

AID AND DEVELOPMENT ORGANISATIONS AND SAFETY CULTURE





COPYRIGHT

©2023 Fleet Forum

Reproduction is authorised, provided the source is acknowledged, unless otherwise stated. Where prior permission must be obtained for the reproduction or use of textual and multimedia information (sound, images, software, etc.), such permission shall cancel the aforementioned general permission and indicate clearly any restrictions on use.

DISCLAIMER

This paper represents the opinions of the authors and is the product of professional research. It is not meant to represent the position or opinions of UPS or the UPS Foundation. Any errors are the fault of the authors. Our objective is to disseminate information that is accurate and up-to-date at the time of publication. If errors are brought to our attention, we will do our best to correct them.

ACKNOWLEDGEMENTS

This research is part of the UPS funded project 'Impact of road traffic crashes'. Fleet Forum wishes to express sincere thanks to the UPS Foundation for their ongoing support.

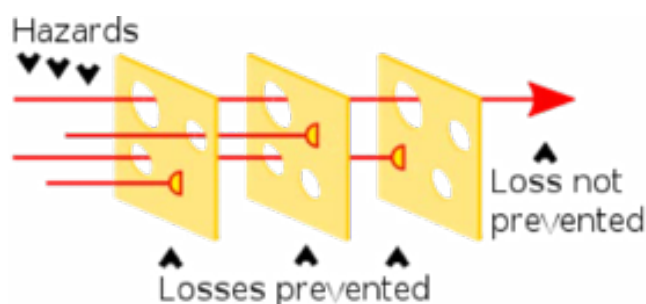
FOR INFORMATION

Fleet Forum
c/o Alber & Rolle
Chemin Frank-Thomas 34 1208 Geneva
Switzerland

EXECUTIVE SUMMARY

Road safety amongst aid and development organisations has received little attention in the academic literature, however, previous research has suggested that individuals who are engaged in work-related driving are more likely to crash and to engage in risky driving practices, such as speeding, than if they were driving for non-work-related purposes. Workers involved in aid delivery experience some of the most stressful and dangerous conditions of all occupations often in areas of instability and limited infrastructure, and without services and protections available. This is especially true when travelling on roads in developing countries that are much more complex than those in high-income countries. There are major human and financial costs associated with members of the public and workers being killed and injured whilst on mission. Reputational damage is also a clear threat to the willingness of local people to grant access and compromise the aims of the organisation to deliver aid. Understanding an organisation's safety culture can identify the policies, procedures and practises that increase the risk of crash involvement and examine safety attitudes and safety values.

The "Swiss Cheese" model (Reason, 1990) has been used as a theoretical framework to explain accident causation in safety critical settings and crash causation in road transport. The model is illustrated by slices of cheese with holes where each slice is equivalent to a defence layer. The holes in the slices show weaknesses in the defence layer, representing failures in the organisational system. Failures may be active or latent. Active failures are errors where the consequences are instantly visible, and where there is a clear relationship between cause and effect. Latent failures may be due to the actions and decisions made by management or others who are removed from the direct control interface. Latent actions and decisions may have been taken long before the actual crash and are therefore harder to identify as a latent cause of a road traffic crash.



METHODOLOGY

The research question for this study relates to how road safety is managed for aid and development organisations by investigating leadership practices, safety norms, competence, policies, and road safety systems and procedures using a qualitative analysis. Thirteen small, mid-sized and large humanitarian aid and development organisations took part and fifteen participants were interviewed about their experiences with regards road safety across a wide range of different missions in different countries. All participants were selected based on their roles and responsibilities with responsibility for road safety, policies, and practices, including international HR managers, country managers, and specialists in security and risk management. An interview template was designed, and semi-structured interviews were carried out by the same researcher using the online platform, Teams. All the interviews were recorded and transcribed. Participants were also recruited to take part in a focus group for a more in-depth understanding of their perceptions of potential road safety interventions.

RESULTS

Data analysis was conducted in accordance with the thematic analysis approach to identify, analyse, and report patterns within the data set referred to as ‘themes and sub-themes’ and is graphically represented in Figure 1. Four main themes emerged; Leadership and country culture; crash management, intervention effectiveness and changing the safety culture. For each of these four themes, sub themes also emerged.

