

# **A Road Safety Information System for Poland**

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Guidelines for implementation

## Report documentation

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Contents of the project: Poland would like to improve its road safety situation. This requires efforts at national, regional, and municipal levels. The preparation, implementation, and evaluation of a road safety policy by the professionals at these three levels could be supported by a Road Safety Information System (RSIS). This report is meant to facilitate the implementation of an RSIS in Poland by identifying potential user groups, contents, and technical prerequisites.

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## Summary

Poland would like to improve its road safety situation. This requires efforts at national, regional, and municipal levels. A proper management structure is being attended to and there is a National Road Safety Programme. Some regions and municipalities have also prepared programmes.

The preparation, implementation, and evaluation of a road safety policy could be supported by a Road Safety Information System (RSIS), giving direct access to relevant, up-to-date, and verified information. Bringing key data and knowledge to the professionals' desks lowers the threshold for actually using this information. This has several advantages:

- it raises awareness of the road safety problem;
- it helps develop a common perspective on road safety and facilitates communication;
- it contributes to the quality and efficiency of decision making.

Implementing an RSIS in Poland is considered to be feasible on account of:

- the importance attached to the improvement of road safety in Poland;
- the availability of a road safety management structure;
- the availability of relevant data.

This report is meant to facilitate the implementation of an RSIS in Poland by identifying potential user groups, contents, and technical prerequisites. The RSIS should contain key data and knowledge on general developments and all issues identified as major problems. The magnitude of the problems is indicated in quantitative terms: background information, explanations of developments and measures to combat the problems help the professionals decide what to do. As an example, all subjects mentioned in GAMBIT 2000 are elaborated upon in this report, taking the availability of data into account.

The RSIS is not meant to answer all questions concerning road safety that might arise; for this purpose an Information Desk - which also gives technical assistance - could be set up.

It is recommended to start with a pilot phase and develop the RSIS incrementally. Activities that contribute to the success of the RSIS are, among other things, organising user feedback and user support. Otherwise the system matching users' needs cannot be ensured.

Finally the efforts needed to implement an RSIS are estimated. If, to start with, the Dutch Road Safety Information System is used, this will require only moderate modifications.

A proposal is included for involving a number of organisations and their main tasks are determined. Looking at the potential importance of the RSIS, it is recommended that the Ministry of Transport and Maritime Economy decides about the outlines (purposes, restrictions etc.) and is responsible for financing the activities.

The Motor Transport Institute would, looking at current tasks and expertise, be suitable to coordinate and carry out the activities, supported by other organisations.



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## Foreword

This report is based on the input of many partners. A special word of thanks is due to The Polish Ministry of Transport and Maritime Economy (Mr. Andrzej Grzegorzczak), the Motor Transport Institute (Mrs. Maria Dambrowska and her team) and the University of Gdansk (professor Ryszard Krystek).

Global Road Safety Partnership (GRSP) supported this study financially, based on a grant of the Dutch Ministry of Transport.

The result is a rough guideline of how the parties concerned could operate when setting up a Road Safety Information System (RSIS), built upon experiences in the Netherlands, but adjusted for the Polish situation. This report will probably be followed by a pilot project.

GRSP expects the results to be not only relevant for Poland but also for other Central and Eastern European Countries; they could also consider to support their professionals with access to relevant, up-to-date, and verified information.



# 1. Aims and benefits of an RSIS

## 1.1. Why implement a Road Safety Information System?

The success of road safety policies, for example the Integrated Programme of Road Safety Improvement (Technical University of Gdansk, 2000), depends to a large extent on the people who implement it. One of the ways of supporting them in their tasks is to give them easy access to recent, relevant and verified information about road safety issues. A computer application - a Road Safety Information System - would be a helpful tool in making such information available. Information here is meant in a broad sense: key data, the quality of this data (possibilities and limitations when drawing conclusions), interpretation and explanation of trends, and effectiveness and efficiency of measures. The scarce time of road safety professionals is better spent on preparation and evaluation of road safety programmes than on gathering information.

A system that brings relevant figures and knowledge to the professionals' desks helps them to gain insight in road safety. It clarifies the road safety problem and raises awareness. It also helps professionals decide what to do and helps develop a common perspective on road safety. Such a shared point of view facilitates communication and supports the quality and efficiency of road safety policy.

## 1.2. Feasibility of an RSIS in Poland

It is considered possible to establish a Road Safety Information System in Poland, and a first version can be developed in quite a short time. This conclusion is based upon the following observations:

- improving road safety is considered important;
- a road safety management structure has been set up to ensure continuous attention for the road safety problem and efforts for implementing policy; of special importance are the National and Regional Road Safety Councils;
- the relevant data is available.

## 1.3. Potential user groups

The target group of the Road Safety Information System (RSIS) would consist mainly of national and regional road safety professionals and, to a lesser extent, of people working at the municipal level. The RSIS, if implemented, has to be designed in such a way that road safety professionals can use the information system intuitively, without requiring extensive training. Such a system would lower the threshold for actually using the information.

