

***MINISTRY OF COMMUNICATIONS,
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ACCESS AND INCOME GENERATING ACTIVITIES
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Foreword

Over the past year or so, practitioners of Integrated Rural Accessibility Planning in Laos have held various discussions about what sectors to include in the IRAP planning process. In Laos the IRAP project is presently covering 4 sectors namely rural roads, domestic water supply, primary education and primary health care. Discussions between project staff, local Government staff, donor representatives and rural development project staff concentrated on whether and how IRAP could be expanded to include other aspects of rural development. In particular access issues associated with economic development were often the focus of the discussions. Should IRAP plan for improved market access, irrigation, extension services etc.?

This paper sets out recommendations on how to extend the IRAP methodology and how to incorporate planning for improved access associated with income generating activities. It suggests modifications at two levels: the local Government level and the community level. The recommendations are based on field experience, review of selected literature on rural accessibility and a study commissioned by ILO on “Agriculture and Accessibility”. The paper also suggests what not to include in the IRAP planning process.

The paper synthesizes some of the findings of the IRAP project in Lao P.D.R. in relation to “Access and Income Generating Activities (IGA)”. It examines physical access needs by IGA and questions whether IRAP planning procedures should incorporate specific infrastructure requirements associated with IGA in rural Laos and at what level.

This issue-paper on “Income Generating Activities and Accessibility” is the first one in a series of five. The IRAP project will produce 5 different issue papers in 1998 dealing with the following topics:

1. Access and Income Generating Activities
2. The Access Survey Instrument
3. The Access Prioritization Procedures
4. Guidelines for Rural Road Planning
5. IRAP at the Village Level

Issue Paper 1: Access and Income Generating Activities

The issue papers are meant to stimulate and guide discussions to improve the IRAP planning procedures in Lao P.D.R.. Any comments, suggestions or criticisms are welcome and should be addressed to the IRAP office in the Rural Development Committee (RDC) of the Ministry of Communication, Transport, Post and Construction (MCTPC).

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1. Introduction

1.1 Access, Transport and IGA

For the rural poor in developing countries one of the main constraints to improving their situation is the lack of access they have to essential goods and services. All households, rural and urban, poor and rich, need to have access to facilities, goods and services in order to fulfill their basic, social and economic needs and be able to live a social and economic productive life. The Longman Dictionary of contemporary English defines access as the “means or right of using, reaching or obtaining”. **Rural access** could be defined as the ability, the level of difficulty, of rural people to use, reach or obtain the necessary goods and services. Access is inversely related to the time, effort and cost necessary to reach locations where one could avail over goods and services.

Rural people’s access needs can be grouped in three broad categories:

1. those associated with basic needs such as water supply, firewood and food security;
2. those associated with the social welfare aspects of rural life such as health and education;
3. those associated with the economic welfare aspects of rural life such as agriculture, livestock, cottage industry.

Lack of “economic access” or access needs associated with IGA affects productivity, income levels and poverty prevalence. Market access, for example, often determines cropping systems based on the opportunity to grow and sell different cash crops.

Access can be improved in two fundamental and complementary ways:

1. through a better siting of basic facilities and services that rural people need to use (water supplies, schools, health centers, markets); and
2. through improving the mobility of rural people so that they can travel faster, easier, more convenient and less expensive (rural roads, tracks, trails, footbridges, waterways).

The first is a “non-transport intervention” while the second is a “transport-intervention”. Access and transport obviously are closely related. **Transport** is a facilitating mechanism in that it provides the opportunity for people to have **access** to a range of goods, facilities and services. We will define transport as the movement of goods and people by any

means over any route. Transport is not an end in itself but a means to reach locations and facilities where one could satisfy certain needs.

Nutley argues that the welfare of rural communities depends to a large extent on standards of mobility and accessibility to services. In an article on rural Wales (United Kingdom) he establishes a link between access and transport: “*Accessibility in this sense is most precisely defined as ‘spatial opportunity’. Where the opportunities sought are the services or facilities required for the pursuit of a normal way of life, then it could be said that the measured results reflect the degree of ‘transport related welfare’. Conversely, low scores would reflect ‘transport-induced deprivation’, in that transport is inadequate to permit residents at remote locations to avail themselves of facilities which they might have reached were it not for the distance barriers (Nutley 1983)*”.

The income-generation options for rural people mostly comprise production and sale of cash crops and surplus food crops; production and sale of livestock; gathering and sale of forest products; local informal sector activities such as production and sale of handicrafts and food products, petty trading and casual labour or paid employment. Agriculture usually accounts for most of the household income. Income generation activities undertaken by the households determine to some degree their travel and transport needs. Planning for improved rural access should therefore take into account the physical access needs of income generation activities.

Poverty can be alleviated and welfare of rural households can be improved by increased income earned through improved or new IGA, which access interventions have the potential to facilitate. It needs to be emphasized however that access is only one of the factors which determines the production activities and the potential of IGA of rural households. Other factors are often more important. To isolate the access factor and determine its weight presents a difficult task.

UNDP’s Income Generation Activity (IGA) project concludes that the term “income generation activity” relates to all activities that result in a return in cash or in kind. It defines IGA: “*as a catch-all term, **income generation** can refer to on-farm activities (crops and livestock) that result in a sale or barter, off-farm activities that involve a production skill that results in a product for sale or barter, non-timber forest products that are collected from forests (usually without cultivation) and sold or bartered, processing activities which take an agricultural raw material (cotton, fruit), a forest product (medicine or natural dyes) or a manufactured (fabric) product and process it into an item that provides those involved with a value added income, fish gathering or farming for sale or barter, service industries such as trading, hotels and restaurants, barbers, mechanics and radio/tv repair, and the tourist industry support activities such as trekking, flora and fauna promotion, resorts and other activities that cater of a range of tourist interests (Ison 1996)*”.

Although no information exists for Laos, studies in other developing countries reveal that household income tends to increase with increasing levels of access. A study in the rural areas of Cebu in the Philippines observed “*the total household income and the income*

from employment are sharply increasing function of access value”.....”the average annual farming income for households producing cash crops is a continuously increasing function of access value”.....”it is interesting to note that the percentage share of income from agriculture, fishery and forestry together is a rapidly decreasing function of access value. The share of income from all other trades counted together tends to increase sharply with increasing access value (Mazlumol-Hosseini 1991)”. It would be wrong to unthinkingly equate rural areas in the Philippines with rural areas in Laos, however it is probably safe to assume that income level and income composition will vary with different levels of access.

The rural economy in Laos is changing. Families are moving away from total subsistence and “money” becomes more and more an aspect of rural life. The monetarisation of rural communities changes people’s needs. To purchase items such as salt, matches, sugar, soap etc. people need cash and must spend more time on IGA.

The remaining of this paper examines the potential to stimulate IGA through improvements in rural accessibility (rural transport and/or the siting of facilities) and sets out recommendations for IRAP to enhance its planning tools.

1.2 Access Survey Instruments and Planning Tools

IRAP works at different levels. At village level it introduces participatory planning and implementation procedures through which villagers identify, design and implement their priority projects. At district level it introduces techniques that use village information to identify, select and prioritize access interventions for Government or donor support. At the provincial level it builds up a data-base on rural accessibility that can be used as a general information bank, to assess the overall performance of the different sectors, to identify priority areas for assistance and to monitor and evaluate progress and impact. IRAP tries to pair the village level bottom-up and district level top-down techniques which are both essential for rural infrastructure planning. The two planning tools however are clearly different and can be used either combined or separately.

1.2.1 Village Level Survey

IRAP makes use of different village level survey instruments. It has developed two questionnaires; version 4 which is used to collect data at the village level on socio-economic characteristics as well as the “typical” IRAP sectors: water, health, education and rural roads; version 5 which incorporates version 4 but collects additional data on income generating activities. The questionnaires are used during a so-called key informant interview during which people knowledgeable about the village respond to questions asked by a team of enumerators trained in data collection techniques. The data is used by planners at the district level to assess levels of accessibility and to set priorities.

1.2.2. Household Survey

A household survey is sometimes used to collect qualitative data at the village level. Household surveys require more resources to implement and analyze. Household surveys are used occasionally for research purposes to gather more qualitative data for a specific geographical area or sector, to establish base line data bases for impact assessments and to determine travel patterns of rural households. Household surveys are always used to complement the more general IRAP survey which has a broader focus.

1.2.2 Community Participation Processes

It makes sense to differentiate between community participatory planning and community participatory development of rural infrastructure. The first includes a range of techniques ranging from key informant interviews to all-out community participation processes. IRAP's key informant interviews (see 1.2.1) provide the enumerator with primary data on the real and perceived access needs of rural communities that can be fed into the planning process. Community participation in the ranking and selection of investment priorities is hereby minimal since this task is reserved for local planners looking at it from an area point of view. IRAP Laos has adopted a sophisticated community participation process labeled "Appreciation, Influence, Control (AIC)" to strengthen community participation. AIC, developed with support from ESCAP and the Thai Community Participation Department of the Ministry of Interior, takes the communities through the entire process from problem identification to project prioritization. Participatory development of rural infrastructure includes procedures to actively involve the villagers in the design, preparation, implementation, operation and maintenance of the interventions identified by themselves. The level of community participation in rural infrastructure development initiatives may differ and it should be subject to the objectives of the initiative to what extent community participation is attended to during the planning and implementation phases.

The participation of the stakeholders in the identification, planning, design and implementation of rural infrastructure sets IRAP apart from more traditional infrastructure planning procedures. IRAP could provide a framework for rural infrastructure planning that is not only based on the real access needs of the rural people but actively involves these people in addressing their needs. Community participation in the planning and identification of rural infrastructure is also needed to avoid a mismatch between "people's needs" and "supply driven planners choices". Participation in design and implementation of physical works is essential to bring about community ownership. Projects are likely to be more sustainable if communities consider the structures as part of their assets.

1.2.3 Road Inventory

To emphasize the importance of rural roads in improving accessibility in rural Laos, IRAP has developed a separate rural road planning process. A road inventory provides the planners with the necessary data that, together with the village level data, could be

used to plan for an improved rural road network. The aim of the IRAP road analysis is to make an overall assessment of the condition and distribution of the network in a given area. The road analysis does not provide technical information on the condition of each link.