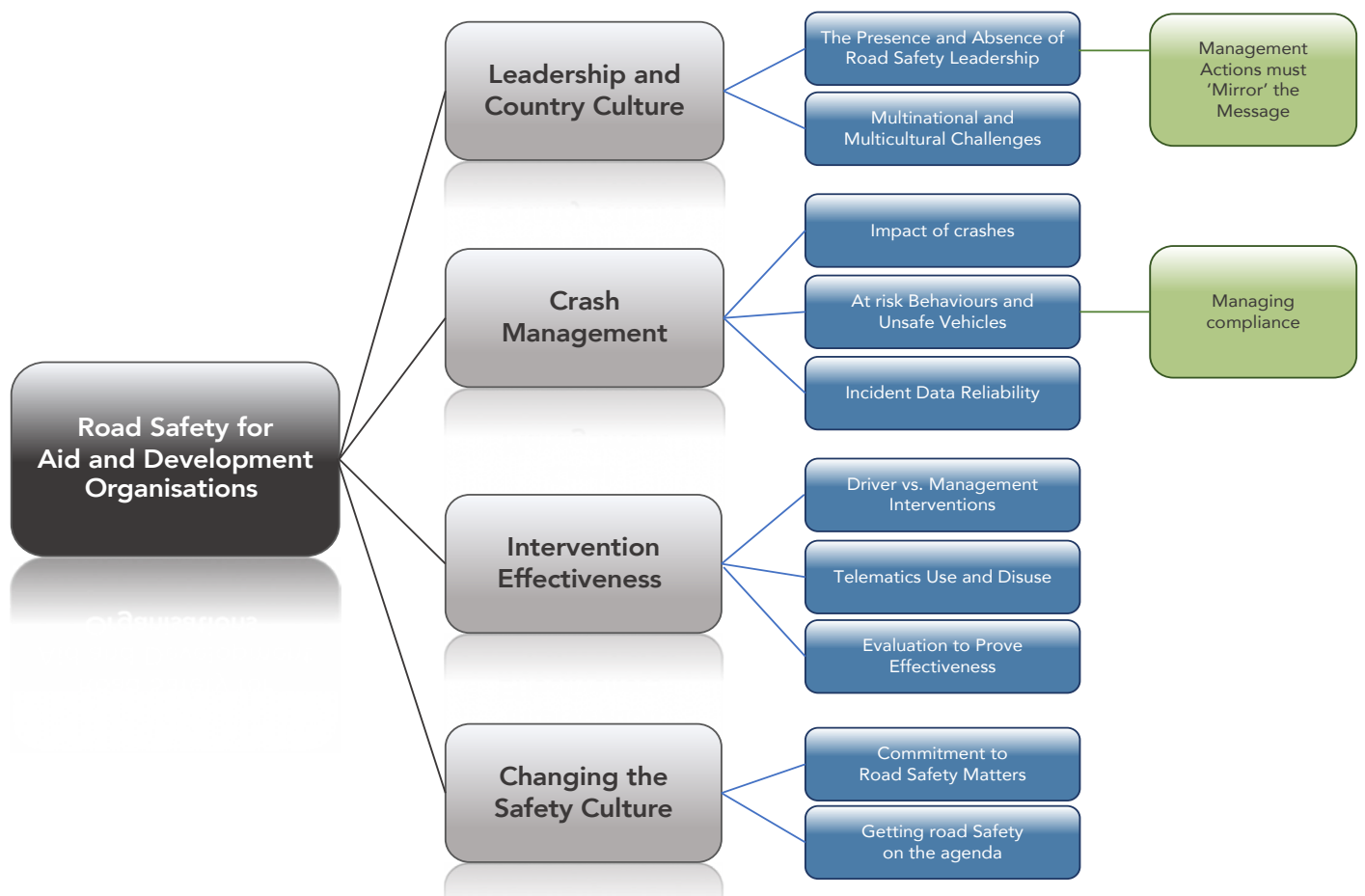


Figure 1: A Thematic Analysis of Road Safety in Aid and Development Organisations.

For the first theme, Leadership and Country culture was linked to poor road safety leadership and participants gave accounts of how a leader’s actions had failed to mirror their safety message. Operational activities focus on delivering on the mission and road safety is a neglected area. The challenge of operating in multinational and multicultural environments when delivering programmes across low and middle-income countries also emerged as an issue for road safety leadership. Participants considered that there was little that could be done to improve road safety given the condition of roads and poor road safety management within various countries. Road safety seems to be underpinned by a complex sociotechnical system of country offices, HQ, local offices, road safety focal points operating in a multinational context. The data shows that key defences have wide gaps in which road traffic collisions are the inevitable result caused by a sequence of events due to latent failures.

