Traffic Safety Information in South Africa

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How to improve the National Accident Register

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Report documentation

Summary

In the framework of the Road Safety Working Group of the South African Netherlands Transport Forum (SANTF) a project has been carried out to determine a long term strategy on road safety information and to investigate ways and means to improve the problems experienced with the National Accident Register (NAR) system. The project has been carried out by the SWOV Institute for Road Safety Research from the Netherlands and the South African based research institute CSIR Transportek.

The first phase of the project consisted of a questionnaire concerning the state of the art of road safety information and road accident registration. The questionnaire has been completed for both the Dutch and the South African situation. In the second phase of the project a framework for road safety information in South Africa was developed. During the third phase field visits were conducted to collect practical knowledge on the current accident reporting system in South Africa. Based on the information gathered in previous phases, a one day stakeholders workshop was orga-nised to share the researchers' experiences and to discuss some pre-liminary findings.

In this report it is emphasised that, generally, a broader perspective is needed of the required information to improve road safety. Clearly an effective accident registration is at the heart of this broader perspective. In the long term, however, other data, besides accident data, is needed to improve the effectiveness of traffic safety policies.

The study team has formulated a number of recommendations to improve the current accident registration system in South Africa. Based on its analysis, the study team recommends to consider the accident registration system as one comprehensive system and to consider any proposal for the components of the system from this perspective. Therefore a central management of the accident registration system has to be installed, under the leadership of the Ministry of Transport and with the co-operation of all actors involved.

Furthermore, the study team recommends to finance the National Accident Register (NAR) system by public means, and to prevent the system from being dependant on incidental income.

Contents

List of abbreviations

AVV	The Netherlands Transport Research Centre (AVV)
CA	Capturing Authority
COLTO	Committee of Land Transport Officials
CSIR	Council for Scientific and Industrial Research
DAR	Driver's Accident Report
DN	Delivery Note
DoT	Department of Transport
ETSC	European Transport Safety Council
GIS	Geographical Information System
GTIC	Gauteng Traffic Information Centre
MINCOM	Ministerial Conference of Ministers of Transport
NAR	National Accident Register
NaTIS	National Traffic Information System (NaTIS)
NDoT	National Department of Transport
NRSC	National Road Safety Committee (New Zealand)
OAR	Officer's Accident Report
RAF	Road Accident Fund
RSA	Republic of South Africa
RTA	Road Traffic Act
RTMC	Road Traffic Management Corporation
RTMCC	Road Traffic Management Co-ordinating Committee
RTQS	Road Transport Quality System
SANRAL	South African National Road Agency Limited
SANTF	South African Netherlands Transport Forum
SAPS	South African Police Service
SMO	Systems Management Office
SSA	Statistics South Africa
SWOV	SWOV Institute for Road Safety Research

Foreword

A study team was appointed to conduct the accident reporting and road safety information audit, consisting of the following members:

Mr. Eugène Banach	Ministry of Transport and Public Works, AVV, Department for Statistics and Data Management
Dr. Hubrecht Ribbens	Council for Scientific and Industrial Research (CSIR), Transportek
Ms. Elize de Beer	CSIR, Transportek
Mr. Fred Wegman	SWOV Institute for Road Safety Research (SWOV)
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1.   Introduction

In October 1999, the Dutch and the South African Ministers of Transport signed a protocol to promote co-operation between the two countries. The South African Netherlands Transport Forum (SANTF) was established to direct the co-operative programme. Three working groups were established, amongst which one on Road Safety. The SANTF approved a recommendation of the Road Safety Working Group, co-chaired by Messrs. Peter Elsenaar and Lisa Mangcu, to investigate ways and means to solve the problems currently experienced with the National Accident Register system (NAR). In addition, it was also agreed that recommendations should be made on the availability of road safety information for strategic and operational management. The Dutch Institute for Road Safety Research (SWOV) and the South African institute CSIR, Transportek were commissioned to conduct this study.

The study was conducted in the following five phases as stipulated in the original contract:

Phase 1: Compilation of initial report.
Experts from both countries prepared an initial report on road safety information in each country, based on a questionnaire prepared for this purpose (see *Appendix A*).

Phase 2: Development of a long term strategy

Phase 3: Visits to collect practical knowledge on the accident reporting system
The study team visited a number of key stakeholders between 22 and 28 November 2000 as per attached schedule (*Appendix B*). The visits focused on the following institutions:
- National Department of Transport, including the National Traffic Information System (NaTIS);
- Provincial Offices (Gauteng and Eastern Cape Provinces) of the South African Police Service (SAPS);
- Gauteng and Eastern Cape Provinces and selected local/metropolitan authorities and police stations in these provinces;
- selected potential end-users such as the Road Accident Fund (RAF).

Phase 4: Stakeholders workshop
A one-day workshop was held on 1 December 2000 at the Conference Centre of the National Department of Transport in Pretoria. The workshop consisted of:
- an information sharing session;
- a feedback session on a first assessment of the audit of the accident reporting system in South Africa;
- breakaway group discussions on topics such as potential clients of the system, quality assurance and capacity building.
The proceedings of the workshop are attached (*Appendix C*)

Phase 5: Final report.

An efficient road accident information system is required, both from a strategic and operational management perspective, to develop effective road safety policies, strategies and action plans to prevent the unnecessary loss of human and monetary resources. Road accidents together with AIDS are two of the major causes of death in South Africa. Currently there are about 512.000 traffic accidents a year. Of these accidents about 28.000 are fatal or lead to serious injury. In 1998 approximately 9.100 people lost their lives, 36.000 were seriously and 84.000 slightly injured. In 1998, the cost of road accidents amounted to R14 billion (NdoT, 2000a). The prevention of this loss of human and monetary resources is vital in a country where limited resources are available. An efficient information system is invaluable to pinpoint problem areas and priorities and to monitor the progress made with the implementation of road safety measures.

2. Framework for a Traffic Information System in South Africa

Although societies all over the world still suffer from the consequences of road accidents, it is without any doubt that major improvements are possible. If we compare, from a road safety perspective, relatively safe countries with relatively unsafe countries, we may observe major differences. Official statistics indicate a mortality rate (fatalities per 100,000 inhabitants) in South Africa which is three to four times higher than in the Netherlands. The number of people killed in a road accident per million motor vehicle kilometres driven in South Africa is ten times higher than in the Netherlands. It is important to understand that improvements in the field of road safety are the result of hard and lasting efforts to improve the quality of all components of the road transport system (the human component, the road component and the vehicle component). As a result of these efforts, the number of people killed on Dutch roads has been reduced from more than 3000 in the early seventies to around 1100 at the end of the nineties. Irrespective of these gains, many opportunities for further improvements are being considered in order to further reduce the social, socio-economic, and public health toll as a consequence of road accidents.

It is furthermore important to realise that road safety improvements are possible whilst road traffic is growing. A growing mobility is accompanied in many countries by a reduction of the fatality rate, not as a result of a natural law or spontaneous development, but by investing in the quality of the road transport system.

This leads to the following questions: what are the causes and underlying factors of road accidents and which are the most appropriate, effective and cost-effective measures to reduce and possibly eliminate these causes? Of course, incidental and proven measures can be taken without waiting for the answer to these questions. However, for several reasons it is recommended that a comprehensive strategy to improve road safety is developed. The following four key elements, based on international experiences in road safety policy making, were defined by a group of experts (Trinca et al, 1988):

Rationality
Road traffic is a heterogeneous phenomenon and is amenable to rational cause and effect analysis;

Limited objectives:
Bring defined problems under control rather than aim to prevent all crashes.

Cost-effectiveness:
Rational decision-making is crucial when choosing between conflicting social and economic objectives.

Pilot testing and evaluation
Road safety programmes should, wherever possible, be pilot tested before large-scale implementation.

In order to apply these 'best practice lessons', it is important to understand the dynamics of policy making in general and of road safety policy in particular. For this purpose a road safety improvement strategy has been developed seemingly applicable to countries all over the world, whatever their stage of road safety progress (Wegman & Mulder, 1999).

Eight stages are distinguished in the strategy:
1. signalling and identifying the problem;
2. demand for social recognition;
3. initial social recognition;
4. emphasis on the legal instrument;
5. a broad preventative approach;
6. broadening the road safety initiatives;
7. increasing readiness to implement measures;
8. complete anchoring in decision making.

In order to make even a start, problems have to be signalled and identified. All sorts of data and knowledge are needed for this problem identification. But which data and what knowledge? In a recent document 'Road Safety Strategy 2010' (NRSC, 2000) the National Road Safety Committee in New Zealand presents a pyramid to illustrate the different aims of data requirements for policy making. (*Figure 1*).
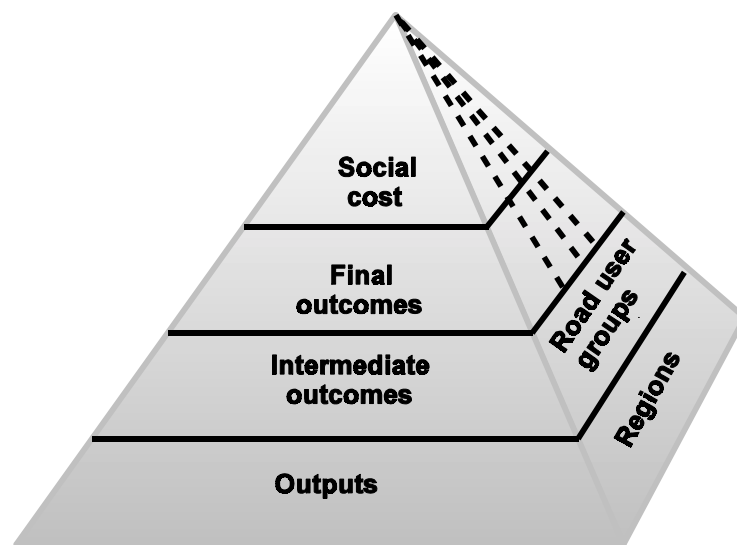
Figure 1. *A pyramid to illustrate the relation between policy making and data requirements.*

First of all a decision has to be taken whether it is accepted to use 'social cost' as the most aggregate measure of road accidents. This is a new concept, which certainly has advantages, since it makes it possible to add the different severities of road accidents under one denominator. This approach certainly reflects the clear picture of working with fatalities, serious injuries, minor injuries, etc. in road safety policy, which is normal practice today in many countries. For example, the Netherlands works with quantitative targets expressed in a certain reduction of the registered number of

fatalities and serious injuries within a certain time period (Ministry of Transport, 2001).

The second layer in the pyramid, indicated here as final outcomes, consists of fatalities and serious injuries. These (serious) consequences are the main components of social costs and perhaps the main reason to prevent accidents. But limiting ourselves to these serious consequences implies not paying any attention to other, less serious consequences. Because these less serious consequences have a far higher frequency, road safety policy making and road safety research might need this data. This requires an important policy discussion with far reaching consequences: organization of data collection, financial implications etc.

It is advised to relate *final outcomes* ('transport crashes') to the 'volume of travel or traffic' in order to estimate exposure to the risk of injury or death. This so-called exposure data is needed (ETSC, 1999) to:
-   allow to set priorities based on high levels of risks (road user groups, vehicle types, risk increasing conditions, etc);
-   compare the risk levels of different types of travel;
-   monitor casualty trends and evaluating policies.

To illustrate this last item: if a compulsory wearing of crash helmets has been introduced, it is relevant to explain casualty reduction by lower risks and/or by less usage of mopeds/motorcycles (because helmet obligation might reduce the attractiveness of moped/motorcycle riding).

The third level in the pyramid deals with *intermediate outcomes*, defined as the undesired quality of (components of) the transport system. In an ETSC-report 'Transport Safety Performance Indicators' (ETSC, in press) the same concept has been elaborated but using the words 'performance indicators'. One might think of human behaviour (speed, drunk driving, usage of safety devices), roads (parts of the network complying with a defined safety standard) and vehicles (quality of passive and active safety in the vehicle fleet). The fourth level of the pyramid, *outputs*, represents policy deliverables: number of police hours spent on enforcement activities, number of vehicle inspections, number of treated black spots, etc.).

The reason for the third dimension is that these indicators, outcomes and outputs may be broken down by region, by road type, by vehicle type, by road user group, etc.

All indicators and levels of the pyramid are of importance, both from a policy point of view and from a research point of view. It is without any doubt that a National Accident Register (NAR) will form the heart of this system and that the South African Government concentrates on improving the NAR. However, this chapter indicates clearly that a broader perspective is needed.

In this broader perspective, a Geographical Information System (GIS) can be very efficient to link different data sources. Clearly a GIS can only link those data sources which contain geographical information. However an important condition to link data sources is that all the position components of these data refer to one and the same digital map. For road safety

information this implies that only one digital map of the (national) road network must be used as a basis for data collection.

3.   Overview of accident reporting in South Africa

In this chapter a short overview is given of the history of accident reporting in South Africa. Before SANTF got involved in the problems concerning the National Accident Register (NAR) system, a number of reports addressing the subject were already available. A summary of these studies (NDoT, 2000c and 2000b; NDoT & SAPS, 1998; DoT, 1999; Eastern Cape, 2000), describing the former and current system, and problems relating to the current system is provided below.

3.1.   Former accident reporting system (prior to 1999)

The accident reporting system used in South Africa prior to 1999 showed various shortcomings. There were doubts whether all casualty accidents were in fact recorded in the national system. The South African Police Service (in some cases assisted by traffic authorities) attended all fatal and major injury accidents and completed an accident report form, known as the SAP352A, in triplicate with respect to each accident. Material Damage Only (MDO) accidents were not attended by the police. These accidents had to reported by the involved parties within 24 hours at a police station where a SAP352A form was then completed. The SAPS kept the original SAP352A document, one copy went to the local authority and another copy was sent to Statistics South Africa (SSA), previously known as Central Statistical Services (CSS), who copied the accident details from the document onto the computer. Very often the copies were not received at SSA, or were not legible, and data were lost in the process. Annually, more than 500,000 road accidents (casualty and damage only accidents) were recorded and captured in this manner. The administration of this system, largely handled manually, was a mammoth task.SSA did not capture all data relevant for use by local authorities in the national system. Examples of data not captured are the location and cause of the accident. Some local authorities therefore established their own data bases and that led to a duplication of efforts. However, not all local authorities could afford to set up their own data bases and the national statistics therefore seldom served the purpose they were intended for.

3.2.   Current accident reporting system (1999 onwards)

3.2.1.   *System structure*

A new accident reporting system was therefore required to overcome all the operational problems that existed in the former system. In 1999, the National Department of Transport in collaboration with the SAPS, the nine provinces, and the local/metropolitan authorities, established the National Accident Register (NAR).

The SAPS, in consultation with all stakeholders (role players and end-users) designed two accident report forms to be used in the NAR. They are:

- The Officer's Accident Report form (known as the OAR) which the SAPS has to complete for each road accident involving casualties. SAPS officers visit the scene of the accident and complete the form.
  The OAR was implemented in the respective provinces on the dates shown below:
  1 March 1999   Gauteng, Northern Province
  1 May 1999   Northern Cape
  1 July 1999   Eastern Cape, Free State
  1 October 1999   Western Cape and Mpumalanga
  1 November 1999   North West
  1 May 2000   KwaZulu-Natal
- The Driver's Accident Report form (known as the DAR) will be completed at the police station in cases where the public reports 'material damage only' accidents. This information is usually required by the insurance companies to process road accident damage claims. This form is not yet in use; the OAR is currently used for all accidents.

3.2.2. *Reporting procedures*

When an accident occurs within a metropolitan/local authority area, the SAPS complete and forward the OAR to the local traffic department for data capturing on the Trafman, TCS or Ciprus system. In some cases the traffic departments complete the OAR themselves and capture the data. When an accident occurrs outside a local authority area, the SAPS complete and forward the OAR form to the relevant provincial traffic department which captures the data on Trafman.
Apart from the OAR, the SAPS also complete the SAP176 Accident Register. In addition, a Delivery Note (DN form) has been implemented to ensure that all accidents are recorded and forwarded. The relevant data of all completed OAR accident forms, entered in the SAP176 Accident Register must be completed in sequence on the DN form. Traffic representatives (and SAPS, if forms are sent to another police station) must sign the declarations on the back of the form to ensure that all forms as listed have been received. The signed original DN is kept in the police station and a copy of the DN must accompany the accident report forms (OAR) to the traffic department (local or provincial).
Traffic departments and police stations have arranged that OAR and DN forms will be collected or delivered on a weekly basis. The arrangement works according to fixed cycles. These cycles can be summarized as follows:
- Day 1-7:   New OAR forms are completed and stored together in a batch.
- Day 8-14:   The batch is closed for new entries. Incomplete data is followed up and errors are corrected, etc.
- Day 15:   OAR's and completed DN are placed in the out tray of the traffic department(s) for collection or delivery.