Many organisations are involved in road safety improvement; they all are potential user groups. When starting an RSIS, restriction to a relatively small and homogeneous user group is to be recommended, because it facilitates feedback and incremental development, but in the longer term

there is no reason to withhold information to any party concerned. Among them are:

- institutions at the governmental level:
  - Members of Parliament
  - Ministry of Transport and Maritime Economy
  - members of the National Road Safety Council
  - central government agencies (Police, General Directorate of Public Roads, etc.)
- other national organisations:
  - road safety interest groups
  - research institutes
  - universities
  - road traffic consultants
  - private companies related to transport, vehicles, and driver education
  - mass media
- organisations at regional level:
  - road traffic (safety) specialists for the provinces (voivod)
  - the Regional Directorate of Public Roads
  - the voivod Inspector of Road Transport
  - the road traffic department of the regional police
- organisations at county and municipality level:
  - road traffic (safety) specialists for the counties (poviats)
  - road traffic (safety) specialists of towns and villages.

#### 1.4. **What is to be offered in the framework of a Road Safety Information System?**

The recommended concept of a Road Safety Information System is to present key data and knowledge about road safety problems and measures through a computer application. Such a computer application is not meant to answer all questions that may arise; the power of the system mainly lies in giving direct access to a relevant selection of information. The main criterion is the usefulness for the user groups on a more or less regular basis. For all incidental questions, an information desk can be set up. This additional help desk is elaborated upon in *Chapter 4*. The help desk can also give support in technical matters.

A Road Safety Information System preferably contains information about the development of relevant road safety indicators and relates this information to underlying factors and road safety measures. An RSIS does not only contain data but also interpretations and explanations, based on analyses of the data and road safety literature.

The contents should match national and regional road safety programmes (like GAMBIT 2000); it should explain road safety developments in general and the subjects that have been identified as major problems. Questions to be addressed, are:

- Why is it important to pay attention to a certain issue (relation to road safety; possible benefits of a certain improvement)?
- What is known about the severity of the issue (magnitude of the problem and development over time; regional and international comparisons; interpretation and explanatory factors; prediction for 2010)?
- What can be done to tackle the problem (recommended measures and if possible, information about organisation, costs and effects; results of pilot projects)?

These suggested contents will be elaborated upon in *Chapter 2*, taking possibilities and limitations into account.

In *Chapter 3* the technical prerequisites for an RSIS are presented.

#### 1.5. **Relationship to international developments**

If Poland develops and introduces an RSIS among road safety professionals, it would match developments in the European Union, where such a system is also under consideration as an aid in the international dissemination of knowledge. In the Netherlands an RSIS has been operational since 1993; SWOV Road Safety Research Institute is in charge of all aspects of maintenance and development.

## 2. Recommended contents of an RSIS in Poland

As far as the contents of an RSIS in Poland are concerned, It is recommended to present indicators of key developments on an aggregated level, accompanied by explaining text. When defined in national or regional programmes, quantitative targets are to be included as well. The level of aggregation of the data has to match the monitoring and evaluation purposes of the system.

As stated in the previous chapter, selection of a relevant subset of available information is recommended. If the system should contain the answers to all possible questions, it would be very hard to meet this ambition and to keep the system up-to-date. Incidental issues would consume as much time as structural issues, meaning a much lower benefit per day spent. So for incidental issues an Information Desk (or Help Desk) is recommended. The proposed tasks of this Information Desk are presented in *Chapter 4*.

To support road safety professionals, the RSIS should contain general information about the road safety situation in Poland and information about issues identified as main problems to be addressed.

GAMBIT 2000 proposes to concentrate on seven issues; it is assumed that these seven issues have to be addressed in an RSIS:

- excessive driving speed
- young drivers
- vulnerable road users
- drunk road users
- severity of accidents (killed per 100 accidents)
- roads passing through small towns
- road accident concentration spots.

All these issues, including general trends, are discussed in this chapter. Other relevant subjects could be added easily.

### 2.1. General road safety indicators

The general road safety situation in Poland can be described using the following indicators. Unless suggested differently, the indicators are proposed to show a trend from 1990 onwards.

#### *Number of fatalities*

The number of fatalities; in total and to be subdivided by region, mode of transport, crash opponent, age, gender, and road type (inside and outside urban area).

These subdivisions are generally regarded as the most essential to describe developments, but they are, of course, not obligatory.

- *Region* means minimally the provinces (voivod), and possibly the county (powiat) as well. It can be considered to include municipalities also, but then it might be better to include these in a separate indicator for each region, for performance reasons.
- *Mode of transport* is suggested to include:
  - cars
  - heavy vehicles (lorry or bus)
  - motorcycles

mopeds  
bicycles  
pedestrians  
other modes of transport.

- *Crash opponent* includes the same list, with three items to be added:  
rail vehicle (tram or train)  
obstacles  
no crash opponent (single-vehicle accident).
- The *age-classes* should reflect the different stages road users go through in general, taking mode of transport, experience, and vulnerability into account. It is recommended to choose a rather low level of detail and to allow the user to combine classes him/herself. A more aggregated alternative is stated as well:  
0 - 4            0-14  
5 - 9  
10-11  
12-14  
15-15            15-17  
16-17  
18-19            18-24  
20-24  
25-29            25-34  
30-34  
35-39            35-49  
40-44  
45-49  
50-54            50-64  
55-59  
60-64  
65-69            65+  
70-74  
75-79  
80-84  
85 +  
unknown
- The classes of *gender* are evident: male, female, and unknown.
- The following *road types* can be distinguished, inside or outside urban area, according to the road accident reports:  
motorway  
express road  
two one-way lanes  
one-way lane  
one two-ways lane.

