

The Development of a Road Safety Strategy for the Gulf State of Qatar

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Abstract

In 2006, the Persian Gulf state of Qatar commissioned a consortium of international consultants to develop an integrated Transportation Master Plan.

A part of that Master Plan was a Brief to develop a Road Safety Strategy for the nation.

This paper summarises the development of that Strategy, and outlines the key issues associated with traffic safety within Qatar.

In common with many rapidly growing nations, Qatar was experiencing a traffic fatality rate (in population terms) of about five times that experienced by many Western nations, including Australia. Like other Gulf states, Qatar had undergone rapid economic and social growth in the past several decades, but had not benefited from an evolved road safety culture which had existed in the US, Western Europe and Australia.

Thus, while in recent years there had been a rapid increase in motorisation and provision of road infrastructure, there had been a lag in the necessary “framework” to ensure the safe management of that motorisation.

Areas identified which contributed to the high crash and casualty rate in Qatar were:-

- low rates of restraint wearing by vehicle occupants,
- insufficient speed enforcement procedures,
- inadequate provision for pedestrians and cyclists,
- police crash attendance issues,
- an absence of appropriate road safety auditing procedures - particularly with respect to roadworks,
- insufficient management of traffic within local streets,
- an absence of a centralised data gathering and analysis procedure, and
- a lack of traffic safety “institutions” within Government.

Countermeasures to these issues were developed in consultation with the Government and documented in a Draft Road Safety Strategy Plan.

By mid 2008, various crash countermeasures were being reviewed and implemented where appropriate.

Keywords

Road Safety, Enforcement, Crash data, Restraints, Roadworks.

Background

The ongoing challenge to reduce crash and casualty rates is different for each nation. The backgrounding produced by the Australian Government for World Health Day in 2004 succinctly expressed this in its slogan - "*Road safety is no accident*" (WHO, 2004).

For those involved in traffic safety research and the implementation of crash countermeasures, each nation poses a unique set of conditions and constraints. To illustrate with extremes, Scandinavian countries have been "fine tuning" their traffic safety policies for nearly half a century, while underdeveloped and overpopulated nations have been forced to adopt casualty "*Triage*" attitude to harm reduction (ibid).

The Triage approach is almost always adopted in the context of rapid population growth, rapid motorisation and a chronic under-resourcing of health and transport infrastructure.

Most countries however are positioned somewhere between these two extremes, and via a political process, balance the array of community demands in areas such as general health care, education, defence needs and so on - with the needs of traffic safety.

From a crash researcher's viewpoint, it is for these reasons that the Persian/Arabian Gulf States are of great interest¹.

Each Gulf state possess a set of circumstances which are unlike most other nations. These involve:

- relatively small populations,
- an under-developed motorised culture,
- a relatively unsophisticated integrated transportation system in terms of public/private provision,
- low levels of intensive arterial and local traffic management,
- relatively low levels of government intervention with respect vehicle registration and driver licensing (compared with the West),

all overlaid with a virtually unlimited oil/gas-based government revenue.

Traffic safety policy advisors in the West (particularly during times of an administration changeover) present options for casualty reduction in the context of short, medium and long term relating to:

- road infrastructure (usually in the context of a 10 - 20 year infrastructure plan),
- road user attitudinal and educational issues (usually in a timeframe of 5-10 years),
- vehicular registration issues (again usually over a 5-10 year planning horizon).

Well developed benefit/cost formulae are presented to such administrations in the knowledge that most crash countermeasure development takes many years (if not decades) to take full effect.

¹ The Persian Gulf States are made up of the Kingdoms of Bahrain and Saudi Arabia, the Sultanate of Oman, and the nation states of Kuwait, Qatar and the United Arab Emirates.

There are obvious exceptions to this general position, for example:

- the overnight mandating of seatbelt wearing (including enforcement),
- enforced random breath testing,
- focused site-specific black spot treatments and so on.

However the Gulf States' national budgets are potentially so high, that the policy advisor has the opportunity to think more laterally about crash countermeasures and their timing.

To illustrate, a transport corridor might feature a concentration of crash blackspots due to under-planned land use changes. In a "Western" environment, a rational response might be to propose a site-specific blackspot treatment programme budgeted over several years. However, a theoretically short-term financially viable solution in the Gulf may be to provide a full grade-separated facility along that corridor.

Challenge for Policy Change in Qatar

The basis of the Brief from the Qatar Government for this Study was a recognition that the nation's crash and casualty rates were typically 30 fatalities per 100,000 population - a rate about 5-6 times that experienced by "the West". The Government recognised that the West took almost a century of incremental improvement to achieve these rates, in the context of limited annual budgets.

A resultant objective of the Study was to develop various means to achieve a "European" crash rate baseline - of about 5 fatalities per 100,000 population - a number which is "theoretically" achievable.

The Study's overall strategy was to illustrate to Government that using currently known crash countermeasures (the obvious starting point being increased restraint wearing), significant gains could be made in the short term. Similarly through to strategic infrastructure improvement – for example spatial separation or even large scale modal change – European crash rates could be bettered.

Cultural Issues

Qatar, like other Persian Gulf States is an Islamic-based society. From a traffic safety viewpoint, such societies possess an important "head start" advantage - in that there is an insignificant consumption of alcohol - with resultant traffic safety benefits. On the other hand, this Study determined that a challenging issue relating to a religious state concerned community attitude to "divine protection".

Attitudinal surveys undertaken by the Qatar Emergency Medical Services revealed a common reason for a lack of restraint wearing (including child restraints) arose from a belief that injury as the result of a crash could relate more to "God's protection" rather than to the physics associated with restraint wearing. Indeed, there was even some suggestion that the wearing of a restraint could imply some mistrust of God.

