Social Aspects of Transport

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The social costs and benefits of roads are not evident. They will undoubtedly vary by gender, age, occupation and location of the road user. Thus, before measurement procedures can be considered, the range of social costs and benefits of roads have to be identified and categorised. In the 'Scoping Paper' provided for authors, a number of key questions and issues are identified, to be probed.

PART ONE

Before addressing those, however, it is important , I suggest, to go back to basics and ask ourselves 'what is transport for?' and 'how best can the economic, social and other objectives identified be achieved', before we proceed to more specific questions as to the identification and appraisal of social benefits and costs of road transport. Then I consider briefly a range of specific issues which seem to me to be worth commenting on, before turning to the specific questions and issues raised by the Scoping Paper.

1. Why 'transport'?

Transport is a means to specific ends. It is ultimately to improve people's lives and livelihoods of people. The essential feature of transport development should be: to reduce the time and energy spent on - and thus the cost of - travel and the transport of goods; and thereby to improve people's access to resources, people, goods, opportunities, markets and services – including the provision of information - they value.

The issue of identifying and assessing costs and benefits should, therefore, be framed within this broader framework: **what are the costs and benefits of different means of improving access to whatever it is that people value.**

This suggests, immediately two important points: first, that improving access may not involve improving road transport – it may imply other means of transport, other means of transmitting information, or even other development interventions; and second, that one crucial component of any form of assessment of costs and benefits must be 'what people themselves value'.

Before we become deeply involved in identifying and appraising the costs and benefits of road transport – or more appropriately – of various alternative

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transport systems, it should be recognised at the outset by those involved in transport development that this objective may equally well be achieved by other forms of investment.

For example, the siting or location of a market or health post will affect its accessibility, both in terms of physical access, cost and other considerations. The plantation of trees for fuel wood along the borders of fields may contribute to the efficiency of the farm economy, as well as improving the agro-forest ecology and synergy, and at the same time reduce the time and drudgery of travel of transport of fuel-wood; this may be more effective – or less effective - than improving the path from the farm to the forest.

Access may be increased in a variety of ways that do not involve transport development; it may also be increased in other ways than by reducing the physical constraints. Cost may be reduced by subsidies, grants and concessions, and other administrative devices, or by increased competition between providers of whatever goods, services, etc. are required and/ demanded in the market place. Ability to gain access may be positively affected by changing rules, restrictions and criteria which constrain access – for example outlawing discrimination against women, low-caste groups, children etc. – to public or private places of various kinds, to various forms of travel and/or transport, to various forms of goods and/or service.

2. Why roads?

There is a range of transport infrastructures which constitute a crucial (usually the most costly) component of any transport system, and provide support to transport development. The three main forms of transport system today are air, water and land transport systems.

Air transport is generally considered the most expensive in terms of infrastructure and equipment (including means of transport – helicopters, fixed wing ‘planes, etc.)- although this is debatable, especially where landing fields are literally fields and the other elements of infrastructure are absent - but is also the fastest both for passenger and goods transport. In countries with difficult terrain (deserts, mountains, etc.), large distances between centres of habitation, and poor water or land infrastructure and transport systems, air travel and transport can bring significant social and economic benefits.

Even in very poor countries (Chad, Mali, Nepal, Bhutan), air travel is now within the economic and social ‘grasp’ of a wide range of people. For rapid transport it can, literally, be life-saving (flying doctors, relief services of all kinds, emergency food supplies and other kinds of equipment). Even in very poor countries (like Nepal), there is lively competition between air travel and transport companies and considerable demand, not only among the wealthy but also among the reasonably well-off and, for special purposes the less well-off. The transport, particularly of high-value, low-bulk goods, which may be subject to deterioration over time, is particularly effective by air.

Comparisons of the investment costs of infrastructure and means of transport (eg. 'planes), running costs, maintenance etc. of air travel and transport as against road transport is rarely done for developing countries, either in general or for specific countries and regions of countries. The social and economic benefits of rapid travel and transport may be considerable, particularly if one is estimating the 'personal injury' costs and social consequences of death and medical emergencies of various kinds, or the benefits of rapid transportation of food and other forms of relief. But it is not only for emergency travel and transport that air transport systems require investigation.

