DEVELOPING ROAD SAFETY AUDIT EXPERTISE IN THAILAND

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Abstract: Benefits of RSA are well documented, guidelines are available in Australia and Britain. RSA benefits the community through the prevention of road crashes. It also helps raise awareness of the importance of road safety in design, planning and construction practices. Thai Society for Transportation and Traffic Studies had the foresight to recognise this and with assistance from Yontrakit Intersale Company have prepared a strategy for introducing RSA to Thailand. Central to this strategy is to ensure that the expertise was available and sustainable while utilising international expertise in the establishment of the processes and guidelines. Implementation plan includes:

- promotion of RSA to road organisations
- international accreditation of senior personnel
- establishment of local accreditation system

This paper examines the progress of the plan, issues raised and lessons learnt and provides guidance for other developing nations to establish RSA as an integral part of their road safety strategies.

Key Words: Road Safety Audit, Road Accidents, Accident Prevention

1.INTRODUCTION

Road safety audits were introduced into the UK in the 1980s as a result of a growing recognition that independent checking could contribute significantly to improving the safety performance of road schemes. The concept spread to Australasia in the 1990s where it was embraced with enthusiasm and the publishing of definitive guidelines and principles for road safety audits in 1994 established an international benchmark in the field. Road safety audit is now accepted across the world as a valuable tool in improving the levels of road safety and the first international conference on road safety auditing was held in Melbourne in May 1998.

There has been much written and discussed on the benefits of road safety audit. The benefits have been identified in broad terms as direct improvements in the safety performance of roads, increasing awareness and understanding of road safety issues and emphasis on prevention rather than cure approach to road safety. In AUSTROADS (1994) the following benefits are listed.

- safer new highways through accident prevention and accident severity reduction,
- safer road networks,
- the enhancement or road safety engineering,
- reduced whole life costs of road schemes,
- providing one component of local and State accident reduction targets,
- a reduced need to modify new schemes after they are built,
- a better understanding and documentation of road safety engineering,
- eventual safety improvements to standards and procedures,
- more explicit consideration of the safety needs of vulnerable road users, and
- the encouragement of other personnel in road safety.

The relevance of these benefits to developing countries has been debated and Hogue *et al* (1998) has provided comment on the high returns that could be expected in developing countries for a relatively low cost by the adoption of road safety audits. The high numbers of vulnerable road users (pedestrians, cyclists and motorcyclists) in particular is seen as an area where significant road safety benefits would occur if road safety audits were conducted prior to construction of road projects. In Thailand Taneerananon *et al* (1996) reported that the economic loss from traffic accidents in 1993 was A$3483 million and a high percentage of these involved vulnerable road users.

It can be seen from these numbers that road trauma reductions have the potential to provide enormous economic benefits in Thailand.

2.STRATEGY

A strategy needed to be developed to bring the benefits outlined above to Thailand in a sustainable manner. The key to this strategy was the establishment of a core of well trained, experienced and enthusiastic road safety auditors in Thailand. Too often overseas "experts" are brought into a country to introduce new techniques, technologies and systems but there is no transfer of the requisite skills to the local industry. So when the "expert" leaves so does the knowledge and experience and there is no sustainable basis for the introduced improvement to survive in the long term.

The other key element of the strategy was to ensure that the core groups were aware and capable of delivering the three components necessary for long term sustainability. These components are the undertaking of road safety audits to international standard, the training of new personnel in road safety auditing to a set standard and to effectively market road safety audit to all key stakeholders. The latter two are time consuming but essential for the long term sustainability of the road safety audit process in Thailand.

The Thai Society for Transportation and Traffic Studies with assistance from Yontrakit Intersale Company used these principles as the basis of developing their implementation plan for road safety auditing in Thailand. Their implementation plan involved:

- Promotion of road safety audits to key road management organisations and people
- Training and international accreditation of senior people
- Establishment of formal training courses and processes
- Development of local guidelines and practices
- Establishment of a formal recognition system for qualified people in the field

This plan is now being implemented but has not been finalised.

3.IMPLEMENTATION TO DATE

Road Safety auditing has been promoted to all the key National road management organisations including the Bangkok Management Authority. All are showing interest in the process and are keen to introduce road safety audits once formal procedures have been documented. These organisations have been sending staff to the general training sessions and some have expressed interest in conducting specific training courses for their staff. The awareness, interest and knowledge of road safety auditing has been raised considerably and it is important for this momentum to be continued.

Another important part of the approach to improve knowledge and understanding of RSA has been the role of the Universities. Not only have they actively encouraged attendance at training seminars but have also included RSA in post graduate studies programs with some masters students working on specific RSA topics. This approach is aimed at assisting the long term sustainability of RSA in Thailand by providing an ongoing supply of skilled and knowledgeable people for the road management industry.

