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Economic and Social Justifications of Rural Transport :

The Design of the Rural Access Programme, Nepal

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Social and Economic Justification of Rural Transport in Nepal

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List of Abbreviations

ADB	Asian Development Bank
BBLL	Bridge Building at the Local Level
CBO	Community Based Organisation
CEAPRED	Centre for Environmental Agricultural Policy Research Extension and Development
DDC	District Development Committee
DFID	Department for International Development
DoLIDAR	Department of Local Infrastructure Development and Agricultural Roads
DoR	Department of Roads
DTMP	District Transport Master Plan
EA/EDA	Enterprise Adviser / Enterprise Development Adviser
ED	Enterprise Development
EPI	Enhancing and Protecting Interventions
GTZ	German Agency for Technical Co-operation
HMGN	His Majesty's Government of Nepal
IG	Income Generation
INGO	International Non-Governmental Organisation
LBES	Labour based, environmentally sound
M & E	Monitoring and Evaluation
MoLD	Ministry of Local Development
NGO	Non-Governmental Organisation
PAF	Project Affected Family
RAP	Rural Access Programme
RBG	Road Building Group
RCIW	Rural Community Infrastructure Works
SDC	Swiss Agency for Development Co-operation
STD	Sexually Transmitted Desease
VDC	Village Development Committee

1 EXECUTIVE SUMMARY

The UK's Department for International Development (DFID) has helped Nepal to develop its main road network for over the last 20 years, together with other bilateral and multilateral development partners. Valuable lessons have been learned about roads and their impact on poverty. In September 1999, DFID's involvement was extended to the **Rural Access Programme (RAP)**, beginning with a comprehensive research and design phase which lasted some 12 months. This paper looks at the major social and economic issues identified and how these were tackled in the design of the programme.

From the outset, questions were raised about how far improvement of the network of roads, trails and foot bridges in rural areas could go towards enabling people to improve their economic condition and physical welfare.

An **Impact Review** of previous projects showed that in Nepal the very poor find it difficult to benefit unless special, additional support is provided. If RAP was to achieve its purpose, which is to improve peoples' access to a much wider range of goods, services, jobs and markets, then the RAP design would need do more than simply improve physical access through building new roads.

Building on these conclusions, the **strategic direction of RAP** was designed around a set of "*transport plus*" outcomes and activities in six selected districts in Nepal. The majority of people in these remote areas are poor by any classification and the access problems they face include non-physical barriers of social disadvantage and exclusion. The programme design therefore developed a series of additional measures, called **Enhancing and Protecting Interventions (EPIs)**, designed to allow poor people to take advantage of new social and economic opportunities created by better physical access.

At the district level, RAP is designed to improve significantly access to valued goods and services for some 750,000 people and have indirect impacts on a further 400,000, a total of 1.2 million people.

The main **outputs of the RAP design** are :

- To help create within the rural transport sector a *policy environment that is supportive of effective rural access*
- To establish channels of information *to promote lesson learning*
- To enable *local institutions to plan, and then build, manage and maintain transport infrastructure* in response to local needs
- To enable the *poor and disadvantaged to benefit both socially and economically* from opportunities arising from improved access in RAP areas.
- To provide *knowledge and information* in RAP areas on sustainable enterprise opportunities

The main **physical impacts** are :

- a *feeder road* (89 km) linking Bhojpur district to the main road network
- some *500 km of district roads* in five districts, built using local labour and designed to bring 70% of the population within half a day's walk of a road
- *upgrading of trails and footbridges* linking into these roads and beyond
- a second "RAP approach" feeder road in the ADB's Fourth Road Improvement Project

RAP is seen as a **pilot programme for introducing innovations** and incorporates a developmental approach that uses grass roots planning to harness local will and promote local self-governance. To promote **lesson learning** for other programmes, RAP has an M&E component in its implementation phase, which will evaluate the impact of using labour-based construction practices that are environmentally sound, and do not hurt the interests of the poor. It will also monitor progress at the district level towards sector targets derived from the National Development Plan and translated into **access indicators** as shown below.

Figure 1 : Access Indicators and Targets

Sector	**Access Indicator** January (2001)	**Target 2004**	**Implementation Programme**
Health	Average travel time to health post is 2.5 hours	90% of all households within 1.5 hours of health post	Improve trails/ HMGN to construct healthposts according to standard
Rural Roads	33% of population less than half day walk to roadhead	75% 0f district population within half day walk of roadhead	Construct district roads
Markets	Average travel time to Hat Bazaar 2.8 hours	80% of all households to be within 1.5 hours of Hat Bazaar	Relocate markets to new roadhead
Education	Average walking time to primary schools is 50 minutes	No pupils to have more that 1hour journey to school	Improve trails / HMGN to build new schools

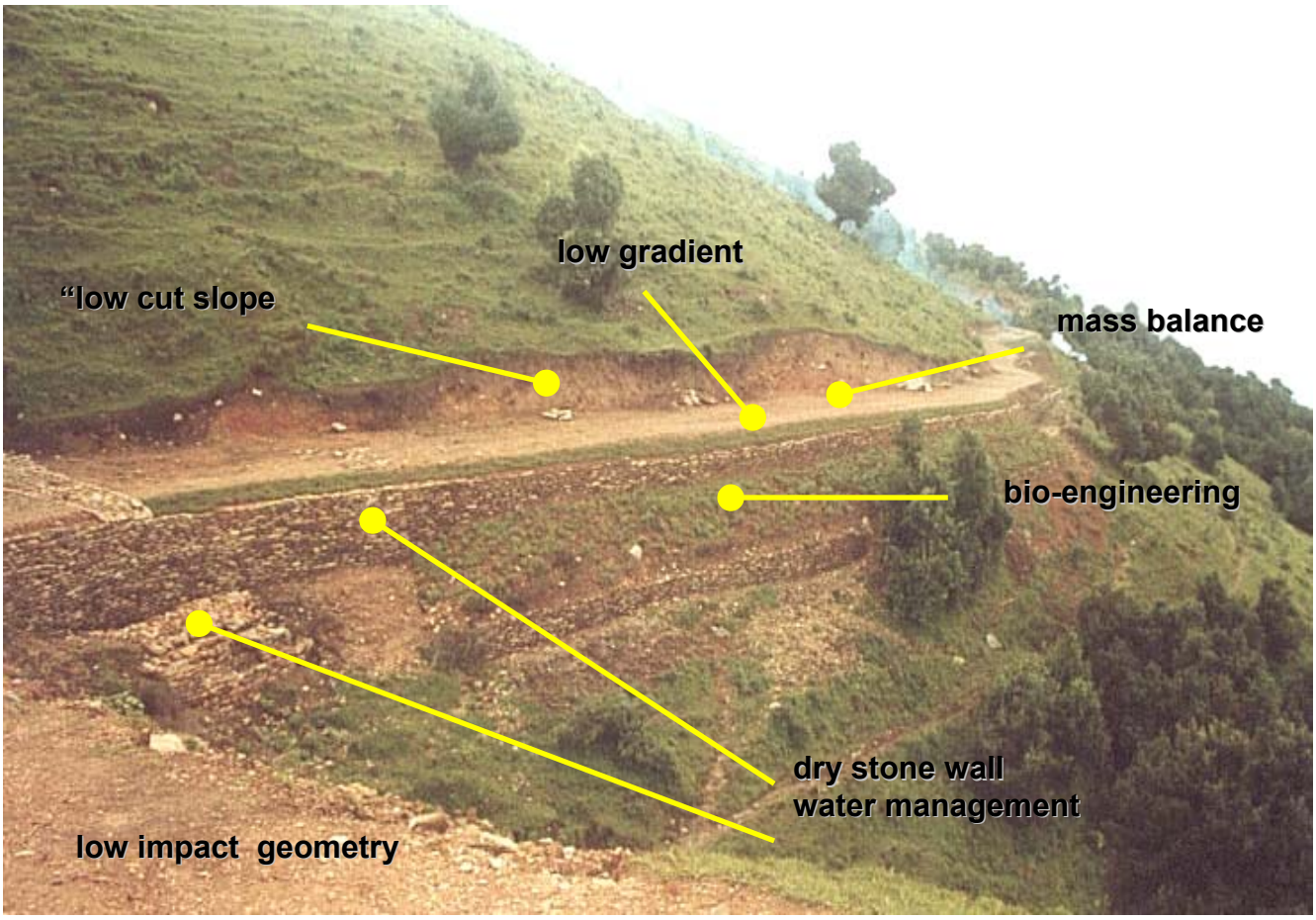
Following the completion of the basic RAP design, a so-called Bridging Phase of six months was approved by DFID where the primary objective was to develop an **Implementation Plan** and ensure full commitment by Government of Nepal to the basic process approach of RAP. With hindsight, this aspect of the design of RAP was probably of equal importance to the innovative work on engineering, social development and enterprise development. This paper therefore concludes with a first step towards the development of a framework for tackling these **institutional** issues explicitly to inform programme design on other projects.

