

Terms of Reference for Road Safety

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Armenia: Technical Assistance for Road Safety

BACKGROUND

1. Armenia is at a critical juncture. In 1990 a democratic revolution brought to power a reform minded government and parliament, which is now proceeding with implementation of far reaching reforms. Meanwhile, however, the economy has contracted several disruptures due to the dissolution of the former Soviet Union (FSU), the war over Nagorno- Karabakh and instability in Georgia. Despite this extraordinarily difficult economic situation, the Armenian government is committed to reform and to establishing the appropriate environment and institutional framework for the development of a private marked based economy. The government recognizes the need to take action in the short run to establish the needed foundation for economic growth over the medium term. In fact, Armenia has surpassed other FSU countries in some areas of reform design and implementation. The development which is taking place brings hope of an accelerated economic growth in Armenia. A functional road network is a prerequisite for such growth.

2. Overall Armenia has a relatively good road infrastructure considering the present traffic. The sharp reduction of financial and key physical resources such as bitumen since 1990 has drastically curtailed road maintenance activities. As a result, parts of the interurban main road network are showing signs of distress and a major maintenance and rehabilitation backlog is building up. The urban road network in Yerevan and other large towns is possibly in even worse condition. Part of the highway network crosses high altitude mountainous terrain, commonly with steep gradients, deep cuttings and high embankments. The severe winter climate with frequent snow storms makes winter maintenance an operation of high priority in order to keep the roads open to traffic.

3. The road safety situation in Armenia is alarming compared to all Western European countries. Inappropriate driver's behaviour, lack of law enforcement and poor traffic management, in combination with deteriorating road conditions makes road safety a very serious problem. Traffic accidents have become one of the most common causes of death and injury and thereby an important negative economic and social factor that must be addressed. In addition to loss of human lives and personal sufferings encured, road accidents are a burden to the community due to funeral costs, the expenditures of medical treatment and the costs of repair of vehicle damages as well as administrative costs. It is evident that road accidents consume a significant share of the country resources and that measures need to be taken to reduce accidents and their consequences as soon as possible.

ROAD SAFETY ACTIVITIES

1. Formerly, until the end of 1989, the road safety activities have been coordinated by a Supreme Soviet Commission supervised by one of the deputy chairmen. Commission members were deputies from

- the Ministry of Home Affairs
- the Ministry of Transport and Communications

- the Ministry of Road Construction
- The Road Police

and on occasion representatives for other ministries and administrations. On district center level a corresponding commission was supervised by the District Soviet Chairman or his deputy. All laws and regulations established by the Ministry of Transport and Communications were strictly to be abided to by the other ministries who also had road safety departments within their structures. At present all these commissions have been uprooted and both the Road Administration and the Metro and Railway are now within the Ministry of Transport and Communications. There is an office responsible for road safety named Road Safety & Line Control Administration which is supervised by a unit for Road Safety Service within the ministry.

2. The road safety activities carried out by the Ministry of Transportation and Communication are

- training of drivers in traffic regulation annually including periodic instructions related to behaviour in traffic
- technical vehicle inspection
- traffic surveillance
- road inspection twice a year (mainly junctions, crossings and signalling)
- investigation of traffic accidents

The major problems relate to

- insufficient availability of vehicles equipped for inspection purposes
- insufficient availability of office accommodations and equipment
- lack of communication equipment in patrol cars and public inter-city buses for reporting

3. Within the Armenian Road Department (ARD) there is a Road Utilization Office responsible for road safety supervised by the deputy director of ARD. The main responsibilities of this office are

- installation and maintenance of road signs and signals, road rehabilitation and maintenance, activity planning and safety audit of road design
 - coordination of road safety issues in connection with road construction and law enforcement by the road police
 - participation in the planning of road network development, collection of traffic volume data and road accident follow up/analyzing
 - quality control of road maintenance, rehabilitation and construction activities
 - development of design standards for junctions in cooperation with municipal authorities
- Annual activity plans are based on the recorded road surface conditions and completed road design. Appraisal is based on previous performance. Records are kept regarding road safety black spots but resources for treatment of the black spots are limited.

The major problems, which the ARD is facing, are related to

- institutional transition
- insufficient training and lack of specialists
- lack of know-how and means for addressing road safety issues in connection with design
- lack of up-to-date winter road maintenance- and pavement rehabilitation/patching equipment
- lack of communication equipment

- poor availability of road signs

4. The responsibilities of the Road Police are

- road safety enforcement in general covering all ministries, administrations, enterprises, cooperatives and private companies.
- enforcement of road safety regulations in connection with road-, street-, junction- or any other construction work
- control of installation and utilization of road side furniture and equipment used for traffic regulation
- control of vehicle utilization, -design and -manufacturing
- control of road surface condition and condition of road side furniture in relation to road safety
- traffic regulation
- vehicle registration
- driver training, testing and licensing
- road accident registration and analyzing of data
- road safety promotion through mass media
- development and control of road sign manufacturing
- traffic surveillance and law enforcement

The main problems encountered by the Road Police are

- poor availability of equipment needed for law enforcement on the road
- lack of facilities and equipment for performing case diagnosis (stationary/mobile)
- poor availability of equipment and material for production of registration tags, license documents and road signs (paint included)
- poor availability of other up-to-date technical equipment and materials needed for road safety purpose
- lack of rescue equipment in case of accidents
- insufficient training of staff
- lack of office equipment and road safety literature
- insufficient funds for wages and salaries to staff

OBJECTIVES

Accident statistics show that Armenia is among the worst countries in the world. The existing bodies responsible for Road Safety issues are facing serious problems. It is most likely that the next few years will be ones of severe budgetary constraints, which will continue to affect the development of infrastructure, road safety included. Technical assistance is needed for establishing a long-term Road Safety Plan including short-term Activity Plans. These shall be based on proper road safety data and a general road safety survey to enable the addressing of the problems given priority in a Road Safety Policy . Technical assistance is also needed for institutional development eg. establishing an efficient organization, a central body, to monitor the activities of all the agencies to involve in the promotion of road safety. These agencies must be identified bearing in mind that the factors to be dealt with when addressing road safety issues are

- the human factor
- the vehicle

- the road infrastructure.

Assistance will also be needed for establishing a continuous accident data collection system and a up-dated accident data base available to all the agencies participating in road safety activities. The ultimate result of the technical assistance will be the Road Safety Plan, which identifies all major road safety problems including black spots, prioritizes the activities needed within the individual agencies to address the problems, defines the procedures and means for a proper road safety monitoring system. This system shall be based on follow up and reporting of agency achievements. The Road Safety Policy shall include general long term road safety targets as well as measurable midterm targets for road safety development. A National Road Safety Conference shall be arranged to raise the awareness of road safety issues and launch the road safety plan. The procedures of a road safety audit system shall be established to cover all road design for road rehabilitation as well as construction.