Historically of major significance, but in the contemporary world perhaps underestimated, particularly within countries, is the range of water transport systems. Relatively slow (but of course dramatically faster with modern ships and boats than in the days of sail or rowing), transport by water – whether by sea or inland water-ways – can be cost effective, particularly for large, bulky and heavy cargoes. Where river transport is possible, it is often preferred to transport overland for a range of social and economic reasons. In countries like Vietnam, where inland waterways are of very considerable importance, there is a real question as to whether road transport development or waterways improvement would be most cost effective. Certainly there is evidence that for most poor people, the waterways are more cost-effective than roads.

3. The hidden costs of transport

Poverty is a major constraint on travel and transport – either direct cost or opportunity costs may make it difficult to afford or to forego certain activities in order to travel or transport goods. Opportunities and markets may thereby be effectively 'inaccessible' and real 'choice' (which underlies all neo-classic analysis of the operation of markets) restricted.

If development is partly about increasing real choice between alternative courses of action or activities, then reducing poverty is a major objective. It is, however, a long term objective and similar effects may be achieved in the short and medium term by pro-poor transport policies as well as by pro-poor development of transport infrastructure and transport services (bearing in mind specifically the means and modes of transport favoured by the poor)

Costs of physical access may be reduced by various forms of subsidy: concessionary fares on buses for older people, disabled people and/or children; subsidies to those who own and/or run the transport enterprises to enable them to reduce costs which can be passed on to customers; contributions to the investment cost of transport infrastructure; and so on. Re-distribution of the costs of transport may be effected by taxation or other charges (eg tolls), either direct or indirect, on the use of transport infrastructure or the means/mode of transport (vehicle tax) or on transport operators in 'high-transport-use' areas to the benefit of 'remote areas'.

Costs of transport can also be reduced by the use of other means of access and communications. Indeed, it might be asked: is improved travel and transport

always needed to increase access and communications? It is often argued that, in contemporary society, better communications technology means less need to travel and therefore less need for transport.

Radio and TV, which are generally one way (although two-way radio and video-conferencing are also possible) may provide valuable information. Postal services, telephone, fax, e-mail, the Inter-Net, tele-texting, and so, provide two-way communication which may reduce the need to travel and reduce the need for transport markedly. But, in fact, we are still waiting, even in developed countries, for the 'telecommunications/ transport 'transition' (like the demographic transition). It is still the case, however, that for the vast majority of the world's population, improved communication and access still means increased travel and transport and thus the physical movement of people and goods (and services).

In fact, it seems that improved communications have gone alongside improved and increasing demand for improved transport. Both have dramatically reduced the cost of moving people and goods and services, internationally and within states; both have themselves developed dramatically. As economies take advantage of the potential increase in the spatial division of production and consumption made possible by improved transport, so do the costs to economies (and the households and individuals that comprise it). As commodities are produced to met demands across the world, the proportion of transport in their final unit retail price may increase as well as decrease as unit transport are reduced while the overall costs of transport in food distribution increases.

It is also the case that greater use of new forms of transport has also been associated not just with reduced unit costs per distance travelled and to some extent greater facility, but also with increasing costs of various kinds. The more people travel faster and in larger numbers, the more planning and preparation is required to manage the travel and transport systems – and often the greater investment in real terms. The transport of goods produced on one side of the world to be consumed on the other has reached massive (and arguably un-sustainable) proportions. The externalities involved (environmental and arguably economic) are enormous, but generally unappreciated in cost-benefit analysis.

For most people, however, most of the time (and for most 'trips') relatively short distance movement is the most common. Even in the most developed countries, a significant proportion of the population rarely travel beyond the nearest market town and most journeys are local. This is even more strikingly the case in the developing world. The most frequently used means and modes of transport are local (short and medium distance). This means that certain modes of transport are more common – head-loading, porterage, use of animals, use of hand-carts, bicycles, etc.- than others. Many of these are not associated with road transport.

Transport development may not just include roads. It may – often should – involve multiple modes: as with 'park-and-ride'. Relatively little attention has been paid to the planning and development of 'modes of transfer' from one means/mode of transport to another. Transfer from water to land, foot to vehicle, from road to train, and vice versa – jetties, loading and unloading, embarking and disembarking facilities, personal and social facilities for short and longer term

stays – teashops, restaurants, hotels, etc. This is linked to the importance of considering transport development as the development of an integrated system for improving physical mobility as one means of improving access.

4. Appropriate transport infrastructure

Appropriate transport should be considered as appropriate in a specific social and cultural context and for specific social groups. What is appropriate for some may not be appropriate for others. There has been a tendency to use the term 'appropriate technology' for low cost, low input-low output systems – small-scale, often 'indigenous' or 'basic' - but these are by no means always appropriate. Bicycles – which may be appropriate for certain people in certain conditions may not be for others in other conditions; high-speed trains may also be appropriate for certain transport requirements and certain groups with specific travel requirements, but not in other cases. We must restore 'appropriate' to its proper meaning as 'suitable to the purpose intended'.

