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IMPLEMENTATION OF AXLEWEIGHT RULES IN UEMOA MEMBER STATES

LESSONS LEARNED FROM TRANSIT TRAFFIC IN GHANA



JULY 2010

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Acronyms and Abbreviations

CBC	Conseil Burkinabé des Chargeurs (Burkina Faso Shippers’ Council)
GCNet	<i>Ghana Community Network Services Limited</i>
GHA	<i>Ghana Highway Authority</i>
GPHA	<i>Ghana Ports and Harbours Authority</i>
NSC	National Security Council
UEMOA	Union Economique et Monétaire Ouest Africaine (also WAEMU – West African Economic and Monetary Union)

I. Implementation of weighbridges for transit traffic in Ghana

In July 2010, UEMOA countries should all start enforcing axleweight limits for trucks. Ghana started this procedure a year earlier. This document describes the Ghanaian experience with limiting weights of trucks in transit to Burkina Faso and may hold lessons for those in other countries about to implement the new regulations.

II. Introduction & context: axleweight control in UEMOA countries and Ghana

It is important to remove overloaded trucks from West Africa's roads. Heavy trucks do not just hasten the destruction of the road surface, which costs over \$1.0 million per kilometre to replace. They also cause accidents and, over time, the road degradation they cause greatly accelerates the wear and tear on all trucks, overloaded and not. All this increases the cost of trucking and thus reduces trade. Higher costs reduce the competitiveness of West Africa's exports and make the region's imports more expensive. The World Bank calculates that a ten percent increase in road-transport costs reduces trade by 20 percent. Ultimately this limits economic growth. In order to accelerate long-term economic development, countries must take steps to reduce overloading. However this can be contentious in the short run, particularly if poorly organised.



Figure 1: Overloaded truck lead to damaged roads which cost over \$1 million per kilometer to replace

In Ouagadougou in March 2010, the eight member states of the *Union Economique et Monétaire Ouest Africain* and Ghana (a country that has land borders exclusively with UEMOA member states) agreed on a “road map” for the implementation of axleweight controls for trucks.¹ A two-stage introduction of these controls takes place (a) from 1st July 2010 with generous axleweight allowances and (b) fully from 1st January 2011. For petrochemical tankers, the implementation takes place more gradually with fines for infractions increasing gradually in three stages until 2012.

Among other stipulations, the UEMOA road map specifies that:

1. coastal ports should install weighbridges (section 5)
2. countries should:
 - a. create focal points to monitor axleweight-control implementation (section 9)
 - b. send quarterly reports to UEMOA with statistics about implementation and difficulties encountered (section 10).

¹ Union Economique et Monétaire Ouest Africaine **2010**, *Réunion de concertation des ministres chargés des infrastructures et transports routiers des états membres de l'UEMOA et du Ghana sur la charge à l'essieu : feuille de route* Ouagadougou, mars

The essential elements of axle-weight control are the installation and use of equipment to weigh trucks and the enforcement of sanctions against those responsible for overloaded trucks.

III. Ghana's steering committee and focal group for axleweight control

Ghana has been a pioneer in implementing axleweight controls, having started to implement them in June 2009, i.e. long before the meeting in Ouagadougou in March 2010. The Ministry of Roads and Highways chairs Ghana's Axle-Load Steering Committee to plan, implement and monitor this task. At the start, implementation presented problems. The first problem took the form of an axleweight-related congestion crisis for Burkinabè truckers at Tema port. The truckers believed their trucks were overweight but they didn't know by how much because the fixed weighbridges at the port were not working. They refused to leave the port because they feared fines and/or being required to offload part of their cargo at the new weighbridges. Their number grew and the port came to a standstill with ships unable to dock. A visit from the Burkinabè Minister of Transport to his Ghanaian counterpart in July 2009 provided solutions: bringing in mobile weighbridges to assist and establishing procedures for gradually introducing reform; and an evolving combination of fines, compulsory unloading and temporarily increased weight limits. This freed the logjam. The visit also resulted in the Ghanaian Minister of Roads & Highways creating a focal group, reporting to the steering committee, to actively facilitate the smooth implementation of axleweight controls in Ghana.



