

### 3. HOW TO EDUCATE OUR DECISION-MAKERS: A CHALLENGE FOR RESEARCHERS

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#### 3.1 INTRODUCTION

Traffic safety, as a research area, is classified within "applied sciences", at least by those who consider it as a science at all. This means, or rather should mean, both that research is designed and carried out to provide some answers for practical use, and that results obtained are taken into consideration and reasonably applied by professionals in the field.

In actual facts, relationships between traffic safety decision-makers and researchers have often been uneasy, and a real partnership with clear roles to play for each party has seldom been reached. There may be several reasons to this:

- a) Just as everybody else, decision-makers are road-users, whichever means of conveyance they usually adopt; just as everybody else, they have their own opinions on traffic, accidents, and how these occur; assuming responsibility for accident prevention makes them both judge and party, and in their case, individual opinions tend to extend into professional views; it is therefore not surprising that decision-makers do not feel the need for objective information and research findings as much as could be expected.
- b) This is further compounded by the fact that trends towards greater democracy and participation of the citizens in public affairs are now developing (at least in Western European countries); decision-makers have to give a more and more attentive ear to the demands and opinions of the road-users, who are not professionals and do not usually possess all the relevant data, but nevertheless become competitors for the researchers in providing a background for policy-making.
- c) A kind of rivalry sometimes also develops between decision-makers and researchers: Traffic safety choices generally involve some compromise between rational safety planning based on objective findings, subjective ideas of how things work, and interests other than accident prevention and life saving; according to the respective weights put on each of these motivations, decision-makers tend to form their own theories on the identification of priorities and the best modes of action; these theories are obviously likely to contradict those formed by researchers on (hopefully) purely objective grounds. To avoid an implied criticism of current safety action, there have even been cases when decision-makers have tried to silence researchers, an easy thing to do when they hold most of the funding for research !
- d) When the rivalry becomes acute, researchers get to be considered (wrongly) as too far away from practical interests to be of any use: the validity of their work and findings is thus questioned, and when decision-makers feel the need for specific safety training, researchers may not even be called upon to contribute.
- e) From a more down-to-earth point of view, decision-makers relatively often change posts, and therefore fields of action: there are always newcomers in traffic safety and

the old-timers do not get time to train them before being moved to other responsibilities; as a result, there is no memory of the practitioners, no real accumulation of experience and know-how, no continuity of knowledge.

It would be unrealistic however to tie all the reasons for the current misunderstanding between research and field practice to the decision-makers or the administrative systems of which they are parts. Researchers, either following their own personal drive or under the influence of the (sometimes restrictive) rules of the research community, are themselves often accused of not listening enough to the needs expressed by decision-makers, keeping their results under a shape hardly usable by practitioners, or refusing to set a foot in the real world of traffic safety professionals in order to get a bath of pragmatism.

This picture, while not entirely untrue, is somewhat caricatural, especially as researchers are not always free of their movements and cannot be systematically blamed for an isolation they have not wanted. But although most traffic safety researchers are at least trying to keep in touch, there is indeed a need for better communication between them and their decision-makers, if research is to have any practical outcome. Why this has not yet been achieved and how to change course with a better chance of success is the topic of the following discussion.