Once processed, the data is forwarded electronically to the provincial data base. Interfaces have been developed to accommodate those traffic authorities using different capturing systems. The province will check that DN forms from all police stations and traffic departments are received.

Furthermore they will check that all OAR forms expected according to the DN forms have indeed been received, carry out quality checks on data received, etc..

Bi-weekly, the province forwards the provincial accident data in an electronic format to the National Traffic Information System (NaTIS). NaTIS is responsible for publishing the annual report on road traffic accidents and provide road accident statistics and other data, as and when required by the Cabinet and other end-users.

3.2.3.   *Problems experienced with the NAR system*

A report tabled on 17 November 2000 at the Road Traffic Management Co-ordinating Committee (RTMCC) (NDoT, 2000c) indicated that 37% of the accidents of 1999 had not yet been copied onto the NAR by the provinces and only 21% of the accidents that happened between January and August 2000 had been captured. The report also listed some of the major factors contributing to this backlog and lack of outputs of the following authorities:

South African Police Service
- Most capturing authorities have complained that SAPS do not properly complete OAR forms.
- Many police stations are not aware of, or in possession of, the Procedure Manual for the completion of the OAR form.
- Several police stations are not familiar with the procedures regarding the Delivery Note for OAR forms.
- Many police stations do not deliver the OAR forms to the designated capturing authority.
- Some police stations do not have the new OAR's in stock and are still using the old SAP352 forms.

Capturing authorities (CA)
- Insufficient capacity/training mainly as a result of shortages/turnover /changes in staff. Various traffic authorities indicated that the new accident report system was putting existing staffing levels under severe pressure. This includes the availability of staff qualified to conduct the necessary checking procedures at the police stations during collection time (currently, messengers are used for collection). Another problem was a lack of qualified staff to do data capturing (even in the existing system) leading to backlogs in data capturing. It is clear that provinces and local authorities will have to provide the financial means for additional staff, training, and equipment
- Failure to liaise with the police stations in their area to prompt the delivery or collection of forms. In some of the more rural provinces, OAR's have to be collected over long distances, and due to limited budgets, these forms are only collected once a month.
- Neglect to transfer data to the provincial level and onto NaTIS on a bi-weekly basis.

These operational problems resulted in NaTIS not yet having a complete record of accident statistics for 1999 and a huge backlog in accident data for 2000. Therefore NaTIS cannot provide any output or road safety information based on accident statistics for 1999 or 2000. This information is

urgently required, as the National Department of Transport cannot provide road safety information to the Minister of Transport, to the Ministerial Conference of Ministers of Transport (MINCOM), to the national Cabinet or, to any other stakeholder.

4.   First assessment of the National Accident Register

The study team prepared and completed an extensive orientation pro-
gramme by meeting several persons involved in the process behind the
accident registration system (*Appendix B*). The findings of the study team
are reported in this chapter. The report concentrates on the organization of
the process, since this is where major problems were identified. Clearly, to
run an accident registration system, an efficient information system is
required. Basically the computer hardware and, more importantly, the
necessary software to capture the accident data is available and therefore
not subject of further investigations.

The structure of this chapter is based on the information flow in the accident
reporting system as outlined in *Figure 2*. Once problems related to each in-
dividual governmental level, as shown in *Figure 2*, have been discussed,
some weaknesses of the system as a whole identified by the study team will
be dealt with. In the last section of this chapter a summary is given of re-
medial actions proposed by the National Department of Transport to im-
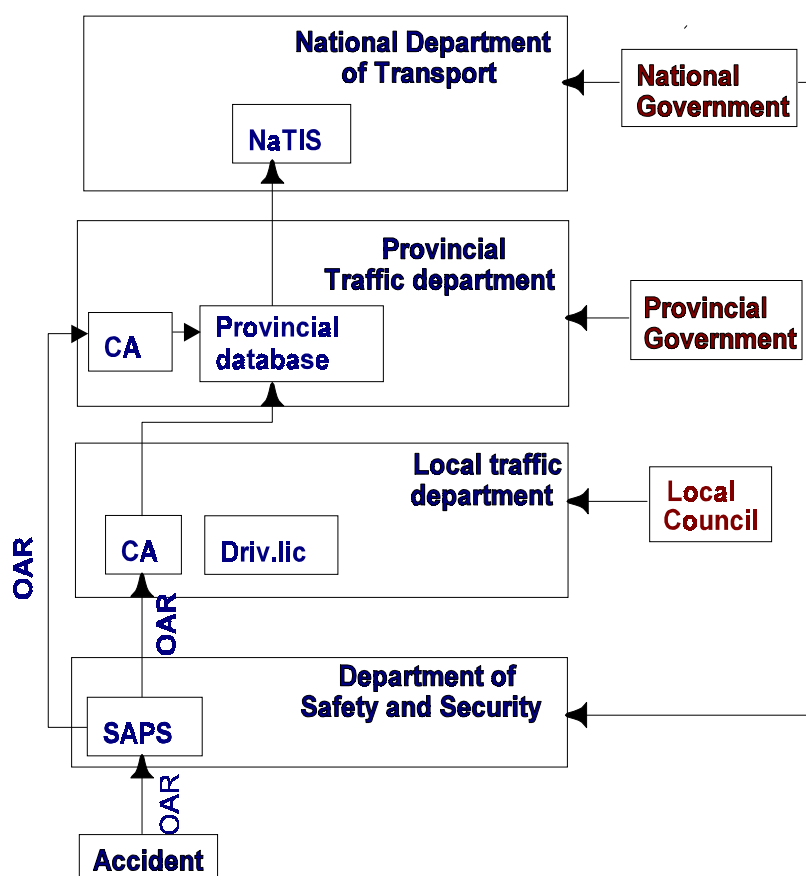prove the current NAR.

Figure 2. *Flow chart of the South African accident reporting system*

The magnitude of the accident reporting system is illustrated in *Table 1*. In this table, an overview per province is given of the expected number of accidents in 2000, the number of involved police stations to complete the OAR's, and the number of local and provincial capturing authorities.

Province	Expected number of accidents to be record-ed on NaTIS for 2000	Number of police stations completing OAR's	Number of capturing authorities	
			Local	Provincial
Gauteng	140,372	136	28	6
Northern Province	11,093	102	0	8
Northern Cape	5,190	82	0	8
Eastern Cape	25,685	176	13	5
Free State	17,666	100	2	7
Western Cape	63,996	151	11	1
Mpumalanga	16,894	91	6	4
North West	13,175	97	9	18
KwaZulu-Natal	27,747	187	1	1
Total	321,818	1,122	70	58

Table 1. *Estimated number of accidents, the number of police stations and the number of capturing authorities (local traffic authorities and regional offices of the provincial traffic authority) per province (Source: National Department of Transport of South Africa).*

4.1. South African Police Service (SAPS)

Some problems encountered at the SAPS have already been discussed in section 3.2.3 in this report. These problems primarily relate to the pro-blematic introduction of the new accident registration system into the police service. A number of police officers complain that it takes quite a long time to complete an OAR form. However, police officers also indicate that the OAR form is a more comprehensive form then the old SAP352 form. One of the primary reasons for the long completion times is the unfamiliarity with the form. Also the members of the public cannot always provide the re-quired data. It is crucial to minimise the completion time of the OAR form because of the current manpower shortages of the SAPS. The consequence of the shortage of staff is that the SAPS management has to establish priorities. Administrative functions such as accident registration traditionally have a low priority in the police service. Finally, police officers responsible for completing OAR forms seldom receive feedback on the quality of the data they produce and on how the information is used, except when there is a court case. The police don't have access to processed data they have been assisting to produce.

4.2. Local Traffic Departments

Seventy local traffic departments (see *Table 1*) are responsible for the cap-turing of the data from OAR forms into the computer and to transfer this information electronically to the provincial data base. This is only one of the many tasks the local traffic departments have. A local traffic department is

part of a local council, which decides on the budgets available for capturing accident data. Large differences exist between local traffic authorities with regards to staff availability and the quality of the personnel doing the capturing. In general local traffic authorities lack staff to adequately perform their task in the accident registration process. This is because local councils have other priorities. Fees for providing copies of OAR forms to attorneys and income from traffic fines, are not necessarily used for paying the salaries of the personnel capturing data. Clearly this also results in poor management of the capturing process and quite large backlogs. Those local traffic authorities which perform well, depend largely on motivated individuals who recognise the importance of having a complete and accurate accident data base.

An additional problem is the poor quality of the completed OAR forms. Since the capturing software runs a number of checks on the input, a large number of OAR forms cannot be captured because of incompleteness and/or conflicting data. The missing information has to be added to the incomplete OAR form by the responsible SAPS officer who probably has to consult the involved individual first. This incomplete OAR form has to be sent back to the police station, information has to be added, and then the form has to be sent to the local traffic authority again.

The issue of the poor quality of the OAR input is problematic and cannot be resolved easily, since there are two independent parties involved.

4.3. Provincial Traffic Departments

Provincial traffic departments perform two tasks in the accident reporting system. In rural areas they perform a task similar to that of the local traffic authorities discussed in the previous section: they also capture data from accident report forms. Apart from this task, the provincial traffic departments are also responsible for the provincial accident data base, to which all provincial capturing authorities send their data. As is the case with the local traffic authorities, large differences exist between individual provinces with regards to their ambitions and performance concerning the NAR.

4.4. National Department of Transport

The National Department of Transport (NDoT) did not well define their mission and responsibilities regarding the National Accident Register. Together with other stakeholders, the Department prepared the introduction of the NAR and provided the necessary database facilities in NaTIS. The NDoT did try to manage the process by assisting the provinces with the implementation of the NAR and to train provincial officers.

Currently, very little is known about what accident information is available in the NaTIS environment, because the data is not accessible for professionals to make analyses. Even when the information is incomplete, it is still possible for professionals to make a worthwhile analysis of the captured data. Also the available data is not used structurally for monitoring purposes and quality control.

Road safety professionals don't have access to the accident data, because the department has not developed policies on data distribution and conditions under which the data is accessible. A clear view on who the users of the data are, and in what format the users need the data has not been

determined. In other words, the system is unable to produce deliverables, nobody has been appointed to produce deliverables, and no deliverables have been defined.

4.5.   **The system as a whole**

The introduction of a new National Accident Register (NAR) in South Africa occurred simultaneously with the development and introduction of a new accident report form. Before introduction the registration process was described in quite some detail (see also *Figure 2*). A manual to complete the newly developed accident reports was made available (NDoT & SAPS, 1998). However, this document does not cover the financial aspects for guaranteeing the continuity of the system. The result of this omission is that the financing of a key function in the process, capturing, ended up at the level of local councils. At this governmental level the interest in aggregated data for a national accident register is low, and therefore capturing accident data is not given the necessary priority.

During the implementation of the NAR and the OAR form there were critical moments when decisions had to be made; e.g. accept exceeding the time limits for particular issues, or stick to the given time frames in order not to lose momentum. Such decisions are difficult, but clearly at some points the introduction of the system did not receive adequate attention to ensure a correct implementation. For example, the training of police officers to complete the OAR form did not have the necessary impact. In this case the train-the-trainer model was applied. Such a model requires that training sessions are followed up in order to make sure that the trained trainers do their job. Furthermore, the time available to train the trainers was rather limited.

From the flow chart in *Figure 2* it appears that there is no organization /institute responsible for the entire process. When the process halts, nobody is triggered to assist with solving problems and ensuring throughput. Each stakeholder is independent, has a well-defined task, but does not have to account to anybody. During the study it became apparent that many people involved are aware that the NAR is not functioning as intended. Since there is no ownership of problems, stakeholders tend to blame other organizations linked to them in the accident registration process.

Another evident problem observed by the study team is that an accident can be captured several times in NaTIS. Basically, this problem is not caused by the NAR process itself, but is due to the current legislation, which requires all persons involved in an accident to report the accident to the police within 24 hours (after the accident occurred). This requirement may result in more then one OAR being completed for the same accident, particularly in those cases where accidents are reported at different police stations and/or traffic authorities. Even worse, the accident may be reported at a police station not responsible for the area in which the accident occurred. The situation described has been signalled in time and the NAR has a number of procedures in place to cope with these situations.

In the first place, OAR forms dealing with an accident outside the area of the police stations' responsibility has to be sent to the police station responsible for the area in which the accident occurred. In case there are several

OAR's related to the same accident, the forms are stapled together and sent to the responsible capturing authority. There is of course the risk that the police do not notice the link between the forms. In this case the capturing software might still link the data from the separately captured forms. This may happen when all forms relating to one accident are sent to the same capturing authority. The link between forms related to one accident may also be made, when the data is uploaded to the provincial data base or, in the last instance, when the data is uploaded to NaTIS. However, provincial authorities do not always run the software to detect duplicates in order to remove duplicate entries and the NaTIS operator doesn't see it as his responsibility.

When links between records (forms) have been detected by the software, a message has to be sent back to the offices where the original forms reside. This ensures that there will only be one OAR filed at the responsible police station or traffic authority. Furthermore, the procedure must ascertain that there will be a unique link between the record in the data base and the OAR.

Theoretically these procedures close most gaps to ensure that accidents are recorded in the data base only once. However, practically there are too many loop-holes in the procedure, on account of which OAR's can get lost. The lines of communication are too long and unreliable. To avoid double counting of accidents in NaTIS, the method needs to be simplified.

4.6.   **Remedial actions by National Department of Transport**

Based on their own analysis (NDoT, 2000c) the National Department of Transport developed a number of recommendations to improve the current NAR system. The most important were:
-   The capacity of certain existing and competent capturing authorities should be expanded to undertake the collection, verification, capturing, and transfer of data on behalf of other surrounding regions.
-   The Committee of Land Transport Officials (COLTO) should be mandated to review the current accident information system and investigate the following measures to improve the system:
    -   The possible outsourcing of the total accident capturing process to the private sector with strict Service Level Agreements (SLA's);
    -   Linking the local accident management systems (LAMS) at capturing authorities in an on-line, real time manner to the NaTIS to record accidents immediately onto the NAR on NaTIS
    -   The establishment of adequate monitoring capacity within the NDoT in order to conduct regular audits at SAPS police stations and capturing authorities.

These recommendations focus on improvement of the existing system without changing the structure of the system. The causes for the malfunctioning of the system are not addressed. For example, it is clear that a number of local traffic authorities do not perform adequately. One of the major causes of this inadequacy is their lack of necessary funds. When the work these traffic authorities are supposed to do, is moved to a well-performing authority, the latter needs additional funding. Then the question arises: will the local council responsible for this well-performing traffic authority supply them with the necessary funding?

5. Conclusions

The problematic issues hampering the effective operation of the NAR are the following:

- The NAR system has been developed around a number of independent stakeholders such as the Department of Transport, the Department of Safety and Security, nine Provincial Departments of Transport, and a large number of local traffic authorities. No formal agreement or performance contract exists to ensure adequate throughput.
- The system as a whole (National Department of Transport, provinces, capturing authorities, and SAPS) is not managed centrally.
- The individual stakeholders do not have the necessary human and monetary resources to operate the systems as planned. This is due to the lack of funds and the lack of adequate training.
- The system does not provide deliverables in a structured way. The data entered into the system is currently not accessible to road safety professionals.
- A key problem is the funding of the NAR system. An important task, data capturing, is supposed to be paid by local councils. At this governmental level they generally have other priorities. The main income of the system has to be generated through reduction in the number of accidents, not from the selling of data. Income generated from selling accident data to commercial users should not be regarded as a structural basis to cover the costs of the NAR.

6. Recommendations

In this chapter a number of modifications to the structure of the system are recommended. Furthermore, the system's output, the funding, and some aspects concerning public/private partnerships in the system and quality of data are discussed.

6.1. System structure

The existing accident capturing system is very extensive and needs to be simplified and streamlined. Currently, about 130 capturing authorities are receiving OAR's from about 1,300 police stations (including sector police stations). Each police station might be delivering OAR's to two or three different capturing authorities, due to the fact that police and municipal boundaries do not coincide.

