

Weights and measures

Richard Stokes of Central Weighing contrasts some of the problems and solutions to heavy goods vehicle overloading in the Middle East and discusses potential future policy developments

Overloaded heavy goods vehicles, left to go undetected and unstopped, cause millions of dollars' worth of damage to road infrastructure annually. They are also a significant safety hazard. To give some idea of the scale - in all respects - of the challenge presented by overloading, it is worth considering that one correctly loaded heavy goods vehicle does the same amount of damage to the road as 35,000 saloon cars; an axle overloaded by 20 per cent causes some eight times the damage of the same axle when correctly loaded.

The problem is especially acute in developing countries, where axle overloads of up to 300 per cent are commonplace and fatal road accidents are an everyday occurrence.

In these countries overloading has an even more significant impact, as the repairs to infrastructure which it necessitates significantly reduce the amounts of already scarce money that governments are able to spend on essential services such as health and education. Zambia is one country which has chosen to comment publicly on the problem. There, currently, it is estimated that 20 to 40 per cent of all vehicles are overloaded, these vehicles being responsible for 50 per cent of the total damage to road infrastructure. The Zambian Government is on record as having recognised that unless overloading is prevented much of the US\$1 billion of scarce financial resource allocated to the development of the roads sector would have been better utilised in other sectors of the economy.

High-speed solution

Pakistan is among several developing nations which are now addressing the problem with vigour. This is despite widespread opposition from the domestic trucking industry.

The National Highways Authority (NHA) there is utilising high-speed weigh-in-motion systems in order to establish the true levels of overloading. These can also be used to pre-select overloaded trucks and divert them into purpose-built weighing stations where slow-speed in-motion weighing systems are used to provide the highly accurate results needed when enforcing the overloading laws and issuing fines. Central Weighing has been chosen to supply many of these systems.

At the time of writing, the company has already installed 14 systems on some of the country's busiest highways; these are Supaweigh axle weighbridges, a small, heavy-duty, load cell-based solution which records the weight of every axle that passes over its platform at slow speed (5kmh/3mph).

Other installations are planned but the existing ones are already detecting high levels of vehicle overloading. In fact, the results collected to date have been quite staggering - overloading is some eight times higher than, for example, in Europe. Once again, figures are best used to illustrate the scale of the problem in Pakistan: of the first 2,554 vehicles weighed at a station installed near the city of Pattoki, 1,453 (57 per cent) were seriously overloaded; at Sanjani the picture was the same, with 64 per cent of all vehicles weighed exceeding legal limits.

The findings underline that the NHA's decision to press ahead with its overloading detection and prevention programme was a wise one. They clearly illustrate that many vehicle operators are prepared to flaunt the country's legal weight limits and government officials accept they have a long way to go in re-educating both drivers and transport operators. Many drivers are fully aware that they are exceeding legal and safe weight limits but seem remarkably unfazed by the potential indirect consequences of their actions - frequently, they offer to pay their fines even before having their vehicles weighed in an attempt to speed up the process. A significant problem in countries such as Pakistan, however, is how to set up effective enforcement regime which accurately reflects the damage done - fining a driver whose annual wage can be measured in tens of dollars the amounts of money adequate to put right the damage he may have caused is a largely fruitless exercise.

There is a real need therefore for drivers and operators to be made more fully aware of the damage done and, as well as having spent time in Islamabad introducing the latest vehicle weighing technology to enforcement agencies and establishing local technical support facilities, Central Weighing personnel are actively involved in the education and technical training being undertaken in the region.

The company has also introduced Cheklode, its latest portable truck weighing system, into the local market. This is a new, lightweight, cable-free system which can be carried and set up in a matter of minutes by one person. The fast 'in-motion' system allows on-the-spot weighing of any size of vehicle and instant identification of overload conditions. The portable scales are proving invaluable, being used to support the fixed weighing equipment network; they give enforcement officers the ability to check vehicles which attempt to avoid detection by detouring off main routes and thoroughfares.

Variations on a theme

A similar picture of driver/transport operator intransigence can be drawn in many other Middle Eastern and Asian countries but the problems are not always the same.

In the United Arab Emirates, development is going on at an incredible rate. There, a desire to complete new

The levels of vehicle overloading far exceed those in developed countries. Driver and owner opposition to enforcement is a major hurdle for local officials





resorts and hotels in next to no time leads to a tacit acceptance by some parties of the effects on road infrastructure. Whereas in Pakistan the problem is a lack of money, and fines would struggle to address the levels of damage done, in the UAE there is an economic imperative to get development work finished in the face of aggressive schedules. Millions of tonnes of rock and sand need to be moved and overloading is an everyday occurrence as lorry loads of rock and concrete are transported to and from quarries and construction sites.