#### *Population*

Population, in total and to be subdivided by region (voivod, powiat and municipality), age and gender. It is necessary to let the subdivisions match the ones chosen for the number of fatalities.

#### *Ratio of fatalities and population*

Ratio of fatalities and population, in total and subdivided by age and gender. Here it is also necessary to let the subdivisions match the ones chosen for the number of fatalities.

*Ratio of fatalities and population for the OECD countries*

Ratio's of fatalities and population for the OECD countries, extracted from the IRTAD database.

*The number of motor vehicles*

The number of motor vehicles, subdivided by cars, lorries, buses, and motorcycles, if possible subdivided by region as well.

*Ratio of fatalities and number of motor vehicles*

Ratio of fatalities and number of motor vehicles, concerning cars and motorcycles, preferably not only for the entire country but also by region.

*Ratio of fatalities and cars*

The ratio of fatalities and number of cars for the OECD countries, extracted from the IRTAD database.

*Quantitative targets and forecast of the total number of fatalities*

Quantitative targets are defined for 2003 (a maximum of 5500 fatalities) and 2010 (a maximum of 4000 fatalities). These match forecasts based on a historical trend, assuming a moderate increase of the number of cars and the necessary measures suggested to be taken in the GAMBIT programme.

Desirable but not (yet) possible because the data does not exist (as far as we know):

*Delivery vans as a separate mode of transport*

In Western European countries delivery vans form a growing road safety problem.

*Exposure data and ratio of fatalities and exposure*

The number of vehicles is used instead, but this does not describe the actual exposure. Preferably exposure is to be assessed in two ways:

- motor vehicle kilometres by mode of transport and road type (measured by counting systems on roads);
- kilometres driven, subdivided by mode of transport, age, gender, purpose of the trip, day of week, time of day (measured by surveying a representative sample of Polish road users).

The explanatory information that is recommended to accompany the indicators, is described in the following subsections.

## **2.2. The seven GAMBIT issues**

### **2.2.1. Excessive driving speed**

Excessive or inappropriate speed is one of the main accident causes. The higher the speed, the shorter the available time to prevent collisions, and the more severe the results of a collision are. Accidents seldom have just one cause; there is usually a conjunction of circumstances that causes an accident. Speed is very often a crucial factor.

GAMBIT 2000 aims at reducing the number of victims and the severity of accidents caused by excessive speed; more specifically the percentage of drivers exceeding speed limits must be reduced by 30% in the period 2001-2003 and by another 25% in the period 2004-2010.

On road sections in rural areas about 50% of drivers drive above the speed limit and on roads passing through small towns this percentage is even about 65%.

Information to be entered into the Road Safety Information System entails:

- the relationship between speed and accidents;
- monitoring of developments;
- measures to reduce speed.

#### *The relationship between speed and accidents*

Many studies, especially Scandinavian studies, give indications about this relationship. An English study has summarised various projects in Europe to discover the effects of raising and lowering the mean speed on accidents. The changes were established in various ways and under various circumstances. (Finch. et al., 1994). From these results it can be derived that, as a rule of thumb, an increase of 1 km/h in the mean driving speed leads to a 3% increase in the number of accidents, and a reduction of 1 km/h leads to a reduction of 3%.

Greater effects were found for serious accidents. A change of 1% in the average driving speed leads to a 5% change in the number of fatal accidents.

Also differences in speed and in braking power are of importance.

#### *Monitoring of speed*

Although it would be interesting to show the percentage of accidents where excessive or inappropriate speed was a crucial factor, it requires in-depth study of accidents to establish the relationship in a reliable way. The accident registration form allows policemen to judge whether speeding was a crucial factor; although this is useful information, it is to be realised that it is, to a certain extent, a subjective judgement.

So if actual driving speed is monitored on a regular base on a representative sample of roads (and for different vehicles as far as a different speed limit is applicable), it is recommended to use this information for monitoring developments. This type of information also matches the quantitative targets set.

For quality criteria to discuss as background information, *Section 2.3* can be used as a guideline.

#### *Measures to reduce speed*

The GAMBIT programme mentions short- term and long-term tasks (B1) to address the problem of speed, implying a cooperation between national, regional, and local authorities.

In the RSIS these measures could be supported by results of research, showing their effectiveness, costs, and organisational concerns. The study of the effects of the lowering of the speed limit in Warsaw (MTI) is a example of this.

Furthermore it can be clarified what national, regional, and local organisations can do to reduce speeding.

### 2.2.2. Young drivers

Young drivers are disproportionately involved in road accidents; according to GAMBIT 2000, young drivers aged 18-24 'caused' 35% of the road accidents, while they make up 10% of the population. Road safety policy aims at a reduction of the number of accidents caused by young drivers; no exact quantitative target has been set.

