbridges. This leads to serious difficulties in having access to markets, agriculture inputs, production fields, employment opportunities, and social services and facilities like health centers, schools, etc.

Studies in various African and Asian countries have shown that:

- ✓ Walking and manually carrying loads is often the prevailing means of transport at local level as opposed to transport by (motorized) vehicles.
- ✓ A significant part of transport --in terms of time and effort-- takes place inside and around the villages.
- ✓ A significant amount of transport time is spent fulfilling daily (subsistence) needs, and is often mainly the responsibility of women.
- ✓ Basic social and economic services are not always conveniently situated or are not in the vicinity at all, making travel long and tiresome.

Poor rural people can spend much of their time and effort to provide for their daily subsistence needs, which can restrict their ability to engage in economic activities and hence start to find their way out of poverty. In the figure (1) below, the major sectors of household travel purpose are visualized:

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[1] *This briefing paper is an amended version of a briefing paper, written by the same author for a Rural Access Program in Yemen for the Word Bank in 2001, with additions from earlier work by James Clarke and Rob Dingen for the EC-GOPA, Liberia, 2007, RSPS-Danida/COWI, Uganda, 2004-2006.*

[2] *See: R.Chambers: Rural Poverty Unperceived-Problems and Remedies. Staff Working Paper no. 400. World Bank, July 1980.*

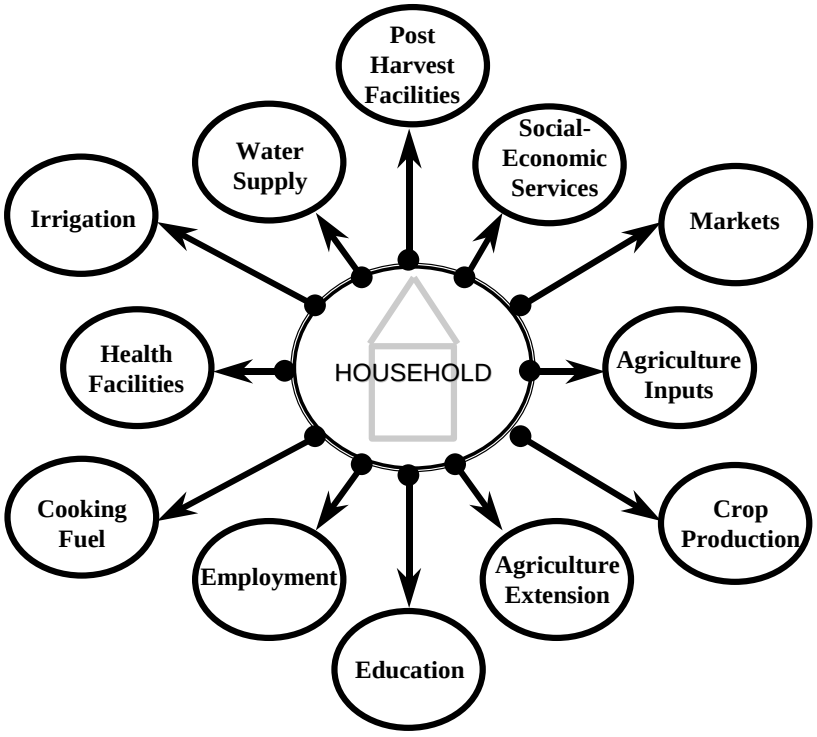

Figure 1: Main sectors in Rural Travel and Transport

The diagram is not necessarily limited to these sectors. Possibly other (important) sectors need to be considered. The figure is schematic: the arrows do not relate to distance or time.

The above analysis implies that, if the limitations which lack of mobility and accessibility impose on the integration of the poorer parts of rural Liberia into the market economy are to be addressed, then an important starting point must be to understand the specific access needs of rural people. Undoubtedly the outcome of such an approach will be to show the importance of improving, and of maintaining, the rural road network. However, this comprehensive approach will also contribute to understanding:

- The types and standards of roads that are needed;
- The need for improvement of walking trails and footbridges to provide access to higher levels of the transport network.
- Where lack of means of transport, or of transport services, constrains access;
- How provision or rehabilitation of facilities (e.g. markets, schools, clinics) at local level, or improvement of the quality of service at such facilities, could reduce the need for rural transport.

