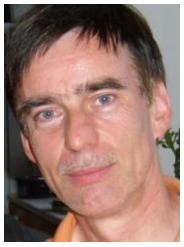
INCREASING NUMBER OF TRUCK BREAKDOWNS: SIMPLY BAD LUCK?

Programme manager on freight traffic in relation to road management, and project leader of the monitoring of Longer and Heavier Vehicles.

LOES AARTS
Rijkswaterstaat
Ministry of Infrastructure & Environment
The Netherlands



Senior advisor on road traffic management. Project leader of road freight traffic management like improvement of the traffic flow and the implementation of the overtaking prohibition.

ROBERT IN 'T VELD
Rijkswaterstaat
Ministry of Infrastructure & Environment
The Netherlands

Abstract

Since 2005 the number of truck breakdowns on Dutch motorways tripled. In the same period the number of trucks involved in accidents more or less stabilized. Because of his dimensions and mass a broken-down truck has a large impact on traffic safety and congestion. Therefore the national Road Authority Rijkswaterstaat, part of the Ministry of Infrastructure & Environment, started a research to look for possible explanations. The main question is, are breakdowns simply bad luck or can they be attributed to certain developments? An unambiguous explanation could not be found. Several factors together, like: the economic crisis, the technical state of foreign trucks, new technologies and the process of flexibility in logistics, explain the increase of truck breakdowns. The modern truck fleet maintenance management systems in combination with the yearly M.o.T., makes the fleet manager well enough informed to make the right decisions to prevent a breakdown. Being so well informed, it is perhaps better to speak about taking calculated risks than having bad luck.

Keywords: Safety, Transport policy, Road management, Incident Management

1. Introduction

Since 2005 the number of truck breakdowns tripled. In the same period the number of trucks involved in accidents more or less stabilized. Improvement of registration or an increase in the total number of trucks, could have an influence on the number of truck incidents too. However, that cannot be the main reason of this remarkable increase. There have to be other explanations.

All vehicles that come to a standstill on the emergency lane are a safety risk for themselves and other road users. Due to his dimensions and mass a truck is even a greater risk. Besides that a stranded vehicle on the emergency lane often leads to a reduction of the available road capacity. Rijkswaterstaat, the Dutch national road administration, wants to get more insight in the possible explanations for the increase of truck breakdowns. Are truck breakdowns simply bad luck or can they be attributed to certain developments?

One of the purposes of this study is to survey the extent of the problem by analysing the registration data of incidents and to put it in a wider context. To assure the data is reliable, a critical analysis is made of the registration data. Interesting is if stakeholders involved recognize the increase of truck breakdowns and if so, what kind of explanations they have. Therefore twelve stakeholders have been interviewed and a survey among 300 truck fleet owners has been done. To observe what is happening in practice a road inspector has been followed on his duty. Different sources of literature have provided additional information.

Reading guide
The second chapter presents facts and figures about the development of truck breakdowns since 2005 and shows what the consequences for society are. The third chapter explores the possible explanations that have been found for the remarkable increase. This paper comes to an end with conclusions in the fourth chapter.

2. The development of truck breakdowns since 2005

Everything that is happening on the motorway that has been seen through the eyes of a traffic camera, a road inspector or a salvage company, is registered. Registering is however work done by humans and therefore not without mistakes. A traffic camera can notice a car on the emergency lane but it has to be the officer in charge at the road traffic control centre that has to fill in the registration. Incidents on motorways concerns all stranded vehicles irrespective of the reason why they are stranded. In the database all kinds of details of the situation can be recorded like location, time, kind of incident, nationality of the vehicle etc.

There are two types of databases registering incidents on motorways: CMV-database: all incidents settled by salvage companies and the CMI-database: all incidents recorded by the road traffic control centres. The quality of the CMV-database has been under constant political pressure to improve. Rijkswaterstaat is responsible for the road management on motorways. The governmental organization has made service level agreements with the Ministry of Infrastructure and Environment (I&M) on the time needed to clear the road after an incident has happened. These agreements are part of the policy of the Ministry to optimize

the availability of the road capacity. In a heavily used road network as in The Netherlands, every disturbance can lead to traffic chaos. Rijkswaterstaat cannot prevent accidents and vehicle breakdowns happen, but clearing the road as fast as possible is something that can be managed. To measure the performance of so called Incident Management a reliable database is necessary.

The CMI-database is less reliable although in recent years, effort has been made to improve the quality. However, the CMI-database is more extensive. A salvage company is not needed with all incidents. For example the truck driver that takes a break on the emergency lane or the mechanic that manages in a short time to get the truck going again, are in most cases dealt with just by the road inspector. Taking the year 2011 compared to 2010, in the CMV-database a decrease of the number of truck breakdowns can be seen. In the CMI-database compared to 2011 the number of truck breakdowns increased, but due to the missing data of one important road traffic control centre, the total number of truck breakdowns are less than in the CMV-database. For this inquiry the CMV-database is taken as starting point, mentioning that the decrease of the number of truck breakdowns in 2011 can be questioned.