Introduction

This paper summarises the outcome of a Brief (referred to hereafter as “The Study”) which was prepared in response to a request received from the Qatar Urban Planning and Development Authority (UPDA) as a component of the Transportation Master Plan for Qatar (TMPQ).

Qatar is a peninsula connected to the north of Saudi Arabia, about 80km wide by about 150km long. By the end of 2006 its population was about one million, with only about one third of this number being indigenous Qataris. The remaining population was evenly split between “ex-patriot” commercial, administrative and professional people, and “guest workers”. In 2007, its GDP was about US\$60 billion.

Qatar's fatality frequency had been increasing significantly. In 2006 over 260 fatalities and over 1000 serious injuries occurred in Qatar – figures which had doubled in four years. This represented injury rates per number of vehicles and number of persons in the country being over five times that of other developed countries. Ambulance reports suggest many thousands of minor injuries.

If that trend continued unabated, Qatar would experience over 820 fatalities and 3,200 serious injuries per year within about ten years. Figure 1 illustrates this.

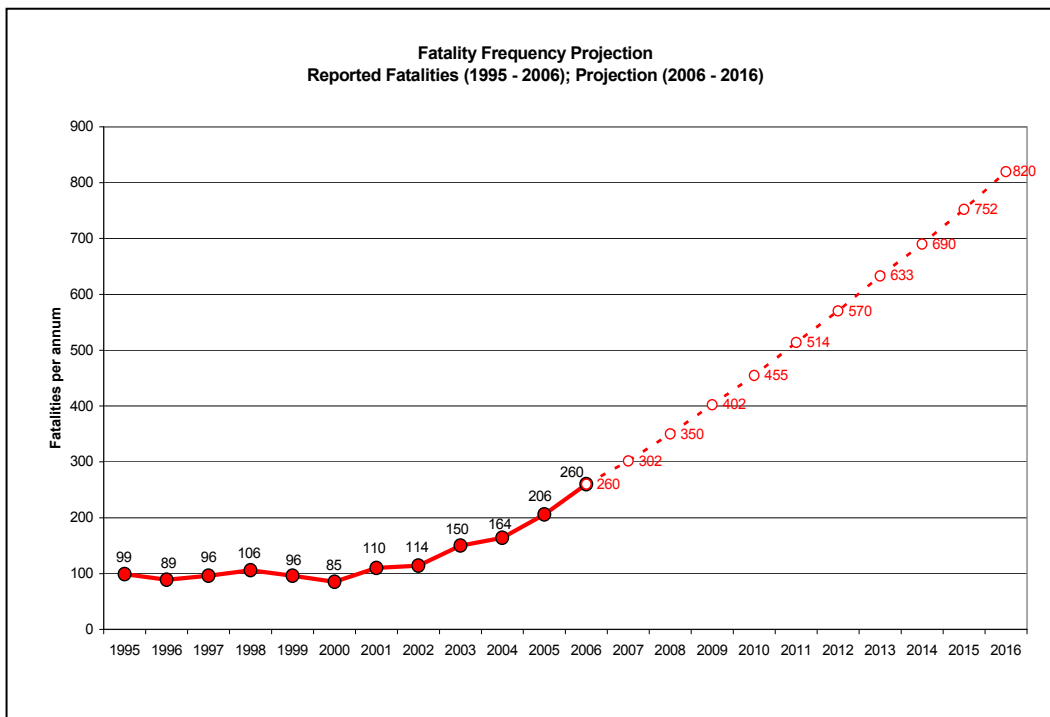


Figure 1 - Qatar Fatality Frequency.

The overall objective of the Study was to develop safety related policies designed to improve the safety and security of Qatar's transportation system. The requested issues for development included research into proposed legislative changes to laws relating to:

- ▶ Seatbelt usage;
- ▶ Mobile phone usage;
- ▶ Vehicle import controls; and
- ▶ Deregistering of aging vehicles.

Methodology

Stage 1 – Review of the current situation in Qatar

The first step was to establish the broad crash situation within the study area. This phase proved challenging in this instance, as Qatar had no formalised, centralised “mass data” system to draw upon.

Crash data were obtained from aggregated sources and from “manual” data extraction processes undertaken by Qatar Traffic Police. Using these data, comparisons were then able to be made with other countries.

Stage 2 – Proven past research

Traffic safety has been the subject of focussed scholarly research for many decades. The Study team initially undertook an extensive road inventory survey (reported elsewhere) and took the opportunity to assess the traffic environment generally. Based on these observations, an extensive literature review was undertaken of those traffic safety issues which were considered to be relevant to Qatar. This was intended to be iterative process, as more crash data became available over time.

Stage 3 – Stakeholder consultation

In combination of the inventory surveys and crash analysis, the opportunity was taken to interview key stakeholders within Qatar to utilise their extensive local experience in traffic safety related areas. Those interviewed included:

- ▶ Emergency medical services,
- ▶ Insurance industry,
- ▶ Traffic police,
- ▶ Road engineering authorities,
- ▶ Vehicle registration authorities.

Using this combined local knowledge and crash data, a discussion of suggested contributing factors and crash countermeasures was developed.

Stage 4 – Development of Crash Countermeasure Strategy (Road Safety Policy)

The on-going challenge in all motorised societies is to effectively implement crash countermeasures to the variety of contributing factors to crashes identified in any local research. Proposals were put forward to create a “traffic safety institution” which intends to provide a structure for local crash research and countermeasure implementation.

A road safety strategy was developed with specific recommendations made relating to enforcement, countermeasures, licensing, institutional arrangements, steering committees, education and marketing.

Crash statistics overview

The measurement of a nation's "road toll" can be undertaken in number of ways. These are either frequency based (for example "there were a certain number of persons injured in Qatar last year), or "exposure" based (the "rate" of casualties). The frequency method is preferred when analysing the issue from a public health perspective, while the exposure method is preferred for international comparative purposes.