SCOPE OF WORK

The work shall be carried out in close co-operation with the Ministry of Transport and Communication (MOTC), other Ministries to involve (to be identified by the consultant), the Armenian Road Department (ARD) and the Road Police. The Road Safety Plan shall include a rough estimate of resources required and identify possible sources for financing, both local and foreign. The technical assistance shall focus on road safety as a pluridisciplinary and multi-ministerial activity. The consultant shall, based on prevailing conditions

- present a proposal for immediate implementation of an overall organisational structure for Armenia, to facilitate efficient management and monitoring of road safety improvement including a tool for the monitoring purpose.
- present a proposal for establishing an adequate computerized road accident data base, including procedures for accident reporting and registering as well as specifications for software required for accident data utilization. This proposal shall include a description of activities to be undertaken as well as an estimate of financial resources required.
- assist in establishing a Road Safety Policy for Armenia
- assist in establishing a Road Safety Programme on 5 year term.
- assist in identifying urgent Road Safety Activities to be undertaken covering
 - * legislation reforms
 - * law enforcement
 - * institutional development including twinning arrangements
 - * training and visits abroad
 - * driver licensing and vehicle inspection
 - * information to the public and specified risk groups
 - * road maintenance procedures
- perform a rough study based on available data to indicate the prevailing road safety situation including identification of specific trends.
- participate in arranging the National Road Safety Conference to launch the Road Safety Programme
- identify the requirements for road safety research and propose necessary arrangements for this activity.
- assist in identifying road safety black-spots

- assist in establishing a road safety evaluation/audit system for programming and design purpose (impact analysis)

TIME SCHEDULE

The technical assistance shall commence within 1 month from the agreement being signed and be completed within 12 months from the date of signing the agreement.

REPORTING

The consultant shall provide quarterly progress reports to the Ministry of Traffic and Communications as well as to the World Bank. A final report shall be prepared to cover the total assignment. This report shall include a summary of foreign assistance needed to achieve the road safety targets set within the frame of the Road Safety Policy and shall also include a proposal concerning sources of financing the Road Safety Programme, local as well as foreign sources.

RESOURCES

The consultant shall provide a team of experts within the field of road safety to supply the technical assistance headed by an experienced team leader. The consultancy costs are not to exceed USD 294.000.

Latvia: Accident Analysis and Design of Measures to Eliminate Accident Spots

Background

1. The road safety situation in Latvia is one of the worst in Europe, with 19.9 fatalities per 10,000 vehicles in 1995. The 22 percent decrease observed in recorded accidents between 1990 and 1993 was due to the 50 percent decrease in traffic. In 1994, the number of accidents increased by 10 percent when traffic increased again, following the improvement in the Latvian economy. In 1995, the number of killed decreased by 14.8 percent, while the number of serious accidents increased by 6.3 percent and the number of injured increased by 11.9 percent. The decrease in fatalities is generally attributed to the introduction of the mandatory use of seat belts at the beginning of 1995. The Government has begun to take significant steps to remedy the poor road safety situation and a comprehensive report is published annually to reflect trends in road safety.

2. **Cause of Accidents.** While the number of accidents caused by trucks (8.1 percent of all 1995 accidents) decreased by 61 percent between 1991 and 1995, accidents caused by cars (78.8 percent of all 1995 accidents) increased by 53 percent. Poor driver behavior, including disregard of speed limits and drunken driving, appears to be the main reason. The difference in operating speeds of Western and FSU vehicles and the poor condition of brakes or shock absorbers of some FSU vehicles often increase the severity of accidents. Police reports indicate an increase by 170 percent in car accidents due to speed violations between 1991 and 1994. In 1995, 56.4 percent of accidents caused by drivers were linked with high speed and 35.2 percent with alcohol.

Table 1: History of Road Safety Statistics in Latvia

		1980	1990	1993	1994	1995
Road traffic accidents		4717	4325	3389	3814	4056
Injuries		3894	4716	3721	4380	4903
Fatalities		653	877	670	717	611
Injuries	Per 100,000 capita	150	181	143	170	190
Fatalities	Per 100,000 capita	25	34	26	28	26
Pedestrian and other non-motorized user fatalities	(% of total)	NA ¹	43.2	47.7	39.1	38.6

3. **Location and Type of Accidents.** In 1995, the urban road network accounted for 74 percent of registered accidents, causing 62 percent of the injured and 43 percent of the fatalities; highways accounted for 26 percent of the accidents causing 57 percent of the fatalities. The number of accidents on highways decreased by 15 percent in 1995 compared with 1991 and the

¹ Non Available

level of fatalities reached its lowest level since 1989. The major types of serious accidents were collisions between pedestrians and cars (37.2 percent of serious accidents in 1995), collisions between cars (24.5 percent) and exit from the road (18.5 percent). Eighteen percent of the accidents accounting for 77 fatalities were partially caused by road conditions. By reaching the EU level of road safety, Latvia would avoid 300 fatalities a year.

4. **The LRSD.** The Government began to address road safety issues in a serious and systematic way in 1992 by establishing a Road Safety Directorate (LRSD), a semi-autonomous public entity reporting to the Ministry of Transport, to coordinate all road safety activities in Latvia. A modern accident reporting system was introduced at the beginning of 1995 and is used by the Traffic Police to record accident data. The LRSD staff enters accident data into a computerized accident analysis system (MAAP) to identify accident black spots and road safety evolution. The LRSD defines the requirements for obtaining drivers licenses, and promoted the enactment of mandatory wearing of seat belt or new speed regulations (50 km/h in cities and 90 on highways). It also prepares training programs for young children in close cooperation with the Ministry of Education. The LRSD is self-financing from penalties and fees from transport vehicle registration, drivers licenses, and vehicle inspection as a result of the vehicle registration and inspection system established in 1994. However, remedial measures that require civil works are financed from the LRA's budget and not from LRSD's.

5. A consultant consortium including the consulting firms Viatek and SweRoad has been awarded a contract, financed by EU Phare, to prepare the "Masterplan for the Maintenance, Development and Operation of the Road Network and Road Safety Program". Under these consultant services, the consultants will give an assessment of the road safety situation in Latvia and prepare a road safety improvement program, which would identify organizational and institutional strengthening that is needed in Latvia, including a review of legislation and law enforcement. The treatment of accident black spots (from selection of the proper remedial measure to economic evaluation of the treatment) is another field for which LRA and the LRSD need to develop their expertise, since it has proven to be a cost-effective way of reducing the rate of accidents.

6. The IBRD, the EU Phare, the Kuwait Fund and the Latvian Road Administration are preparing the Latvian Highway project for the construction season 1997-2000. This US\$ 61.8 million project will include civil works for US\$ 1.8 million for accident spot improvements and US\$ 4.3 million for the improvement of Road Safety conditions in Bauska and Iecava Region. The clients for the present Terms of Reference are the LRSD, the LRA and the local authority of the Bauska and Iecava Region.

Objectives

7. . The overall objective of these project components is to reduce traffic accidents by (a) defining and implementing civil works programs addressing the worst accident spots on the national road network, and the deficiencies of the traffic environment in the Bauska and Iecava Region, for which a Traffic safety plan has been defined in 1994; and by (b) enhancing the understanding of traffic safety situation in Latvia.

The consultant shall prepare: (a) an in-depth analysis of accident spots on national roads and of the traffic safety situation in the Bauska and Iecava Regions; (b) the measures necessary to address the problems identified; (c) the detailed technical design and bidding documents for remedial measures; (d) the supervision of the civil works; (e) the training, supervision and support of the Latvian counterparts throughout the preparation and implementation of the program.