2 RURAL ACCESS IMPACT REVIEW

Since the purpose of RAP is that poor people will realise social and economic benefits through improved transport infrastructure, the design phase for RAP began with a comprehensive review of the scale and conditions of poverty in rural Nepal (with particular reference to the proposed RAP areas of operation), as well as assessments of the impact of previous projects on the social and economic conditions of the poor.

The RAP Impact Study differentiated between three distinct periods of road construction in Nepal. During the first period (mid-1950s to mid 1970s) the main concern was to construct a strategic road network, with 'nation-building' as a primary objective. Here, engineering considerations often took priority over economic justification. The following period (mid-1970s to early-1990s) was an era of integrated rural development projects (IRDPs), where road and transport development was viewed within the context of general economic development. Studies focussed on the economic impact of roads, and particularly their effect in promoting increased agricultural production in the areas they served. Finally, in the most recent period (mid-1990s to the present) the emphasis has been on the social and environmental consequences of road construction. The '**green road**' concept was developed, and emphasis placed on the poverty-alleviation effect of a gradualist, labour-based, environmentally sound (LBES) approach to road planning and construction.

Figure 2 : Main Elements of the Green Road Concept developed in Nepal



Regarding **social impacts** were identified in the review, there was little direct evidence of the poorest people getting better access to health and education services, but there were improvements to nutrition in cases where labour was paid partly in food. The strengthening of supportive social and kinship networks was another consequence of increased mobility, and this was of particular importance to women who were often able to re-establish links with their families of origin. Of particular importance in the RAP context was the evidence that community planning does work, and that, at the local level, the green road approach can and does create a consciousness of the rural access concept and of the reality of decentralised provision of services.

The attempt to disaggregate findings to identify the impact on **poor and disadvantaged, individuals** was constrained by the fact that it is only more recently that projects have undertaken the kind of detailed and differentiated evaluation required. The evidence showed that labour-based approaches which were targeted towards the poorer and excluded groups, did have some positive impact on them. Children were also likely to benefit in terms of increased real access to education. The impact on women appears mixed, with increased access to cash, in some cases due to construction employment, but the increasing feminisation of agriculture resulting from male migration is placing increased burdens in other cases.

The **economic** impact was found to be generally positive in the area of trade, markets and prices, and in the effects on labour employment during construction. There was some positive impact on mobility for the poorest groups, and there was some evidence that non-farm income-generation opportunities increased, even for poorer people. Where complementary, EPI type interventions were absent, there was evidence that there was a negative impact on portering, especially female short-haul porters who were tied to a specific locality. In other areas, impacts were neutral or mixed. In agriculture the main winners were the better-off farmers, and it was evident that subsistence farmers needed additional inputs to enable them to respond to the opportunities opened up by the road. The impact on the development of trading centres was mixed, some market centres declining, others growing, in responses to new transport corridors emerging.

In **summary**, the impact review shows there is evidence that transport programmes can have a positive impact in terms of improved access to financial, physical and natural capital but that there is less evidence of increased access to social and human capital. For projects implemented before the 1990s, the impact review shows that those who benefited most in the longer term tended to be the better off members of the community. The 'losers' tended to be those in traditional employment, such as porters or people whose livelihoods were based around pre-existing centres that were by-passed and subsequently declined. However, there is little evidence that these groups suffer long term negative impacts.

Where the anticipated benefits did not materialise, it was often because certain groups of people were unable to respond to new access opportunities. These were the poorest households who did not produce surplus or who were in food deficit. In terms of employment and income generating opportunities, they often lacked even the low level of capital required to enter the informal sector, or could not afford to take the risk in a situation of uncertainty. They did not have the knowledge to identify reliable market possibilities nor the ability to draw on social networks to establish co-operatives. Where the poor did benefit it was generally short term only, linked to the injection of resources through the use of local labour in construction.

The **conclusion** from the impact review was therefore that even if the poor were able to earn money by participating in the construction of a road, without serious and carefully designed complementary interventions such as EPIs, the impact of a road on the poor and disadvantaged is generally not positive.

2.1 Impact Review Recommendations for RAP Design

The figures below draw together the recommendations of the Impact Review for the design of RAP in terms of EPI's that will maximise the social and economic and economic benefits for the poor, and that, where possible, will minimise adverse effects of new physical access.

Figure 3 : Social Development Recommendations For RAP Design

Social Impacts
- Emphasise the relation between roads and rural access at all levels
- Liaise with providers of services to coordinate activities and allocate resources in response to changed demand
- Promote the importance of education – support removal of obstacles to access for poor households in labour gangs
- Carry out study into end-user perceptions of quality of service and support initiatives to improve quality

Institutional & Rural Access Impacts
- Interact with a range of stakeholders at a local level through village user groups involvement in DTMP preparation and beyond
- Encourage bottom-up planning and transparent systems accountability.

