

# **ROAD SAFETY ACTIVITIES IN A ROAD MAINTENANCE PROJECT: THE CASE OF THE WESTERN UGANDA ROAD MAINTENANCE CAPACITY BUILDING PROJECT**

by

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## **ABSTRACT**

*Projects that improve road networks should result in better roads. An expected benefit is that journey times reduce i.e. vehicle speeds increase and that there is more traffic using the roads. There is then a risk that the number of road accidents will increase as well as the severity of accidents because of the higher speeds. The Western Uganda Road Maintenance Capacity Building Project (WURMCBP), started in 1996 and funded by the British and Ugandan governments, provides technical assistance to the Ministry of Works, Housing and Communications (MoWHC) in the rehabilitation and maintenance of the gravel main road network in western Uganda. Its Community Participation component focuses on involving local communities and road users in the road maintenance system as stakeholders in the road network. The road safety programme within the Community Participation component comprises engineering and education activities. On the side of engineering, local communities through sub-county 'road committees' participate in pre-contract site visits where they are able to contribute valuable local knowledge on road safety and other issues. Sometimes this results in contract variations e.g. including a parking bay for the roadside periodic market. Road committee members also recommend stretches along the roads where footpaths should be constructed. Footpath improvements are subsequently carried out along some of the identified stretches.*

*The main element of the project's road safety programme has however been on road safety education. The first group targeted were the schoolchildren. Teachers from over 330 schools have so far been trained in an exercise involving the District Education Offices, the National Road Safety Council and the Police. The schools have been provided with flipcharts developed by the project. Lastly, the project has embarked on a road safety training programme for public transport operators. These are the most prevalent group of vehicle drivers and the major traffic increases on improved roads are for minibus 'taxis' and motorcycles. By undertaking these road safety activities, the project hopes to improve road safety as well as the road network in western Uganda. In addition it seeks to develop training materials and demonstrate an approach to improve road safety that can subsequently be used more widely in Uganda, a country with a poor record of road accidents.*

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## 1. BACKGROUND

In most road maintenance projects, activities concerned with road safety are normally focussed on engineering measures to increase road safety, and on proper road safety management by contractors engaged in road improvement and maintenance activities. But projects that improve road networks, encourages traffic on those roads to travel faster, hence increasing the number and severity of road accidents. Higher accident rates are not a legacy that road improvement projects would want to be remembered by.

The Western Uganda Road Maintenance Capacity Building project recognised this risk and incorporated a number of road safety activities within its community participation component besides undertaking the more conventional road safety engineering and contractor management activities.

## 2. CONTEXT OF ROAD SAFETY IN UGANDA

Since the late 1980s, Uganda has seen a tremendous improvement in its road infrastructure, particularly on the national trunk road network (about 9,600 km in length) and on the district road network (about 22,300 km in length). The major road improvements have been largely carried out under the national road sector development programme. Uganda has also seen an enormous increase in the number of vehicles on the roads as shown in table 1 below. The highest increases are for motorcycles and pick-ups and, overall there is a 50% increase over the 4 years.

**Table 1: Estimated number of vehicles on the road 1996-2000**

Type of vehicle	1996	1997	1998	1999	2000	%age increase 1996-2000
Trucks	9187	9850	11451	12801	13240	44%
Pick-ups	27365	33120	37199	41365	42443	55%
Buses	617	625	686	770	800	30%
Minibuses	13261	13400	15143	15272	15523	17%
Cars	35361	42000	46930	48392	49016	39%
Motorcycles	36994	48000	61044	63769	64305	74%
Tractors	2043	2100	2287	2427	2334	14%
Others	1386	1400	1424	1444	1448	4%
Total	126214	150495	176164	186240	189109	50%

Source: National Transport Data Base (NTDB) March 2000

Uganda is noteworthy for its high population of bicycles and more recently, of motorcycles. Two-wheeled traffic far outnumbers four-wheeled vehicle traffic in the 7 day trunk road traffic counts undertaken by the project in western Uganda. Average daily two-way bicycle and motorcycle traffic constitutes 68%-96% of wheeled traffic along the roads. Numbers of four-wheeled traffic range from 50 –250 vehicles per day on the roads covered by the project.