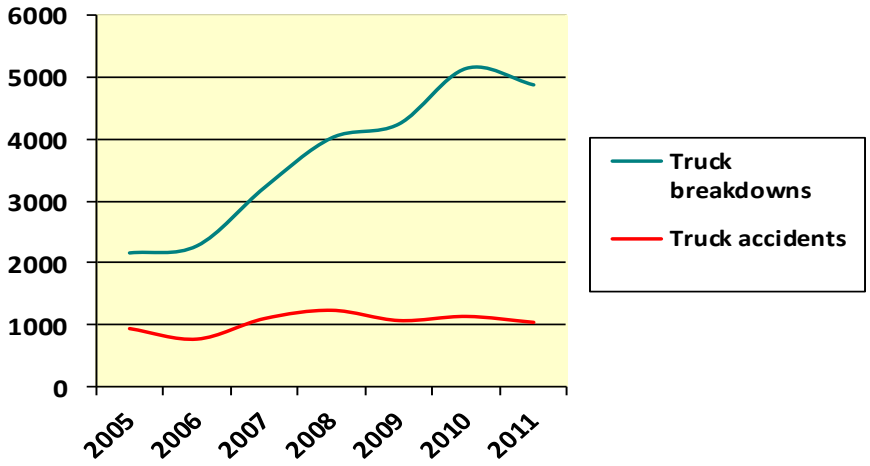


Figure 1 – Number of truck incidents 2005 – 2011

The above graph shows that the number of truck accidents more or less stabilized over the period 2005 – 2011. The number of truck breakdowns shows a remarkable growth.

2.1 Reliability of the data on truck breakdowns

Perhaps there are other explanations for the growth of truck breakdowns which have nothing to do with the technical state of the trucks. Below the possible other explanations are elaborated.

Improvement of registration By the end of 2002 the Dutch Traffic Centre started to collect data on incident management for monitoring the effectiveness and efficiency of Incident Management. From 2007 onwards the quality of the CMV-database is stable on a high level.

Therefore improvement of the registration cannot explain the increase of truck breakdowns. Besides that, over the same period, the number of accidents did not increase.

Improvement of the Incident management system Over the years Incident Management has been professionalized to a high level. Rijkswaterstaat appointed road inspectors to take care for a free traffic flow and if incidents occur, clear the road as fast as possible. The road network has been divided in sections and each section is the domain of one salvage company. It is their duty to be constantly prepared to turn out fast. Self-repair of a truck breakdown on the emergency lane is very much limited. Especially in peak hours a truck is towed away immediately. The costs are for the transport company. For a salvage company every truck breakdown means earning money. It is a fact that there are more eyes on the road. The chance that a stranded truck stays unobserved is very little. This improvement will have an effect on the total number of registered truck breakdowns.

Growing number of road sections overviewed by cameras An extensive investment program of the Ministry of Infrastructure and Environment enlarged the road capacity in the past ten years. The result is a reduction of traffic jams with 25% in 2011 compared to 2010. One of the measures was the opening of the emergency lane for traffic at rush hours, in Dutch called ‘spitsstroken’, in English called ‘hard shoulder running’. By now 52 lanes are created with a total length of 184,91 km. All these managed motorways are 24/7 watched by cameras. In general the length of road sections within field of vision of traffic cameras has increased enormously. This also reduces the chance that a stranded truck stays unobserved and therewith will have an effect on the total number of registered truck breakdowns.

More wintry days There has been suggested that severe winter weather have influenced the number of truck breakdowns. The winter of 2010/2011 had 41 days with a snowpack. That is rather unusual in The Netherlands. The average winter temperature in this period was + 1,1° C, comparing to + 3,3° C normally. The number of truck breakdowns peaked in December 2010 to 458 registered truck breakdowns, the highest registered number ever. On the contrary the winter of 2008/2009 broke ‘heat’ records with an average temperature of + 5,1°C. The number of truck breakdowns decreased in this period. In December 2008 there were ‘only’ 200 registered truck breakdowns. The conclusion is that there is a relation between weather circumstances and the number of breakdowns, especially in winter. However the fluctuations in wintry conditions are not recognizable in the development of truck breakdowns. Despite favourable weather circumstances in the winter of 2008/2009, the number of truck breakdowns kept growing.

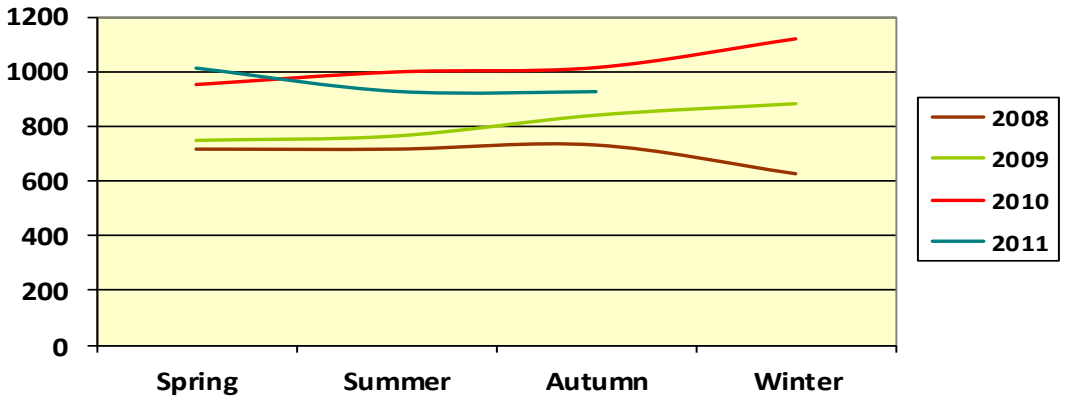


Figure 2 – Number of truck breakdowns per season 2008 - 2011

Growth of the truck fleet Another suggestion was that the general growth in the truck fleet brings along an increase in truck breakdowns. The figure below shows the development of the truck fleet between 2004 and 2012. It is clear to see that the truck fleet decreases from 2009 onwards due to the economic crisis. Therefore an increase in the number of trucks cannot be the reason for the increase in truck breakdowns.

