TRANSPORT RESEARCH LABORATORY

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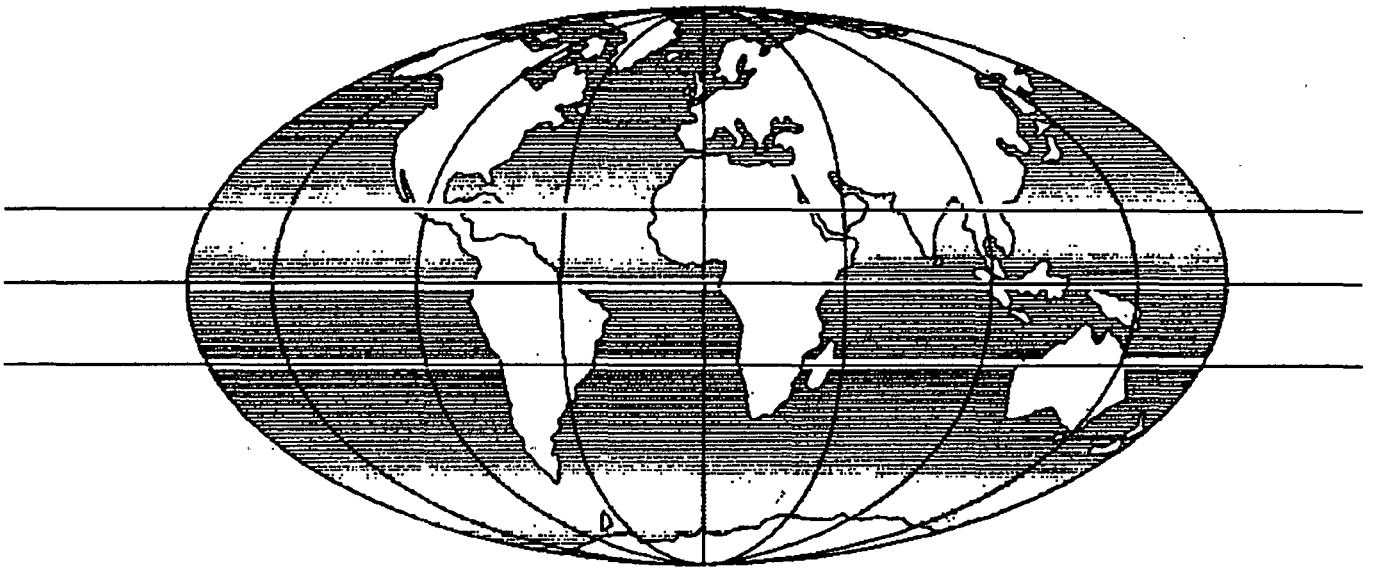
TITLE **Driver training in Africa - The UN - ECA driving manual**

by **A J Downing**



Overseas Centre
Transport Research Laboratory
Crowthorne Berkshire United Kingdom

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DRIVER TRAINING IN AFRICA - THE UN-ECA DRIVING MANUAL

1. INTRODUCTION

It has been demonstrated earlier in this Congress that African countries have a very serious road accident problem. For example fatality rates per vehicle registered on the road are usually between 20 to 30 times higher than those of developed countries.

As driver error is always the most common accident cause identified by the police it would seem likely that improvements in driver training have some potential for accident reduction. Also the introduction of a manual for drivers and instructors which lays down an agreed system of driving is a logical first step to raising driving standards and harmonising them regionally in Africa. To work towards meeting this requirement, the United Nations Economic Commission for Africa (ECA) has developed a guide for heavy goods vehicle (HGV) drivers with the assistance of the Transport and Road Research Laboratory (TRRL), UK. This guide represents the first phase of the ECA's African Highway Code initiative.

The development of the guide including the background to it and the results of trials in Cameroon and Zimbabwe is the main subject of this paper. Other training improvements are also considered and the paper concludes by making some broad recommendations for the future.

2. THE NEED FOR DRIVER TRAINING IMPROVEMENTS

In most countries it is normal for the police to blame at least three quarters of the road accidents on road users. A more detailed breakdown of causes given in Table 1, indicates that it is usually the driver who is held responsible and, in all but one of the four countries, driver error was considered to have been the main cause in close to 70 per cent of the reported accidents. It should be noted that there may be some bias in the police statistics in that the police reports may underestimate the role played by such factors as poor road design because the police investigate the accident with prosecution in mind. Nevertheless, even if other factors have contributed to the accidents it is clear that in a very large proportion of them, one or more driver errors were committed. This in turn suggests that there is some scope for reducing drivers' mistakes by improving the training of learners or qualified drivers.