The third theme relates to intervention effectiveness and the value placed on different interventions to improve road safety. The focus across all organisations appears to be skills-based driver training, however, previous research has shown that evidence for effectiveness is weak at best (Dorn and af Wåhlberg, 2022).

Telematics or vehicle tracking equipment also emerged as a main method for improving road safety, but only one participant reported that their organisation were using telematics to provide feedback to drivers about speed and high-risk events. No participants reported that they were actively evaluating the interventions leading to little insight about whether these interventions are effective. Only one organisation seemed to consider the wider systemic contributory factors in the design of a communication intervention for all levels of the organisation including management.

Finally, the fourth theme described how aid and development organisations could change the safety culture and get road safety on the agenda. The evidence suggests that to improve work-related road safety on missions, it is necessary to focus beyond an individual's compliance with safety procedures and instead look to better leadership.

When taking the Swiss Cheese Model into account in the interpretation of the data, several latent failures can be observed in the data:

- The actions and decisions made by management failing to lead by example on road safety
- Insufficient resources allocated to road safety
- Leaders turning a blind eye to unsafe behaviours
- Information about road safety not being passed on to the relevant individuals and groups
- Poor supervision
- Lack of direct employer or supervisory control
- Lack of compliance checking
- Poorly maintained vehicles
- Poor crash management
- Ineffective road safety interventions
- Poor use of telematics
- Lack of evaluations of road safety interventions
- The passive role of donors in requiring safe operations as a condition of the allocation of funds
- Operating in developed countries with poor road infrastructure and traffic laws

RECOMMENDATIONS

- Design and develop a communication programme so that decision makers, local managers, supervisors, and drivers can be made aware of each other's challenges and find solutions.
- A change in the hierarchy culminating in local safety leaders being given more authority to sanction poor road user behaviour is required.
- The design of interventions to influence safe road user behaviour to encourage drivers to discuss situations that place them at risk on the road (e.g., group discussions, feedback, and goal setting in improving road user behaviour).
- Better use of telematics to feedback scores to drivers to develop self-awareness of personal risks on each journey.
- Implementation of fleet safety programs like the one rolled out by the International Committee of the Red Cross and Red Crescent (ICRC).
- Demonstrate a commitment to road safety with follow-up 'nudges' to remind road users of the importance of safety when travelling on mission.
- Conduct intervention evaluations to ensure they are fit for purpose and continue to demonstrate that they are effective for improving road safety.
- Lobbying governments in developing countries to develop safer roads and road users with better traffic and road infrastructure, better driver and rider licensing processes, and better enforcement of traffic laws.
- Use telematics to promote eco-driving to save fuel and reduce carbon dioxide (CO₂) emissions as fuel efficient driving is also safer driving.



TABLE OF CONTENTS

Executive Summary	3
Introduction	8
Methodology	13
Results and Discussion	17
General Discussion	45
Recommendations	48
References	49

INTRODUCTION

Aid and development organisations are strongly steered by principles of altruism and voluntarism, in the defence of human rights or humanitarian action across the world. There is a wide range of organisations that participate in the humanitarian space United Nations agencies, the Red Cross and Red Crescent movements and major international nongovernmental organisations (INGOs), such as Plan International, World Vision, Red Cross family, Oxfam, Save the Children, Catholic Relief Services, United Nations Department for Safety and Security and the International Rescue Committee. They depend, wholly or partially, on donations. Under financial and human resource constraints, humanitarian aid organisations need to select where to go and what to do, often under time pressure (Heyse, 2016). This can create a complex context – both in headquarters and in the receiving country in which decisions must be made about what aid activities to employ and the target groups to reach. As a result, decision-making concerning humanitarian aid provision is not only difficult because it involves hard choices about life and death in a context of scarcity, but the difficulties are not over once a country, or a target group has been selected. Humanitarian aid organisations must regularly negotiate and renegotiate their access to receiving countries. If access is granted, infrastructural and security problems may hamper access to the populations in need, thereby further restricting the range of alternatives for humanitarian aid provision. Recent years have seen the operations in the face of catastrophic natural and man-made disasters, including medical emergencies, social and political instability, natural disasters, and terrorist attacks. There are several problems then, that can emerge in the distribution of aid including safety challenges.