The contemporary conventional wisdom regarding 'appropriate' technology for rural roads is that of 'green roads' or environmentally friendly roads – and also of labour – based roads. This is a reaction to an earlier obsession with roads built to arguably inappropriately high standards with inappropriate technology. The capital intensive nature, high cost, and often un-necessarily demanding design and engineering standards of many roads built during the last fifty years in developing countries, meant that many of these were indeed in-appropriate.

But it is important to consider, in any given set of circumstances, what is the most appropriate mixture of technology for transport development. It may be that many of the so-called 'appropriate' rural roads of recent years turn out to be poorly designed, poorly engineered, high maintenance and short-lived mistakes. Balancing the many considerations – use of labour versus use of more developed equipment and road construction technologies and methods; slow construction as against speedy construction; rough and ready surfacing versus high quality and more expensive surfacing; etc. – is not easy if taken seriously.

In general, labour-based, 'green' roads have shorter lives and require higher maintenance; this maintenance may be a valuable source of income to local people or it may be an intolerable burden on populations suffering already from enormous labour demands and the physical toll such drudgery imposes.

5. The implications of construction methods

Labour based provides employment and income opportunities for poor people. Self-selected for the most part, but preliminary 'social mobilisation' can ensure that the most disadvantaged are involved and that poor households are over-represented. But it discriminates against the physically less able, weakest, sickliest, older people and women. Particularly against those unable to work either because they are themselves unable or because they are carers. Women

often not able because of other obligations, cultural restrictions on a) working in public, b) away from home etc.

It may make excessive demands on poor and weak – men as well as women. Payment methods may affect this – piece work encourages greater effort to maximise income; daily rates risk less work being done with accusations laziness- but possibilities of pacing. Inequities possible in all systems. Many poorly informed of pay and requirements. Well managed and transparent may be good.

Apparently non labour based construction may also make substantial labour requirements: gravel from river beds, stone(s) from quarries quarried and broken by hand, loaded onto trucks by manual labour. Building materials generally loaded and unloaded by hand. Cutting and digging by hand or by machines supplemented by manual labour. All other aspects of construction can be more or less labour intensive.

Maintenance of rural roads and locally built bridges can be heavily labour based for routine maintenance and spot maintenance; rehabilitation and upgrading less so, and re-building is equivalent to construction.

Local labour versus imported labour; labour gangs and labour camps. Social implications of large labour gangs and labour camps – safety, conflict, alcoholism, sex (sexual abuse of women), commercial sex workers and spread of diseases, HIV/AIDS.

5. Health and safety

Safety is a serious issue for transport development. In the UK, traffic accidents are now the most common cause of death for young people between 16 and 25. In developing countries, although road traffic accidents are becoming more and more common, to the point in some countries where they rival other more usual infectious and contagious diseases as the source of death and debilitation, they are rarely considered seriously in the analysis of costs and benefits of road transport development.

Safety must be a prime concern in any transport system. But any transport system involves some risk: one may fall while walking, be upset while bicycling or travelling a motor bicycle, or on a cart. In general, however, the faster the transport means, the greater the risks, other things being equal (other things, including state of repair and maintenance of transport infrastructure and means, quality of driving, steering or whatever). Equally the larger the number of persons involved, the greater the risk of significant numbers being hurt if there is an accident – so taxis, trucks and buses carrying successively larger numbers of passengers, may bear increasingly greater risks of large-scale injury in any one accident.

But it is well known that although aircraft or train accidents, or even coach accidents may involve larger numbers of casualties if there is an accident, more people are killed in car accidents than in any of the previously mentioned in a

given year, in part because more people travel in cars and in part because the risk of a car accident is higher than that of a 'plane, train or coach accident.

Improvements in transport infrastructure may, on the other hand, reduce physical dangers. Improved bridges across rivers and/or gorges may reduce risk of accidents while fording or otherwise directly crossing rivers, or of climbing down and up steep cliffs above rivers and gorges. Better quality of design, maintenance and repair, driving or steering; better navigation devices and security devices improve safety – reducing both the risk of accidents in the first place and also the danger of injury if an accident occurs.