Comparisons between developing and developed country police statistics do not reveal any marked differences between the pattern of road accident causes. However, an international study of driver behaviour (Jacobs, 1981) indicated that drivers were less disciplined in developing countries. For example, in Nairobi only 16 per cent of drivers chose to stop for pedestrians on an uncontrolled crossing compared with up to 72 per cent in Great Britain. Similarly, results from observations carried out in Egypt (see fig 1) indicated poor driver behaviour at major road junctions and, perhaps more worryingly, they demonstrated that the professional drivers were the worst offenders with thirty per cent of bus drivers failing to give way.

TABLE 1 CAUSES OF ROAD ACCIDENTS

Causes	Percentage of accidents				
	Kenya (1986)	Malawi (1987)	Swaziland (1983)	Zambia (1983)	Zimbabwe (1988)
Driver error	44.7	65.7	72.4	60.4	71.3
Pedestrian error	27.4	13.2	5.2	14.4	11.7
Cyclist error	4.9	-	3.7	-	1.8
Drinks/drugs/ fatigue etc	1.8	1.0	3.3	1.2	3.2
Road/weather conditions	1.8	4.8	1.0	0.7	0.1
Mechanical fault	6.1	6.3	9.6	5.8	4.4
Other (Passenger, animals)	14.7	8.9	4.8	8.5	7.5

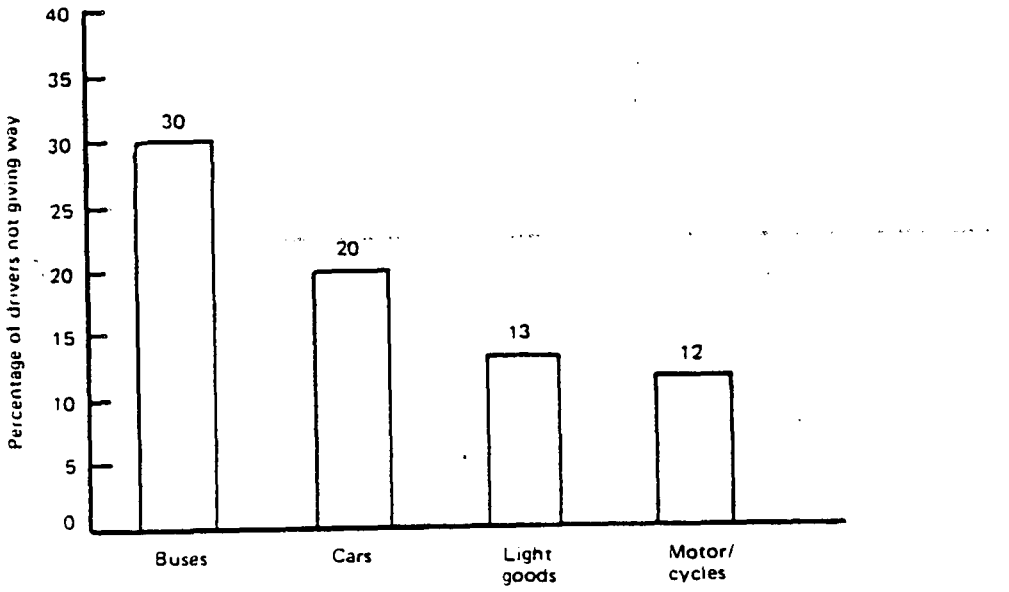

Figure 1 Driver behaviour: drivers not stopping or giving way to traffic on the major road (Egypt, 1986)

Clearly it is difficult to generalise such findings to the whole of Africa from so few observations. However they imply that there is a need to raise driving standards and this is supported by the results from mutiple choice knowledge tests given to professional drivers in Cameroon and Zimbabwe. From Table 2 it can be seen that, in Zimbabwe, drivers scored fifty per cent or more correct for four out of the five topics tested but they were poor at the questions on safe following distances. In Cameroon the drivers generally did less well than their counterparts in Zimbabwe and from the interviews it was clear that drivers in Cameroon were often less well informed than those in Zimbabwe.