Social Mobility
- Support interaction between user groups in different RAP locations, especially for women and excluded groups
- Support inter VDC exchanges

Impacts on the Excluded and Vulnerable
- Ensure that data disaggregated for the M&E studies
- Raise awareness of the importance of recognising excluded groups as having distinct needs (especially disabled / chronically sick)
- Identify obstacles to service access for excluded groups and support sustainable interventions to increase level of inclusion
- Carry out study into excluded groups (eg dalits) to incorporate learning into RAP design

Gender Impacts
- Promote gender awareness throughout the project
- Ensure collection of gender disaggregated data
- Identify strategy to ensure women get access to employment through RAP
- Ensure employment of women and men with appropriate equitable pay and conditions
- Identify specific groups of women who may lose employment opportunities due to road construction (eg women short haul porters, petty traders along trails etc

Figure 4 : Economic Recommendations For RAP Design

Agriculture
- Identify locally specific opportunities for on-farm potential
- Promote representation of small subsistence farmers in user groups
- Provide training / support programmes tailored to meet their specific constraints (low-risk, low resources)
- Identify obstacles which prevent anticipated benefits actually taking place
- Carry out a review of the role of rural roads in stimulating agricultural economic growth

Trade Markets and Prices
- Identify local potential for increased cash crop production
- Provide information concerning markets (through private sector, HMGN and NGO services)
- Support the establishment of co-operatives to build solidarity and reduce individual risk in terms of producing and marketing goods

Labour During Construction
- Provide longer-term employment over a period of years
- Identify optimal targeting that self-selects target poorest households but does not disrupt social cohesion
- Ensure that target households are aware of the 'guarantee' of work to help them plan their livelihood strategies
- Support community level response to labour opportunities with capacity building for user groups
- Encourage transfer of skills to non-road activities

Income Generation & Employment
- Identify non-farm employment opportunities and support
- Identify craft opportunities linked to road construction and support (e.g. hand-tools production)
- Ensure that road alignments do not simply favour the richest communities
- Protect excluded groups from speculative land purchasing.
- Ensure that women made aware of compensation payments to their husbands

Portering
- Use local porters for RAP construction portering needs
- Identify strategy to train porters for alternative employment
- Carry out study (secondary data and action research) to identify response of porters to road construction
- Develop a RAP strategy for short and long-haul porters.

Growth Centres
- Encourage community based monitoring of impact of growth in emerging centres
- Respond as appropriate with awareness raising
- Develop a strategy to deal with issues of STDs and HIV AIDS linked to road provision
-

Mobility & Migration
- Carry out RAP study into impact of migration
- Provide information on seasonal work with RAP to allow households to plan migration

3 THE RAP ENGINEERING APPROACH

At the outset of the design it was known that roads would be the biggest component of RAP and the existing characteristics of the different types of infrastructure and the institutional responsibility for them are summarised in Figure 5. However, the initial review period at the beginning of the design phase meant that RAP engineers were able to assess the cumulative experience of almost fifty years of road construction in Nepal before choosing the RAP engineering approach. The approach chosen will be an adapted "labour based environmentally sound" approach1, extended to take account of lessons learnt on earlier projects in Nepal, with further development and promotion of the social development and worker welfare aspects in line with the recommendations made by the Rural Access Impact Review.

Figure 5 Comparison of transport infrastructure classes

Infrastructure element	Feeder road	District roads	Village roads	Trails, foot bridges, etc.
Institutional owner	Department of Roads	DDC (supported by DoLIDAR)	Village Development Committee	DDC under MoLD
Traffic specification	All vehicles	Light vehicles plus mini-trucks & buses	Light vehicles only	Pedestrian
Construction specification	Gravel surface, high geometric standard	Earth/gravel surface, slightly lower geometric standard	Earth surface, lower geometric standard	Terrain regulated

Definitions as provided in DoR's Design Standards for Feeder Roads (1997) and DoLIDAR's Nepal Rural Road Standard (2055). (Quoted in Annex II-2 in DoLIDAR, 1999)

While the construction programme concentrates on physical access, the approach also addresses the broader rural livelihood issues, in line with DFID's country strategy. This is achieved mainly by:

- advanced awareness-raising to ensure equitable compensation in land acquisition;
- minimum reliance on outside technology and resources;
- maximum reliance on local labour;2
- careful programming of works to fit with labour availability determined by local seasonal variations and cultural environment;
- detailed assessments and monitoring of the social and natural resource environments.3

3.1 The "RAP Road" Concept

RAP's roads are to labour-based roads, planned, constructed, operated and maintained in a phased manner that minimises environmental disturbance. They are to be planned in a

1 See Meyer *et al* (1999) for further treatment of the approach.

2 An estimated 65% of the construction cost will be wages to poorer people, giving immediate benefits to a significant number of households. Reliance on local day labour avoids the need for labour camps that may lead to various social problems and result in remittance of earnings to areas outside the district.

3 These form the basis for mitigation measures (including gender concerns) and enabling interventions that maximise opportunities for local people.

participatory way that encourages clear ownership by local authorities and local people are to beemployed, to the maximum extent, in their construction.

RAP proposes to use this methodology in Feeder Road construction for the first time. For District Roads, RAP proposes to extend current labour-based, environmentally sound road techniques to emphasise maintenance over the long term, and to be more sensitive to the social and economic issues. Finally, the RAP roads concept is not static and will need to respond to changes in local conditions during the implementation phase.

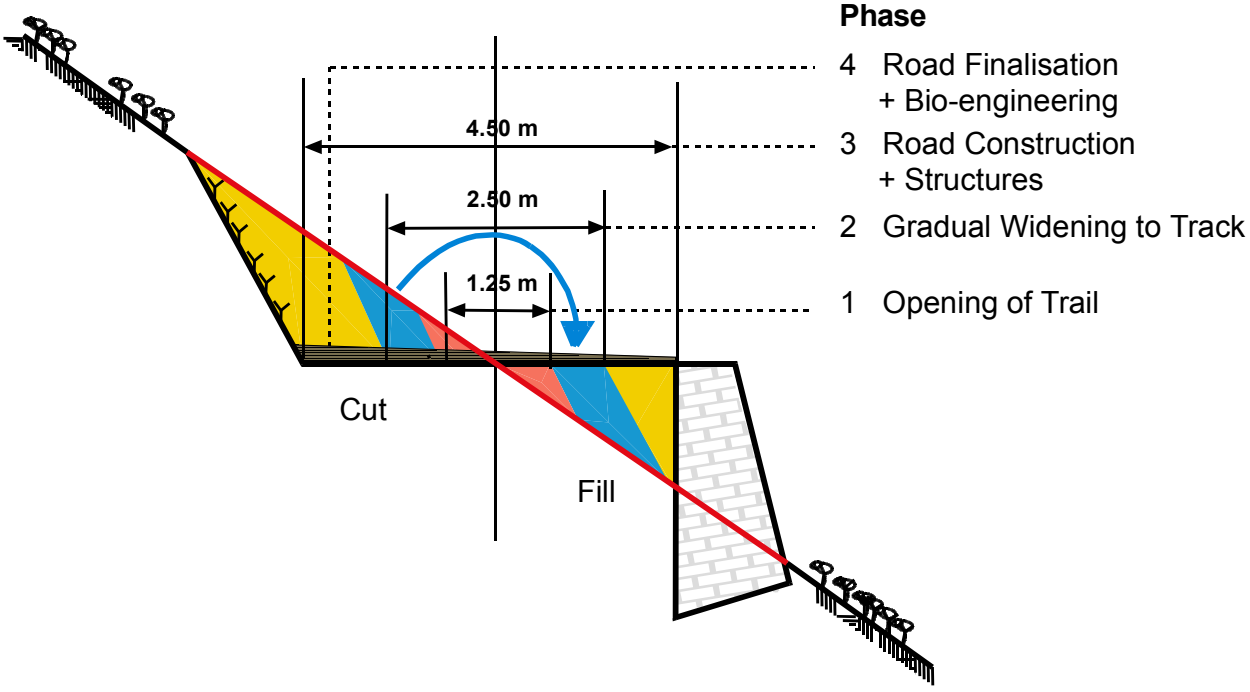
3.2 Main advantages of the Approach

Construction will be labour-based. It will follow a phased approach to road development, using the cut and fill method to achieve mass balance, and progressively extend the road cross-section according to actual traffic volume (see Figure 6). This will allow the new construction to settle better into the fragile hill environment, resulting in a reduced impact spread over a longer period of time.