1.2.4 Access Mapping

Accessibility mapping is an integral part of the IRAP procedure. It allows the planner to visualize the location of things within a given area and can help in the identification and prioritization of access problems, facilitate the formulation of interventions and guide in the selection of the best development alternatives. The purpose of accessibility mapping is to provide a picture of access conditions in a given area; to help in the identification of access problems and in the formulation of interventions; to enhance the communication of information and recommendations to an audience; and to evaluate the impact of access improvement projects.

Accessibility mapping has been developed as a “user-friendly” process that can be easily understood even by people without the necessary technical training. The maps are produced using inexpensive materials that are locally available.

1.2.5 Access Indicators

The use of indicators is a common planning tool. IRAP indicators can be derived at two levels: the village level, where they can be used to identify sectoral interventions in relating indicators to standards, averages or targets, and the local Government level where they can be used to identify villages that are most disaffected in relation to the required services, goods and facilities. Primary and secondary data is translated into a set of indicators which relate to the specific sector under consideration. The basic formulation of indicators is simple (See Manual – Review of the Accessibility Indicators – L. Mercat 1998).

2. Access and Income Generating Activities

Agricultural activities, livestock production, foraging, cottage industries, labour and the products and income arising from them are the main ways in which rural households in Laos meet their subsistence and cash needs. This chapter explores if a lack of access could be a constraining factor in realizing the full potential of these IGA. Rural Laos is characterized by small-scale local subsistence economies characterized by low population densities and low labour and land productivity. Trading of goods and services in such economic environments is usually limited. Rural areas in Laos however are slowly but certainly moving away from subsistence and trading, mobility and accessibility become more and more important in the developing rural cash economy.

It was discussed before (see 1.1) that there is often a positive relationship between levels of access and household income. Physical proximity of an area to a commercial center together with good road access offers a broad variety of IGA. Improving access alone however is often not enough to raise incomes and the level in which improved access influences income is determined by the extent to which it allows income generating opportunities to be exploited. Household economic activities are influenced by a wide range of factors other than infrastructural access including credit, skills training, marketing opportunities, etc..

In order to establish a link between access and IGA in a given area it is necessary to analyse the existing situation first. Access surveys (see 1.2.1 and 1.2.2) could define travel patterns of rural people and determine the level of access to for IGA necessary goods and services (extension services, markets, raw materials etc.). Such surveys would provide data to:

1. Define initial priority sectors and areas for improvements in relation to IGA;
2. identify non-transport interventions to improve IGA related access;
3. identify interventions to improve the transport system (roads, trails, tracks, bridges, footbridges, transport services and non-motorized means of transport) to enhance IGA associated access.

The remaining of this chapter considers some of the interventions that could be taken up by the IRAP process in relation to IGA and recommends additions to the planning procedures presently in use.

Agriculture

Farming is the most important IGA in rural Laos and almost all households are in one way or another engaged in farming “ *agriculture is the basis for food production, as very few alternative livelihoods are available, most of the rural people just rely on agriculturemost of the Lao farmers in remote areas are self sufficiency orientated and do not strictly need to go out of the village for finding food (Mercat 1998)*”

Farmers have a variety of access needs. They have to travel from their houses to their fields regularly for clearing, preparation, planting, weeding and harvesting activities and they have to transport the harvested crops from the fields to their houses, storage facilities or points of sale (trader, market)

It is necessary to distinguish between internal access (within the village) and external access (outside the village). Internal access refers to the internal movement of people, inputs and harvested crops between the houses and fields. For many subsistence households this is the most important form of rural access. Outside village access becomes important once the agriculture links between the farmers and wider economy develop. Outside access is more determined by road access and vehicle ownership.

A full subsistence farmer travels to the fields to grow crops and travels back home to sleep, eat and stay with his family. The only transport requirements are his and other family member’s travel to the fields and the transport of produce back home. Outside village access needs associated with subsistence farming are limited . Once agricultural production systems however develop from total subsistence to more market orientation the reliance on rural infrastructure increases. Farmers need to have improved access to markets, information, extension workers, fertilizers, chemicals and irrigation water.

The derived demand for access and scale of the transport task associated with this are ultimately determined by 1. the farming systems, 2. physical access to the fields, 3. frequency of trips to the field, 4. consumption/marketing patterns and 5. physical access to crop marketing locations. It should be emphasized that all factors are interrelated.

1. farming systems

Some crops require more attention, and therefore more trips to the fields, than other crops. Furthermore, different crops have different uses. Crops can be used for own consumption, sale or barter. High value-low weight crops such as most vegetables are more economically to transport than the low value-high weight crops such as maize. Accessibility influences cropping patterns. The analysis of the IRAP data from Louang Namtha province shows that “ *Vegetable production associated with rice increase with better accessibility. Most of the vegetables are perishable and villages should be close to a market to be able to do large-scale vegetable production*” and “*maize production is more developed in fairly remote villages located more than 2 hours from the marketin remote villages maize is either self-consumed as rice shortage begins or given*

to small livestock when rice production is enough” and “root crops are also slightly more cultivated in remote places and constitute an important factor of food security (Mercat 1998)”.

Market access conditions cash crop production. If it is not possible to sale or barter all or part of the agricultural produce, or if it is considered as too risky, a farming household has simply no choice and produces for domestic use only. If there is a local demand for certain crops and/or if market access permits the sale of crops households may grow cash crops, sale a surplus or substitute cash crops for subsistence crops. Cash crops need to be transported from the fields to a point of sale. The cash crop transport demand is determined by the weight and the volume of the crop and the distance over which it must be moved *“it was very clear that accessibility and cash crop are closely linked together. Indeed, 75% of the more remote villages (more than one day walking) only self-consumed their production while the percentage is between 20% and 25% when travel time to the market is less than 2 hours (Mercat 1998)”*

2. physical access to the fields

Farmers in Laos cultivate permanent fields “het na” and/or practice slash and burn farming “het hai”. Access to these fields differs. Farmers often have to walk for hours to their “hai” fields while the “na” fields are located closer to the houses. Many “hai” farmers have double housing, the main house in the village and a temporary hut in the upland fields used during the “het hai” agricultural activities. *“they have a “hai” field far away. It can be reached by boat, and two to three hours walking. To open up the land they stayed (with the children) for ten days (planting seedlings in the forest). Then they came back for one week, and went again for weeding. During harvest they stayed for 20 days (Schenk-Sandbergen)”*. The seasonal field shelters are used as a rational means of reducing transport needs. People however have invested in their main house in the village and often are reliant on the services and goods available in their village. Temporary shelters in the “hai” fields deprive the family of the benefits of living in the village including access to water supplies, education and health services.

3. trip frequency

The previous section shows that need to travel to and from the fields is an essential task associated with agriculture. Households have to travel to their fields during the preparation, planting, weeding and harvesting stages. Most people in rural Laos walk to their fields or, to a far lesser extent, use bicycles. Harvesting presents a different transport problem in that it involves the transport of crops from the field to the house or storage facility.

House to field trips range from 150 to 350 a year depending on the farming systems. Hence the need to travel, and transport goods, to and from the fields is an essential task associated with the agricultural activities of farming households. The IRAP/ESCAP survey conducted in 19 selected villages in Oudomxai province shows that the average

walking time to and from the fields amounts to about 2 hours or about 20 % of a potential available working day of 12 hours.

Trips to the fields for crop production and harvesting activities are unevenly distributed throughout the year and particularly those for more seasonal crops such as rice are concentrated at particular periods. Also, some crops require more attention, and therefore more trips to the fields, than other crops. The number of trips per annum for crop production and harvesting varies per household and per area but depend to a large extent on:

- the number of crops grown
- the type of crops grown
- the number of plots cultivated

Walking is the predominant means of transport since ownership of any means of transport is low and most fields are away from the road network. The nature of the terrain will influence the accessibility of the fields and particularly in areas of more difficult terrain access to the fields may be poor especially during rainy days.

4. consumption/marketing patterns

Most farms in the country are small and the crops are mostly used for home consumption. Table 1 presents the crops commonly grown and the number of villages which produce each crop as well as the number of villages selling the crop as cash crop. From the table one can make the following observations:

1. Rice is the most popular crop which is both grown used for home consumption and sale. Almost all villages grow rice and about half of them sell part of their produce.
2. Root crops, vegetables and maize follow as the second, third and fourth category of popular crops. Root crops and maize are mainly used for domestic purposes. Vegetables are sold in most villages producing them.
3. Fruits are the fifth category of popular crops. Most villages producing fruits sell, at least part, of their produce

Table 1: Common crops grown in survey area (2676 villages)

Crop Grown	Number of Villages Producing	Percentage of Villages Producing	Number of Villages Selling	Percentage of Villages Selling	Percentage of Crop Producing Villages Selling Part of Their Produce
Rice	2612	98%	1317	49%	50%
Root crops	1465	55%	429	16%	29%
Vegetables	1448	54%	834	31%	58%
Maize	1227	46%	409	15%	33%
Fruits	385	14%	232	9%	60%

The main cash crops are rice, vegetables and fruits. Marketing cash crops requires physical access to markets and the transport of produce from the fields to a point of sale

(on the farm, in the village, along the road or at the market). Vegetables and fruits are perishable crops and will rely more on an efficient transport system and good market access than rice. Domestic consumption of agricultural produce such as rice, root crops and maize requires transport from the fields to storage facilities or houses.

5. physical access to markets

Access to markets is discussed in detail in Chapter 3.

The agriculture sector is in the focus of various development initiatives in the country. These development initiatives will change the characteristics of agricultural production. More modernized forms of agriculture require a wider range of services. A lack of access to these services could constrain further agricultural development. The services can be categorized as follows:

1. agriculture extension services
2. supply centers for agricultural inputs
3. irrigation systems
4. post harvesting facilities
5. credit
6. transport system

1. extension services

Extension workers in Laos are severely constrained; they have to cover vast areas and often have no access to any means of transport. Collecting data on agriculture is often the main objective of their field visits. Particularly in mountainous areas extension services are difficult to obtain: *“Highland farmers are less accessible to technology intervention due to poor transportation and communication. Extension service is therefore required to be strengthened. It was noted that villagers would have to walk 1 to 3 hours from their houses to get to their rice fields. It is therefore worth noting here that any intervention that requires external input will be difficult to be adopted (Thirathon 1997)”*. As long as extension workers do not have the means to travel it will be extremely difficult to organize effective assistance and motivate extension workers to walk for hours to reach remote communities which make up the larger part of the Lao rural villages.