The problems of driver error and poor driver behaviour and knowledge illustrated above must be, to some extent, a consequence of inadequacies in the driver training provided. In Africa as a whole, the methods and procedures of driver training and testing have often not kept pace with improvements in developed countries. For example many countries do not test or monitor their driving instructions nor is there a manual for drivers or instructors. There is then considerable scope for raising driving standards in Africa by improving driver training. However the improvements to be considered must be appropriate for the drivers abilities and conditions prevailing in Africa.

Topic tested	Number of questions	Average percentage correct	
		Cameroon	Zimbabwe
Night driving	11	58.2	62.7
Turning left/right	8	47.5	60.0
Control questions (mixed topics)	8	47.5	58.0
Stopping distances	7	38.6	50.0
Following distances	4	27.5	32.5
TOTAL	38	46.6	56.3

TABLE 2 TRIALS OF DRIVER TRAINING BOOKLETS: KNOWLEDGE TEST SCORES

3. DEVELOPMENT OF THE GUIDE FOR HGV DRIVERS

3.1 Background

In the early 1980's the United National Economic Commission for Africa (ECA) proposed the production of an African Highway Code as a first step to raising standards of road user behaviour and improving road safety. The ECA prepared a comprehensive outline of the code and this was officially endorsed by the African intergovernmental highway organisations. Thereafter the ECA approached the Transport and Road Research Laboratory (TRRL) for assistance and its Overseas Unit agreed to help with the production of the code.

After reviewing the outline and discussing the proposal with representatives of African countries, the Unit opted to develop a series of guides for different groups rather than a single comprehensive booklet. The reasons for this were as follows:

1) Most African countries already had comprehensive highway codes.
2) Although these codes were aimed at all road users, in practice they were usually only read by learner drivers applying for a licence. Therefore the benefits for other groups were likely to be minimal.
3) Individual guides prepared and targeted at specific groups were likely to be more effective in raising standards of knowledge and behaviour than a multipurpose code.

Having opted for a modular approach, the Unit agreed with the ECA that for the first phase of the African Highway Code work it would develop a guide for heavy vehicle (HGV) drivers. This target group was chosen because:

1) It was a clearly identifiable group of drivers who were relatively easy to communicate with through fleet operators and their associations.
2) It was an important group economically and goods vehicles accounted for a reasonable share of the traffic in Africa. For example from fig. 2 it can be seen that, on average, medium and heavy goods vehicles represented twelve per cent of the vehicles registered on the road. However their share of the traffic is celarly higher than this, possibly around six per cent higher according to the Kenyan statistics, and if one includes all goods vehicles then the group is likely to account for over fifty per cent of the traffic on African roads.

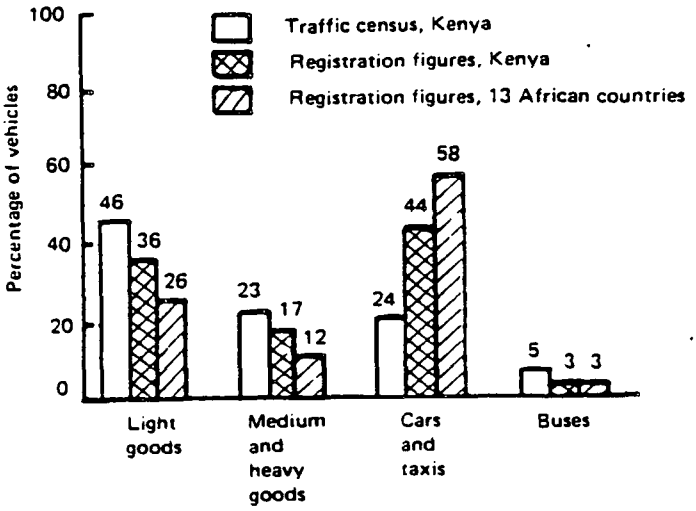

FIGURE 2 Vehicle population and traffic composition, Kenya.

3) Drivers of goods vehicles were involved in a significant proportion of road accidents. From figure 3 it can be seen that these vehicles were involved in just over a fifth of all road accidents in Zimbabwe and just over a tenth in Botswana. However, for fatal accidents the figures for goods vehicles were up to ten per cent higher and not surprisingly the consequences of accidents involving trucks were clearly worse than those involving lighter vehicles.

