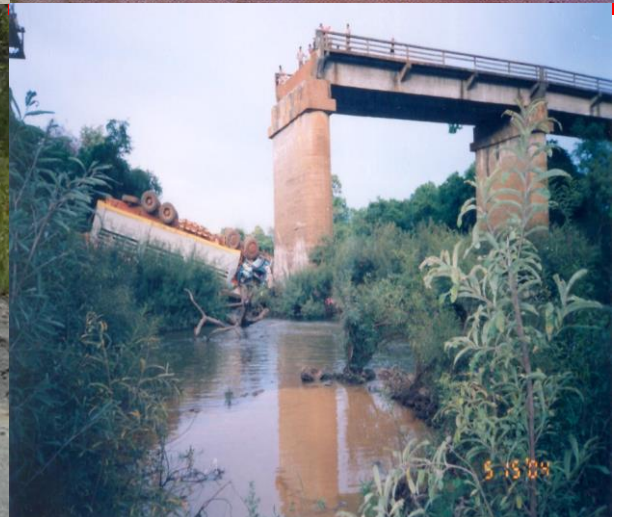


CASE OF OVERLOADING DAMAGED PAVEMENT AND BRIDGE ON CAMBODIAN ROAD NETWORKS



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1. INTRODUCTION

The Royal Government of Cambodia is committed to restoring the condition of primary and highway networks, which connect the principal urban center of the country. Transport is critical to Cambodia's economy because of its growing regional trade, agriculture and rural development priorities. For domestic traffic, the road transport is dominant. Almost 65% of passenger kilometers per year and 69% of other freight are carried by road. The traffic is looking growth rapidly with different kind of vehicles and trucks. It has observed along of National and rural roads increase the traffic of non-standard truck and overloading on standards factory vehicles. These vehicles are becoming hot subject of discussion between the road user and road builder. Part of the rehabilitation roads become serious degraded as in surface as in structure before projecting life. Overloading also causes serious problems to the bridges and other structures. There are a number of instances of recent collapses of bridges due to overloaded vehicles. This has major economic and social, as well as asset destruction cost implication.

2. BACKGROUND

The classification of road network in Cambodia had been separated administration function in two Ministries. A part of this network, the Ministry of Public Works and Transport (MPWT) is responsible for the primary and secondary road that cover amount 7,720 km length (in there 1988 km is principal roads crossing country from south to North within part of corridor AH11 and West to East within part of corridor AH1. See figure 1).

The Most of main roads were constructed 50 – 60 year ago and built for light traffic, with 4 to 6 meter of carriageway. During the 1970's and 1980's, most of the road network was destroyed by war activities and careless of maintenance. By late 1992's, traffic volume had grown rapidly to their pre-war levels.

Another side of good transportation by truck and lorry along the rehabilitation are loading more and more over the standard holding capacity of vehicle itself. Therefore, the non-standard vehicles are looking remarkable use with standard vehicle along the national road and also access to every where they can their destination. By their ways, it is noticed that the roads after rehabilitation are degraded quicker then the life expectation.

The Ministry of Public Works and Transport recognizes the adverse influence of overloaded trucks on pavement and has started corrective countermeasure against these activities.