Scope of Work

Accident Spots on National Roads:

8. National Roads are defined as the National Road Network that falls under the management of LRA and the sections of the same road network through cities that falls under the city administrations.

The Consultant's assignment includes to:

- (a) carry out a detailed review of existing accident spot lists;
- (b) identify the worst accident spots and prioritize accident spots by potential accident reduction and cost-effectiveness;
- (c) carry out a detailed analysis of each site and design cost-effective measures to rectify the problems, assess the expected accident reduction impact of the program;
- (d) establish in Latvia a computerized monitoring system to measure the actual impact of various remedial measures to accident spots and to determine the corresponding coefficient of reduction in accidents;
- (e) prepare complete bidding documents and cost estimates corresponding to the US\$ 1.8 million available for this component;
- (f) supervise the implementation of the program, in particular to ensure that the road safety impact is achieved and record thanks to the computerized monitoring system the actual impact of remedial measures.

Road Traffic Safety in the Bauska and Iecava Region.

9. A Traffic Safety Plan for the Bauska and Iecava Region was prepared by FinnRA in 1994. The plans covers in particular the traffic safety along the Via Baltica through the region. This project component is to identify, design and implement priority measures of the Traffic Safety Plans maximizing the accident reduction impact. US\$ 4.3 million are available for this component. The consultants assignment includes to:

- (a) review the Traffic Safety Plan and the accident statistics of the region and carry out detailed road traffic safety inspection to be able to select and design work to meet the project objectives.
- (b) assess the impact of the proposed activities in reduced accident, in cost savings, determine the rate of return for each activities, and review the prioritization of remedial measures

accordingly. Set targets for expected accident reduction and prepare a monitoring plan to enter impact data into the computerized system defined in black spot (8. (d)).

(c) carry out the detailed design, cost estimates and preparation of bidding documents following the World Bank Procurement Guidelines for all works, equipment or installations to be included in the project.

(d) supervise the works implemented in Bauska and Iecava region and collect impact data following the monitoring plan defined in (b).

Transfer of Technology, Cooperation.

10. Transfer of technology is an important project objective. With regard to planning, identification and design of road traffic safety measures, the transfer of technology will be incorporated throughout the project.

(a) The involved clients are expected to demonstrate their ownership and commitment to the project, and the clients' staff are expected to be deeply involved in all stages of the project. The bulk of the works (detailed design, bidding documents) will be prepared by the client's staff under the responsibility of the consultant. The consultant will advise, supervise and ensure the timely completion of the various activities. The LRSD shall be consulted for all matters relative to general targets, determination of priorities and proposal for the establishment of a monitoring system for road safety activity impact.

(b) Beyond this project, the clients are expected to be able to identify accident spot, to suggest various remedial measures, to perform economic analysis to select the most cost-efficient solution, to monitor the actual impact of the remedial measures and feed these data in a computer system set up by the consultant. To achieve such a goal, the consultant will need to work in close cooperation with the clients and prepare some specific training on how to perform such analysis.

(c) The consultant shall organize some specific training/seminars covering, e.g., major deficiencies in the traffic environment in Latvia, causes for accumulation of accidents in Black Spot locations, and any other as deemed necessary.

Time Schedule

11. The technical services shall commence within one month from signing of the contract and be completed by, 1997

Reporting

12. The consultant(s) shall provide the following reports

Resources

13. The consultant(s) shall provide

The client will

Supervision

14. The task manager is Mr Anders Bonde The assignment will be supervised by Mr Sven-Ake Blomberg, highway engineer

. The client will appoint.....

Lithuania: Technical Assistance for Road Safety

BACKGROUND

1. After gaining its independence from the Soviet Union, Lithuania suffered from severe budgetary constraints. The road sector budget decreased drastically, and only emergency road repair could be carried out resulting in an increasing backlog of periodic road maintenance. Following the Lithuanian Government's transformation policy, the road construction industry has been privatized and competitive bidding for works has been introduced. A recently established road fund has substantially increased the financing available for routine and periodic maintenance as well as road rehabilitation. 20% of the proceeds of the road fund is allocated for municipality roads and 1% for road safety development. Forecasts for funds to be collected into the road fund indicate an annual growth of some 30% for 1997 and 1998. The level of annual road fund financing by year 1999 is estimated to be some USD 120 million and would remain at this level. The Lithuanian Road Administration (LRA) has been subject to continuous review and development in order to improve its capability of providing a functional road network which is the prerequisite for an accelerated economic growth.

2. Overall Lithuania has an adequate road infrastructure considering the present traffic volumes but poor quality of bitumen, low standard of pavement design and deferred road maintenance have contributed to a rapid deterioration of pavements which is now being curbed. The total national road network in Lithuania is about 45,000 km. 21,109 km of the network is owned and maintained by the state. This network is divided into three categories: Highways (1,444 km), Regional Roads (3,408 km) and District Roads (16,257 km) and about half of the network is paved.

3. The road safety situation in Lithuania is poor by international standards, with 10 fatalities per 10,000 vehicles (1996), 3-7 times higher than in Western European countries with systematic traffic safety arrangements. Road accidents are likely to increase as economic activity accelerates unless road safety is radically improved. In cities the number of private cars is growing rapidly causing congestion and increasing the risk of accidents.

A Road Safety Council has been established based on a Government legislation in 1995. The Council is chaired by the Minister of Transport and consists of representatives for 7 ministries (vice minister level) and representatives for the Traffic Police, LRA, Vehicle Inspection and the Government. After the election of the new Government in the beginning of 1997 there has been one council meeting where the council got reorganized, took stock of the 1996 accident data report and discussed growing road safety problems in the municipalities. LRA has the function of technical secretariat for the Road Safety Council.

The Road Safety Fund (RSF) is managed by a council with 5 members representing LRA, MOT, the Traffic Police, the Technical University and the Association of Municipalities. The council is chaired by Gintaras Striaukas, Director General for LRA. The RSF has a budget of some USD 600,000 for 1997 and employs 2 permanent staff. Approximately USD 70,000 from the RSF is allocated to the Municipality of Vilnius City.

The responsibility for total coordination of road safety was shifted to LRA from the Department for Environment and Road Safety within the Ministry of Transport late in the summer 1997. LRA has started to get organized to take up the new larger duties. Gintautas Ruzgus has been appointed new Head of Traffic Safety Division but otherwise the division suffers from lack of trained staff. The main road safety activities of the LRA in addition to total road safety coordination are

- analysis of accidents (assisted by TRRI using MAAP and TARVA computer software)
- preparation of legal road safety acts and documents
- compiling and distribution of road safety information (propaganda)

There are 3 staff responsible for the handling of Road Safety issues in each of the LRA regions. The municipalities do not have trained Road Safety staff within their organizations.

4. The Lithuanian Road Administration, the World Bank, EBRD, EIB and NIB are carrying out a project providing for an increased level of maintenance of the road infrastructure (main roads, streets in Vilnius and Kaunas and bridges) over a three year period. The project called the Lithuanian Highway Project started in 1997. Among other components the project provides USD 12 million for the periodic maintenance of the East West Highway and sections of the Regional Road Network, USD 3 million for the Bridge Repair, USD 10 million for the Street Rehabilitation on the Municipalities of Vilnius and Kaunas City and USD 5 million for elimination of traffic accident black spots during a period of 3 years.