The streamlining of the accident capturing system implies certain changes within the police and transport sectors. *Figure 3* shows a diagrammatic illustration of the proposed accident capturing system. It is recommended that the capturing authorities be replaced by capturing bureaus (see section 6.1.3 for details).
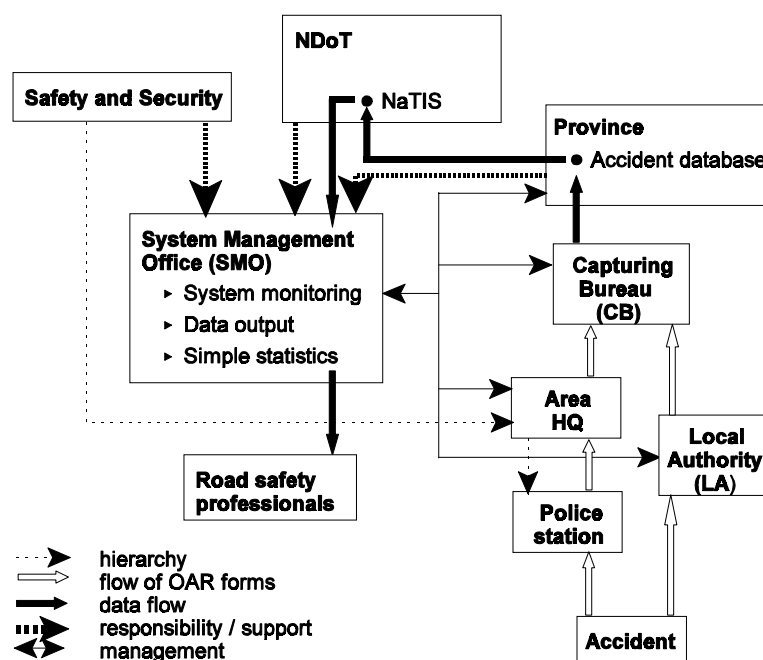

Figure 3. *Recommended structure for the National Accident Register.*

6.1.1. *Proposed changes to the police sector*

The current accident reporting system is very costly and time consuming. Forms and data are collected at a great number of places and the study team was informed that many incomplete forms returned to police stations for correction are not forwarded to the capturing authority again.

It is recommended that the current procedure for completion of the OAR's within the police force and at some local authorities is retained. In the case of the police a change is recommended in the flow of OAR's (see *Figure 2*). Instead of forwarding the OAR forms directly to the capturing authorities, the police stations should forward the OAR's to the 42 Area Commissioner Headquarters. From the Area Commissioner Headquarters the OAR forms will then be dispatched to, or collected by, the capturing authorities. This will effectively reduce the number of collection points from 1,300 to 42. The quality control of the OAR's has to be conducted at the Area Headquarters. This will ensure that only completed OAR's are forwarded to the capturing bureaus. In this way, better quality of the OAR's is obtained making use of existing mechanisms in the police organization.

6.1.2. *Proposed changes to the road transport sector*

The current system of 70 local authorities and 58 regional provincial offices capturing the accident data from the OAR forms is questionable. The system is very cumbersome and not performing as expected. The investigation revealed that various backlogs exist due to staff shortages, poorly completed OAR's, and untrained staff.

In a country such as the Netherlands about 300,000 accident reports are captured by one authority (AVV-BG) and the question arises whether the 128 capturing authorities in South Africa should not be reduced to a smaller and more effective number of capturing bureaus.

It is recommended that the provinces, which the core function of traffic control has been devolved to in terms of the Constitution of South Africa, should play a more pivotal role in setting up an efficient accident capturing system. It is recommended that each province decides on the number of capturing bureaus in that province, and also appoints these capturing bureaus bound to performance contracts. As a guideline, a capturing authority should handle at least between 8,000 and 10,000 accidents per annum (50 OAR's per day). The provinces must decide whether the capacity exists within government (province and local authority) to collect and capture the accident data or whether the function should be outsourced to the private sector. Provinces can invite tenders from the private sector for the collection and capturing of the accident data.
Each province will also take the responsibility to maintain the provincial accident data base that will form the basic input for NaTIS. Provinces can provide users and local authorities with processed accident data and also compile their own management reports and use the data for planning purposes.

The National Department of Transport has the task to coordinate, standardise, and harmonise road traffic matters. The National Department of Transport, together with the provinces, should therefore assume respon-

sibility for setting up an efficient accident capturing system so that national road accident statistics can be derived from NaTIS.

The system recommended above is compatible with the RTMC concept and satisfies the objectives of the Road Traffic Management Act, No. 20 of 1999. This includes aspects such as:

- strengthening national and provincial government's collective capacity to govern road traffic through partnerships with local government bodies and the private sector (article 2(a)(ii));
- to introduce commercial management principles to inform and guide road traffic;
- governance and decision-making in the interest of enhanced service provision (article 2(e)).

6.1.3. *Systems management of the National Accident Register*

One of the major shortcomings of the existing system is the lack of overall systems management. The first assessment concluded that the NAR system is dependent on the cooperation of independent stakeholders and that no mechanism exists to ensure adequate throughput. The accident reporting and capturing system overlap the tasks of government departments on a national and provincial level. The stakeholders consist of the National Department of Transport, provinces, local authorities and the SAPS; each carrying most of the costs themselves

The following structures are currently in place facilitating intergovernmental cooperation and monitoring the system:

- The Committee of Land Transport Officials (COLTO, the executive officials of the national and provincial transport departments) agreed that the National Department of Transport must monitor SAPS stations and capturing authorities to confirm that the prescribed procedures are followed.
- Provincial accident working groups were established to monitor and improve the accident reporting and capturing processes.

The involvement of various governmental institutions participating in the accident reporting system, necessitates a joint management structure to be formed. It is recommended that the Department of Transport and the Department of Safety & Security establish a joint Systems Management Office (SMO). Within the SMO representatives of user groups could also be included. The main functions of the SMO will be:

- to monitor the system and the data outputs of NaTIS, provincial data bases, capturing bureaus, traffic authorities, and police stations;
- to identify police stations and traffic authorities that require training to enhance the completion and/or delivery of the OAR's.

Furthermore, it is recommended that the SMO be housed in the National Department of Transport. Initially, a systems management consultant could be appointed for a one-year period to assist the official(s) of the National Department of Transport and the Department of Safety and Security.

6.1.4.   *Management of OAR completion and data capturing processes*

The new structure will ensure that, apart from the SMO, the management at the secondary level will also be improved in the following ways:

-    The SAPS will have better control over the completion of the OAR's, since the 42 area headquarters will each task an official to conduct quality checks to make sure that only completed OAR's are forwarded to the capturing bureau.
-    The capturing bureau can focus predominantly on the actual capturing of data since the 42 area headquarters of the SAPS will conduct the quality checks. The capturing bureaus only have to check those OAR's coming from traffic authorities.

The provinces will be able to manage the capturing bureaus more effectively since there will be performance contracts in place to ensure proper delivery. In addition, incentive schemes can also be introduced to ensure timely delivery.

6.2.   **Users of the accident data**

The study revealed that the users and the output of the National Accident Register have not been defined. Within the government a number of users may be distinguished: the National Department of Transport, the Provincial Departments of Transport, the local traffic authorities, all levels of the SAPS, and the Road Accident Fund. Outside the government, research institutes and consultancy firms which generally work by governmental order, use data derived from the NAR. Additionally there are some companies, e.g. insurance companies, which have a commercial interest in data collected in the NAR.

All the users mentioned use the accident data differently. In general, the higher the governmental level using accident data, the more aggregated the data will be. Hence, every user group has different requirements concerning the format in which the data is to be delivered. Therefore, it is recommended to develop, in cooperation with the different users, data products which fulfill the user needs. This task has to be performed by systems management, as described in the previous section.

In order to convince all parties involved of the necessity of the NAR, the periodical production and distribution of the defined data products is a requirement. The products which come from the NAR can be used for policy development, monitoring purposes but also to give feedback to the employees who contribute to the system.

6.3.   **Funding of the National Accident Register system**

Expenditure for maintaining the accident registration is provided for in the annual budget of each of the responsible organizations (SAPS, local/ metropolitan traffic authorities, provinces, and NDoT, see *Appendix A*) The required financial means are found to be a problem for all the participating parties. Although SAPS has a long tradition concerning the handling of accident forms, this service aims to reduce the amount of work in the accident registration system. SAPS wants to limit its involvement to

those accidents for which a docket is opened as a criminal case. The other cases should be handled by traffic authorities, both local and provincial. Still some problems have to be solved, before the system can be changed in accordance with the SAPS ideas. Firstly, traffic authorities are not available on a 24 hours basis. Secondly, funds covering the additional capacity required within the traffic authorities, have not been arranged. It is recommended that all involved parties, maybe with the support of the central management of the NAR, determine the most efficient method for completing the OAR forms.

Road transport in South Africa is the responsibility of the provinces. The responsibility of the NDoT is limited to coordinating and stimulating the developments in the transport area. In the case of the implementation of NaTIS, NDoT made significant contributions towards the purchase of the necessary computer hardware and software. This a good example of how the NDoT interprets its responsibilities. Concerning the provincial authorities Gauteng Province was an exception in taking at least some of the financial responsibility to kick-start the process. They spent R500,000 on computers and hard/software.

In case of the accident information gathering and capturing, both NDoT and the provinces have not taken the financial responsibility. Clearly, this has resulted in a financial problem at a large number of local traffic authorities which are not only responsible for capturing the OAR's, but also for completing OAR's. For quite a large number of local traffic authorities in South Africa, the data capturing and the completion of OAR's is a new task they did not have before the new system was introduced. It was assumed, with the introduction of the new NAR, that the costs for capturing could be compensated by income from fees for providing copies of filed OAR's to attorneys and insurance companies. It is unclear whether the earnings through these fees compensate the entire costs of data capturing. This needs to be investigated, especially considering possible regional differences concerning the potential income from fees. Even when it is possible to balance the fees and the costs of capturing, local councils are not obliged to use income generated from the fees for capturing.

To assure the continuity of the NAR, it is vital that the capturing of data from the OAR's is guaranteed. One part of the solution is to reduce the number of locations where data is captured, as discussed above. The other part of the solution is to ensure that funds necessary for capturing are secured and guaranteed. NDoT and provinces share the responsibility for this.

There are a number of measures possible for improving the current situation:

- centralise both the income (fees for copies of OAR's) and the costs (capturing) of the system on a provincial level. This solution might not be accepted by the local councils;
- apply Service Level Agreements between capturing bureaus and provinces. This can be done with or without centralisation of fees and costs;
- outsourcing of the capturing of OAR's by the province.

Whatever solution will be chosen, one thing has to be kept in mind: the NAR is a public-owned tool to solve a public-owned problem. The main income of the system has to be generated through reduction in the number of accidents, not from the selling of data. Income generated from selling accident data to commercial users should not be regarded as a structural basis to cover the costs of the NAR.

6.4. **Quality of data**

6.4.1. *Double registration of accidents*

One fundamental problem of the current NAR is that one accident can be registered more then once in the NAR. To prevent this, a cumbersome procedure has been included into the NAR. The procedure requires simplification. In the current situation we can distinguish two situations:
1. A police officer (SAPS) or a traffic officer (traffic authority) attends the accident and completes an OAR form
2. Members of the public report the accident in which they were involved at a police station or traffic authority of their choice within 24 hours (after the accident happened). The member of the public reporting the accident, completes an OAR form at the station, in most cases assisted by a police officer or traffic officer.

In the first situation it is possible that both the SAPS and the traffic police complete and submit an OAR form. Additionally, also the member of the public involved may report the accident, resulting in more than one completed OAR form. In the second case all drivers involved have to report the accident, not necessarily at the same station, resulting in at least two completed OAR forms.

If an accident scene is attended by a police or traffic officer, the involved members of public should not have the obligation to report the accident. In this case an OAR form is completed by the police or traffic officer.

In any other case, not an OAR form but a Driver Accident Report (DAR) form should be completed. It is recommended to implement the DAR form as soon as possible. In principle, the use of a DAR does not solve the problem discussed in this section, but it may be part of the solution. Furthermore, it is very important to make a distinction between observations by a public servant (OAR) and observations by individuals involved in the accident (DAR).

The ideal situation would be that when an accident has happens without any persons seriously injured, all drivers involved complete and sign one DAR form together and bring the form to the police office or traffic authority responsible for the area in which the accident happened. To bring this about, the current design of the DAR has to be changed. For example, the current DAR speaks of 'Your Vehicle' and 'Other Driver's Vehicle' which will not work when all drivers involved complete the same form. Also there has to be at least one DAR form available at the scene of the accident. This could be facilitated by distributing DAR forms to drivers renewing their vehicle registration.

Clearly, in practice there are many problems preventing the ideal situation:

- One of the drivers involved may have no interest in reporting the accident to the police, because he is uninsured.
- At accident scenes drivers may not be in the mood to share a form.
- When only one form is completed, one of the parties involved will be responsible for handing the form to the authorities. This requires that both parties trust each other, which might not always be the case.

The conclusion is that, in many cases, each driver will report the accident individually, resulting in more then one DAR per accident being entered into the system. A lot of effort is needed to link the forms to each other in the NAR. Still the ideal situation may be stimulated, by informing the public and distributing DAR forms as suggested above. Furthermore, the user of the DAR form should be asked if the drivers involved completed one or two forms. In the second situation an entry about the existence of two forms could be made in the accident registration system.

In the current situation, the police station where the accident is reported has to send the form to the capturing authorities responsible for the area where the accident happened. This procedure was found to be inefficient. It is impossible for an officer to know where to send an accident form when the accident did not happen inside their jurisdiction. The result is that a large number of forms do not reach their destination. It is recommended that DAR forms are sent to a limited number of addresses, maybe only one central address per province. At such a collection point there are two options: specialised personnel may redistribute the DAR forms to the responsible capturing bureau, or the forms could be captured and checked on duplicate accident reports at the collection points.

6.4.2. *Quality of completed OAR's*

The quality of the completed OAR's is a very important aspect in the capturing process. Currently, too many incomplete, illegible or otherwise inaccurate OAR's have to be returned from the capturing authority to the office where the form was completed. The capturing software performs several checks on the data input, and the result is that many records cannot be completed, unless the OAR form has been corrected and/or completed.

In order to streamline the capturing process, two opposite solutions are possible:

1. The software should be less strict with regard to the quality of the information on OAR's
2. The quality of the OAR's must be improved substantially.

Concerning the first option, the database designers of the NaTIS system did a good job. The system only accepts data of a certain quality. Particular quality checks are carried out to find accidents which have been registered twice. The data model, and even more the capturing software, has been developed for an ideal world. It is recommended to start a discussion between the NaTIS operator, representatives of police, traffic authorities, and end-users of the accident data, maybe within the framework of the central management, to optimise the systems performance in relation to the

data quality. The current system is too rigid. A compromise has to be found resulting in an acceptable quality, in combination with high throughput of captured OAR's. In this discussion, the Road Accident Fund, being an important end-user, should clearly specify their needs with regards to quality of certain data items, and the required access to NaTIS

The second option to streamline the throughput of the capturing is to improve the quality of the completed OAR forms. For those forms which are completed by police officers, the solution might be to send the OAR forms to an Area Headquarters accompanied by a Delivery Note (DN). At the Area Headquarters, the OAR forms have to be checked, before they are sent to the capturing bureau. In this way the quality control of the forms stays within the SAPS, resulting in shorter communication lines when OAR forms have to be corrected. The quality control at the traffic authorities is more difficult, because there are no formal lines between the provincial traffic authorities and the local authorities. Also here, a stricter quality procedure has to be implemented. There may be opportunities to work with incentives for authorities providing good quality OAR forms.

Finally, the public should be informed regularly and properly about procedures to be followed after an accident, information to be collected at the scene (location, etc) and information to be brought to the police station.

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Appendix A   The questionnaire

A.1. **Introduction**

In the framework of the South African Netherlands Transport Forum (SANTF) a project concerning accident reporting and data management has been initiated. The project consists of five phases: the compilation of two initial reports, the development of a long term strategy on road safety information, recommendations to improve the accident reporting system in South Africa, the organization of a workshop, and finally the compilation a final report.

The initial reports, prepared in the first phase of the project, describe the road safety information currently collected, processed, and used in both South Africa and the Netherlands. Road safety information is a prerequisite for governments to develop policies. Information is needed to be able to detect problem areas. Furthermore one needs information to develop measures to solve these problems. Finally information is needed to judge if a measure has effect.

In order to obtain two reports in similar format for each country, a short questionnaire has been developed as presented in the next section. The questionnaire consists of two parts. In the first part general information is asked on the types of road safety information collected in both countries. The focus of the first part is to collect information for the second phase of the project, in which a long-term strategy was to be developed on road safety information. In the second part more detailed questions are asked about the accident registration in both countries. The answers were used to develop recommendations to improve the registration system in South Africa.