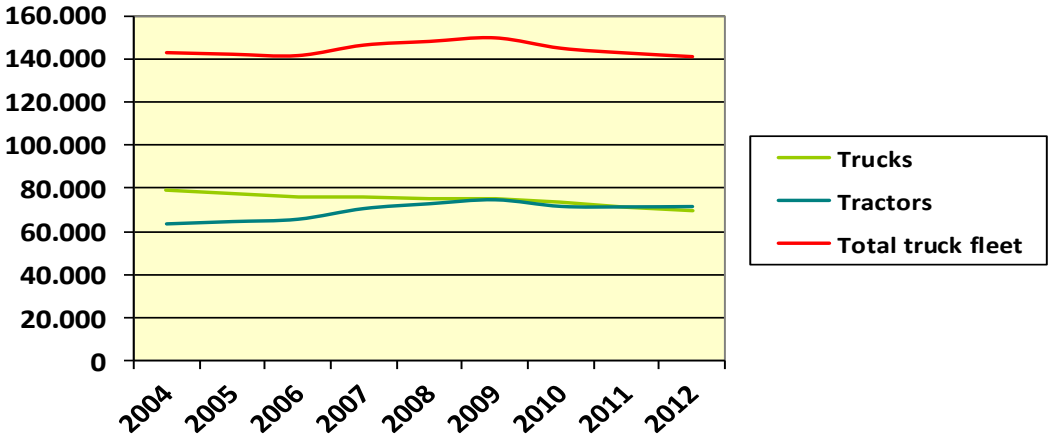


Figure 3 – Development of the truck fleet 2004 - 2012

Another explanation could be the growth in vehicle kilometres per truck. If the number of trucks is not increasing, but more kilometres per truck are made, the number of breakdowns could increase. The number of vehicle kilometres of all trucks on Dutch territory peaked in 2008 with 7313,7 kilometres, and decreased to 6896,5 kilometres in 2010. Therefore the increase of truck breakdowns cannot be explained by a rise in vehicle kilometres either.

2.2 Recognizable for stakeholders?

Do stakeholders involved recognize the increase of truck breakdowns? A survey was held among over 300 truck fleet owners. They turn out to be divided. One out of three thinks the number of truck breakdowns has increased, another one out of three thinks it remained the same over the last years, one out of six even thinks the number of truck breakdowns decreased. Asking how many truck breakdowns they had in 2011 themselves, and if this was an increase or a decrease compared to 2010, half of the 300 truck fleet owners declared the number of breakdowns did not change compared to 2010. 27% of them even encountered a decline of the number of truck breakdowns in 2011.

Interest groups for transport and shipping companies do not recognize the increase. They do not get any indications on meetings with members, nor is it a subject in conversations with members. Only the interest group of 30 owners of large trailer fleets (TRTA) is not surprised of the increase of truck breakdowns. The market leader in transport insurance companies in The Netherlands TVM does recognize the increase in truck breakdowns. In times of recession they always see an increase. The organizations involved with the periodic motor vehicle tests (M.o.T.) had not yet clearly seen an increase in the number of truck breakdowns, but they can image there is. Police forces already had the impression that the number of truck breakdowns was growing, but they could not provide this with hard evidence. Surveillance of the technical state of commercial vehicles by authorities is the responsibility of the National Police Forces (KLPD), the Inspectorate for Transport and Environment (ILT) and the Road Traffic Department (RDW). Every year all commercial vehicles (trucks and trailers) have to go through a M.o.T.

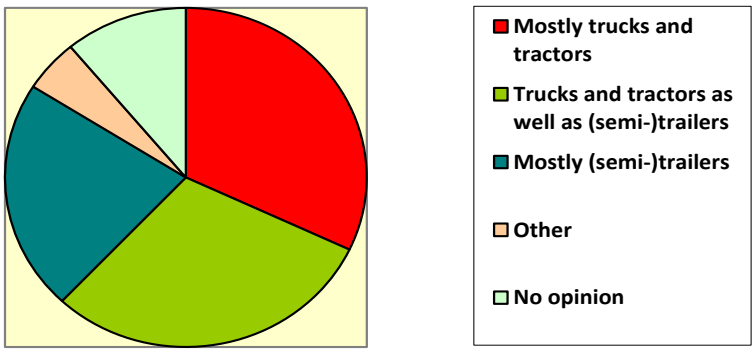


Figure 3 – Survey question: Was the truck or the trailer most frequent the cause of the breakdown?

On joint mobile checks over 1000 trucks are picked out of the traffic yearly. It is just a small selection of the whole truck fleet and it should be an at random selection. In 25% of the cases they identify technical failures, in 80% of the cases the technical failures are on the trailers. The last observation is confirmed by the salvage companies and road inspectors. These ‘eyes on the road’ do see an increase in the number of truck breakdowns too. This does not correspond to what the 300 truck fleet owners reported in the survey.

2.3 Consequences of truck breakdowns for road management

There are direct and secondary consequences of truck breakdowns for road management. Every vehicle standing on the emergency lane is a safety risk and will have consequences for an undisturbed traffic flow. The road manager tries to pass the costs to tow away a truck by a salvage company on to the transport company. Most of the times he succeeds, but there will always be costs left for society. The consequences are elaborated below.

Safety risks

On the early morning of the 29th of June 2012 a 30 year old truck driver was found dead next to his truck on the emergency lane of the A73. A colleague knocked him down when passing. He did not notice running over someone, only thought the load was moving. DNA of the dead trucker was found on the truck. Just a couple of days later, on July the 3rd, another accident happened at the A15. On the emergency lane a truck with a concrete pump had problems with the gear-box. A truck loaded with stones for ornamental paving did not see the truck of his colleague in time and crashed with it. No one was seriously hurt, but for hours only one lane was available for traffic. It took time not only to clear the road but also to clean the oil on the asphalt. Part of the road had to be replaced during the night and a piece of the crash barrier had to be repaired.