Information to be entered into the Road Safety Information System entails:

- background information about the accident proneness of young drivers monitoring of developments;
- measures to address the problem of young drivers.

#### *Background information*

GAMBIT 2000 summarizes factors contributing to the higher risk in road traffic of young drivers. This kind of information is very useful for understanding the problem.

#### *Monitoring of developments*

Referring to the objective of road safety policy, the indicator to be entered into the RSIS is the trend of road accident causes by young drivers, subdivided by severity of the accident and gender.

The proportion of young people can be found in an indicator suggested in *Section 2.1* (population).

In addition to this, the ratio can be given of car drivers causing accidents and their number in the population, subdivided by age-classes and gender. In case the attribute 'driver who caused the accident' follows from subjective judgement of a policeman, developments have to be interpreted with care. An alternative would be to use the attribute 'involved in accident' instead of 'caused accident'.

For other quality criteria to discuss, *Section 2.3* can be used as a guideline.

#### *Measures to address the problem of young drivers*

GAMBIT 2000 states short-term and long-term tasks (B3), mainly at the national level.

In the RSIS these measures could be supported by results of research, showing their effectiveness, costs and organisational concerns.

Furthermore it can be clarified what national, regional and local organisations can do to reduce the risk of young drivers.

### 2.2.3. Vulnerable road users

Vulnerable road users constitute a substantial number of victims of road accidents. Compared to four-wheeled vehicles, pedestrians, bicyclists and motorcyclists are vulnerable road users. Among non-motorized road users, children and the elderly prevail; children are vulnerable because of their lack of experience and the elderly are physically vulnerable. The disabled are another group mentioned as deserving special attention.

GAMBIT 2000 aims at a reduction of the risk of road accidents involving vulnerable road users and improving pedestrian rights in road traffic (bringing them to the level of the Geneva convention and the UN/ECE).



Information to be entered into the Road Safety Information System entails:

- background information about the vulnerability of different groups of road users;
- monitoring of developments;
- measures to address the problem of vulnerable road users.

#### *Background information*

Many studies point to the problems of vulnerable road users, among others compiled by an OECD Expert Group (OECD, 1998). It is recommended to explain factors contributing to risk and vulnerability, for each group of road users separately.

#### *Monitoring of developments*

One indicator showing progress in relation to the objective of a reduction of risk, is the indicator in *Section 2.1* concerning all fatalities, subdivided by mode of transport, age etc.

The most appropriate indicator would be the ratio of fatalities and kilometres travelled, by mode of transport and age-class, but this would imply a systematic survey of kilometres travelled by a sample of the Polish population (see *Section 2.1*, exposure data and ratio of fatalities and exposure).

#### *Measures to address the problem of vulnerable road users*

GAMBIT 2000 states short-term and long-term tasks (B2), mainly on the national level, and directed at pedestrians and cyclists.

In the RSIS these measures could be supported by research results, showing their effectiveness, costs and organisational concerns. Furthermore it can be clarified what national, regional and local organisations can do to reduce the risk of vulnerable road users.

### 2.2.4. *Drunk drivers*

Alcohol consumption is one of the few single factors that has a direct and strong relationship with the chance of a road accident ending in death or severe injury. Although the situation in Poland seems to improve, it will remain an issue needing special attention.

Information to be entered into the Road Safety Information System entails:

- the relationship between alcohol and accidents;
- monitoring of developments
- measures to reduce drinking and driving.

#### *The relationship between alcohol and accidents*

Alcohol that has been consumed is absorbed in the blood, via the stomach, and is then circulated through the entire body. In this way alcohol reaches the brains and influences behaviour, and thus the chance of (having) an accident. The chance of an accident already rises slightly from a glass or two.

Larger quantities result in an even faster increase, as is shown in the following chart diagram.

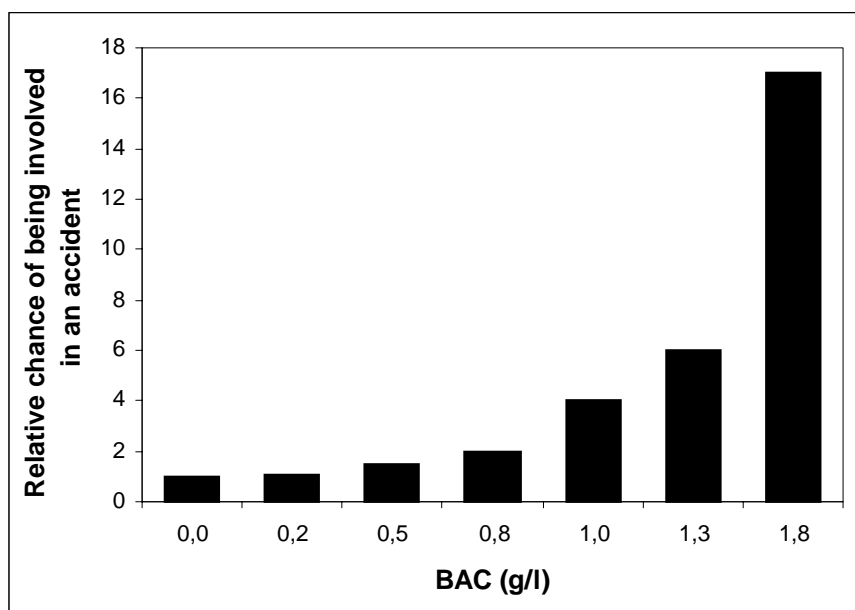


Figure 1. *Blood Alcohol contents and accident risk. Adapted from Borkenstein et al., 1974.*

#### *Monitoring of developments*

From the accident registration forms it is, to a certain extent, known in how many accidents alcohol is one of the contributing factors. In many countries however, this is not a reliable figure, because the intoxication is not systematically assessed by the police. But assuming that assessment and registration practices are not subject to abrupt changes, these figures can form a useful indicator. We propose to monitor the trend of the number of drivers, subdivided by registered alcohol consumption, mode of transport, age, and gender.