Two common exposure measures (in terms of fatalities) are the measures of fatalities per 100,000 population and fatalities per 10,000 registered vehicles. **Figures 2 and 3** show data produced by the (New South Wales) Roads and Traffic Authority which presents comparative data for these measures for a number of countries.

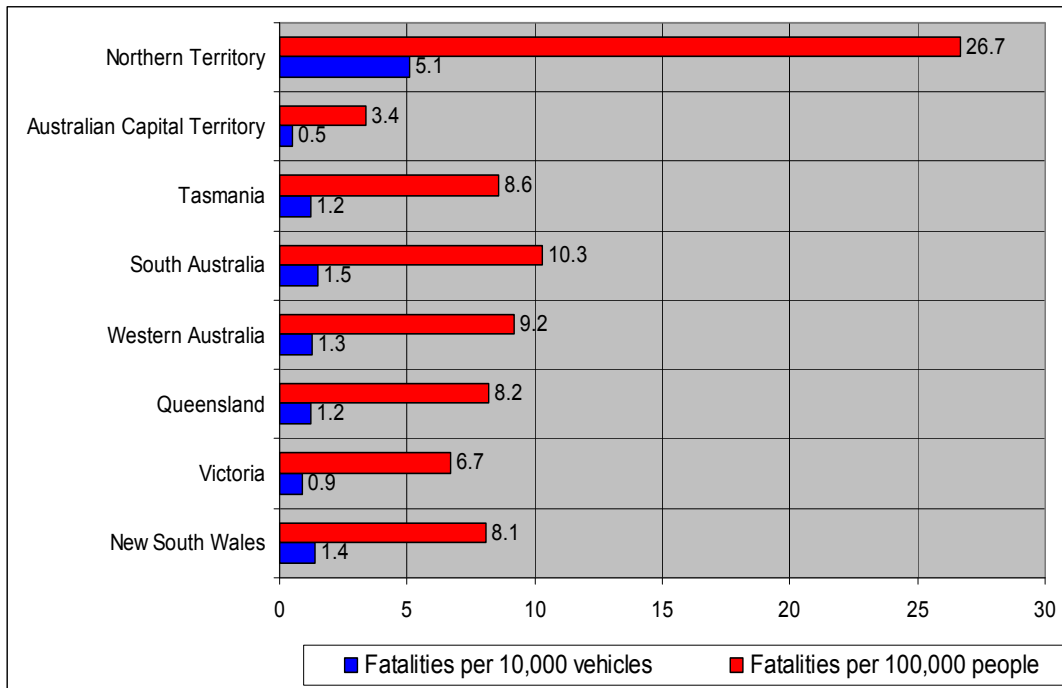


Figure 2 - Comparative Crash Data in Australia (2003)

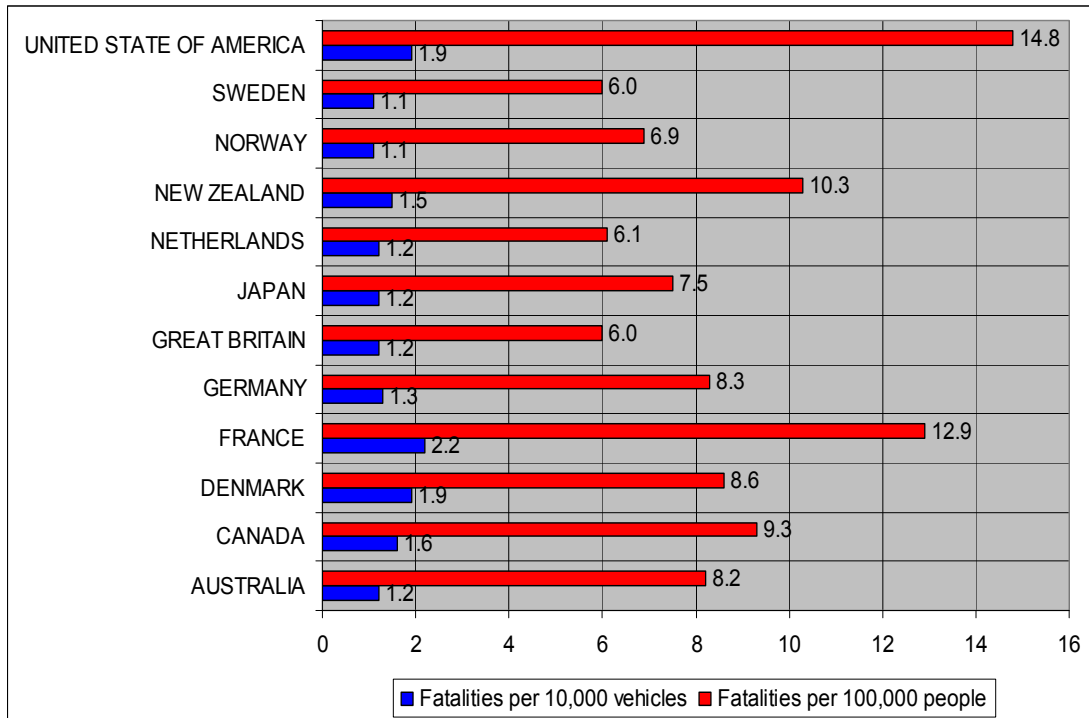


Figure 3 - International Comparative Crash Data (2003)

It can be seen from **Figure 3** that within Australia, fatalities per 10,000 vehicles in 2003 were 1.2, while fatalities per 100,000 population were 8.2. Another example is France which in 2003 experienced a fatality per 10,000 vehicles of 2.2 and a fatality figure per 100,000 population of 12.9.

With data drawn from: *Qatar Annual Statistical Abstract* (1981-2005) and the Qatar Traffic Police, Figure 4 shows the resultant Fatalities per 100,000 population and Fatalities per 10,000 vehicles.