Two to three deadly injured victims of a total of 80 fatalities on motorways are killed on the emergency lane (situation 2010). In 2003 accidents on emergency lanes have been studied by the National Council for Transport Safety. The main conclusion was that accidents on emergency lanes often end up more seriously than other accidents on motorways. In 40% of the 96 researched cases a truck ran over a person or the vehicle on the emergency lane. This is relatively high taken into account the moderate share of trucks in the total amount of vehicle kilometres, even only considering the right lane. In the average situation, a third of all vehicles on that lane are trucks.

A secondary safety risk with a stranded truck on the emergency lane arises through the discontinuous traffic situation. Often one or more lanes are blocked and traffic is queuing. The road situation does not meet the expectations of the road users. Congestion means a higher risk for accidents. Take this example: in the morning of 29th of September 2011 during rush hour, a truck driver is getting out of track and ends up with his truck in the ditch alongside the motorway A67. The right lane is blocked and the traffic control centre decides to wait for salving the truck after rush hour. Around ten o'clock they start to tow away the vehicle. Yet behind the works a tailback comes into being. At the end of the line a rear-end collision with two trucks involved occurs. The whole carriageway in one direction is closed. At noon the left lane is opened for traffic again, the right lane is only released late in the afternoon. It shows the chain of reactions that can be set off through a truck breakdown.

A third safety risk is when the truck gets out of control because of a technical failure. A blowout or stagnating brakes are often the reason for a truck getting out of control. The consequences are often dramatically if other road users are involved. Like the tragedy on the Sunday morning of 25th of September 2011. Because of a blowout a truck driver loses control over his rented tractor/semi-trailer combination on motorway A73 and collapsed the centre median strip. A frontal crash between the truck and an oncoming passenger car was inevitable. An elderly couple on their way to their holiday destination is killed. The truck driver died some days later. There is no data on the number of accidents caused by a truck breakdown.

Traffic flow and costs

Despite a decrease in the vehicle kilometres in 2009 and 2010 (data over 2011 is not available yet), the number of truck breakdowns increased. The impression from the media is that congestion because of a truck breakdown or an accident with trucks involved occurs daily. The reality is that congestion is mainly caused by commuter traffic. Between 2000 and 2011 only 0,43% of the congestion could be attributed to breakdowns (cars and trucks together). Congestion because of a truck breakdown is unexpected in contrast with structural congestion, and therefore evokes always more annoyance. The loss of time because of structural congestion can be planned for. Data on the share of truck breakdowns in unexpected traffic jams is unfortunately lacking. The figure below shows the time that is needed to clear the road after an accident with a truck (or several trucks) involved and truck breakdowns. Remarkable is the relatively high number of truck breakdowns for which 1 to 2 hours are needed to clear the road.

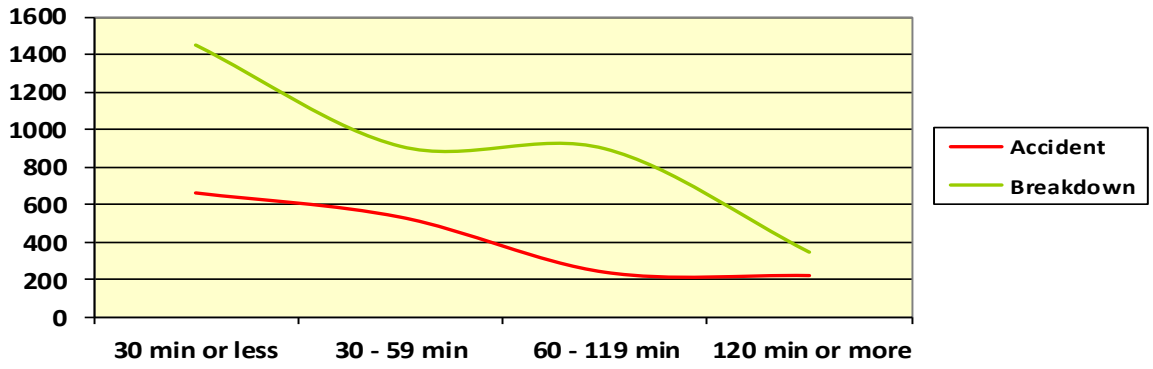


Figure 4 – Time needed to clear the road after an incident happened 2011

In 2010 the economic loss of truck breakdowns was about 6,3 million Euros. The economic losses due to accidents with trucks involved is significantly higher: in 2010 this was upwards of a 12,4 million Euros. These amounts are based on the following principles:

- Travel delay due to congestion (VVU (hour) = 4(min/congestionkm) * 1500 (vehicles/hour/lane) * 2,5 * congestion length (km * min) / 3600 = 4 * congestion length)
- Weighed value of time (weighed value of time for passenger transport by road is €10,67 and for road freight transport €45,78: weighed value of time is €17,31)

The direct costs for Rijkswaterstaat are lacking in this calculation. The costs of a ride in vain are about 250 Euros. The average costs of a salvage are 3000 Euros: for the salvage of a broken-down truck the costs are about 1000 Euros. Rijkswaterstaat tries to recover the costs on the truck owner. In most cases this is possible. The salvage company keeps the truck on his terrain till the owner pays the bill. In those cases this isn't possible Rijkswaterstaat pays the salvage company. The costs of a ride in vain are more difficult to recover on the owner, because the salvage company has not performed any activities. The yearly costs for Incident

Management for Rijkswaterstaat are in total about 2,5 million Euros. From that amount in 2010 at least 1 million Euros can be attributed to truck breakdowns.

3. Explanations for the increase in truck breakdowns

What could be the cause of the increase in truck breakdowns? This question was asked in the survey among 300 truck fleet owners for the own truck breakdowns and for the general increase of truck breakdowns on motorways.