From 1990 to 1995, Uganda was ranked just below Ethiopia in having one of the highest accident fatality rates in Africa. The country had 161 fatalities per 10,000 vehicles as

compared to industrialised countries that have around 1-5 fatalities per 10,000 vehicles. Now the figure is halved as the vehicles on the road have doubled whilst the numbers of fatalities remain annually at around 1600 persons. Table 2 gives some of the national statistics over the last five years. Whilst the numbers of people killed per year has not changed much, there has been a very significant increase in the number of people seriously injured and in the numbers of vehicles involved. This constitutes a high cost to the country and its economic development. Road accident statistics for slight accidents and for motorcycle, bicycle and pedestrian accidents are also likely to be under-reported, particularly in the rural areas where reports of accidents may not be made to the Police.

**Table 2: Ugandan national road accident statistics**

<b>Accident category</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>Percentage increase 1996-2000</b>
Fatal accidents	1,269	1,365	1,273	1,312	1,438	13%
Serious accidents	2,760	2,400	2,661	3,674	4,606	67%
Slight accidents	5,106	4,792	4,162	6,696	8,340	63%
Total accidents	9,135	8,557	8,096	11,682	14,384	57%
Persons killed	1,594	1,575	1,579	1,527	1,678	5%
Persons injured	6,477	5,735	6,702	8,086	10,213	58%
Government vehicles involved	793	592	535	771	880	11%
Civilian vehicles involved	10,127	9,336	9,008	12,842	15,473	53%
Minibuses involved	3,764	2,721	2,384	3,440	4,562	21%
Motorcycles involved	763	911	989	1,666	2,407	215%
Bicycles involved	1,473	1,206	1,064	1,594	2,194	49%
Pedestrians involved	2,543	2,416	2,636	3,292	3,836	51%
Total vehicles involved	13,958	12,701	12,280	16,050	21,581	55%

Source: Police national statistics

Of those killed in road accidents in the last five years, 39% were pedestrians and 18% were pedal cyclists whilst only 6% were drivers. Table 3 details some of the road accident statistics relative to the estimated number of vehicles on the roads and gives averages for the five year period. Whilst the fatality rate has reduced, the injury rate has increased. If the minibuses involved in accidents were only involved in one accident each, then on average, 23% of minibuses on the roads are involved in one accident a year, according to the national figures. Likewise 8.4% of vehicles on the road are involved in

one accident a year (excluding pedal cycles). In the two years 1999 and 2000, nearly 29,000 vehicles were wrecked with, government drivers wrecking over 1,650. These costs are extremely high for a country such as Uganda to absorb and to accept. The main causes of accidents are overspeeding and reckless driving. This is largely attributable to poorly trained and indisciplined drivers, the commercialisation of transport services, drunken driving, unroadworthy vehicles and pedestrian carelessness.

**Table 3: Ugandan road accident figures 1996-2000**

<b>Accident category</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>Average over 5 years</b>
Fatalities per 10,000 vehicles	126	105	90	82	89	98
Injuries per 10,000 vehicles	513	381	380	434	540	450
Minibuses involved as %age of minibuses estimated on the road	28%	20%	16%	23%	29%	23.3%
Motorcycles involved as %age of motorcycles estimated on the road	2%	2%	2%	3%	4%	2.4%
Total vehicles involved as %age of total vehicles on the road	9.9%	7.6%	6.4%	7.8%	10.3%	8.4%

Source: Uganda Police statistics and National Transport Data Base

As far as road safety institutions and legislation is concerned, Uganda has a National Road Safety Council that is currently housed under the Ministry of Works, Housing and Communications and is the main statutory organ responsible for promoting road safety. However, it has very limited resources. The other Government bodies responsible for road safety are the Police, responsible for enforcement of traffic laws and the Ministry of Works, Housing and Communications is responsible for the engineering aspects of road safety. Road safety legislation is mainly covered under the Traffic and Road Safety Act of 1998 and there is no Ugandan Highway Code currently in use.

In 1996, at the start of the Western Uganda Road Maintenance Capacity Building Project (WURMCBP) there was very little recognition of the importance of road safety and very few organisations active in promoting it. As the project comes to a close in 2001, there are more organisations concerned and engaged in supporting road safety activities, within government, non-government and private sector. As carnage on the roads continues and the country pays a heavy social and economic cost, there is growing recognition of the need to combat the causes of road accidents.

