

Road Safety Information System (RIS): key information supporting traffic safety policy in The Netherlands

Martha Brouwer

Road Safety Information System (RIS): key information supporting traffic safety policy in The Netherlands

Contribution to the conference 'Traffic safety on two continents', Lisbon, Portugal, September 22-24, 1997

Report documentation

Number: D-97-14
Title: Road Safety Information System (RIS): key information supporting traffic safety policy in The Netherlands
Subtitle: Contribution to the conference 'Traffic safety on two continents', Lisbon, Portugal, September 22-24, 1997
Author(s): Martha Brouwer
Research manager: P. Wesemann
Project number SWOV: 75.705
Client: This research was funded by the Dutch Ministry of Transport and Public Works

Keywords: Program (computer), data bank, information documentation, inventory, safety, policy, improvement.

Contents of the project: SWOV supports traffic safety policy on a national and regional level with a user friendly computer system, bringing key information to the users' desks. This paper focuses on the following questions: what were the problems to be solved? what are the benefits of accurate and relevant information to policy? how does the Dutch RIS (Road safety Information System) work? how is the RIS organised?

Number of pages: 33 p.
Price: Dfl. 25,-
Published by: SWOV, Leidschendam, 1997

SWOV Institute for Road Safety Research
P.O. Box 1090
2260 BB Leidschendam
The Netherlands
Telephone 31703209323
Telefax 31703201261

Contents

| | |
|---|----|
| <i>Foreword</i> | 4 |
| 1. <i>Overview</i> | 5 |
| 2. <i>Why an information system?</i> | 6 |
| 3. <i>How does information improve traffic safety policy?</i> | 7 |
| 3.1. <i>Problem areas</i> | 7 |
| 3.2. <i>Measures</i> | 7 |
| 3.3. <i>Programme</i> | 8 |
| 3.4. <i>Evaluation</i> | 8 |
| 4. <i>How does the Road safety Information System work?</i> | 9 |
| 4.1. <i>Unique advantages</i> | 9 |
| 4.2. <i>Subjects</i> | 9 |
| 4.3. <i>Type of information</i> | 9 |
| 4.4. <i>Information Desk</i> | 10 |
| 5. <i>Who are involved in the Dutch RIS?</i> | 11 |
| 6. <i>What to do if the idea of a RIS appeals to you?</i> | 12 |
| <i>Appendix User interface of the RIS</i> | 13 |

Foreword

This paper aims at explaining the purpose and characteristics of the Dutch road safety information system and the experiences with it.

The information system was developed in close cooperation with the users: road safety professionals of the Ministry of Transport. We, the SWOV project team (of which I am the project leader), assisted the users in formulating and specifying their needs, on behalf of the Ministry. We strongly believe that this extensive communication is one of the success factors of the system.

The Dutch road safety information system is part of a policy making concept: the concept of rational decision making. The main benefit of our information system is the user friendly access to actual, relevant and qualified information, which can also easily be processed in e.g. documents and spreadsheets. As stated above, the selection of information is agreed upon by the users. The discussions about information needs contribute to the attitude of rational decision making.

I would like to thank Fred Wegman (research director at SWOV) and Hans van Zwol (project leader of the information system at the Ministry of Transport) for their support in clarifying this message.

Of course I also want to thank the members of the project team, continuously and enthusiastically investigating further improvements for our users: Ton Blokpoel and Ragnhild Davidse, who take care of the contents of the information system and the communication with the users, and Vincent Kars, who is our technical expert and the designer of the user interface.

Martha Brouwer

1. Overview

SWOV Institute for Road Safety Research supports traffic safety policy on a national and regional level with a user friendly computer system, bringing key information to the users' desks. This concept could be useful for other countries as well.

This paper will focus on:

- what were the problems to be solved?
- what are the benefits of accurate and relevant information to policy?
- how does the Dutch RIS (Road safety Information System) work?
- how is the RIS organised?
- what could be the follow-up of this paper?

The Dutch RIS will be demonstrated as part of the presentation during the Conference.

2. Why an information system?

Several issues coincided:

- The employees working on national traffic safety policy, at the Ministry of Transport, experienced that information was not available to them in an efficient way. They had no overview of relevant information, could not find the publications they needed, were confronted with contradictory information and so on. This became obvious as a problem requiring a solution around 1990.
- The Ministry of Transport started a project 'To measure = to know' (Meten = Weten), aiming at rational decision making, based on proper information. Especially important were the following elements of the new strategy:
 - . setting quantitative targets;
 - . stating a plan to reach them;
 - . monitoring the progress made;
 - . adjusting the plan if necessary.
- Somewhat later regional and local actors were invited to play a more active role in the implementation of traffic safety policy. They also encountered the problem of not knowing exactly where to get the relevant information from. As these actors have more or less the same information needs and have to communicate with the central government and with colleagues located elsewhere, this stressed the benefits of a common set of information.

These factors led to the development of an information system, on behalf of the Ministry, primarily meant for monitoring and evaluation purposes but also containing information supporting other phases of the policy cycle. It was decided that the information system would contain tables and text on a limited and selected set of themes, and that for all other questions an Information Desk would be available (in fact a telephone number with specialised staff).

3. How does information improve traffic safety policy?

3.1. Problem areas

Looking at the policy cycle, first of all information is needed to define problem areas: what are the problems needing attention; what is the severity; what are the causes; what is the relationship with traffic safety exactly; how much could be gained.

In The Netherlands the following spearheads are officially distinguished:

- speed;
- driving under influence;
- restraint systems;
- heavy traffic;
- bicycles and mopeds;
- dangerous situations;
- Sustainable Road Safety¹.

Besides that, young drivers are more and more recognised as a high risk group needing special measures.

At a local level special attention is also paid to vulnerable road users: children and the elderly.

The Dutch RIS covers all these themes with textual information and supporting data.

3.2. Measures

The second question is: what can be done to improve the situation? Which measures are feasible? Under which conditions are certain measures most suitable? What is the cost-effectiveness? What is the best mix of measures? Which aspects need special attention when implementing the measures?

The Dutch RIS provides an overview of possible measures, classified into infrastructure, vehicles and road users. The information is meant to make sure that all possibilities are considered and to enable a preliminary choice. Where possible, results of recent projects are summarised to clarify which results can be expected. For detailed information references are made to other sources.