Figure 2: In July 2009 at the beginning of implementing axle load limits, Tema port became congested with trucks waiting to be weighed

The Ghanaian focal group has a troubleshooting and facilitation role, rather than the monitoring and reporting role specified for the focal points in the UEMOA road map, which the Axle-Load Steering Committee fulfils. This small unit operates flexibly and informally, meeting to solve problems as they arise, as well as plan remedial activities and brainstorm on challenges, keeping minutes of its activities and decisions. It may help to think of it as a rapid-response unit or even, in some cases, as a crisis-management unit.

In particular, the focal group aims to help two key agencies – the Ghana Highway Authority (GHA) and the Ghana Ports and Harbours Authority (GPHA) – communicate with each other, truckers and other involved organisations to solve problems arising on the transit corridor from Tema port to Ghana's border with Burkina Faso.² The focal group comprises senior officers from GHA and GPHA, as well as from the National Security Council (NSC)³, and the *Conseil Burkinabè des Chargeurs* (CBC).

² Ghana's focal group deals only with the corridor leading to Burkina Faso, i.e. from Tema port to the exit border posts with Burkina Faso: principally Paga but also Kulungungu and Hamele.

³ The Ghanaian Government considers transit traffic a matter of national security.

A series of official letters between the four member organisations gives the focal group its authority and identifies the representatives who serve on it. Its existence does not depend on a more formal government decision or an act of parliament. It does a good job of bringing together organisations that do not otherwise have strong formal relations.

The focal group consults and informs other organisations as it sees necessary. Thus it consulted the Ghana Standards Board (GSB) about the likely frequency of calibration of weighbridges but GSB does not have a representative on the focal group. Similarly, CBC liaises with various private and public-sector Burkinabè organisations, and NSC's Port Transit Unit and the CBC jointly liaise with private and public-sector organisations from Mali, Ghana and Niger present at the port, but none of these other organisations has direct representation on the focal group.

The existence of the focal group is open-ended: it may remain in place in its current form until 2013 when UEMOA's transitional period for axleweight controls comes to an end.

Given that the UEMOA member states may relive some of the problems experienced in Ghana, this document explains the problems the Ghanaian focal group encountered, how it worked, and some of the solutions found. Other countries may benefit from following similar strategies (or at least anticipating the problems); they may want to consider setting up similar implementation groups.

Members of the focal-group team:

1. Joe-Fred Peseo, Director Road Safety & Environment, Ghana Highway Authority, fredpeseo@yahoo.com
2. Nii Nikoi Amasa, Ghana Port & Harbours Authority, niiamasa@yahoo.com
3. Captain A R Cudjoe (rtd), National Security Council, paabcudjo@yahoo.com
4. Yaya Yedan, *Conseil Burkinabè des Chargeurs* (Burkinabe Shippers' Council), yedanyaya@yahoo.fr

IV. Ghana's weigh stations for axleweight control

In Ghana, the effective implementation of axleweight controls depends on the smooth integration of two sets of weighbridges: those operated by GPHA at the port and those operated on Ghana's trunk roads by GHA.

As of May 2010, GHA had installed 14 permanent weighbridges on Ghanaian trunk roads, with the goal of increasing the number to 26. Of the permanent weighbridges, five were on the Tema-Paga corridor, with two more to come. GHA intends to check trucks at only some of the permanent weighbridges along the corridor. For instance, on the Tema-Paga corridor, it proposes four checks in each direction. In addition, GHA has two mobile weighbridges for impromptu checks of truck weights on diversions that trucks may take to try to avoid permanent weighbridges. GHA plans a total of ten mobile



Figure 3: Map of Ghana's weighbridges

weighbridges.⁴ The mobile equipment is meant only for occasional snap checks: it is not as robust as the permanent-weighbridge equipment.

GPHA operates another four weighbridges in Tema port. Tema port has three gates. One of these gates lacks weighbridges. Several years ago, GPHA installed a pair of weighbridges at each of the other two gates. Each of these gates has two weighbridges, one for trucks entering the port and another for those leaving. For the purposes of axleweight controls, it uses only two, one at each exit gate, although only one of these gates usually serves the transit trade. The other one, dedicated for the moment to domestic imports, serves occasionally to confirm data on transit trucks obtained from the first.