Reasons for breakdowns (own truck fleet):

1. Modern electronics makes truck fleet sensitive to breakdowns
2. Less preventative replacement of components
3. Reporting of failures by truck drivers is insufficient
4. Savings on maintenance
5. Truck drivers are not qualified enough
6. Insufficient control of (semi-)trailers

Reasons for the general increase in breakdowns:

1. Increase of foreign trucks
2. Be in bad repair due to the economic crisis
3. Keep on driving for a longer time with existing equipment
4. Modern electronics makes truck fleet sensitive to breakdowns
5. Less preventative replacement of components
6. Truck driver does not have his ‘own ‘ truck anymore

The reasons for truck breakdowns can be clustered in three types of possible explanations: the economic crisis, the growing number of foreign trucks and the truck fleet use

3.1 Economic crisis

Transport is strongly influenced by economic fluctuations. If economic development is stagnated the demand for transport stagnates as well. The economic crisis started in 2009 with a firm dip. The transport volume fall back with 9%. In the course of time the crisis appeared to be more fundamental and the outlook for the coming years, with strong cutbacks and the Euro-crisis, is of a structural low economic growth. Transport prices are under pressure and low margins affect the willingness to invest. The number of transport companies that goes bankrupt is high, although the differences between market segments are considerable. The changing circumstances in which transport companies have to operate become apparent in the evolution of the truck fleet in the past years.

The sales of trucks show a never seen before peak between 2006 and 2008. Due to the economic crisis a lot of equipment was hold up or disposed of. Because the recent crisis appeared to have a more fundamental character, the policy for equipment replacement changed. Previously most trucks were replaced automatically. The fast succession of new motor technologies (Euro-standardization) reduced the economic life of trucks to 4 to 7 years, although technically the trucks are still functioning well. If a truck is at the end of his economic life, nowadays the decision for acquisition is made, with the need for replacement of the whole truck fleet taken into consideration. A survey by the hauliers association TLN

among transport companies learns that the majority plans a further reduction of their truck fleet in 2012.

The economic crisis could be a cause for the increase in truck breakdowns. There are two ways of how it could become manifest:

- Transport companies could keep on driving for a longer time with existing equipment. The age structure of the registered broken-down trucks compared with that of the total truck fleet could be an indication for that. One may expect that technical failures are more frequent with older vehicles.
- Less preventative replacement of components and savings on maintenance costs could be another cause of the increase of truck breakdowns. This is hard to proof. At least, there should be a relation between the type of technical failure that caused the breakdown and types of technical failures that are sensitive to maintenance.

The age structure of broken-down trucks

If existing equipment is longer used, it should be distinguishable in the age structure of broken-down trucks, compared to the age structure of the total truck fleet. From the figure below it is clear that the chance for a breakdown increases with the age of trucks. Only the 'Old Timer' truck fleet (older than twenty years) is treated with extra precautions it seems.

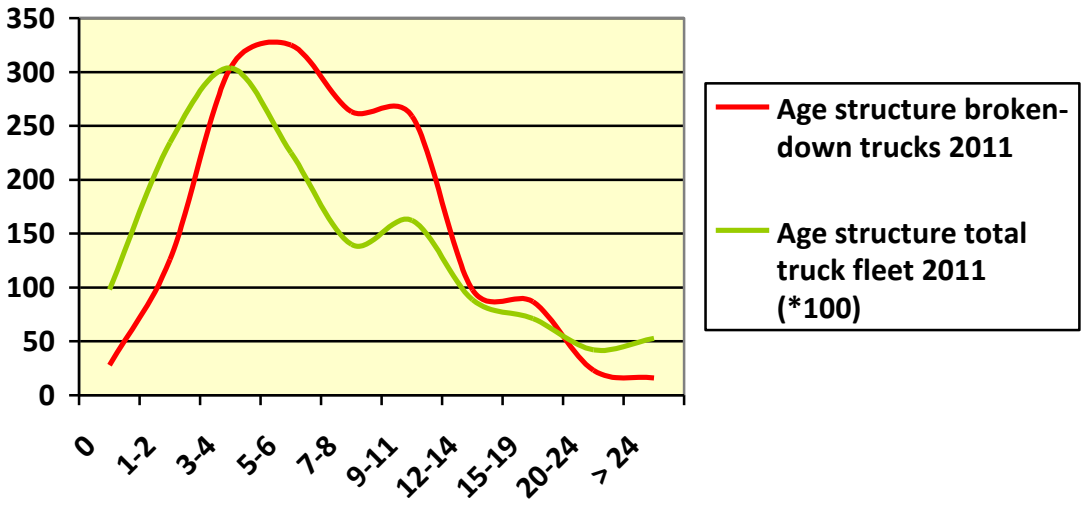


Figure 5 – Age structure of the total truck fleet and broken-down trucks in 2011

The license numbers of the broken-down trucks are known and can be matched with the database of first registration of the license numbers of all trucks. This can only be done for trucks originated in The Netherlands. In this way a relation between the development of breakdowns and the age of a truck becomes clear. The first notable finding is that the development of breakdowns is a lot less progressive. In fact, there is a drop in 2011 to an extent, which is even a little less than in 2008.