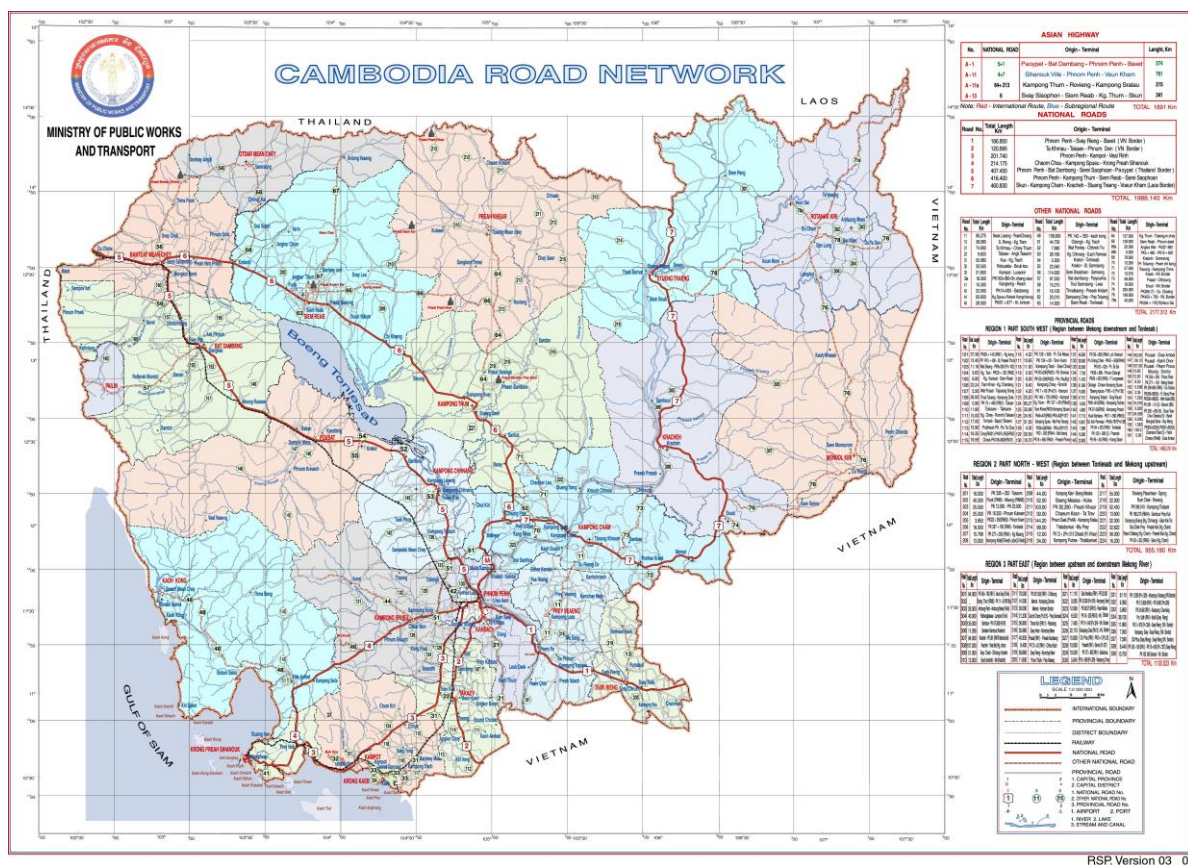


Figure 1

3. SEVERAL PHOTOS OF DAMAGED ROAD PAVEMENT AND BRIDGES

The degradation and the damage are often meet along the national road network, especially where the road after rehabilitation. Overload of vehicle is paying a lot with great loss of human life and public property and deceleration of economic development for the whole (see pictures

herewith). Apart of these problems the maintenance cost and operation in road infrastructure is steady load and overload to annual financial planning in the Ministry.



Damaged road pavement along Primary Road



Collapsed Bridges on RN6 and RN7



Collapsed Bridges on RN5



Collapsed Bridges on RN3



Collapsed Bridge on Rail Bridge



Collapse Bridge along Secondary Roads

4. OVERLOADED VEHICLES CONTROLLING SYSTEM

4.1 SUB-DEGREE ON MAXIMUM WEIGHT OF TRANSPORT VEHICLES CIRCULATING ON NATIONAL ROADS OF THE KINGDOM OF CAMBODIA

The overload vehicles still stand in the first factor of road destruction. The Ministry of Public Works and Transport was decided, in strong action plan, to prevent the risk dedicate from the overload trucks and making some prevention measures to stop them from principal road network.

Furthermore with different incident and most often happen in the transport infrastructure and in the concept to ensure the traffic safety for the public user, the Royal Government of Cambodia and Ministry of Public Works and Transport (MPWT) have established a Sub-degree on Maximum Weight of Transport Vehicles Circulating on National Roads in September 1999. The key prevention against the overload vehicle had been fundamental stated in this Sub-degree. Some extraction chapter with English translation could find herewith as follow:

Chapter 3

MAXIMUM WEIGHT OF EACH AXLE OF TRANSPORT VEHICLE

Article 3: The maximum weight of each Single Axle of transport vehicle circulating on the national roads shall NOT be exceeded 10 tons.