A.2. **Questionnaire**

A.2.1. **Part 1**

The goal of this part of the questionnaire is to get an overview of all collected data relevant for traffic safety policies and research in both countries. The questionnaire gives a format for the description of each individual data source. Possible data sources to be described are: accident forms, hospital data, vehicle registration, traffic volume data, mileage data, speed data, maps, road type data, research results, library, etc. This list is not complete, and maybe sources are mentioned which are not available in one or both countries. The initial report must contain answers, for each available data source, on the following questions:

1. General
   1.1. Name of the data source.
   1.2. Global description of the content of the data.
   1.3. What method is used to store the data (paper, digital...)?
   1.4. For what purpose(s) is this data collected?
   1.5. Which organization is funding the data collection?
   1.6. Is the collected data complete and representative?
2. Data collection
   2.1. Which organization collects the data?
   2.2. Sampling method (e.g. limited area, randomised, etc).
   2.3. How is the data collected (measurement, questionnaires, standard form)?
   2.4. Frequency of data collection.
3. Data processing
   3.1. Which organization carries out the data processing?
   3.2. In which form is the data published. (Internet, report, tables...)?
   3.3. What is the frequency of publication?
4. Users
   4.1. Is the data public?
   4.2. Which organizations use the data?
   4.3. Do the users have to pay to get the data?
5. Problems
   5.1. Give a short description of known problems.

A.2.2. **Part 2**

In this part of the questionnaire detailed information is asked on the accident reporting system.

1. Definitions and concepts
   1.1. Which definitions of a traffic accident are used?
   1.2. Is a standard accident registration form used to collect the data (include copies in report)?
2. Involved organizations
   2.1. Which organizations are involved in the collection, processing, and dissemination of the accident data?
   2.2. What task has each of these organizations (data collection, digitising the data, quality control,.....)?
   2.3. How many people are working on the accident registration system?
3. Procedures
   3.1. Give a short description of the collection procedure, starting with "an accident has happened" until "a record has been included in the national accident data base". Regional differences and procedural differences dependent on the severity of the accident outcome or the location of the accident should be included in this description.
   3.2. Have all procedures been established in a document and have all organizations participating in the accident registration system agreed upon these procedures?
   3.3. How Is the quality of the data checked and is the data checked in each stage of the procedure?
   3.4. How is the training of the involved personnel organised?
   3.5. How are users of the data involved in the process?
4. Contents of data base
   4.1. Is a data dictionary available?
   4.2. In what way is the location of the accident stored in the data base?
5. Products
   5.1. Give an overview of the products created with the collected accident data, eventually combined with data from other sources.
   5.2. Who prepares these products?
6. Users
   6.1. Who uses the products of the accident reporting system?
   6.2. For what purpose are the products used?
7. Financial aspects
   7.1. Who is paying for the accident registration system?
   7.2. Do users pay to obtain the data collected in the accident registration system?
8. Problems
   8.1. Give a short description of the problems of the accident registration system.

A.3.   **South African response**

A.3.1.   **Part 1: Data relevant for traffic safety policies and research**

A.3.1.1. *Data source 1: Accident data, Vehicle registration, Driver registration*

1.   General

1.1   *Name of data source?*
National Traffic Information System (NaTIS)

1.2   *Global description of the content of the data*
- Vehicle Register
- Driver Register (including professional Driving Permits)
- National Accident Register
- Traffic Offences Register
- Overloading Control

1.3   *What method is used to store the data?*
Comprehensive computerized data base at the national level with access by provincial and local/metropolitan authorities.

1.4   *For what purpose(s) is this data collected?*
The data is collected to ensure proper road traffic administration with regard to a wide range of aspects such as:
- establish a register of all vehicles in the RSA;
- identify the title holder and owner of every registered vehicle;
- administer the roadworthiness status of all motor vehicles;
- registration of operators to control the issuing of operator cards;
- issue and licensing of motor registration numbers;
- issue temporary and special permits;
- enforce uniform standards of testing and examining motor vehicles and traffic law enforcement;
- enforce uniform standards of testing for learner's licences, driving licences, professional driving permits (PrDP's);
- recording of accidents to provide general statistics, identify persons prone to accidents, identify major causes of accidents and support law enforcement;
- recording of contraventions to monitor compliance of road users in general but more specifically that of drivers and operators of RTQS motor vehicles with the Road Traffic Act (RTA) and its regulations by means of a points demerit system;
- financial administration to determine fees payable and trace arrear fees and penalties in terms of the RTA;
- various other activities (see NaTIS Tender Specification).

1.5   *Which organization is funding data collection?*
The NDoT is funding the major part of the system including the infrastructure. Provinces and local/metropolitan authorities are providing the human resources to operate the system on their levels.

1.6   Is the collected data complete and representative?
Very comprehensive data base covering all provinces and
registration and licensing authorities. Accident data not complete as
system is fairly new.

2.   Data collection

2.1   Which organization collects the data?
The registration and licensing authorities record the vehicle and
driver data. South African Police Services collect accident data in
conjunction with provincial and local/metropolitan traffic authorities.
This is described in more detail in Part 2, Section 2.

2.2   Sampling method (e.g. limited area, randomized, etc,)
All registration, licensing and traffic authorities nationwide.

*2.3   How is the data collected (e.g. measurement, questionnaires,
standard form)*
Vehicle and Driver registration data captured at registration authority
terminals from standard forms or renewal notices completed by the
public. Accident data collected by standard accident report form
(OAR) completed by police or traffic department, captured by traffic
authority and sent electronically to NaTIS.

2.4   Frequency of data collection
Continuously.

3.   Data processing

3.1   Which organization performs the data processing?
Registration and licensing authorities (vehicle and driver data).
Traffic authorities (accident data).

3.2   In which form is the data published?
Vehicle registration numbers published in NaTIS newsletter. Accident
data published in the media during campaign periods. (In the
previous system a comprehensive publication was issued by
Statistics South Africa)

3.3   What is the frequency of publication?
Data not published regularly.

4.   Users

4.1   Is the data public?
Vehicle and Driver data in NaTIS not public - statistics available on
request. Public can obtain certain data through registration
authorities.
Accident statistics available from traffic authorities and NaTIS upon
request.

4.2   Which organizations use the data?
Registration and licensing authorities, traffic authorities, engineers, public, attorneys, insurance companies, assessors, researchers, media.

4.3   Do the users have to pay to get the data?
Data not obtainable. Statistics available free of charge. Attorneys pay for copies of OAR forms.

5.   Problems

5.1   Give a short description of known problems
Points Demerit System not yet operational. Offence Register not linked to Accident Register to identify persons prone to accidents. Accident Register not complete for 1999. NaTIS is a closed system, data not readily available for research purposes.

A.3.1.2. *Data source 2: Traffic offences, Intervention operations (law enforcement and communication), Traffic offence rates*

1.   General

1.1   Name of data source?
Arrive Alive Road Safety Campaign

1.2   Global description of the content of the data
- Law enforcement operations on speeding, drinking and driving, seat belts, vehicle and driver fitness, and other offences
- Traffic offence rates (speeding, drinking and driving, seat belts, vehicle and driver fitness)
- Road Safety Communication operations

1.3   What method is used to store the data?
Data bases (computerized or manual) of operations during Arrive Alive campaign periods are kept at provincial level and are forwarded to the NDoT for monitoring, evaluation and payment of subsidies. Data for offence rates are stored in data bases and spreadsheets.

1.4   For what purpose(s) is this data collected?
The various data sets are collected to monitor the level to which the road users are complying to the set performance criteria for each intervention. The data is also used to evaluate the effectiveness of the Arrive Alive campaign.

1.5   Which organization is funding data collection?
The Arrive Alive campaigns have largely been funded by the Road Accident Fund (RAF). Allocation to provinces is based on a formula based on a number of criteria such as own budget allocations, claims paid out by RAF in the province, application of funds to projects that will ensure maximum return on investment.
The RAF has also funded offence monitoring surveys up to Phase 5 (2000/2001) which is now funded by National Department of Transport.

1.6   *Is the collected data complete and representative?*
Covers traffic law enforcement actions by all provincial traffic
authorities and most of the major local/metropolitan authorities.
Offence rate monitoring data is complete and representative up to
January 1999. Thereafter no funds were available for monitoring up
to Phase 5.

2.   Data collection

2.1   *Which organization collects the data?*
The provinces are responsible to collate the operational data
collected by participating local authorities and to forward it to the
NDoT.
CSIR Transportek has been responsible for collecting data for
offence rate monitoring.

2.2   *Sampling method (e.g. limited area, randomized, etc,)*
All provinces and major local/metropolitan authorities involved. They
decide where operations e.g. roadblocks should be conducted within
each authority's jurisdiction. The main aim of Arrive Alive is to con-
centrate on high-risk areas and operations are usually conducted in
these areas and not chosen randomly at all.
Offence rate monitoring is done at randomly selected points in order
to be representative of the national road user public.

2.3   *How is the data collected (e.g. measurement, questionnaires,*
standard form)?
Provinces have to submit data in standard format.
Offence rate monitoring data is collected through measurement (e.g.
speed and alcohol use) and observation (e.g. seatbelt wearing).
Standard forms and questionnaires are used for recording of data.

2.4   *Frequency of data collection*
Scheduled Arrive Alive periods (normally holiday periods).

3.   Data processing

3.1   *Which organization performs the data processing?*
Provincial traffic authorities.
CSIR Transportek has been responsible for processing the data for
offence rate monitoring.

3.2   *In which form is the data published?*
Arrive Alive reports, media releases.

3.3   *What is the frequency of publication?*
Interim reports and media releases throughout campaign and detailed
evaluation report at the end of the campaign.

4.   Users

4.1   *Is the data public?*
Yes. Results are published and provided to the media.

4.2   *Which organizations use the data?*
       Government and media to monitor and evaluate effectiveness.

4.3   *Do the users have to pay to get the data?*
       No

5.   Problems

5.1   *Give a short description of known problems*
       Local and provincial authorities do not always provide the operational
       data on time or in the prescribed format.

A.3.1.3.   *Data source 3: Accident data*

1.   General

1.1   *Name of data source?*
       National Rapid Response System

1.2   *Global description of the content of the data*
       -   particulars of fatal accidents;
       -   contributory factors to fatal accidents.

1.3   *What method is used to store the data?*
       The SAPS fax through a specially designed form containing details of
       each fatal crash to the National Information Center at the NDoT
       where the information is captured in a data base.

1.4   *For what purpose(s) is this data collected?*
       The data is collected throughout the year, but provides information on
       a daily basis, on road fatalities, especially during holiday periods.
       This is also the only record of probable causes of accidents.

1.5   *Which organization is funding data collection?*
       The SAPS and the NDoT cover their own costs in operating the
       programme.

1.6   *Is the collected data complete and representative?*
       The data on fatal accidents was forwarded by the SAPS from all over
       South Africa. More recently, however, there has been a substantial
       drop in the number of reported cases by the SAPS.

2.   Data collection

2.1   *Which organization collects the data?*
       The SAPS collects the data and faxes it to the NDoT.

2.2   *Sampling method (e.g. limited area, randomized, etc,)*
       All police stations are instructed to fax the reports.

2.3   *How is the data collected (e.g. measurement, questionnaires,
       standard form)*
       Standardised questionnaire (form) is completed.

2.4 *Frequency of data collection*
Continuously, but mostly used during holiday periods.

3. **Data processing**

3.1 *Which organization performs the data processing?*
National Traffic Information Center, NDoT

3.2 *In which form is the data published?*
Media releases and reports to the various provinces.

3.3 *What is the frequency of publication?*
Periodic reports.

4. **Users**

4.1 *Is the data public?*
Yes. Results are published.

4.2 *Which organizations use the data?*
Government, researchers.

4.3 *Do the users have to pay to get the data?*
No

5. **Problems**

5.1 *Give a short description of known problems*
Not all police stations send data. Contributory factors to fatal accidents are based on assumptions made by police officers on the scene.

A.3.1.4. *Data source 4: Traffic volume data, Speed data*

1. **General**

1.1 *Name of data source?*
Comprehensive Traffic Observations (CTO)

1.2 *Global description of the content of the data*
  - vehicular volumes on the national road network;
  - vehicle classification in light, medium and heavy;
  - vehicle headways;
  - vehicle speeds;
  - percentage of vehicles exceeding the speed limit.

1.3 *What method is used to store the data?*
Traffic information logging equipment installed at strategic points on the national road network to record traffic characteristics on a 24-hour basis. Sites are linked by modem to NDoT so that on-site monitoring can be done from a central point.

1.4 *For what purpose(s) is this data collected?*
The traffic information is collected for a variety of reasons such as road planning and maintenance. The information is also useful for traffic law enforcement and road safety campaigns.

1.5 *Which organization is funding data collection?*
The system belongs to and is fully funded by the NDoT.

1.6 *Is the collected data complete and representative?*
Counting stations are situated on all the major routes. More stations, however, would be required to make the information fully representative.

2. **Data collection**

2.1 *Which organization collects the data?*
The NDoT collects the data through a private company.

2.2 *Sampling method (e.g. limited area, randomized, etc,)*
Sites installed at strategic points on national road network. Not fully representative.

2.3 *How is the data collected (e.g. measurement, questionnaires, standard form)*
Data is collected electronically on the road and downloaded by modem.

2.4 *Frequency of data collection*
Continuous on-line system.

3. **Data processing**

3.1 *Which organization carries out the data processing?*
NDoT/SANRAL (South African National Road Agency Limited) through a private company.

3.2 *In which form is the data published?*
On-line through Internet. Media release during Arrive Alive holiday periods.

3.3 *What is the frequency of publication?*
Daily during Arrive Alive holiday periods. Statistics available upon request.

4. **Users**

4.1 *Is the data public?*
Yes. Data can be obtained for planning purposes, e.g. consulting engineers, etc.

4.2 *Which organizations use the data?*
Government, consulting engineers, transport planners, researchers, media and others.

4.3 *Do the users have to pay to get the data?*
Basic data available on Internet free of charge. Detailed information is paid for.

5.   Problems

5.1 *Give a short description of known problems*
Operational problems may occur resulting in loss of on-line information.

A.3.2.   **Part 2: Accident reporting system**

1.   Definitions and concepts

1.1 *Which definitions of a traffic accident are used?*
Classifications for road casualties and road accidents are in use.

Casualties:

Fatal injury:	Injuries which cause death, either immediately or subsequently, but not later than six days after the collision.
Serious injury:	Fractures, crushings, concussions, internal injuries, severe cuts and lacerations, severe shock requiring medical treatment, and any other injuries which necessitate hospitalization or confinement to bed.
Slight injury:	Cuts and bruises, sprains and light shock.

Accident/crash/collision:

Fatal collision:	Accidents involving the death of persons, either immediately or subsequently as a direct result of the accident. Deaths up to six days after the accident are included.
Major collision:	Collisions involving serious injuries to persons
Minor collision:	Collisions involving slight injuries to persons
Damage only collision:	Vehicle damage, but no injury of any kind to persons

1.2 *Is a standard accident registration form used to collect the data?*
A standard accident report form has been in use for many years in South Africa. Recently, the form in use has been changed. A brief description of the old and current form(s) is given.

Old System
In the previous accident reporting system used in South Africa (prior March 1999), the South African Police Service (SAPS) (and in some cases the traffic authority) completed an accident report form, known as the SAP352A, in triplicate in respect of each road accident in South Africa. The SAPS, however, had to attend all fatal and major injury accidents and opened a docket when criminal procedures had to be instituted, e.g. culpable homicide, drunken driving, etc.

Annually, more than 500 000 road accidents are recorded in South Africa and the administration of this system, largely handled manually, was a mammoth task. The SAPS dispatched all the SAP352 accident forms to Statistics South Africa (SSA) in Pretoria for data capturing.

The procedure followed was that the original document was kept by the SAPS, one copy went to the local authority and another copy was sent to SSA who captured the accident details from the document on computer. Various problems existed within the system and there was no guarantee that all accident reports in fact reached the SSA. Data relevant for use by local authorities such as the location of the accident were not captured in the national system and some local authorities established their own data bases which led to a duplication of efforts. However, not all local authorities could afford to set up their own data bases.

Current system

A new accident reporting system was therefore required to overcome all the operational problems that existed in the system. The National Accident Register was established by the National Department of Transport after consultation with all the relevant role players such as the SAPS, local/metropolitan authorities, provinces, and so on.

Two accident report forms are planned to be used in the new system, which have been designed by the SAPS in consultation with all stake-holders (role players and end-users). They are:
1. The Officer's Accident Report form (known as the OAR) which the SAPS has to complete in respect of each road accident involving casualties. The SAPS visits the scene of the accident and completes the form.
2. The Driver's Accident Report form (known as the DAR) will be completed at the police station in cases where the public reports "damage only" accidents. This information is usually required by the insurance companies to process road accident damage claims.

However, the DAR form is not yet in use and the OAR is currently used for all accidents.