The project also provides technical assistance for coordinating and monitoring pavement research aimed at identifying optimum design and maintenance strategies, developing and procuring integrated vehicle-, driver- and accident data registers, developing the management and financing of county and minor roads and elimination of accident black spots.

OBJECTIVES

5. The objectives are:

- (i) to develop an efficient Traffic Safety Organization within LRA capable of coordinating and monitoring all activities within the Road Safety sector in Lithuania
- (ii) to improve the capability of the Municipalities to identify and respond to traffic safety problems
- (iii) to establish a safe traffic environment by reducing accident risk in rural and urban areas

SCOPE OF WORK

6. The work shall be carried out in close cooperation with LRA, the Municipalities of Vilnius and Kaunas City and all traffic safety agencies. The technical assistance shall focus on road safety as a pluridisciplinary and multiministerial activity. The consultants shall

- (i) take stock of the prevailing situation and trends by studying accident data and reviewing reports
- (ii) present a proposal for an overall organisational structure to facilitate efficient management and monitoring of road safety improvements including a tool for monitoring purposes
- (iii) arrange workshops to review and develop

- accident data collection and accident data registers for rural and urban areas
 - traffic legislation
 - design standards for rural and urban areas
 - road safety audit procedures (existing roads, design for new construction and rehabilitation)
 - quality of road signs and markings
 - planning procedures for land use taking into account road safety aspects
 - training and licensing of drivers
 - traffic surveillance and law enforcement
 - vehicle inspection
 - education of children in school and traffic safety information (propaganda)
 - emergency intervention
- (iv) advise LRA on how to organize the Traffic Safety Division
 - (v) advise the Municipalities of Vilnius and Kaunas City on how to monitor traffic safety
 - (vi) provide road safety training for the staff of LRA and the Municipalities
 - (vii) propose procedures for determining the principal risk factors having been the cause of fatal accidents and establish a road safety research program
 - (viii) review the current State Road Traffic Safety Program for 1997-2000 and assist in establishing a program for 1999-2003 (5 years)
 - (ix) assist in launching the new Road Traffic Safety Program at a National Road Safety Conference
 - (x) arrange study trips abroad to demonstrate best practices for local key personnel
 - (xi) advise on procedures for alternative financing of road safety development

TIME SCHEDULE

The technical assistance shall commence within 1 month from the agreement being signed and be completed within 18 months from the date of signing the agreement.

REPORTING

The consultant shall provide quarterly progress reports to LRA, the EU-Phare programme management unit and the World Bank. A final report shall be prepared to cover the total assignment. This report shall include a summary of the resources required to carry out the 5-year Road Safety Programme 1999-2003 and any future assistance required to ensure sustainability.

RESOURCES

The consultant shall provide a team of experts within the field of road safety to supply the technical assistance headed by an experienced team

Peru: Traffic Safety Study TOR

Study Objectives

1. The Government of Peru has embarked on a Transport Rehabilitation Project with assistance from the World Bank. Within the framework of that Project, consultants are required to (a) define a national traffic safety strategy and (b) develop an action plan focusing on the roads under the responsibility of the Ministry of Transport, Communications, Housing and Construction (MTCC).

2. A preliminary assessment of road safety in Peru suggests that there is an urgent need to address this issue. Available statistics indicate that over 50 persons per 10,000 motor vehicles are killed annually in traffic accidents, which ranks Peru among the high fatality rate group of developing countries. Furthermore, the annual increase in traffic fatalities between 1977 and 1987 was about 3.6 per cent in comparison with a generally declining trend observed in other countries where the awareness and commitment to improve road safety is high.

3. A number of shortcomings have been identified, which contribute to Peru's high fatality rate. They include:

- a) Most roads have inadequate traffic signs and pavement markings and lack safety features such as guard rails and Chevron signs.
- b) Speed limits are not enforced where roads pass through towns or villages, and there is no provision for speed restriction devices that would take account of the particular characteristics of the road (its type, classification, etc.).
- c) Technical control of vehicles is not implemented.

Despite the regulations on interprovincial passenger transport, drivers do not take nor qualify from a road safety course. Educational campaigns on traffic safety are carried out for urban but not for rural populations.

4. The overriding goal of the study is the development of (i) a comprehensive strategy aiming at a systematic and sustained improvement of traffic safety on urban and non-urban roads, and (ii) of a plan to start implementing that strategy. The objectives of the study are to:

- a) Define the institutional, physical, regulatory and financial aspects of a strategy which aims to reduce the loss of life, physical suffering and economic costs associated with traffic accidents.
- b) Formulate a 5-year program to implement that strategy in urban and non-urban areas, including an approach to institutional capacity building.
- c) Develop a plan of investments and actions to improve traffic safety on all roads under the jurisdiction of MTCC.

- d) Identify the most urgent non-urban investments and assist MTCC in procuring them with funding from the World Bank assisted Transport Rehabilitation Project.

Study Scope

5. To achieve the above objectives, the consultants will carry out all necessary reviews and analyses, including the following:

- a) Describe existing traffic safety conditions, in as quantified a way as possible, and identify problems and key issues; this would include an inventory of safety-related laws, regulations and institutions.
- b) Propose modifications of existing laws and regulations concerning traffic and vehicle safety, vehicle registration and inspection, and driver licensing; consider to achieve greater uniformity with international regulations like the Vienna Convention or the North-American Commercial Vehicle Safety Alliance (CVSA).
- c) Define the institutional framework within which the proposed traffic study strategy should be carried out. Provide the documentation required for the establishment of a National Road Safety Council to coordinate all actions and, if appropriate, an agency that would assist the Council as administrative and technical unit. Define training required. Assess the logistical needs and estimate budget requirements of the new institutions.
- d) Review current data collection practices and design a consistent national traffic accident data collection system. Define the approach for systematic data analysis (including identification of black spots) and reporting; select (from among existing packages) a Road Accident Analysis System and define its gradual implementation on a nation-wide basis.
- e) Develop a detailed action plan to implement, within a 1-2 year period, such a data collection and analysis system for the road network under the responsibility of MTCC.
- f) Define a program to improve traffic safety on the national road network through signing, road markings and installation of appropriate traffic safety features. While maximizing private sector involvement in this regard, estimate MTCC's needs to acquire guard rails and other safety-related equipment, including means of sign production. Estimate implementation and recurrent maintenance costs, and personnel requirements.
- g) Review the current system of vehicle inspections and safety controls, especially with regard to buses and other public transport vehicles. Make appropriate recommendations to make it more effective in reducing traffic accidents.
- h) Review the current system of licensing drivers and monitoring their record infractions, especially with regard to bus and other public transport drivers. Make appropriate recommendations to make it more effective in reducing traffic accidents.

- i) Define a strategy to improve traffic safety education through schools as well as other organizations and making appropriate use of such media as the press, radio and TV. Objectives and areas of such campaigns may vary considerably and campaigns may be integrated in law-enforcement actions to support them and increase their effect.
- j) Define a strategy to improve emergency services for accident victims, including emergency phone number(s) and services covering the national road network.
- k) Estimate the costs and benefits of the proposed traffic safety program and suggest options to fund it, possibly through road user contributions.