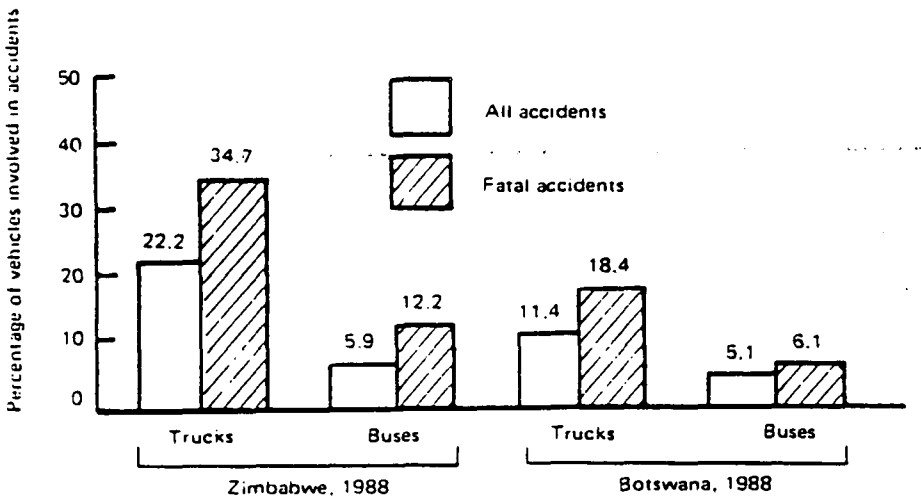

FIGURE 3 Accidents involving trucks and buses

4) A large number of HGV drivers operated across national borders and therefore an international driving guide was more appropriate to this group.

3.2 Objectives

The objective of the guide is to provide and explain a standard of driving and related matters which will lead to the following benefits.

1) Improved driving standards
2) Improved instruction standards
3) Increased harmonisation of driving and instruction standards throughout Africa.
4) Fewer road accidents.

It is aimed at both learner and qualified drivers who are literate and it is being produced in two versions; one in English with a drive on the left system and the other in French with a drive on the right system. To try and ensure that the guide will be appropriate for the target groups it has been developed to meet the following criteria.

1) Easy to read. The average reading age level of the English language version is about nine years compared with over thirteen for typical highway codes.
2) Well illustrated. Wherever possible, illustrations have been provided to help explain the advice given. The types of pictures chosen were based on the results of pilot testing a series of booklets on professional drivers in Cameroon and Zimbabwe (see 3 below).
3) Comprehensive. The content of the guide is comprehensive but a balance has been struck between presenting the most important and relevant information and the need to keep the guide as short as possible.

Also, the guide has gone through two evaluation stages prior to its forthcoming publication and distribution to African countries. The first of these was a series of trials with a short six page booklet (see 3 below) and the second was the reviewing of colour photocopies of the complete draft by African countries and expert groups. The guide is currently going through this latter process and comments are being collected. When these have been received the final version will be completed and distributed to African countries free of charge.

3.3 Trials of extracts from the guide

To examine the usefulness of the approach used in the guide, 529 professional drivers in Cameroon and Zimbabwe were given a small booklet on four topics extracted from the guide. Before reading it they were given a series of tests and interviews which were repeated again after they had finished reading the booklet. The details of these tests and the order they were given is shown in Table 3.

1. Comprehension test (CLOZE)
2. Knowledge test (multiple choice)
3. Driving test (Zimbabwe only)
(Drivers read the booklet - up to 30 minutes allowed)
4. Knowledge test (same multiple choice)
5. (Drivers read the training booklet - up to 30 minutes allowed)
6. Interviews (to assess opinions)
7. Picture ranking test (helpfulness of different types of picture)

TABLE 3 TESTS GIVEN TO DRIVERS IN CAMEROON AND ZIMBABWE

In both countries the drivers knowledge scores on these tests improved by thirteen per cent after reading the booklets and from Fig. 4 it can be seen that the biggest increases were for the questions on following distances. All of this improvement can be attributed to reading the booklet as there was no significant change in the answers to the "control" questions on which no advice was given.