2. Involved organizations

2.1 Which organizations are involved in the collection, processing and dissemination of the accident data?
This question is dealt with in more detail in Question 3 on 'Procedures'. Either the SAPS or traffic police attend the accident scene to complete the OAR (fatal and major accidents always SAPS responsibility). If the accident occurred within a municipal area the SAPS send the OAR to the local authority (traffic police) who captures the data in Trafman (or TCS or Ciprus, and others). The SAPS (with a few exceptions where the traffic authority is responsible, e.g. Pretoria also doing Rayton and Cullinan districts) attends accident

scenes outside municipal areas and forwards the OAR forms to the province for capturing.

The local authorities then are allocated a specific time each week when they must download the captured data to the province. The provincial traffic information center integrates this data with the data it captured (OAR's received from the SAPS). The province in turn has to download the data into the NaTIS system.

The system allows each level (local/metro, province and national) to process the data it requires.

2.2   *What task has each of these organizations? (data collection, digitizing the data, quality control, etc)*
See Question 2.1 above.

2.3   *How many people are working on the accident registration system?*
Both the SAPS and local/metropolitan and provincial authorities (local and provincial traffic police forces) employ staff to operate the system.
The SAPS has about 9 000 police officers involved with accident investigation and reporting.

3.   Procedures

3.1   *Short description of collection procedure to national accident data base, including regional differences, procedural differences, etc.*
As stated above, each province decided on the logistical arrangements how to get the accident data into Trafman, TCS or Ciprus. Some examples:
-    Not all local authorities have the capacity to capture the accident data. A local authority can serve as a regional capturing point for a number of other local authorities.
-    A city such as Johannesburg has 76 police stations within its municipal boundaries and had to develop a unique procedure to collect all the OAR's
-    On the other hand, the Northern Province has 50 police stations scattered all over the province and had to find its own way to collect the OAR's within restricted budgets.

The data collection and processing procedures developed for Gauteng Province are very comprehensive and will be used to illustrate:

1.   *Completing and forwarding the forms by the SAPS to the traffic departments and data capturing by local/metropolitan authorities*

When an accident occurred within a metropolitan/local authority area, the SAPS completes and forwards the OAR to the local traffic department for data capturing on the Trafman, TCS or Ciprus system. In some cases the traffic departments complete the OAR themselves and capture the data. When an accident occurs outside of a local authority area, the SAPS completes and forwards the OAR

form to the relevant provincial traffic department which captures the data on Trafman.

Apart from the OAR, the SAPS completes the SAP176 Accident Register. In addition, a Delivery Note (DN form) has been implemented to ensure that all accidents are recorded and forwarded. The relevant data of all completed OAR accident forms, entered in the SAP176 Accident Register must be completed in sequence on the DN form. Traffic representatives (and SAPS, if forms are sent to another police station) must sign the declarations at the back of the form to ensure that all forms as listed have been received. The signed original DN is kept in the police station and a copy of the DN must accompany the accident report forms (OAR) to the traffic department (local or provincial).

Traffic departments and police stations mutually arrange that OAR and DN forms will be collected or delivered on a weekly basis. The arrangement works according to fixed cycles. These cycles can be summarized as follows:
- Day 1-7:   New OAR forms are completed and stored together in a batch.
- Day 8-14:   Batch is closed for new entries. Incomplete data are followed up, errors are corrected, etc.
- Day 15:   OAR's and completed DN's are placed in the OUT tray of the traffic department(s) for collection or delivery.

2. *Transfer of data to Gauteng Traffic Information Centre (GTIC)*

Once processed, the data is forwarded electronically to the GTIC. Interfaces have been developed to accommodate those traffic authorities using different capturing systems. The accident data is also linked to other information systems so that effective decisions on strategic/policy level or on operational level can be taken. The accident data base is linked with the other data bases within the Gauteng Traffic Information System. It is possible to link accident data to the road network management system including engineering management (geometric design and road maintenance), overloading and bridge management, traffic law enforcement (traffic contraventions and offence monitoring), and so on.

3. *Processing of data by the GTIC.*

The GTIC will check that DN forms from all police stations and traffic departments were received. Further they will check that all OAR forms expected according to the DN forms were indeed received, do quality checks on data received, and so on.

The GTIC collates all data sets from the various local authorities before sending it to NaTIS. The data is therefore available for processing statistics at a provincial level.

4. *Forwarding data to the National Traffic Information System (NaTIS).*

The GTIC forwards the provincial accident data in an electronic format to NaTIS. NaTIS is the information system administered by the National Department of Transport. NaTIS will now be responsible to publish the annual report on road traffic accidents and provide road accident statistics and other data as and when required by the Cabinet and other end-users.

3.2   Have all the procedures been established in a document and have all organizations participating in the accident registration system agreed upon these procedures?
The National Accident Register (NAR) and all its related procedures have been developed by the National Department of Transport in close co-operation with the 9 provinces. The process is driven through the Road Traffic Management Coordinating Committee (RTMCC) involving officials from the NDoT and the 9 provinces. The RTMCC meet on a bi-annual basis and the NAR is one of the standing items on the agenda. Officials from the NDoT assisted the 9 provinces in setting up the procedures to capture the accident data in the Trafman, TCS or Ciprus system.

Each province, however, had to work out the logistical details how it will ensure that the accident data gets to the point that it can be captured and forwarded to NaTIS. Examples of such provincial procedures are:
-    Gauteng Accident Registration System - User Manual "Flow of Accident Information in Gauteng"
-    Province of the Eastern Cape - Business Plan for the Provincial Accident Register.

3.3   How is the quality of the data checked and is the data checked in each stage of the procedure?
The system makes provision for data to be constantly verified. Measures have been devised to ensure this process.

Verification of accident data on the OAR form
The responsibility to verify accident data on the OAR form ultimately lies with the police officer attending the accident scene. If incomplete or visibly erroneous data are detected while the OAR form is kept at the police station, the personnel at the police station are responsible for the verification process. The traffic department (local or provincial) is responsible for verifying the data on any form that is generated by the traffic department.
As discussed above, the DN form is the document that checks that incomplete OAR forms that are sent back to the SAPS for correction do not get lost. The provincial information center also receives a copy of each DN form, which serves as a double check on each OAR form.

Verification of captured data
There are two responsible parties to verify captured data.
- The institution who did the capturing has the first responsibility for checking the quality of the captured data.
- The proposed evaluation team will be responsible for checking the data quality as part of the regular evaluation process.

Trafman has certain checks built into the system that will cross-check captured items.

3.4   *How is the training of the involved personnel organized?*
The training of involved personnel was done by the SAPS and the NDoT/provinces.
The SAPS did the training of their police officers on a provincial basis. It included the completion of the new OAR form by the police officers attending an accident scene and the forwarding of the completed OAR's and DN to the relevant local authority or province.
The NDoT assisted most provinces to train their staff in the relevant procedures. The provinces in turn trained their local/metropolitan traffic officers.
Gauteng Province, however, appointed a team of consultants to assist with the implementation of the new system on the provincial and local authority level in the province. It was obvious that a comprehensive training programme would be required to implement the system effectively. The training requirements had to be analysed to ensure that all operational and supervisory personnel will be able to fulfill their tasks.
The training programme was developed to comprise three phases, namely:
- Preparatory phase:
  Dealing with various logistical issues such as development of a training manual, production of maps to identify police districts within municipal jurisdiction areas, and so on.
- Training phase:
  Ensuring that the SAPS and traffic departments were equipped in time to implement and operate the new procedures.
- Ongoing technical support:

Assisting SAPS and traffic departments during the implementation during the first few months.

3.5   *How are users of the data involved in the process?*
The National Accident Register (NAR) and all its related procedures have been developed by the National Department of Transport in close cooperation with the 9 provinces and is still managed through its coordinating structures. In this way, governmental users are involved throughout the process.
Provincial and local authorities are the main users of accident data and as they, and other users, become more proficient in the use of Trafman, they identify the need for customized reports. The authority identifying the need would pay the developer of Trafman to make the required change. The changed module would then be available to all users free of charge.

It was proposed that a user group be established that could discuss various needs and share the costs of modifications, but this has not yet materialized.

4. Contents of the data base

4.1 Is a data dictionary available?
The data base is based on the contents of the OAR form.

4.2 In what way is the location of the accident stored in the data base?
A localized link and node system forms part of each authority's version of Trafman. Some authorities make use of a GIS-based version of Trafman. Location data is not forwarded to NaTIS.

5. Products

5.1 Give an overview of the products created with the collected data, eventually combined with data from other sources
When the SSA was the main accident data capturing agency, it issued preliminary monthly statistics and a comprehensive annual Road Traffic Collision Report, containing various standardized cross tabulations of accident and casualty data. Due to the cumbersome procedure, the annual reports very often were only issued up to two years late. It is envisaged that the NaTIS will take over this function at a national level.
The Division Road Traffic Management of the NDoT has an in-house accident data base on fatal accidents (National Rapid Response Programme). This data base is mostly used to handle ministerial queries and to provide the media with information on a daily basis during Arrive Alive holiday periods. The Arrive Alive campaign is being evaluated using the collected accident data.
Some of the metropolitan authorities, e.g. Durban and Cape Metropolitan Council annually publish their own reports on road accidents and casualties. This is often linked to other relevant road safety data.
The Automobile Association of South Africa (AASA) publishes an annual Traffic Audit, which covers some accident statistics and rates, offence rates, etc.
Accident and casualty rates per vehicle kilometers travelled, population and vehicle population are calculated using the accident data collected.

5.2 Who prepares these products?
Annual Report of Road Traffic Collisions - Previously SSA (NaTIS to continue).
Metropolitan authorities (Durban, Cape Metropolitan Council)
A traffic audit prepared by CSIR Transportek.

6. Users

6.1 Who uses the products of the accident reporting system?
Public, media, attorneys, insurance companies, assessors, government officials, researchers.

6.2   For what purposes are the products used?
Insurance claims, accident investigation and reconstruction, criminal court cases, planning road safety strategies and programmes.

7.   Financial aspects

7.1   Who is paying for the accident registration system?
The various components of the accident registration system (SAPS, local/metropolitan traffic authorities, provinces and NDoT) cover the expenditure for their functions in their annual budgets.

7.2   Do users pay to obtain the data collected in the accident registration system?
Users do have to pay for information obtained from an individual accident report form. Each province has the authority to determine fees. Examples of such fees are:
-    R40 for a photocopy of the OAR
-    R50 for a hand written copy of the OAR.
Provision of statistics is free of charge.

8.   Give a short description of the problems of the accident registration system

8.1   Staffing requirements
Various traffic authorities indicated that the new accident report system was putting existing staffing levels under severe pressure. This includes the availability of staff qualified to conduct the necessary checking procedures at the police stations during collection time (currently messengers are used for collection). Another problem experienced was a lack of qualified staff to do data capturing (even in the existing system), leading to backlogs in data capturing. It is clear that provinces and local authorities will have to budget for additional staff, training and equipment.

8.2   Existing backlogs or lack of capacity in capturing accident report forms
At the start of the implementation of the new OAR form in Gauteng, the checklist revealed that a backlog existed in the capturing of about 30 000 SAP352 accident reports. In some extreme cases the backlog stretched over a 12 months period and in other cases the backlog at specific traffic authorities amounted to between 7 000 and 10 000 forms not captured. Special arrangements had to be made to assist these authorities to catch up so that the backlog would not effect the capturing of the new OAR forms.

Special arrangements had to be made in case some of the authorities would not have the capacity to deal with the new system. The strategy followed was to identify another local authority within the relevant metropolitan services council with the necessary capacity to assist on a temporary basis.

8.3   *Insufficient infrastructure and equipment*
       A number of problem areas were pointed out by traffic authorities,
       such as:
       -   The lack of funds for transport to collect the OAR forms. In some
           metro's, forms have to be collected weekly from up to 40 police
           stations which implied the provision of dedicated staff and
           vehicles.
       -   Dedicated fax and photocopy machines were needed to be able to
           fax the amount of Delivery Notes and GT13 forms to the Gauteng
           Traffic Information Center. Additional storage and filing space
           were also required.

8.4   *Insufficient liaison between traffic authorities and SAPS*
       During the training sessions most of the traffic authorities indicated
       that SAPS representatives at police stations seemed to lack infor-
       mation about the implementation of the new OAR form and the
       administrative procedures associated with that. This problem could
       have arisen from the fact that separate training sessions by different
       institutions were held for the SAPS and traffic authorities. A lot of
       confusion can be eliminated and problems solved should police and
       traffic authorities jointly attend training sessions.

8.5   *Dealing with public queries*
       In the past, the public (individuals, attorneys, insurance companies,
       etc.) contacted the SAPS for information regarding accidents. In
       theory, traffic authorities should handle these queries in future. Since
       the OAR's (except where a docket is opened) are now forwarded to
       the traffic authorities, police tend to refer the public to traffic
       authorities for general information and queries, without checking
       whether the OAR form has already been forwarded to the traffic
       authority. In some cases the public have been inconvenienced and a
       proper system had to be worked out.

8.6   *Uncertainty regarding municipal and police boundaries*
       Not all roads linking the different municipal/metropolitan areas have
       signs depicting the boundaries of each authority. This shortcoming
       leads to confusion between authorities about who are responsible to
       deal with these road traffic accidents and in which municipal area the
       accident should be recorded. Special arrangements had to be made
       between the relevant authorities to erect these signs.

8.7   *Accident reporting*
       No all road users are aware that traffic accidents have to be reported.
       Especially in the previously disadvantaged areas and in rural areas,
       many accidents go unreported, as victims do not carry insurance.

8.8   *Location of accidents*
       When road users report an accident, it is not always possible to pin-
       point exactly where the accident occurred. The police officers also do
       not make an effort to record the location as accurately as possible.
       Further, it is possible to formulate the link and node system in
       Trafman in such a way that accident locations cannot be recorded
       very accurately, e.g. a link may be several kilometres long.

8.9   Processing of accident data

Not all authorities make full use of the analysis capabilities of Trafman, due to lack of training, etc. In some cases Trafman cannot provide the detailed information needed for, for example, the analysis of pedestrian accidents.

A.4. Dutch response

A.4.1. Part 1: Data relevant for traffic safety policies and research

A.4.1.1. *The National Travel Survey*

1. General

1.1. Name of the data source?
The National Travel Survey (Onderzoek Verplaatsingsgedrag, OVG)

1.2. Global description of the content of the data
The data base contains information on the mode in which people travel, the distance they travel and at what time of the day.

1.3. What method is used to store the data?
Digital.

1.4. For what purpose(s) is this data collected?
To monitor developments of passenger travel.

1.5. Which organization is funding the data collection?
Traffic Research Centre of the Ministry of Transport and Statistics Netherlands provide the necessary funds.

1.6. Is the collected data complete and representative?
It is impossible to perform an independent check of the data. There are known weaknesses caused by the method applied to collect the information.

2. Data collection

2.1. Which organization collects the data?
Statistics Netherlands.

2.2. Sampling method (e.g. limited area, randomised, etc)
A stratified sample of households is approached to cooperate.

2.3. How is the data collected (measurement, questionnaires, standard form)?
The participant has to complete a questionnaire.

2.4. Frequency of data collection
The survey is made annually.

3.   Data processing

3.1.   Which organization carries out the data processing?
Statistics Netherlands.

3.2.   In which form is the data published (Internet, report, tables...)?
Summary statistics are published on the Internet. Detailed tables are
published in a report

3.3.   What is the frequency of publication?
Annual.

4.   Users

4.1.   Is the data public?
Yes.

4.2.   Which organizations use the data?
Government and research institutes.

4.3.   Do the users have to pay to get the data?
Yes.

5.   Problems

5.1.   Give a short description of known problems
Participants forget to note all trips they make and make wrong
estimates of the travelled distances, and give round figures for the
time of day they travel. The figures are corrected for this type of
errors.

A.4.1.2. *Survey on drink-driving*

1.   General

1.1.   Name of the data source?
Survey on drink-driving (Onderzoek rij- en drinkgewoonten)

1.2.   Global description of the content of the data
Measured breath alcohol content and blood alcohol content, day, time
of day, gender, age and point of departure..

1.3.   What method is used to store the data (paper, digital...)?
Digital.

1.4.   For what purpose(s) is this data collected?
To monitor the actual drinking behaviour of drivers.

1.5.   Which organization is funding the data collection?
?

1.6. *Is the collected data complete and representative?*
The data relates to a certain period of the year and days of the week, since the measurements are taken in autumn in weekend nights. However, the sample gives a good view on the developments in time of drinking and driving on provincial and national levels.

2. Data collection

2.1. *Which organization collects the data?*
Police coordinated by the Traffic Research Centre of the Ministry of Transport

2.2. *Sampling method (e.g. limited area, randomised, etc)*
A random sample of car drivers is checked on breath alcohol content on a number of locations in autumn in weekend nights. In every participating province, at least 1500 measurements are taken.

2.3. *How is the data collected (measurement, questionnaires, standard form)?*
By breath alcohol testers

2.4. *Frequency of data collection*
The data is collected annually.