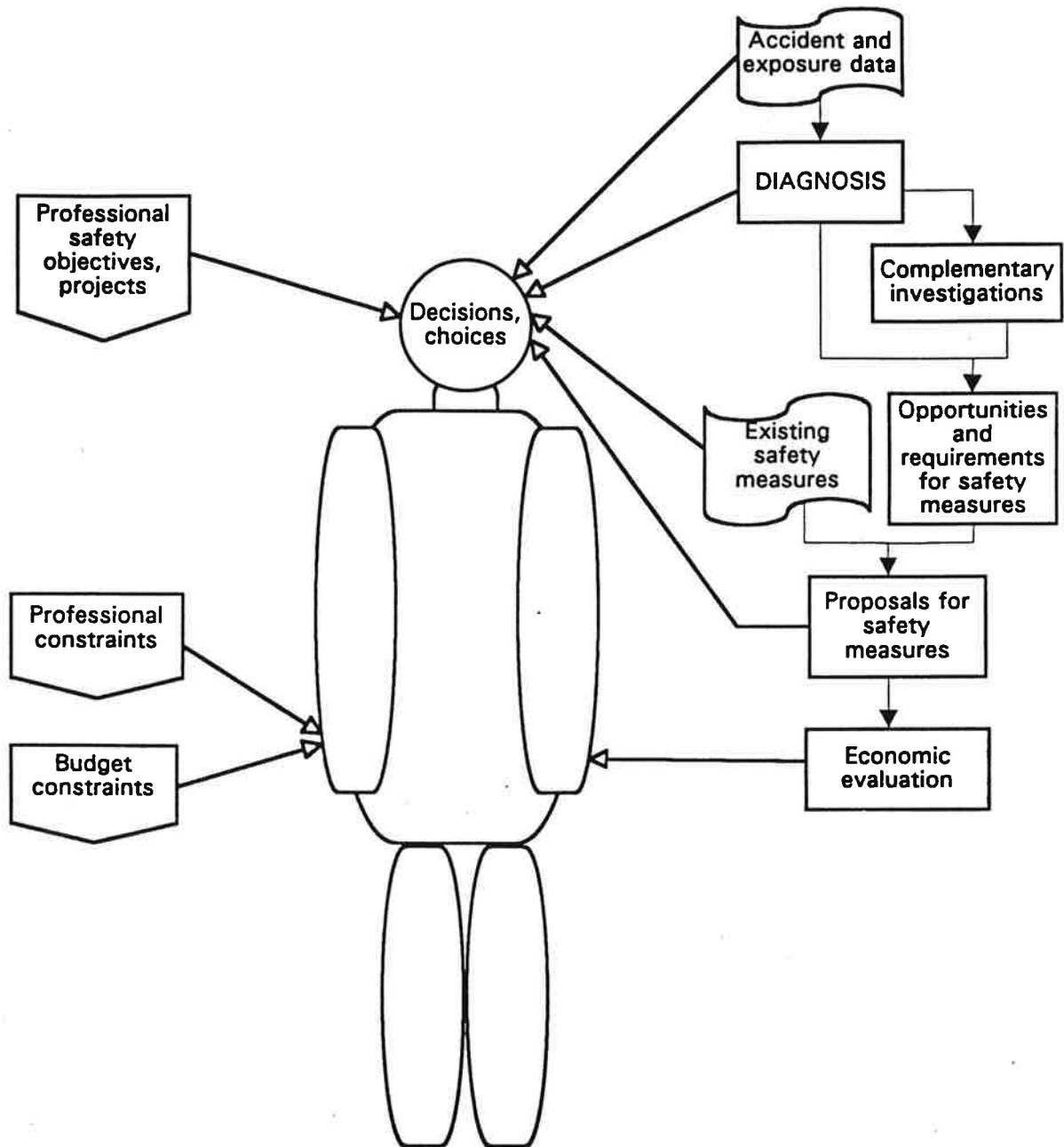
### **3.2 THE TRADITIONAL SCENE**

The relationships between decision-makers and researchers, as usually seen by researchers, are based on a simplified and rather naive model inherited from an old "operations research" approach (Fig. 1):

- a) The decision-maker is considered as a well-organized person who can, while dealing with one particular subject, ignore all others, including personal concerns; in our case, the decision-maker keeps only in mind traffic safety objectives and current projects which may have a direct (or perhaps even an indirect) effect on them; he is open and ready to receive any relevant information that may ease his choice of a course of action and improve its effectiveness in reducing accidents.
- b) The decision-maker, however, works under constraints: a budget which always turns out to be too small for proposed safety projects to get fully implemented, and professional surroundings which are not always helpful (lack of multi-disciplinary communication, insufficient qualified manpower, limited time available for traffic safety work, etc.); such constraints may be considered as fixed and unalterable, or, more realistically, as partly flexible and likely to be alleviated, given proper effort and justification.
- c) The decision-maker is well-meaning and logically-minded: given proper information, he will try to optimize his choice of a strategy towards accident-reduction, making the best use under constraints of the opportunities and the means available.
- d) The decision-maker is aware that he needs a strong basis of information to justify his actions, and has set up a direct line to professionals and researchers who have the knowledge and can be provided with the means to prepare such information.

Figure 1

## THE DECISION-MAKER as seen by the researcher



- e) In front of a decision-maker with such goodwill and talents, there has to be a researcher willing to apply his abilities to practical safety work. The part he will have to play is only technical: to help define the information needed for safety planning, including, first raw data, then different stages of analysis in relation to the needs anticipated at successive levels of the decision-making pattern, to select the relevant items from the pool of knowledge accumulated through research experience, to work out the analyses and provide the results under a usable format.