An alternative would be to organise a yearly (or two-yearly) survey, in which the consumption of alcohol is checked among a representative sample of car drivers in weekend nights; as far as we know, such research is not carried out in Poland at the moment on a systematic basis.

#### *Measures to reduce drinking and driving*

Police enforcement is essential in combatting drinking and driving. This is to be supported by publicity, to enlarge the perceived chance of being caught and to influence the attitude concerning drinking and driving further. Furthermore it is important to offer alternative transport during weekend nights, to and from entertainment districts. Measures like these, to be implemented by regional and local organisations, can be discussed in the RSIS.

#### 2.2.5. *Severity of accidents*

Poland seems to have one of the highest severity rates in Europe, expressing the number of fatalities as a fraction of the total number of injury accidents. It has to be borne in mind, however, that it is hard to compare

the number of injury accidents between countries, because of differences in definitions and registration practices.

If desired, the indicator 'number of victims subdivided by severity' can be included in the RSIS. Severity has the following subdivisions: killed (on the scene, the same day, or within 30 days), severely injured and slightly injured. ('Severely injured' usually means being admitted to a hospital.)

Measures that aim at improving infrastructure, at reducing speeds or drinking and driving, will all contribute to reducing the severity of accidents. In Western European countries the trend is that the number of fatalities is declining quite steadily, but the total number of victims is not, or is scarcely, declining. Obviously policy efforts are more successful in combatting severe accidents than in combatting all accidents.

#### 2.2.6. *Roads through small towns*

Incidental analyses show that car drivers use roads through small villages where they should have driven over highway sections as well; but these highway sections are at some distance of the small towns. High volumes and high speeds could cause extensive road safety problems here.

In general, traffic arterials in built-up areas are relatively dangerous; this follows from the absolute number of victims but also from ratios of fatalities and motor vehicle kilometres per road type.

The road network influences the probability that accidents occur, because it determines the conditions which the traffic participants meet. A network with a hierarchy of roads, in which the function of each road is clearly defined, is the preferred situation. The road design should match the function of a road, to enable road users to recognize it immediately and to clarify to them which behaviour is expected. The higher the speed, the more important homogeneity and predictability are.

To monitor improvements in this field systematically, implies a big effort, and this might not have the highest priority at this moment. Therefore and because GAMBIT 2000 does not mention special measures for roads passing through small towns, it is recommended to include only some background information in the RSIS, explaining the problem and giving some clues on how to combat them.

#### 2.2.7. *Road accident concentration spots*

Accidents are not spread evenly over the road network; at some spots so many accidents are registered that they are called black spots.

GAMBIT 2000 states different objectives regarding black spots:

- introduction of uniform principles of identifying and eliminating black spots;
- implementation of a road safety design practice;
- reduction of the risk of accidents caused by speeding and involving vulnerable road users;
- increase in passive safety (alleviating the effects of road accidents).

Information to be entered into the Road Safety Information System entails:

- monitoring of developments;
- engineering measures..

### *Monitoring of developments*

The desired indicator to monitor progress, is the number of accidents happening on black-spots as a proportion of the total number of accidents, preferably subdivided by region, using the same definition of black-spot (e.g. more than 4 accidents on a 1 km segment in 1 year).

There are however some drawbacks to take into account:

- the under-reporting of accidents, which may differ between regions, road types and types of accidents;
- the exactness of the location allotted to the accident;
- changes in registration practices which make comparability over time difficult.

With the consequences of these restrictions explained, a black-spot indicator can be included in the RSIS.

### *Engineering measures*

The methods and measures proposed in GAMBIT 2000 (B4) can be described more elaborately and the information can be progressively extended, to support users to implement these measures.

## **2.3. Quality of the databases involved**

To support users of the information system and to prevent misinterpretations, the following quality criteria should preferably be known and included in the system:

- completeness / under-reporting / representativeness. This can be checked against other data sources, e.g. hospital registrations or databases with causes of death.
- consistency / comparability between countries/regions/counties/municipalities: are registration practices the same in different areas?
- consistency / comparability over the years: often registration practices are influenced by e.g. organisational changes or computerisation.
- validity: does the attribute really describe what it is supposed to measure?
- level of detail of the database: which variables exist in a database, allowing for analysis of combinations of variables?
- correctness: do the records match the definitions? Errors may be twofold: events that do not match the definition are recorded (e.g. accidents *not* on public roads), or events remain unrecorded.
- resolution: the level of detail that can be given. In general this is the number of different values the attribute can have. The resolution should correspond to the exactness of the measurement: it is useless to record the time of an accident in tenths of seconds, when it can only at best be known in minutes.
- exactness: no attribute will be exact; there will always be a number of random errors. Non-random errors are more serious. This kind of errors can occur when there are misinterpretations of a particular attribute, or where interpretations differ between regions or over time. An unduly large percentage of 'unknown' can be seen as an error of this kind as well.