Road safety is a neglected focus of attention in the academic literature for aid and development organisations. Workers involved in aid delivery experience some of the most stressful and dangerous conditions of all occupations (Stoddard et al, 2009; 2006; 2014), typically in areas of instability and limited infrastructure, and without services and protections available. Traditionally, aid and development organisations rely on their close and trusting relationships with the local community as a support mechanism and buffer from safety and security threats against their employees (Avant, 2007) drawing strongly on the goodwill associated with the organisations' objectives, principles, and perceived impartiality. Aid and development organisations are embedded in, rather than separated from, local communities. If members of the public or workers are killed and injured by employees driving in those local communities, there are clear reputational threats to the willingness of local people to accept their presence.

However, traffic patterns in developing countries are much more complex than those in high-income countries. For some countries, there is a large proportion of low-income people living in shanty towns close to main roads, a high proportion of non-motorised and motorised two-wheelers and non-segregated traffic - pedestrians, cyclists, animal driven carts and motorised vehicles. In the United States of America, 70% of those killed in road crashes are occupants of four-wheeled motor vehicles, while in low and middle-income countries, most fatalities are among vulnerable road users (Mohan et al, 2009). Roads may be destroyed or covered with landmines, or they may be operating in a country in which the road infrastructure is poorly engineered and maintained with a higher volume of older vehicles than in the developed world.

The number of road fatalities worldwide has increased from 1.25 million in 2013 (World Health Organisation, 2015) to 1.35 million in 2016 with almost 50 million injuries (World Health Organisation, 2018). Many humanitarian aid organisations operate in low- and middle-income countries in which the largest burden of the world road crashes occur (World Health Organisation, 2018). Most aid and development organisations who are members of Fleet Forum (<https://www.fleetforum.org>) report a fleet that includes mostly passenger vehicles to transport staff to projects.

In their recent benchmark in 2022 including 20,229 transport assets from 10 organisations, Fleet Forum found that 45% of the fleet were sedans and 4x4s and 52% were motorcycles and less than 1% were trucks. Around the world motorcyclists are grossly over-represented in road traffic collision statistics (de Moraes et al, 2014) and are around 51 times more likely to be killed on the road than car drivers (Crundall et al, 2014).