3.3. Programme

This is the third step: decide what to do, based upon good information; state a

¹ A sustainably safe road traffic system is one in which the road infrastructure has been adapted to the limitations of human capacity through proper road design, in which vehicles are technically equipped to simplify driving and to give all possible protection to vulnerable human beings, and in which road users have been properly educated, informed, and, where necessary, deterred from undesirable or dangerous behaviour. Man should be the reference standard and road safety problems should be tackled at its roots.

Safety principles were identified as keys to arrive at a sustainably safe system (functional, homogeneous and predictable use of the road network) and based on these principles as a basically theoretical perspective the concept has been worked out.

quantitative target or the expected result; and commit the organisations involved through a plan with a more or less official status.

In The Netherlands the national government stated targets in terms of numbers of fatalities and injuries. Since a few years regional and local authorities have considerable freedom in deciding how to improve road safety but they are committed to the percentual decrease in number of fatalities and injuries.

Especially the fact that so many parties are involved in traffic safety, stresses the need for the accessibility of uniform data and qualified knowledge.

3.4. **Evaluation**

The plans should state the role of every party and how the contributions will be assessed. When can we be content about the progress and when do we have to adjust our plan? This is the fourth step in the policy cycle.

This asks for yardsticks; indicators for contributions of organisations (process indicators) and the results (product indicators).

Examples of process indicators are: number of municipalities having a traffic safety plan; length of roads that are adjusted to the principles of sustainable road safety; number of hours spent on police enforcement; composition and length of public campaigns. Examples of product indicators are: number of road casualties; percentage of drivers with too much alcohol in their blood; percentage of drivers exceeding speed limits.

This kind of feedback enables controlling the improvement of traffic safety. All relevant product indicators are included in the Dutch RIS, including an assessment of recent developments in view of the targets.

It is generally considered as useful in The Netherlands to have more information on a central level about process indicators than now available; programmes to provide this type of information are being started. As soon as the information becomes available for publication, it will be added to the RIS.

4. How does the Road safety Information System work?

4.1. Unique advantages

The Dutch RIS aims at improving traffic safety through more rationality in decision making, based on proper information. It enables quick understanding of the developments by the parties concerned and timely adjustment of policy. The RIS stimulates the use of qualified information because it is permanently available at the user's fingertips.

The unique advantages of the RIS are:

- it integrates information from various sources;
- it contains recent information, relevant to policy;
- the information in the RIS is the best there is in the Netherlands (in terms of validity and accuracy);
- the RIS is very easy to use;
- the users can request every required combination of data;
- all data in the RIS are accompanied by explanatory text;
- any question that is not answered by the RIS, can be put to the RIS Information Desk (see below).

4.2. Subjects

The RIS covers the complete range of spearheads of official national traffic safety policy, as stated above. Of each topic a time series of data is available, mostly on a year base, from 1980 onwards. The selection of data and the aggregation level are agreed upon with the users of the RIS. In principle the tables (indicators) are related to the targets set; where appropriate, they offer more detail. Within the possibilities of the table, the user can choose the variables and the classes to be presented and the level of detail. Of course tables can be presented as graphs also. All information can be processed in any way: through the Windows clipboard into a spreadsheet or a document, into a file or be sent to the printer. Examples of tables are:

- casualties distinguished by severity of the injury, province, mode of participating in traffic, age, police region;
- casualties distinguished by severity of the injury, province, mode of participating in traffic, counterparty, speed limit of the road, road administrator, transport region;
- percentage of drivers exceeding the blood alcohol limit, distinguished by several variables;
- percentage of drivers exceeding speed limits on different road types;
- percentage of drivers wearing seat belts;
- percentage of moped riders wearing a helmet in the correct way.

At this moment (summer 1997) there are more than sixty indicators.

4.3. Type of information

Furthermore the following aspects are discussed:

- a more or less 'technical' explanation of the choice of the indicators and the data. With respect to the indicators: why were they chosen; why are

they regarded as the best yardstick. With respect to the data: what is the source, how and under which circumstances were they collected; how valid, accurate and representative are they; definitions, classifications, comparability over the years and to other sources of data; what can the data be used for; which type of conclusions may be drawn from them.

- with respect to each problem area: why is it a problem; what is the relation with traffic safety; how much could be gained;
- interpretation and explanation of recent developments. The RIS offers answers and does not pose a puzzle to the user. This means that the user does not have to analyse the information obtained; the analysis is already included in the RIS.

It is also indicated whether or not it can be assumed that the targets will be reached and whether this will require additional efforts;

- what can be done to attack the problem. The measures are divided into sections relating to infrastructure, vehicles and drivers/pedestrians.

4.4. **Information Desk**

The RIS is completed with an Information Desk where users can ask questions about the application *and* about information that is *not* in the application; in other words, the users always have a central point to contact if they need specific information for their work. The Information Desk is located at SWOV and (during working hours) permanently staffed by general experts on road safety. They ask for assistance from specialists if necessary. Answering questions of RIS-users has top priority in the organisation; in general, all questions can be answered within two hours.

Together with the enquirer, it is investigated what he or she exactly needs and how this can be provided. The RIS Information Desk makes use of any relevant information that other organisations can provide. It offers an efficient means of collecting information for users; the available knowledge is easy to access via the RIS Information Desk.

5. Who are involved in the Dutch RIS?

The Dutch Ministry of Transport is the owner of the system.

The current users are employees of the Ministry, at national and regional levels. All information in the RIS is public and can be used freely, under the condition of stating the source. So other regional partners can direct themselves to the Ministry to obtain information from the RIS. There is a discussion going on about extending the group of users, at least to provincial employees, as they own part of the Dutch road infrastructure and have to coordinate the regional road safety policy. To support these tasks, the Ministry wants to provide the regional partners with uniform and qualified information. So far the Ministry pays all costs but another financial structure could be considered when the distribution of the RIS is extended to people outside the Ministry.

SWOV maintains the system, on behalf of the Ministry. To make sure that the RIS keeps meeting the users' needs, there are regular meetings with representatives of the users.

The spending of annual fee gives an impression of the activities:

| | |
|---|------|
| Updating and improving the contents of the RIS: | 15% |
| Maintenance of the application (including processing of new information): | 20% |
| Communication with users: | 15% |
| Information Desk: | 10% |
| Extra activities, to be decided upon every year: | 25% |
| Management: | 15%. |

6. What to do if the idea of a RIS appeals to you?

The Dutch Road safety Information System appears to be a good instrument and it will be continued. If other countries are interested and would like to gain from the Dutch experience, agreements can be made. SWOV has much experience in preparing and implementing the Dutch RIS and is willing to put this at your disposal. We could assist in making a prototype for your own country, advise on the data to be entered into the system, provide a training course; just ask us.