Transport development is supposed to improve access and accessibility - reduced time and cost are both intermediate objectives. High quality may be advantageous in meeting these objectives – it may not. But there are often complex inter-relationships between these variables. Thus, to develop the most cost-effective system may mean sacrificing some quality aspects of the transport involved.

Also high quality in one component does not necessarily help reach the overall objectives. The fastest means of transport may not be the safest; it also may prove too costly. Safety and durability are arguably of greater importance than speed: there may be a direct trade-off between these - or not.

Delays and blockages, hold-ups and other forms of 'complication' become more frequent and possibly more widespread as road transport becomes more widespread. Pollution – whether inevitable (the prevalence of the internal combustion engine and the use of fossil fuels - oil, diesel, petroleum, gas, coal), or 'accidental' (the result of oil spillages, etc.) – has become an increasing cost of more extensive development and use of transport systems.

Transport development often means more people travelling in close proximity – in coaches, buses, trains and popular taxis – and waiting for transport in crowded places; this facilitates the spread of disease (coughing and spitting helps transmit TB, for example). Also, increased physical mobility and movement of people, and increased numbers staying over as they travel, means more physical and social interaction – which increases the opportunities for casual sexual relations and so the more effective transmission of STDs and HIV/AIDS. All of the evidence suggests that the spread of HIV/AIDS in Africa conforms closely to patterns of physical mobility, along major roads and in road-side towns; similar suggestions elsewhere.

6. The differential significance of transport development

It must be recognised from the outset that transport development, of whatever kind, will have different significance for and different effects on the lives and livelihoods of different social groups and categories. This must be borne in mind when discussing transport development alternatives – for transport development is ultimately a social issue – the technology involved is a means to an end – improving access and accessibility to valued goods and services. But for whom? To whose benefit and to whose cost?

The differential distribution of costs and benefits needs to be considered to a far greater extent than is currently the case. The overall benefits may be outweighed by the overall costs; but it is also possible that the overall benefits could be outweighed by the costs to one section of the population – and vice versa. The overall benefit of a third London airport may be at the cost to the local population directly affected by the noise and other 'pollution' (and negative effects). The benefits of a rural road may be outweighed for those involved in portering by the reduction in employment opportunities. The cost to a local community of building a suspended bridge may be outweighed by the increased access afforded to a school (for children) or to a health post (for sick and disabled people).

Also, different sections of the population have different needs and to some extent different demands for transport. The needs of children may not be the same as the need for adults, or for older people. The needs of disabled people are not the same as for the so-called 'able-bodied'. Rich people may have different needs – and capacities to pay – than poor people. And so on.

Class and wealth, poverty etc.

In general, it is the better off who benefit directly more from transport development, although reduced cost of transport can make it easier for poor people to gain access to labour markets, as well as to cheaper goods for consumption and even sell goods to more distant markets.

But the logic of faster cheaper travel and transport is to reduce 'imperfections and constraints' in markets for all foods and services and to even-out prices. In theory, the poor should benefit, but all too often market extension undermines local production niches and specific comparative advantages – a level playing field is not beneficial to all players equally: equal opportunities is only valuable to those who can take advantage of the 'opportunities' provided.

All of the evidence suggests that, even if poor people may benefit from transport development, the wealthier benefit more. The effects of transport development on patterns of inequality, on social and economic differentiation, have been relatively little considered in any detail in impact studies.

Even less attention has been paid to the negative effects in terms of 'increasing poverty' – directly undermining the livelihoods of those involved in earlier transport systems, for example, in particular (porters, carriers, animal-train managers, etc.), or indirectly doing so by facilitating the import of goods which compete with local products, driving the households that produce them locally out of business.

Gender and transport

Relatively little attention has been paid in the past to the gender implications of transport development – how transport development may affect men and women differently and alter gender relations (collections like the recent **Balancing the**

Load make a small step towards redressing this weakness). In broad terms, transport development has enabled men to travel and transport goods more easily; it has not always been the case for women. Cultural and social constraints have sometimes impeded women from travelling – they should not be seen in public, should not stay over-night away from home, etc.

Women's travel and transport activities are generally quite circumscribed. They go to the well or water hole, to the forest or the commons, to fetch water, collect fuel and fodder and other materials. They carry heavy burdens over relatively short distances for the most part, although longer distance travel and transport is common where population density is sparse and household economics demand. Transport of compost and other materials to the field, and crops from the field, is a common female task. The division of labour needs to be analysed if one is to perceive the patterns of work in which travel and transport are required.