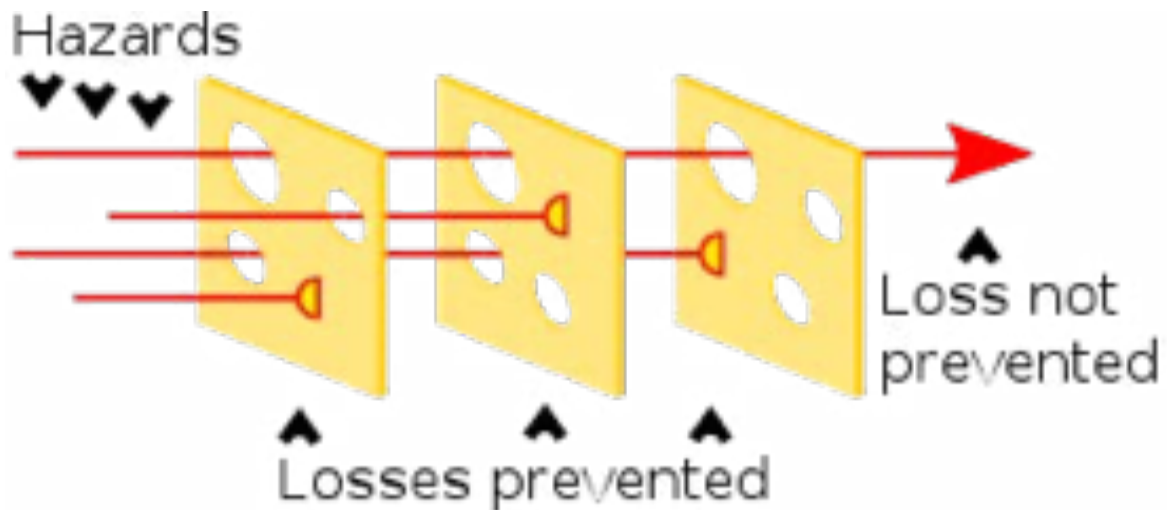
ROAD TRAFFIC RISKS AND DRIVING FOR WORK

It has been estimated that 20–30% of fleet vehicles crash each year, with drivers of company vehicles experiencing 50% more crashes than private vehicle drivers and represents a significant financial cost to organisations (Haworth et al, 2000). Lynn and Lockwood (1998) in a survey of 4479 company car drivers and drivers of private vehicles in the UK, found that company car drivers had about 50% more vehicle crashes than drivers of private vehicles, even after accounting for demographic differences and differences in annual mileage. Previous research has suggested that individuals who are engaged in work-related driving are more likely to crash and to engage in risky driving practices, such as speeding, than if they were driving for non-work-related purposes (Downs et al, 1998). Therefore, road safety interventions for people driving for work have mostly focused on regulating speeding (Haworth & Rowden, 2006), fatigue, and likely contributing factors, such as prolonged driving and inadequate sleep patterns (Williamson, Friswell, & Sadural, 2001). However, since the early 1990s, research suggested that strategies to control speed and fatigue-related behaviours cannot adequately deal with the problem without considering the organisational factors that enable the context for speeding to occur.

Schein (1992) defines organisational culture as 'a pattern of basic assumptions by a given group as it learns to cope with its problems of external adaptation and internal integration; that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems'. Organisational culture is a set of shared values and beliefs that interact with an organisation's people, organisational structures, and control systems to produce behavioural norms (the way we do things around here). The concept of safety culture is often presented separately from an organisation's other characteristics, such as the work schedule, technology, business strategy and financial decision-making and the term refers only to factors that are clearly connected with safety, such as safety attitudes and safety values.

THE SWISS CHEESE MODEL

To understand how organisational factors may increase the risk of crash involvement, the "Swiss Cheese" model has been used as a theoretical framework to explain accident causation across several safety critical contexts including crash causation in transport safety (Reason, 1990). The model can therefore be used to identify how actions and decisions made by aid and development organisations can influence road safety. The Swiss cheese model is illustrated by slices of cheese with holes where each slice is equivalent to a barrier. No barrier is one hundred percent effective, and the holes in the slices show weaknesses in the barrier or defence layer to prevent a hazard becoming a loss. The holes represent errors or failures.



Reason (1990) distinguishes between active and latent failure, where active failures may be the result of latent ones. Active failures are errors like human actions such as driving too fast, where the consequences are instantly visible, and where there is a clear relationship between cause (speed) and effect (crash impact). However, latent failures may be due to the actions and decisions made by management or others who are removed from the direct control interface and less visible as a contributing factor (Newnam & Goode, 2015).

The Swiss Cheese model illustrates this concept by showing that latent conditions in combination with active failures could lead to a breach in the layers of defence and lead to errors and collisions. For example, the driver drove too fast because the manager expected him or her to reach the destination as soon as possible and turns a blind eye to speeding if the mission is on target. These latent actions and decisions may have been taken long before the actual crash, and therefore be harder to identify as a latent cause of a road traffic crash but lead to active failures. In this way, the road transport system can be seen as a complex sociotechnical system (Rasmussen, 1997), meaning that the system contains technical, psychological, and social elements and that all elements could influence road traffic safety (Newnam & Goode, 2015; Nævestad, Elvebakk, et al, 2018).

AID AND DEVELOPMENT ORGANISATIONS: A SYSTEMS APPROACH TO ROAD SAFETY

In a systematic evaluation of road traffic safety, improvements to crash rates cannot be found by detecting the errors that the driver makes but in the interaction between all the actors within the system, including the broader organisational, social, or political interactions. (Larsson & Tingvall, 2013). Rasmussen (1997) developed a Risk Management Framework (RMF) showing how complex sociotechnical systems, as in the case of aid and development organisations, are involved in the control of safety. Like the Swiss Cheese Model, the RMF states that road traffic crashes are caused by the decisions and actions of all actors within the system and by multiple contributing factors. The framework identifies actors, including governments, regulators, CEOs, managers, supervisors, and workers. Safety is maintained through a vertical integration process, meaning that decisions made at higher levels are reflected at the system's lower levels. In addition, information and experiences at the lower levels are communicated to the higher levels so that they can be known before decisions are taken further up at the top level of the system. At the top level, government and its agencies attempt to control safety through national laws and regulations. For drivers, these include regulations pertaining to traffic rules and licence acquisition training etc. At the next level are national regulators, interest organisations, and non-governmental organisations (NGOs). An aid and development organisation would preside at the next level, in which legislation and road traffic rules are interpreted and implemented in the context of a specific humanitarian organisation.