A rapid start-up will demonstrate commitment by RAP and reinforce local ownership and support for the programme. Four or five years of sustained activity will allow consolidation and a gradual transition into the all important maintenance phase and provide steady employment for locally based, labour groups living within the road corridor. This part of RAP's engineering approach aims to avoid the difficulties and negative outcomes observed in other road projects. It also aims to avoid loss of interest and involvement and the risk of a hand-over to an unprepared and uncommitted owner.

The approach is technically appropriate and institutionally acceptable to the three ownership organisations (DoR, DDC and VDC) and is compatible with established HMGN procedures and allows RAP to provide useful learning opportunities for their staff.

Figure 6 : "RAP Road" Concept of Phased Road Construction



3.3 Implementation Method

Feeder road construction will be implemented using what will be an innovative approach for DoR. In the first year the full route will be opened up to a width of 2.5 metres. This will demonstrate commitment and allow light vehicle use at an early stage. The road will then be progressively upgraded in accordance with DoR procedure. The initial construction, involving mainly bulk earthworks, will be implemented using locally-hired labour groups. A DoR project manager with technical staff seconded from within the department will head the project management unit.

District and village road construction will follow standards and guidelines produced by DoLIDAR, and incorporate the lessons learned from SDC and GTZ projects in recent years. Projects will be implemented through the respective DDCs and VDCs, who will engage local consultants for supervision and technical co-operation. These institutions will be supported in training and regulatory aspects by DoLIDAR.

A programme of investment in trails, pedestrian bridges and footpaths will ensure that improvements in rural access extend district-wide. This infrastructure is not considered in the current planning system of DTMP preparation. RAP will play a catalytic role, using the annual planning cycle at DDC and VDC level to involve a wide range of stakeholders in the process of reviewing rural access needs and prioritising support to trail and bridge improvements. In some situations, the process is likely to be incremental and organic – monitoring the changing traffic patterns resulting from the new roads. In other cases, the interventions may be completely unconnected with the RAP roads: for example the provision of a safe river crossing on a trail linking two centres (inter-village access), or even upgrading a small path which provides access to a key resource within a village (intra-village access).

Trails and bridges will be identified in response to local community needs. There is no provision for paid labour for these activities within the RAP budget, and communities will decide what approach to take, either by voluntary labour contribution, or paid from the DDC/VDC budget.

3.4 Enhancing And Protecting Interventions

The 'transport' element of RAP is supported by extensive complementary activities' including support to accessibility planning, institutional capacity building, policy initiatives, enterprise development and development co-ordination. Enhancing and Protecting Interventions' (EPIs) are targeted to the poorest and excluded: (1) Mitigating and Protecting Interventions reduce the negative impacts of road construction; (2) Enabling interventions reduce barriers which may prevent them taking direct advantage of project related benefits; (3) Enhancing interventions ensure they can benefit from the wider longer term social and economic opportunities the road may bring.

Under RAP, the EPIs will involve mainly 'knowledge' oriented interventions to ensure that affected stakeholders are informed about RAP and are aware of the opportunities it will bring, and are then able to participate in access-related decision-making processes that affect their lives. EPIs are not a discrete separate pre-defined set of interventions, but should be considered in relation to every other activity within the RAP programme. They can be applied anywhere within a district and at any time during project implementation.

EPIs will be implemented primarily by social mobilisers managed by NGOs recruited through the DDC/RAP partnerships at district level. Where specialist advice is needed this will also be out-sourced . RAP will provide co-ordinating support through a district-level RAP Social Developer.

The initial range of Enhancing and Protecting Interventions are identified below :

(1) Mitigating and protecting interventions will:

- Inform programme affected families (PAFs) about the potential impact of the programme
- Establish local committees to resolve issues of compensation for PAFs
- Support alternative livelihood strategies for PAFs from poor and excluded
- Raise awareness on the social costs of alcohol , prostitution and gambling
- Establish and support community audit systems
- Raise Awareness of health, safety and welfare issues through training
- Ensure social welfare of road building groups

(2) Enabling interventions will:

- Initiate dialogues and meetings with wide range of stakeholders
- Identify profiles for RBGs, agee weighting criteria with VDC community groups
- Sensitise contractor/consultants to social development / RAP approach
- Play a catalytic role, encouraging consensus in local level decision-making
- Communicate with politicians, road building groups and the local communities
- Provide assistance to mobilise local people
- Train NGOs to support road building groups
- Promote transparent decision-making within the programme
- Witness labour payment for work
- Challenge discrimination against women or excluded groups in wages or work
- Maintain a 30% minimum target quota for women workers and promote women-only labour gangs (including women Sahajkarta and supervisors)
- Ensure consideration of issues of child labour and child care
- Raise awareness of rights of women and socially excluded; and benefits of education (especially for girls)
- Provide administrative assistance to the road building groups (RBGs)
- Provide information and training in savings group formation
- Support provision of literacy / basic numeracy / book-keeping
- Provide first aid equipment and training
- Support solidarity networks
- Co-ordinate with other donor / development initiatives for parallel funding

(3) Enhancing Interventions will:

- Promote the establishment of revolving funds for RBG
- Provide information on income generating opportunities
- Support co-operatives with information / training
- Liase with marketing organisations to promote increased trade
- Provide support to village level organisations in development planning
- Build capacity for excluded groups to voice their needs (communication skills, leadership skills, confidence building, advocacy)
- Provide two-way channels of information flow to inform access decisions
- Share findings of accessibility database with local community

4 BUILDING ON RAP ROADS – SHORT TERM ISSUES

The way in which EPIs are to be applied is discussed below broken into in three sections, which relate to their timing during implementation, with short term issues being those associated with construction.

4.1 Road Building Groups

The RAP design provides for over 1000 Road Building Groups (RBGs), each of approximately 15 – 20 members. The labour will be recruited from local communities, using existing community structures (formal and informal) thereby enhancing existing social networks, whilst avoiding (as far as possible) socially disruptive labour camps. The total number of local people involved in the RBGs will be approximately 19,000, selected from among the poor, with priority given to the poorest and excluded. With an average income of Rs 15,000 per person (£150) per construction season, the earnings from membership of a RBG will contribute significantly to their total household incomes,4 and enable them to develop savings and credit groups within a three-year construction horizon to support new livelihood strategies.

Working with local communities within a zone of labour, (see Figure 7) RAP will establish local 'representational profiles' (wealth ranking, seasonal migration, calendars, etc) to provide an indication of which households are eligible for RBG membership. These will include the poorest and excluded (30 % women, dalits etc., depending upon local circumstances). The criteria for prioritisation will be agreed with the community before selection occurs, with an agreed weighting for households with a high ratio of dependants (children under 14, elderly persons, sick and disabled persons, etc.)