Study Coordination

6. The consultants will be report to the Unidad de Rehabilitacion de la Infraestructura de Transportes established by MTCC. They will regularly coordinate their work with the police, MTCC's General Directorate of Roads, municipal agencies (especially Lima) and other government or private organizations concerned with traffic safety. In this, the consultants should aim to (i) obtain all relevant information on the current traffic safety environment, and (ii) achieve agreement on the recommended strategy and action program with key decision-makers.

7. The Transport Rehabilitation Project involves the reconstruction of several trunk roads, the design of future road schemes, and a non-motorized transport component in Lima. The consultants should keep close contact with the teams responsible for these other activities and provide necessary traffic safety advice. For budgeting purposes, they are expected to provide one professional person-week per calendar month for that purpose.

Staffing

8. The draft final report is to be delivered 6 months from study commencement (see below). In addition to support personnel and survey staff, it is estimated that about 20 person-months of professional expertise will be needed for the study. That expertise would include, but not necessarily be limited to: (a) traffic engineering, (b) law, (c) enforcement, (d) public administration.

Reports and Time Schedule

9. The consultant shall prepare an Inception, an Interim and a Final Reports, in addition to working papers to be listed in the Inception Report. The submission of the key reports would be as follows:

- a) Inception Report: within 4 weeks of commencement of the study, the consultants should submit a report outlining the preliminary findings, proposed methodology and schedule for the remainder of the assignment. Formal government comments are to be provided to the consultants within 4 weeks from receipt of the report.

- b) Interim Report: within 13 weeks from the commencement of the study, the consultants should submit a report outlining the proposed overall traffic safety strategy and its 5-year implementation program, and contain recommendations on items (a) through (d) of paragraph 5 above (scope of work). Formal government comments are to be provided to the consultants within 6 weeks from receipt of the report.
- c) Draft Final Report: within 26 weeks from the commencement of the study, the consultants should submit their draft final report, documenting the findings of the entire study. It would include a possibly modified version of the interim report, taking account of the comments received from key decision makers. Formal government comments are to be provided to the consultants within 6 weeks from receipt of the report.
- d) Final Report: within 4 weeks after receiving government comments on the Draft Final Report. Comments on the Draft Final Report will be submitted within 3 weeks. Along with the Final Report will be proposed terms of reference for technical assistance required to further implement the recommendations of the study.

Uganda: TOR to Develop a Comprehensive National Road Safety Program

Background

1. The Government of Uganda, with financial assistance from various financial institutions and from bilateral arrangements has developed a 10-year road sector development program whose implementation has started. It is known that the road safety problems on the road network are serious. However, not enough is yet known about the scale and nature of the road safety problem nationally in Uganda. Technical assistance is required to carry out this task and to develop a comprehensive national road safety program designed to improve road safety and save lives. These terms of reference describe the work required.

2. The total number of vehicles using Uganda's road network increased from 50,000 in 1991 to 110,000 in 1996, representing an average annual growth rate of 24%. In addition, there is a large number of bicycles, pedestrians and animals using the roads. The number of newly registered vehicles per annum increased about four times from about 6,400 in 1991 to 25,200 in 1995. The increases in vehicular traffic took place with virtually no improvement in the capacity of both urban and rural roads. This has resulted in serious traffic congestion problems in urban areas, especially Kampala City, thereby increasing the incidence of road accidents. Records for the period 1990-1995 show a persistent increase in the number of road traffic accidents, increasing at an annual rate of about 20% in the last five years. There are 142 fatalities per annum. In addition, an estimated 1-2% of GDP is lost through road accidents. Road accidents are caused by a combination of human factors, physical condition and design features of the road, and the condition of the vehicles.

3. In Uganda, responsibility for road safety management is shared among a number of agencies, the most significant ones being: National Road Safety Council (NRSC), District Road Safety Committees (DRSC), Traffic Police, Transport Licensing Board. The NRSC is under Ministry of Works, Housing and Communications (MOWHC). It is the principal coordinating body for road safety activities in the country. It organizes workshops, seminars and campaigns with the aim of raising the level of safety awareness among road users and is responsible for conducting research on road accidents, identifying accident black spots and Liaising with road authorities for corrective measures. It also initiates and advises Government on appropriate traffic and road safety legislation and enforcement measures. The Traffic Police section of Uganda Police is under the Ministry of Internal Affairs. It is responsible for enforcement of traffic laws and regulations. In addition, it collects traffic accident data, inspects vehicles for road worthiness and participates in road safety education programs.

Objectives

4. The development objectives of the consultancy services are to enhance the efficiency of the administration, development and management of the classified road network as regards traffic safety and to improve traffic safety along sections of selected Class I roads.

5. The immediate objectives are to:

- a) quantify the scale and nature of the road safety problem in Uganda and to provide initial estimates of the annual cost of road accidents to the economy;
- b) review all sectors affecting road safety and develop a comprehensive, prioritized 3-year Action Plan for the improvement of road safety in Uganda;

Scope of Consultancy Services

6. To ascertain that the appropriate procedures and techniques are adapted in the agencies dealing with traffic safety issues, the project shall be carried out in close liaison with the agencies responsible for road safety, and Uganda engineers shall be trained, in identification of accident black spots and in preparation of remedial measures to improve road safety. The study shall cover road safety along the entire classified road network.

7. The Consultants will carry out a road safety study which includes the following four activities:

1. Assistance to MOWHC with review of the present situation concerning accident data collection, accident control and present practices and methods of traffic police enforcement on the whole classified road network with particular emphasis on sections of Class I bitumen roads. These reviews will include the following major activities:

- review available reports on accidents or on road safety;
- review existing procedures for collection, storage and retrieval of accident data and identify those issues requiring the most urgent attention;
- review existing practices in the MOWHC and Traffic Police offices in the districts of Kampala, Jinja, Mbale, Masaka, Mbarara and Fort Portal with regard to accident control in their districts and recommend improvements.
- review present practices and methods of traffic police enforcement on all primary roads and recommend improvements;
- perform road safety audits along Kampala-Jinja, Kampala-Masaka and Kampala-Entebbe roads including all main junctions, bottlenecks, access roads, signing, road marking, signaling and guide posts, and passage through towns and cities;
- review existing measures to protect the right-of-way;
- initiate data collection for the wide ranging review of road safety issues.

2. Review the traffic Police capabilities in enforcement and training:

- review the traffic policing capabilities including rescue, enforcement, . highway patrols;
- review police man power and training capabilities on aspects of traffic education, enforcement, highway patrol, vehicle worthiness inspection;

- identify the need for road worthiness inspection centers and draw up appropriate plans for setting them up;
 - identify appropriate equipment for accident rescue, enforcement and worthiness inspection.
3. Assess the awareness of road users on issues of traffic regulations and road safety:
- assess the awareness of road users on issues of traffic regulations and road safety;
 - draw up appropriate plans for driver education.
4. Preparation of a 5-year Road Safety Improvement Program, and a detailed prioritized 3-year Action Plan to address problems created by hazardous sections on all paved primary roads, comprising 1,881 km.
8. The broad review will include but will not necessarily be limited to the following sectors:

Road Safety Planning

- Accident data collection, storage and analysis,
- Accident blackspot improvement,
- Traffic composition and volumes,
- Motor insurance and traffic accident cost estimation.