V. Training and publicity

In 2009, weigh stations were not new in Ghana but the trucking sector was unfamiliar with their systematic use to limit degradation of the country's roads. Before initial weighbridge operations started, the focal group ensured that all partners were aware of why weighing was important and how these operations would work. Four types of training and publicity took place:

1. Both GHA and GPHA transferred existing staff to man the weighbridges. Each pair of weighbridge operators received 15 days of training in what was new technology for most of them. The focal group oversaw the development of training modules for this purpose and then followed up after the start of operations to verify performance and reinforce the training.
2. Approximately five supervisors, 30 tally clerks and 40 foremen at the port's loading points received training over one week in the weight regulations for differently configured trucks and the implications of the new limits for loading trucks with a given tare weight. The training also covered distributing the load over the axles, given the tare axleweights for each, which is important for loads arriving by seas in containers but unpacked and restuffed into general-merchandise lorries for onward road shipment.
3. Several hundred stevedoring and shore-side dock labourers received basic information on the same issues as the GPHA loading-point staff.
4. Truckers and drivers received updates on what to expect under the new regime at the port.

Despite all the training, the system had several flaws when it started operations. Delays ensued and confrontations between weighbridge operators and drivers who had to offload excessive cargo or pay heavy fines threatened to escalate into violence. The major lesson learnt is that, in addition to advance publicity of the new system, the system requires at least a trial operational period. For at least a week before full implementation, weighbridge staff need to practice guiding drivers manoeuvring their vehicles onto the weighbridge and need to ensure that all weighbridge equipment is working. During the first trial week, the weighbridge operators would only weigh a sample of the passing lorries and, though they would publicise the weights and educate drivers of overweight trucks, they would neither fine them or require them to offload the excess.



Figure 4: GHA officer educating drivers on appropriate axle load limits

⁴ Mobile weighbridges require foundations for their operation in each location where they are to be used. Thus, though “mobile” they are not usable everywhere.

VI. Weighbridge locations

Weighbridges at the port are fundamental because they generate gross weight certificates at the start of a transit trip through Ghana for freight imported from the world market. GPHA staff operate weighbridges at Tema port, however GHA staff are on hand to assist. After leaving the port and the associated customs yard, drivers bound for the exit border-post pass five weighbridges under the aegis of GHA along the route north to the border with Burkina Faso.

Important reasons for weighing transit trucks more than once are to cross-check that different weighbridges are calibrated correctly and to ensure that drivers are not adding excessive weights of cargo after having left Tema port.

Although UEMOA's new regime only requires two weight checks of transit shipments within a country, Ghanaian officials weigh trucks more than this because they also want to apply axleload limits to trucks on domestic routes, for which it has installed additional weighbridges. Initially, GHA tried to weigh transit trucks at all five weighbridges on the northbound corridor but this greatly perturbed truckers and drivers. As a compromise, GHA now weighs trucks leaving Tema port in transit to Burkina Faso at weighbridges on the Accra-Tema motorway and at Ofinso (40 km north of Kumasi). Southbound, GHA weighs trucks in transit to Tema port at Bolgatanga and Yapei, both in northern Ghana. Operators of other weighbridges should only verify that the driver holds a valid weighbridge certificate and, if appropriate, a receipt of payment of fines for overloading.

See also the section below on "Choosing a weigh station for tare weights".

VII. Practical problems

In practice, the operators of the weighbridges and the truck drivers are corruptible. When a truck arrives overladen at a weighbridge, the operators may take a bribe not to weigh the truck or to discard data about the weighed vehicle, thus leaving the driver free to continue but without proof that he passed through that weighbridge. If challenged for being overweight at a later weighbridge, the driver will be in limbo and the operator at the earlier weighbridge will insist that the driver must have found a route that bypassed his weighbridge to reach the later one.