3. Data processing

3.1. *Which organization carries out the data processing?*
Since 2000 the Traffic Research Centre of the Ministry of Transport has been responsible for the data processing. Before 2000 the SWOV Institute for Road Safety Research was responsible.

3.2. *In which form is the data published (Internet, report, tables...)?*
The results are published in reports, the internet and on request in digital tables.

3.3. *What is the frequency of publication?*
The results are published annually.

4. Users

4.1. *Is the data public?*
Yes.

4.2. *Which organizations use the data?*
Police, Ministry of Justice, Ministry of Transport and research institutes.

4.3. *Do the users have to pay to get the data?*
Users don't have to pay for the report containing aggregated data. The raw data is only available if permission is given by the owner.

5.   Problems

5.1.   Give a short description of known problems
The survey is not done the year round but in autumn only. Therefore, the effect of seasons cannot be analysed using this data base. Furthermore the data describes only the breath alcohol content of drivers. It does not provide information about drivers' behaviour and attitude concerning drink-driving.

A.4.1.3.   *Survey on the use of safety devices*

1.   General

1.1.   Name of the data source?
Survey on the use of safety devices.

1.2.   Global description of the content of the data
The use of safety devices, like safety belts and head supports is observed, both for drivers and passengers. Furthermore, gender and an estimation of age are registered. In case a backseat passenger has been observed, a questionnaire concerning attitude and availability of airbags is distributed.

1.3.   What method is used to store the data (paper, digital...)?
Digital and paper.

1.4.   For what purpose(s) is this data collected?
To monitor the availability and the use of safety devices in cars, minivans and pickup trucks.

1.5.   Which organization is funding the data collection?
Transport Research Centre of the Ministry of Transport.

1.6.   Is the collected data complete and representative?
The sample is large enough to give a representative view of the development of the use of safety devices in cars.

2.   Data collection

2.1.   Which organization collects the data?
SWOV, Institute for Road Safety Research until 2000. The Traffic Research Centre of the Ministry of Transport has been collecting the data since.

2.2.   Sampling method (e.g. limited area, randomised, etc)
At 48 observation points, four in each province, of which 2 inside built-up areas and two outside urban areas, a random sample of cars is observed.

2.3.   How is the data collected (measurement, questionnaires, standard form)?
The data is collected by observation in combination with questionnaires.

2.4.   Frequency of data collection
The data has been collected almost every year since 1969.

3.   Data processing

3.1.   Which organization carries out the data processing?
SWOV, Institute for Road Safety Research until 2000. The Traffic
Research Centre of the Ministry of Transport has been collecting the
data since.

3.2.   In which form is the data published. (Internet, report, tables...)?
The results are published in a report.

3.3.   What is the frequency of publication
Annual.

4.   Users

4.1.   Is the data public?
Yes.

4.2.   Which organizations use the data?
Police, the Ministry of Justice, the Ministry of Transport and research
institutes use the data.

4.3.   Do the users have to pay to get the data?
The annual reports can be obtained from the Internet. The data is
available without cost. However, the user must meet certain
conditions.

5.   Problems

5.1.   Give a short description of known problems
The results give a reliable view for the national level, on the
provincial level, however, only indicative results are available due to
the limited sample size in each province.

A.4.1.4.   *Statistics on roads*

1.   General

1.1.   Name of the data source?
Statistics on Roads.

1.2.   Global description of the content of the data
These statistics contain information about the road length and traffic
volumes for a number of road types.

1.3.   What method is used to store the data (paper, digital...)?
Digital.

1.4. *For what purpose(s) is this data collected?*
To monitor developments in the road network, concerning road characteristics and road use.

1.5. *Which organization is funding the data collection?*
?

1.6. *Is the collected data complete and representative?*
The data is complete and representative.

2. **Data collection**

2.1. *Which organization collects the data?*
The length data is obtained from all road authorities in the Netherlands. Traffic volume data is collected by means of traffic counts, and three questionnaires. The questionnaire is sent to a representative group of car drivers, 4500 owners of motorbikes and a group of commercial vehicle owners.

2.2. *Sampling method (e.g. limited area, randomised, etc)*
The data is representative for the entire country.

2.3. *How is the data collected (measurement, questionnaires, standard form)?*
Both by measurements (traffic counts) and questionnaires.

2.4. *Frequency of data collection*
The data is not collected regularly. The latest statistics were published in 1996.

3. **Data processing**

3.1. *Which organization carries out the data processing?*
Statistics Netherlands.

3.2. *In which form is the data published (Internet, report, tables...)?*
Report.

3.3. *What is the frequency of publication?*
The statistics are published irregularly.

4. **Users**

4.1. *Is the data public?*
The data is public.

4.2. *Which organizations use the data?*
Ministries which are involved in environmental issues, planning and transport.

4.3. *Do the users have to pay to get the data?*
Yes, to obtain the report one has to pay.

5. **Problems**

5.1. *Give a short description of known problems*
The data concerning built-up areas is not reliable, due to the method applied.

A.4.1.5. *Speeds measurements on national highways*

1. **General**

1.1. *Name of the data source?*
Speeds measurements on national highways

1.2. *Global description of the content of the data*
The average hourly speed per vehicle length category is reported for about 100 measuring points in the national road network.

1.3. *What method is used to store the data (paper, digital...)?*
The data is collected automatically by means of speed detectors mounted in the road surface.

1.4. *For what purpose(s) is this data collected?*
To monitor the number of vehicles violating the speed limits and to determine speed enforcement policies.

1.5. *Which organization is funding the data collection?*
The Ministry of Transport installs the measure instruments.

1.6. *Is the collected data complete and representative?*
The collected data is representative for roads with a speed limit of 120 km/h. The number of measuring locations on highways with a speed limit of 100 km/h is too low to produce reliable results.

2. **Data collection**

2.1. *Which organization collects the data?*
The Ministry of Transport.

2.2. *Sampling method (e.g. limited area, randomised, etc)*
The data is collected at a limited number of measuring locations.

2.3. *How is the data collected (measurement, questionnaires, standard form)?*
The data is collected by measurement.

2.4. *Frequency of data collection*
The data is collected continuously.

3. **Data processing**

3.1. *Which organization carries out the data processing?*
The Traffic Research Centre of the Ministry of Transport.

3.2. In which form is the data published. (Internet, report, tables...)?
The data is published in reports.

3.3. What is the frequency of publication?
The data is published monthly and quarterly.

4. Users

4.1. Is the data public?
Yes.

4.2. Which organizations use the data?
Police, Ministry of Justice, the Ministry of Transport and research institutes.

4.3. Do the users have to pay to get the data?
For certain users the data can be obtained without charge, other user groups have to pay the costs for processing the data.

5. Problems

5.1. Give a short description of known problems
—

A.4.1.6. *The National Vehicle registration*

1. General

1.1. Name of the data source?
The National Vehicle registration.

1.2. Global description of the content of the data
Contains information on vehicle type, mass, make etc of each registered vehicle.

1.3. What method is used to store the data (paper, digital...)?
Digital.

1.4. For what purpose(s) is this data collected?
To apply vehicle taxes, to administer the periodical vehicle inspection and vehicle ownership, to combat fraud and crime.

1.5. Which organization is funding the data collection?
Ministry of Finance.

1.6. Is the collected data complete and representative?
The data is complete.

2. Data collection

2.1. Which organization collects the data?
RDW Centre for Vehicle Technology and Information

2.2. Sampling method (e.g. limited area, randomised, etc)
All registered vehicles are in the data base.

2.3. How is the data collected (measurement, questionnaires, standard form)?
It is a legal requirement to register vehicles.

2.4. Frequency of data collection
The data collection is a continuous process.

3. Data processing

3.1. Which organization carries out the data processing?
RDW Centre for Vehicle Technology and Information.

3.2. In which form is the data published. (Internet, report, tables...)?
Some statistics are published by Statistic Netherlands and the RDW Centre for Vehicle Technology and Information in reports.

3.3. What is the frequency of publication
The statistics are published regularly.

4. Users

4.1. Is the data public?
The statistics are public, access to the data base is not public.

4.2. Which organizations use the data?
Police, and several Ministries and research institutes which deal with environmental, transport and enforcement issues.

4.3. Do the users have to pay to get the data?
Yes.

5. Problems

5.1. Give a short description of known problems
___

A.4.2. **Part 2: Accident reporting system**

1. Definitions and concepts

1.1. Which definitions of a traffic accident are used?
A traffic accident is an event that has occurred on a public road, related to traffic, in which at least one moving vehicle was involved and as a result of this, at least one road user has died or got injured or, as a result, there was some material damage (International Definition, Vienna 1968).

1.2. Is a standard accident registration form used to collect the data?
(include copies in report)?

There is one accident registration form used in the Netherlands. This means, that the content of the form is agreed upon. However, the lay out of the form differs, depending on the individual police department.

The following sections can be distinguished on a registration form:
1. Moment (time) of the accident:
   a. date;
   b. hour/minute.

2. Location of the accident:
   a. street names/house number;
   b. road number/milestone (actually: "kilometre stone");
   c. inside/outside urban area;
   d. public road?

3. Traffic measures at the accident location, e.g.:
   - speed limit;
   - traffic lights;
   - right of way.

4. Road authority:
   - national road;
   - road maintained by a province;
   - road maintained by a municipality.

5. Road lay out:
   - no junction: straight road;
   - crossroad;
   - T or Y shaped junction;
   - roundabout;
   - no junction: bend;
   - near a junction.

6. Location details, e.g.:
   - pedestrian crossing;
   - bridge;
   - tunnel/viaduct;
   - level crossing;
   - exit;
   - bus/tram stop;
   - parking;
   - petrol station.

7. Special/temporary conditions, e.g.:
   - road works;
   - deviation.

8. Natural light conditions:
   - daylight;
   - darkness;
   - twilight.

9. Street lights:
    - working/not working.

10. Weather conditions, e.g.:
    - dry;
    - rain;
    - fog or mist;
    - snow.

11. Road surface conditions:
    - dry;
    - wet;
    - dirty;
    - snowy/icy.

12. Road surface:
    - paved;
    - tarmac;
    - concrete;
    - gravel;
    - grit;
    - cobble stones;
    - wood.

13. Collision type:
    - single vehicle accident, no obstacle;
    - pedestrian involved;
    - parked vehicle involved;
    - animal involved;
    - fixed or moving obstacle involved;
    - frontal collision;
    - side collision;
    - chain or rear collision.

14. Personal details of the persons involved:
    a. name/address/residence;
    b. sex;
    c. date of birth;
    d. driver's licence;
    e. nationality;
    f. alcohol test.

15. Personal details of the vehicle owners:
    a. name/address/residence;
    b. sex;
    c. date of birth;
    d. type of insurance;
    e. insurance company;
    f. license number;
    g. vehicle nationality.

16. Description of the material damage:
    The material damage is indicated by a drawing.

17. Details of the injured:
   a. name/address/residence;
   b. sex;
   c. date of birth;
   d. person class (driver/passenger/pedestrian);
   e. injury severity;
   f. transported to hospital by;
   g. hospitalized;
   h. date of death;
   i. killed on the spot.

18. Accident description (free text) and situation draft:
   Other, e.g.
   a. court case (yes/no);
   b. type of statement (protocol/police warrant);
   c. name of police officer who completed the registration form.

2. Organizations involved

2.1. Which organizations are involved in the collection, processing, and dissemination of the accident data?
Collection of data: police or military police.
Processing and dissemination of data: Traffic Research Centre (AVV), Ministry of Transport (Adviesdienst Vekeer en Vervoer, AVV)

2.2. What task has each of these organizations? (data collection, digitising the data, quality control,.....)
- Police: write down the traffic accident data; a standardized form is used (see above 1.2). This form is not only used for traffic accident data, but also for legal questions, victim aid, etc.
- Traffic Research Centre
  - data entry;
  - quality control;
  - data administration;
  - detection of user needs;
  - product development on the basis of market demands;
  - dissemination of products.

2.3. How many people are working on the accident registration system?
At the Traffic Research Centre there are about 60 persons engaged in processing the traffic accident data. Furthermore, almost all data entry activities are carried out by an (external) contracting company.

3. Procedures

3.1. Give a short description of the collection procedure, starting with "an accident has happened" until "a record has been included in the national accident data base". Regional differences and procedural differences dependent on the severity of the accident outcome or the location of the accident should be included in this description.
When the police (sometimes the military police) arrive at the accident location, the relevant accident data is written down, often in a scribbling block; at the police station the data is entered into a computer file which was set up in order to register police events, e.g. bur-

glaries, acts of violence, but also traffic accidents. (Data collection is a police task, although this was not settled by law. It is merely an agreement between the police and the Ministry of Transport.)
When a traffic accident has been imported into the police computer file, the relevant data is printed. A print-out contains the information of the former form, which isn't used anymore. (This form was designed to be filled out using a typewriter.) The print-out is sent to the Traffic Research Centre of the Ministry of Transport where the accident data is processed, i.e. entered into the traffic accident data base. One or two police stations send traffic accident data on-line. Beside this traffic accident data base, AVV maintains a road network data base of all public roads in the Netherlands (this is called NWB: Nationaal Wegenbestand). The maintenance of this road network data base is considered to be the main task of AVV; AVV collects, processes and disseminates several types of traffic and transport related data, which are all linked to the road network data base, e.g. traffic intensities, congestions, speeds, road characteristics, but also traffic accidents. On the basis of these links, information can be produced, using several types of data with one common geographic feature. In this way, it is possible to produce risk figures for well-defined road segments.
This data base functions as the starting-point for dissemination of the traffic accident data for the end users.

3.2.   *Have all procedures been laid down in a document and have all organizations participating in the accident registration system agreed upon these procedures.*
Generally all organizations have agreed upon the procedures. However, recently some police organizations have declared that they will cut down administrative activities in order to get more 'blue uniforms in the streets'. As a result, the registration degree of less severe accidents decreases in some areas of the country.

3.3.   *How is the quality of the data checked and is the data checked in each stage of the procedure?*
After AVV has received a traffic accident form, it is checked for completeness. Subsequently, the form is registered, it receives a unique registration number, and it is forwarded to the data entry department. Every data entry employee possesses a processing manual. From this manual, every traffic accident can be entered into the data base. The data entry system contains several quality checks. Furthermore, every day samples are taken for input quality checks. If the quality turns out to be beneath the standard level, the whole batch of traffic accident data will be processed once again. AVV uses quality standards which have been agreed upon with end users. Production quality figures are reported periodically. Finally, some end users check the traffic accident products on the basis of the original traffic accident forms.

3.4.   *How is the training of the personnel organised?*
Completing the accident form is a police task, thus the training relating to this, is also a police task. During the last few years, according to the general governmental policy, AVV has disposed of most of the lower-qualified jobs. Data entry activities are carried out

by contracting parties. At this moment, one contracting company does the data entry. It is settled contractually that this company is responsible for the required training, concerning the data entry. In practice however, AVV carries out a large part of this training.

3.5. How are users of the data involved in the process?
AVV collects a great number of traffic accident data. This information is used for several purposes. However, needs may change and it is necessary to monitor the needs of the end users. As a result, AVV applies marketing techniques in its market approach. As a part of this, groups of end users are consulted periodically. New products, product modifications, as well as product quality matters, are discussed.

4. Contents of data base

4.1. *Is a data dictionary available?*
There is a detailed data dictionary available.

4.2. *In what way is the location of the accident stored in the data base?*
See above, 3.1. Furthermore, The Nationaal Wegenbestand (NWB) consists of geographic information (road segments, with x/y coordinates) as well as administrative information (e.g. street name, house numbers, municipality of each road segment). Every traffic accident is linked to a NWB road segment. Thus it is, for instance, possible to point out so-called black spots in the road network. These are locations where several traffic accidents have occurred within a period of time.

5. Products

5.1. *Give an overview of the products created with the collected accident data, eventually combined with data from other sources*
The main products are:
- ONGEVALLEN EN NETWERK (translated: Traffic Accidents and Road Network).
  Contents: a set of data files on traffic accidents, road casualties, vehicles involved, as well as the matching road network.
  Information carrier: CD or diskette.
  Period of report: quarterly, bi-annual or annual.
  Administration area: end user dependent.
  Frequency of delivery: quarterly, bi-annual or annual.
- BLIK, Black Spots In Kaart (translated: Charted Black Spots).
  Contents: a computer application that makes it possible to present accident locations on the basis of the road network.
  Information carrier: CD as well as on the Internet.
  Period of report: three years, plus the current year.
  Administration area: province.
  Frequency of delivery: per quarter (cumulative).
  Application: ArcExplorer (shareware).
- VISIE, Verkeersveiligheidsinformatiesysteem op het Internet (translated: Traffic Safety Information System on the Internet).