Information

- Road safety publicity and propaganda.

Engineering

- Traffic engineering and surface transport planning.

Road User Education

- Driver training and testing,
- Traffic education of children,
- Traffic education of drivers

Enforcement

- Traffic policing resources, manpower and training,
- Vehicle regulations and testing,
- Pedestrian and cyclist safety.

Coordination and Financial Resources

- Road Safety and administration and coordination,
- Highway authorities,
- Emergency medical treatment of accident casualties

9. The study should identify deficiencies (in terms of road safety) in each of these sectors and should specify the actions required to improve road safety in Uganda. The conclusions of the study including findings from the road safety audit of the three roads should be presented as a 5-year road safety improvement program and strategy. A more detailed prioritized 3-year Action Plan with phased implementation and appropriate cost estimates should also be prepared by the end of the study. This plan should include physical requirements at actual hazardous locations.

10. The road safety audit study to identify the number of hazardous sections through accident black spot analysis and a benefit/cost analysis or proxy of the proposed investment for improvement of safety conditions at the identified sections on the three roads shall be carried out. The recommended investments may be included in the prioritized 3-year Action Plan for possible implementation under the proposed First Road Sector Project (FRSP).

11. The 5-year road safety improvement program as well as the 3-year Action Plan shall be formulated on the basis of measurable development objectives in order to ensure that real improvement has occurred by the end of implementation in term of institutional impact. The Consultant must develop suitable indicators of performance to show that these outputs have been achieved, by the end of the road safety program The Consultant is expected to produce working manuals and to provide training to counterpart staff so that they can continue road safety activities in their respective organizations during and after the plan period of the program.

12. The Consultant is required to associate with NGO's and other stakeholders, including the various Road User Organizations and Associations.

Consultancy Inputs

13. The Consultant is free to organize his resources as he wishes. It is estimated that approximately 30 man--months including expatriate and local resources will be required. Some indication is given below of the minimum qualifications and experience which are likely to be required by the Consultant's professional expatriate staff.

14. The Project Manager: in addition to defining and supervising the activities of other members of the Consultancy team, is expected to provide inputs towards establishing the accident data system, training counterpart staff and in monitoring/fine tuning of the implementation of the Uganda Road Safety Improvement Program to ensure that development objectives are met. In addition to holding a suitable post-graduate university degree, the Project Manager should be an experienced road safety expert with extensive experience of working in and managing Consultancy teams in developing countries on similar national road safety projects.

15. The Accidents System Specialist's main activities will be to adapt and install a microcomputer-based accident analysis system at Police and at MOWHC HQ and train counterpart staff on how to operate all aspects of it. He must be an accident systems specialist with a university degree or appropriate qualification and must be familiar with micro-based accident analysis packages and the techniques and processes necessary to adapt them to a country's specific needs. He should have experience of having worked in developing countries and of having carried out similar assignments before.

16. The Road Safety Engineering Specialist: is expected to concentrate on training MOWHC and NRSC staff in accident black-spot analysis and improvement techniques via a practical demonstration on one or all of the three roads. He will also during his assignment help to organs and participate as the lecturer in the initial in-service training course of about 30 people on traffic engineering and low cost road safety improvements. He should be an experienced traffic engineer with a university degree or equivalent professional qualification and should have a minimum of 10 years experience of working on similar traffic or road safety improvement assignments.

17. The main activity of the Police Enforcement Training Specialists will be to review present traffic police enforcement practices and activities and to recommend appropriate enforcement tactics, methods and techniques suitable for use in Uganda in order to improve the effectiveness of traffic policing along the classified road network. He will train pilot highway patrol units to operate along the Kampala-Jinja, Kampala, Masaka and Kampala-Entebbe roads and will assist in the preparation of course notes and teaching materials to enable improved traffic police courses for about 30 men and officers to be established. He should be a Senior Traffic Police Officer with a minimum of 10 years experience in traffic enforcement and should have previous experience of having carried out similar assignments in developing countries.

Timing

18. The study is expected to be undertaken over an 8 month period.

Reporting

19. Inception Report (5 copies) at the end of the first month outlining the workplan, strategy, methodology, and timetable for the listed outputs at the end of the study. Regular executive briefing reports will be produced to notify MOWHC of any delays/problems affecting the Consultancy input to the implementation program and formal bimonthly progress reports will be prepared and circulated to MOWEC, NRSC, Traffic Police and the World Bank, reviewing progress towards attainment of development objectives in each sector. Guidelines/working manuals will be produced wherever possible by each expert and these will include but not necessarily be limited to:

- Accident Analysis unit Working Manual on the data system;
- Guidelines on accident black-spots improvement for MOWHC engineers and NRSC; and
- Working Manual on Traffic Police Enforcement.

20. A final report will be prepared at the conclusion of the study, summarizing the work undertaken by the consultants, the development objectives for each sector in the three year action plan. In the final report, the Consultant shall make recommendation for the expansion of the safety program to the remaining sections of the classified road network, i.e. to include all bitumen and gravel roads.

Development Objectives and Required Outputs

21. Accident Costs and Prioritized Action Plan

Development Objective: The implementation of a wide ranging review of all the key aspects influencing traffic safety so that estimates of losses to the economy can be derived and a Prioritized Action Plan and strategy developed for the improvement of road safety in Uganda.

Output:

- a) Estimated cost of an average accident: average death, serious injury and slight injury in Uganda.
- b) Estimated annual loss to the Uganda economy.
- c) Report reviewing present practices and inadequacies in each road safety related sector.
- d) Five-year road safety program and investment strategy.
- e) Prioritized 3-year Action Plan.
- f) Recommendation for expansion of the National Road Safety Improvement Program to the rest of the classified road network.

22. Strengthening Safety Activities in the Road Agencies

Development Objectives: The establishment of improved institutional and technical capability within MOWHC HQ personnel with overall road safety improvement responsibility and Kampala, Jinja, Mbale, Masaka, Mbarara and Fort Portal Districts (6 No) to tackle road safety problems more effectively on their respective road networks so that existing hazardous locations can be systematically identified, analyzed and improved and future problems minimized.

Outputs

- a) Demo on selected points on one or all of the three roads to train staff and to identify, analyze and improve accident black-spots

- b) Establishment of regular problem and procedures/techniques for effective black-spot improvement.
- c) Appropriate programs for training engineers and technical staff of MOWHC Headquarters and in the districts on Road Safety and traffic operations in the classified road network.
- d) Staff drawn from each of the agencies responsible for road safety in Uganda given practical training in accident black-spots analysis and improvement.
- e) Written guidelines including procedures and course notes to provide a written source of reference for Uganda road engineers.

23. Accident Data System

Development Objective: The establishment of microcomputer-based accident data collection, storage and analysis system which permit the road safety situation to be thoroughly analyzed and accident black-spots and their characteristics to be identified for potential improvement by the MOWHC and Traffic Police.