In order to perform his task properly, the researcher must have some idea, based on experience, of what is needed to design safety policies. If the decision-maker is new in the field (or open to discussion), the researcher may even be able to push forward some methods and a logical process to take into account as much objective information as possible into the safety planning procedure. His task can be examined in more details under this prospect:

- The first tool needed by the decision-maker is reliable accident and exposure data that will enable him to assess the global safety situation and to frame the most important problems to solve. In most industrialized countries, a data collection system has long been set up, but there is still scope for substantial improvement (under-reporting of particular types of accidents, lack of exposure data); in developing countries, data bases seldom exist and under-reporting is almost a general problem.

Researchers may consider it as a first step in their relationships to decision-makers to help them set up a data collection system, improve it, and, if necessary, contribute an analysis based on up-to-date statistical methods.

- Finding out the most urgent safety problems is not enough to solve them. A thorough diagnosis aimed at understanding the complex accident causation patterns will provide more precise directions for action, on the basis of detailed accident data, possibly complemented with traffic conflict data and behavioural observations. Additional investigations and surveys, of the roads, the vehicles or the road users, can be designed to answer some particular questions arising from the diagnosis, analyse the feasibility of particular types of measures, and prepare a framework for education and information measures. Adequate methodologies are needed to ensure validity of the findings. It is clear that, even provided with relevant data, a decision-maker will neither have the time, nor the necessary (multi-disciplinary) skills to perform these analyses and investigations; researchers have the skills, if not always the time, and should at least design and coordinate diagnostic studies, using every opportunity to train practitioners to perform the different forms of data collection and treatment involved.
- If the constraints on decision-making are considered as flexible, objective findings may be useful to help alleviate them. An economic valuation of the cost of accidents, based on accident data and complementary investigations (in hospitals, with insurance companies, with road transport professionals, etc.), should provide a starting point for the decision-maker to claim a larger traffic safety budget. An institutional analysis of the structure needed to implement a multi-disciplinary programme of measures and of the existing administrative organisation should help promote necessary changes. In this area, it is not only the need for specialized skills and for time that points out to the researcher as the best study designer and coordinator; it is also essential that the decision-maker, himself a part of the administrative system he is trying to improve, can show the proposals he is pushing forward as coming from objective outsiders.

- When it comes to the selection and design of safety measures, the task is really in the hands of the decision-maker and his teams of professionals. However, the step between the diagnosis and the design of a safety programme is not an easy one to take. Here again, the researcher can contribute by gathering research and evaluation results concerning relevant safety measures already experimented in the field, and possibly proposing principles for new safety measures, tailored to the particular problems and conditions of application examined in the diagnosis.
- As soon as safety measures have been applied, some evaluation should be interesting, both from the decision-maker's viewpoint (to promote his efforts if the results are positive, to improve the situation if they are not) and from the researcher's (to add to his pool of knowledge, to improve his methodologies). Sound evaluation requires specific skills and should be carried out by someone who has not taken any part in the decision-making process and the implementation. It is a final task for researchers, although maybe not those responsible for the earlier proposals.

If this simplified model were to work, and researchers to be regularly called upon by decision-makers, it would suggest that a large number of researchers should take part in the process on an alternative basis, in order to be able to keep carrying out new or further research rather than being confined to the application side of it. Researchers should also design training programmes for professionals, who would be able to gradually take over at least part of the information gathering and interpreting tasks. Over time, the most important research tasks would thus become coordination of studies, improvement of methodologies, and up-dating of the training programmes. We are in a "cooperative-type model", which, after a starting period, leads to a situation where the respective parts of the decision-maker and the researcher are well defined, with trained safety professionals as an intermediate element.