Appendix

User interface of the RIS

Starting the Dutch RIS, the user is only two screens away from the information he wants to see. The first screen offers all subjects, one of which is to be selected, and the second screen enables menu driven specification of the requested information (table or text). The output screen contains buttons further processing of the information. All screens are in the appendix.

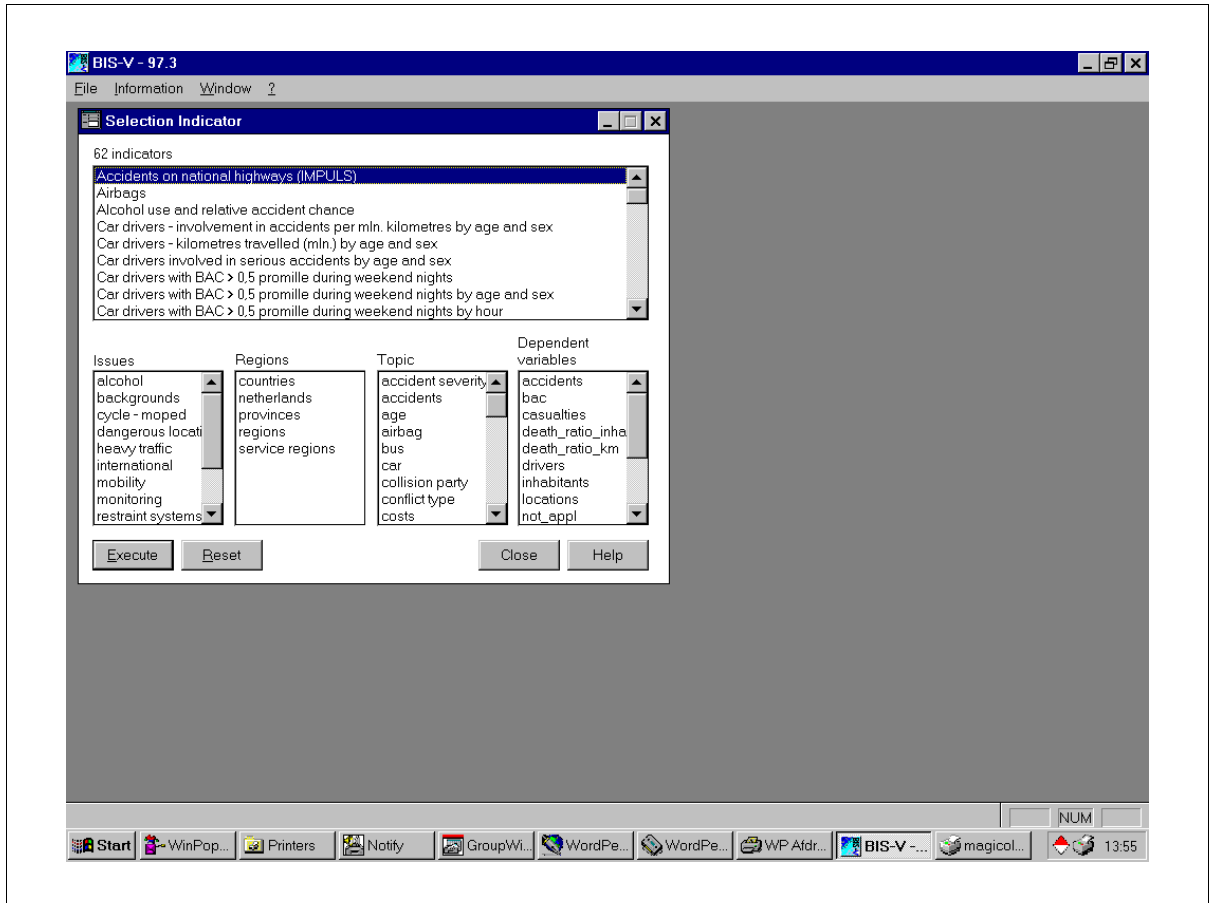


Figure 1. Indicator selection screen. Main window presents all available indicators and texts; the minor screens assist in selecting indicators.

