



**Economic and Social  
Council**

Distr.  
GENERAL

Informal document No. 2  
9 September 2005

Original: ENGLISH

---

**ECONOMIC COMMISSION FOR EUROPE**

**INLAND TRANSPORT COMMITTEE**

**Working Party on Transport Trends and Economics**

(Eighteenth session, 15-16 September 2005,  
agenda item 9)

**PHASED APPROACH TO TRANSPORT INFRASTRUCTURE DEVELOPMENTS**

Phased approach to transport infrastructure projects in land-locked countries of the CIS<sup>1</sup>

The cases of Kyrgyzstan and Tajikistan

---

<sup>1</sup> The draft outline for a working paper was prepared by Christian K. M. Kingombe, Imperial College London. This draft should not be used for quotation or reproduced before the prior consent of the author.

**Phased approach to transport infrastructure projects  
in land-locked countries of the CIS**

**The cases of Kyrgyzstan and Tajikistan**

Contents

1. Introduction and Background
2. Framework: Appraisal and Assessment of Transport Infrastructure Investment
  - 2.1. Methodological Debate on How to Capture the Impact of Transport Infrastructure Development on Economic Growth and Development
  - 2.2. Methodologies assessing the Welfare Impact of Public Spending on the Roads Network
3. Literature Review
  - 3.1. The Phased Approach to Transport Infrastructure Developments
  - 3.2. Project Appraisal
  - 3.3. Assessment of Wider Economic Impacts
4. Two Cases Studies: The Living Standards Measurement Studies and Poverty Reduction Strategy Papers in Kyrgyzstan and Tajikistan
  - 4.1. Kyrgyzstan
    - 4.1.1. The 1997 Kyrgyz Republic Poverty Monitoring Surveys 1996-1998
    - 4.1.2. Kyrgyz Republic: National Poverty Reduction Strategy 2003-2005
  - 4.2. Tajikistan
    - 4.2.1. The 1999 Tajikistan Living Standards Survey
    - 4.2.2. Tajikistan: Poverty Reduction Strategy Paper 2002-2004
5. Conclusions and Recommendations
6. References

This working paper provides a reflection on the advantages of one aspect of the phased approach to infrastructure developments, namely the construction of rural feeder roads using labour-based technology, which by the author is perceived as being a more suitable alternative to equipment intensive construction methods in resource poor and low-income countries such as Kyrgyzstan and Tajikistan.

The proposed working paper will be structured as outlined in the table of content above:

## **1. Introduction and Background**

Section 1 provides an introduction to the underlying ideas of the phased strategy to transport infrastructure development of a series of individual rural feeder road projects as an supplementary or complementary alternative to the construction of a full-scale equipment intensive infrastructure project and why this approach potentially could play a positive role and even be seen as a potentially viable strategy towards the upgrading of critical sections of the existing rural infrastructure networks in low-income countries such as the Central Asian landlocked CIS countries.

The opening section also introduces some of the main ideas behind the recommendation of rural feeder road construction using labour-based methods in countries characterised by severe budgetary constraints, coupled with the low income per capita, labour market slack and low traffic levels, especially in rural areas (cf. section 4).<sup>2</sup>

Given the socio-economic context of the poor CIS countries as illustrated by the two cases of respectively Kyrgyzstan and Tajikistan, the paper will explore the feasibility and the extent to which greater use of public work transport infrastructure projects using labour-based methods could become an integrated component of the Phased Approach to transport infrastructure project in the rural areas of the Central Asian region while referring to the debate about the choice of construction technology.

## **2. Framework: Appraisal and Assessment of Transport Infrastructure Investment**

Section 2 reviews the principal techniques employed in empirical studies, which seeks to assess the socio-economic impacts of road projects.<sup>3</sup> It also reviews the methodological debate about how to measure the impact of transport infrastructure development while investigating what major advantages and benefits an employment intensive infrastructure investment and growth strategy would offer poor CIS countries such as Kyrgyzstan and Tajikistan.

---

<sup>2</sup> In spite of technological improvements in transport, landlocked developing countries continue to face structural challenges to access world markets. As a result, landlocked countries often lag behind their maritime neighbours in overall development and external trade (Faye et al., 2004).