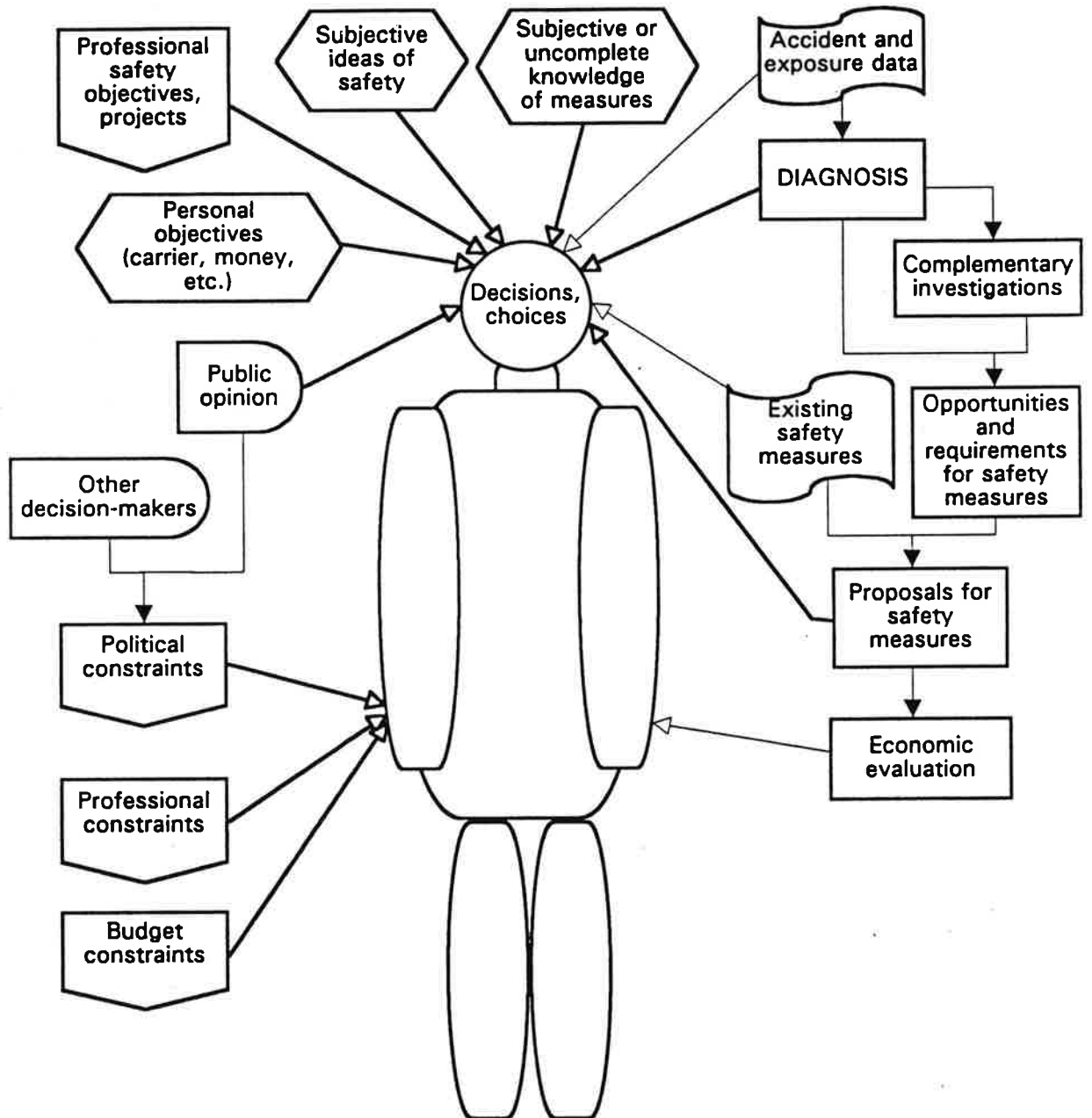
Unfortunately, attempts at testing such a model, both in European and in developing countries, have showed that it could work to some limited extent, but that difficulties arose both when reaching the programme design stage and when trying to establish long-term relationships between researchers and their partners. A new approach is therefore needed, introducing some external influences into the model.

### **3.3 A MORE REALISTIC VIEW OF THE SCENE**

In this second model derived from the simplified one, the decision-maker is seen as a more complex character (Fig. 2):