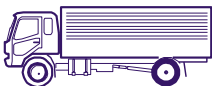

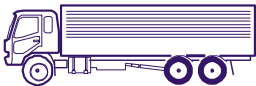





Article 4: The maximum weight of each Tandem Axle of transport vehicle circulating on the national roads shall NOT be exceeded 19 tons. The weight for each axle shall not be exceeded 10 tons in accordance with Article 3.





Chapter 4 & 5

MAXIMUM GROSS WEIGHT OF TRANSPORT VEHICLE AUTHORIZING TO CIRCULATE ON NATIONAL ROADS TYPE A AND TYPE B

With reference to Annex 1 and 2 of PRAKAS of MPWT No 744 dated 19 November 1999 on

Maximum Load Limit for Transport Vehicles on road network type " A " and type " B "

No.	Type of Transport Vehicles	Permissible Gross Weight		General Condition
		Type A	Type B	
1		16 Tons	16 Tons	Single axle < 10 Tons Tendom axle < 19 Tons Total weight of trailer should be less than 1.30 of total weight of the trailer vehicle.
2		25 Tons	20 Tons	
3		25 Tons	20 Tons	
4		35 Tons	30 Tons	
5		35 Tons	30 Tons	
6		35 Tons	30 Tons	
7		40 Tons	35 Tons	
8		40 Tons	35 Tons	

-  Single tire 
 Double tires 

Chapter 7 **PENALTIES**

Article 14: The penalties shall be administered as follows:

1. Any vehicles, which exceeds the authorized weight stated in Articles 4,5,6,7 by less than 5% shall be warned in writing without any fine.
2. Any vehicles, which exceeds the authorized weight stated in Articles 4,5,6,7, and 8 by 5% to 10% shall be fined 100,000 Riels.
3. Any vehicles, which exceeds the authorized weight stated in Articles 4,5,6,7 and 8 by 10% or more shall be fined 100,000 Riels for each ton over 10%. The exceeding weight shall be paid according to the authorized weight.

Article 15: The transport vehicle penalized as provided in this Sub-degree shall not be authorized to circulate, unless discharging the excess goods and payment of the fine.

Article 16: If an Overloaded Vehicle causes actual damage to state properties, the owners shall pay for such damage in addition to the fine.

Article 17: 60% of the revenue from fines shall go into the state budget and 40% as a reward to the competent agents for their efforts in performing their duties.

“

4.2 ROAD TRAFFIC LAW

A final Draft of new Road Traffic Law is being submitted to the National Assembly for ratification. Therefore, the old Road Traffic Law, which was established in 19th August 1991 is still effective and this current Law states the following requirements for Vehicles and Motorbikes:

“

Article 35: All kinds of vehicles shall have 2.50meters of maximum width, and 3.50meters of maximum height. Loading of goods outside the side edge of vehicles is prohibited. In the case of transporting heavy materials or machineries, the vehicles shall have the width greater than 2.50meters. The goods, which are loaded on the flatbed vehicles and trailers, have not to protrude in the front and the rear greater than 3 meters.

For the tricycles, goods are not allowed to load higher than the driver.

House-drawn carriages are not allowed to load (goods or passengers)

greater than 400 kilograms of weight.

Motorcycles with trailers are not allowed to load more than 6 people or goods exceeding 400 kilograms of total weight.

Article 36: The length of all kinds of vehicles including goods, equipment, or materials, which are loaded, has to be defined as follows:

- a- The vehicles with two axles or six wheels shall have 10meters of maximal length.
- b- The vehicles with three axles or ten wheels shall have 11meters of maximal length.
- c- The platform vehicles transporting equipment and heavy machines shall have 14meters of maximal length.
- d- The tractor-trailers shall have 15meters of maximal length.