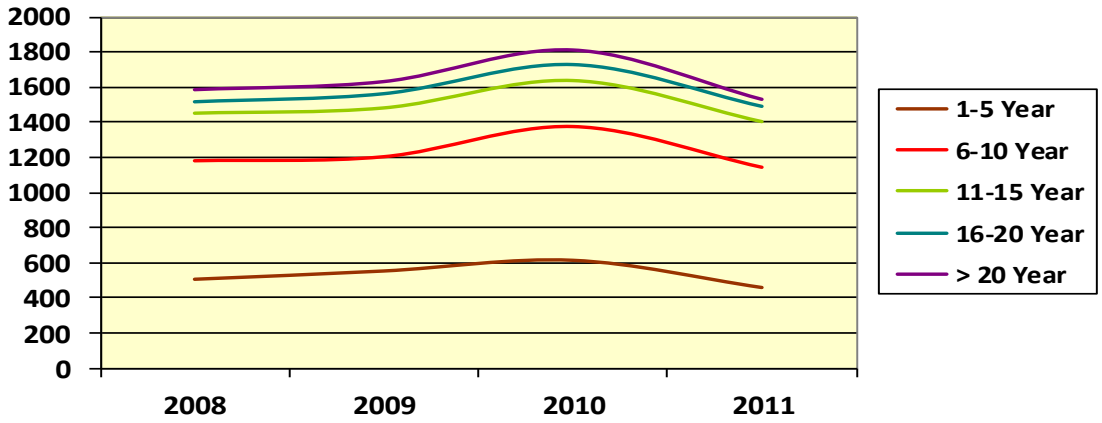


Figure 5 – Age structure of broken-down trucks 2008-2011

Looking at the distinction by age of the truck, the changes in total breakdowns match for the greatest part with the evolution in the sales of new trucks. The conclusion has to be that the assumption that transport companies keep on driving for a longer time with existing equipment cannot be proven. This corresponds to the observation that transport companies used the economic crisis to dispose of older equipment.

Trucks you can trust

Not all technical failures of the truck lead to an immediate standstill. In most cases it is possible to drive on to the next parking or entry. Failures that do lead to an immediate standstill have to do with a lack of fuel and problems with the tyres, brakes, the engine, air pressure or turbo. An electronic warning can be a reason for the driver to stop the vehicle immediately although he is not forced to by a vehicle failure. The cause of a standstill is registered, but the quality of the registration is rather poor. Only less than in half of the cases the officer in charge fills in a cause. It is up to his interpretation how he describes the technical failure. Some will fill in engine trouble; another one would say electronic failure. In 2010 this was the list of truck breakdown causes:

1. Problems with the tyres (930)
2. Engine troubles (342)
3. Fuel problems (212)
4. Troubles with the brakes (183)
5. Drive breakdown (178)
6. Air problems (117)
7. Electronic failure (68)
8. Cooling system breakdown (50)
9. Turbo defect (49)
10. Left behind vehicle (29)

The over 300 truck fleet owners have been asked to the main causes of the breakdowns they had in 2011. This is their top 5:

1. Problems with the tyres (62%)
2. Electronic failure (38%)
3. Engine troubles (20%)
4. Drive breakdown (15%)
5. Troubles with the brakes (14%)

Tyres are on top of the list. To check the truck tyres is a time-consuming job. It is the reason that the hauliers association successfully arranged that a check on the tyre pressure is not part of the yearly M.o.T. If it would be a part of the M.o.T., it is only a random indication. The average truck drives 190.000 kilometres a year. Also a tyre that is in good shape loses air pressure while driving. Electronic failures constitute a large part of the total of truck breakdowns.

Fuel problems are an upcoming kind of breakdowns. There are several types of fuel problems. The transport company forces his truck drivers to refuel at specific locations where the diesel price is lower than elsewhere or where they made a profitable deal. The truck driver did not plan his journey well and comes to a standstill because of lack of fuel. Another problem comes with the teething problems of bio-diesels (like the growth of microbes) and the use of advanced technological applications like AdBlue. Electronic failures are another notable cause of truck breakdowns. Almost 40% of the fleet owners indicated electronic failures as the main cause of the truck breakdowns they had in 2011. Also the interviewed stakeholders think the expanding electronics in the truck is a problem. The motor management system warns for failures that are not actually there or not urgent. Sometimes there are too many appliances in a truck cabin, or the use of magnets to disorder the speed limiter is the cause of a failure.

Minimal maintenance is one of the drivers for the construction of modern commercial vehicles. Like Mercedes trucks are promoted with the slogan *Trucks you can trust*. Although the number of necessary 2000-mile services is considerably reduced, there are still components that need regular check-ups. There are rather a lot of breakdowns which have something to do with: regular checks, careful coupling of two vehicles and better planning of filling up. Some of these breakdowns could have been prevented. If savings on maintenance or less preventative replacement of components is the cause of truck breakdowns, cannot be proven. On the other hand it has to be said that it is not in the interest of transport companies to have a truck breakdown. It costs not only the money for towing away the vehicle, repair of the damage, but also money because of the loss of time, delivering too late and perhaps unloading. But it could be that hauliers take a bit more risk in economic bad times.

3.2 Foreign trucks

According to the truck fleet owners, the main reason for the increase in truck breakdowns is the growth of foreign trucks. It is a persistent presupposition that East-European trucks are in a worse technical state than West-European trucks. In the opinion of the police, hauliers associations and the Road Transport Department, there is no difference anymore in the technical state of the trucks between East and West. In general the interviewed stakeholders state, that the equipment used for international transport is in a better state than the equipment used for domestic transport. A breakdown far away from the homeland is not desirable and trucks used in domestic transport do wear out more from all kind of obstacles on secondary roads like speed ramps. So opinions differ greatly. What do the statistics tell?

Looking at the international road transport performance Poland is market leader in Europe. Spain follows after Germany and The Netherlands are on the fourth place. In 2009 among foreign trucks on Dutch motorways the following nationalities make up the top 4 (in vehicle kilometres): Germany, Poland, Belgium and the Czech Republic. In the figure below the development in tonnes for these countries on Dutch territory can be seen over the years 2005 – 2010.