Organisations specializing in transporting dangerous goods have a 75% lower risk of crashes than other road transport organisations because these organisations work more systematically with the safety management systems (Nævestad et al., 2021). Similarly, organisations operating in the oil and gas industry experience relatively few crashes and near-misses because of their high prioritization of safety (Weick & Sutcliffe, 2001). Aid and development organisations have many good reasons for treating worker's safety and security seriously not only to protect the organisation's valuable human resources but also to fulfil its 'duty of care' so that the organisation meets its moral and legal responsibilities.

The research question for this study relates to how road safety is managed for aid and development organisations by investigating leadership practices, safety norms, competence, policies, and road safety systems and procedures.

METHODOLOGY

PARTICIPANT ORGANISATIONS

A range of small, mid-sized and large humanitarian aid and development organisations took part in the study, and these are outlined below.

ACTION AGAINST HUNGER

Action Against Hunger is a global humanitarian organisation which originated in France and is committed to ending world hunger. The organisation helps malnourished children and provides communities with access to safe water and sustainable solutions to hunger. In 2020, Action Against Hunger worked in 51 countries around the world with more than 8,300 employees and volunteers helping 13.6 million people in need. Action Against Hunger was established in 1979 by a group of French doctors, scientists, and writers. The international network currently has headquarters in six countries – France, Spain, the United States, Canada, Italy, the UK. Its four main areas of work include nutrition, food security, water and sanitation, and advocacy. AAH operate a fleet of about 750 vehicles, although country offices are beginning to use rental vehicles instead of buying them.



CATHOLIC RELIEF SERVICES

CRS is the international humanitarian agency of the Catholic community in the United States. Founded in 1943 by the Bishops of the United States, the agency provides assistance to 130 million people in more than 110 countries and territories in Africa, Asia, Latin America, the Middle East and Eastern Europe and operating numerous field offices on five continents. CRS provides relief in emergencies and helps people in the developing world break the cycle of poverty through community-based, sustainable development initiatives as well as Peacebuilding. CRS has approximately 5,000 employees around the world. CRS has approximately 1,000 vehicles, including many motorbikes.



INTERNATIONAL COMMITTEE OF THE RED CROSS AND RED CRESCENT

The International Red Cross and Red Crescent Movement is a humanitarian movement with approximately 97 million volunteers, members and staff worldwide. It was founded to protect human life and health, to ensure respect for all human beings, and to prevent and alleviate human suffering. Within it there are three distinct organisations that are legally independent from each other but are united within the movement through common basic principles, objectives, symbols, statutes, and governing organisations. The ICRC has around 3300 fleet assets (80% vehicles).





MEDICAL TEAMS INTERNATIONAL

MTI is a midsized NGO, providing health and ambulance services in Colombia, Ethiopia, Sudan, Tanzania, Uganda and Ukraine. They operate a 24/7 service in some areas. MTI is a faith-based non-profit organisation with staff and volunteers bringing basic but life-saving medical care.



MÉDECINS SANS FRONTIÈRES (DOCTORS WITHOUT BORDERS)

Doctors without Borders is a large humanitarian organisation providing medical assistance to people afflicted by conflict, epidemics, disasters or excluded from healthcare. MSF has with multiple missions and a large fleet of approximately 2200 vehicles. It was founded in Paris in 1971 by a group of doctors and journalists and is now a worldwide movement of 63,000 people.



ONE ACRE FUND KENYA

One Acre is a small non-profit organisation, supplying smallholder farmers with the financing and training they need to grow more food delivering seedlings to farmers in Kenya with a fleet of 38 rented trucks. They began operations in Kenya in 2006 and now serve a million farmers across six countries in Eastern and Southern Africa.



OSCE

The Organisation for Security and Co-Operation in Europe operate mainly in (Eastern) Europe and is the world's largest regional security-oriented intergovernmental organisation with observer status at the United Nations. Its mandate includes issues such as arms control, promotion of human rights, freedom of the press, and free and fair elections. It employs around 3,460 people, mostly in its field operations but also in its secretariat in Vienna, Austria, and its institutions such as arms control, promotion of human rights, freedom of the press, and free and fair elections. It employs around 3,460 people, mostly in its field operations but also in its secretariat in Vienna, Austria, and its institutions.