2. agricultural inputs

Transport of agricultural inputs is very limited in Laos since farmers do not make use of chemicals and fertilizers. Items to be carried to the fields are limited to seeds and hand tools. “Lack of access or poor transport” does not yet present a real problem.

3. irrigation

A separate chapter is devoted to this subject (see chapter 4).

4. post harvesting facilities

Development of post harvesting facilities is essential for agricultural modernization. Rice is the main agricultural product in Laos and post harvesting facilities would include rice mills, drying facilities and storage facilities. Rice mills are necessary to convert paddy into a finished product both for sale and for home consumption, drying facilities are necessary to dry rice and local storage facilities will enable farmers to store rice and sell them when prices are high or when road access is possible.

5. credit

Access to credit facilities is not so much a physical access problem and limited services, lack of collateral, lack of sound proposals and business plans and high interest rates are probably more determinative for the performance of the credit sector. It is however interesting to note that UNDP's Micro-finance study informs the reader that *"relatively few rural households borrow from any source, and short-term working capital is particularly limited in supply. While rural households have assets, it is rarely used to collateralise loans and, when used, provides minimal financial leverage. Informal financial institutions reach about 15 percent of villages, and formal financial institutions reach considerably less".....and....."the formal financial sector, the State Owned Commercial Banks were found neither extending large scale services into rural areas nor providing products appropriately scaled for a market of poor, rural clients. While the poor generally had some level of assets for collateral, activities to convert assets into loan security remain extremely limited, with the value of identified outstanding loans in rural areas averaging only ten percent of households physical asset values. Although the Agricultural Promotion Bank was providing rural loans to agriculture, it has not gained access to many remote areas... (UNDP 1997)"*

6. transport system

"Community roads, tracks, paths and footbridges are the transport infrastructure of the farmer, linking homes to fields and easing the transport of farm implements, agricultural inputs and harvested crops. It is over tracks and paths that rural dwellers gain access to markets and social services and women transport the bulk of loads such as water and firewood for household needs. Rural roads make it possible to take crops to market and to bring back inputs needed to expand production, and they provide access to consumer goods that give farmers an incentive to earn more income (Calvo 1995)".

In general more modernized forms of agriculture require an improved transport system: infrastructure and transport services. Richards argues that *"unless a (commercial) farmer is connected to a main highway by 8 kilometers or less of all weather road, he is not connected to the economy at all, except for the infrequent purchase of minimal necessities*

(Richards 1982)". Traditional agriculture practices however are predominant in rural Laos and consequently off-farm access requirements are low and the level of infrastructural access and transport services is less important in these areas of predominantly subsistence farming. Most subsistence agriculture associated travel in and around the village takes place away from the road network on footpaths and tracks. A network of footpaths, tracks and water crossings is used to gain access to the fields. Access to services and facilities associated with modernized agriculture is of less importance (see foregoing sections).

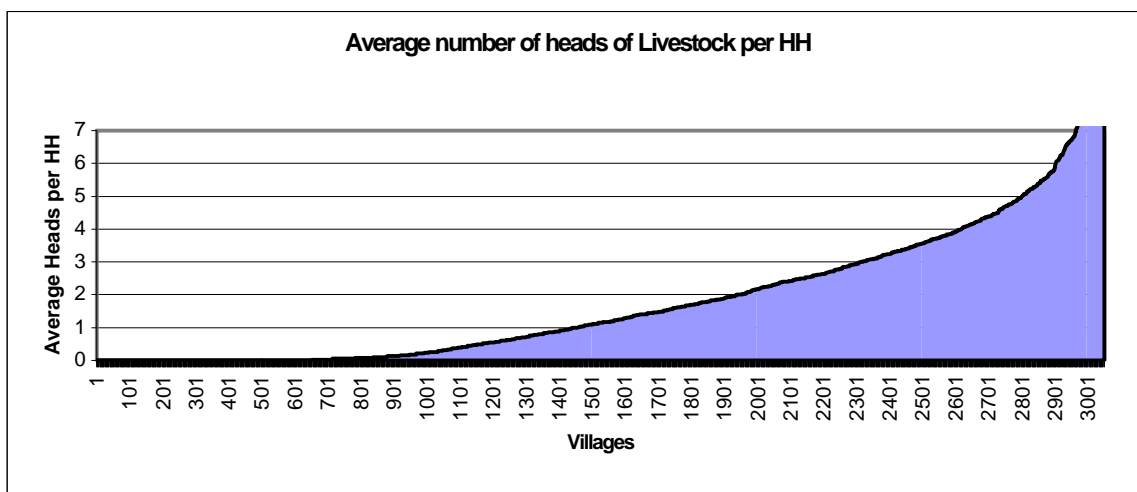
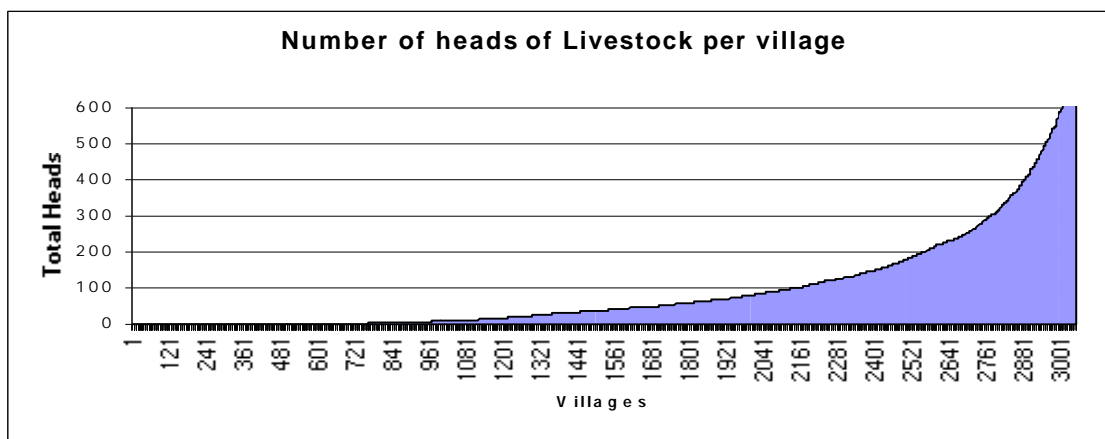
An improved transport system however may induce agricultural change. A good example is the rural road constructed by ILO in Hun District in Oudomxai province: *"An increase in sales of other agriculture produce like vegetables and fruits can also be noted. Before the road was opened, beans, other vegetables and fruits (mango, banana) were for own use. The poor farmers cultivate for own use and some for sale. They try to increase the cultivation, as they can sell to traders. The produce is sent to Hune or marketed at the local markets. The biggest is at Naxiengdy. It has opened after road construction. Traders travel every day along the road to buy products, or place orders to farmers. Before the road was constructed the farmers did not cultivate much surplus, as nobody wanted to buy it, and transport facilities to the district market were not available"* and *"an average farmer travels once a week to Hune; before the road once a month. There is a gender difference as such; women travel less than men, but more often than before. The villages along the road have become a stop point and a place to meet. All vehicles stop here. While waiting for the next transport to come, villagers socialize and share views and information (Johanson 1997)"* The sharing of information and exchange of views is an important benefit from an improved transport system that should not be underestimated.

Livestock

Most of the access issues are similar to the issues disclosed in the previous section. The majority of people living in the highlands of Lao PDR are semi-subsistence farmers, primarily cultivating upland rice using shifting cultivation techniques and, where possible, paddy land. In general, they are unable to produce sufficient rice or other foods for the entire year and often resort to animal raising to earn the cash needed for supplementary rice and other necessities. The Luang Namtha study (Mercat 1998) shows that more accessible villages generally have larger herds but it is not clear if this is the result of better market access or the fact that more accessible villages are generally wealthier.

A fact however is that the sale of livestock is an important source of income for many villages. It could be assumed that market access influences livestock holding patterns. A study in Oudomxai revealed that *"Marketing of meat from livestock to the market is common for villagers in Phonhom Zone. Normally the livestock is sold while they are still alive and taking them to the market center is by walking. Raising livestock is less common in Mokwen Zone where accessibility to the market is still very poor (Thirathon 1997)"*

The following graphs present number of livestock (cattle, buffaloes and horses) per village and per household for a sample of 3049 villages.



Fish is in big demand and generally markets for fish are very good. The problem is to get the fish to the market. This is more problematic than with chicken or other livestock since the quality of fish deteriorates quickly once harvested. Improving fish raising techniques has a huge potential in Laos but improved fish raising techniques would probably not appeal to people if the fish harvested would be left to rot because it can not be transported to the market.

Non-Timber Forest Products

Most rural villages have access to a forest and use its products for domestic consumption and/or sale at a market: *“a plethora of NTFPs are used at the household level; a recent study in Boulikhamxai Province identified 141 forest products used by villagers. Many of these, such as various wild animals and fish, mushrooms, bamboo shoots, honey, fruits, nuts and wild vegetables, are used as food and provide an important supplement to cultivated crops for most rural households in Lao P.D.R.. Bamboo, wood, rattan and leaves are used for construction and for making implements. Traditional medicine is the only health care available to most remote villages, and is also in demand by residents of major towns”.....” Some major NTFPs in local markets include honey, bamboo, wildlife, fish and wild vegetables. Major export items are benzoin, pine resin, rattan, sticklac, star anise, damar, cassia, eaglewood, cardamom, malva nuts and numerous spices and medical plants. An accurate accounting of harvest and export volumes is difficult because most products are shipped unregistered out of the provinces to Thailand, China and Vietnam (IUCN 1992)”*

The main access issue relates to the marketing of forest products and issues are similar to the ones identified in the section on agriculture.