A 30% target for inclusion of women in RBGs provides a minimum level at which all groups must start: it is anticipated that these levels will rise over time. Where possible and appropriate there is provision for women only RBGs (successful elsewhere in Nepal), and a parallel set of support to ensure that at least 30% of facilitators (sahajkartas) are women. This environment will be more supportive of women working flexible hours and work-sharing among larger number of members. While RAP recognises that the commitment to 100 – 150 working days to the RBG may increase the burden on women, there is a trade off with the opportunity for increased economic independence resulting from relatively significant wage earnings.

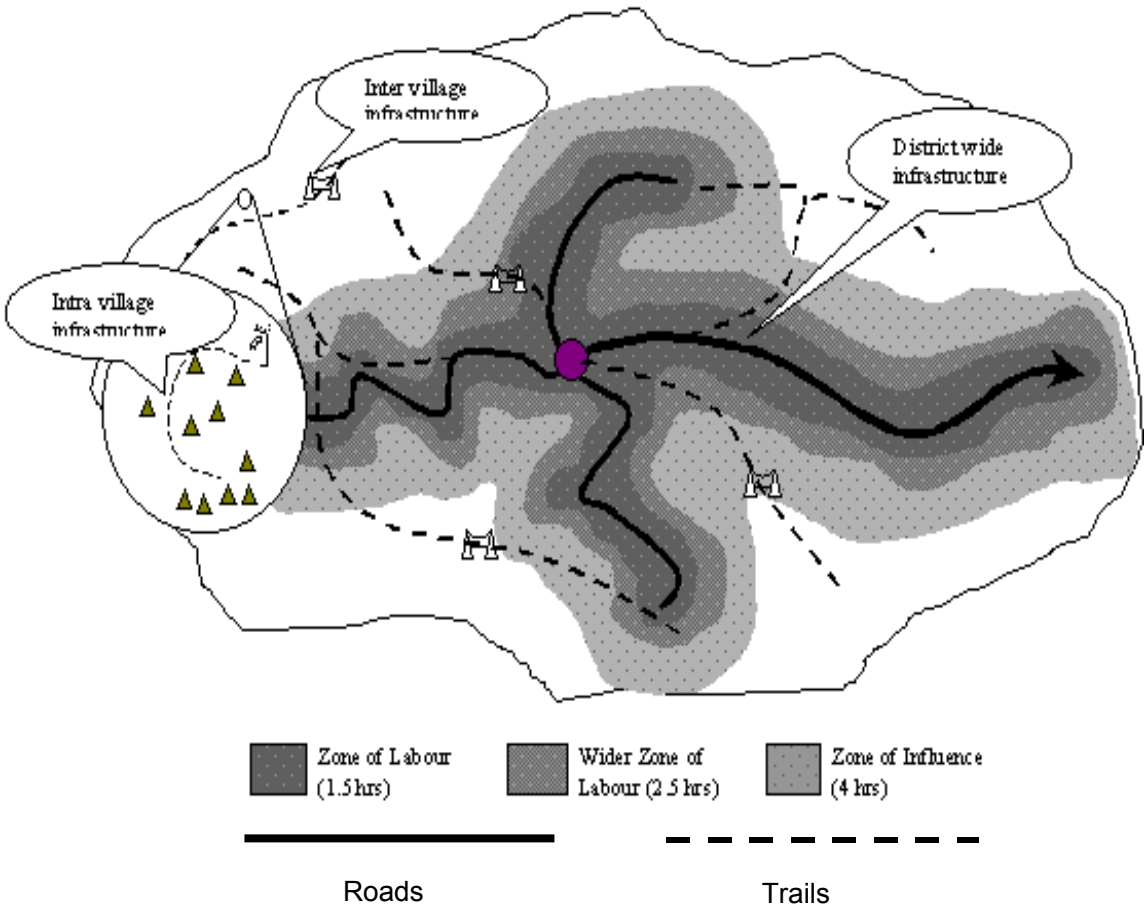
Poor households with young children may find it difficult to provide individuals to participate in the RBGs and RAP will support childcare provision for such households, possibly involving individuals otherwise unavailable to benefit from the RBGs (eg elderly persons and disabled persons). RAP will promote local community involvement in ensuring children under 14 are safe and not working. It will also establish baseline data on school attendance to ensure that RAP does not encourage dropouts.

4.2 RBG Working Conditions & 'public audit' Transparency

It is essential that wages and conditions of employment for RBGs are equitable and that the approach is understood and shared by all the stakeholders. The project will be implemented through partners at DDC and VDC level. The wage rate, based on an 8-hour day, will be agreed with the DDC and will apply across the whole district. Under RAP, a 'mixed labour payment system' is proposed to provide a guaranteed daily wage to the RBG members, while using rewards calculated on the basis of 'surplus output' as an incentive for productivity. A core principle is equal pay for same work. The principle of 20 % savings will be agreed at the outset. Once work targets are agreed, RBGs will implement the tasks required to meet their own time availability.

[4] The poverty line for Nepal is set at Rs 4560 pc pa (£42), ie a household income of £252 per year

Figure 7 : RBG Zones of Influence



RBG members, facilitators and their households within the immediate zone-of labour **Location:** 1.5 hrs walking time from the proposed roads (zone-of-labour) **The people:** Poorest and excluded (lowest 30%) **Numbers**: 19,000 persons in RBGs 114,000 within RBG households (assuming one RBG member per household) **Physical infrastructure:** Feeder road, rural roads
Households, and communities within the wider zone-of-labour **Location:** 2.5 hrs walking time from the proposed roads (wider zone-of-influence) **The people:** Poorest and excluded (lowest 30%) **Numbers**: 350,000 (approx) **Physical infrastructure:** Feeder road, rural roads
Poor households, and communities in wider zone of road influence **Location:** half days walk from a roadhead **The people:** all members of the community (inclusive) **Numbers:** 70% population at project end (700,000+) **Physical infrastructure:** Feeder road, rural roads, trails, bridges and footpaths
Poor households, and communities outside the 70% zone of influence **Location:** more than half days walk from a roadhead **The people:** all members of the community (inclusive) **Numbers:** 30% of total population (300,000) **Physical infrastructure:** Trails , bridges, and footpaths

RAP will promote transparency through the use of a community based monitoring system (also referred to as 'public audit'), drawing on guidelines from Helvetas, Green Roads and Rural Community Infrastructure Works (RCIW). The use of this system was identified as a major positive impact of the Bridge Building at a Local Level (BBLL), with positive knock-on effects on local decision-making and governance. The approach promotes access to information and knowledge and provides a clear system for display of core (and changing) information which affects the lives of local people. RBG sahajkartas (leaders) will be expected to play a critical role here.

RAP will encourage regular public forums in which to verify that rights and responsibilities have been respected. The explicit discussion and setting of project norms in respect of 'critical issues' like children, equity, 'social evils', rent-seeking avoidance, strengthens the shared responsibility for these issues across the community as a whole. This approach promotes a clear system of transparency, accountability and redress where deviation from the norm is identified.

4.3 The Risks of the LBES RBG Approach

The approach is innovative, especially for the feeder road, and has not yet been fully tested. Approximately 114,000 people from the poorest and excluded households will benefit on the basis of the involvement of one able-bodied adult household member in one of the RBGs. If RAP adheres strictly to the principle that labour camps will not be used, and recruits from a 'zone-of-labour' defined by 2.5 hours travel time to the road site, it is likely that all of the poorest and excluded within this zone could find employment, if they so choose.