Diverse settlement patterns, different terrain types and climatic conditions require differing local-level approaches. No universal solution is available to address these diverse conditions. The starting point should therefore be to assess the access needs of the rural people at these local levels.

Facilities (like markets, schools, health centers) are not always in the proximity, or the spatial distribution does not concur with the number of people using the facility, or worse, there are no services available in the area. In that case construction of new service points may be necessary. A combination of interventions might give the best result.

RURAL ACCESS PLANNING

Resources for development are scarce. Targeting the poor and the vulnerable and stimulating development by improving access in rural areas thus requires planning to effectively allocate these resources. Priorities have to be set based on the access needs of the rural population.

Development of the rural road network will need to start with a planning and prioritization exercise that takes into account connectivity (to markets, residential areas, main roads, agricultural areas), poverty targeting, access to services, population served and agricultural marketing (potentials) and it needs to take a holistic view.

Integrated Rural Accessibility Planning (IRAP) is a pro-active planning tool that enables rational decision-making; originally developed by the ILO in late nineteen eighties and since further optimized. The tool makes use of primary data collection and grass root needs assessment (at household, Village and/or Sub-District levels); the process is "bottom-up". The process is participatory because it takes into account the views and opinions of the population. It is objective in the sense that the planning (prioritization) is based on verifiable indicators and it allows comparison between communities or even provinces by looking at the access situation of the rural people and the Access Indicators per sector. The process addresses all relevant sectors, the people and the system in which transport and travel exist. (Integrated and Multi-sectoral).

There are several activities ("Steps") involved in the Access Planning process. These relate to data collection, data processing, needs/problem analysis, priority setting, identification and formulation of interventions.

The exercise results in understanding the complete transport system. This then makes it possible to identify how and which interventions are effective in addressing these access problems: by improving specific roads or footpaths and bridges, or rehabilitating and equipping new schools, health centers and markets, or improving access through better transport services or provision of (intermediate means of) travel and transport.

A separate Access Planning guideline is drafted for evaluation and internal use by LCIP, to be tested in the Todee road corridor development project.

Planning and selection for investment in access improvements follows a three-stage approach:

1. Pre-selection (targeting) of localities
2. Access Assessment, identifying communities with greatest access problems and interventions that best lift these problems
3. Technical assessment of candidate interventions, cost-benefit ranking and final selection

Targeting

Planning for the sake of planning without the likelihood of investments is not only inefficient but raises expectations within the communities that may not be realized. This could have an adverse effect on future decentralized decision-making. The budget for implementation will determine the scope of inclusion; spreading implementation budget too thinly will make the planning exercise expensive and inefficient. It is therefore useful to pre-select a geographic area (region) in which intervention planning is carried out. The objective of the targeting may vary, but in the context of isolation and lack to access to services, this could be based on poverty, population (density), agricultural potential, etc.

In case of the Todee road corridor development, the targeted area is the area of influence of the road: those communities that rely on the Todee road for external (motorized) access.
To tally this with local administrative boundaries, the targeted area covers the clans that include those communities.

As discussed in the previous section, the access provided by the (Todee) road will have a positive impact on motorized transport and lifting access problems off-road (to and from the road) will not only improve internal access, but also enhance the impact that the road may have.

The Access Planning Tool

To identify where to intervene and in what, to the access situation within the targeted clans is going to be assessed. This means comparing the access situation of all communities in the targeted clans and identifying what possible solutions can address these problems best. One output of this exercise is the identification of effective improvements in the transport infrastructure. This will include a cost benefit analysis of the identified interventions. Another output is the identification of sectoral access issues that cannot (easily) be addressed by improved transport infrastructure, but need solutions in terms of improved structures for socio-economic services or initiatives in support of local economic development.