Travel and transport constraints may ensure women's drudgery – in which case relief is an improvement: carts, use of animals, use of wheeled vehicles may all reduce energy expenditure. But much travel and transport is done in groups and is therefore a social activity in which women share news and gossip as well as work; to reduce the time spent on travel and transport here may well reduce sociability and social capital building, and increase individual women's isolation. Women may be confined to the house by an indoor tap or by kerosene lamps and stoves which reduce the need to sortie forth to fetch water or collect fuel wood.

Women's involvement in social networks can, on the other hand, be enhanced by the development of some forms of transport. Increased bus passenger travel is one of the most dramatic aspects of change to accompany the development of motorised road transport – and this affects women in particular. Visiting relatives (particularly one's own family where women marry away from home), and kinsfolk, friends and other contacts, shopping (in the 'modern' sense), pilgrimages and travel to religious festivals, fairs, and other events, are all activities which become easier when transport is improved. Not only do women find it possible to extend their social networks and to visit those at a distance, they also often travel together, enhancing social networks and sociability closer to home.

The transport of goods within a given locality can usually be 'paced' and women thereby gain time and a degree of control over their activities – reducing the time spent walking to the well or woods may reduce the time in the day that women can 'control' and actually thereby increase their overall work intensity. Labour-saving devices of all kinds can certainly benefit women by reducing drudgery; but savings in one 'area' or 'time period' may be re-distributed and even increased 'elsewhere', so that overall work load and work intensity is increased as expectations and real demands shift.

Age and disability

Relatively little attention has been paid, particularly in developing countries, to transport development and age. Babes in arms (on backs etc.), toddlers and small

children, independent children (school age), older people with particular frailties; disabled people with different forms of impairment – all have different transport needs.

Small babies are usually transported by mothers, sometimes by other close relatives. They are usually hand or back carried; sometimes front carried. In areas where terrain is suitable and in places where the technology is available at relatively low cost, wheeled transport – such as baby buggies, 'prams', etc may be used. Small children are usually transported in much the same way, although given their greater weight fathers often carry more when wheeled transport is not possible. In cases where a transfer is made from 'own transport' to paid transport - as when a family with small children take the bus, there may be difficulties .Many transport services regard babies and children as less than a single 'fare' and charge less, also providing no specific space for them or their other transport equipment (buggy, rucksack etc.). Safety considerations regarding children are often minimal, although in developed countries far greater attention is paid to this aspect –with seat belts and other devices being applied.

Transport technology may provide the basis for improvements in individual travel and methods of transport – carriers, dokos, rucksacks, papooses, front-loaders, etc. We need to consider the advantages and disadvantages of wheeled transport for children – push chairs, perambulators, small carts for more than one child, etc.

Physically disabled people, including older people who find physical mobility difficult, are generally disregarded in considerations of transport development, but they are becoming an increasingly significant minority as even in developing countries population ageing is taking place. More consideration is needed with respect to the travel and transport requirements of this category of person.

At the level of individual technology, improved crutches, prosthetics, wheel chairs, carriers, stretchers, for sickly or physically challenged persons need to be developed in collaboration with disabled people and older people. Provision needs to be made in transport development for space in public and private carriers for such personal equipment, for guide dogs for the blind etc. and for disabled and older people – specially allocated seats in convenient locations, for example.

Long distance travel requires a whole set of particular considerations regarding the normal bodily functions of travellers. Usually this is dealt with by planned stops where such requirements can be met by a range of services and facilities located at the 'stop'. But, for the needs of small children and older people, of those who are sick and sometimes also of women, flexibility on the part of carriers is needed and roadside facilities provided wherever possible. In relatively 'up-market' modes of transport (long-distance coach or train, for example) in board facilities and services may be possible.

Winners and losers

There is often a choice where travel and transport patterns suggest major differences between existing and overlapping transport modes, services, etc – ie

where headloading and porterage coexists with motorised transport, or where water transport co-exists with road transport. Either to improve the less technologically developed or to develop the more 'modern': to improve trails, tracks and paths to increase the safety and reliability of these infrastructures, or to invest in rural roads to allow motor transport better access.

There should be no facile a priori assumptions about what is 'best'. For shorter distances often, headloading, porterage, small carts, small boats, bicycles, rickshaws, large animal drawn carts, tillers and tractors (generally multiple use vehicles, are much valued, often because multiple trips and directions are involved and flexibility is in high demand. For medium distances, often animal drawn carts, tractors, small motor carts, pickups, small-medium sized boats, motorbikes (for passengers in Vietnam), taxis – involving generally more predictable directions and more specialised vehicles – are possibly more appropriate.