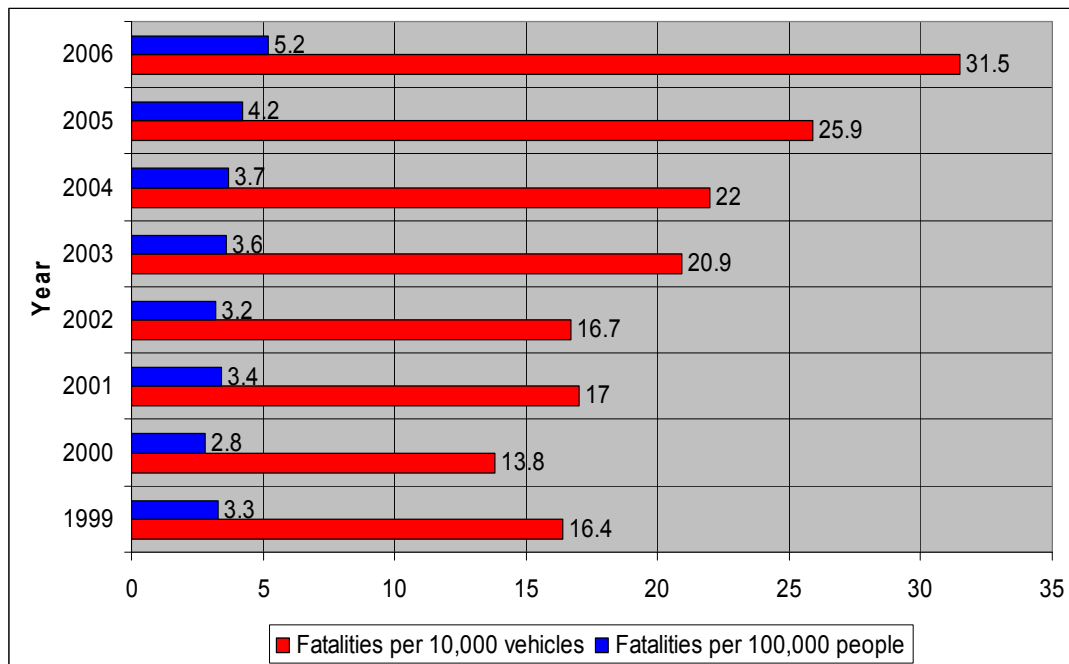


Figure 4 - Qatar Fatality Rates (2006 shows estimated data)

It therefore can be seen on viewing the figures that the fatality rate in Qatar is about four times that (expected) for developing countries worldwide.

In highly developed countries with established road networks, rigorous driver licensing, strict vehicle registration procedures, sophisticated traffic law enforcement and penalty regime, an expected rate can be as low as about one fatality per 10,000 vehicles, or about 5 - 6 fatalities per 100,000 population.

It is almost always the case that in developing countries the main factors in the prevention of sophisticated road network and maintenance regime are severely limited national budgets and narrow expenditure priorities (World Health Organisation, 2004).

Similarly, developing countries often do not have a tradition of a “motor oriented” regulatory or legal system. That is, what may be seen as criminal behaviour in certain driving practices in developed countries, may not be seen the same in developing countries.

In summary, while the occurrence of a certain minimum number of crashes and casualties are an inevitable part of a motorised society, the *rate* at which these events occur is not inevitable. It is almost always the result of choices made by Governments in relation to:

- ▶ Expenditures on the road network - and safety related facilities;
- ▶ The nature of traffic law and penalties; and
- ▶ The nature of enforcing those traffic laws and penalties.

Crash analysis manual data extraction (2000-2002)

The following contributing factors to selected crashes were identified by Qatar Traffic Police by a manual data extraction process - examining Police notes of serious crashes which occurred in the years 2000, 2001 and 2002.

Figures 5, 6 and 7 show the primary contributing factors to crashes as assessed by Police from a manual data extraction process.