Cottage Industries

Craft work such as handicraft production, weaving, basket and rice box making is an important non-farm activity in many villages (see table 2). Weaving is a main occupation for women most of the year and is often an important alternative source of cash income. The percentage of villages receiving income from craft work however is relatively small. Household items are produced mostly for domestic use. This pattern is likely to change when access is improved and the villages are integrated into the mainstream of economic activities in the area.

Table 2 : Non-agricultural Products Produced

Item	Villages Producing	Producing for Own Use Only	Producing for Sale Only	Producing for Sale and Own Use
	<i>Percentage of villages</i>			
Handicrafts/Mats	55%	32%	22%	1%
Sewing/Weaving Products	52%	36%	14%	2%
Baskets/Rice Boxes	50%	32%	17%	1%
Blacksmith Products	35%	26%	8%	1%
Knives/Machetes	9%	7%	2%	0%
Liquor	4%	1%	2%	1%

Source: Sample of IRAP data base (sample size 2676 villages)

Rural Laos is gradually shifting from a subsistence to a commercial economy. The rate of change will largely depend upon accessibility of the market. Development of the rural cottage industry will depend upon available resources, local skills and market access (see chapter 3). In the area of marketing, transport is of primary importance, since the viability of productive activities depends on the ability of the producer to deliver his produce to the market: *“The village has good traffic connection to Vientiane: there are two buses a*

day to the capital. These buses are used by the women to sell their handwoven Lao skirts in the market (Schenk-Sandbergen)” and “Very few villages produce and sell non-food items when walking is the only means of transport (Mercat 1998)” One of the main problems identified is often that people do not know how and where to sell their products and get access to the market. Therefore they only produce for their own use. The accessibility of markets, the mobility of the producer and the movement of information are all factors that contribute to market integration.

Improved road access spurs more people to travel. Improved road access to Naxiengdy, Hun District, Oudomxai Province, resulted in the establishment of a local market with traders coming from the district capital to conduct business. A socio-economic survey on short term impact on rural road construction conducted by ILO reveals that *“handicraft (weaving) among the women (Thai Dam) at Naxiengdy has increased. There is a loom in many households. Women and girls weave at leisure time and when they are not occupied in farming activities (Johanson 1997).*

Once market access improves economic forces could push an area to specialize in those products for which it has a comparative advantage. Improved access, on the other hand, could encourage village imports rather than exports in that locally produced products are being substituted for products purchased on the market *“if we cannot buy and transport the products, we make them, if we can buy them, we stop producing (Mercat 1998)”*. Locally produced products sometimes can no longer compete with what is available on the market and with products that are sometimes better in quality or cheaper.

An interesting observation was made by Mercat who concluded that: *“Among all the activities, weaving textile is the one, which is more frequently done when access is poor and people rely on walking. Textile has a great value per weight and is obviously easy to carry (Mercat 1998)”*

Employment and Casual Labour

Improved rural access increases personal mobility. People can travel faster, safer, more convenient and sometimes less expensive which influences travel patterns of people. Locations for full time jobs or casual labour could become more accessible and employment opportunities may increase .

Opportunities to earn income from regular employment however are limited in rural Laos and people are often deprived from the possibility of increasing family income through employment opportunities usually found in the district centers due to poor access. Only few rural villages are within easy travelling distance of district or provincial capitals where most jobs can be found. Improving accessibility is important for the development of off-farm employment because it increases the rural population’s mobility allowing those seeking off-farm employment to travel to areas with demand for unskilled labour.

Improved road access may enhance employment opportunities in a different manner. Improved road access changes travel patterns and means of transport ownership. This could be an opportunity for local entrepreneurs to start, for example, their own transport service. In Oudomxai Province the rural road impact study concluded that “*travelling has increased as well as transport facilities.....there are many private tuk-tuks, but all of them are owned by town people*” while in Savannakhet Province “*the road has made it convenient to travel to town. There are three regular tuk-tuk trips per day; one in the morning, afternoon and evening; and four to five more depending on the demand. The tuk-tuk drivers live in the villages. They started this business after the road was rehabilitated (Johanson 1997)*” In the first example the village people do not directly benefit from the new opportunities while in the second example villages directly benefitted in that they operate their own transport service.

Recommendations for IRAP

The central question in this paper is how the accessibility planning procedures could incorporate IGA in a more effective manner. As Edmonds put it “*in the case of social services such as water, health and education an equity criteria is applied. In the case of access to employment, access to markets and to other income generating activities the principle of equity no longer applies. The issue here would be to provide an enabling environment in which the potential for economic activity can be maximised (Edmonds 1997)*” In practical terms this would mean identifying facilities and services that the Government can provide and encouraging private initiatives such as community participation schemes and the operation of transport services. IRAP Laos is put to use at two levels: the local Government level and the community level. This chapter explores possibilities at these two levels to incorporate the planning of access interventions associated with IGA. The possibilities are assessed within the context of IRAP’s strategy that access can be improved either by improving the transport services or by improving the distribution of facilities and services.

Strategy 1: Improving the Transport System

Successful production of cash crops depends partly on the availability of an adequate transport system. Village access is closely related to the presence of traders. Improved external village access attracts traders to visit the village. First time access, lower transport costs, reduction in travel time all invites traders to visit new villages and explore new opportunities. More traders result in an increased demand for certain products, better price information, more competition and better prices for marketed goods. Improved village access most likely leads to an increased presence of extension services, again, bringing price and market information and enhanced production technologies to the village. Improved village access could result in crop intensification and diversification subject to certain conditions.

Distance to fields will affect labour productivity. Having to walk 4 kilometers to a plot reduces fieldwork time with about 2 hours. Long journeys imply more time and effort

“wasted” on transport and shorter day-light hours to work in the fields. This problem could be partly solved by improving home to field transport through improving internal village access (village infrastructure and low-cost means of transport). Improved access would generate savings in travel time and effort. Freed resources such as time could be used for more productive uses such as longer working hours in the field, cottage industries, socializing, education etc. It should be emphasized that in rural Laos the potential to use the time savings in a productive manner is limited and depends on several other factors.

To improve internal and external access the transport system can be upgraded through improved road access, less expensive, more reliable, more frequent and faster transport services, an improved network of tracks and trails, better use of waterways, and the promotion and introduction of Low Cost Means of Transport (LCMTs).

1. Road access

In theory roads facilitate rural development; new roads will improve transport; improved transport will solve access problems; improved access enhances living conditions and income earning opportunities. Improved living conditions and income earning opportunities foster further development.

The general lack of road access in Laos has its impact on rural development. More than 50% of the villages in rural Laos do not have all year round road access. This constraints the access people have to markets. Road access is crucial for agricultural development. Rural folks will have to transport their produce to the market, extension services and, although limited, agricultural inputs will have to be supplied to them on a regular basis and traders needs to be attracted to travel to the villages. Access to agricultural inputs and markets is difficult in most rural areas in the country due to the general lack of rural roads and the poor state of the existing road network.

IRAP deals extensively with rural road access. The planning process implemented at local Government level includes a rural road inventory, guidelines on the identification of priority road links for rehabilitation and new construction and guidelines on design and costs. Rural roads are presently appraised on the basis of increased personal mobility: “the higher the number of people served per investment unit (USD 1,000), the higher the priority of the road”. Economic benefits attributable to raised IGA are not taken into consideration in the present IRAP appraisal process. **The IRAP process should augment its present rural road selection process and include potential economic benefits from increased IGA in the appraisal process. At the T-2 training on data analysis participants could prepare additional overlays (see T2 Training Modules) to identify IGA in the area of concern and market ranges for local produce.** Together with people’s mobility this could be a better the basis for rural road appraisal.

To improve market access in the economic progressive zones, identified during the T-2 Training, it would be sensible to concentrate on “wet season gaps” first (bridges, culverts) and secure all year round access to enable farmers and other local

entrepreneurs to bring their products to the market or trader to visit the areas during times of difficult access.

2. Transport services

Transport services are of crucial importance in providing access for rural people. The absence of transport services, for example, can mean that people who produce a surplus lack access to (competitive) markets. Household decisions to increase production or change the production mix may be constrained by the non-availability of reliable transport services. Only few rural families in Laos own motorized vehicles and most rural families benefit from improved road access because of improved transport services. People hire transport services, normally through payment of a fare, to move themselves and/or their goods, from one place to another. Rural transport services usually operate in areas where road conditions are good and local demand is sufficient to sustain the service. Improved road access usually increases local demand for transport since it brings about IGA diversification and development.

Transport services are most common provided by the private sector. **It would therefore not be appropriate to include them in IRAP's standard planning process targeting local Governments. The development of transport services however could be promoted at the village level. People in rural areas could be encouraged through training, credit and advice on how and where to operate transport services.**

3. Paths, Tracks and Trails

The major part of rural transport for IGA associated activities takes place along a network of footpaths, tracks and water-crossings. An illustration from Oudomxai shows that: “*Some people in Kengleir Village in the Mokwen Zone delivered bamboo poles and mats to merchants at Louangtong Village located some 40 minutes' walk downhill to the Mekong River and from that point, about 15 minutes downstream by regular motorized boat. Luangtong village was strategically located as the marketing point for agricultural and forest products coming from the uphill villages. Such products had to be transported by human labour or, in the case of pigs and cattle, by leading them along footpaths. No horses or donkeys were used for transport (Lantin 1997)*” Roads often do not form part of this system. Local, mostly village to farm, transport can be upgraded through improved routeways. Improving house to field transport, however, is rarely a Government development policy and is left as a responsibility for the farmers. IRAP could assist as part of its community infrastructure development component by providing technical staff at the village level to supervise the improvement of paths and tracks and the construction of footbridges. Special equipment, tools and construction materials could be provided to the communities to enable them to upgrade their local transport network. The communities, in addition, can provide the manpower for construction especially during periods when there is not much demand for agricultural labour on farms. The community should also be assisted to develop a maintenance scheme whereby different families maintain different parts of the footpaths or tracks. **Planning for improved internal**

village access, through an improved local network of paths, tracks, trails and water-crossings, should become an integral part of IRAP’s community participation component.