The major thrust of the implementation plan has been the conducting of training courses across the breadth of Thailand. The training courses have been held in Chiang Mai, Bangkok, Khon Kaen and Hatyai and have involved both local and Bangkok based participation. Total attendance has been more than 200 people although there are people who have attended more than one of the courses. The first seminar was conducted in Bangkok by Mr Phil Jordan from Australia. This served to introduce RSA to the industry particularly its benefits and processes. This was followed by training seminars in regional centres and in Bangkok. Mr Peter Waugh a road safety specialist from Western Australia conducted these latter seminars with assistance from the Thai Society for Transportation and Traffic Studies, Yontrakit Intersale and the Universities in the cities where the courses have been held.

The training courses have been designed to provide in introduction to road safety auditing and each has had a slightly different focus. All the courses have outlined the philosophy and process of road safety auditing and involved on site assessment of selected locations using road safety audit checklists. The participants also have to report their findings through group processes to assist in gaining the most benefit from this exercise. The theoretical part of the course is based on AUSTROADS Road Safety Auditing Guidelines. Local examples were used to illustrate the key points highlighted in the road safety audit process. This is most important in conveying the needs and benefits of the RSA process to the local practitioners who can better relate to the issues in their own unique road environment. Additionally the Department of Highways provided a session at each seminar on road design standards, their use and their relationship to road safety. This approach has the dual aim of education on the use of the standards and reducing the tension that often arises when road designers feel their design is subjected to road safety auditing.

The field exercises have proved invaluable in providing the participants not only with experience of the process and its discipline but also the high benefits that the process can bring to the community through improved road safety. The experience and knowledge gained from this exercise was demonstrated clearly at following seminars. The leadership and insight of those who had attended previous training seminars was clearly evident in the group work and the breadth of analysis completed.

The type and importance of the field work is illustrated by the site based audit completed at the HatYai course. This involved examination of a problem location on the north south National Highway, south of HatYai. The audit identified several potential road safety issues, assessed their relative risk and discussed possible solutions for these issues. A feature of the exercise was that the individual groups all identified many potential concerns and reported clearly on these. The attendees were split into groups and each group was assigned a senior experienced road safety person. Additionally all groups were able to discuss issues on site with Mr Peter Waugh, the team leader. Each group reported back to the entire group by way of a short presentation of their findings and reasoning for determining the nature and risk of the safety issue identified. All of these were recorded and consolidated into a single audit report under the supervision of the first two authors. The audit results were then formally recorded in a report and forwarded to the Department of Highways as they are the agency responsible for this section of road. Many of the issues raised can be resolved by low cost treatments providing an excellent benefit cost ratio. The executive summary from the report is attached as Appendix 1.

This process was followed in each of the other 3 training seminars. The auditing of real projects both in design and for existing roads has proved invaluable in developing the understanding of the road safety audit principles and the cost effectiveness of this preventative approach to improving road safety.

4.LOOKING AHEAD

The next step in the strategy is to establish the pioneer group of accredited road safety auditors. The approach adopted is to gain the accreditation for this group through the established system in Western Australia. This involves both participation in road safety audits as a team member and completing a 3 day training seminar, which has both theoretical and practical components. The pre-requisites in terms of being a team member on road safety audits have been completed and reports are being prepared. It is anticipated that the group will attend the 2001 training seminar in Perth.

In parallel with the accreditation process it is planned to begin preparing Road Safety Audit Guidelines for Thailand. While the principles and format of the AUSTROADS guidelines and others such as the UK and Malaysia can be utilised it is most important that these guidelines reflect Thailand road safety environment and culture. The guidelines will provide a standard approach to road safety audits, better understanding of the issues surrounding road safety audits (liability, benefits, risk assessment etc) and a basis for incorporation in training courses in large road organisations and tertiary institutions. These guidelines will also provide road safety auditing with far more credibility and standing within Thailand because of their direct relevance to the safety issues prevalent in Thailand with the worked examples being from actual projects in Thailand.

A key issue to be addressed in preparing and issuing Road Safety Audit Guidelines is the need to get agreement from the key government agencies on the form, content and legality of the guidelines. This is likely to be a complex progress and take some considerable time to resolve given the number of stakeholders and their separate charters on road safety.

The accreditation process and standards to be adopted in Thailand will also need to be addressed in the short term. Issues such as the mix of practice and theory, pre-requisites in terms of experience, education and road safety expertise, how and where training is conducted will need to be addressed. Like the guidelines there will be difficulty in obtaining National consensus on the issue of accreditation and would be expected to take some time to resolve.