<sup>3</sup> Overall Economic Impact = Change in transport user benefits (Consumer Surplus) + Change in system operating costs and revenues (Producer Surplus and Government impacts) + Change in costs of externalities (Environmental costs, accidents, etc.) - Investment costs (including mitigation measures)

A central place in the assessment of any investment project is given to cost benefit analysis (CBA), which would enable screening, selection and ranking of individual projects where overall benefits related to the disadvantages of the project (i.e. the costs) are greatest. Given the fact that the poor landlocked CIS don't have a mature, complex and comprehensive transport network, it is assumed that improvements to rural roads transport network through a phased approach should impact positively on the growth of the local / regional economy affected by the public investments. Hence, the paper advocates that in addition to considerations of costs and benefits in the sense of traditional CBA, wider socio-economic impacts should also be taken into consideration when considering implementation of the phased approach.<sup>4</sup> For instance Dominique van de Walle and Gunewardena (1998) point out that "Routine quick-and-dirty methods of project appraisal can be so dirty in guiding project selection as to wipe out the net social gains from public investment." This is an important issue especially with regards to some of the poorest countries of the CIS, which the paper recommends needs to be accounted for in the proposed guidelines for a CBA of transport infrastructure projects.

For projects that bring about significant changes in levels of accessibility in such economies, there will be a case for examining whether additional economic benefits exist to those measured within the transport market. Such projects would include projects that break new ground such as low volume rural roads and feeder roads as well as projects that address significant barriers to movement (e.g. estuary and mountain crossings).

Rural infrastructure development plays an important role in developing market access and supporting market expansion, especially in agriculture dominated economies such as the CIS highlighted below. Market access and strengthened market linkages enable the poor to participate fully in the opportunities unleashed by the growth process. Apart from addressing income poverty, infrastructure development can also play a vital role in dealing with the non-income aspects of poverty (Yao, 2003). However, Van de Walle(2002) emphasis that since the social benefits are difficult to quantify, they have typically been omitted from conventional appraisal techniques.<sup>5</sup> It is further argued that this has led to longstanding biases against rural road projects and (since the poor are primarily rural) that there are biases against pro-poor investments.<sup>6</sup>

Van de Walle(2002) argues that there should be research on two fronts simultaneously. Special efforts need to be directed at measuring the existence and magnitude of the so-called social benefits from rural roads. At the same time, work needs to be done on improving the methods widely used to appraise and select rural road projects in the absence of that evidence. Van de Walle(2002) argues that a change in the transport sector's current approach to rural road investment selection is

---

4 Wider economic impacts, i.e. changes expected to occur to distribution and production patterns, market areas served and labour market catchment areas.

5 Appraisal, in the widest sense, includes the analysis and assessment of social, economic, financial, institutional, technical, and environmental issues related to a planned intervention.

6 ITDP in cooperation with the World Bank, the EBRD, the governments of the Baltic Sea Region, and the Helsinki Commission, developed a proposed set of changes in project evaluation methodologies for use by development institutions and governments that they felt would better incorporate the concerns of social costs and benefits. The focus was more on environmental costs than poverty targeting.  
<http://www.itdp.org/read/Social%20Benefits.pdf>

warranted building on some of the poverty-focused ‘‘hybrid’’ methods found in recent rural road appraisals at the World Bank and elsewhere, which combine cost–benefit methods for some projects with cost-effectiveness calculations for others.<sup>7</sup>

Van de Walle (2002) further argues that it is far from clear, however, that existing methods of project appraisal for rural roads will properly reflect the potential benefits to the poor. Cost–benefit analysis methods for appraising investments in the road infrastructure sector were first developed for roads in more urbanized, high-traffic density areas, drawing on methods from a developed country literature on road appraisal, and consequently might not be relevant in countries, where the agricultural sector constitutes more than 30 percent of GDP as in this sample of CIS countries.

Where economic development concerns such as these are an issue in transport investment decisions, this paper recommends the use of the broad multi-topic Living Standards Measurement Study (LSMS) household survey-based approach to assessing the socio-economic impact of potential road improvements as an appropriate supplement to the standard cost-benefit analysis. LSMS household surveys have hitherto been conducted in more than forty developing countries. The main purpose of these surveys is to collect individual, household and community level data in order to measure the levels of living standards across the population, and to evaluate the effects of government policies on the living standards in these countries.

### **3. Literature Review**

Section 3 provides a comprehensive review of the findings from both ex-ante and ex-post studies, which involve empirical analysis of the socio-economic impacts of road improvements. The focus is exclusively on studies, which have a micro-economic perspective, i.e. the geographical area pertains to developments either at the local or at most the regional level. The main reason for the deliberate choice of looking exclusively at this part of the literature is based upon the empirical evidence that impacts from road improvements are predominantly local rather than regional (i.e. the district level and above) or national for the simple reason that the promotion of local economic development through road construction is very much dependent on local circumstances. This is why the economic literature tends to consider infrastructure investments a necessary but insufficient condition, and that the extent of their impact depends on their linking with other variables, such as human capital, natural resources, access to financing and technology etc.