### **3. THE WESTERN UGANDA ROAD MAINTENANCE CAPACITY BUILDING PROJECT**

The Project, jointly funded by the British and Ugandan Governments, is a technical capacity building project which supports the Ministry of Works, Housing and Communications (MoWHC) in the rehabilitation and routine maintenance of selected gravel main roads in western Uganda. The project covers about 1,000 km of roads that are

the responsibility of MoWHC Maintenance Stations in Fort Portal, Hoima, Masindi and Mubende. These maintenance stations cover most of Masindi, Hoima, Kibaale, Mubende, Kabarole and Bundibugyo districts. The project aims to strengthen the capacity of local contractor to undertake periodic and routine maintenance and to support the transfer of maintenance works execution from the public to the private sector.

The project has duration of 5 years, and started with an inception phase in 1996. The first implementation phase started late 1996 and the second one started in April 1999. The project will finish at the end of 2001 by which time it will have funded the rehabilitation of 675km of the gravel main roads. The project aims to improve road access in Western Uganda to the benefit of the local and national economies, and to poor people in the project area. It is expected to provide improved access to goods, services and markets, reduce transport costs and provide new employment opportunities for both men and women. It has a community participation/social development component. There are two main elements of the Project's community participation component; promoting community participation through 'road committees' and secondly, promoting safe roads and safe road use. The community participation component works in a participative manner with existing institutions, both local and national, so as to help to build their capacity and increase the chances of the activities being sustained beyond the lifespan of the project. The activities are supported by a part-time community participation specialist, a full-time community roads officer and a part-time road safety officer. As the programme has expanded, two more part-time officers have been taken on.

As far as the work with road committees is concerned, it was decided to establish road committees at sub-county level as a point of contact between the MoWHC and the local roadside communities and to involve them in the road improvement process. On average there is one sub-county for every 15km section of the trunk roads in western Uganda. The improved communications and response between all involved parties was so positive that the MoWHC decided to adopt the approach countrywide in 1999 for the national and district road network. Through the road committee approach, local communities are better informed of works on the roads and, recognising their stake in the road network, they are keen to monitor road maintenance activities and facilitate works where necessary. The road committees are party to some of the road safety activities promoted by the project. The following two sections outline the road safety activities carried out by the project. They comprise activities related to road design and furniture and secondly, to road safety education and awareness programmes.

#### **4. ROAD SAFETY ENGINEERING ACTIVITIES**

Within the project's road improvement activities, there are two principal ways in which road safety engineering improvements are made. The first is by improving on the existing road carriageway and design and the second is by improving or constructing footpaths along certain sections of the roads. The road rehabilitation contracts funded by the project, and carried out by contractors, allow only for rehabilitation of the existing gravel trunk roads that connect the main district towns. They do not allow for widening or realignment. Amongst the activities carried out by the local sub-county road committees, is the initial site visits along the roads to be improved. The visit provides a good opportunity for the MoWHC and project to learn from local people about the accident black spots and to incorporate measures into the road design that help to address local

needs and situations. For instance, road committee members advocated for a parking bay next to a roadside market and this was included into a variation order. The requirement for additional road signs such as schoolchildren crossing or cattle crossing is often identified. The site visits also provide an opportunity to identify stretches along the road which are unsafe for pedestrians such as areas where there is considerable pedestrian traffic, e.g. between schools and trading centres or on hills and sharp corners where pedestrians are unsafe to walk on the road. The MoWHC is then able to select stretches to improve or to construct footpaths to accommodate safety for pedestrians.

So far, the MoWHC with the project has identified and constructed more than 30km of footpaths in three districts. A further 30km of footpath improvements are planned covering other districts. The procedure used is to work with the road committees to identify a local community supervisor and to hire 12 local women and men to undertake the work. Hand tools are provided by the project for the work and the footpath width is generally 2 metres. Sometimes murrum is provided. The average output for the gang is one km per month based on a 5 short working day week and the costs are approximately US\$750 per km. Additional supervision is provided by a MoWHC roads overseer who checks on progress and makes the weekly payments. This is endorsed by the local road committee chairman. Sometimes the footpath improvements are made whilst the road rehabilitation contract is in progress, other times it is done afterwards. The MoWHC is now starting to take the lead from the project in carrying out the footpath improvements.