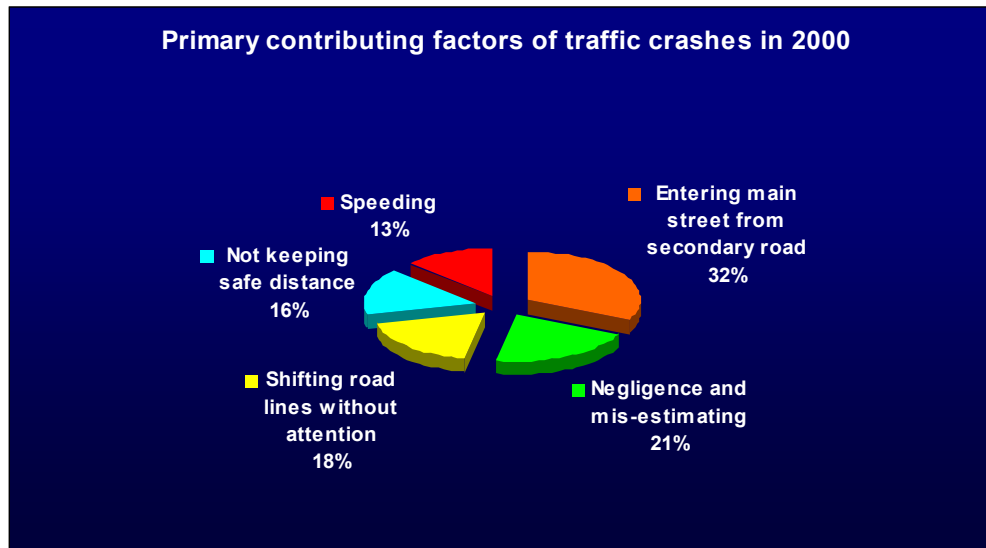


Figure 5 - Primary contributing crash factors, Year 2000

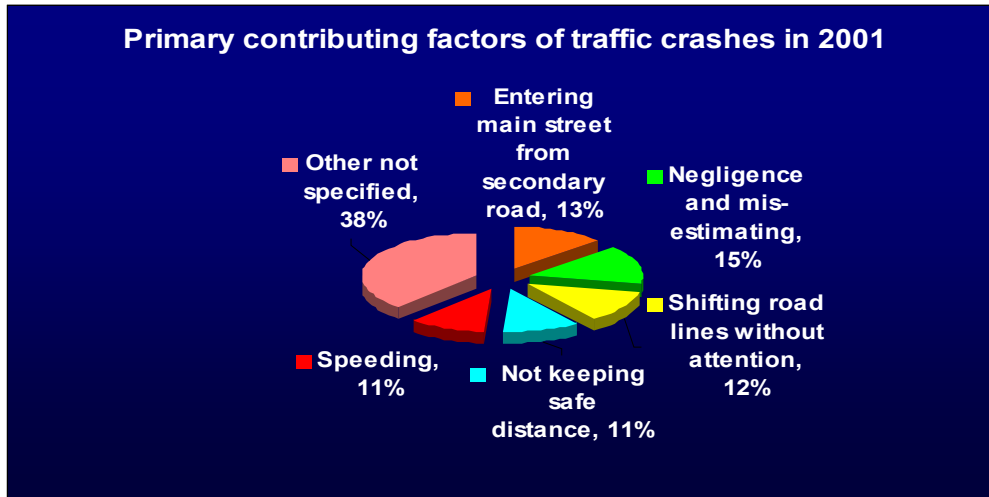


Figure 6 - Primary contributing crash factors Year 2001

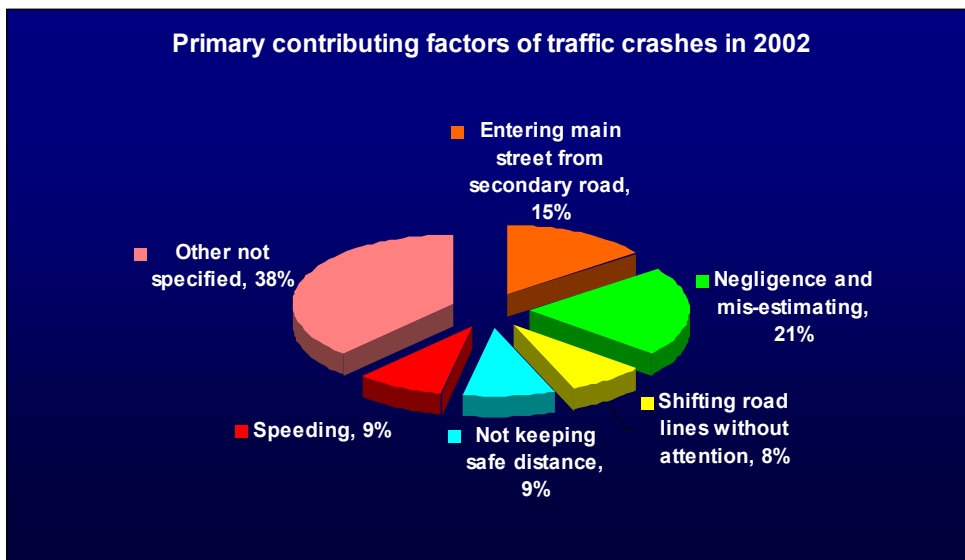


Figure 7 - Primary contributing crash factors Year 2002

Key Existing Road Safety Issues facing Qatar

In developing a road safety strategy and policies for Qatar, current and possible road safety issues were identified. The issues identified were broadly categorised as follows:

- Insurance issues
- Enforcement
- Vehicle licensing and registration
- Laws and regulations
- Education and behavioural

Insurance Industry Issues

Third-party motor (car) insurance is compulsory within Qatar. The insurance cover provided is in accordance with legislative requirements and provides for unlimited liability in respect of personal injury/death and loss or damage to third-party property. Comprehensive covers are available to motorists but currently in excess of 60 per cent of the motoring public purchases only the compulsory third-party cover. New products, such as extended period agency repairs and replacement vehicles while a driver's vehicle is in the garage for repair, are now available. As the insurance awareness of the general public increases further, there will be a significant market for the personal lines created.

In general, insurance companies do not see motor insurance as a profitable line of business. Third-party premiums were fixed by the Ministry of the Interior some years ago and have never been increased. The total premiums generated are generally insufficient to fund the annual claims (ibid).

As noted earlier, the insurance industry significantly benefits from the comprehensive liability investigations undertaken by Police.

Police Issues

The Police expressed urgent concern about the rapid rise in fatalities and injuries in Qatar in the recent past.

The Police considered that typical contributing factors to pedestrian crashes were roads where no fencing was available and on "high speed roads". It was considered that typical contributing factors to most of these crashes included some kind of road design feature.

Registration of Vehicles

Vehicle inspection in Qatar is undertaken by the Qatar Technical Inspection Company (TIC).

It was suggested by Government that up to 50% of vehicles travelling on Qatar's roads were not formally registered. This was assumed to mean that they were not brought back for re-inspection. The reason put forward for this reluctance for re-inspection was either the cost of required repairs exceeded the fine for not having a vehicle registered², or the presence of an accumulation of defects.

New vehicles were not required to be inspected until three years have expired (noting typically that the new car warranty lasts this amount of time, thereafter vehicle inspections are required). A new system of vehicle registration stickers involving a sticker being placed on the number plate of the vehicle was introduced in 2006.

² The fine associated with having an unregistered vehicle was reportedly QAR 500 while the repair to vehicles may be (say) QAR 5000.

The technical standards for the inspection are a combination of European and locally developed standards. For example tyre depth are required to be 1.6mm minimum while net braking force for front axels is 45% g and rear breaking 35% g. Heavy vehicle trailer brakes are required to achieve 35% g.