“

4.3 CURRENT INSTITUTIONS FOR THE OVERLOADED VEHICLE WEIGHT SCALING AND REGULATORY ENFORCEMENT

After establishment of the Sub-degree on Maximum Vehicle Weight, Ministry of Public Works (MPWT) set up an Inter-Ministerial Committee for Overloaded Vehicle Restriction to enforce the Sub-degree and Road Traffic Law.

The structure of the Committee as follows:

- Chairman : Advisor to the Minister of PWT
- Vice Chairman : A representative from the MPWT, responsible for the Technical Affairs on Weight Scaling
- Vice Chairman : A representative from the Ministry of Interior, responsible for the Traffic Law Enforcement
- Vice Chairman : A representative from the Ministry of Defense, responsible for the Security Affairs
- Treasury Chief : A representative from the Ministry of Economy and Finance, responsible for the Accounting Affairs

The Committee also established a Sub-Committee as a Working Group to Implement the Weight Scaling Activities, which consists of;

- 4 members from MPWT, Responsible for Weight Scaling
- 1 member from Ministry of Economy of Finance, Responsible for Penalty Fee Collection and Accounts

- 4 members from Ministry of Interior,
Responsible for Road Traffic Law Enforcement
- 4 members from Ministry of Defense,
Responsible for Security
- 2 or 3 members from Provincial Authority
- 1 member as the representative of the Provincial Governor

The Sub-Committee selects random checkpoint on the main National Roads to conduct the Weight Scaling on such Vehicles that are suspected as overloaded.

These photographs below show their activities:



Location RN7, Gross weight: 45.23t



Location RN6, Gross weight: 46.33t



Location RN4



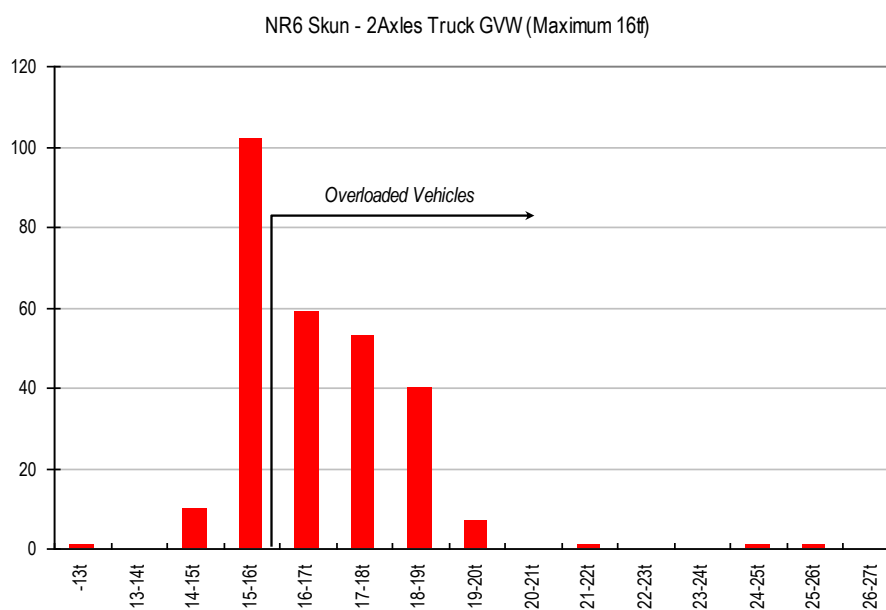
Location RN5, Gross weight: 51.67t

4.4 RESULTS OF OVERLOADED VEHICLES INSPECTION AT ONE SELECTED CHECKPOINT (RN6, SKUN)

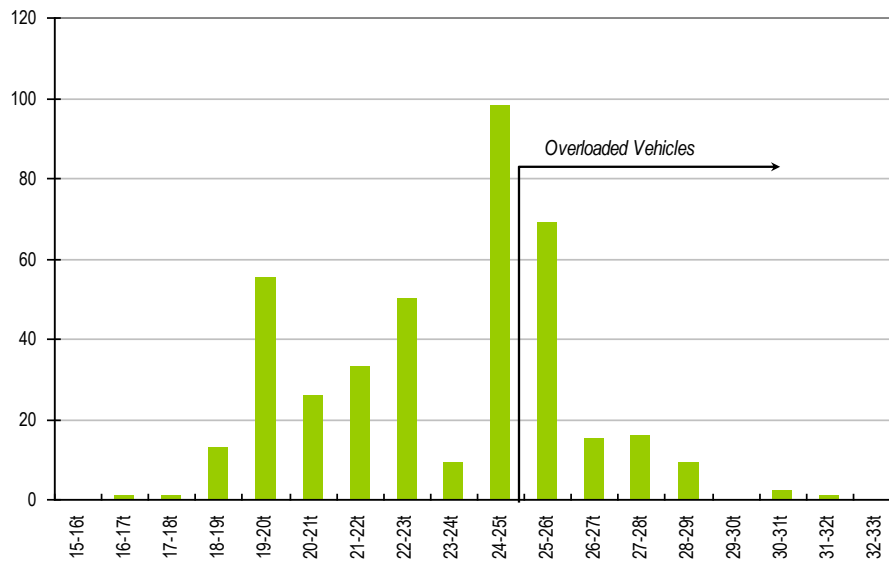
Summary Table

	Gross Vehicles Weight			Axle Weights (10t Limit)		
	Observed Vehicles	Excess	Ratio	Observed Axles	Excess	Ratio
2 Axles	275	162	58.91%	550	252	45.82%
3 Axles	398	112	28.14%	1194	237	19.85%
4 Axles	354	75	21.19%	1416	274	19.35%
5 Axles	531	114	21.47%	2655	39	1.47%
6 Axles	3	1	33.33%	18	0	0.00%
All	1561	464	29.72%	5833	802	13.75%

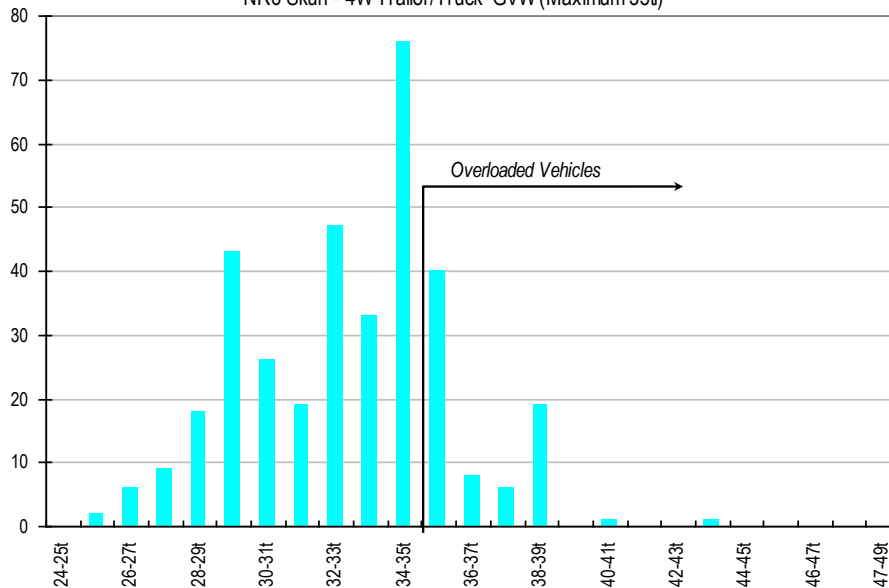
Graphs of Vehicles Gross Weight by Vehicles Type