### **4. Two Cases Studies: The Living Standards Measurement Studies and Poverty Reduction Strategy Papers in Kyrgyzstan and Tajikistan**

Section 4 presents two country brief country case studies. In 1991 Kyrgyzstan and Tajikistan took the political step of joining the establishment of the

---

<sup>7</sup> Cost effectiveness techniques involve a comparison between the costs of a project and the achievement of stated objectives or outcomes. As such they have an intuitive appeal as they directly focus on delivering transport related improvements to meet certain goals (e.g. maximising the number of people within 1 day's travel of a road). They are also particular strong in assessing the most effective measure for delivering a project whose benefits are not readily measurable in monetary terms, an area in which cost benefit analysis is traditionally weak.

Commonwealth of Independent States (CIS) as founding members on the basis of sovereign equality.<sup>8</sup> In 1993, CIS States established the Economic Union to create a common economic space grounded in the principle of the free movement of goods, services, labour and capital. CIS countries also agreed to coordinate e.g. price, customs and external economic policies and to coordinate methods of regulating economic activity. Notwithstanding Kyrgyzstan and Tajikistan both meet the OECD/DAC eligibility requirements for Overseas Development Aid (ODA); and are categorised in the “low income country” category. In fact, there is an urgent need for implementation of the UN Millennium Development Goals (MDGs) in these two Central Asian member countries of the UNECE, which is underscored by the fact that poverty is found in a large part in both countries.<sup>9</sup> This is also captured by their low human development index (HDI) rankings, which were respectively 102 and 112 (cf. Annex below).

These two Central Asian Republics share the following additional common structural and economic characteristics: Land use; GDP per capita; GDP composition per sector, especially the role played by agriculture in the economy with cotton and tobacco both being important export articles; unequal income distribution; and substantial fiscal deficit.

Despite gradual improvements in growth performance, many countries in transition are still struggling with significant labour market slack. Labour market difficulties include high and persistent open unemployment, declining labour force participation, and low and sometimes stagnating real wages. The low open unemployment and high employment/population ratio that prevail in many CIS countries hide significant problems in their labour markets. They often point to delayed enterprise restructuring with persistent over-staffing and – especially in low-income CIS – to the dominance of low productivity jobs in the informal sector as a means of earning subsistence income. The natural implication of this point is that labour market outcomes in CIS are most likely to deteriorate along with the progress of restructuring. Enterprises will downsize more aggressively to be competitive, as they did in CEE, and non-profitable firms will close. Thus inflows into unemployment are likely to increase as restructuring progresses (ECA, 2004).

The CIS countries – and, within the group, the poorest countries in particular - saw a rise in relative and even absolute employment in agriculture, often as the employer of last resort given the lack of job openings in other sectors. In the case of Kyrgyzstan, agricultural employment has shown a steady increase through output decline and recovery – with agriculture being the employer of last resort given the lack of job openings in other sectors – and while employment in market services has increased, the pace and amount of increase has been slow (ECA, 2004).

---

<sup>8</sup> Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan are also Members of the UN Economic and Social Commission for Asia and the Pacific (ESCAP). In this context the establishment of the United Nations Special Programme for the Economies of Central Asia (SPECA), under the auspices of the UNECE and the ESCAP, has been an important vehicle for inter-regional cooperation.

<sup>9</sup> In 2004 it was estimated that around 50% and 60% of the population lived below the poverty line in respectively Kyrgyzstan and Tajikistan. From an income distributional perspective, in both countries the lowest decile in 1999 only had 3.2% of the household income.

As of now, five rounds of LSMS household surveys have been carried out in the Kyrgyz Republic. The first of these surveys, called the Kyrgyz Multipurpose Poverty Study (KMPS) was conducted in October and November 1993 with a sample of about 2,000 households and 10,000 members of those households. The KPMS surveys are the only national household surveys in Kyrgyz Republic collected using Probability Sampling.<sup>10</sup> The main purpose of these surveys is to provide data for the study of multiple aspects of household welfare and behavior, analysis of poverty, and understanding the effect of government policies on households (World Bank, 2002a).<sup>11</sup>

The purpose of The Tajik Living Standards Survey (TLSS) is to provide quantitative data at the individual, household and community level that will facilitate purposeful policy design on issues of welfare and living standards of the population of the Republic of Tajikistan in 1999. The TLSS was carried out between May-June of 1999. A total of 2,000 households containing 14,142 individuals were interviewed. Households were randomly selected over 125 population points, which were stratified across urban and rural areas within oblasts, to ensure a nationally representative sample. The questionnaire was based on the standard LSMS for the CIS countries.