According to their operation manual, 800 separate items are identified for potential defects. Most of these however are visual inspections.

The key "safety" items are:

- ▶ Brakes
- ▶ Visibility
- ▶ Lights
- ▶ Tyres
- ▶ Axles

If a defect is identified, the owner is given one month's grace to repair or rectify that defect after which time they return to the TIC for re-registration. It was noted that the performance and equipment level on a particular vehicle are judged on the contemporary standards at the time. For example, there is no retrofitting of seat belts required for old cars.

There seemed to be some flexibility in terms of passing older vehicles. It was observed that the direct contribution that vehicle defects made in serious crashes was about "*10-12 defects per year were noted as primary contributing factors to serious crashes*". These reportedly involved faulty brakes and steering.

The TIC considered that in the ideal situation, on scene vehicle inspectors should be made available for serious crashes in order to check for defects.

On more general issues, the TIC expressed concern about young drivers and their self- considered invincibility and the apparent lack of and rigorous driver training. Also, like the Police, the TIC saw merit in the demerit point system and the need for a provisional license system.

It was considered that a minimum training period for a driver's license should be at least 20 hours and that a tutoring system should be created for licensing.

Driver Licensing

The Police saw great potential benefit from "Demerit Points" system, relating traffic infringements to Drivers License status. A key issue identified however was the need to increase the level of Police enforcement for such a system to work. This enforcement would relate firstly with the initial infringement breach, and secondly with a driver's license disqualification system. It was foreseen that such a system may be introduced in the near future

The Police were aware of "feedback" that some energy companies are becoming sensitive to the traffic safety situation in Qatar. It was suggested that some executives would prefer to be posted to other Gulf States - where it is perceived that it is safer to use the roads in such places.

Seat Belt Usage

In 2006-2007 only drivers and front passengers were required to wear available seat belts. It was suggested that the enforcement restraint wearing by rear seat passengers would be made difficult due to the common practice of tinting rear windows.

Driver Fatigue

The issue of driver fatigue was raised, particularly in truck crashes. It was noted that no strict labour laws operate for truck drivers and also there is a high economic incentive for trucking contractors to continue to drive.

Enforcement

It was noted that for an effective enforcement strategy to take place more Police would be needed and better training needed for those Police. It was additionally suggested by the Police that the road construction agency (PWA) should have a *pro-active* traffic safety role.

It was pointed out by Police that the World Health Organisation/World Bank have recommended all nations name an independent agency to oversee traffic safety given the growing problem³. It was suggested that Police Patrols prefer radar speed cameras to enforce speeding rather than mobile Police patrols.

It was noted that the fixed radar cameras are only "enforced" on the vehicle registration renewal process but that new cars are not required for renewal for three years from purchase, while after that period they are required to be inspected every 12 months.

Emergency Medical Services (EMS) issues

EMS considered that the traffic safety issue was multi-faceted - dealing with road design, cultural issues and driver training. Cultural issues included certain fatalism. For example, persons not considering the need to wear a seat belt - as they interpret their survivability in a car relates more to a divine will, rather than to science.

EMS suggested an ingrained negative driver attitude of men thinking "good" driving is aggressive and fast driving – in the context of the "macho" attitude i.e. "good" driving was not seen as slow and defensive driving.

The issue of driver attitude in Qatar also relates to "vertical" thinking and not a trained "critical sense". This issue goes to driver training, and cause-effect of vehicle crashes.

It was noted that more ambulance drivers are directed to wear seatbelts while locals "almost never" wear seatbelts. Similarly, child restraints are hardly ever available or used, although ex-patriots wear seatbelts.

An issue of concern to EMS in relation to road design concerned edge drop offs and (usually) four wheel drive vehicles and high speed. An additional issue raised was the high speed behaviour of drivers - particularly men.

³ WHO- "World report on road traffic injury prevention" 2004

EMS suggested a fundamental attitude change needed to take place. It was suggested to start with the next generation the children and education programmes within schools. Such lessons would not only discuss reckless driving attitudes but also passenger safety. These education programmes would need to be extended to teachers - as it is often the case that unless the teachers are committed to a cause they do not communicate this well to students.

EMS noted that Police do not actively stop people for violations and this was due to cultural issues with the Police. Qatari society has a definite hierarchy and that the Police are quite low in that hierarchy. The issue of Police training was also raised with it being EMS perception that there was scope for much more training.

In relation to school education, it was suggested there was a basic deficiency in primary education (which led to the vertical thinking mentioned earlier) and lack of creativity or at least a critical sense.

Associated Key Stakeholder Issues

Associated issues identified during the stakeholder consultation included:

- ▶ The insurance industry in Qatar benefits greatly from the comprehensive investigation undertaken by police of all minor crashes which occur in Qatar. This appeared to be a "cost transfer" process which has transferred investigative costs from the insurance industry to the police.
- ▶ Qatar traffic police were most concerned with the steep rise in fatalities since 2004. The police were pursuing a variety of traffic safety measures, including driver training programmes and integrated speed enforcement hardware and software.
- ▶ While the registration of vehicles in Qatar is "World's Best Practice" there was concern expressed that many older vehicles are not re-registered. It was suggested that enforcement of non-registered vehicles be increased.
- ▶ A consensus emerged that a Demerits Points system be introduced in Qatar relating traffic infringements to driver's licence status.
- ▶ Concern was expressed by more than one stakeholder that seat belt usage in Qatar is relatively low and that the present law does not require rear seat passengers to wear seat belts. It was suggested that the present law be more strictly enforced and that the law be amended to include all occupants.
- ▶ It was suggested that a formal road safety audit process be undertaken in Qatar to ensure that those construction projects undertaken by various sub-contractors be appropriately designed, built and maintained.
- ▶ Concern was expressed that road construction activity causes a serious traffic safety problem and therefore that works are to be appropriately designed, constructed and maintained.
- ▶ A consensus emerged that Qatar should adopt the up and coming AASHTO "Highway Safety Manual" as a de-facto standard for road and traffic design – from a traffic safety viewpoint.
- ▶ Concern was expressed in relation to aggressive driver attitudes, particularly involving males. It was suggested by medical authorities that this be addressed at the early school stage in order that basic driver attitudes be modified prior to licensing.