There are many further developments that are seen as being part of the strategy but more medium to long term. These include the development of road safety audit registers for both projects and accredited auditors, linkages to road safety research organisations, incorporation of road safety auditing into funding proposals and land use planning processes.

Road safety audit registers are very important. It is imperative to ensure the credibility of the road safety audit process to have a register of accredited road auditors. The credibility of the process is dependent on the skill and expertise of the auditor and their adherence to the principles and the procedure. Therefore it is essential only trained and properly accredited auditors are used and a National road safety auditor register would allow all clients to check the credentials of auditors being considered for use.

A central register of auditors completed is also extremely desirable. It allows for research into the outcomes of road safety audits, provides the data for the identification of systemic issues common to many independently conducted audits and assists in determining the obtaining and maintaining of auditor accreditation. Like the register of auditors the main issue is who will be the keeper of the register and be responsible for its currency and accuracy. Learned associations, Universities or government appear to be the most likely candidates for this role but the issue will take some time to be resolved.

5.LESSONS LEARNT

The development and implementation of the strategy to introduce road safety auditing as a long term integral part of road safety improvement processes in Thailand has been a learning process for all involved.

A major benefit has been recognising that it was possible and in fact desirable to establish road safety auditing personnel and processes in Thailand. And that the processes need to be developed for local conditions and not just adopted from another country. This is the fundamental basis for the long-term sustainability of road safety auditing in Thailand or any country because it removes reliance on foreign expertise as a pillar of the future strategies.

The next lesson was that to succeed a dedicated group of respected road safety people willing to persevere with the promotion and championing of road safety auditing must be present. In Thailand this was The Thai Society for Transportation and Traffic Studies. There was times when there appeared to be no progress but the twin powers of a proven cost effective process and the respect for the safety people supporting road safety auditing has convinced an increasing number of key organizations to adopt road safety auditing. When a certain level of support is attained then the expansion of the use of road safety auditing will be self-generating.

Another key component is to prepare a strategy for implementation. This must set out the expected outcome and a series of practical discrete steps to be undertaken over a specified time to achieve the desired outcome. It is important that the steps are practical and under the control of the group. The Thai Society for Transportation and Traffic Studies carefully planned a strategy that they could achieve and have been moving through the steps of this plan methodically and surely. An important element of this was to target key organizations (such as the Department of Highways) who could make effective use of an extensive road safety auditing program and who would be able to lead many others into the use of road safety auditing by example.

The use of specific expertise is another lesson to be gained from the approach taken in Thailand. The use of an experienced road safety audit trainer in conjunction with a senior road design expert from Thailand broadened not only the understanding but also the acceptance of the road safety audit process. This was coupled with examinations of actual sites where there were road safety issues to highlight how the two processes of design and road safety audit were complementary rather that opposing. This is very important, as the greatest opponents of road safety auditing in the initial stages of introduction are often the designers.

The move to gain an international accreditation for the group who will be the first local trainers in road safety auditing is also a carefully planned approach. This establishes not only the standards that are to be achieved in the training in Thailand but also that it is a credible and robust training regime. As Australia is a leading and established user of road safety auditing, is close and has well-established accreditation processes and training it was a sound choice. It is important that these imported processes are moulded locally to fit the environment, culture and organisational structures in Thailand. There have been discussions on this already and after the initial group accreditation from Australia has been received will be finalised.

The final lesson or message from the implementation of road safety auditing in Thailand is that all Asian countries can implement a sound road safety audit process that is sustainable and will provide that country with significant and cost effective improvements in road safety.

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7.APPENDIX 1

Report of Road Safety Audit of the Section km. 54+325 to 54+600 National Highway 4

Executive Summary

This report details the findings of a Road Safety Audit of Highway 4, on a curve between km. 54+325 to 54+600. It was conducted as a part of the 2nd Safety Audit Seminar on August 1, 2000. The sponsor for this seminar was Yontrakit Intersell Ltd. Other supporting organisations included:-

- Faculty of Engineering , Prince of Songkla University.
- Thai Society for Transportation and Traffic Studies.
- Center for Traffic and Transport Management in Southern Regional Cities.
- Asian Center for Transportation Studies (ACTS) AIT.
- The Ministry of Transport and Communications.

The audit found that there were several potential road safety problems and issues at the site and their relative risk factors are discussed in the report. Some of the key findings are summarised below:-

- The highest accident potential at the curve resulted from a lack of sight distance for vehicles that are northbound from Sadaw border and for vehicles stopped at the side roads intersecting the Highway within the curve.

- Pedestrians from schools who are crossing the road are at risk due to poor sight distance, proximity of U-turn facility, high vehicle speeds, obstructions and lack of a fully marked crossing.