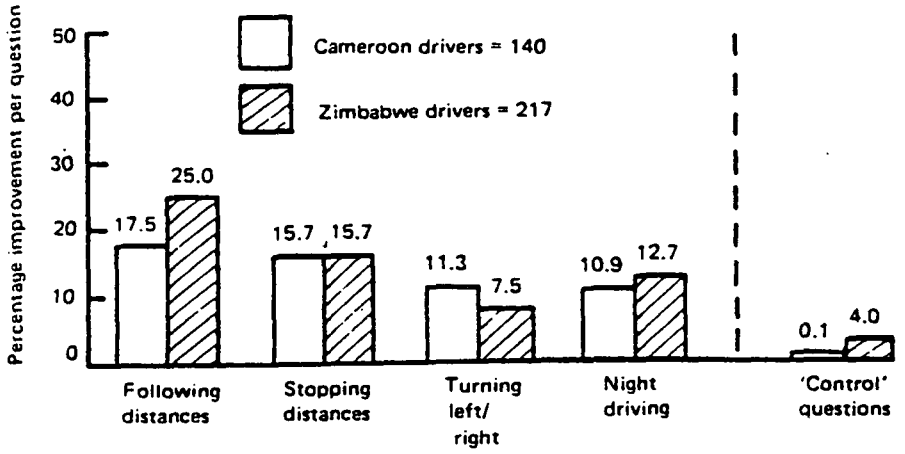

FIGURE 4 The effect of reading the driving booklet on knowledge scores

Reading the booklets also resulted in significant improvments in driving test performances with an overall reduction of twenty eight per cent in errors made. Fig 5 shows that, as with driving knowledge, following distance was the topic most affected and faults such as following too closely were reduced by half. In the case of the driving tests there was some improvement in other "control" faults assessed, ie there was some reduction in errors made which did not relate to any advice given in the booklet. This reduction was not statistically significant but it implies that some of the overall improvement on the second test could have been due to practice and increased familiarity with the route.

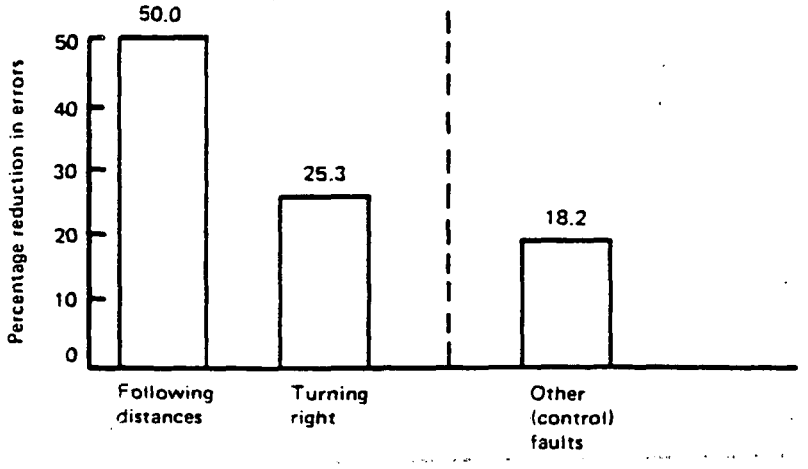

FIGURE 5 Driving test improvements resulting from reading the booklet (Zimbabwe, drivers = 160)

The tests given to the drivers also revealed that different types of illustration and the amount of colour used seemed to have little effect on knowledge but the drivers on the whole preferred the following:

1) Line drawings rather than photographs of either models or real life situations.
2) Full colour rather than two colour.
3) Through the windscreen views rather than side or overhead (plan) views.

Overall the drivers reaction to the training booklets was very positive and less than one per cent rated them as not useful. Therefore, in conclusion, the trials results indicate that the guide has considerable potential for raising driving standards. However, it is only a first step and on its own it will not be sufficient to bring about change. Other training improvements are also required and some of these are outlined in the next section.

4. RESOMMENDATIONS FOR THE FUTURE

4.1 New Drivers

Intuitively it would seem easier to raise driving standards by concentrating first on the new drivers rather than on the existing drivers whose habits may have become resistant to change. Therefore it is recommended that priority is given to improving the training of all new drivers and the first step should be the production of a driving manual. Possibly the ECA guide for HGV drivers could be used as the basis for national driving manuals as much of the advice given also applies to other groups of drivers. Such a manual would set the driving standards for learners, instructors and driving examiners.

In many African countries it is also necessary for the quality of perofessional instruction to be improved and for more learners to be encouraged to use professional instructors. In systems where learners are free to choose how they learn to drive, they will generally buy only the minimum training required to pass the test. Therefore it is important that the driving test demands a high standard of driving especially for the practical "on the road" assessment.