Outputs

- a) New police accident data form and collection system.
- b) Accident locations systems and Ugandan staff trained to produce coded networks.
- c) Microcomputers, accessories and software installed at Uganda Police and MOWHC HQ.
- d) Accident storage and analysis systems established.
- e) Accident dissemination system established.
- f) Staff trained at Traffic Police and MOWHC HQ in all aspects of operating the system to meet their needs.
- g) Working manuals on the whole system and the procedures necessary to analyze the data to identify road users at most risk and to identify and improve accident black-spots.

25. Traffic Law Enforcement and Pilot Highway Patrols⁴

Development Objectives: The enhancement of traffic police enforcement capabilities along sections of the three roads listed above through the provision of specialist training, in order to encourage improved driver behavior, reduce congestion and improve traffic safety along the three roads patrolled by the proposed highway patrol.

Outputs:

- a) Miscellaneous rescue and enforcement, equipment in use by highway patrols identified.
- b) Police trainers trained in enforcement tactics and strategies.
- c) Highway patrol personnel trained in use and maintenance of enforcement equipment and enforcement tactics.
- d) Highway patrol officers trained in resource deployment and enforcement strategies,
- e) Highways patrol established along Kampala-Jinja, Kampala-Masaka and Kanipala-Entebbe roads.
- f) Training courses fully documented with course notes and instructions for trainers.

Data, Services and Facilities to be provided by the Client

25. The Client will provide:

- i) All available data and reports on road safety and accidents;
- ii) Liaison with other relevant agencies;
- iii) Professional counterpart staff.

Equipment and Supplies

26 The Consultant will make provision for the following items:-

- a) During the course of the study 2 Stakeholders Workshops for all Stakeholders will be conducted . A Provisional Cost of \$ 20-000 should be included to cover the costs of these workshops
- b) Three (3) 4 Wheel-Drive vehicles to be supplied to facilitate the consultant's local transportation and training during the course of study. A provisional sum of \$ 120,000 should be included by the Consultant to cover these items. On completion of the study these vehicles will

revert to the Client for continuation of the Road safety Programmes. The consultant should not allow for local transportation cost or purchase of any other vehicles in his financial proposal except for maintenance and fuel only.

c) Specialized equipment to cover training during the assignment will be purchased. The specialized equipment will include but not limited to:-

- Laser-guided Speed Detector Radar (3 Units)
- Alcohol detecting machine (1 Unit)
- Disposable kits for alcohol detector

The Consultant should include a cost of \$ 25,000 to cover these specialized equipment. On completion of the study these equipment will revert to the Client for continued use by the Police in traffic regulation.

d) Computer hardware and software

The Consultant should include a lumpsum cost of \$30,000 to cover the computer hardware and software packages to serve during the assignment's period and afterwards revert to the client for use in collection, processing and storing of data such as road accidents data.

- 2 No Desktop computers with scanners and printers, etc.
- Software e.g. MAAP

Ukraine: Technical Assistance for Road Safety

- 1. Background.** The Government of Ukraine, with the support of the WB and other donors, has commenced preparations for a proposed WB assisted project to preserve the Ukrainian national road network, and to increase the efficiency of road maintenance operations. For these objectives to be achieved and sustained, the roads sector needs to move from a system organized to service a command economy to one that is cost-based, efficient, and responsive to the needs of a market-based economy.
- 2. The Roads Rehabilitation and Maintenance project.** The proposed project is expected to provide for an increased level of maintenance over a three year period starting with the 1999 construction season. This project, called the Roads Rehabilitation and Maintenance Project, will provide among other components, about USD 200 million for Road Maintenance and USD 20 million for bridge repairs and renovation. It will also include an institutional reforms component and a road safety improvement component.
- 3. Road Network.** The national road network consists of 167,802 km of roads divided into: Federal Roads- 12,486, National Roads- 18,625, Regional Roads- 22,585, and Local Roads- 114,108, with hard surfacing on 69 percent of the entire public road network. The overall road network generally appears adequate for the present traffic levels. Since independence in 1991, financing available for road maintenance has declined, resulting in a buildup in deferred maintenance requirements and declining conditions of the road network. Also, quality control has been inadequate to assure good workmanship, and the use of inferior bitumen has contributed to the declining road conditions. If allowed to deteriorate further, the increased cost in terms of increased vehicle operating costs and highway reconstruction will be a major burden on the economy.
- 4. Road Institutions.** In September 1994, Ukravtodor, the Ukrainian Road Corporation, was established as a State corporation, with responsibility for both road policy and executive functions for road maintenance and construction. The new organization was created by transforming the previous Road Department of the Ministry of Transport into an independent agency reporting directly to the Cabinet of Ministers, thereby removing these functions from the Ministry of Transport. In late 1995, this action was partially reversed when Ukravtodor was put back under the Ministry of Transport. Ukravtodor remains as a State corporation with its own Board of Directors, with authority over all of the previous road organizations, including the 25 Oblast Offices, the several road and bridge construction organizations, the organizations responsible for the supply of road building materials, and the research and design institutes, some of which are in the process of being privatized.
- 5. Sector Problems.** The most serious problems facing the road subsector are the reduction in financing available for financing road maintenance caused by the slowdown in economic activity, and the need for improving the technical competence and institutional capacity of the road maintenance organizations. Financing for the national road network comes from a Road Fund financed by an enterprise turnover tax, a fuel tax, contributions from the central budget, and

miscellaneous smaller taxes and fees. While the Road Fund still provides a substantial level of financing compared to other CIS countries, the amount is substantially less than was available before Independence and only about 40 percent of what Ukravtodor estimates is needed to maintain the network adequately. Also, 85 percent of the taxes collected for the Road Fund are collected by the Oblast organizations, which leads to difficulties in allocating resources to the Oblasts based on need, and in the ability of the central Ukravtodor administration to exercise effective control of the Oblast operations. The Road Fund has recently been suspended, though it is widely expected to be reinstated with some changes in the means of financing it.

6. The technical and institutional problems include the lack of adequate inspection and enforcement of the road maintenance and construction standards. This is due in large part to the previous organizational arrangements that did not provide for separation of responsibilities between the construction companies and the institutions responsible for enforcement of the standards. This led to poor construction practices and inadequate materials, resulting in road surfaces of poor quality. Ukravtodor was aware of the need for an improved organizational structure, and an internal study was carried out in 1995 that led to the privatization of some of the construction companies. Also, repaving technology has not kept up with recent developments, the equipment used in the maintenance and construction work is often not up to an adequate standard, and the bitumen and other materials used are of inferior grades, leading to the need for more frequent resurfacing than should be necessary. Resolution of these problems holds the prospect of substantial improvements in efficiency in the use of Road Fund resources.

9. Objectives. The overall objectives of this project are to reduce transport costs through more economic road management, construction, and maintenance operations.

10. Traffic Safety: organization and performance. Another problem for the road sector is the poor level of traffic safety due to excessive speed, insufficient road markings and inadequate coordination between the various organisations with responsibilities in this area.