Improvement of paths is seldom a development priority but can have a substantial impact in the villages. The following example from Tanzania illustrates benefits from a low-cost footpath improvement project “*betterment of an 11 km footpath in Makete district in Tanzania linking a mountainous area to a lakeside reduced travel time 30 percent; and improved safety (steps, reduced slippage, improved drainage, foot bridges). As a result people could travel on the path throughout the year and also at night. Path usage increased by 15 percent as many villagers changed their travel routes. Instead of taking the bus into the mountainous area, people now hiked down to the lakeside to board onward transportation. The path currently is used by people making about 60,000 trips per year (Calvo 1995)*”. Another interesting example offers the DANIDA/ILO irrigation development project in Nepal “*the improved irrigation facilities have led to an increase in agricultural production of 50 to 150 per cent. This has, however, created problems in terms of the marketing of the extra produce. To market the surplus, the villagers generally have to negotiate steep and narrow footpaths which only allow for transport of the surplus by portering, with loads sometimes in excess of 50 kilos. This clearly sets a constraint on the volume of goods which can be transported to the market.....In order to address this problem, the Dhaulagiri Programme is upgrading those footpaths serving irrigation schemes so that they are accessible to mules. This involves broadening the tracks to 2 metres width and making gradients more moderate, not in excess of 20%, and without steps, so allowing mules to carry 80 kilo loads of agricultural produce down to the roadheads and market centres (IFRTD 1993)*” The article further mentions that mules carry various loads on the return uphill journey and that the track can be used by bicycles as well.

4. Waterways

Laos is a country of waterways and an estimated 20% of rural villages are served by rivers (based on a 3050 village sample) Despite the present investment in the road network, rivers will remain an important feature of rural life. Table 3 shows boat ownership in rural areas in Laos.

Table 3: Boat Ownership in Rural Laos (based on a sample of 3050 villages)

Percentage of Villages with river access	Percentage of Villages with Non-Motorized Boats	Average Number of Non-Motorized Boats in Villages with Non-motorized Boats	Percentage of Villages with Motorized Boats	Average Number of Motorized Boats in Villages with Motorized Boats
22.8%	22.5%	14.2	9.7%	7.8

A research-study report on country boats in Bangladesh informs that “*country boats are an integral part of rural life in Bangladesh. A great many families keep their own small domestic boats. These boats are used for domestic purposes around the homestead and for carrying farm produce. Around the homestead, boats are used for fishing; taking*

children to school and sick people to health centres; taking paddy to the mill; collecting fodder for livestock and running market errands. The women especially like to use them for visiting relatives. On the farm, boats are not only used to carry produce away from the fields to the homestead or market, but also moving livestock and tending the fields during the monsoon period (Palmer 1992)". Obviously, the inland water transport systems in Laos and Bangladesh differ because of topography, climate and flooding, but the fairly large number of boats in the country does imply that **boats make an important contribution to rural transport. This should not be neglected. Again, entrepreneurs in rural communities could be encouraged to invest in boats and operate boat services. The importance of water transport should be dealt with during the T-2 training and should be a determining factor in prioritizing areas for improving road access**

5. Low Cost Means of Transport (LCMTs)

LCMT can be defined as those means of transport which are significantly cheaper than motorized vehicles (cars, pick-ups, busses). They are sometimes referred to as intermediate means of transport (IMT) because they are intermediate in terms of purchase cost, operating cost, performance (speed, payload and range) and infrastructure requirements. LCMT include wheelbarrows and handcarts, bicycles, motorcycles, hand-tractors and pack animals.

Internal access generally relies on human labour (walking, carrying) since most farming households walk to and from the fields and carry crops back to their homesteads. LCMTs could play an important role in improving internal access because they have a higher load capacity per trip compared to human portorage and eliminate human effort involved in carrying loads. An increased use of LCMT would improve accessibility in that they could overcome particular transport problems, for example, the transport of cash crops to a point of sale or pick up location.

The main advantages of introducing and promoting the use of LCMT include:

1. faster and more convenient travel which could increase the radius of agricultural operations around the village;
2. increased load carrying capacity and efficiency which could reduce spoilage losses;
3. release of household time (shorter travel time) which could be spent on more productive and or social/leisure activities.

The role of LCMT is complementary. In rural areas of Laos where the size and capacity of the motor vehicle fleet is small LCMTs could be a substitute for motor vehicles and lessen the burden of walking and carrying goods.

Ownership of any means of motorized transport is rare in rural Laos. The most common vehicle is the bicycle and bicycles are found in many rural villages. The role of bicycles in rural transport could be significant. Bicycles can be used by farmers to travel to the fields, to reach distant fields more quickly and facilitate an increase in the area of land cultivated and to take small quantities of crops to locations outside the village. A World-Bank study for rural Africa showed that *“The income generating potential of bicycles is more clearly shown when they are used by small traders, or for hire purposes. A common sight around towns and larger villages in SSA (Author : Sub-Saharan Africa) are cyclists riding or pushing bicycles heavily laden with goods such as firewood, charcoal or farming produce which they are taking to trade in the market (Howe 1993)”*. **IRAP could promote the use of bicycles as a means of transport and stimulate people to invest in buying one. Paths tracks and trails (footbridges) could be improved to better allow people to ride their bicycles.**

Explore the possibility of introducing and promoting the use of pack animals such as horses and donkeys. A characteristic of the horse or donkey is its ability to carry loads on steep or difficult terrain. The use of pack animals would reduce the effort of transporting goods to a point of sale. Greater loads could be transported with less effort over longer distances making certain activities more economical. People however would need to receive training in taking care of the animals and to develop carrying devices. The following table shows horse ownership in Luang Namtha.

Table 4 : Horse Ownership

Classification of Villages	Percentage of villages with at least one horse
Villages with river/road access	12%
Villages without any river/road access	27%
Villages more than 8 hours from the market place	41%

Source: Mercat 1998

Hand-tractors are often used for rural transport and play an important role in the local economy. Communities could be assisted under IRAP’s Community Participation Component to purchase hand-tractors and operate a small business.

Over 50% of the villages in Laos lack all year round road access and an enormous investment in rural roads is needed to provide most villages with all year round road access: *“For many communities, a road to the village will be a long way off and alternative means of transport will need to be explored. However, for those living on a road or river, the increased demand for transport that will grow as the road network increases, offers IGA (income generating activities) opportunities in developing inexpensive methods of transport. Those who are able to access remote villages along small tracks may solve the problems of market access while providing themselves with an expanded market for their services. Communities wanting a road have one concept, and that is for something that will bring the tuk-tuks or pick-ups. Consideration should be given to the development of tracks for horses, carts and motorcycles (perhaps pulling a cart) (Ison 1996)”*

Strategy 2: Improving Distribution of Facilities and Services

Access can be improved by bringing the facilities and services closer to the people. A better distribution of facilities and services is often an alternative for improving the transport system. Improved transport enhances the mobility of people: people can travel faster, safer, more convenient and less costly. An improved distribution of facilities and services reduces people’s need for transport: people can satisfy their needs closer to their homes and their demand for transport reduces.

Improving access to land

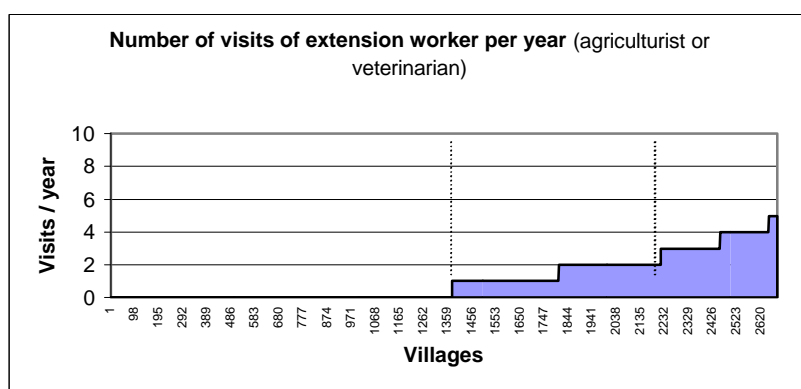
Distance to fields has its effect on labour productivity. Increased travel time and effort decreases returns to labour. One way of manipulating accessibility of farm lands is to change land use patterns and cropping systems. This however is a difficult task to do and is certainly beyond the scope of IRAP.

Village decisions to resettle along newly constructed or rehabilitated roads often imply a trade-off between on the one hand better access to basic goods and services such as markets, health services, schools and transport and new income generating activities, and on the other hand reduced access to mostly “hai” fields. Access could be improved by opening up new “na” land for agriculture to benefit the resettled farmers. This could also have a positive impact on the environment in that it reduces slash and burn farming.

Extension Workers

The inputs of extension workers are of critical importance for the development of the agricultural sector. The effectiveness of extension workers is likely to be increased if they reside close to the farmer and have good access to the communities they serve. The better their access to the communities, the more often they are likely to visit them.

The following graph shows the frequency of visits of extension workers to 2700 rural villages.



Agriculture extension workers could assist the different villages, with different levels of market access, to process crops into an intermediate or final product increasing the value per unit weight and reducing the overall transport cost and effort or introduce and promote alternative high-value per unit weight crops that are easy to grow, have a ready market and experience less of a transport problem. This however would require extensive training and extension work and, in turn, would depend on a certain minimum level of access. If the villages are too remote agricultural extension workers are not likely to visit them often.

Storage

Local storage facilities could facilitate the marketing of smaller quantities of higher value crops. Improving the distribution of storage facilities lessens the demand of transport and, for example, non-perishable crops could be stored and transported when prices are high or access is possible. Storage facilities are often complementary to the transport system. In rural Laos however, where communities are just moving away from subsistence, the establishment of a network of storage facilities may be premature.

Water

Improved access to irrigation water could improve the performance of the agriculture sector. Farmers could secure sufficient irrigation water during the wet season and could, if the right incentives are there, grow a second rice crop or an alternative crop in their fields. Better access to water, for example, could stimulate people to cultivate gardens to cater for local demand in vegetables. The issue of irrigation is further discussed in a separate chapter.