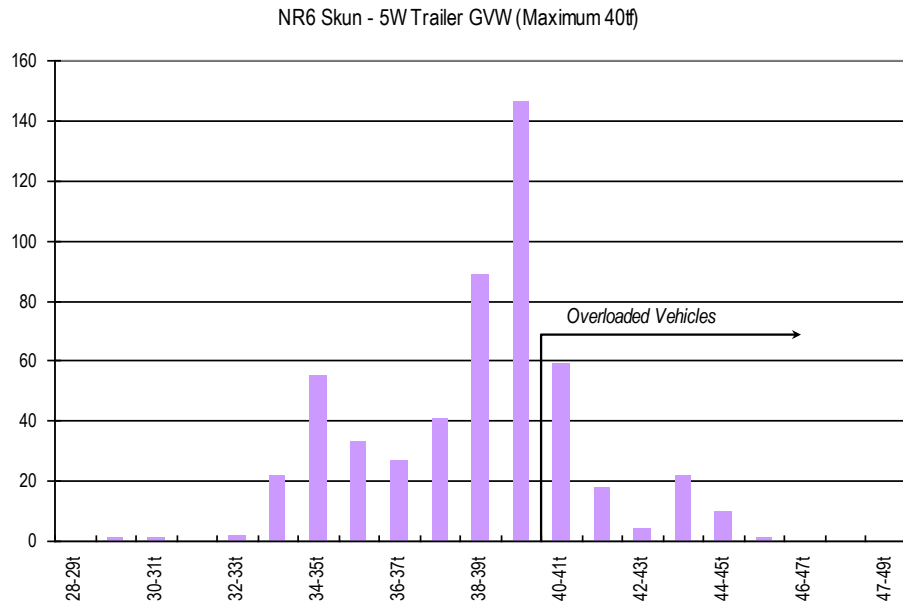


NR6 Skun - 3Axles Truck GVW (Maximum 25tf)

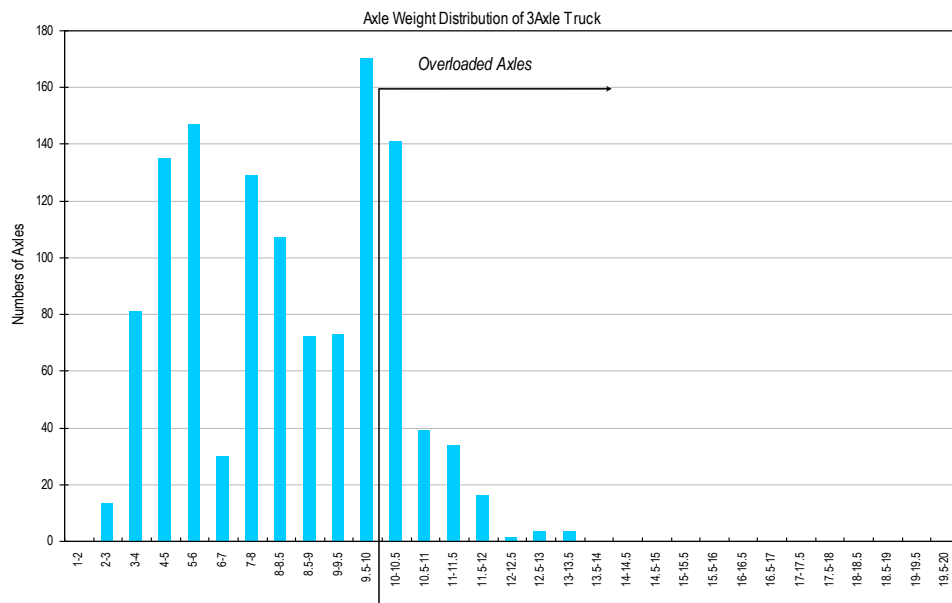
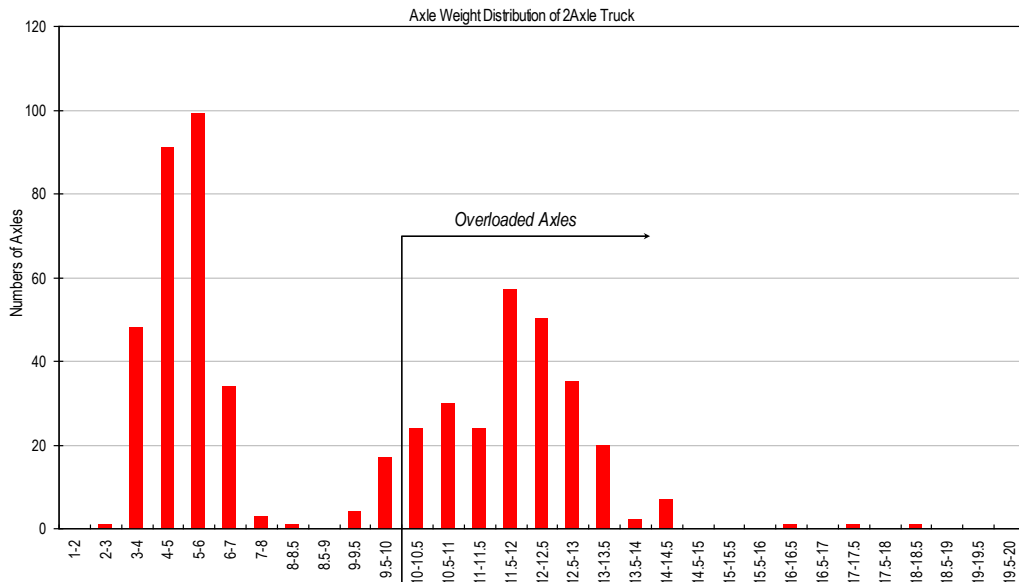