## 2.4. Interpretation of developments

Bare data do not always reveal their message: if the number of fatalities suddenly drops, is that an incidental decrease or a change in trend? Or if the number of motor drivers killed in traffic suddenly rises, does that indicate a new problem or is it just a coincidental fluctuation?

Normally, time series of several years are necessary to judge this. Background information may also help: is there any evidence for a structural change, e.g. on account of new legislation or a rising popularity of motor-cycles? The construction of motorways and the improvement of existing roads are other examples of explanatory factors, as is intensified police enforcement. Continuous road maintenance or changes in the age distribution of the population also influence road safety trends, but normally rather smoothly.

Preferably the interpretation of the data is a central task executed by experts and not by each separate user of the information. This is more efficient and prevents misinterpretation. Through the RSIS the users have these interpretations at their disposal.

Where quantitative targets are defined, a comparison is to be made between the actual figures and the desired trend. Small fluctuations in the desired trend do not necessarily deserve much attention. In GAMBIT 2000 quantitative targets are only stated for the total number of fatalities and not for subgroups of road users.

In the ideal case the evaluation of developments is based on information about the actual implementation of road safety policy, to judge whether policy efforts are sufficient, have to be intensified or adjusted. The more decentralised the implementation of policy is, the more difficult it is to gather this type of information.

Although it would be most persuasive if quantitative relationships could be shown, in most cases only qualitative assessments can be made.

As part of the general information, an overview can be included of all national measures taken, especially legislation and other traffic rules. If desired, they can be split up according to mode of transport, in addition to a general section.

### 3. Technical prerequisites for an RSIS

An RSIS consists of two components: the contents of the system and an application to consult the contents. These two components can be developed and maintained independently. This is the most flexible design, enabling easy adaptation and extension of the contents.

In principle, a choice can be made between two types of systems:

- a Windows based computer application that can be installed locally at each user's office and has to be distributed physically;
- an Internet enabled computer application.

The second option presupposes that the (potential) users have access to the Internet or will have access in the near future. This certainly is a future-oriented solution; it might imply an initially larger investment in user friendly software.

The first option leaves the choice of using the Dutch Road Safety Information System as a starting point or buying (or developing) a new application.

For a more thorough discussion of possibilities and restrictions we refer to the report SWOV prepared about a European Road Safety Information System (CRASH), R-99-22, Chapter 11 (Brouwer et al., 1999).

#### 3.1. Prerequisites at the user's side

A desktop that can run under Windows (95/98) is sufficient for the Dutch RSIS. The Dutch RSIS can run on a local PC or on a local network. A licence is needed to install the database software locally. An alternative is to access a central database through TCP/IP; then the licence fee is not applicable for the user.

Similar matters have to be checked when buying other software or developing a new application.

Access to a web site requires the presence of TCP/IP, a connection to the Internet network and a browser with a minimal functionality (e.g. Internet Explorer 4 / Netscape 4).

#### 3.2. Provisions at the organisation maintaining and developing the system

For maintaining and developing the RSIS, a number of provisions have to be made. The following table serves as a checklist and states the requirement in case the Dutch RSIS would be used as a starting point.

Element to decide about	Specification for Dutch RSIS
Hardware	PC suitable to operate as server
Operating system	Windows 95/98/2000/NT
Network	TCP/IP
Database software	SQLBase version 6.5
Application software	Centura version 1.5
Distribution programme (optional)	Installfield

Table 1. *Requirements if Dutch RSIS is used.*

The hardware system on which the RSIS runs, has to operate properly (including security issues, back-ups etc.); these system administration tasks can easily be separated from the development and maintenance of the system.

The Polish pilot system would be delivered in English; if this system is to be used on a larger scale, it is recommended to translate the menus and helpfiles into Polish.

Keeping the contents up-to-date is, in the case of the Dutch RSIS, completely menu-driven and can be learned quite easily; it does not require special technical skills.

## 4. Marketing and user support

### 4.1. Introduction

Marketing and user support are indispensable for getting a return on the investment in the information system. Potential users must know that the information system exists and must have an idea of the type of information they can find. To keep the system in line with what users regard as relevant, they must be able to give feedback. Without users' feedback, it is difficult to keep the system attractive. The world evolves and so do users' needs as well as possibilities to improve the system. If users have questions, remarks, or wishes with respect to the information system, they should be able to express them, and the issues raised must be taken into account.

To make sure that a working system is launched which appeals to users, we recommend to start with a test, offering (a beta-test version of) the system to a restricted group of users for a certain period, e.g. three months. The aim of the test phase is to get user feedback on the application (aspects like functionality and ease of use) and the contents (issues like selection of subjects and type of information, and clarity) and to find out which support is needed.