The principal objective of this survey is to collect basic data reflecting the actual living conditions of the population in Tajikistan. These data will then be used for evaluating socio-economic development and formulating policies to improve living conditions. The information gathered is intended to improve economic and social policy in Tajikistan. It should enable decision-makers to 1) identify target groups for government assistance, 2) construct models of socio-economic development policies and 3) analyze the impact of decisions already made and the current economic conditions on households.

## **5. Conclusions and Recommendations**

UNCTAD(1999) arguments that there is as strong a case for a regional approach to transport infrastructure financing as there is for a regional approach to transit traffic facilitation. Such an approach can e.g. reduce financing requirements and also help to mobilize resources from donors and private sources when developing new public infrastructure. Especially, since relying on the purely public financing of transport infrastructure is becoming more difficult, as UNECE Member States such as Kyrgyzstan and Tajikistan face growing financial burdens (cf. section 4).

Given the adverse socio-economic trends in these two low-income CIS countries, adequate targeting of efforts and resources in the construction of new transportation infrastructure and upgrading of the existing stock will be crucial in increasing provincial specialization of agriculture and in the transition from food crops to higher-value products. Moreover, given widespread informality, the need to reinforce social protection for those without access to formal insurance mechanisms should be considered. This could include greater use of phased approach public work schemes using labour based methods that are open to all those willing to work at a

---

<sup>10</sup> The Household Budget Survey, the standard income and expenditure survey of the republics of the Former Soviet Union, uses quota sampling and, thus, can not be extrapolated to the national population.

<sup>11</sup> <http://www.worldbank.org/html/prdph/lsmc/country/kyrgyz/docs/kyrbif2.pdf>

program wage rate which is set at a level low enough to ensure self-targeting of the most needy and non-distortion of local rural labour market.

Fortunately, it is possible to think of different strategies for job creation. This paper advocates the strategy that aims to link employment programmes explicitly to economic growth, particularly by introducing employment concerns into mainstream investment policy. Adoption of labour-based methods in rural transport infrastructure can provide this link, as investment in basic services like rural roads can contribute to growth while creating jobs for the poor. Such an investment and growth strategy would thus be pro-poor as it would create poverty-reducing jobs as well as provide much needed services (Islam, 2003). Public investment in transport infrastructure within the Phased Approach Framework could play a lead role in this approach. Based upon the most recent Poverty Reduction Strategy Papers and the Living Standards Measurement Studies carried out in Kyrgyzstan and Tajikistan, this paper will advocate the scaling up of this approach in low-income CIS in general and in these two countries in particular.

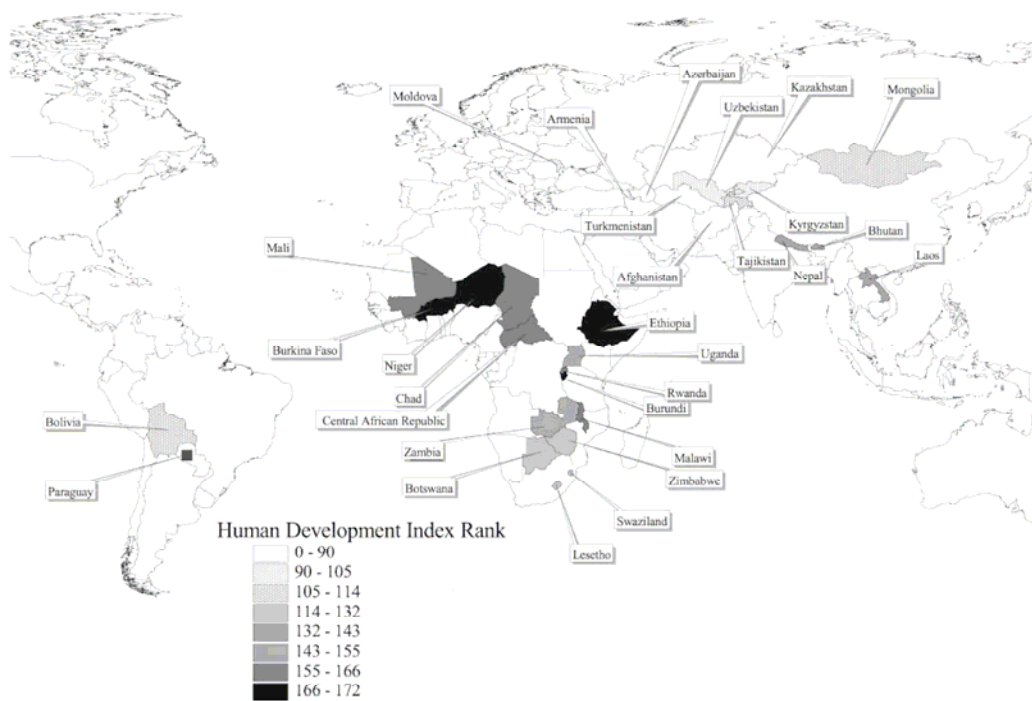
The employment potential of these infrastructure projects is vast, but is often not realized. Many projects are equipment-intensive, frequently using foreign contractors. This means money flows back outside the country and little use is made of readily available local workers. While equipment intensive technologies may be necessary for airports, the UNECE Trans-European North-South Motorway (TEM), and the UNECE Trans-European Railway or heavy bridges, for more basic infrastructure such as rural feeder roads, which is needed in poor CIS countries such as Kyrgyzstan, Uzbekistan, Tajikistan and Armenia, employment-intensive alternatives are available and offer major advantages.<sup>12</sup>