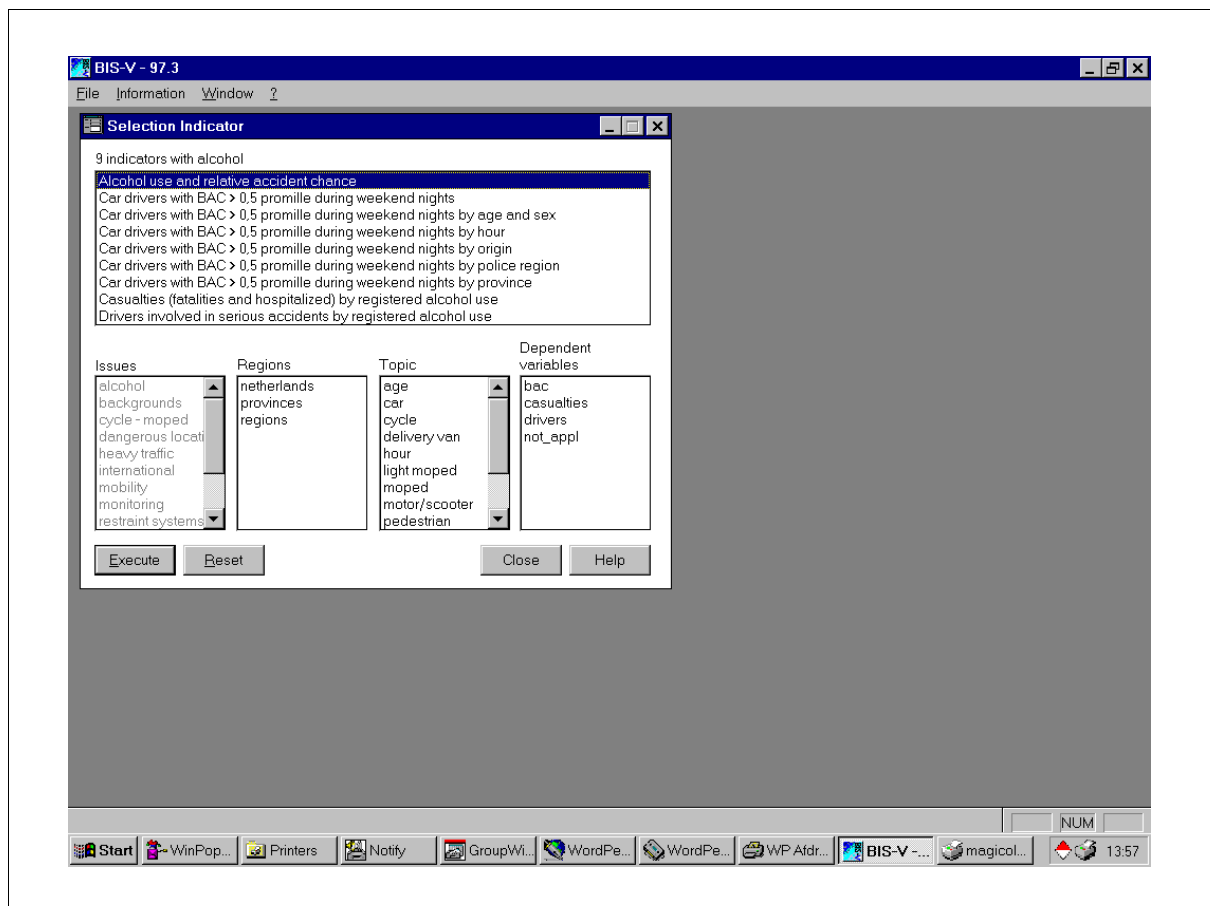


Figure 2. E.g. when you select 'alcohol' as an issue, nine indicators relevant for alcohol and road safety appear.

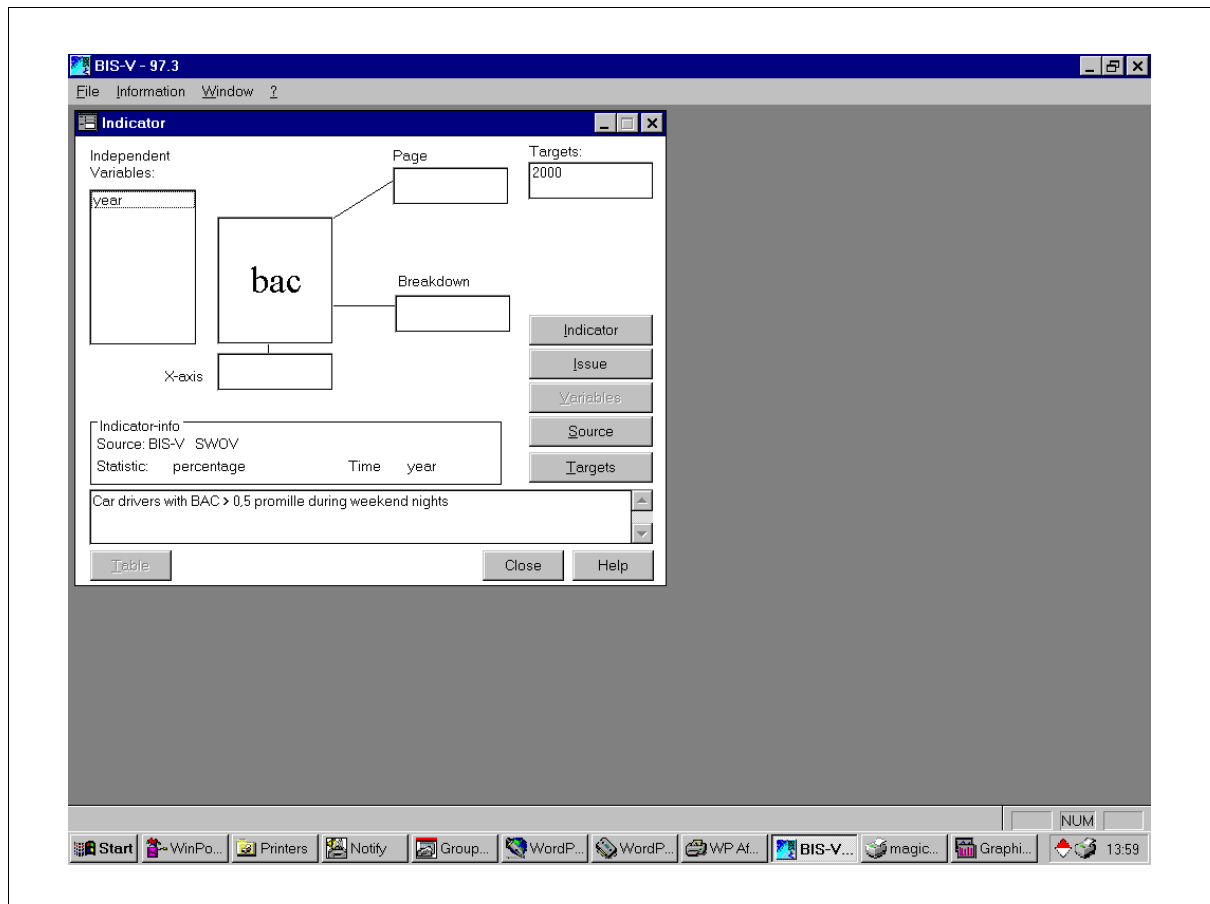


Figure 3. Indicator manipulation screen. Here you tell the system e.g. that you want years on the X-axis and that you want to see the target set for 2000. This indicator presents the result of a random breath test among car drivers during weekend nights in autumn. BAC means Blood Alcohol Contents.