In some situations, it may be the case that more labour is required than can be provided by the very poor and excluded households within the zone-of-labour on the anticipated basis of one labourer from each household. In this case, more than one member per household, or people from further away, or individuals from less poor households can be selected.

If, by contrast, very poor and excluded households within the zone-of-labour are so numerous that not all can be involved, then a weighted ranking system will apply, favouring the most excluded. Where individuals are excluded because they cannot spare the labour time (eg households with a high dependency ratio), RAP will encourage communities to establish appropriate local support networks (eg involving them in subsidiary activities like childcare).

There is always the risk that more powerful and better off groups will seize the project benefits, either through inserting 'less poor' household members into the RBGs or by calling on patron-client linkages to extract other benefits. RAP's approach is to promote transparent, criterion-based systems for labour identification and recruitment and to ensure fair wage payment with public audit. However, there is a negative impact of the use of public audit in that payments cannot be made as regularly as possible (the process is resource intensive) – thus causing hardship for poorest members of the working group in the initial weeks of construction.

Although there are risks to the RAP RBG approach to road construction, it is felt that the alternative approaches – using contract labour, or using far larger work groups with fewer labour days per person - would not, on the basis of existing evidence, have any significant impact on livelihoods or on poverty.

Moreover, in terms of organisational flexibility and sustainability, the fact that RAP will operate over 3 seasons and then 2 more years for consolidation in any one location will allow field testing of a range of relationships with RBGs to allow locally appropriate systems to emerge within the

4.4 Rural access & Local Level Decision-Making

The detailed field analysis undertaken for RAP indicates that, at a village level, and within a VDC, communities have their own understanding of rural access. RAP will build on this existing capacity wherever possible throughout the district, through the annual accessibility planning process. , RAP will act as a catalyst to channel information (two way process) between local

people and the institutions that provide services to meet their needs, in order to ensure more effective and equitable resource allocation.

5 BUILDING ON RAP ROADS – MEDIUM TERM ISSUES

5.1 Support for Savings: Revolving Funds

For the RAP RBG approach to have a medium-term impact it is essential that individuals and groups engage from the outset in some form of savings. Without support (in the form of EPIs) there is no guarantee that this will happen, or that the savings will be used productively, or sustainably. Evidence from the field suggests that groups can be persuaded to contribute 20% of their wages voluntarily into a revolving fund, which they own and manage. RAP will provide support (group management, leadership, book-keeping, functional literacy) during the construction period through the social mobilisers and by drawing on external training from specialist NGOs.

Many projects fail to achieve maximum impact because support is withdrawn after the construction period ends, just when new opportunities are emerging. RAP intends in the medium term to develop a maintenance culture should not only apply to roads and other transport infrastructure, but also to the community institutions. After the three seasons of road-building, support will be provided to help the RBGs and their communities consolidate their achievements and extend their activities in a sustainable fashion.

In the medium term this model will be replicated and scaled up to involve the wider community, building on the RBG experience. RAP will provide support to link to formal providers of credit and provide post construction support. If 10% of wages are saved, a community revolving fund will have accumulated $675 by RAP end.

Revolving funds are used for a range of purposes: to pay off existing loans (and therefore reduce interest payments); to overcome financial barriers to access to services like education; to borrow during emergencies (typically health-related); to participate in social ceremonies; and to engage in small-scale Income Generating (employment and micro-enterprise) activities. RAP will provide support to RBGs – primarily through training and the provision of information - to promote productive use of revolving funds for IG activities which are adapted to the low-risk low-resource conditions of the poorest and excluded.

5.2 Limitations to Revolving Funds / Small-scale IG

RAP recognises that similar initiatives (revolving funds / small scale IG) have met with mixed success. Again our conclusions is that, whatever their limitations, without such savings and IG, the short-term gains will be lost. Over the 6 year period, and by working with over 1000 RBGs, and other potential savings and IG groups in the wider zone-of-labour, RAP has an ideal opportunity to investigate a range of approaches, and to encourage the development of locally appropriate responses. RAP will co-ordinate and engage with similar interventions elsewhere to promote two-way learning and exchange of experience. The findings from this learning approach will be disseminated through the RAP project monitoring systems.

5.3 Access to Income Generation Across a District

RAP is concerned to provide support not just to those associated with the RBGs, but, as far as is possible, to the poorest and excluded across each entire project district. RAP intends to benefit these people by enhancing their livelihood strategies through improved opportunities for income generation. For the poorest, although we will encourage micro-enterprise as for the RBGs above, the main income generating opportunities will probably lie in wage employment, either locally or elsewhere. In order for both the poorest to benefit from any increased employment opportunities, there will be have to be complementary activities. These will include providing access to information about employment opportunities and wage rates within the district and outside to increase choice.

6 BUILDING ON RAP ROADS – LONG TERM ISSUES

For those with somewhat more substantial assets, ie the poor with potential and others, improved access to markets will provide new long term enterprise and employment opportunities district-wide. With respect to sustainable enterprise development, RAP proposes a series of activities to support the emergence of increased enterprise activity among the poor with potential. RAP will play a catalytic role, working through a range of HMGN, NGO and private sector partners.

Experience reveals that carefully designed and targeted interventions can have a strong positive impact on improving rural livelihoods. Success in commodity promotion requires proper crop selection and technology and an ability to identify and adapt to market condition. However the very foundation of this effort is not technical support or money, instead it is social mobilisation, which aims to strengthen, community-based organisation (CBO) and their networks (Upadhyaya 2000). Such organisation development and networking are required to interact with market supporting agencies and policy makers.

6.1 Examples of Enterprise Development in Nepal and Implications for RAP

In recent years, many NGOs have been actively involved in enterprise development activities in different parts of rural Nepal. The impacts of such programmes have usually followed the introduction of road access, with off-season vegetable and fruit farming being two areas where successful enterprise development has taken place.

The Centre for Environmental and Agricultural Policy Research Extension and Development (CEAPRED) is one example of a leading NGO that has developed a model of social mobilisation followed by establishment of farmer production groups focussing on fresh vegetable production in areas close to new road access. It has been supporting “Income Generating Projects for Women Farmers” in a number of districts (Kaski, Dhankuta, Kavre) with the ultimate goal of uplifting the socio-economic conditions of women through off-season vegetable cultivation. Several groups have been formed into co-operatives for organised management of production and marketing activities. The box below highlights the success story from CEAPRED Vegetable Production Program in Dhankuta District in eastern Nepal.

Farmers are receiving higher market prices for the earliest harvested and off-season vegetables as compared to normal season fresh vegetables. For example, the price of cauliflower in April is only Rs 2 per kg while in September it fetches a price as high as Rs 50. Many hill areas have the potential to grow off-season vegetables and from this perspective such programmes can have great impact on producer surplus. Many producers have begun to sell off season vegetables across the border in India, an almost unlimited market to Nepali producers.

6.2 Proposed Enterprise Development activities and thrust

Although the resources set aside by RAP for enterprise development (UKP 0.6 million) are small in relation to the enormous potentials and comparative advantage of the RAP districts, success is thought to lie primarily in how well RAP can act as a catalyst in enterprise development activities through capitalising on the relative strengths and successes of existing NGOs working in the field of enterprise development.