### 4.2. Pilot phase

Users in the pilot phase are to be selected at a national level and at a regional level, preferably a region where a Regional Road Safety Programme has been accepted. A relatively small and homogeneous user group facilitates communication and common viewpoints.

To get commitment from the test users, we recommend to organise an introduction meeting, during which the purpose of the system is explained and the test version of the system is demonstrated. It is also to be clarified what is expected of the users and whom they can turn to with questions and remarks.

During the test phase, all users should be contacted at least once, to make sure that they try the information system and have no barriers to do so. The test phase could be concluded with another meeting, in which experiences and possible improvements are discussed. Such a meeting will put some pressure on the test users to prepare a thorough judgement. The strong and weak sides of the system, proposals for improvement, and the support needed should be reported to enable decision making for the next phase: introduction of the system for all potential users.

### 4.3. User support

Although the system must be intuitive in its use, a comprehensive training course may help users to find their way through the system more quickly. So it is recommended to develop a training course (if desired, the Dutch training course can be used as a starting point) and organise regular trainings, suitable for the number of (new) users.



Users should know whom to turn to when they have questions or suggestions. Appointing an Information Desk is recommended. This Information Desk would have different functions:

- getting technical problems or shortcomings in the contents solved;
- handling requests for additional information not available through the information system;
- registering suggestions for improvement and organising decision making about these suggestions (see also *Section 4.5*);
- intake of requests to follow a training course.

Registration of all user questions is to be recommended, not only to check follow-up but also to judge periodically whether adjustments of the system should be considered, given certain patterns in issues raised.

#### 4.4. **Marketing**

As the purpose of the system is the stimulation of the use of data and knowledge, the threshold for use should be as low as possible. This can be considered as a reason for distributing the RSIS for free to the target groups. This fits in with the strategy that e.g. the Motor Transport Institute follows.

To promote the Road Safety Information System throughout the country, national and regional meetings may be organised. Demonstrations and face-to-face contact are the most convincing methods to extend the number of users.

In the Netherlands a coordinator is appointed in each region; he or she can be addressed by all users in that region, represents the users in user meetings (see next section), can coordinate the need for training in a region, and supports new users if necessary; in other words, he or she acts as a 'broker' between the organisation maintaining the system on the one hand, and the users on the other. The coordinators feel themselves committed and contribute to the continuity of the system, which requires, of course, continuity in use.

A brochure explaining the possibilities of the system and regular newsletters support the marketing of the system. Relevant websites can also draw attention to the system and inform potential users how to get access to the RSIS.

#### 4.5. **User feedback**

To make sure that further development of the system is welcomed by users, it is recommended to organise meetings with user representatives. If, as suggested in the previous section, national and regional coordinators are appointed, they could be an excellent user forum.

To prevent long discussions about impossible options, it is recommended to have the agenda be dominated by potential improvements which are feasible. Users must have the opportunity to make other suggestions as well, but in general they cannot always size up all the implications of their suggestions. In a good relationship with the users, in which the organisation maintaining the system is respected for its knowledge, this will be no problem.

## 5. Proposed organisation

The following tasks and responsibilities must be taken care of (*Figure 2*):

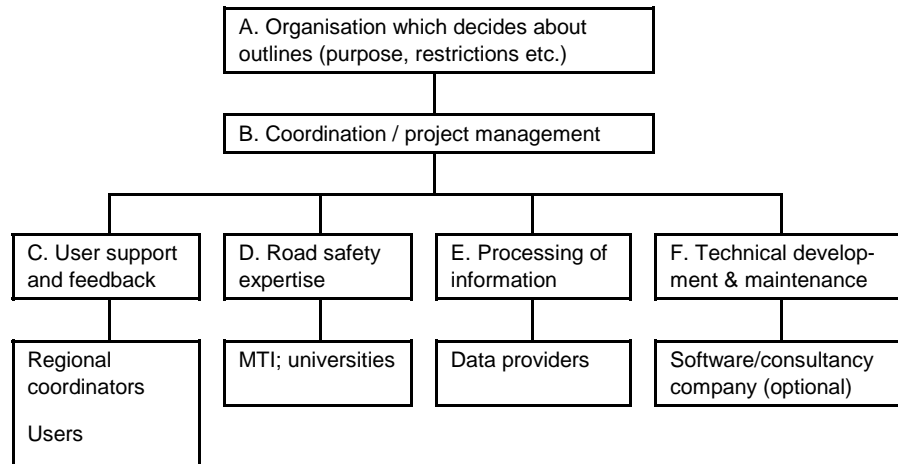


Figure 2. *Proposed organisation.*

### A. *Organisation which decides about outlines*

All activities need financing; an option is that the organisation which finances the system, also determines the outlines of the system.

Because the Road Safety Information System is potentially a very important tool for road safety policy, it is recommended that the Ministry of Transport is in charge of it, advised by the National Road Safety Council.

An annual business plan, prepared by the coordinating institute, has to be agreed upon.

### B. *Coordination / project management*

An institute coordinating the activities prepares an annual plan, proposing what will be done concerning tasks C to F, and which results will be strived for (products and services). This plan is prepared after consultation of user representatives (e.g. the regional coordinators; see *Chapter 4*).