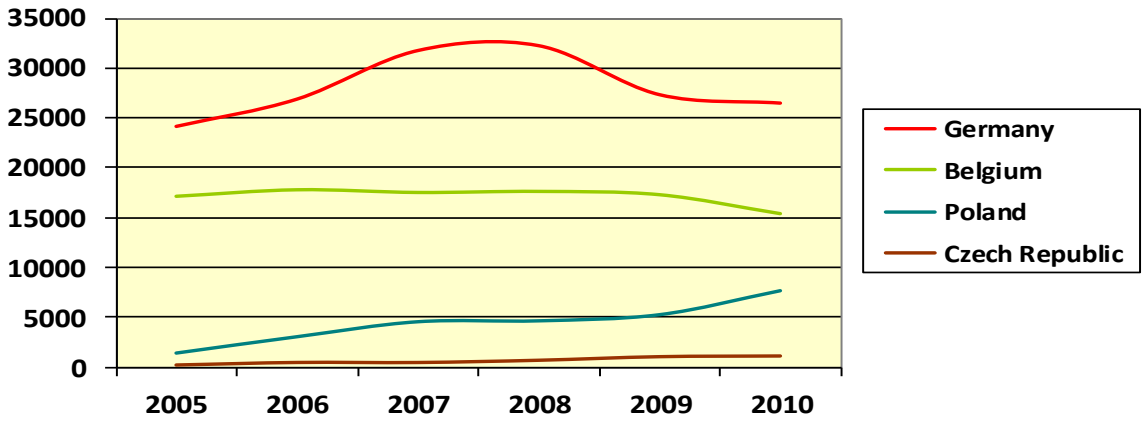


Figure 6 – Number of tonnes carried by Germany, Belgium, Poland and the Czech Republic on Dutch territory 2005 -2010

In international trade the neighbouring countries Germany and Belgium are the most important countries for The Netherlands. It is no wonder that they are leading measured in tonnes. Where the transport volume in 2009 decreased for Germany and Belgium, for Poland and the Czech Republic the transport volume in tonnes increased.

Bearing these facts in mind, in the figure below the share of truck breakdowns by nationality is given for 2010. With a share in the total amount of truck breakdowns of 60%, most of the trucks are originated in The Netherlands. The share of trucks originated in The Netherlands in the total amount of kilometres driven on Dutch territory is almost 90%. That means foreign trucks have almost four times more breakdowns than Dutch trucks per kilometre.

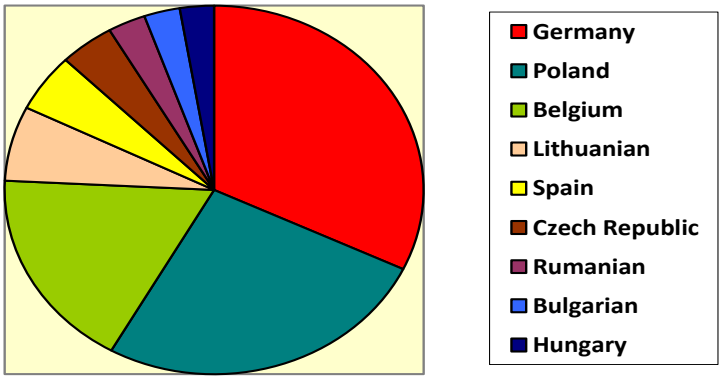


Figure 5 – Share in foreign truck breakdowns by nationality 2010

The number of vehicle kilometres by German trucks was 26.474 km in 2010; the number of vehicle kilometres by Polish trucks was 7.642 km in 2010. In the same year the number of broken-down German trucks was 220 and the number of broken-down Polish trucks was 179. Here the number of broken-down Polish trucks is relatively high. The same conclusion can be drawn for trucks from Lithuanian, the Czech Republic, Bulgaria and Hungary. The number of vehicle kilometres of all these countries concerned, does not legitimate the relatively high share in the number of truck breakdowns. The conclusion must be that foreign trucks, and in particularly trucks from East-European countries are relatively overrepresented in the total number of truck breakdowns.

3.3 Truck fleet use

Transport is a world constantly in a state of flux. Some developments could (in)directly influence the number of truck breakdowns, although it cannot be proven. The only logical conclusion that can be drawn is that there have to be more guarantees incorporated in working processes to assure that the truck fleet is in a good technical state.

Need for flexibility

In the first decade of the 21st century, but especially since the economic crisis started in 2009, transport demand has got a more unpredictable character. Also the evolution of e-commerce is one of the drivers of this phenomenon. Transport companies can only survive if they are able to react adequately to the fluctuations in transport demand. There are several ways in which transport companies try to meet this need for flexibility. To set off peaks and drops in transport demand they can cooperate with other transport companies. In peak times also charters can be used. The ratio between permanent and temporary staff can be adjusted. The same can be done for the ratio between rented equipment and equipment in ownership.

What could be the relation to truck breakdowns? Trailers and semi-trailers give the truck fleet the flexibility that is needed. In contrast with the drop in the size of the truck fleet (trucks and tractors), the growth of the trailer fleet only flattened off. On the 1st of January 2007 the size

of the trailer fleet was 972.858; on the 1st of January 2012 the number increased to 1.084.684 registered trailers and semi-trailers. That is mainly due to the economic life of trailers which is much longer than of trucks. Trailers are standing still more often than trucks. In the trailer fleet there is much more exchange of equipment than there is in the truck fleet. The control over the technical state of the trailers, like tyre pressure, has to be guaranteed more in procedures and the coupling of the vehicle units have to be done carefully. Police, salvage companies and road inspectors do have the impression that often technical failures on the trailers are the cause of a breakdown.

When trailers are rented, truck drivers may take it for granted that the technical state is fine. Short term rental equipment is easier to control than long time rented equipment. Equipment that is rented just for a short time, can be maintained according the planning of the rental company. At long term rental the rental company send a call to the transport company that a vehicle has to return to the garage for a check-up. The time of the call does not always fit with the planning of the transport company and in that case it is hard for a rental company to get in the vehicle in the garage in time.