In summary, the steps leading to the selection of interventions follow:

1-Data Collection and Needs-Assessment

For the planning it is essential to use reliable maps. The existing maps produced by NIMAC are incomplete or inaccurate in its place names and geographic reference of communities and services. Prior to the planning exercise a geo-referencing is done to locate the communities and the services and to update the maps.

Key informant meetings are convened in clusters of communities, to which representatives are invited from each community in the cluster. The meetings are coordinated with the district officials and as much as possible done together with the local government staff. The meetings result in an updated map that identifies where people travel to and via which routes and which access problems are encountered on those routes. Average travel times are collected from each community to each of the travel destinations. It will also yield a ranking order of roads perceived in need of improvement and in other type of proposed solutions.

2-Data Analysis and Mapping

The travel times and routes are verified against the maps. Access Indicators (AI) are used to rank villages, communities or districts; AI’s show the relative degrees of difficulty in access to facilities and services.
These "AIs" are defined for all sectors in which "access to" is considered important. Calculation of AIs is mostly done on the basis of travel time. The Access Indicator quantifies the extent and magnitude of “Household Access” as a quantifier for the travel burden in a given sector. For example:

$AI_{health} = TT_{health} \times HH$

In which:
HH= Number of Households (or people) in a given Community
TT= Travel Time of an average household to reach a facility or service; (single trip)
AI= Access Indicator - The multiplication of travel time and the number of households ('household.minutes')

Because the AI's include the population (households) of each community (e.g. Village) it can be used to compare the accessibility situation of communities within a cluster, clan, district or county, depending on the scope of the targeted area.

Derived access indicators for aggregated levels are for example: The percentage of households per clan or district that has access to a school within x minutes reach all year round, or: The total number of households making use of a particular health facility.

It is then possible to estimate the area of influence ("catchment") of services. This is of special importance for facilities that serve larger population groups, like Health Centers, Markets and places of employment.

Allocating access classes by sector, by expressing good, moderate, poor and bad access in travel time bandwidths, it becomes easy to identify communities in each of the access classes and in combination with the households to which this applies, map out those areas that fall into each access class.

Individual (village) access needs often differ from access requirements at a higher level. It is likely that the identified 'best solutions' do not always correspond with the proposals from the individual communities, who understandable look at their individual access situation.
Even within a village, different sectors might need to be addressed differently; e.g: school going children perhaps need a footbridge to access the school, while farmers may need access for trucks. When looked at from the perspective of a larger geographical area, optimal solutions are sought to address as many access-needs for as many villages and sectors combined; relating road interventions to the proximity of services and the access to these services.

THE (ROAD) ACCESS CONCEPT[3]

At the lower levels in the hierarchy of the rural road network, the investment levels are likely to be lower than on the 'main' roads. It is not disputed that in the national context core network development may have priority over lower tiers. However, as discussed in the previous section, amongst other things rural access depends on the ability to move *to and from* the main road (network). In order to address this dilemma, the concept of community access has been developed. It provides an alternative to capital intensive 'all weather road access'. To sustain the latter, the road must be rehabilitated in full and be put under constant maintenance regime, including the required regravelling and structure repairs.

[3] The Community Access Approach was developed in Liberia by James Clarke and Rob Dingen in 2007, for GOPA consultants, EC funded.

The Access Concept accepts a lower level of service, and is sensitive to the environment, i.e., the use of local (in-situ) materials and the availability of skills, which increases the likelihood of maintaining the level of service. Secondly, the approach is geared towards spot improvement, but to the level of the *remaining sections* of the road. This is not only effective and efficient in general, but also a more sustainable approach, as maintenance is less costly and when undertaken by community groups, generating employment for the beneficiary communities.

Generally, community access links (farm to market roads) are rarely engineered roads and no appropriate design standards and work methods exists in Liberia, or for that matter in hardly any developing country.

The approach to improving community (road) access focuses on the *physical* interventions on the lower level roads (farm to market roads and feeder roads). The approach has a strong bearing on the organization and mobilization of communities and their role as partners in the process from assessment through to maintenance. The definitions in the box below are listed to aid the discussion on the approach.