Upon agreement about this plan with organisation A, institute B is responsible for its execution and is qualified to decide within the boundaries of the plan.

The most efficient way of working is to keep the responsibility for tasks C to F within one organisation, as much as possible. Looking at current practice, the Motor Transport Institute seems to be the most suitable organisation.

An indication of the efforts in the first years (pilot and operational phases, during which the user group is extended) is given in *Appendix 1*.

C. *User support and feedback*

Tasks for user support: see *Chapter 4* (training and Information Desk). The Information Desk has to make sure that users' questions are addressed but can, for this purpose, fall back on the others involved in RSIS (A to F) or even on other relevant organisations.

D. *Road safety expertise*

It is recommended to establish a pool of experts for all main issues in the RSIS. These experts must have a broad overview of available data and knowledge, enabling them to propose and prepare a relevant selection of information to be entered into RSIS. The experts recommend on agreements with information providers; organisation B takes care of the official arrangements.

Experts annotate data, analyse and interpret them, and prepare concise additional information as stated in *Chapter 2* (background information on road safety issues and possible measures). Preferably they are independent and not restricted by policy considerations. Organisations that can be thought of are the MTI and e.g. the Technical University of Gdansk.

E. *Processing of information* means:

- taking care of timely receipt of data,
- entering the information into the system (preparing tables; editing texts),
- checking the results,
- distribution of RSIS.

As MTI already has all data at its disposal, this task could very well be executed by MTI employees, supported, if necessary, by the MTI information technology department.

F. *Technical development and maintenance* concerns all technical matters; see *Chapter 3*. It is possible to separate systems development (taking care of the information system itself) and systems operations (environment: hardware, software, back-ups, granting access etc.). The MTI information technology department could take up responsibility for these tasks (specifications to be agreed in the annual plan), if necessary, supported by a specialised company.

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## Appendix 1 Estimated efforts pilot and operational phases

ACTIVITIES	PILOT PHASE (half a year)	OPERATIONAL PHASE (first year)
Preparing business plan	1	1
Project management	2	3
Prepare contents	2	4
Enter information	1	2
Application <sup>1</sup>	1	3
System administration	2	5
Marketing	3	5
User support	3	5
TOTAL	15	28

Table A.1. *Indication of required efforts in weeks.*

<sup>1</sup> It is supposed in this estimation that for the pilot phase the Dutch system will be used. For the operational phase a new (Web-based) application could be chosen but this is not necessary. The efforts in that case concern implementation of a standard tool; the costs for this tool are additional.





## **Appendix 2      Presentation**

This Appendix contains a presentation held in Poland by Martha Brouwer, in May 2001.

# Road Safety Information System for Poland

*Feasibility study in the framework of  
Global Road Safety Partnership*

prepared by  
Martha Brouwer  
SWOV Institute for Road Safety Research  
The Netherlands  
May 2001

## Purpose of an RSIS

*Supporting road safety professionals*

- Improving road safety is done by people
- They have limited time and resources
- Recent, relevant and verified information can support them
- Possible solution: computer application and additional information desk
- Brings tables and knowledge to the user's desk

## **Experienced benefits**

*All relevant information is accessible*

- Key information in computer
  - Integration of information from various sources
  - Selected and explained
  - Uniform and verified
- Information Desk for other questions

## **Data and knowledge**

*Example: drinking and driving*

- Number of drivers who drank too much (independent survey)
- Number of drinking drivers involved in accidents (police registration)
- Relationship between drinking (BAC) and accident risk
- Recommended measures to reduce drinking and driving

## **Purpose of the feasibility study**

*Examine all aspects of implementation*

- User groups
- Contents
- Technical matters
- Marketing and support
- Organisation

## **User groups**

*All organisations occupied with road safety*

- governmental level
- other national organisations
- regional level (voivodships)
- county level (poviats)
- municipal level

## **Contents**

*Match road safety programmes, e.g. GAMBIT*

- General developments
- Speeding and drinking and driving
- Young drivers
- Vulnerable road users
- Road accident concentration spots

## **Technical matters**

*Provisions for use and maintenance*

- User: standard PC (equipped with Windows 95/98)
- To be decided: CD to be distributed or Internet?
- Dutch RSIS can be used as starting point
- Maintenance of contents does not require special skills
- Systems administration: 'normal' activities

## **Marketing / user support**

*System must match users' needs*

- Introduction meetings and training
- Information Desk
- Regional co-ordinators
- Periodic meetings of user representatives
- Brochure and newsletters

## **Organisation**

*Tasks and responsibilities*

- Setting outlines and financing
- Co-ordinate activities / project management
- User support
- Road safety expertise
- Processing of information

## **Proposed implementation**

### *Possible first actions*

- Develop pilot version of RSIS
- Contents: interesting and easily available
- Have some users on national and regional level work with it
- Set up a plan for incremental development

## **Outlines of Dutch SIS**

### *Operational since 1993*

- More than 100 users (mainly national and regional)
- Very easy to use
- Information (data + knowledge) on all important road safety issues
- Strong relationship with national and regional policy
- User support: Information Desk, training courses and user meetings
- Owned by Ministry and maintained by SWOV