Secondary information supplemented by primary survey data is thought to be sufficient to provide a comprehensive understanding of the nature of enterprise development potentials in RAP districts. Baseline data already established in one RAP District as part of the design phase will provide the model to build up a profile of current livelihood strategies and the nature and role of enterprise activities. Such baseline surveys will be undertaken in other districts, together with specific enterprise related case studies during the course of the programme.

Lessons from CEAPRED Vegetable Production Program in Dhankuta District

In recent years, many NGOs have been actively involved in disseminating vegetable production technology in many different parts of rural Nepal and to some highland areas. CEAPRED is one NGO whose effort in vegetable production in the Kosi Hills has brought significant change in the living standards of a large number of farmers living in the Hile-Basantapur area. The project began in 1990. This story is about the success of vegetable farming thorough development of co-operatives of producers for group marketing.

Group organisation was considered the first necessary step to reduce transaction cost for input delivery, technology dissemination and output marketing. Several producer groups were formed and integrated with the entire group having their own executive committees functioning independently. Such groups have provision for raising nominal amounts of saving form the group members on a monthly basis. The accumulated savings are used for lending within groups to provide strong credit security to the villagers. Before moving towards the co-operative, the groups formed a main committee whose function was decision making regarding different activities to undertake. Farmers were then encouraged to form co-operatives to ensure smooth input supply and efficient handling of the output and marketing.

A main feature of the project is the marketing arrangement. A marketing committee was formed comprising seven members from 7 co-operatives. This committee purchased a truck under bank loan to transport vegetable. Having their own transportation means, the farmers did not have to depend on the middlemen to transport their vegetables from the collection centres to markets in Dharan, Biratnagar and even Joban.

Farmers transport the vegetable from their farms to collection centres along the road where sorting and repackaging is done after which the vegetables are transported by the marketing committee in their own trucks to the marketing centre. Reported losses due to poor grading, packing and other factors initially ranged from 10 to 20 percent. Such loss has now been minimised though the use of better packing materials (wooden box). The farmers are charged 5 paisa per kg of vegetable marketed through collection centre which is deposited in the group's savings.

The farm gate price (prevailing at the collection centre) is usually fixed on the basis of the price prevailing in Dharan after deducting costs associated with transportation and loss incurred through transporting and handling. The farm gate price is normally around three-fourths of the retail price in Dharan the remaining one fourth being the marketing cost. The marketing cost is met from group savings.

Co-operative marketing has helped prevent farmer from being cornered by monopsony elements. The farm gate price of the vegetables is usually more than half of the price prevailing in retail markets in the Terai. Depending upon the types of vegetable grown farmers are making 3 to 5 thousands rupees per Ropani and about Rs 15,000 per household from vegetables sale. Farmers are switching from maize cultivation to vegetable cultivation as the returns from vegetables are about 6 times higher. Profitability of vegetables farming has induced farmers to allocate about one fifth of their cultivated land under vegetables production. The land has been systematically withdrawn form maize crop.
Adapted from Banskota and Sharma (1999): High Land Low Land Linkage

6.3 Product Identification and accessible viable market opportunities

Lessons learned from past economic development initiatives in Nepal are that it is difficult to find sustainable sources of income generation for poorer people, particularly those who are in remote hill areas. Some lessons for RAP are to build on initiatives where the hill areas have a comparable advantage (i.e. largely agricultural land and livestock related products) and to develop the scale and quality of production and a higher level of post harvest added value. These type of activities are needed to generate a scale of profits that will cover the additional transaction costs incurred by poorer people supplying products to the market from remoter locations. Identification and development of potential products is not simply a 'supply' side task, it must be undertaken alongside detailed market feasibility work. Looking at both supply and demand issues in parallel is a critical element of the support.

6.4 Identification of partners for supporting enterprise development work

There has been a strong emphasis on working with NGOs who have been proved to be effective partners in developing and delivering Enterprise Development (ED) projects. The commonly held view is that the public sector is too inflexible and bureaucratic to effectively deliver or even facilitate services. However there has been growing recognition that governments are important and influential stakeholders in creating a positive enabling environment for Enterprise Development, particularly in their role as legislators.

However, RAP is a rural access programme and not an enterprise development project. Therefore the whole approach to the 'economic/enterprise element' of the programme is one of supporting and facilitating peoples knowledge and more effective access to *existing* enterprise support services. It is not about seeking to supply these services directly by RAP.

Critical to the success of this approach is networking with support agencies, identifying those who are providing enterprise, product development and marketing services, looking at the nature quality and scope of their services and who is active in the RAP districts. The aim is to work with these organisations in two ways. The first is to get them to deliver specific training and services to RAP Enterprise Development groups for which RAP will pay (i.e. the variable costs for staff time, materials travel etc). The second to encourage these organisations to make their 'mainstream' services more appropriate and accessible in RAP districts, and should not always involve monetary support by RAP, apart from some 'pump priming' funds to support pilot services or underpin additional service delivery costs into the hill areas. This networking, developing partnerships and managing relationships with a range of partner organisations will be a major task for a RAP enterprise adviser.

The major activities to be undertaken for this will include among other things:

- Organising awareness workshops to encourage interest in joint work on enterprise development.
- Selection of appropriate partners with experience of group development; product and market development, general enterprise development and supply of credit.
- Establishing partnership agreements with selected organisations including pump priming financial support as necessary.
- Maintaining relationships with partners over project period.

6.5 Group Organisation

Group formation is important for a number of reasons. First the very foundation of RAP's sustainable enterprise development effort is not technical support or money; it is social mobilisation, to foster a sense of solidarity and collective will to protect mutual interests through organised networking. Second it is necessary to create a minimum size for capturing the economies of scale, in terms of production, supply and the purchase and use of inputs.

A number of enterprise development groups (at least 240 groups or 30 per district) could be developed, possibly based around road labour construction groups or existing interest groups[5]. These primary groups could be federated into collective groups (at least 8 collective groups per district) to build pressure for smooth delivery of the rural services in the districts. For this purpose RAP will identify and involve suitable partners with solid experience on social capital formation at the grassroots level. These partners, with technical back-stopping from RAP, will undertake enterprise orientation training, initial product selection and feasibility work with the groups.

6.6 Technical Know How

Groups will require training related to their existing and new products. They will also need to find ways in which they can keep learning about what is necessary for sustaining their activities. For this purpose, partners with technical training expertise and experience such as local NGOs able to work in RAP districts will be identified and supported to provide information on trial crop production, harvesting and basic processing, new plant products and demonstration of the pilot experiments on crop growth cycle. Entrepreneurs will need to be trained in improved production techniques for existing plant products post harvest processing technology and piloting. Most of this training and support will be given in years 4 and 5 following construction of new roads.

6.7 Business/management know how

A key issue identified in the design phase has been the need for business and management skills related to producing and selling products in competitive markets and how to effectively become an 'entrepreneur'. As with technical training business development work will be undertaken by partner organisations with direction and co-operation of the RAP enterprise adviser. Altogether some 240 enterprise groups will need basic business and management know-how to develop and manage their enterprises by end of the project period. Important areas include production/supply issues, market and selling issues, individual and group operational issues, group business management and responsibilities, networking and relationship with buyers and suppliers and general business planning. Networking and exposure visits to and from successful groups elsewhere will be stressed during the program period.