11. Responsibility for traffic safety in Ukraine is divided amongst a variety of agencies. Overall responsibility for the formulation of the national traffic safety program rests with the Traffic Safety Commission of the Cabinet of Ministers. The Commission is also charged with obtaining funding for the implementation of recommended measures. The implementation of safety measures on national and rural roads, regional roads, urban streets, and railway crossings are the legal responsibility of the owners of these facilities - Ukravtodor, the State Committee of Housing and Municipal Economy, the city departments for Housing and Municipal services, and the railway Department respectively. Both Ukravtodor and the State Committee for Housing and Municipal Economy have departments at the Oblast and regional levels which, amongst other things, undertake road safety development activities.

12. The State Motor Licensing and Inspection Department in the Ministry of Internal Affairs issues licences, registrations, vehicle inspection certificates, and maintains traffic accident records. Ukravtodor figures for traffic accidents indicate that despite lower traffic levels since independence, traffic accidents have not shown a downward trend, after a dip in 1993 (refer table I). The total number of motor accidents according to official figures, have been 40,000 or more per annum, resulting in an average of 7,555 fatalities annually (1991-96). The main victims have

been drivers followed by children. Ukravtodor, the main road agency, cites poor driver training, drinking and driving, high traffic speeds, and low regard for traffic safety precautions, as the leading causes of traffic accidents. **Table I**

	1992	1993	1994	1995	1996
Traffic accidents	46,615	40,759	42,252	43,152	40,088
No. of dead	8596	7,462	7,560	7,530	6,631
No. Injured	48,989	43,453	45,881	46,943	44,101

13. **OBJECTIVES.** The overall objective of this Assignment is to start the process of improving the road safety situation in Ukraine by reviewing organization and management, laws and regulations, financial and other resources, training and other issues, to establish and start implementing a realistic Road Safety Plan. More specifically the Assignment will aim to

- (i) describe the **present road safety situation** in Ukraine;
- (ii) assist in creating a **national road safety policy** for Ukraine;
- (iii) establish a long term **national road safety plan** and short term **activity plans**;
- (iv) monitor and assist in **implementing short term activity plans** (laws, law enforcement, education etc) ;
- (v) initiate the **institutional development** of an organization on national level to lead and coordinate the activities of all agencies involved;
- (vi) review the **organizations and road safety management** of these agencies;
- (vii) review the **accident data collection** system and introduce a computerized **accident data base**;
- (viii) assist in establishing measurable long term and mid-term **road safety targets** for each individual agency on national level;
- (ix) develop **procedures and tools for the management of all road safety activities and impact follow up**;
- (x) create a **road safety audit** system;
- (xi) raise the awareness and activity of road safety by arranging a **National Road Safety Conference**
- (xii) at an early stage identify **efficient road safety promoting measures and activities** to be carried out as part of a World Bank loan financed Highway Project:
- (xiii) transfer **road safety sector knowledge** on oblast- and municipality level;

14. **SCOPE OF WORK.** Road safety development is a pluridisciplinary activity working with the human factor, vehicles and the road infrastructure. This Assignment is initiated as part of the Highway Project but involves and will be carried out in close co-operation with all ministries and agencies involved in road safety. The Consultants' Services shall include but not be limited to:

- survey and recording the prevailing conditions;
- propose a revised organizational structure aimed to facilitate efficient road safety management and coordination;
- provide appropriate management tools;

- arrange workshops on national level to plan activities within each road safety sector;
- assist in establishing an adequate computerized road accident data base, propose system and procedures for accident reporting and registering and specify software required for evaluation of accident data.
- identify existing traffic accident trends and black spots on the road network;
- introduce a system for future identification of road safety black spots and for analyzing the impact of maintenance-, rehabilitation-, and construction activities on road safety;
- assist in developing a Road Safety Policy for Ukraine;
- assist in creating a 5 year Road Safety Plan;
- assist in identifying road safety activities to be undertaken covering
 - * legislation and traffic regulation
 - * law enforcement
 - * institutional development, including training and international cooperation with road safety authorities and research centers
 - * driver education & licensing and education of children
 - * public information
 - * vehicle registry, - safety regulations and - inspection
 - * assistance to road accident victims
 - * safe roads and road maintenance
- assist in arranging the National Road Safety Conference to launch the Road Safety Program;
- identify the requirements and propose arrangements for road safety research;
- prepare road safety audit check lists for proposed and existing road schemes;
- analyze the requirement of training for local staff, propose training arrangements including training abroad;
- widen activity to oblast level by arranging workshops covering individual road safety activities and initiating and assisting in the design of a short term road safety pilot project to be carried out and studied in the Chernigov oblast;
- draft a program of road safety activities to be implemented as part of a World Bank loan financed Highway Project.

The 5 year Road Safety Plan shall include an estimate of all resources, human, equipment, financial etc which are required to implement the Road Safety Plan.

15. PROJECT MANAGEMENT. For the successful development and subsequent execution of the Road Safety Action Plan it is important that:

(i) Initial planning, ownership and commitment. The person (s) responsible for each sector or subsector program of the project is deeply involved in defining and setting the limits for the tasks for which he will be responsible, setting the time limits for each identified step of the sector program and commits himself to the timely execution of the plan.

(ii) Project Management System. A suitable project management system shall be provided, adapted for this specific project and used to establish the Road Safety Action Plan and to assist the management to describe and in detail follow up the progress of each component of the program.

The management system shall generate monthly reports to be issued by the management, describe graphically the overall progress as well as the progress of each individual subcomponent against the set targets of the plan.

(iii) Equipment. An amount of \$ is earmarked for equipment to be used for this project and then left in Ukraine. The consultant shall propose priority equipment mainly to introduce new or better technologies than the existing.

(iv) Contingencies An amount of \$is earmarked for contingencies.

16. **TIME SCHEDULE.** The technical assistance shall commence within 1 month from signing of the contract and be completed within 18 months from that date.

17. **REPORTING.** The consultant shall provide following reports in 10 copies to the Client PIU and 3 copies to the World Bank

- (i) An inception report 6 weeks after commencements including a report of the existing situation, a revised detailed program for completing the study and comments on any issues that might substantially change or influence the successful completion of the study;
- (ii) A proposal for a program of activities which are suitable to be part of a World Bank loan financed Highway Project 4 months after commencing the assignment;
- (iii) Preliminary sector reports (eg. law enforcement, education, vehicle inspection and registration) within two weeks after each sector workshop;
- (iv) A proposal for a road safety pilot project suitable for implementation and studies in the Chernigov oblast within 12 months after commencing the assignment;
- (v) A draft final report within 18 months upon signing the contract ;
- (vi) A revised final report within 2 weeks after the draft report has been examined;

18. **RESOURCES.** The Consultants shall provide a team of experts headed by a very experienced team leader to perform the Road Safety Study and provide all equipment needed by the team.

19. The client will, free of charge, make office facilities available at Ukravtodor. The facilities will be provided with access to telephone and to facsimile, the user costs of which will be carried by the Consultants.

20. The financing available for the Assignment is USD 400.000. This amount is not to be exceeded.

21. SUPERVISION. The World Bank task manager for the Highway Project is Mr. Anders Bonde. This Road Safety Assignment will be supervised by Mr Sven-Ake Blomberg, highway engineer and road safety expert at the World Bank. The client PIU will appoint a road safety project coordinator to facilitate the Consultants' work with all Road Safety agencies in Ukraine.