

## Utilization of information on costs and effects

### Summary

Information about the costs and effects of road safety measures is only used in decision making to a limited extent. European research shows that about 35% of civil servants and politicians use this type of information. Furthermore, there are great differences between northern countries (58%) and central and southern countries (15%). The following barriers to use cost-benefit analyses (CBAs) and cost-effect analyses (CEAs) are important:

- There is a difference in vision between researchers and policy makers on the use of CBAs/CEAs. Policy makers sometimes reject the economic welfare principles behind the CBA/CEA, and make decisions based on more arguments than only the results of a cost-benefit analysis.
- The timing of a CBA or CEA in the decision making process often is not correct: information does not arrive on time, but is either too early or too late.
- The presentation of the results of a CBA or CEA sometimes does not fit the wishes and knowledge of the users. Policy makers sometimes regard CBAs as hard to read and difficult to understand.
- Policy makers often see CBAs/CEAs as a black box. It is not clear to them which choices have been made, whether an independent quality control has taken place, or whether uncertainties have been taken into account.
- Sometimes there is insufficient uniform knowledge about the effects of measures.

The following improvements are possible for the use of cost-benefit and cost-effect analyses:

- Better timing and presentation by introducing a professional code for contacts between policy makers and researchers.
- Independent quality control, either by a separate institute or by certification. A methodology manual can also contribute to better CBAs/CEAs.
- A European database of the effects of measures in order to stimulate the use of uniform and valid data.

### Background

This fact sheet describes the extent to which policy makers commission a study of costs and effects, or use this type of results when deciding about road safety measures. We then examine which barriers there are to using this information, and how these barriers can be overcome. A separate SWOV Fact sheet *The use of road safety knowledge by policy makers* (forthcoming) will look at the use of road safety knowledge in general, and the possible barriers.

Calculations of costs and effects of measures can be made in a cost-benefit analysis (CBA) and a cost-effect analysis (CEA). In a CBA an examination is made of all effects of a measure and these effects are expressed in Euros. In a CEA only one effect of a measure is examined, e.g. on road safety, and is expressed in a unit other than money, e.g. the number of casualties. This fact sheet discusses both types of analysis. When, because of readability, only the term CBA is used, we also refer to the CEA.

### Which studies of CBA use have been made?

Various studies of the use of CBAs in the decision making process have been published. They show that there are a number of barriers to using CBA information. Three recent studies are directly relevant.

In 2002 the use of the OEI guideline, a Dutch manual for CBAs of large infrastructural projects, was assessed. This indicated the barriers to the use of the results of the OEI (Buck Consultants, 2002). The assessment has resulted in a number of recommendations and in additions to the OEI guideline (Ministry of Transport, 2004a and 2004b). In the guideline (CPB & NEI, 2000) OEI is the abbreviation of Overview Effects Infrastructure. An OEI is a document which, in addition to the costs of construction and maintenance, also reports on the effects of infrastructure on accessibility, the economy, safety,

and the environment. These effects are mostly expressed in money. An OEI is compulsory in decision making about large national infrastructural projects, the so-called megaprojects.

Between November 2002 and September 2005, a thematic network of the European Union called [ROSEBUD](#) was operative. Among other things, the ROSEBUD network has conducted research into the barriers and stimulants to use this type of information, which includes CBAs, in road safety policy making (Elvik & Veisten, 2004; Hakkert & Wesemann, 2005). Beside SWOV, thirteen renowned research institutes from different countries participated in the network.

Recently SWOV studied the use of cost and effect information in twelve Dutch provinces (Bax & Jagtman, 2008).

### **How often are CBAs used and what could be their effect?**

#### *International*

The ROSEBUD study (Elvik & Veisten, 2004) carried out a survey among 83 subjects in 7 European countries and found that approximately 35% of the policy makers and politicians at national and local level use knowledge from CBAs of road safety measures or commission them themselves. A striking difference was found between the more northern countries (Norway, the Netherlands and Germany) and the central and southern countries (Czechia, Hungary, Italy and Israel). The northern countries used a CBA or commissioned one considerably more frequently (about 58%) than the central and southern countries (15%).