Credit

Credit is another key factor for rural development. As farmers, for example, turn more towards more modern production systems and become more and more engaged in cash crop production, their investment needs increase and the demand for credit is likely to grow. Physical access to credit facilities is usually not considered a problem. Rural people however may find it difficult to obtain loans due to collateral requirements. Under its Community Participation Component the IRAP project is developing guidelines for the establishment and use of a “village revolving fund”. The idea is that communities participate in labour intensive works such as road, bridge, school, water supply, health center and trail construction and are paid a certain amount into a village revolving fund according the number of man-days provided. This village revolving fund would benefit the entire community and could be used for credit for selected IGA activities.

Rural development and access are obviously linked. It is the aim of this paper to identify areas where the IRAP methodology could assist in identifying access interventions that could benefit the different IGA. This chapter has explored some of the linkages and came

up with some recommendations to be added to the present IRAP procedures. This is not an easy task and it will need some more experimentation in the field before it can be finalized as a additional set of IRAP tools. Agriculture for example *“is a much more complex topic to consider if compared with all the other sectors like education, health, water or roads. The amount of information needed is much wider and difficult to collect. Village level is not the most appropriate level to collect agricultural data. It can provide a first overview but household level data are always required for suggesting any project orientation.....and.....developing a methodology for in depth survey at household level would become the best way to advise project prioritisation and formulation in the sector of agriculture and other development (Mercat 1998)”*

3. Market Access

People travel to markets to buy food products, to buy household items, to sell food products or to sell other home-made products. The time spent on visiting markets often represents one of the most important elements of rural transport. Having good access to markets is essential for agricultural and economic development. In a developing society more goods are being traded and the accessibility of the trading points, the markets, determine to some extent the level of economic integration of a village into the market economy.

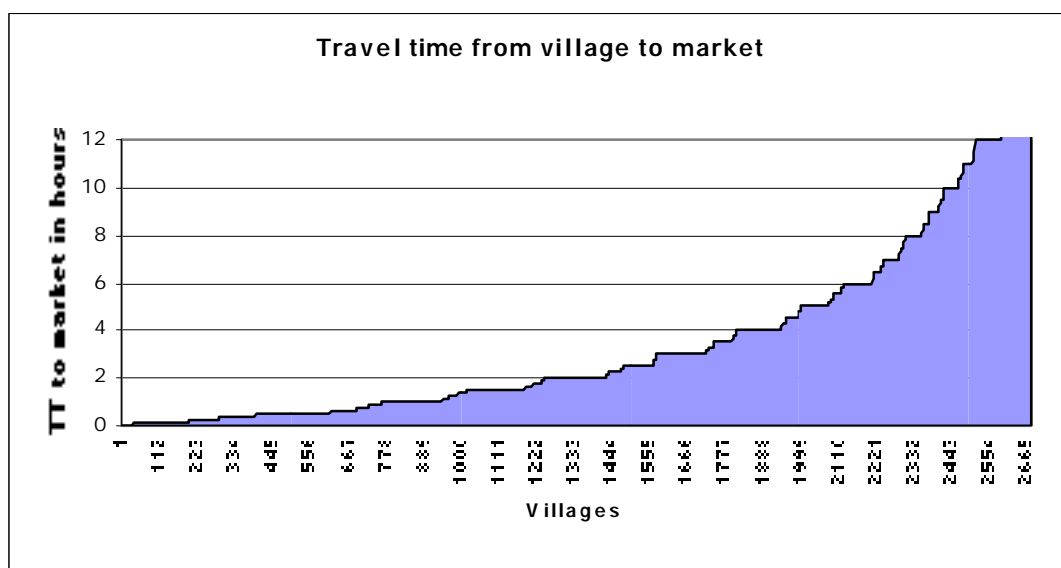
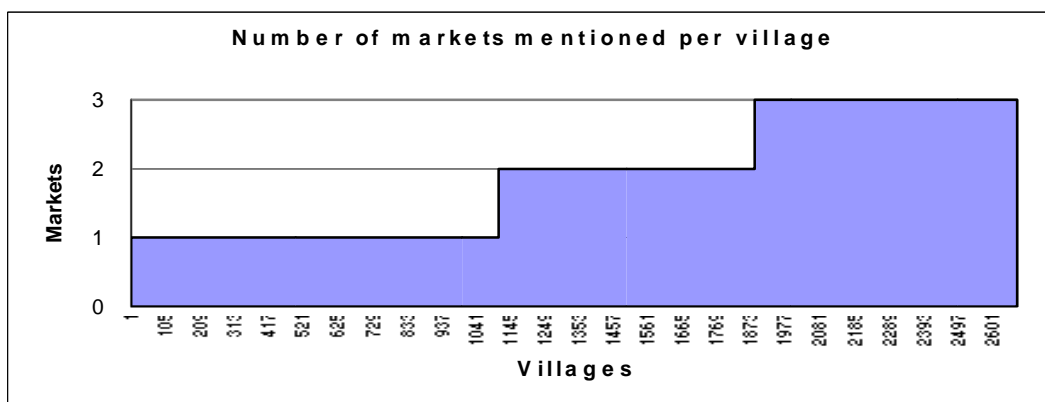
Marketing involves the transport of people, crops and other products. Crops, for example, have to be brought from the fields or houses to the market place and, in turn, household products have to be transported from the market to the house. Two factors determine the level and quality of market access: the physical accessibility of markets and the mobility of buyers and sellers.

Easy access to the markets provides a greater incentive to produce for the market. The marketing of products is one way in which cash income can be earned. It is an area where transport is of primary importance in determining productivity, since the viability of productive activities depends on the availability of the producer to deliver his produce to the market offering the best prices.

Markets in Laos are usually found at three different levels:

1. Local markets serving a group of nearby villages. Local people go there to buy small quantities of food and day-to-day household items or to sell small quantities of crops or other goods produced for domestic use. People live within walking distance of these markets and can return the same day.
2. District markets serving most or all villages in a districts and sometimes part of adjacent districts. These markets have more functions and the variety of goods being traded is wider. People come from all over the district and often have to walk for many hours to reach the market and sometimes have to stay overnight.
3. Provincial markets serving the entire province and sometimes parts of other nearby provinces. Again, these markets have more functions and the variety of goods being traded is much wider. People come from all over the province and, if coming from another district, often live too far to walk and have to stay overnight.

The following charts identify the number of markets used by people living in the IRAP sample villages and their average travel time to the main market used.



The IRAP data shows that in most villages people travel to markets and markets exist in each district. Crops are mostly sold in small quantities. The following tables, as an example, identify the markets used by the Muang Nga and Muang Sing population.

Table 5 : Main Markets and Local Travel in Muang Nga - Oudomxai

Market	Percentage of Villages where People			
	use this market as the main market	walk to this market	ride to this market	walk and ride to this market
Luang Prabang	20%	0%	76% (boat)	24% (walk, boat)
Muang Lat Han	17%	94%	6% (boat)	0%
Muang Xai	13%	15%	0%	85%
Muang Hatteu	12%	92%	8% (boat)	0%
Muang Nga	11%	100%	0%	0%

Table 6 : Main Markets and Local Travel in Muang Sing - Luang Namtha

Market	Percentage of Villages where People			
	use this market as the main market	walk to this market	ride to this market	walk and ride to this market
Muang Sing	99%	73%	13%	13%

Table 5 shows that in Muang Nga a hierarchy of markets exists. People conduct business in higher level markets (Muang Xai and Louang Prabang), medium level markets (Muang Nga) and lower level markets (Muang Hatteu, Muang Lathan). In Muang Sing almost all people rely on the medium level Muang Sing market. Tables 5 and 6 also illustrate that various means of transport are involved. Walking however is the main mode of transport.

For remote villages a trip to a market is often a major journey and sometimes involves an overnight stay at the destination. As a result households in remote villages make fewer trips even though they often spend more time on travelling to the market. If villages are sufficient close to a market, people can travel there, conduct their business, and return the same day. Evidence from various studies suggests that people, who have good access, will use the market more regularly. On the other hand if markets are distant, trips are quite rare.

Cash crops, livestock, non-timber forest products and other domestically produced items such as handicrafts have, in case no trader is visiting the village, to be transported to a market in order to be sold. Most villages have some surplus for sale. Crops and other products however are usually sold in small quantities. Since most people live far from the roadside, journeys to the market usually consist of a combination of walking and travelling along roads (walking, cycling or using motorized transport) or rivers. In the IRAP village level survey the villagers were asked to specify the markets they visit and the mode of transport associated with each visit. The following tables characterize market access for a sample of 3049 rural villages:

Table 7 : Average travel time to the market

Travel time to market	Villages	Percentage of Sample
Less than 1 hour	764	25%
Between 1 to 2 hours	477	16%
Between 2 to 4 hours	569	19%
Between 4 to 6 hours	400	13%
More than 6 hours	468	15%
Not Using any Market	371	12%
Total	3049	100%

Source: IRAP Data

Table 8 : Mode of Transport

How travel to market	Villages	Percentage of Sample
Only Ride (Including Boat)	575	22%
Only Walk	1590	60%
Combination Walk and Ride (Including Boat)	497	18%
Total	2662	100%

Source: IRAP Data

Tables 7 shows that most people live a considerable distance from the market and most people walk to get there. This conclusion is reinforced by table 9.

Table 9 : Average distance to the main market

District	Average Distance from a Village to the Main Market Used
Muang Nga - Oudomxai	6 hours 20 minutes
Muang Beng - Oudomxai	4 hours
Muang Sing - Louang Namtha	4 hours 20 minutes
Muang Long - Louang Namtha	7 hours 20 minutes
Muang Thapangthong - Savannakhet	6 hours 30 minutes
Muang Nong - Savannakhet	5 hours 10 minutes

Table 9 suggests that the trip times for a one-way trip to the market in the three selected provinces are in the range 4 hours to over 7 hours. In conclusion we may say that access to markets for most rural communities is generally poor. People walk over long distances and are often not able to undertake a round trip during the same day. The following table summarizes market access for selected villages in Savannakhet province. The table also indicates the maximum time people are willing to spend on travelling to a market.