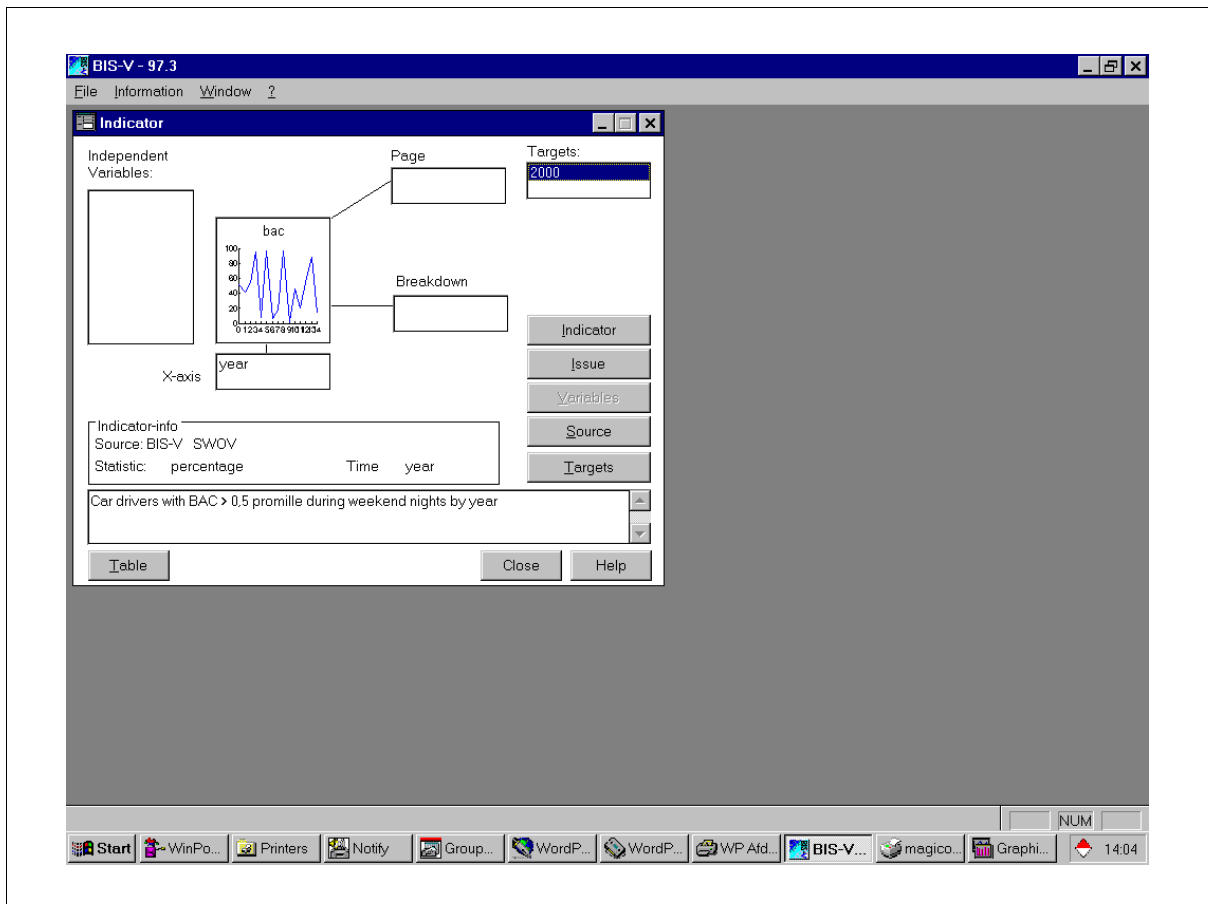


Figure 4. After this, ask for the table. This is all you have to do.

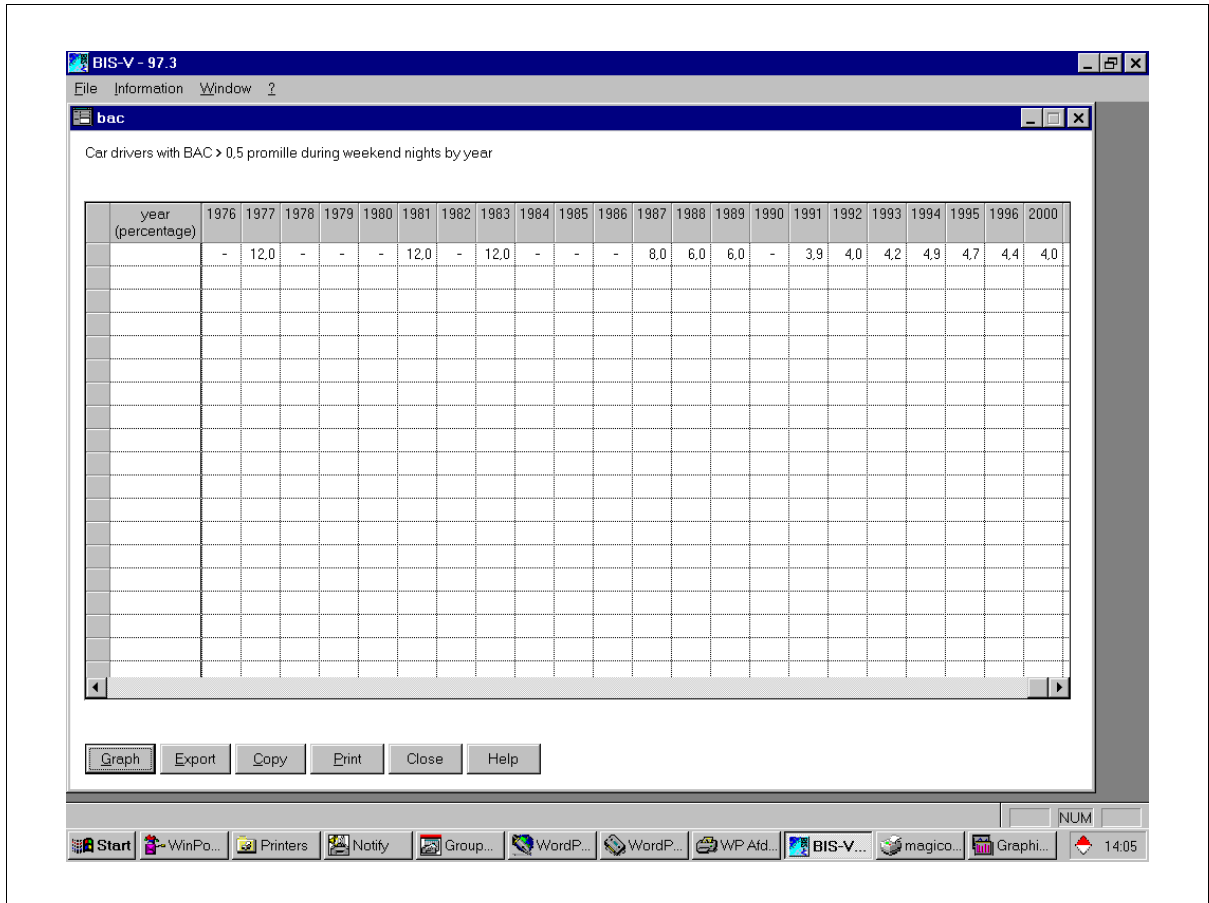


Figure 5. This is part of the table, with buttons for further processing the information. The graph is shown on the following page.