For longer distances (more specialised vehicles, often on fixed routes) – cars, trucks, buses, trains, larger boats, for rough terrain animal trains
For very long distances, very rough terrain – helicopters, fixed wing planes, ships.

Human headloading and porterage most common and flexible of all. Long distance haulage often by donkeys, mules, pack animals (yaks, ponies, camels – animals adapted to particular environments) Often displaced by roads and other modes of transport.

Animal drawn often displaced by motor – speed, reliability, relative costs (including environmental costs) and flexibility need consideration. Old not always better than new, but old not always better than new either.

Pricing of transport

Transport systems may be state controlled or private owned, or represent some combination of the two. In general in developing countries, while there is a national airline, private companies own and control most sectors of transport. Pricing policy will have social implications.

Some transport systems attempt to attract demand by reducing fares at certain times (in certain periods), for certain kinds of journey, between certain destinations and for certain kinds of passenger. This is done more in developed countries where complex fee and price structures for some components of the transport network (eg rail in the UK) may exist. Generally, however, private transporters and carriers do not attempt to develop complex pricing policies. It should be noted however that the cost of transport may be reduced for some sectors and for some categories of transport user (eg children and older people) for social reasons. I know of no example where prices for women are significantly lower than for men- but this might be a good way of encouraging more women to travel (encouraging both women and their husbands or parents to allow them to travel more because of the economic effect).

Local subsidies as well as national subsidies may have a positive effect in reducing prices and encouraging use of transport. Time preferences may be discouraged or encouraged by offering advantageous prices for 'off-peak travel', early morning travel, over-night travel etc.

Dealing with peaks and troughs in travel and transport supply and demand, to respond and also to promote and encourage particular travel and transport patterns. Cross-subsidisation of low demand routes by high demand routes, or a shift to different mode of transport - ie from large carrier (bus) to small carrier (mini-bus, pick-up).

Is competition always positive?

Flexibility

Transport structures and systems need to be diverse and multiple, yet inter-linked systematically – integrated, to meet diverse needs and demands; they need also to be flexible.

Integration includes transfer systems, from one mode or means of transport to another: eg linkages between waterways and roads systems, and transport support services - teashops and bhattis in Nepal, restaurants, hotels and motels, railway station hotels, airport hotels, booking agencies and ticket agencies; travel agencies. Advertising and information about travel and transport – fares and timetables – all ensuring integration.

There may be trade offs between flexibility and cost – bulk transport and passenger transport can cut costs and can maintain high demand even with relatively inflexible routes and schedules (long haul coaches and trains). Other systems may be required to provide greater flexibility to meet variable demand – mini-buses, dolmus (Turkish taxis) and other forms of multi-passenger transport system with general routes but greater flexibility to deviate in time or space according to specific passenger demand may be appropriate, particularly for urban transport. Private cars, provide maximum door-to-door flexibility as to timing (no fixed schedules or routes) on long, medium or short haul journeys, where suitable roads exist; private or for-hire four-wheel drives, pick-ups, etc. where roads are poor.

Animal transport may be effective on short, medium and long haul journeys, where motorised wheeled transport is not available. High flexibility as to timing and route. Private and for-hire systems exist. Also flexible as to space available – add more animals to animal train, up to a point where management and logistics (fuel – food and bedding/overnight stays) become a problem. Yaks, lamas, camels, sledge-dogs etc – specially adapted animals in extreme environments; mules, donkeys and horses in more generalised terrain and environments; even sheep and goats, elephants, etc. Improvements here can often be in the management of services and provision of facilities as in the infrastructure; but

improvements in trails and tracks can reduce ‘wear and tear’ on animals, increase safety, reduce cost.

Social networks, social capital and transport

The importance of maintaining social networks and social capital has generally been underestimated, but it is striking that, when costs of transport and travel are reduced or they are made easier, the increase in travel for social purposes – particularly by women – is increased significantly.

Short distance visiting is a regular feature of local village life and is an important way of maintaining relationships. Visits to local temples, mosques and other religious places; visits to water sources (springs, wells etc.); visits to the forest or ‘the commons’ for the purpose of fuel wood or fodder collection – are all occasions for travelling together and undertaking tasks together – and so for bonding and collective interchange. Women value these journeys. Drudgery and real costs of transport need to be reduced – but the opportunities travel provides for social intercourse should not be underestimated and time spent travelling is often not drudgery but a social investment.