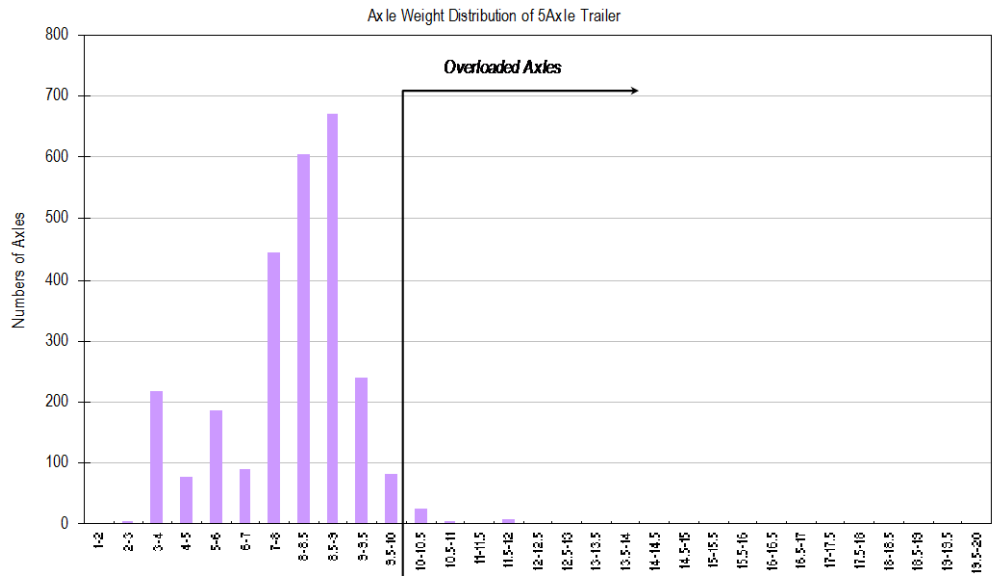
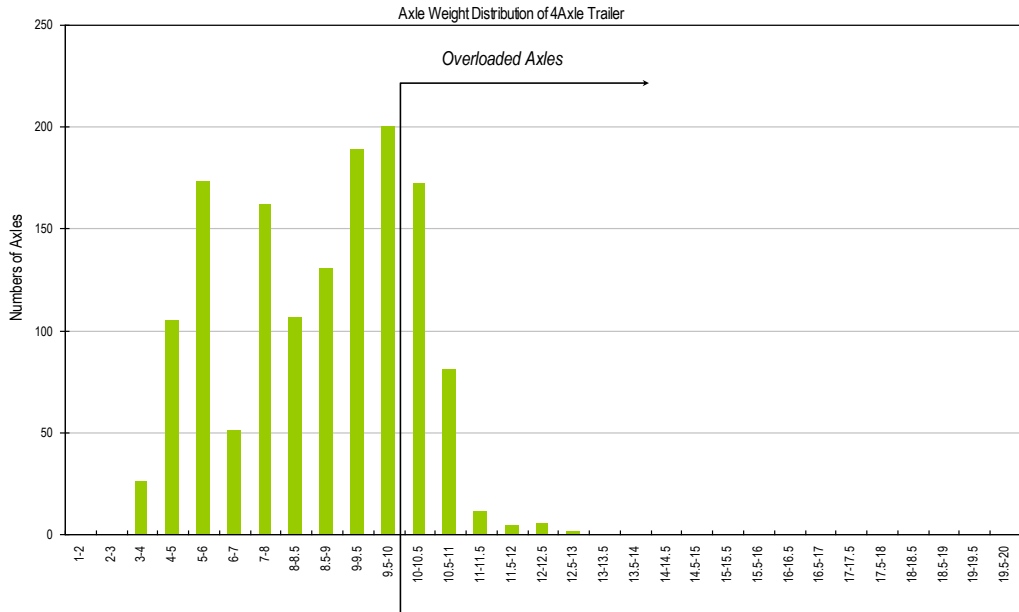
NR6 Skun - 4W Trailer/Truck GVW (Maximum 35tf)