Figure 2

## A more realistic view of THE DECISION-MAKER



- a) The decision-maker has still in mind traffic safety improvement as a prominent professional objective, but he cannot entirely get rid of other concerns. One of them may be his own personal goals, such as career, money, etc.; these goals may influence his motivation for accident-prevention (is it valuable for him to put efforts into this field ? can it help him get promoted ?) or even his decisions and choices (is anybody who can be useful to his career going to disapprove of some particular proposal for action ?). Personal goals can also create a need for promoting his own efforts in accident-prevention, addressing fellow decision-makers or even the public itself; campaigns for personal enhancement may, if costly, compete with proper preventive action, but may also to some extent help improve the general image of traffic safety work.
- b) The decision-maker will work under more constraints than previously acknowledged. One of them is the political constraint, usually relayed by other decision-makers at a higher level; but in a democratic system, public opinion can also directly influence politics and decision-making, as road-users are the citizens who vote, and moreover may express themselves rather loudly when unsatisfied (see for instance lorry drivers' demonstrations) and even demand a culprit for an ill-accepted safety measures. While budgetary and organisational constraints could be hoped to be somewhat flexible given proper justification, political constraints are unstable, but rather difficult to influence through scientific arguments !
- c) Being themselves road-users, decision-makers have formed their own subjective ideas of accidents and why they occur. Also, if they have been in the traffic safety field for a while, they will have some overview of the possible countermeasures, although perhaps not a complete one (unless based on intensive international exchange and review of experience) and not an entirely objective one (if criteria for success or failure of measures and conditions of application are not clearly explicated). The less "memory" of traffic safety work at the decision-making level, the more based on limited personal experience the knowledge will be. But whatever the quality of ideas and knowledge in the head of the decision-maker, he will be less convinced of the need for researchers to contribute to the information gathering process than in the simplified model: researchers may have to fight to keep a voice.
- d) Being submitted to complex constraints, some of them entirely external to traffic safety concerns, and dealing with both subjective and scientifically obtained information, the decision-maker cannot be expected to be entirely rational, nor to provide the final solution through any optimizing process; similarly, his goodwill may be somewhat decreased by personal considerations; however, he has to be assumed to retain some goodwill and some rationality, and to take some account of objective findings (otherwise, there would be no point in the researcher trying to help in the policy-making process !). The amount of scientific reasoning and the part played by objective information must also be considered flexible, with possible increase in relation to the relevancy and the convincing qualities of the findings provided by the researcher.

The different levels of information that the researcher should provide as a background for decision-making remain the same as in the first model, but his overall task is more difficult:

- Raw data on the accident situation as well as findings from the diagnosis pointing out to the main accident generating processes may be in contradiction with the personal ideas of the decision-maker or opinions currently held in the public; when there is no data base available, the decision-maker may not see an immediate use for one. If the researcher is interested

in seeing real priorities tackled first, he has to become a militant to obtain to set up a data collection, push forward his results... and keep in the field.

- The researcher does not just draw a diagnosis, he needs first to convince the decision-maker that it will be a help and a source of ideas rather than just a constraining framework for action, in order to get the necessary funds to perform the study; then he will have, not only to provide results, but to present them in an attractive way and actually promote them to ensure they are duly taken into consideration. The researcher has to double into a "communicator".
- If the researcher makes proposals for safety action or institutional organisation, they will (normally) be based on the findings of the diagnosis and, normally, on an extensive and objective knowledge of the effects of existing measures; the proposals may be in contradiction with some ideas the decision-maker may have formed on the basis of his own knowledge, as well as with other proposals coming out for example from political constraints. The final choice will be the decision-maker's, but here again, the researcher can try his convincing powers, with the aim, not to reach an optimal solution, but simply to keep objective information in the circuit as far as possible.
- Fighting for his own career and unsure of the final success of the programme he has been designing, the decision-maker may not be so keen on getting a real evaluation under way; logically, the more rational the approach, the more confident he should be that an accident reduction will actually be obtained through the measures planned, and the more interested he should be in funding an evaluation that may later be used to promote his efforts. Similarly, the researcher will be more interested in evaluating the effects of safety measures well tailored to the priority problems and their causation processes, than measures not so well targeted that would not have much relation to the part himself has played. So, there may or may not be an evaluation, but if the researcher feels it could be useful, he certainly will have to fight for it !

In this model, a "semi-cooperative-type" one, there is still some measure of mutual trust between the decision-maker and the researcher. But the latter must accept the irrational and the political elements in the planning process while preserving the scientific one: he has to keep defending his territory, pushing forward his ideas, proving his viewpoint, claiming for funds, and requesting return information for his own knowledge, with only his experience and his convincing powers to help. This requires a much stronger involvement than in the first model, and one which has only partly to do with scientific work and a lot with personal motivation and diplomatic abilities. There is also a measure of risk in it:

- There is no guarantee that results useful for the progress of research can be obtained (save from an observation of the decision-making process), which may be a problem for a researcher's own career;
- There is always a possibility that the dialogue between the researcher and the decision-maker breaks over some litigious point: it may then prove long and difficult to re-establish contact and rebuild mutual trust;
- The researcher may be blamed both by the decision-maker and by his fellow researchers if the safety programme for which he has done some work finally fails to reduce accidents or raises a political or a public storm.

