COSTING ROAD ACCIDENTS IN DEVELOPING COUNTRIES

1. INTRODUCTION

Objectives

1.1 The objective of this Note is to advise economists, planners and engineers in developing countries on a workable method that can be used to cost road accidents.

1.2 There are many different methods and approaches to this particular problem; it must be stressed that no single method is ideal and that a considerable amount of data needs to be collected whatever method is used.

1.3 This Road Note attempts to explain the importance of costing road accidents in developing countries and outlines in Section 2 the various methods that can be used to do this. Section 3 describes how to use the (preferred) Gross Output method and Section 4 presents a case study of its use in practice. Finally an Appendix presents results of the possible effects of including accident savings in a number of highway cost - benefit analyses.

Why cost road accidents?

1.4 It is now well established that many developing countries have a serious road accident problem (Jacobs and Cutting 1986). Fatality rates (per licensed vehicle) are high in comparison with those in developed countries and whilst in Europe and North America the situation is generally improving, many developing countries face a worsening situation. For example, over the period 1969 to 1986, the number of people killed in road accidents in 12 European countries combined actually fell by about 20 per cent. In 16 Third World countries combined there was, over the same time period, an increase in the number killed of over 150 per cent.

1.5 Whilst these trends give cause for concern in developing countries, road safety is but one of the many problems demanding its share of funding and other resources. Even within the boundaries of the transport and highway sector, hard decisions have to be taken on the resources that a Third World government can devote to road safety. In order to assist in this decision-making process it is essential that a method be devised to determine the cost of road accidents and the value of preventing them.

1.6 So, the first need for cost figures is at the level of national resource planning to ensure that road safety is ranked equitably in terms of investment in its improvement. Fairly broad estimates are usually sufficient for this purpose, but must be compatible with the competing sectors. For example, in a recent road safety study undertaken in a particular country by TRL, it was shown that the annual cost of road accidents nationally was about £20 million. A series of safety improvements were outlined which, it was estimated would reduce the national cost of accidents by 5 per cent per annum (i.e. saving £1 million p.a.). These improvements (in highway design and layout, education, training and enforcement) were estimated to cost £500,000 in a programme of measures set out over a five year period (i.e. at an average annual cost of £100,000). The average First Year Rate of Return on investment was therefore about 1000 per cent and the Benefit : Cost ratio about 10:1. High rates of return such as these are fairly common in road safety appraisals and (apart from the humanitarian aspects), illustrate the economic benefits of investing in national road safety programmes.

1.7 A second need for road accident cost figures is to ensure that the best use is made of any investment and that the best (and most appropriate) safety improvements are introduced in terms of the benefits that they will generate in relation to the cost of their implementation. Failure to associate specific costs with road accidents will almost certainly result in the use of widely varying criteria in the choice of measures and the assessment of projects that affect road safety. As a consequence it is extremely unlikely that the pattern of expenditure on road safety will, in any sense be “optimal”. In particular, if safety benefits are ignored in transport planning then there will inevitably be an under-investment in road safety.

VALUE OF LIFE

1.8 From the above it can be seen that rational decisions on the allocation of resources to road safety will require the use of cost-benefit analysis, with explicit costs of accidents and values of accident prevention. Ways in which such costs and values can be defined and estimated are described in the next chapter. However, to some people the monetary valuation of human life and safety may appear immoral and it should be stressed that at no point does this Road Note lay claim that it is possible to find a numerical sum which can be said to be the absolute “value of human life”, as such. Rather, what this Note examines are the various methods that can be used to estimate the value that should be placed on various safety-improving activities (and the costs that should be associated with increases in risk) on the roads of developing countries.