Contents:a computer application that makes it possible to present tailor made traffic accident and road casualty data, as well as other traffic safety data on the internet.
Information carrier: internet.
Period of Report: 10 most recent years plus the current year.
Administration area: the Netherlands, province, municipality, police district, 'polder-board'.
Frequency of delivery: the traffic accident data are updated every quarter.
Application: Business Objects.
Additionally, AVV publishes several leaflets, pamphlets etc, containing traffic accident data.
Furthermore, as indicated above (3.1), traffic accident figures are integrated in different AVV-products which contain other traffic data.

5.2.   *Who prepares these products?*
All these products, mentioned at question 5.1, are prepared by AVV. However, the end users often process the AVV-products in order to produce their own, tailor made, information.

6.   Users

6.1.   *Who uses the products of the accident reporting system?*
See 6.2.

6.2.   *For what purpose are the products used?*
a. Developing, monitoring and evaluating traffic safety policy.
Traffic accident figures are used by policy makers on several levels. They are interested in the development of the traffic safety rates (total number of accidents, road casualties) over the years in the area they are responsible for. They make decisions on traffic safety measures, on the national, regional or local level.
b. Road administration and maintenance.
Road administrators have to keep their roads safe. To achieve this, road administrators need much more specific data than indicated above (a.). If the policy makers have decided to start activities in order to decrease the number of a certain type of traffic accident or road casualty, the road administrators must have detailed information concerning these accidents or road casualties at their disposal. For instance, if the policy makers have decided to do something about the increasing number of road casualties among the young, road administrators need detailed information on this type of road casualty. It is important to know if they are car drivers, cyclists, or pedestrians? Are there any traffic accident concentrations? Is it a matter of drink-driving? Etc. Road administrators need detailed traffic accident data in order to answer these questions by analysis of the data.
c. Traffic patrol.
Traffic patrol is a police task. Traffic accident data can be used in order to plan more efficient traffic patrol. Mostly, information about traffic accident locations, time and driver behaviour is needed for planning traffic patrol.

d. Research.
   Traffic accident data is used for research carried out by research institutes (e.g. SWOV). The data has to be consistent over a great number of years, as well as statistically reliable. It is obvious that research institutes use files with data over a long period.
e. Other.
   Furthermore, traffic accident data is used by several organizations that provide information concerning traffic safety, individual citizens interested in traffic safety, students, educational institutions, etc.

7.   Financial aspects

7.1.   Who is paying for the accident registration system?
The Ministry of Transport pays for the accident registration system.

7.2.   Do users pay to obtain the data collected in the accident registration system?
Users at municipalities, provinces, and police have to pay for the traffic accident data. For each category a special rate exists. Users may also sign a so called Data for Data Contract with AVV. The users receive AVV-data free, but they are obliged to supply AVV with traffic and transport data, when AVV asks for these data, and if available. Most end users have signed such a contract with AVV. The biggest benefit for the end users, apart from free traffic accident data, is the free distribution of the NWB (road network data).

8.   Problems

8.1.   Give a short description of the problems of the accident registration system
   a. One of the problems is that every police district formulates its own policy, traffic safety policy included. As a result, it is very hard to exert influence on the registration rates in every police district. Some districts have declared their intention to minimize the registration of Material Damage Only accidents. These accident data however, are also necessary to obtain a picture of the traffic safety.
   b. Another problem is the quality of the traffic accident data. After a traffic accident has occurred, the data is written down several times, before it arrives at the desk of the end user. Thus the possibility of mistakes increases. AVV and the police are aiming to achieve a new way of registration which should be introduced by the end of 2001.
   c. It also has been a problem to get an idea of the real number of road casualties. In the last few years both SWOV and AVV have developed a method to estimate these numbers, since only a part of all road casualties are found in the traffic accident data base. In the first place, the police are not always called in when an accident has occurred. Furthermore, if the police arrive at the accident location, they do not necessarily recognize injuries of the road users involved in the accident. And thirdly, this traffic accident information does not automatically reach the central/national traffic accident data base.

This year, after years of dealing with this kind of problems, it even turned out to be difficult to settle the exact number of deaths due to a traffic accident. One of the main reasons is that many road casualties die several days after an accident. In some cases, shortly after the accident, the police have lost sight of these road casualties and their medical condition. Furthermore, only recently AVV had the opportunity to compare its own data file of deaths due to a traffic accident with other data files that exist in the Netherlands. Studies on this subject, however, still continue.

Appendix B   Work schedule for the accident and road safety information audit

22 November – 1 December 2000

Date	Time	Organization to be visited	Contact details	Purpose of meeting
22 November 2000 Dutch team arrives at Johannesburg International Airport. To be picked up and transported to hotel in Pretoria.				
22 November 2000	13:00 – 17:00	National Department of Transport, Pretoria	Mr. Lisa Mangcu	Mr. Lisa Mangcu/Daniel Genge to introduce project to Dutch and SA team. Visit to the Senior Management
23 November 2000	08:00 – 09:00	Visit to SAPS Provincial Office (meeting at Courtyard Hotel)	Supt. Theresa Scholtz	To discuss the implementation of the new accident reporting system by the SAPS in Gauteng Province
	09:00 –12:00	Visit the police station in Brooklyn, Pretoria	Supt. Theresa Scholtz	To demonstrate the completion and processing of the OAR accident report forms
	14:00 – 17:00	Visit to Pretoria Traffic Department	Mr. R. Ingram	To introduce the team to the Trafman system and to see accident capturing procedures. Also to discuss metropolitan traffic safety info needs
24 November 2000	08:30 – 09:30	Gautrans Directorate Traffic Management (meeting at CSIR, Transportek)	Mr. Wim van Zyl	Discussion on Gautrans Accident Register and provincial road safety info needs
	10:00 – 12:00	Visit to Gautrans Traffic Info Center	Mr. Wim van Zyl	To familiarize the team with the operations of the GTIC
	13:00 – 17:00	Visit to NaTIS	Mr. Daniel Genge	To discuss the various information components of NaTIS
26 November 2000 (Sun.)		Team flies to Eastern Cape on Sunday. Split into two teams (Teams A & B). Team A (H. Ribbens & E. Banach) flies to East London and Team B (E. de Beer and J. van der Sluis) flies to Port Elizabeth		
27 November 2000	09:00 – 12:00	Team A travels to KingWilliam's Town and visits Traffic Department	Mr. Ben Martin	To introduce the team to the TCS system and to see accident capturing procedures. Also to discuss local traffic safety info needs
	09:00 – 12:00	Team B visits SAPS in Port Elizabeth and visits a police station in Kwa-Zakhele/New Brighton	Supt. S.K. Makinana	To demonstrate the completion and processing of the OAR accident report forms

Date	Time	Organization to be visited	Contact details	Purpose of meeting
27 November 2000	13:00 – 16:00	Team A visits Eastern Cape Department of Transport	Mr. S.M. Mbini (c/o Charles Reynolds)	To discuss and analyse the accident reporting system as implemented in the Eastern Cape. Also to identify provincial road safety info needs
	13:00 – 16:00	Team B visits Port Elizabeth Traffic Department	Mr. Sam van den Berg	To introduce the team to the Trafman system and to see accident capturing procedures. Also to discuss metropolitan traffic safety info needs
27 November 2000	Teams fly back to Johannesburg and travel back to Pretoria by car			
28 November 2000	10:00 – 11:30	SAPS National	Supt. Rob Askew	To discuss the implementation of the new accident reporting system by the SAPS on a national level
	12:00 - 13:30	Road Accident Fund	Judge Chris Greenland	To discuss information needs of the RAF
	15:00 – 17:00	CSIR Transportek	Dr Hubrecht Ribbens	Process collected data and prepare for workshop
29 November 2000	09:00 – 17:00	CSIR Transportek	Dr Hubrecht Ribbens	Process collected data and prepare for workshop
30 November 2000	09:00 – 17: 00	CSIR Transportek	Dr Hubrecht Ribbens	Process collected data and prepare for workshop
1 December 2000	09:00 – 16:00	Stakeholder# Workshop at NDoT, Pretoria	Mr. Lisa Mangcu	Workshop to discuss preliminary findings and recommendations

 # Stakeholders to be invited:

- National Department of Transport
- Representative of each of the nine provinces
- Representatives of the metros (Pretoria, Johannesburg, Durban, Cape Town and Port Elizabeth)
- South African Police Service
- Road Accident Fund

Appendix C   Proceedings of the stakeholder workshop held on 1 December 2000

C.1.   **Background**

C.2.   **Proceedings of the workshop**
C.2.1.   Welcome and tour de table (Mr. L. Mangcu)
C.2.2.   Introduction of the SANTF project (Mr. F. Wegman)
C.2.3.   Accident reporting and SAPS (Supt. R. Askew)
C.2.4.   Accident reporting system in South Africa: a first assessment
           (Mr. J. van der Sluis)
C.2.5.   Dutch accident reporting system: an introduction (Mr. E. Banach)
C.2.6.   Road safety information system (Mr. F. Wegman)
C.2.7.   Introduction of group discussions (Mr. L. Mangcu &
           Mr. F. Wegman)
C.2.8.   Break-away group discussions
C.2.9.   Report-back by groups
           C.2.9.1.   Legal framework
           C.2.9.2.   Clients
           C.2.9.3.   Quality assurance
           C.2.9.4.   Capacity building
C.2.10.   Discussion, conclusions & next steps (Mr. F. Wegman)
C.2.11.   Closure

C.1. **Background**

In October 1999, the South African and Dutch Ministers of Transport signed a protocol on bilateral co-operation in the field of transport and infra-structure development. The South African Netherlands Transport Forum (SANTF) was established to direct the co-operative programme. One of the projects identified through the SANTF was to invite the Dutch government to undertake an audit of the new accident reporting system in South Africa and also to identify the road safety information needs of the different levels of government to ensure sound road safety management and operations.

The audit team consisted of two Dutch and two South African experts. During the last week of November 2000, the team visited the SAPS and a number of local/metropolitan and provincial traffic authorities, the National Department of Transport (NaTIS), the Road Accident Fund and other organizations to interview them in order to assess the structural and operational aspects of the accident reporting system. The team also obtained information on the road safety information needs that each of these organizations require to manage and conduct their operations more effectively.

A stakeholders workshop was arranged for 1 December 2000. The audit team provided feedback of their preliminary findings and draft recommen-dations regarding the accident reporting system. Furthermore, the audit team also discussed the road safety information needs as identified by the different levels of government. The workshop served as a soundboard for the audit team to finalise their recommendations.

The workshop proceedings are summarized in this document.

ATTENDANCE:

Mr. L. Mangcu (Chairperson)	National Department of Transport
Supt. R. Askew	SAPS
Mr. E. Banach	Ministry of Transport, Public Works and Water Management, Transport Research Centre, the Netherlands
Mr. G. Bickerton	Greather Johannesburg Metropolitan Council
Ms. H. Carim	Road Accident Fund
Ms. R. Castelyn	CSIR, Transportek
Ms. E. de Beer	CSIR, Transportek
Mr. M. Deck	Department of Transport, Kimberley
Mr. A.S. de Jager	Pretoria Traffic Department
Mr. J. Dellis	Durban Metropolitan Council
Mr. D. Genge	National Department of Transport
Mr. W. Gorny	KwaZulu-Natal Department of Transport
Mr. S.E. Gumbi	National Department of Transport
Mr. W. Koekemoer	National Department of Transport
Mr. J.H. Meintjies	Pretoria Traffic Department
Mr. W.W. Labuschagne	Mpumalanga Province
Mr. A. Nansook	Durban Metropolitan Council
Supt. R. Nkosi	Greather Johannesburg Metropolitan Council

Dr. H. Ribbens   CSIR, Transportek
Mr. P. Sole   Cape Metropolitan Council, Transportation &
                         Traffic
Mr. S. Tshili   National Department of Transport
Mr. J van der Sluis   SWOV, the Netherlands
Mr. W. van Zyl   Gauteng Province
Mr. F. Wegman   SWOV, the Netherlands

C.2. **Proceedings of the workshop**

C.2.1.   Welcome and tour de table (Mr. L. Mangcu)

Mr Mangcu welcomed all present. Delegates introduced themselves.

C.2.2.   **Introduction of the SANTF project (Mr. F. Wegman)**

Mr. Wegman explained the purpose of the workshop, i.e. to provide feedback on the preliminary findings of the audit team and to discuss problems of, and possible improvements to the accident reporting system in South Africa.

C.2.3.   **Accident reporting and SAPS (Supt. R. Askew)**

Superintendent Askew discussed the following challenges faced by various stakeholders involved in accident reporting:

-   Dual policing system in respect of dealing with motor vehicle accidents:
    -   SAPS vs approximately 500 independent provincial and local authority traffic departments;
    -   Road Traffic Act: Both SAPS and traffic departments perform accident related functions, but no clear distinction.
-   Therefore, buck-passing, duplication, non-performance of key functions and responsibilities. The traffic fraternity complains about the quality of the data provided by SAPS, and SAPS complains about the number of forms generated by the numerous accidents, which are actually caused by lack of traffic law enforcement.
-   Most vehicles on the road are not insured.
-   No compulsory balance of 3rd party system for vehicles damaged in accidents.
-   Problems with two forms for one accident:
    -   Which report to capture?
    -   Which copy goes to attorneys?
    -   Both copies gets captured (received late or at other station)
-   Underreporting
    -   Buck passing - where to report accident (Traffic? Police?)
    -   24 hrs per day or next working day?
    -   Any police station?
-   Cooperation problems
    -   Lack of funding, commitment and policy implementation by certain people in management positions: Not considered priority
    -   Written cooperation contracts? In Act? Policy Directives?
-   No uniformity of processes / procedures:
    -   Who can get copies, when can copies be given, prices for copies?
-   Most accidents are not criminally investigated, which implies that many of those who are causing accidents are getting off scot-free, and innocent victims of accidents are suffering/experiencing harm, trauma and damage.

- There is a wide range of users who make use of accident report information, but there is a lack of interest in completion of the form. Better information can be derived from the OAR than from the SAP 352A.
- The fact that a new form and data capturing system were introduced at the same time makes room for corruption and fraud (addition of info to forms, tow truck operators and lawyers take advantage of loopholes).

C.2.4. Accident reporting system in South Africa: a first assessment (Mr. J. van der Sluis)

Mr. Van der Sluis' presentation is attached as *Appendix D*.

C.2.5. Dutch accident reporting system: an introduction (Mr. E. Banach)

Mr. Banach's presentation is attached as *Appendix E.*

C.2.6. Road safety information system (Mr. F. Wegman)

Mr. Wegman gave a presentation on the information management system used by SWOV in the Netherlands (attached as *Appendix F*). Training is needed to operate the system effectively. The program will be available on the internet soon.

C.2.7. Introduction of group discussions (Mr. L. Mangcu & Mr. F. Wegman)

All delegates were divided into three groups, convened by Fred Wegman, Jan van der Sluis, and Hubrecht Ribbens

Derived from the discussions above, the following main issues were given to the three groups for discussion:
- clients/ target groups: in terms of information collection, technology to be used;
- quality assurance;
- capacity building.

It was requested that the legal framework also be discussed.

C.2.8. Break-away group discussions

The three break-away groups discussed the three topics above.

C.2.9. Report-back by groups

The report-back and discussions are listed below.

C.2.9.1. *Legal framework*

- need to manage the system;
- capturing and data management is not a police function;
- minimum standards for a traffic department;
    - attending and filling in OARs;
    - performance levels;
- copies: cost of copies; what can be given and to whom and under what circumstances?

- police and traffic officers complete OAR and DAR and what happens once completed?
- time management of the system;
- outsourcing;
- marketing strategy for public.

C.2.9.2. *Clients*

- accident victims;
- communities;
- concerned citizens (hazlocs);
- debt collectors;
- educational institutions (e.g universities);
- engineers;
- international (GRSP);
- legal and insurance industry;
- local Authorities (3 E's);
- National Department of Transport;
- media;
- non-government organizations;
- politicians;
- private hospitals and ambulances;
- private sector (haulage companies, consultants);
- provinces (3 E's);
- research institutes (e.g. CSIR, MRC, HSRC);
- Road Accident Fund;
- Road Safety Councils;
- road users;
- SAPS;
- specific interest groups;
- students;
- Traffic Departments;
- transport managers;
- define main clients; internet; help desk.

C.2.9.3. *Quality assurance*

- proper data verification process at all levels;
- section 84 and 85 must be filled in by SAPS;
- more personnel with proper job descriptions and more equipment;
- the data capturing authority must also be responsible for the recording of the form;
- separate accident information system, but linked to NaTIS;
- tracking system of formal files;
- legal document is needed, but not enough: strengthen feeling of responsibility at all levels; ensure accountability; performance management of the whole system;
- introduce feedback mechanisms;
- OAR Audit.