Under this model, is it not understandable that not too many researchers want to get involved in safety action? Unfortunately, without a strong willingness of researchers to apply their knowledge for practical use, it is unlikely that decision-makers will call on them for more than tasks of limited scope.

As in the first model, researchers could still train safety professionals to take over some of the objective safety work. The content of the training should then extend to include communication methods and institutional observation on top of diagnosis and evaluation methodologies. But the professional risks could be the same for the dedicated professional (even more so as they could find themselves out of work in case of a litigation). It may also be doubted that decision-makers would leave professional safety training entirely in the hands of researchers, under the suspicion that they might generate a group of untamed contradictors...

### 3.4 A MORE PESSIMISTIC VIEW FOR RESEARCHERS

The model described above may still be too mild when testing it against reality, as two main possible constraints have not yet been explicated:

- a) The existence of powerful lobbies that exert pressure on the decision-maker to oppose particular kinds of safety measures. Some, as the transporters' lobby, may be considered as belonging to the public, although they are organised parts of it and therefore much more efficient than any ordinary group of road-users in pushing forward their own opinions and demands. Others, as the car manufacturers' or the public works entrepreneurs' lobbies, are economic actors who work directly through political channels under the threat of closing down jobs. Both types of lobbies are likely to be deaf to any scientific demonstration of the adverse effects of plans they are trying to promote or of the safety gains to expect from a measure they consider as having negative effects on their activities.
- b) At least in industrialized countries, the need for long term transport planning, both in urban areas and for inter-urban or international communications, is more and more acknowledged, and may conflict in budget and means with programmes aimed at improving traffic safety in the existing transport system. Traffic safety should really be taken into account at an early stage of the transport planning process in order to avoid creating new accident problems in the future. But even when there is a will at high level to do so, traffic safety only becomes a secondary objective after more important ones related to economics and to mobility. Safety researchers may have even more difficulties getting their say than where specific safety programmes are concerned; moreover, they will have to move from a corrective approach (reducing accidents in the current situation) to a prospective approach (avoiding future accidents when designing the new mobility system), which calls for a wider view and new avenues for research.

To provide some weight against lobbies, what can researchers do? Probably nothing just by themselves. It has been said that the only way to promote traffic safety was to generate a supportive lobby within the public; researchers could help by directly providing the public with adequately framed information on accidents and the best known ways to avoid them (or the worse ways to create them), using media with a larger audience or readership than the usual scientific journals. But are safety researchers always allowed to address the public directly?

As to the second constraint, the part to be played by traffic safety researchers is more difficult to define as we do not have yet enough examples to work from. Clearly, the researcher should be even more pushing than in the previous model, as he would have both to promote safety policies in the short and medium term and the introduction of safety criteria in transport planning, as well as get prepared for the latter task.

### 3.5 CONCLUSIONS

On the road safety stage, the part of the researcher is ill-defined, which calls for improvisation and attracts protests whichever approach he chooses: keeping to the theoretical and experimental grounds or trying to apply his experience to real-size problems.

The status of the road-safety researcher is unclear, for decision-makers as well as for the research community itself:

- Do researchers detain the truth because their results are objective and obtained on the basis of sound methodologies? or has the knowledge they build really no bearing on the practical world?
- Should they teach what they know to professionals in the field? or should the professionals be taught only what is actually promoted by the decision-makers in order to keep to the "official" line?
- Should the researchers be provided with better means to promote their findings? should they try and advise at all stages of transport planning? or should they keep to the research community and work in a closed circuit until called upon?
- When called upon, should they answer any demand? or should they first reframe it according to their own experience and knowledge?
- Are the researchers expected to be "militants"? Are they even allowed to be militants? Are they allowed to inform the public directly in order to build up support for safety work?

In the present situation, a lot of the research carried out ends up in a cupboard and is wasted. A lot of the research that should be useful for decision-makers (particularly evaluation research) is not funded. Meanwhile, decision-makers are still seen to launch themselves blindly in some new kind of action without any reasonable assurance that it will reduce accidents or victims, thus wasting scarce resources and spoiling the image of traffic safety work.

The situation varies from country to country, which shows that there is scope from improvement. There is a need for the research community to debate and agree upon the role of traffic safety researchers. There is a need for discussions with the decision-makers to get the status of researchers recognized. There is a need for the researchers themselves to consider traffic safety in the broader framework of transport planning and to gather their knowledge into a usable form.

In order to progress, and long before training safety professionals to sound working methodologies, it is essential that we educate our decision-makers in order to establish better communication and mutual interest...