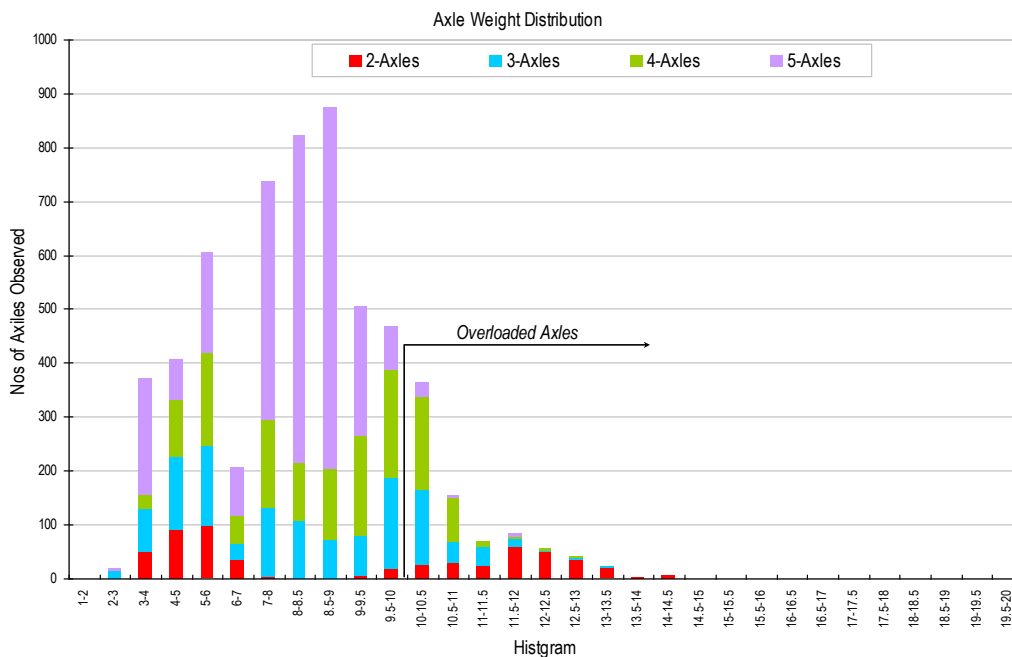




Graphs of Axles Weight by Vehicles Type







5. CONCLUSIONS

As stated before, the MPWT recognizes the adverse effect of overloaded trucks on pavement and other structure. The MPWT has concern not only the operation cost of road maintenance and also with the road safety that reach the goal of national policy in transport sector as part of four integration components policy of the Government. Further prevention of overload vehicles along the roads, MPWT is setting some control system to monitoring and implementing the corrective actions against them. Various mitigation measures have been implemented in the main national roads.

Improvement of the road networks accurate a much slow rate than changes in vehicle technology and freight task demands. The road authorities need to identify those parts of the road and bridge at greatest risk and address their deficiencies in the terms of pavement strength, surfacing, width and geometric requirements.

6. REFERENCES

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4. Final Draft of Road Traffic Law, MPWT 2003
5. Final Draft of Road Law, MPWT February 2004.