Untold damage is being done to roads in the region and the illegally laden vehicles which are the root of the problem are a frightening sight to behold. Lorries that are well over twice the maximum European permitted gross weights - some weighing over 100 tonnes - can be encountered in their thousands. As most conventional platform weighbridges cannot cope with vehicles of such weights, new dynamic axle weighing technology is being introduced.

Such systems weigh trucks as they are driven slowly over a small, heavy-duty platform. The axle weighbridges are installed in a shallow concrete foundation. Level concrete is laid for a full vehicle's length before and after the weighing point. The dynamic axle weighing systems store the permitted axle, axle group and gross weights for all vehicle combinations as applicable in any country. When the vehicle is weighed the system instantly compares the results with the permitted limits and if necessary produces an overload report. In cases where there is an enforcement issue, a fine calculation can also be generated.

These platforms exhibit incredible individual axle weight strengths, and as they work on an axle-by-axle basis the systems with a 40 tonne capacity can weigh trucks of up to 240 tonnes on six axles - nearly three times the limit of most heavy-duty platform weighbridges.

Common ground

Pakistan and the UAE highlight the contrasting solutions needed to what is in

many respects a common problem. Many developed countries have already taken great strides on their own initiative to address the problems caused by over-laden vehicles. In developing countries, however, external agencies such as the World Bank are behind the moves to come up with effective solutions. Nevertheless, as the costs are eventually borne by the taxpayer in whichever country overloading is an issue, it is in everyone's interest to see governments implementing strict detection regimes in order to deter offenders.

Drivers and trends

The total lack of weight controls is a significant impediment to the development of road infrastructure in the world's poorest countries. However, funds providers such as the World Bank have long recognised the connection between overload control and protection of their investment in new roads. They frequently make introduction of an effective vehicle monitoring programme a key requirement before granting loans.

Implementation is by no means easy - in many countries there are no rules to enforce and so the basic legislative framework has to be developed before any actions can be taken. The types of equipment to be used have to be chosen and the supporting infrastructure put in place. Training for law enforcement operatives, to ensure that equipment is used safely and effectively, is a further issue.

In some of the more remote parts of the world, it can be a hazardous task simply to weigh a grossly overloaded truck driven by an uncooperative driver; one cannot underestimate the resistance to change from operators and drivers who see any new legislation as an additional financial burden - particularly one which could reduce their payloads by as much as 50 per cent. Often, safety is secondary to profit.

The enforcement authorities also have to consider the ability to pay. Imposing high fines is pointless if the drivers do not have the means.

Time is also of the essence of road

transport and the use of prohibition is a punitive measure which imposes an immediate financial and perhaps contractual penalty on fleets in developed countries. Time is of less importance in the developing world and an inability to pay fines is the norm.

In Europe it is common to fine the driver and the operator of the vehicle alike. Penalties amounting to several thousand dollars or Euros are not uncommon and it is only a matter of time before fine levels in developing countries are increased to a level where drivers and operators will have to comply with their national laws.

To use the UK as an example, a maximum fine of £100 was initially imposed for each offence in the late 1960s. This was gradually increased, to £200 in the 1970s, then £400 in the 1980s. Today, the figure is £5,000 (£7,400/US\$9,800).

Vehicle prohibition is also used effectively by UK weight enforcement authorities, effectively preventing a vehicle from carrying on its route until loads are reduced or redistributed. This can be particularly costly for vehicles working to Just-In-Time manufacturing regimes or with cross-Channel ferries to meet. In the UK alone, this policy has resulted in over 3,000 responsible fleet operators installing axle weighing systems in their own premises to detect overloads before they venture onto the roads. These operators are obviously anxious that overseas operators who are not subject to the same levels of national weight enforcement are quickly detected when their vehicles enter the UK, thus preventing unfair competition.

A side benefit to these overload detection installations is the instant security check that the systems provide for many fleets; comparing predicted weights with the actual weight being transported prevents theft. ■

www.centralweighing.co.uk

A multi-lane installation in Fujairah, United Arab Emirates. Locally, the rush to complete construction of new holiday resorts and facilities means that vehicles weighing over 100 tonnes can be encountered in their thousands

Central Weighing's Checklode DP portable weighing device has also been trialled by the police in Vietnam