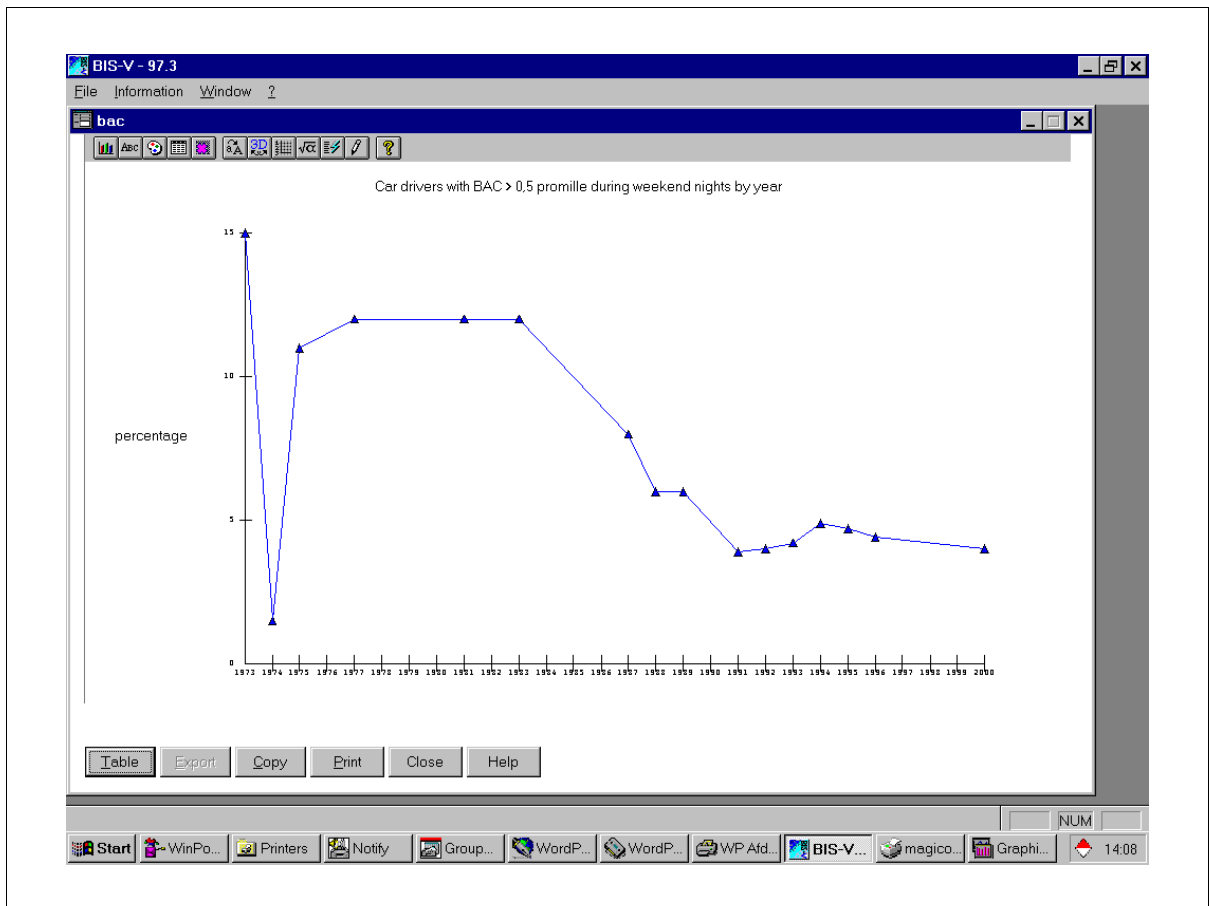


Figure 6. The explanation of the development can be found by pushing the buttons in the indicator manipulation screen.