Definitions

(PHYSICAL) ACCESS:	Ability to travel between two given points
ROAD:	Carriageway capable of and meant to carrying motorised traffic
PATH / TRACK:	Carriageway for and capable of carrying animal and pedestrian traffic but not motorised traffic; Some tracks may allow highly mobile vehicles to pass (4WD, tractors) irrespective of the damage they may cause to the carriageway. A path is also defined by its width restriction to vehicles other than two wheels in line.
BOTTLENECKS:	Major restriction on physical access
CARRIAGEWAY:	Element of the path/track/road that carries traffic
CARRIAGEWAY CLASS:	Measure of type of traffic on carriageway
LEVEL OF SERVICE:	Measure of accessibility provided by carriageway

The Community Access model is a simple but systematic and logical approach to the improvement of access to communities that extends beyond the primary and secondary road network. It recognizes financial constraints that limits the provision of all weather access on community access roads, and mobilizes existing skills and resources within the communities and road users.

It is important to note that *Vehicle Operating Costs* and *journey times (speed)* are not considered in the assessment of access needs, importance or in the selection of interventions.

Identifying levels of Intervention

The access planning exercise yields candidate transport infrastructure links that best solve problems of connectivity and travel and transport within the road corridor. Detailed site examinations are needed to

determine the level of service and the appropriate corrective intervention selection. The survey focuses on land use, soil types, vertical and horizontal gradients, current storm water drainage patterns, traffic patterns and locally available construction materials.

A preliminary classification of assigning a current level of service to a section (Access Service Level) is:

Level I: Access possible in all weather.

Level II: Access possible in all but the worse weather conditions i.e. access likely but not guaranteed i.e. flash floods

Level III: Access possible long periods of time but lost in bad weather/high water

Level IV: Access lost for considerable periods (in rainy season)

Level V: Access blocked all weather

An important parameter used in the determination of the Access Service Level (ASL) is the traffic type; a road with ASL III or IV for person vehicles is likely to pose no problem for a tractor. If the traffic type on a road is and will be tractors only, then there is no reason to improve the road to standards suitable for luxury cars. The ASL therefore needs to take into account the 'design vehicle'.

Interventions are targeted at the sections with the lowest level of service, i.e. lifting the access restricting obstacles on the road. Interventions are chosen such that the level of service it provides is not higher than any continuing carriageway section, hence optimizing resources.

Consideration is given to raising all sections with the lowest service level to the next level (including the intervention). Available budget determines if this 'extravagance' is affordable. It is thus possible to offer service users and funding agencies the option to what service level the road is to be improved.

The interventions whenever possible exploit *locally* available materials and are simply designed such that local artisans may be used for the construction. The use of local materials and fabrication by local artisans means that maintenance and replacement works can be undertaken by service users.

Selection of Interventions

The next and last step in the process before implementation is the final selection of investment projects. The candidate projects are ranked in order of their access benefit (improved AI) over costs. Final inclusion in the project implementation shall depend on the available budget.

IMPLEMENTATION

The implementation modality under the community access approach aims at sustained improvements. Maximizing the use of local resources and the use of appropriate design standards increases the likelihood of sustained infrastructure. The selection and choice of intervention levels already takes this into account.

Implementing construction works through community groups augment this; Involving local people creates ownership, provides income for the laborers

and develops skills for future maintenance. Working through CBO's, who can supervise and organize community groups for piece works, task work and day labor, creates further sustainability. The CBO's will be responsible for the supervision of the work force under responsibility of the CBO. The CBO's are encouraged to set up a social fund that generates money for additional community investments. This fund could also pay for minor repairs or maintenance.

Typical inputs by the community groups are: clearing, sourcing and transport of local construction materials such as sand and stones, earthwork and backfilling.

The technical works that fall outside the scope of the CBO and communities will be implemented by technical NGO's, who under a sub-contract are responsible for the sourcing of skilled labor, materials and equipment that are not available within the communities. The NGO's are also responsible for the technical quality of the projects and the timely implementation within budget. The NGO's are also responsible for the management and payment of piece work by community groups.