Likewise, longer distance travel for social purposes may have other functions than simple movement and access; it may be social in various ways. Young men often travel together

Cross border movement

With transport development, more people will be able to travel more and further at lower cost. This will encourage crossing old borders and frontiers. This may be seen positively or negatively – in economic, social, political and cultural terms. Inter-village, inter-district, inter-state and inter-national travel becomes more common. Greater need for reduced/increased surveillance and security and controls?

Difference between travellers and others? New social cleavages – those who go and those who stay. Those who travel and those who do not.

Mobile services

Health and other services can improve people’s access to health facilities by themselves becoming mobile. Mobile clinics can provide services in remote areas – flying doctors, barefoot doctors, land-rover eye surgeons, visiting dentists – with local training and back up. Mobile libraries, peddlers and tradesmen, agricultural services (artificial insemination).

Mobile credit agencies and barefoot banks. Peripatetic teachers.

PART TWO

In this section some attempt is made to address the specific questions raised in the Scoping Paper.

Identification of social benefits and costs of road transport

1. *what are the social benefits and costs of road transport that should be measured?*

   Ideally **all** of the possible social benefits and costs should be **identified** (recognising that constraints of time and money may limit such an exercise, but remarking that the cost-effectiveness of the road transport development programme itself may be affected by 'cutting corners' here). It may prove very difficult to assign all of them precise measures in value terms, but ranking may provide a rough estimate and simply identifying the entire range of social benefits and costs can provide new insights into the value or otherwise of roads.

   The views and valuations placed on road transport development by various different categories of local people is an important – indeed a crucial – component of this, and implies that more intensive and participatory techniques of data collection should be utilised as well as the conventional methods.

   The social benefits and costs should be identified as fully as possibly in advance of the road transport development (ie at appraisal), but also during road transport development as an integral part of the monitoring of the process, and after the completion of the road transport development (ie as ex-post evaluation or impact assessment).

2. *How have social costs and benefits been defined in the past, and how relevant are past social benefit definitions to the present day?*

   On the whole a very limited effort has been made to define and identify, let alone incorporate effectively into a cost-benefit analysis, the social costs and benefits involved. Economists have tended to dominate the cost-benefit analysis and the social costs tend to have been ignored while the social benefits have often been 'identified' with little empirical data collection or analysis. Often they have been exaggerated, but regarded as somehow inherently 'un-measurable'.

3. *Do donors' objectives assist or interfere with identification of social benefits and costs?*

   At the level of general development rhetoric, development agencies are all very much concerned with social costs and benefits, particularly with 'poverty alleviation'. When it comes to specific programmes and even more so specific projects, there is less of an interest in social costs and benefits. Road development projects are usually handled by engineers in the larger multilateral or bilateral development agencies and their interest in social costs and benefits is, to be honest, quite crude. Economic appraisal and a notion of economic rates of return provide a framework of justification which is conventionally acceptable; if some major social benefits can be quantified and given an economic value, so much the better.

   In so far as development agencies have budget constraints and are obliged to provide justification for their expenditures, they are usually unwilling – or have been in the past – to allocate sufficient resources to proper appraisal, monitoring and evaluation, and impact assessment of social as well as strictly economic costs and benefits (Similarly 'environmental costs and benefits' have until recently not been given much in the way of resources.

4. *Can social benefits and costs be pre-defined?*

   In broad terms, a body of experience has been accumulated which would enable most experienced development social scientists to draw up a provisional checklist of probable costs and benefits, but each situation is different and each requires its own assessment – just as do the identification of the road alignment and the engineering parameters. There has been so little detailed social impact assessment of road transport development, despite decades of road building, that it would be unwise to believe that social benefits and costs can be easily pre-defined in the sense of defined without any kind of field or on-site investigation.

5. *Under what conditions are social benefits significant?*

   I would say under **all** conditions. The purpose of road transport development is to improve peoples lives and livelihoods and this inevitably implies a concern to generate social benefits. W also need to do more impact assessment to determine what social benefits accrue from road transport development, under what circumstances and why.

6. *How do social benefits and costs vary over space and time?*

   Almost impossible to respond to this in general, except to say that they do vary over time and space, and differentially across the population concerned.

   Some benefits accrue at an early stage, even before construction, as land prices are affected and people re-locate closer to the road corridor, at construction, as local labour is employed on road building and gains immediate benefits in terms of employment and wages, etc. Some benefits are

felt as soon as a road or bridge connection is established and the first traffic is able to take advantage of the opening of the road. Some benefits are not truly felt or appreciated until some time later as the 'long-term benefits' are realised – effects on production systems, on markets, on urban growth and relocation of settlements, of increases in school attendance and visits to the health services, etc.