#### *Provincial*

A SWOV study (Bax & Jagtman, 2008) indicates that approximately half of the provinces reports having an idea of the costs and effects of road safety measures on 80 km/h roads. Provinces indicate that they have a better idea of the costs than of the effects. Two thirds state that cost and effect information does play a role in the decision making to some extent, even if the information does not offer them a complete picture. Most provinces derive their knowledge about the effects of measures from their own crash studies. To a lesser extent they use literature from sources outside their organization.

### **Why are CBAs often not used?**

Different barriers to using CBAs in decision making can be distinguished in the various studies that have so far been mentioned.

#### *In infrastructure policy*

Although the subjects in the OEI assessment, mainly public servants and researchers, are positive about the guideline, there are some points of criticism. For example, a CBA is not considered to be the ultimate answer to policy questions, other considerations also play an important role. The CBA knowledge of policy makers and politicians is often insufficient, which results in shortcomings in the interpretation of the data. Moreover, the choices regarding methods, scenarios, and assumptions that are made in a CBA are often obscure for policy makers and politicians, as are the uncertainties that go with these choices. As a result a CBA is often regarded as a black box. The monetary effects are too dominant in comparison with the qualitative aspects of a policy problem.

#### *In road safety policy*

##### *International*

In 2003, the ROSEBUD project investigated which barriers are experienced as such by civil servants concerned with road safety when using information about costs and benefits of road safety measures (Elvik & Veisten, 2004). This questionnaire study was held among policy makers at EU, national, and local level. A list of possible barriers was based on Elvik (2001). The list distinguished between four groups of barriers: 1) fundamental barriers, e.g. rejection of CBA, 2) institutional barriers, e.g. the organization of the decision making, 3) technical barriers, e.g. technical shortcomings of the CBA method, and 4) implementation barriers, e.g. not having the authority to implement the measures. The reactions of 83 subjects from 7 countries showed the following important hindrances to using CBAs:

- rejection of the economic welfare principle for road safety measures;
- incorrect timing of the CBA: results become available at the wrong moment;
- insufficient means to conduct a CBA;
- lack of knowledge about effects of measures.

These hindrances were regarded as barriers by more than 50% of the subjects. 40% experienced some other important barriers:

- too little knowledge of the CBA principle among civil servants;
- uncertainty factor in the calculations is not correctly and/or not clearly included;
- the form in which the CBA information is presented;
- origin of the CBA information: lack of unbiased quality control.

### *Provincial*

In the SWOV study (Bax & Jagtman, 2008) twelve provinces indicate which barriers they experienced in converting cost and effect information into concrete measures at their 80 km/h roads. Remarkably, the conclusions do not agree entirely with previous studies like the European ROSEBUD study which was mentioned earlier. The most important barriers that were found in that EU study, rejection of the economic welfare principle and wrong timing, are not found here. For wrong timing this is probably the case because the measures which the study focuses on are not once only, but are taken at different locations during a longer time span. Rejection of the economic welfare principle probably is not a barrier because of the scope of the study. Because a previous study showed that the investigated provinces used cost-effect analyses and not cost-benefit analyses, the study focused on cost-effect analyses. These analyses do not attach a monetary value to a human life, which is the most debatable issue in cost-benefit analyses. Therefore, the cost-effect analyses did not evoke resistance.

The most important barriers are not directly related to the actual information about costs and effects: data often is in conflict with other policy, citizens object, or measures are too expensive. Finally, it is remarkable that provinces frequently indicate that specific accidents occur seldom or not at all, while the official crash data say otherwise. In his study, Elvik (2003) finds the same barriers: citizen support and cost and effect information about road safety being in conflict with other policy and other arguments.