Table 10 : Market access in selected villages in Savannakhet province

Village	Gender	Income Level	Average Time to Market	Average Maximum Time Prepared to Spend on Travelling to the Market
Phong Na	F	Higher	3-4 hours	6 hours (tractor)
	F	Lower	3-4 hours	8 hours (walking)
	M	Mixed	5 hours (walking/tractor combined)	6 hours (walking/tractor combined)
Nathomkhok	F	Higher	1-2 hours (bicycle)	3 hours (bicycle) – 4 hours (walking)
	F	Lower	4-6 hours (walk)	6-8 hours (walking)
	M	Mixed	3 hours	4 hours (walking/tractor combined)
Kae	F	Mixed	5-8 hours (vehicle); 24 hours (walk); 10-11 hours (boat/vehicle combined)	5-12 hours (vehicle); 11-14 hours (boat/vehicle combined)
	F	Lower	24 hours (walk); walking/vehicle combined (11 hours)	12 hours (walking/vehicle combined)
Nalay Khok	F	Higher	6-8 hours (walking) ;2-4 hours (walking/tractor combined)	9-10 hours (walking); 4-8 hours (walking/tractor combined)
	F	Lower	6-8 hours (walking); 4-5 hours (walking/tractor combined)	8-10 hours (walking); 6-10 hours (walking/tractor combined)
	M	Mixed	4-6 hours (walking); 2 hours (tractor); 1hour 20 minutes (bicycle)	8 hours (walking); 4 hours (tractor); 2 hours (bicycle)
Vang Bouang Ghai	F	Higher	2-4 hours (transport service); 8-11 hours (walk)	2-6 hours (transport service); 8-12 hours (walk)
	F	Lower	40m-4 hours (vehicles)	4-6 hours walk
	M	Mixed	6 hours (walking); 2 hours (bicycle); 2 hours (transport service)	10 hours (walking); 6 hours (bicycle); 4 hours (transport service)

Source: Report on Gender and Access to Basic Goods and Services

Although the size of the sample is not significant, table 10 indicates to a certain extent that different rural households have different time values and that “richer” households are likely to spend less time and more money on transport to the market than “poorer” households. Poorer households are generally willing to spend more time (less money) on transport which indicates their lower value of time.

Marketing activities involve moving goods and services from the producers to the consumers. Many farmers however do not bring their products to the market, but it is the traders who come to the individual farmers and buy from them. Mostly the individual farmers have only small amounts of produce to sell and transportation often incurs high cost. Road improvements could encourage traders to come to the villages and buy crops rather than encourage local people to transport goods to the markets and in fact reduce the local need of travelling to a market. Farmers who are dependent on middlemen however are exposed to exploitation. The role of private traders in crop marketing in rural Laos is yet limited. They presently operate mainly in areas most accessible from the district center.

As discussed earlier, access to markets depends primarily on the transport system which includes the extent and quality of the road network, the level of transport services and the ownership of vehicles and low-cost means of transport. It is difficult to plan for new markets since markets are the result of supply and demand and are often historically determined. They just happen to be there because buyers and sellers used to meet each other, for example at a river bank or at a junction of trails. Later on sometimes a town developed around it.

Households travel to markets for many reasons apart crop marketing and “travel to markets” should be separated from “marketing of crops”. The IRAP data shows that the most important reasons for visiting public markets is not to sell home grown or home made products but to buy household items such as salt, soap, utensils, medicines, cloths etc..

Table 11 : Main reasons for going to the market

Province	District	Main Reasons for Going to the Market (Percentage of Villages)						
		Buy house- hold items	Buy salt or sea- soning powder	Buy clothes or shoes	Buy fuel	Sell crops	Sell poultry	Sell live- stock
L. Namtha	Long	93%				17%		11%
L. Namtha	Sing	63%	21%		21%	63%		
Oudomxai	Beng	47%		43%		46%	20%	30%
Oudomxai	Nga	52%	13%	13%	13%	22%	21%	13%

Household items could also be bought in village stores which would reduce travel to the market. Most rural villages that are away from the road network however often lack

village stores and people will have to travel to other places if they want to buy their daily necessities. Roads are likely to have an impact on the number of village stores in an area. An impact study for a road in Oudomxai Province reveals that *“before the road construction, few items were available (in the villages) and the cost was high”* and *“seventeen shops have opened (ten at Naxiengdy) and sell daily consumer goods as well as clothes, shoes, building materials, CI-sheets, medicine, farm equipment (Johanson 1997)”*.

Villages in rural Laos sometimes move. The IRAP data for Luang Namtha, for example, shows that in that province only 44% of the villages were set up in their present location. Market access influences settlement patterns. *“Villages located near markets are less prone to move. Access to market seems to be a reason of permanent settlement possibly because it provides sustainable alternative livelihood improving living conditions (Mercat 1998)”*

Recommendations

Market access is crucial. A case study in Oudomxai identifies that *“some villagers had negative experience in producing sesame because after the first batch of sales the trader concerned failed to return to buy the next harvest (Lantin 1997)”* An adequate transportation system would increase marketing opportunities in that it would be easier for the farmers to transport their products to the market and for traders to visit villages and buy products. Other examples from Oudomxai and Savannakhet show: *“People have to carry the produce on their back to the market. A person can carry about 16 kg of milled rice per trip in this steep terrain or 15 chicken of about 1-1.5 kg each (Gunawardena 1997)”* and *“It is not uncommon to see women carrying 20-30 kilograms of rice on their back and walk 3 hours to the market center (Thirathon 1997)”*

“Cultural and social factors also played a part in determining access to specific goods and services. For example, in general Lao Loum females accessed the market more frequently than Lao Loum males and Lao Teung females, and Lao Teung females accessed the market less frequently than Lao Theung males. The explanation for these differences include the findings gained from informal conversations and observation, that Lao Teung females often had language difficulties with the main language (Lao Loum) and were perhaps less confident in negotiating at markets than Lao Loum females or Lao Teung males (Gray 1997)”

In a perfect situation all rural people can conveniently travel to a market using public transport or their own means of transport and can return home the same day. It was argued before that it will be difficult to establish new markets. Although it is possible to construct new market structures it remains the questions whether buyers and sellers will use the place and go there to conduct business. Empty market buildings or market places do not improve access.

The most feasible way of improving access to market places probably is the improvement of the transport system so that people can travel easier, faster, more convenient and

cheaper to the markets they used to use. Improving the transport system includes improvements of the rural road network so that it would be easier to reach the market and also that public transport services can operate in areas where they presently do not. **The IRAP planning procedures should be extended to include planning for improved market access. During the T-2 Training a special session on marketing should be added. IRAP's planning tools should be extended to identify marketing bottlenecks and infrastructure investments to improve market access.**

It is recommended to prepare a separate module on Access and Marketing to be included in the T-2 training. Overlays identifying types of products and market ranges should be used in addition to the social access indicators during the road planning exercise. Staff from the Department of Agriculture and Forestry and the Department of Handicrafts and Industries should be trained to read the maps, analyze the situation and come up with recommendations to improve livelihood opportunities.

Interventions in the transport system, however, would not necessarily solve the problems of those villages that are remote and far away from the market. It is recommended that in sparsely populated hilly and mountainous areas, where construction and maintenance of rural roads is expensive and difficult the existing network of trails, paths and footbridges is upgraded to facilitate transport. Footbridges, for example, can be constructed to facilitate watercrossings and sections of paths and trails can be improved especially if they are steep or slippery during the rainy season. Finally paths can be improved to allow passage of simple means of transport such as carts and sledges. **This component could be included and added to IRAP's Community Participation Component.**

The ILO study on Agriculture and Accessibility concludes that establishing links between "accessibility and marketing" should be one of the most important elements of the IRAP process with the objective to:

1. **Identify and compare different production systems for different levels of market access.** In analyzing and comparing different areas, market ranges and products the planner would be in a better position to identify products that are "adapted" to a certain access situation and could possibly be introduced in an area.
2. **Influence decisions regarding road rehabilitation and construction. Market access should be an important factor in appraising the importance of the road.**

Roads should be identified based on improvements in personal mobility and market access. Improving road access will contribute to an improved market mechanism. Products will reach the market faster and required inputs such as extension services and information can be brought more easily to the communities.

4. Irrigation

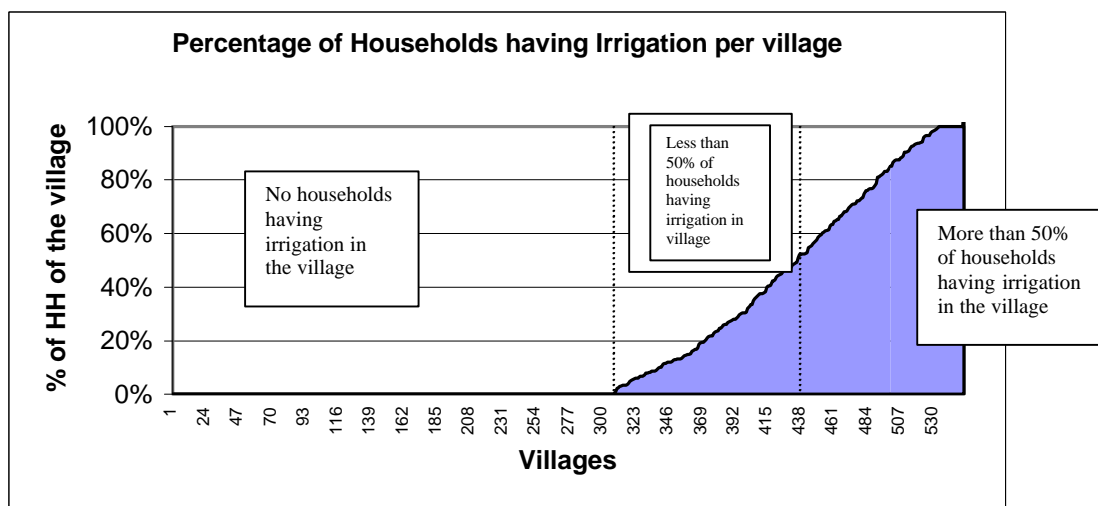
Rural infrastructure includes irrigation systems. Irrigation schemes in Laos are classified by the Department of Irrigation as small-scale community managed schemes, small scale and medium scale schemes and larger schemes. The following table presents an inventory of the existing schemes in the country.