Conventional wisdom suggests that benefits are greater closer to the road corridor and tend to diminish as distance increases from the road corridor, but this is by no means always the case. More distant locations with economic potential of some kind may, because the road is constructed, effectively 'move' closer to key markets (as times of travel to those markets diminish critically) and this may trigger changes in production systems; the difference between being ten minutes from the road side and two hours may be less significant than the difference between being able to get to the road and back in one day, or not.

7. *Are assumptions and procedures deployed for identification of social costs and benefits in other sectors … relevant to the transport sector?*

   Not always, but often, yes. There are many lessons to be learned from the experience of social cost-benefit analysis in other sectors, particularly from impact assessment and evaluation which assesses costs and benefits ex post rather than ex ante as does appraisal.

Appraisal of social benefits and costs

1. *At what point should social benefits and costs be considered in the appraisal process.*

   At all stages in the appraisal process. We should now be beginning to develop a capacity to produce preliminary checklists for consideration and assessment even at the programme or project identification stage. Preliminary design stage should include a delineation of the anticipated social costs and benefits, with some suggestions as to how best to rank or measure these Clearly when appraisal is formally undertaken a full social cost-benefit evaluation should be undertaken, as broadly as is possible within time and budgetary constraints, with as full a measurement and weighting as possible.

2. *Should economic and social benefits be considered together in the appraisal process?*

   Ideally, yes – they are part of the same general calculation – and ideally by the same socio-economist. In practice, however, formal economic appraisal of road transport projects is often undertaken in a very conventional fashion by an economist with fixed ideas and much experience. In such cases it might be best to undertake a separate social cost-benefit analysis, but the risk here is that this will be under-valued and even ignored. The most effective compromise might

be to undertake them and consider them together in the appraisal process, but engage two specialists to carry them out.

3. *How and when should social benefits and costs be quantified?*
   As soon as possible – social cost-benefit analysis should aim first at identifying, then at ranking, then at quantifying in terms compatible with the economic cost-benefit analysis. At appraisal, in any case.

4. *How and when should social benefits and costs be monetised?*

   Efforts should be made at appraisal to monetise the quantitative and remaining qualitative assessments of costs and benefits, so that a full social-economic accounting can be done, and so that there are figures against which monitoring and evaluation may be calibrated. It may be that only 'orders of magnitude' can be achieved, but as long as the rationale is made available there should be no insurmountable difficulty with this. Monitoring and evaluation, and impact assessment of social as well as economic costs and benefits, should make some attempt to assess costs and benefits in money terms, if only at an 'order of magnitude' in order to justify or not the project ex post.

5. *How is the problem of double-counting (economic and social benefits) avoided?*

   Ideally it can be reduced by undertaking a single social and economic cost-benefit analysis as an integrated exercise. If not possible, then the social and the economic specialists should collaborate closely, making very explicit the components of their cost-benefit analysis and sharing the analysis and outcomes to the full extent so that inputs and outputs from one 'model' to the other are made explicit. An alternative (second best) would be to agree a checklist before hand of 'factors to be included' in the cost-benefit exercise of each, so that there is minimal overlap.

6. *What ratio of social benefits are public and private goods, and how should this be addressed in the analysis?*

   Hard to say in general terms and something to which I have not given a great deal of thought.

7. *What can we learn from other sectors about their approach to measurement of social benefits and costs in appraisal work?*

   A very great deal. Much of the work that I have undertaken personally on project social cost-benefit analysis has been in relation to multi-sectoral development projects, or to projects in other sectors (health, community development, re-settlement, pastoral development, etc.). It would be extremely valuable to bring together a compendium of experiences to produce a new Handbook of Social Cost-Benefit Analysis, using transport development experience but also drawing on other sector experience as well. There are, of course, numerous, such manuals and handbooks – on appraisal techniques, monitoring and evaluation, and (fewer) on impact assessment, so perhaps it

would be less arrogant to say that we (I) should read some of them again more diligently.

In general there is a great deal of literature now on PRA (Participatory Rural Appraisal) in other sectors – as well as in transport – which we could usefully draw on. Much of the PRA, literature, however, is less good on quantification and measurement than on qualitative appraisal. Both are needed – a quantitative evaluation may establish project success, or failure, but not explain why.

Useful References

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