C.2.9.4. *Capacity building*

- overall training: uniformity of training curriculum and courses;
- dedicated non-law enforcement officer/staff for the completion of the forms when accident is reported and captured;

- dedicated, well trained managers and administrative staff;
- Annual National Accident Register Conference exchanging information;
- marketing strategy for public;
- change laws - traffic vs SAPS; Trafman.

C.2.10. **Discussion, conclusions and next steps (Mr. F Wegman)**

Mr. Wegman considered the event as encouraging. He was impressed that stakeholders actually make decisions and solve problems despite the difficulties that are being experienced. He invited all to send additional comments, even after the meeting.

He summarized the main problems as follows: The system needs to be managed properly instead of managing individual problems. Support is needed from a higher level. He expressed his hope that the Ministry will take the initiative to organize the process. The accident reporting system, as is, can function, but good ideas for improvement were discussed. He pledged the full support from SWOV to bring problems to the attention of officials at higher levels.

C.2.11. **Closure**

The Chairperson thanked all for their effort, time and contributions, especially the delegates from the Netherlands.

He wished all a blessed Christmas and a prosperous New Year

Appendix D   Presentation by Mr. Jan van der Sluis

Accident reporting system in South Africa

A first assessment

1 December 2000

Table of contents

- Introduction
- Members of the project team
- Why collect road traffic accident data?
- The accident reporting system in South Africa
- Organisations visited by the audit team
- Observed weaknesses of the system

---

Members of the project team

- Mrs. Elize de Beer (CSIR/Transportek)
- Dr. Hubrecht Ribbens (CSIR/Transportek)
- Mr. Eugène Banach (Ministry of Transport, Transport Research Centre/ Data Department)
- Mr. Jan van der Sluis (SWOV Institute for Road Safety Research)

Why collect road traffic accident data?

- For developing road safety strategies at different governmental levels
- For defining road safety action plans
- For monitoring and evaluation

The Accident reporting system in South Africa
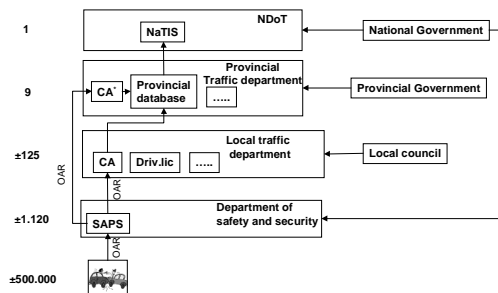
Organisations visited by project team (1)

- SAPS
  - SAPS National
  - Provincial Office, Gauteng
  - Brooklyn Police Station, Pretoria
  - Provincial Office Eastern Cape
  - KwaZakhele/New Brighton Police Station
- Traffic departments
  - Gautrans Directorate Traffic Management
  - Gautrans Traffic Info Center
  - Pretoria Traffic Department
  - Traffic Department King William's Town
  - Eastern Cape Department of Transport
  - Port Elizabeth Traffic Department

Organisations visited by project team (2)

- National Department of Transport
  - NaTIS
- Other
  - Road Accident Fund

Observed weaknesses of the system

- SAPS
- Local Traffic Departments
- Provincial Traffic Departments
- National Department of Transport
- General

SAPS

- Poor information provided by the members of public to the police.
- Officers are not able to complete the form
- Lack of staff and equipment
- Accident registration has low priority

Local Traffic Departments

- Lack of staff
- Doubts about capturing staff qualifications
- Accident registration has low priority
- Poor quality of completed OAR
- Lack of management information

Provincial Traffic Departments

- Don't perform according to their opportunities
- Large differences between individual provinces concerning their ambition and performance

National Department of Transport

- NDoT has not well defined their mission and responsibilities in the field of the National Accident Register
- No output
- No quality assessment

General

- NAR is a system based on independent stakeholders
- The system as a whole is not managed
- There are no mechanisms to assure adequate throughput
- Clients of the NAR have not been defined
- More then one completed OAR per accident
- Inadequate introduction of NAR
- Finger pointing attitude of stakeholders

Appendix E Presentation by Mr. Eugène Banach

Traffic Accident Reporting Process In The Netherlands; an introduction
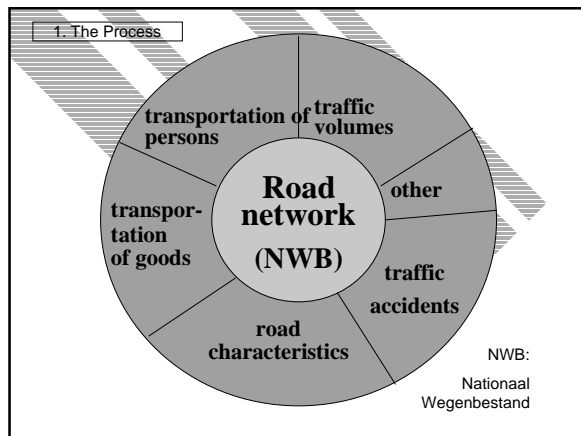
Ministery of Transport, Public Works and
Water Management
Transport Research Centre,
Data Department

Eugene Banach

Pretoria,
December 1st, 2000

Content

a. The Process

b. Users And Products

c. Controling The Process

d. Conclusions

---

1. The Process

transportation of
persons

traffic
volumes

**Road
network

(NWB)**

other

transpor-
tation
of goods

traffic
accidents

road
characteristics

NWB:

Nationaal
Wegenbestand

---

1. The Process

Raw materials

a.   Traffic Accident Data

Police Registration Form:
* on paper
* electronically

b.   Data about the Dutch road network
coming from:
* Dutch Topographical Institute
* Royal Dutch Post
* Road authorities
* 'Data For Data'

Traffic Accident

.....attending
the accident location

POLICE

...captures accident data
in police incident system

.....sends data to AVV
(printout/data file)

AVV

.....captures data in
traffic accident data base

.....makes products

USERS

.....analyse the data

Traffic

Accident

Reporting

Process

Processing raw materials into products

changes in the
roead network

road
network
database

other
applications

once
a month

traffic accident

traffic acc.
data base

once
a month

www.rws-avv.nl

output
database

products

Products

- **VISIE:**
  making your own cross tabs on the internet

- **Ongevallen en Netwerk:**
  datafiles on accidents, road casualties, vehicles and road network

- **BLIK:**
  making your own map with traffic accident locations

- **several other products on paper: reports, booklets, leaflets, etc**

ArcExplorer - GORINC~1.AEP
File Edit View Theme Tools Help
Local | WWW |
☑ 97-4 NAAR AFLOOP (D_a
  ● U
  L
  ○ D
☐ 97-4 NAAR KLASSE (J_or
  ○ Less than 1
  ○ 1 - 0.99
  ○ 1 - 0.99
  ○ 1 - 1.99
  ● 2 - 6.99
☐ 94_97 NAAR AFLOOP (D_
  ● U
  L
  ○ D
☐ 94_97 NAAR KLASSE (J_
  ○ Less than 1
  ○ 1 - 1.99
  ○ 2 - 3.99
  ○ 4 - 6.99
  ● 7 - 15.99
☐ HECTOMETRERING
☑ GEMEENTELIJKE WEGE

Map copied to clipboard (BMP)   Active Theme: 97-4 NAAR AFLOOP
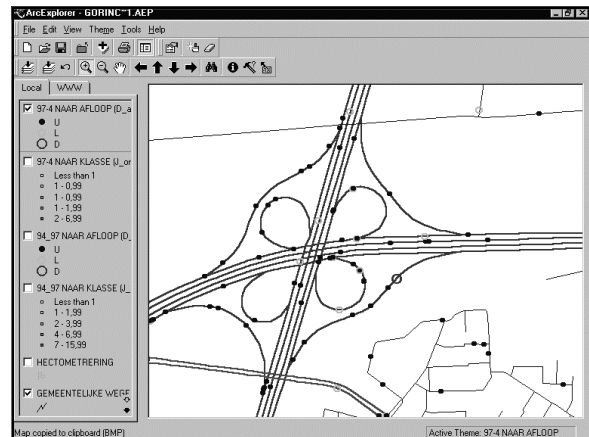
Some applications of traffic accident data

a. **Preparation and evaluation of traffic safety policy**

b. **Road reconstructions**

c. **Law enforcement**

d. **Traffic safety research**

e. **Education**

The most important users

- **Ministry of Transport**	**: policy maker**
- **Ministry of Transport**	**: road authority**
- **Provinces**	**: road authority**
- **Regional Road Safety Orginasations**	**: education**
- **Municipalities**	
- **Research institutes**	
- **Water boards**	
- **Police**	

but also
- **consultants**
- **educational institutions**
- **interest groups, concerning traffic safety**
- **individual students**
- **individual citizens**

Communication

1. **Marketing, e.g.**
   - **market research**
   - **market segmentation**

2. **Promotional activities, e.g.**
   - **trade exhibitions**
   - **promotional objects**
   - **towards the press**

3. **Feedback, e.g.**
   - **Fundings**
   - **Periodical meetings with client groups**
   - **Service desk**

Quality approach

The most important issues:
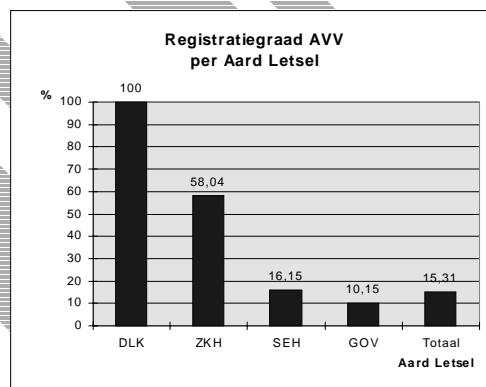
* speed of sending in the accident forms by the police
* processing controls
* quality of the capturing process
* too-late-accident forms (after march 1st of next year)
* NTA's (No Traffic Accidents)
* control of the final products
* approval of end user analysing programs
* reliability of the output
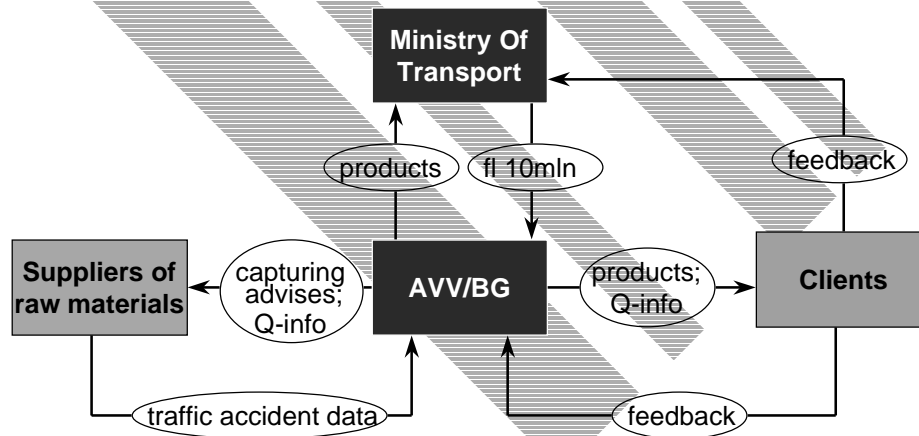* representativeness
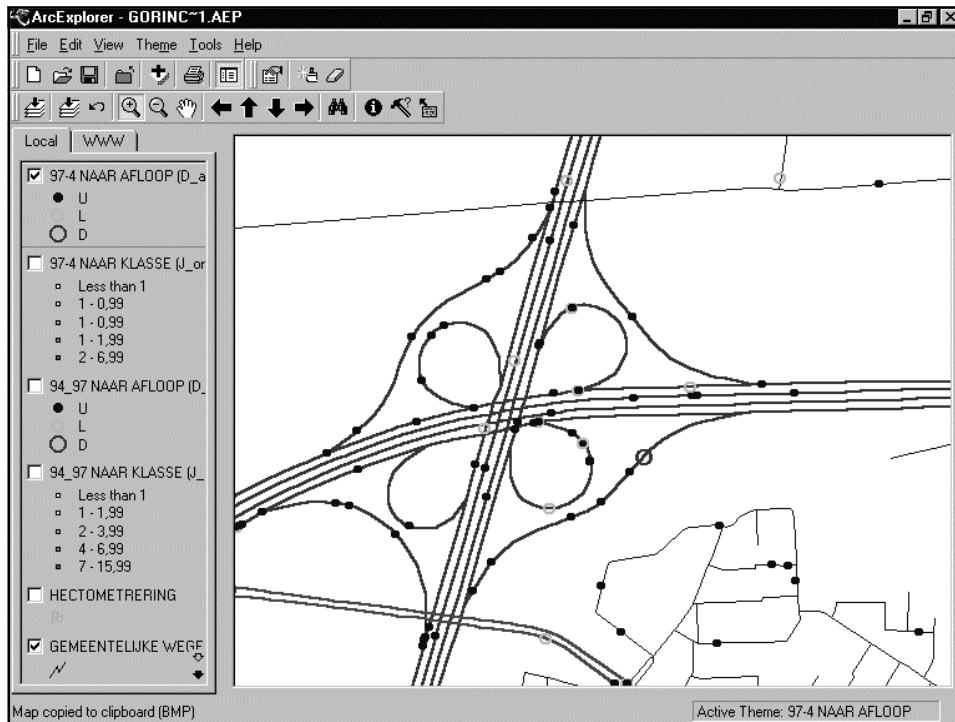
3. Controlling The Process

Estimated Real Amount Of
Traffic Accident Casualties (1997)

type of injury	AVV	Real Am.
fatal	1163	1163
hospit.	11718	20190
first aid	16794	104000
other injury	20604	203000
Totaal	50279	328353

Registratiegraad AVV
per Aard Letsel

%

100 — 100
90
80
70
60 — 58,04
50
40
30
20 — 16,15   15,31
10 — 10,15
0

DLK   ZKH   SEH   GOV   Totaal

Aard Letsel

Communication model

Ministry Of Transport

products | fl 10mln | feedback

Suppliers of raw materials | capturing advises; Q-info | **AVV/BG** | products; Q-info | **Clients**

traffic accident data | feedback

Conclusions

- The Ministry of Transport feels responsible for the traffic accident reporting system

- To ensure that the traffic accident data will be used, marketing techniques are used; The Ministry of Transport communicates with it's environment!

- To ensure that there is a high level of quality of the traffic accident data, the quality is an issue of communication with suppliers of raw materials, as well as with clients
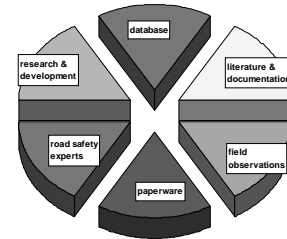
Appendix F   Presentation by Mr. Fred Wegman

Road Safety Information System

Of interest for South Africa?

Fred Wegman
SWOV Institute for Road Safety Research
1 December 2000

Information overload

- database
- research & development
- literature & documentation
- road safety experts
- field observations
- paperware

Questions of road traffic and road safety professionals

- What is available?
- Where to find it?
- Which conclusions can I draw?
- How do we perform, compared with ...?
- What can we learn from …?
- Etc.

The answers in the Netherlands

- Key information in the computer
  - ‣ Selected and explained
  - ‣ Validated and authorised
  - ‣ Uniform and qualified
- Information desk for other questions

Leading to:
- ‘Better’ use of relevant information
- ‘Better’ road safety policy

Unique advantages

- Integration of information from various sources
- Up-to-date information
- Deals with information relevant to policy
- The best information available (valid, accurate)
- Easy to us (one stop-shop)
- Tailor made for user
- Data + explanatory text
- Information desk

Dutch Road Safety Information System (RIS)

- The user is only two screens away from the information he wants
- First screen: all subjects are shown, from which one has to be selected
- Second screen: menu driven specification of the requested information

Organisation in the Netherlands

- Owner: Ministry of Transport
- Users: National, local road safety professionals
- Development & maintenance: SWOV *Institute for Road Safety Research*

Development & maintenance

- Proposals for contents
- Communication with users
- User training
- Building user interface
- Technical maintenance
- Information desk

Development & maintenance (SWOV)

Updating and improving the contents	15%
Maintenance of application	20%
Communication and training of users	15%
Information desk	10%
Extra activities (major improvements)	25%
Management	15%

International developments

- Integrated European Union information (high priority in recent progress report on road safety)
  - *CRASH*: Community Road Accident System Homepage
- Global Road Safety Partnership (World Bank)
  - Poland
  - Other countries

Conclusions

- A road safety information system is a very helpful instrument for road safety professionals
- Such a system should be built together with users
- Build a system based on a combination of data and 'knowledge'
- A road safety information system is a binding factor for the road safety community