- Vehicle speeds are higher than posted speed limit and this has a negative impact on site safety.

- The lack of adequate signage and pavement marking increases the accident potential of the sited markedly.

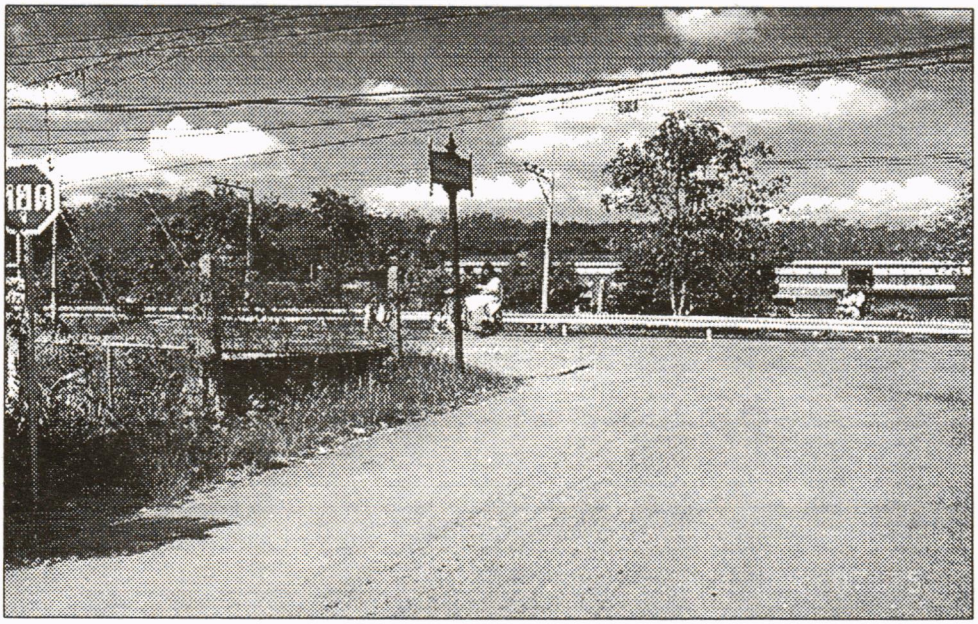

Figure A1. The End of Road at Road Curve is a Slope and Has No Stop Line

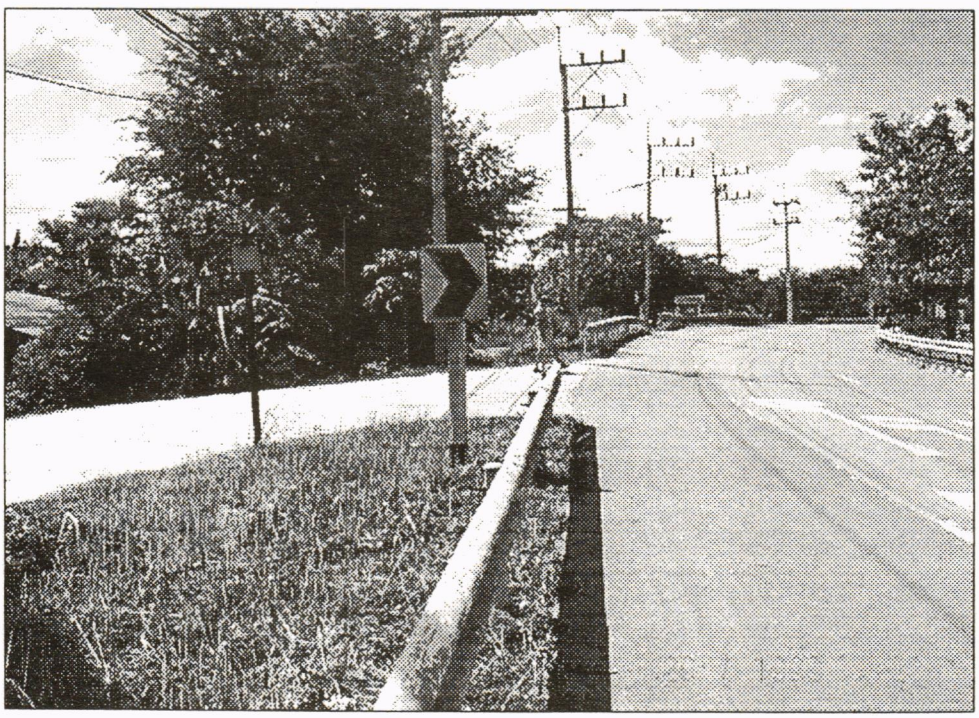

Figure A2. Angle of Side Road and Highway No.4 is less than 70 degree.