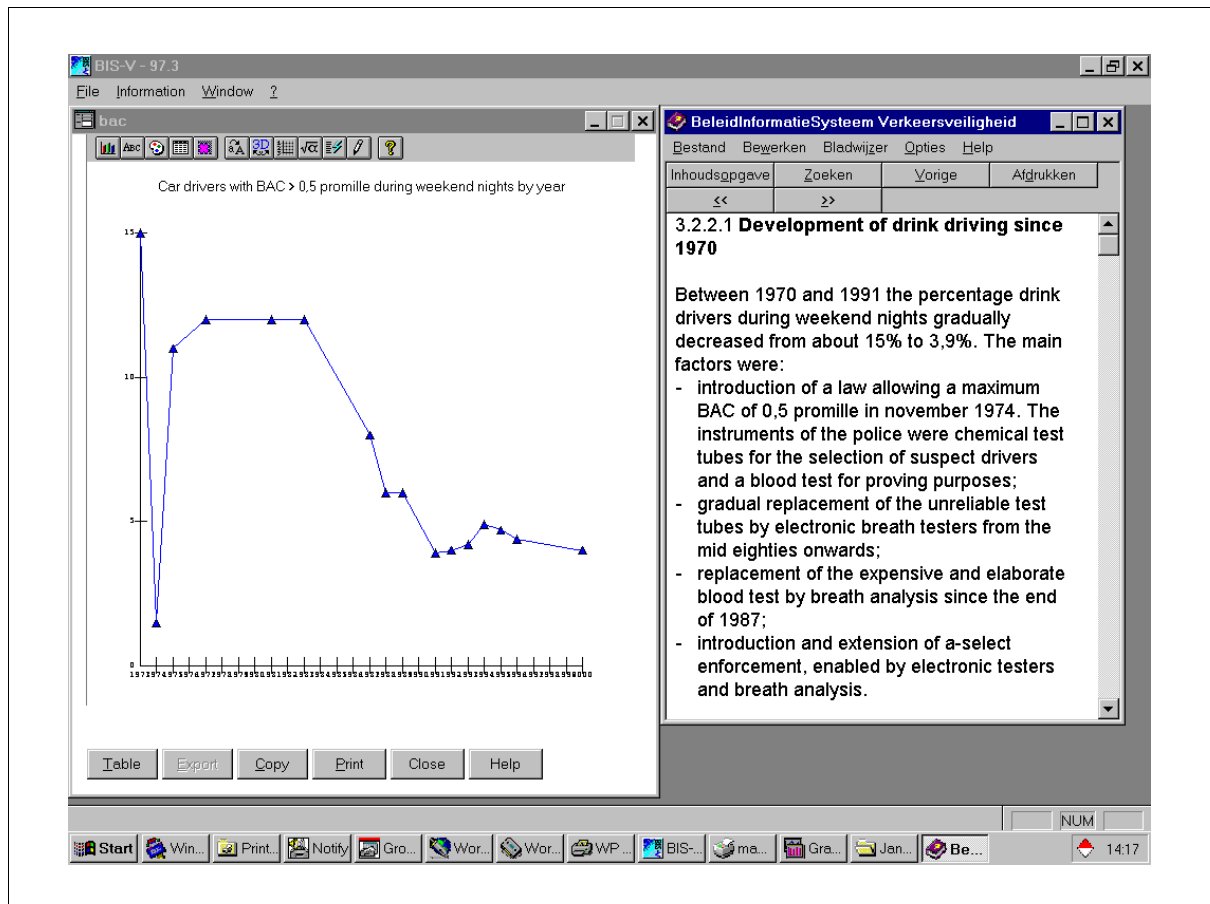


Figure 7. The explanatory text can be presented together with the graph.

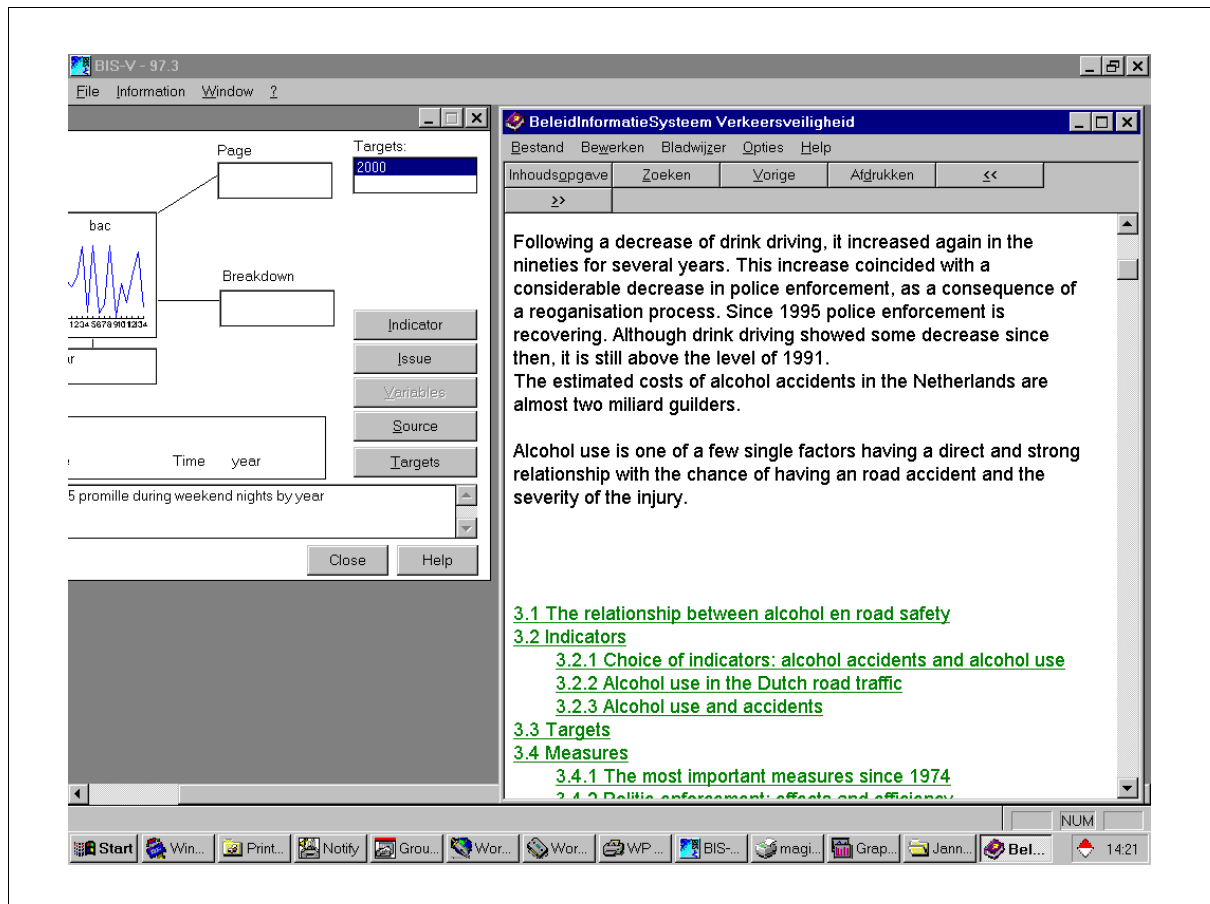


Figure 8. The button 'Issue' gives access to a concise state-of-the-art report about alcohol and road safety.

This example so far demonstrates the most important functionality of the system and illustrates that it is easy to use, despite all the possibilities.

Another example is the comparison of the BAC's of car drivers in the Dutch provinces in 1996.