Traffic operation – the need for constraint

The Qatar road system has evolved over the past decades to facilitate free flowing mid-block speeds. This has been done by the construction of concentric ring roads intersected by regularly spaced radial routes. These intersections are typically controlled with large, multi-lane roundabouts.

The volume/capacity ratio (V/C) of these roundabouts was observed to be constantly exceeded, with resultant queues developing on all approaches. These congested roundabouts indeed are so common that many feature permanent parking bays for traffic control Police.

The relevance of the congested roundabouts goes to the issues of mid-block speeds. The manually extracted Police data showed that excessive speed was a major contributing factor to serious crashes in Qatar.

It is evidently perceived by many motorists within Qatar that in order to reduce their total travel time, (and with the knowledge that they will be delayed at the saturated roundabouts), tend to travel at excessive speeds between these roundabouts. This behaviour is “encouraged” by long continuous sections of median islands with associated median fences and adjacent service roads.

During the pedestrian inventory survey, it was commonly observed that mid-block speeds on “middle” and “outer” ring roads exceeded 120 km/h. It was thus commonly observed that when travelling on a ring road during peak or shoulder peak period traffic experienced delays of between 5-10 minutes to traverse a typical roundabout between the ring road and the radial. It was then observed that the free speed of traffic then rapidly accelerated to over 100 km/h, only to come to a stop for another 5-10 minutes to traverse the next roundabout. Figure 8 illustrates an outcome.



(Source: Qatar Traffic Police)

Figure 8 - Fatal crash outcome involving a high speed rollover

The resulting network operation was thus the “worse of both worlds”. That is, excessive delays at the saturated roundabouts, combined with reckless speeds between the roundabouts creating self-evident traffic safety issues. These mid-block speeds were a particular problem for local pedestrians as well as local motorists accessing the arterials from the service roads (**Figure 9** demonstrates this situation).



Figure 9 - Illustration of unconstrained mid-block arterial traffic flow with Doha resulting in high speeds.

Through discussions with the PWA it was established that the longer term construction programme is to replace many of the roundabouts with grade separated facilities. This however would make many of the ring roads and radial roads de facto freeways. If this policy was to continue, consideration would need to be given to freeway construction standards for the remainder of the routes - in order to reduce high speed conflicts.

It is noted however that many of the roundabouts appear not to be suitable for grade separation - due to the adjacent land uses and other considerations.

It was recommended that consideration be given to area wide “traffic calming”, including calming designed features on the arterial road system itself. Work undertaken by Skene (2004) and Litman (1999) show examples, particularly in Canada, where such arterial calming can be effective.

The benefits of area wide traffic calming were twofold:

- ▶ It would immediately lower the mid-block speeds on the radials and arterials.
- ▶ Because of the lower mid-block speeds, it would provide traffic engineers with the opportunity to open up the mid-block medians to allow left turn movements and U-turn movements. Such movements are currently (and correctly) inhibited due to the fear of collision from the oncoming high speed traffic.

The positive side effect of this policy would be to significantly reduce the turning demand at the roundabout, and thus improve its volume capacity ratio.

Such a system would need to be modelled, but it was suggested from observations made during the Study, that such a strategy probably would not only increase safety on the arterial road system, (by lowering speeds), but also improve net traffic delay by improving the volume/capacity ratio at the roundabouts – by diluting the approaching traffic volume.

It was recommended that traffic modelling be conducted to test the hypothesis that arterial traffic calming, combined with median openings will result in lower arterial speeds and reduced arterial delay. Additional speed enforcement would be required.

Collection of crash data

A fundamental element in all traffic safety and traffic engineering research is comprehensive and contemporary crash data. The policy of Qatar Police in 2006 was to attend all crashes and associated “contacts”. This was specified in Article 39/1 of the Traffic Laws which stated that:

“If a vehicle makes an accident that causes injury to a person or harm to a vehicle or animal, the driver of this vehicle should help the injured and report to the police without moving the vehicle from the site of the accident except by police permission or if it is necessary to rescue an injured person.”

This comprehensive crash attendance policy was of great benefit to the insurance industry which was provided with an “on the spot” independent liability determination process. All vehicle repairers require a “Police Report” - after which time the liable party undertakes the repairs.

When attending these crashes and contacts, the police take notes for later transfer to an appropriate accident reporting sheet. It is understood that some of these data are manually collated for internal police management purposes. Indeed the crash data presented earlier were derived from such manually collated data.

Such a manual collection systems combined with “local knowledge” - is often all that is needed in isolated communities, particularly with reference to higher crash frequency road locations. It was often the case however that police stationed in isolated rural areas are not responsible for wider traffic safety policy issues such as driver licensing or registration.

Self-evidently, as a city grows and becomes more complex, “local knowledge” becomes diluted and less effective. Police forces throughout the world therefore have developed sophisticated centralised computer coding of crashes which record an array of variables (Ogden, 1996⁴).

⁴ “Safer Roads – A Guide to Road Safety Engineering” Prof K.Ogden 1996

Such variables include:

- ▶ The time and date of the crash;
- ▶ The exact road on which the crash occurred;
- ▶ The nearest identifying object (for later “geo-coding⁵”);
- ▶ Weather;
- ▶ Traffic conditions;
- ▶ Personal details of drivers and occupants;
- ▶ Whether restraints were used;
- ▶ Nature of vehicles involved;
- ▶ Degree of damage to those vehicles;
- ▶ A diagram showing details such as skid marks;
- ▶ A coded “Road User Movement⁶” coded system to show relative movements of vehicles or pedestrians; and
- ▶ A worded description of the incident including unusual events.