Table 12 : Irrigation Schemes in Lao P.D.R.

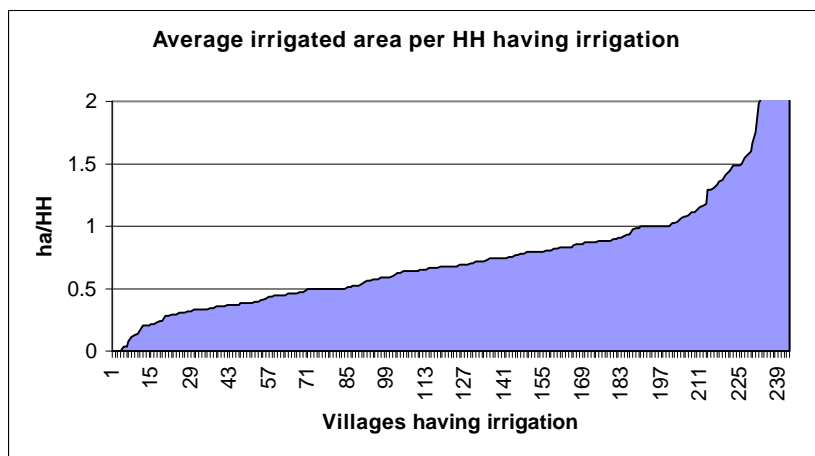
Type	Average Area (hectares)	Total Area in Wet Season	%	Total Area in Dry Season	%
Small-Scale Community Managed	< 50	81,911	56	1,100	5
Small and Medium Scale	50 to 100	56,489	39	17,640	80
Large Scale	>100	6,600	5	3,200	15
Total		145,000		21,940	

Source: Strategy for Irrigation Development Plan (1996-2000)

The following graphs show the percentage of households having irrigation in 551 selected villages in Sayaboury, Xieng Khouang and Sekong provinces and the average irrigated area for households having irrigation.



The graphs show that in the selected villages about 40% of the households have irrigated fields but the average size is less than a hectare each.



Many farmers barely meet their subsistence needs with the wet season crop of rice. Much of the water is wasted because of the lack of any form of control systems. In the case of small scale, community managed, irrigation projects the objective is often more to do with food security than with cash crop production. The immediate need for a small scale irrigation scheme often is to provide better control of the water in the wet season either to secure the cultivation of the already cultivated land or to expand the area of wet season cultivation. Given that many of the small scale schemes are concerned with either securing or in some cases expanding wet season crop, the overall benefits of improving them may be relatively small.

Small-scale community managed irrigation schemes which draw water from small streams are built by the villagers themselves. Sometimes villages have more than one scheme. Many schemes are out of order due to a lack of maintenance or destroyed temporary structures such as earthen dams and wooden supports. To make schemes operational during both seasons small improvements such as the construction of concrete barrages, rehabilitation of the channels, construction of aqueducts etc. are often necessary. These little works could be executed by the villagers themselves with limited outside assistance. Technical support to the villages is often necessary since local people often lack the skills to properly design the desired improvements no matter how minor they could be. A gender study conducted in 1994 narrates some unsuccessful stories of community planned, designed and implemented irrigation schemes in three rural villages:

A village located in Vang Vieng District, Vientiane Province: *"In 1993 the village faced a disaster resulting in a severe drought. Irrigation water was urgently needed, but unfortunately the dam was destroyed by the enormous flow of river water as a result of heavy rains. The damaged weir was the third one which had been reconstructed that year.....Every year it costs a lot of energy, time and resources, especially the wood cutting from the nearest forest, as the distance to transport the wood became greater year after year.....During interviews the farm women told us about the dramatic consequence of this failure of the irrigation dam: they had to sell their buffaloes, take out loans at the rice bank with an enormous interest rate, and the women and girls of the household had to weave day and night to make skirts to sell in order to obtain cash income to buy rice"*

In a village in Khoun District in Xiengkhouang Province “ *Higher there is a small stream which could be used to construct a small irrigation system which would provide enough water for a dry season crop. The women want to have this irrigation very much to grow vegetables for home consumption and to sell at the market. They gave two men the responsibility to set up a plan, and to contact the District Irrigation Office. But, one man died, and the second left the village. Now nobody can undertake this work, and therefore this plan was dropped*”. In another village in the same province in Pek district: “*Three years ago the community decided to set up an irrigation project designed and implemented by all villagers: all men and women were involved in the construction of a weir. The people constructed a traditional irrigation system themselves: a dam with earthen canals. The first time they invested in 500 pieces of wood, but it was washed away with the next rains. The second time they invested in 600 wood blocks and even scrap parts of bombs on the same Nam Nhouanh stream, but at a new place which was also a failure. In this way they wasted 1,000,000 kip and many days of labour (Schenk-Sandbergen, 1995)*”

4.2 Recommendations for IRAP

The planning and prioritization of medium and large-scale irrigation scheme improvement projects should be done by a technical department. The required amount of information is rather large and technical and can not be collected with the present IRAP survey instrument. **IRAP should not go into the planning and prioritization of irrigation schemes at the district or provincial level. This function should be left with the Department of Irrigation. IRAP could assist however in providing data on the areas concerned.**

Planning and design of small scale irrigation scheme is a bottom up process initiated at the village level. This is where IRAP could come in. Villages could be assisted to identify schemes and prepare plans and budgets that specify local contributions such as labour components in collecting sand and gravel, weir construction and excavating the canal and third party donations including hand tools, cement and reinforced steel. This component could be strengthened under IRAP’s Community Participatory Component.

5. Recommendations

IRAP works at two levels: at the village level to identify inter-sectoral priorities and at the district level to identify intra-sectoral priorities. IGA associated access interventions could be identified and selected at these two levels. The IRAP tools could be applied to identify interventions in the transport system that would benefit certain IGA or non-transport interventions that would enhance the economic performance of a certain area. This chapter summarizes the different recommendations made in this issue paper and recommends what IRAP could and could not do to better link rural accessibility issues with IGA sector requirements.

Include Marketing as a Fifth and Separate Sector amongst IRAP's Family of Sectors.

Although closely linked to the road sector, marketing or access to markets should be dealt with as a separate sector. The success of many IGA depends to a large extent on local demand and market access. IRAP should develop an expanded training module and a framework for analysis and procedures to identify interventions which could improve market access. IRAP's planning tools should be modified accordingly.

Develop an IGA Mapping Component and IGA Indicators using its Existing Data Base

IRAP could provide IGA concerned institutions with base line information and IRAP should develop and add a new set of maps and overlays to its present set showing types of products produced, marketing characteristics and transport corridors. Such information would be informative for other IGA supporting institutions and, at the same time, could assist in identifying interventions either in the transport system or in different IGA support services with the objective to improve the performance of different IGA sub-sectors. Similar, IRAP should add a new category of indicators to its present indicators to, as with the maps, preliminary identify potential areas for external assistance and monitor and evaluate performance of different initiatives.

It is recommended to develop and pilot-test this component in Sayaboury province where the provincial project expert has an agricultural background and where different development projects are starting up all having an IGA component. The purpose would be to see how useful the tool would be for other organizations in identifying areas for assisting the IGA sub-sectors.

Increase the Value of Market Access in the Road Selection Procedures

IRAP needs to review its rural road selection process and probably put more value on market access by increasing its weight. The potential IGA associated benefits should be

better assessed during the T-2 training. It is recommended to improve the rural road selection model and pay more attention to IGA activities in road areas of influence. Analyzing existing market patterns from the IRAP data base could help in predicting responses to road improvements.

Appreciate the Importance of River Transport

The importance of water transport should be recognized and dealt with during the T-2 training. River access, for example, should be one of the determining factors in prioritizing areas for improving road access.

Planning for Improved Village Infrastructure in relation to IGA

Community meetings could be organized to identify and discuss specific access issues related to IGA. Once access bottlenecks and other access problems are identified communities could be assisted to identify, design and implement specific interventions that could overcome these problems. Communities could be motivated, trained and assisted to improve the local network of tracks, trails and water-crossings. The trails and tracks rural people use, are in fact “their roads” and transport or accessibility would be facilitated if the network of local transport infrastructure is improved. A present example is Mokven zone in Oudomxai where the project is assisting selected local communities to improve a track down the hill to the main trading village and port. Planning for improved infrastructure at the Government level is difficult since improving trails and tracks is not a Government priority and resources are not allocated for this purpose. IRAP however could collaborate with area development projects that have an IGA component and focus on improving rural accessibility through interventions in the village infrastructure.

Promoting the Use of Low Cost Means of Transport (LCMT) to Facilitate Transport

IRAP could promote the use of LCMTs such as hand-tractors, bicycles, boats and pack-animals in order to improve rural access. Most transport in rural Laos takes place either on foot or by LCMTs. Along similar lines as the “village infrastructure” component IRAP could assist communities in identifying and purchasing LCMTs. Again this will have to be part of a broader development initiative under the umbrella of an area development programme.

Assist in the Development of Transport Services

Transport services are provided by the private sector. Through its community participatory procedures IRAP could, again under the umbrella of a larger rural development initiative, stimulate potential entrepreneurs in purchasing a vehicle and operating a transport business. Rural people could be encouraged through training, credit and advice on how and where to operate transport services.

Include Planning for Irrigation Schemes only at the Village Level.

Rural infrastructure includes irrigation. It is recommended however to **not** add irrigation to the IRAP family of sectors. It would be extremely difficult to collect sufficient data with the village level questionnaire to be able to identify and prioritize irrigation schemes at the district level. Planning for irrigation is a complicated task that heavily relies on more sophisticated data inputs. IRAP's present framework of analysis can not be used to identify and prioritize irrigation schemes. However at the village level it would be possible to identify and plan schemes using IRAP's community participation procedures. In Oudomxai the project assisted communities to identify their relative priorities including small scale irrigation schemes and to design and implement some of the schemes prioritized. It is recommended to develop a cut-off figure for the cost per hectare irrigated in order to assess whether external inputs to scheme improvement are feasible or not.

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