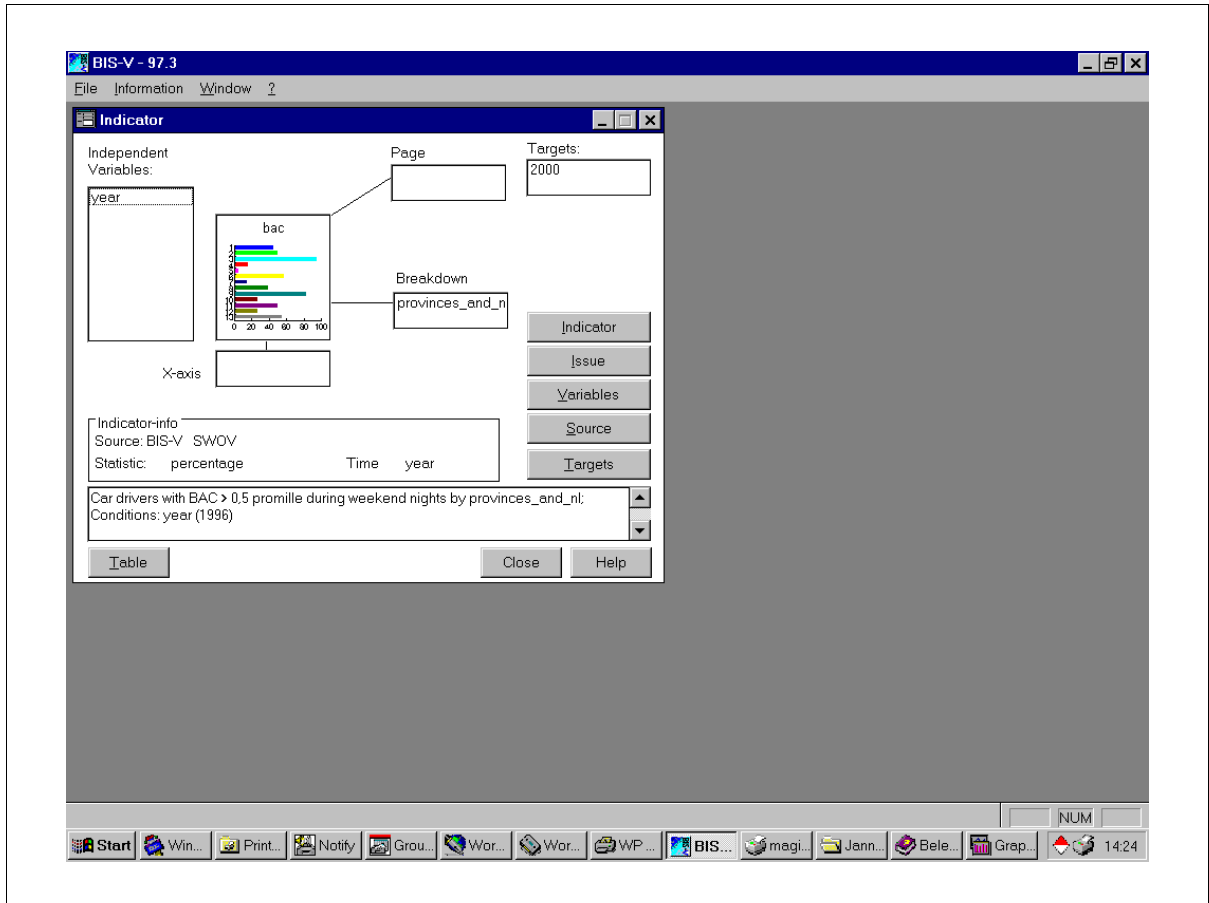


Figure 9. The title tells that only the year 1996 is chosen and the dummy graph shows how the definite graph will look like.

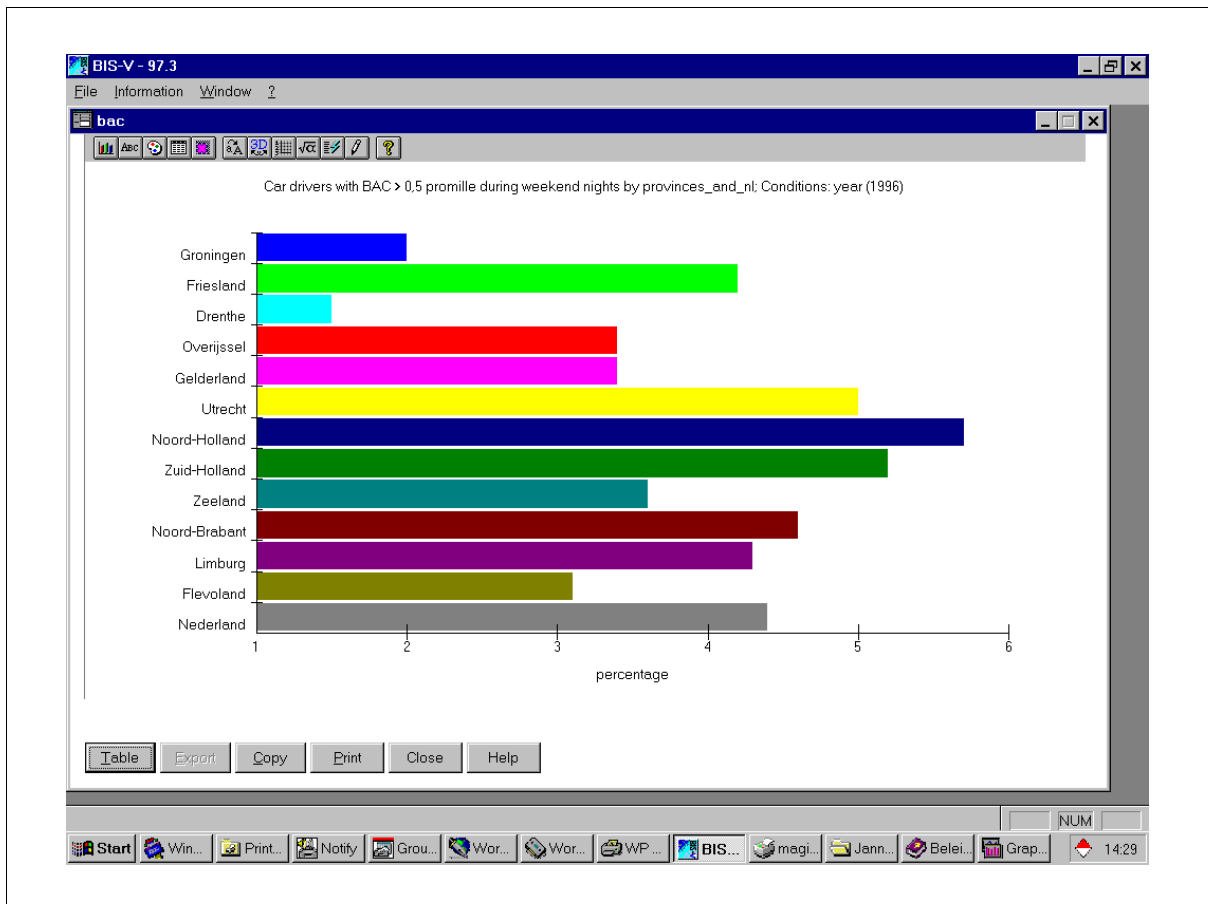


Figure 10. The graph reveals large differences in BAC between provinces.