---

<sup>12</sup> The term "Employment-Intensive Approach" is used by ILO to describe a competitive technology where an optimal use is made of labour as the predominant resource in infrastructure projects, while ensuring cost-effectiveness and safeguarding quality.

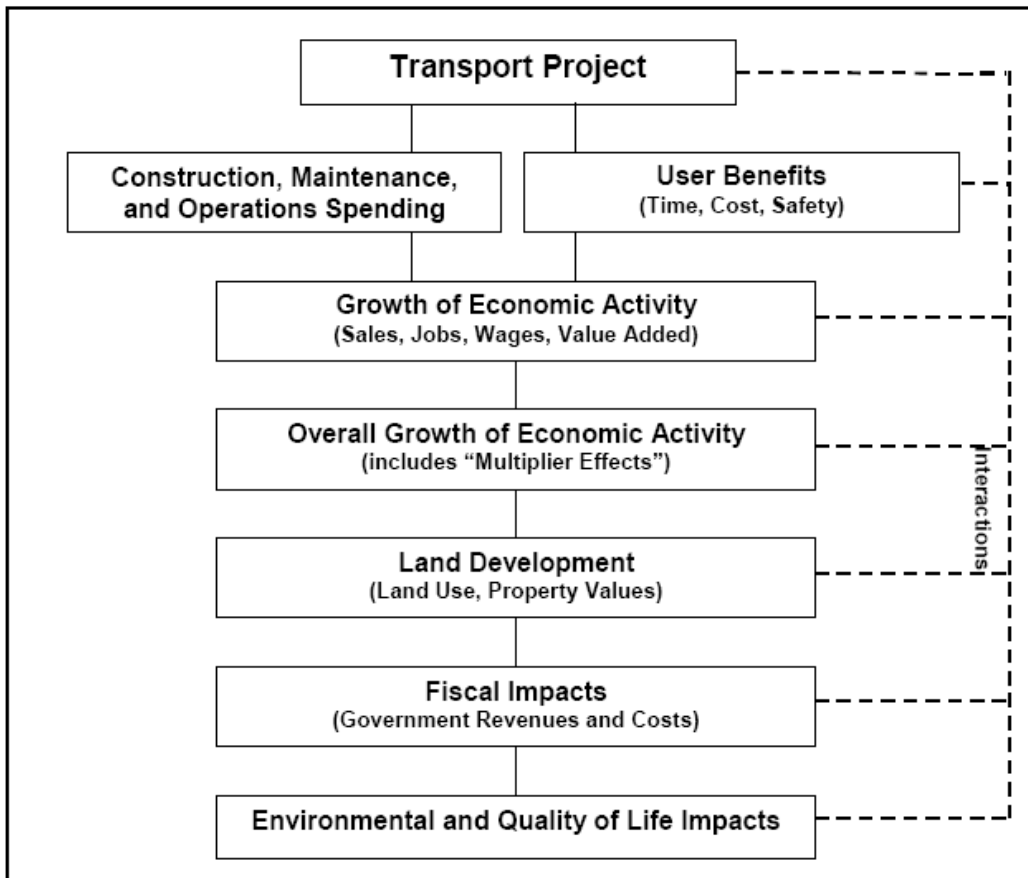


**MAP 1. HDI rankings of developing landlocked countries.**



*Note:* No data available for Afghanistan.  
Source: Human Development Report 2002.

**Figure A1. Elements of Impact.**



Source: (Weisbrod and Weisbrod, 1997)

WEISBROD, G. & WEISBROD, B. (1997) Assessing the Economic Impact of Transportation Projects: How to Match the Appropriate Technique to Your Project. IN BOARD, T. R. (Ed.), Economic Development Research Group and Northwestern University.