Truck driver

Next to the unpredictability of transport demand, the introduction of the 48-hour week forced transport companies to reorganize the use of the truck fleet. In previous times every truck driver had his 'own' truck. Nowadays this is a rarity. Truck drivers share the same trucks; in Dutch they are called 'springchauffeurs' what could be translated in 'jump drivers'. On international journeys two instead of one truck drivers are driving, through which the truck does not have to stop en route. If you are the owner, or the only user, you feel more responsible for the technical state of the vehicle. It could be that truck drivers do not check the truck combination well enough before departure or that they do not report technical failures in time. Another complaint that can be heard in the transport sector is the decline of the quality of the truck driver. The fact that truck technology has become very complex and service contracts often forbid the truck driver to do repairs on the truck him selves, reinforces this development.

Measures taken to prevent truck breakdowns

The developments in logistics makes it necessary that fleet owners incorporated more guarantees in their working processes to assure vehicles are being checked in time. The yearly M.o.T. check is not enough. The 300 truck fleet owners were asked which measures they take to prevent truck breakdowns. The most important measures they take are:

1. Regularly returns to the garage aside from the M.o.T
2. Truck drivers as much as possible using the same equipment
3. Preventative replacement of components
4. Giving truck drivers instructions to check the vehicle before departure
5. Regularly renewal of the truck fleet
6. Establish a reporting procedure for truck drivers
7. Operational reliability determined for the service contract
8. Reward for truck drivers that drive without damage

The first two measures are by far most mentioned. The larger the commercial vehicle fleet, the more measures are directed on the truck driver. These companies also think more frequent that

the truck driver is to blame for the increase in truck breakdowns. The competences of the truck driver devaluate, the truck driver feels less responsible and the truck driver does not report technical failures in time.

Nowadays the fleet manager nowadays has a complete understanding of the technical state of the vehicles through the truck maintenance systems and the yearly M.o.T. However it is up to the fleet manager what to do with this information. He can act immediately and replace a component or make use of the safety margins and wait for replacement. The fleet manager takes always an expertly 'risk' that is sometimes responsible and sometimes not.

4. Conclusions

Part of the increase of the number of truck breakdowns can be attributed to other factors than the technical state of the truck fleet. Due to the professionalization of Incident Management and the growing number of road sections overviewed by cameras, the chance that a stranded truck stays unobserved is very little. However, the increase can only partly explained by this.

The economic crisis plays a part in the increase of truck breakdowns. The growing number of truck breakdowns in times of economic crisis stated by the insurance company TVM is a fact. Evidence of the assumption that transport companies keep on driving for a longer time with existing equipment could hardly be found. The fact that older vehicles have a bigger chance to get a breakdown is of all times. It looks like the components of a truck sensitive to maintenance, are a better indicator for the influence of the economic crisis on the increase of truck breakdowns. The high number of tyre problems indicates this. Besides that, striking are the problems with bio-fuels and electronics.

The economic crisis gives some explanation for the increase of truck breakdowns. Another cause has its roots in the growing number of foreign trucks on Dutch roads. The disproportionate high share of foreign trucks in the total number of truck breakdowns (40%), compared to the share of 10% in the total truck vehicle kilometres, cannot be interpreted in another way.

The developments in logistics definitely have an influence on the number of truck breakdowns; however, it is not possible to make this influence explicit. The role of trailers in truck breakdowns stays unclear. From the survey on truck fleet owners it appears that the breakdown was not more frequently located on the trailer than on the truck or tractor. However the 'eyes on the road' (police, salvage companies and road inspectors) were very determined in that the breakdown was most frequent located on the trailer. They were even speaking of a proportion of 80/20. Fact is that due to the logistics developments more guarantees have to be incorporated in the working processes to assure that the trucks are checked regularly. The truck driver plays a crucial role in this. Not for nothing many measures taken by large truck fleet owners are directed on the truck driver.

One unambiguous explanation could not be found. However there are too many factors that could be influenced to say, a truck breakdown is in all cases simply bad luck. One may think of: encouraging tyre checks; extra research to solve problems with bio-fuels and the influence of electronics; an information campaign on foreign truck drivers; more enforcement on the technical state of the vehicle; extra research on the technical state of trailers and their role in

truck breakdowns; and improvement of the qualification of truck drivers. Besides that: the modern truck maintenance systems in combination with the yearly M.o.T. makes the fleet manager well informed about the technical state of the vehicle. He should be able to make the right decisions to prevent a breakdown. Being so well informed, it is perhaps better to speak about taking calculated risks than having bad luck.

5. References

- Interviewed organizations, companies and persons: BOVAG, RDW, TRTA, VERN, TLN, EVO, KLPD, VCNL, Poels, Logicx, Richard Nijveen and Joop de Vries.
- Sources of data: EUROSTAT, CMV, CMI, NIS, INWEVA, CBS and TLN.
- Consulted website: www.knmi.nl.
- Rijkswaterstaat (8 December 2011) "Offerte SLA 2013 – 2016".
- Rijkswaterstaat Dienst Verkeer en Scheepvaart, L. Aarts, J. Hop, B. Turpijn, R. in 't Veld (november 2011) "Impact op het verkeer van vrachtwagens met pech en pauzerende vrachtwagenchauffeurs op de vluchtstrook".
- Raad voor de Transportveiligheid (2003) "Ongevallen op de vluchtstrook. Veiligheidsstudie".
- BOVAG Truckwerk (Jaargang 10 nummer 2 april 2012, p.8) TLN: "Vervangingsbeleid verandert".
- ING Economisch Bureau (1 november 2011) "Truck- en trailermarkt ziet toerental dalen".