6.8 Accessing other necessary resources

Clearly a critical issue is accessing RAP groups to appropriate resources to enable them to run their enterprises. The main resources include credit, physical resources (such as buildings seeds fertiliser, water, equipment etc) and social resource (such as marketing contacts and linkages, relationships with a range of business intermediaries). Accessing such resources from existing sources is fundamental to the enterprise approach within RAP.

RAP is not going to be directly involved in credit financing. This must be provided by a range of service providers - be they public, private or non-government sector agencies. However, RAP can increase RAP awareness of these services and access to them. Where such services do not exist the RAP enterprise adviser (EA) can identify such gaps in the earlier part of the project and raise awareness about the need to address them. Whether DFID and other donors may seek to fill these gaps directly, to pump prime others, to fill them or to take a purely lobbying stance cannot be said at this stage.

[5] Assume these primary groups will be a mix: some the RBGs back in their communities with those of same social strata, those from same social strata and those who are above this group i.e. 'poorer with potential' those from near and far to the road communities. At least 30 households per group.

7 CONCLUSIONS

Since the purpose of this International Seminar is to inform the debate on rural transport development, the authors have given much thought as to how the RAP design work can be translated into something that can inform other rural transport design projects. As a technical exercise in project design a significant number of lessons were learned during the design phase about key social and economic issues relating to the improvement of rural access and much space has been given in this paper to the way in which the design of RAP has tried to deal with these issues. These observations, which are freely available from the RAP implementation team in Kathmandu, certainly would have been very useful to our design team and may in turn be useful to others in the field.

With the design phase over, we are aware that, in a very real sense, it is the implementation of RAP that must demonstrate the extent to which the design team was correct in its assessment of the economic and social issues associated with improving rural access and how to deal with them. However the relative success or otherwise of the RAP implementation phase will also depend on a significant number of factors which may have little to do with the social and economic issues relating to the project and the response of the design team.

One such extraneous factor was the result of a year-long design phase which was followed by a six month bridging period to allow for the development of an Implementation Plan. This provided sufficient time to allow the principle stakeholders to build their commitment to the RAP approach and for the programme to develop a momentum in the eyes of its stakeholders who by then had truly become integral to the planning process. The result was that the RAP inter government agreement for funding the programme was accepted by both the donor and recipient government with surprising speed some three weeks after the design team demobilised. While both parties may well have accepted the social and economic justifications put forward by the design team, the fact is both were fully committed to the programme, a factor over which a consultant design team traditionally has only marginal influence.

For instance, both partners were aware that many of the details of costing and project modalities had been left to the first year of implementation. However, this move was fully supported by the majority of stakeholders to allow for the engagement of the district and central government authorities in setting up the systems required to run the programme and for the project to mobilise in the districts themselves. Ownership had been established by local district stakeholders because this was seen by the design team to be a basic condition for successful implementation of the programme and one which needed to be integral to the social and economic proposals put forward in RAP. This link can therefore be traced through out much of the approach and eventual design of the economic and social aspects of RAP.

With the benefit of hindsight other factors can be seen to have played an equally important role, including motivation, capacity building and finance and institutional factors such as information, enforcement and incentives, which the design team needed to build into the RAP design. At the time the team did not have a framework of programme design parameters that could be used to inform, for instance, the Implementation Plan or first year of implementation of RAP. Such a framework would have been very useful in helping to structure what was clearly a large and complex programme. Indeed the RAP experience has led to WSP using such a framework in the design of a rural road maintenance project in Vietnam with the benefit of a much clearer understanding of the relationship between technical and institutional issues and their impact on successful implementation.

Four basic factors can be identified as being directly related to promoting sustainable outcomes, in RAP's case the **functional environment or basic conditions** for improvements in rural access.

- They include **finance**, whereby the districts are net receivers of central government transfers and subject to specific rules and regulations regarding procedures and uses to which they can be put.

- **Skills** will also have an impact on local outcomes. Districts which have the capacity to carry out planning and have good administrative skills will be able to assess needs, develop plans and allocate resources more effectively and efficiently. Those with better technical skills available to them will be able to achieve higher quality outcomes through the consistent use of good techniques.
- Without **motivation** sufficient funds and adequate skills will not succeed in achieving RAP outcomes. There must also be a commitment on the part of both government and citizens to achieving good outcomes. Government staff, for instance, will continue to be subject to the same incentive structures of low pay, lack of promotion, poor working conditions which external inputs of programme funds and training will do little to change.
- **Ownership** can play a key role in improving motivation. Local leaders can develop methods to reward staff who achieve good outcomes. It is not within the capacity of the design consultant to "motivate" staff members within government or civil society, but it can advise local leaders regarding the development of appropriate incentive packages in support of the programme

While such factors will be directly related to promoting sustainable achievement of RAP outcomes, ultimately the "success" in promoting these factors will be embedded in the **institutional** "rules" that govern behaviour among and between civil servants and civil society. These factors include:

- Good **information** flows among civil servants and between them and civil society is a key condition for promoting systemic change. Both civil servants and local citizens often lack timely, accurate information regarding both the real costs of poor outcomes, as well as the opportunities for improving existing methods without dramatic increases in financial resources.
- Predictable **enforcement** of rules is a vital condition for effective implementation of RAP. There are powerful incentives for both civil servants and citizens to do less than required by the RAP design. This means that individuals who are charged with building and maintaining specific sections of roads should be held accountable by both their superiors and by local citizens for poor quality performance and rent seeking behaviour.
- Positive **incentives** for civil servants and citizens to engage in RAP implies that there are immediate, positive rewards for those who plan and undertake RAP implementation

The Virtuous Circle—Conditions and Institutional Factors That Promote Programme Outcomes			
Conditions	**Institutional Factors**		
	Information	**Enforcement**	**Incentives**
Finance	High quality information will give planners and implementers choices regarding how to spend funds wisely	Funds are used appropriately and efficiently for programme purposes	Appropriate incentive ensure that funds are used for programme, and not diverted to other purposes
Skills	Improved skills will enable stakeholders to interpret and use information effectively	New planning/technical skills can be used effectively, as rules are enforced	Individuals have incentives to use new skills
Motivation	Motivated stakeholders will use information to change practices	Results of motivated individuals' work will be recognised, as rules are enforced predictably	Appropriate incentives will ensure that motivated individuals are rewarded appropriately
Ownership	High levels of ownership will enable local leaders to use new information more effectively	High level of local ownership will promote better enforcement of rules, and this will discourage "defections"	Incentives will promote high levels of local ownership, as "owners" are rewarded for high quality outcomes

These two sets of factors can be placed in a matrix to show how the functional environment reinforces the basic institutional rules for successful project outcomes, what we have called the "Virtuous Circle". The premise is that the basic conditions for improved rural access are much more likely to operate in an institutional environment in which the "rules" encourage stakeholders to focus their energies on positive actions that will result in sustainable impacts of improved access on poverty.

Clearly, the virtuous circle can act as a checklist for any design team and any set of conditions that a design team feel are required for the success of their project. The fundamental conclusion is that whatever the economic and social justifications are for the development of rural roads programme, the strategy adopted in the design must ensure that the issues outlined in the virtuous circle are woven into the fabric of the design. Otherwise the programme may fail, not because social and economic issues are not well understood, but because conditions for success have not been built into the design of each of the components of a given programme.

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