Weighbridge operators may claim that their equipment is not working. They may choose to delay reporting a malfunction or even disconnect the big screen that publicly displays a truck's weight so no one else knows the real weight. In addition, they may decide not to report that their printer is not working or they may sometimes claim that their printer has run out of paper. In each case, they then have to write the certificate, which allows them to write the weight of their choice, for a bribe. If the operators choose not to save the data for a given truck, the computer does not record them and they are lost to posterity.

This dysfunctional system can leave a driver with paperwork that can suggest quite different weights at different points along his itinerary possibly due to faulty equipment but more likely due to (a) his having loaded extra cargo en route or (b) having bribed his way overladen past earlier weighbridges. Possible solutions would seem to be automatic recording of weights,



Figure 5: Portable weighbridge used by GHA at mobile weightstations

webcams recording all trucks entering and/or leaving each weighbridge, integrating GCNet's satellite tracking of all northbound transit trucks into the axleweight-control supervision protocols, putting more robust audit requirements in place, providing better carrots and sticks for weighbridge staff to work honestly, and/or placing the burden on any operating organisation to prove that its staff are acting honestly.

Minimally, implementing agencies should have a stock of spare equipment (and printer paper) to keep the system working.

GHA also deploys a mobile weighbridge along the corridor from Tema to Paga. At present, GHA uses them principally to cross-check the weights of trucks that have passed through a particularly troublesome fixed weighbridge on the Accra-Tema motorway. The mobile weighbridges work fairly efficiently, though they too can sometimes find themselves "short of paper".



Figure 6: Automation of the weighing and receipt printing process leaves less opportunity for error

Separately, there is the issue of calibration of weighbridges. Without a system to ensure that all weighbridges consistently measure correctly, two problems arise. Firstly, weighbridges that overweigh will decrease loads and thus the profitability of trucking while those that underweigh will increase loads and thus the degradation of Ghana's roads. Secondly, inconsistency of measures among weighbridges make it more difficult to know the reality behind drivers holding mutually contradictory certificates from different weigh stations.

VIII. Franchises for weighbridge operation

After its initial tests of weighbridges using its own staff, problems of corruption have persuaded GHA to revise their management approach. In May 2010, GHA was concluding contracts to allocate franchises to private companies to operate weighbridges on its behalf. In principle, this is a role that a private firm can play well.

To generate competition among the operators of its 14 permanent weighbridges, GHA was concluding individual management contracts for each. Each franchise lasts for one year, with renewals possible for an additional year. GHA staff will monitor the range of strengths and weaknesses over this relatively short performance period, to learn lessons and adjust the management contracts accordingly.

As an incentive system for good performance, the contracts have performance targets structured in terms of percentage reductions of overweight lorries relative to a baseline measured at the start of the contract year. The contracts give full responsibility to franchisees for any inconsistencies between truck weights on certificates issued and the weight measured by a GHA monitoring team (as long as it can be shown that the driver had added no extra load in the meantime). For every such lapse, the franchisee forfeits 10 percent of its fees in that month. After five such lapses, GHA may terminate the contract. Franchisees must keep accurate, systematic records and their staff must complete timesheets to show periods worked. The franchisee has to replace staff that GHA considers unsatisfactory. No subcontracting is allowed. The contract pays the franchisee agreed rates for staff remuneration, sets reimbursable costs, and allows an incentive payment of up to 25 percent.

The key technical element of GHA monitoring is the set of high-speed automatic weigh stations that automatically weigh trucks that pass over them. Restrictive height gantries across certain lanes of trunk roads guide lorries into the automatic weigh stations, but let lower vehicles pass freely. Three of the automatic weigh stations have cameras that provide real-time photographs capturing the identity of each truck passing through.

In May 2010, GHA had seven automatic weigh stations but not all were operational. All weighbridge teams are connected by phone. When a suitable communications network becomes available, GHA intends to link these automatic weigh stations into a wide-area network.

GHA has a contract with the suppliers of the equipment for maintenance; Ghana Standards Board will calibrate it. The European Commission provides assistance for the automatic weigh stations.

GHA planned at least a fortnight of training in June 2010 for franchisees and their staff before implementation. The agency will have one coordinator in each of Ghana's ten regions to oversee the new system.