Traditionally, footpath construction/improvements are rarely included in non-urban road rehabilitation contracts. Yet, they are a cost-effective means of reducing pedestrian involvement in road accidents and are extremely welcome by the local roadside communities for non-urban application. Their children go to and from school during the busy traffic times and parents greatly appreciate the provision of footpaths that enables their children to comfortably walk safely to school, off the road. The roads improved under the project are the gravel main roads and the traffic is composed of through and local traffic so local residents unable to afford to travel in vehicles on the road may gain relatively few benefits from the road improvement. However, anyone can use a footpath, especially poorer people, and the footpath improvements are a real benefit to the roadside communities and very much appreciated. The 7 day traffic counts undertaken by the project along the roads selected for rehabilitation include pedestrian traffic. Average two way daily pedestrian traffic can vary from 160-980 and may be 2 – 20 times higher than the motorised vehicle figures. The project will be carrying out a review of the footpath improvement activities later in the year and taking steps to advocate including footpath improvements in other road improvement contracts and programmes in Uganda.

## **5. ROAD SAFETY EDUCATION ACTIVITIES**

### **5.1 Schools' Road Safety Training**

The main element of the project's road safety programme has been on road safety education. The first group targeted were the schoolchildren. The project's start in 1996 coincided with the advent of UPE (Universal Primary Education) in Uganda where the first four children from each household were entitled to free education. There was a dramatic increase in the numbers of young children on the roads attending school with very little regard for other traffic and its dangers. These were seen as the most important group of road users to target first partly because of the dangers facing them and secondly,

because they are the future generation of road users. The project developed and produced road safety training flip charts for use by trained teachers to teach children how to behave safely on the roads. They cover road safety in the rural context and their development was a consultative process with pre-testing carried out by teachers. During the training, two nominated teachers from each school close to the road are trained at an appropriate venue along the road. Teachers from over 330 schools have been trained so far in the six districts covered under the project and the programme has been conducted in association with the District Education offices and the Police. Table 4 below gives details of the teachers trained. If each school has an average of 500 pupils and the training has been extended to all the pupils in the schools, then road safety training will have been given to more than 165,000 schoolchildren so far. Each school has been provided with a flipchart and there have been more schools wishing to attend than have been invited. The project is now funding the production of more flipcharts, this time printed on cloth so as to be more durable and these will be made available for sale at cost price to schools and other institutions. Annex 1 gives an example illustration from the schools' road safety training flipchart. The project is about to carry out an external review of the schools' road safety programme to find out how useful and effective the training and materials have been effective.

**Table 4: Schools road safety training carried out by the WURMCBP**

District	No. of schools		No. of primary teachers		No. of secondary teachers	
	Primary	Secondary	Men	Women	Men	Women
Kabarole	88	20	140	111	25	13
Kibaale	71	15	117	69	24	8
Hoima	35	8	44	38	11	7
Masindi	41	5	36	44	6	4
Mubende	36	12	46	39	15	11
Total	271	60	383	301	81	43

Source: WURMCBP records

Besides the training of teachers and thus schoolchildren, the Project organised road safety competitions in 1998 with Ministry of Education staff for the schools trained along two of the roads rehabilitated in the Project area. The competitions helped to both reinforce the schools' road safety training as well as promote road safety amongst the wider community. However, the competitions consumed a lot of project staff time. It was hoped to make them an annual event. The national road safety week in December is more targeted towards vehicle drivers and comes at an awkward time for schools. Hence, in consultation with the National Road Safety Council and Education officers, it was decided to hold competitions in June, early in the second term. However, due to lack of project staff time no road safety competitions were organised in 1999 and 2000. It is hoped that some competitions and road safety events will be held this year that will involve more private sector and local government support. In addition, the project's Road Safety Officer and Transport Safety Officer have been involved in efforts to introduce road safety as an examinable topic into the primary school curriculum.