Also the training, licensing and monitoring of instructors can be further improved in many African countries. In particular it is recommended that driving instructors should be able to drive to a higher standard than ordinary drivers and also that they should be able to teach effectively. Regulations should concentrate on these last two criteria rather than on others such as the level of classroom facilities driving schools can provide.

4.2 Existing drivers

It has already been demonstrated that there is a need to provide more advice and guidance to qualified drivers. The guide for HGV drivers is a necessary step in the right direction but it is unlikely to be sufficient as there may be little incentive for drivers to read it. Many organisations in Africa do provide some form of advanced or refresher driving training courses, for example the Zimbabwe Traffic Safety Board (ZTSB) runs defensive driving courses for professional and non-professional drivers. However studies of the effectiveness of such courses have failed to provide conclusive evidence of accident savings.

The ZTSB has reported some success with their courses (Sandwith, 1980) and the analysis of the company's accidents (see fig 6) showed a large drop in accident rates after drivers had attended the course.

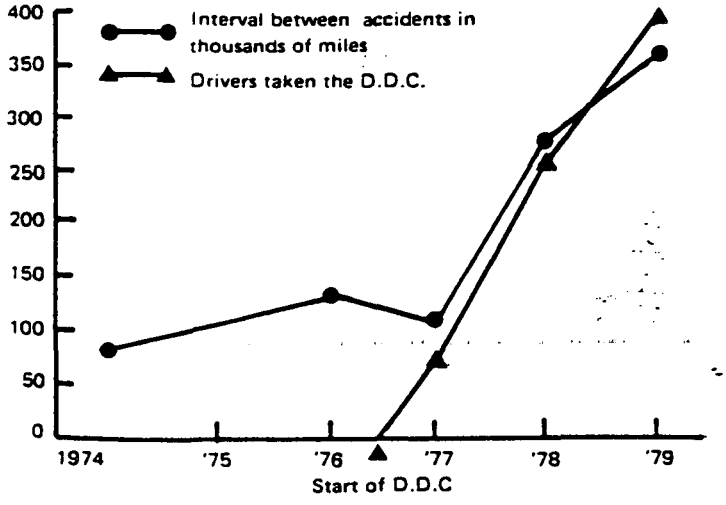

FIGURE 6 Accidents and the defensive driving course in Zimbabwe

However a study of a one week retraining course for bus drivers in Pakistan (Downing, 1988) failed to demonstrate any accident savings after training (see fig 7). Indeed the trained drivers seemed less safe than the untrained drivers. This difference was due largely to the company's policy of selecting their oldest and least able drivers for retraining thus leaving their best drivers out of the courses.

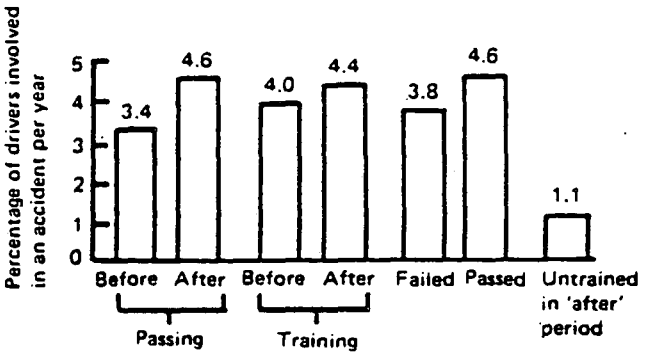

FIGURE 7 Driver retraining and accidents in Pakistan

Although the course did not reduce accidents it did improve the drivers knowledge by thirteen per cent and reduce driving errors by sixty seven per cent under test conditions. However it had little or no effect on the drivers' behaviour when they were observed unobtrusively and the bus drivers clearly returned to their old habits when driving in normal conditions. Thus the Pakistan study highlighted the importance of the need for drivers to be motivated to raise their standard of driving. Therefore to change driver behaviour generally it is clear that retraining on its own will not normally be sufficient and it is recommended that such courses are integrated with incentive schemes and, if necessary, enforcement campaigns.

Also, it seems likely that the resistance to change was greater in Pakistan because only a small group of about five hundred drivers were involved. If such resistance does exist generally then not only are integrated packages of measures required but also they need to be aimed at the majority of drivers, both new and old.

5. ACKNOWLEDGEMENTS

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