Once the new system starts, drivers with excess loads up to specified legal limits will have to pay a fine; those with excesses greater than these limits will have to pay a fine and unload the excess.' (See details of these in annex A.) In each of Ghana's ten regions, a GHA cashier will accept fine payments.

IX. Integrating the GHA and GPHA systems

There exists a need for an integrated national system of axle-load controls. In this context, GPHA has a key role to play in providing accurate certificates of weight for transit trucks before they leave the port, at the very start of their transit journeys. However, the authority's focus on containing port costs means that it has incentives both to avoid investments that will raise those costs and to get trucks out of the port quickly to avoid congestion.



Figure 7: Taking time to help educate drivers how to avoid overloading encourages change

It has been important to emphasise that the port's attractiveness for transit shipments is as part of a corridor that includes high-quality roads. Therefore, GPHA has agreed that it must make provision for weigh stations within the port at the point of loading so that the driver of an overloaded truck can easily return to the loading bay, unload the excess, and return to the weigh station to confirm an acceptable weight, long before customs seals the truck for its transit journey through Ghana. In contrast, current weigh stations at the port exit, far from loading points, make shedding any excess a more costly and logistically complex task.

X. Monitoring & statistics

GHA is carrying out studies to establish the economic and financial costs to transporters of complying with the axleweight limits. It is important for government to understand the constraints under which truckers operate and that frame the incentives they perceive. The findings of the studies will allow GHA to ease all truckers towards compliance with the new regulations that are in Ghana's national interest.

GHA aggregates weight data from the weighbridge computers and copies of certificates issues in order to produce monthly and quarterly reports. However, coding of trucks does not allow a clean distinction between data for transit trucks and those for non-transit trucks (for domestic haulage). Further, as suggested above, there exists doubt about biases in the data due to weighbridge operators not entering details of overloaded trucks. GPA has not yet started a systematic transmission of such reports for laden truck weights at Tema port to the other members of the focal group.

Once GHA overcomes these problems, analysis of these data by truck configuration, forwarding company truck owner, nature of cargo, driver, etc. will lead to valuable insights into overloading practices. However, if the data are biased, results will be flawed.










XI. Choosing a weigh station for tare weights

Lorry owners need certificates with their truck's gross tare weight and each tare axleweight. Without this information, they cannot load their lorries efficiently. The gross tare weight gives the driver, terminal operators and port staff the maximum load that the truck can legally load and the tare axleweights indicate the distribution of that load across the axles. The committee decided it was important that one trusted public weigh station should issue all tare-weight certificates and that owners should not pay for this service. They ensured that the chosen weigh station was conveniently located and that it was open at least 12 hours daily.

Having identified the weighing station, a committee member followed up to sensitise weighing-station staff and to ensure that the weighing was proceeding acceptably, occasionally supplying paper for printing the certificates and dealing with accusations of minor corruption.

By May 2010, trucks registered in all countries wanting to haul transit freight from Tema port could obtain tare certificates from this one Ghanaian weighing station. Burkina Faso has no such certificate-delivering station. Once it develops this service for its truckers, the question of reciprocal recognition of certificates will arise. In the meantime, CBC has prepared a database of all categories of Burkinabè vehicles involved in transit haulage, with their tare weights, and has made it available to the Axle-Load Steering Committee. When Burkina Faso develops its own tare-weight service an updated version of this database will allow comparison of these reference weighbridges between countries.

XII. ANNEX A

UEMOA Standard (tonnes)	Tolerance Limit 1 ¹ (tonnes)	Tolerance Limit 2 ² (tonnes)
Single vehicle with 2 axles 	21 T	23 T
Single vehicle with 3 axles 	31 T	34 T
Single vehicle with 4 axles 	37 T	41 T
Articulator with 3 axles 	36 T	40 T
Articulator with 4 axles 	46 T	50 T
Articulator with 4 axles 	46 T	50 T
Articulator with 5 axles 	52 T	57 T
Articulator with 5 axles 	55 T	61 T
Articulator with 6 axles 	61 T	68 T