## **5.2 Public Transport Operators' Road Safety Training Programme**

In the traffic counts conducted by the Project for the rehabilitated roads, the most prevalent group of vehicles and the highest increase in traffic growth has been for minibuses and motorcycles, the main forms of public transport in rural areas. The driving

behaviour of these groups is also of considerable public concern as indicated by the letters and reports in the media. In collaboration with the Police and National Road Safety Council the project in 1999 embarked on developing a road safety awareness programme targeted at public transport operators to educate and encourage them to drive safely on the roads.

An initial study was conducted by the project to identify the transport associations operating in western Uganda, their membership and their road safety activities. A meeting was then held with representatives of the associations, traffic police from the districts and headquarters and district and national road safety committee representatives, to share ideas and experiences on road safety and to contribute to the development of the project's road safety awareness programme. Resource materials were identified and/or developed. Materials developed included posters with road safety messages, a booklet on road courtesy and two booklets on safety and vehicles.

The training programme was first piloted in Masindi and Hoima before being carried out in other urban centres in western Uganda. The programme consists of an initial one day workshop conducted for district local politicians with the objective of sensitising them on the importance of road safety, the project's road safety programme and the need for district initiatives and resources for road safety. Then follows a one day workshop for executive members of the transport associations in the district town to sensitise them on the importance of road safety, the proposed road safety programme and to better understand the operation of the associations and identify ways of strengthening their management. A three day training course is then held for 'road safety officers' and their assistants who have been nominated by the transport associations. Other invited participants include district police officers responsible for road safety.

As a result of the training programme, both Masindi and Hoima Districts have agreed to provide a district vote for funding road safety activities. The police and associations have started organising road safety education activities for members of the associations, utilising the methods suggested during the project's road safety officer training course. Masindi District it will provide financial support to their endeavours and the associations have even gained financial support from one of the oil companies as a result of their evident commitment and ability to organise road safety activities. Beforehand, relations and activities between the police and transport associations would be very limited. Traffic police might occasionally go to speak to the drivers, riders at the 'taxi' park or 'boda boda', motorcyclists and bicyclists stages on traffic rules and regulations and then be involved in dealing with traffic offenders.

The road safety programme for public transport operators is now being replicated in other districts of western Uganda and continues to involve the Police from Kampala, the National Road Safety Council, national transport association representatives and the insurance sector. The programme is generating a very positive response from all who are involved in it. It has been important to work in partnership with the transport associations which up to now have had access to very few materials or resources to improve on road safety attitude of their members. If the driving behaviour of minibus drivers and 'boda boda' motorcycle and bicycle riders is to be safer, then the associations must play a major role in enforcing and encouraging such behaviour amongst their membership. The bicycle and motorcycle operators are generally youths with little other opportunity for employment. They seem to be very enthusiastic about the programme and ready to take

more responsibility and action on promoting road safety amongst their associations' membership. It is hoped that the training materials developed and the approach being used will be adopted and utilised beyond the lifespan of the project, and outside the project area.

## **6. CONCLUSION**

Road safety is something that concerns everybody. Anyone can potentially be involved in an accident or be affected by a road accident. The costs of road accidents to a country such as Uganda are extremely high both in economic and social terms. Yet the resources allocated to promoting road safety, especially road safety education are minimal.

Working with the national organisations responsible for road safety, the Western Uganda Road Maintenance Capacity Building Project has been able to develop and carry out a road safety programme for all schools along the trunk road network in five districts. It has supported the construction of footpaths along stretches used by many pedestrians which has been greeted extremely favourably by local residents and most pedestrians now use the footpaths. Rarely is there provision for footpaths on roads outside urban areas yet many people on foot use the roads, whether going to school, markets or work. The project is also in the process of encouraging better driving behaviour by public transport operators who probably constitute the majority of drivers/riders on the trunk roads. Funding for all these activities is about 1% of the overall cost of the project.

Given the scarcity of resources being allocated for road safety in many developing countries, and given the significant sums expended on road maintenance/construction projects it would seem a useful development if such projects could incorporate more road safety awareness measures into their activities. Otherwise, as vehicle fleets increase and roads are improved, the risks of higher numbers of accidents occurring are greater unless more measures are taken to educate road users and to cater for the many non-motorised road users.

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