These data were then coded and provide Police, road builders, road maintenance personnel and crash researchers with the basic tools to improve the road transport system – including drivers, vehicles and roads.

Without such a centralised and computerised crash “mass data” system, any community is handicapped to rectify their road/driver/vehicle system. It was thus recommended that Qatar adopt a centralised computerised mass data system for the recording of detailed crash data, including specific location data.

Crash attendance thresholds

Qatar Police attend all crashes and contacts as specified in Article 39/1 of the Traffic Law. This meant they attended at least some 2,500 crashes per year about half of which involve only minor damage. The number of minor “contacts” attended was not known with precision, but it was believed to involve many thousands per annum. This self-evidently created a significant workload for Qatar Police. This system provided an excellent investigation system for insurance liability, particularly for minor crashes. It was understood that Insurance companies insist on being provided with a Police report which thus negated the need for them to undertake any further investigation.

Research undertaken in Australia (ibid) suggests that a more rational crash attendance threshold be one which involves either a casualty resulting from the collision or involving least one vehicle needing to be towed from the scene.

This proposed threshold thus eliminates the need for Police to attend to the many thousands of “minor property damage” crashes, an activity which is currently draining Police resources.

By only attending and investigating the more serious crashes, existing Police resources could be better focussed on recording more detail about “how and why” these more serious crashes have occurred.

These data in turn could then be coded and computerised for analysis.

The Study therefore recommended that the crash attendance threshold for Qatar Police be increased from its present level of “all crashes” to only those crashes involving a casualty, or possibly just casualties and those crashes involving at least one vehicle needing to be towed from the scene.

⁵ “Geo-coding” refers to the process of assigning a worded description of a crash location with a unique numeric code. For example, a Latitude and Longitude. Modern computing systems can now automatically undertake this task by a linked “GPS” system to a centralised computer.

⁶ Examples of “Road Users Movement” codes were included in the documentation.

The Formulation of Traffic Safety Institutions

The desirability of the “institutionalisation” of traffic safety was key finding from the World Health Organisation/World Bank’s 2004 report “*World report on road traffic injury prevention*”. Currently in Qatar there is an absence of any institutional structure focusing on traffic safety.

From the 1960’s – a period of rapid growth in knowledge of traffic safety – the challenge for all governments has been to implement that knowledge. While it has been quite common for governments and individuals to create specialist research authorities⁷, for example:

- ▶ The Transport Road Research Laboratory in the UK;
- ▶ The Institute for Highway Safety in the USA;
- ▶ The SWOV Institute for Road Safety Research in Holland; and
- ▶ The Australian Road Research Board,

the common weakness of these organisations has been that they have not necessarily been a part of the Government hierarchy and decision making process.

The typical role of these research organisations has been to conduct crash and injury research and make “recommendations” to governments. If however there is no Government structure or institution in place to receive those recommendations, then there is no resulting action.

In the Australian state of New South Wales, this was recognized and a permanent standing committee for road safety was established in 1982 – known as “STAYSAFE”. This committee has access to the highest powers in the state in order to implement the various research recommendations from technical research authorities.

It was this medium which allowed the implementation of the then (radical) random breath testing program, where the police were empowered to create road blocks in order to randomly breath test motorists for illegal drinking.

It was estimated that this measure alone saved many hundreds of lives in the following years (ATSB, 2004).

Various countries have developed a number of management “models” to deal with the issue of the road toll. Generally, these types include:

- ▶ The academic model;
- ▶ The Non-government Organisation model (NGO);
- ▶ Government Department model; and
- ▶ The Executive model.

A range of policy options were put forward discussing the strengths and weaknesses of each model.

⁷ Appendix B lists a sample of key organisations.

Conclusion

Undertaking traffic safety policy research in a non-Western environment is challenging. The culture and attitudes to crash countermeasures are usually quite different in the developing world compared to the West.

In much of the developing world, crash and casualty reduction measures take on the role of a “*Triage*” casualty model - where both policy makers and operations staff try to reduce “epidemic” levels of crash frequency and injury (WHO, 2004).

For example, WHO pointed out in its 2004 World Health Day documentation, that a fully motorised China is a frightening prospect from a crash and casualty viewpoint.

The Persian Gulf is quite unique in the context of traffic safety policy. On one hand, the Gulf States (including Qatar) exhibit many characteristics of a developing country - including low government intervention in vehicle registration, driver licensing and traffic safety regulation. Also (at least until recently) the Gulf States’ level of infrastructure has been relatively unsophisticated in terms of the intensity of traffic management.

The obvious differences the Gulf States possess are the national budgets derived from oil and gas revenues. These budgets can potentially remove the traffic safety policy process from the paradigm of a “*Triage*” attitude of casualty reduction, to one of pro-active and comprehensive responses. For example on-going and intensive enforcement measures, area-wide and localised traffic management measures, large scale infrastructure provision, and even large scale public transport provision.

The challenge for policy development in the Gulf States included the task of convincing appropriate government agencies that crash and casualty reductions are largely issues of physics (and exposure), rather than the result of some inevitable process. It was important to communicate that the array of crash-countermeasures that have been developed by many nations over the past century have largely been constrained with short-term budget considerations (and competing government priorities) and not because of their potential effectiveness.

Since the research was undertaken in Qatar over 2006-2007, the price of gas and oil has doubled (Bloomberg, 2008). Whatever spare billions the Gulf States had available for crash countermeasure development and policy implementation before, by 2008 they have billions more. It is thus the ongoing challenge to government policymakers that the Gulf States can “show the way” in order to achieve crash and casualty rates which could be the envy of the West.

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