### **How can we stimulate the use of CBAs?**

The ROSEBUD study (Hakkert & Wesemann, 2005) recommended the following improvements to the EU:

- Formulate guidelines especially for the methods and techniques of road safety measure CBAs; best practice examples can be included. The guidelines do not need to have a formal status.
- Design and maintain an EU-wide database of effects of road safety measures in order to stimulate the use of uniform and valid data. The database should contain general effects and provide handles for comparison with the local situation. The database should be available for a European expert network.
- Develop a system of independent quality control. This can for instance be done by appointing a separate advisory board. CBA quality can also be increased by stimulating the competition between institutes conducting CBAs, or by certifying them when they are highly specialized in these analyses.
- Structuralize and support cooperation between policy makers and researchers by means of an informal professional code for researchers: a checklist with points of consultation and knowledge exchange. Policy makers need to be taught to read CBAs and how to use them. In addition, 'tips and tricks' should be provided to enable researchers to write more readable and comprehensible reports about CBAs.

### **Publications and sources [SWOV reports have a summary in English]**

Bax, C.A. & Jagtman, H.M. (2008). [Gebruik van informatie bij besluitvorming over verkeersveiligheidsmaatregelen; Onderzoek in twaalf provincies](#). R-2008-13. SWOV, Leidschendam.

Buck Consultants (2002). [Evaluatie OEEI-leidraad](#). In opdracht van het Ministerie van Economische Zaken en het Ministerie van Verkeer & Waterstaat. Buck Consultants International, Den Haag.

CPB & NEI (2000). [Evaluatie van infrastructuurprojecten; leidraad voor kosten-batenanalyse](#). CPB [Netherlands Bureau for Economic Policy Analysis], Den Haag.

- Elvik, R. (2001). [\*Cost-benefit analysis of road safety measures: applicability and controversies\*](#). In: Accident Analysis and Prevention, vol. 33, nr. 1. p. 9-17.
- Elvik, R. (2003). [\*How would setting policy priorities according to cost-benefit analyses affect the provision of road safety?\*](#) In: Accident Analysis and Prevention, vol. 35, nr. 4 p. 557-570.
- Elvik, R. & Veisten, K. (2004). [\*Barriers to the use of efficiency assessment tools in road safety policy\*](#). Workpackage 2 Report of the Thematic Network Rosebud, Road Safety and Environmental Cost-benefit and Cost-Effectiveness Analysis for Use in Decision-Making. Brussel, European Commission.
- Hakkert, S. & Wesemann, P. (2005). [\*The use of efficiency assessment tools: solutions to barriers. Workpackage 3 of the European research project ROSEBUD\*](#). R-2005-2. SWOV, Leidschendam.
- Huberman, M. (1994). [\*Research Utilization: The State of the Art\*](#). In: Knowledge and Policy, vol. 7, nr. 4, p. 13-33.
- Landry, R., Amara, N. & Laamary, M. (1998). [\*Utilization of social science research knowledge in Canada\*](#). In: Research Policy, [Volume 30, Issue 2](#) , February 2001, Pages 333-349.
- Ministry of Transport (2004a). [\*Aanvullingen op de Leidraad Overzicht Effecten Infrastructuur. Een Samenvatting\*](#). Ministerie van Verkeer en Waterstaat [Ministry of Transport], Den Haag.
- Ministry of Transport (2004b). [\*OEI in het besluitvormingsproces. Aanvulling op de Leidraad OEI\*](#). Ministerie van Verkeer en Waterstaat [Ministry of Transport], Den Haag.
- Oh, C.H. & Rich, F. (1996). [\*Explaining use of information in public policy making\*](#). In: Knowledge and Policy, vol. 9, nr. 1, p. 3-35.
- SWOV (2008). [\*Cost-benefit analysis of road safety measures\*](#). SWOV Fact sheet, June 2008. SWOV, Leidschendam.
- Weiss, C. (ed.) (1977). [\*Using social research in public policy making\*](#). Lexington Books, Toronto.
- Zwart-van Rijkdom, J.E.F., Hubertus, G.M., Leufkens, G.M., Busschbach, J.J.V., Broekmans, A.W. & Rutten, F.F.H. (2000). [\*Differences in attitudes, knowledge and use of economic evaluations in decision-making in the Netherlands\*](#). In: Pharmacoconomics, vol. 18, nr. 2, p. 149-160.
- Website OEI-leidraad:  
<http://www.rijkswaterstaat.nl/dvs/themas/leefbaarheid/economie/see/handleidingen/leidraadoei.jsp>
- Website ROSEBUD:  
<http://partnet.vtt.fi/rosebud/>