PLAN INTERNATIONAL

Plan International is a development and humanitarian organisation which works in over 75 countries across Africa, the Americas, and Asia to advance children's rights and equality for girls. Its focus is on child protection, education, child participation, economic security, emergencies, health, sexual and reproductive health and rights, and water and sanitation. As of 2021, Plan International reached 26.2 million girls and 24.1 million boys through its programming. Plan International provides training in disaster preparedness, response, and recovery, and has worked on relief efforts in countries including Haiti, Colombia, and Japan.



UNITED NATIONS HIGH COMMISSIONER FOR REFUGEES

The United Nations High Commissioner for Refugees (UNHCR) is a United Nations agency mandated to aid and protect refugees, forcibly displaced communities, and stateless people, and to assist in their voluntary repatriation, local integration or resettlement. UNHCR is headquartered in Geneva, Switzerland, with over 17,300 staff working in 135 countries.





UNDSS

The UN Department for Safety and Security is a department of the United Nations providing safety and security services for United Nations agencies and departments as part of the United Nations Safety Management System. UNDSS reports directly to the Secretary-General. The UNDSS manages a network of security advisers, analysts, officers and coordinators in more than 125 countries in support of around 180,000 United Nations personnel, 400,000 dependents and 4,500 United Nations premises worldwide.



WORLD BANK GROUP

The WBG works in every major area of development providing financial products and technical assistance to help countries share and apply innovative knowledge and solutions to the challenges they face. Since 1947, the World Bank has funded over 12,000 development projects via loans, interest-free credit, and grants. The World Bank is made up of 189 member countries represented by a Board of Governors. Generally, the governors are member countries' ministers of finance or ministers of development. The WBG have approximately 1200 vehicles.



WORLD FOOD PROGRAMME

The World Food Programme (WFP) is the food-assistance branch of the United Nations. It is the world's largest humanitarian organisation and the largest provider of school meals. Founded in 1961, it is headquartered in Rome and has offices in 80 countries. WFP works in more than 120 countries and territories. WFP also offers technical and development assistance, such as building capacity for emergency preparedness and response, managing supply chains and logistics, promoting social safety programs, and strengthening resilience against climate change. It runs a large fleet but also a large proportion of outsourced vehicles mostly for their food deliveries.



WORLD VISION INTERNATIONAL

World Vision International is a faith-based humanitarian aid development and advocacy organisation. It was founded in 1950 as a service organisation, with the intent to meet the emergency needs of missionaries. In 1975, development work was added to World Vision's objectives. It is active in more than 90 countries with a total revenue including grants, product, and foreign donations of USD 2.90 billion (2019). It is therefore one of the largest faith-based NGOs in the world with a fleet of around 10,500 vehicles and around 7,000 motorcycles.



PARTICIPANTS

Fifteen participants were selected based on their roles and responsibilities within the above organisations with responsibility for road safety policies and practices. Participants included international HR managers, country managers, and specialists in security and risk management. The organisations that they represent not only differ in their outlook and work methods, but also in their focus on countries and continents that receive aid.

INTERVIEW METHOD

The interviews focused on the participants' responsibilities and perceptions relating to their organisation's approach to road safety. Semi-structured interviews were chosen as the data collection method. The main aims were to create a mutual relationship of trust and secondly to obtain information about road safety within their organisation. The researcher stated that nothing that is said will be wrong or uninteresting and the researcher made sure that the informant felt relaxed to gather experiences pertinent to road safety. Data were generated from open questions asked so that answers could be broad to provide a good picture of how road safety is managed within their organisation. An interview template was developed to keep the conversation within the boundaries of the topic (see appendix). The template was used as an overview to explore key areas concerned with road safety and enabled the researcher to cover similar themes with all the participants. The first question aimed to find out more about their work and confirm their experience with regards managing road safety. Interviews were customised to the specific experiences of interviewees. The individual interviews were carried out by the same researcher for about 45–60 minutes using the online platform, Teams. All the interviews were recorded and transcribed.

FOCUS GROUP

The participants were recruited to take part in a focus group for a more in-depth understanding of their perceptions of potential road safety interventions. The researcher led the focus group using a mock aid and development organisation's road safety management strategy to probe the participants view about the interventions described. The focus group session was recorded and transcribed.

ANALYSES

Data analysis was conducted in accordance with the thematic analysis approach outlined by Braun and Clarke (2006). The main aim was to identify, analyse and report patterns within the data set. This approach provides rich details when describing interview data (Braun & Clarke, 2006).

The analysis for the present study is conducted in several phases. The first phase involves becoming familiar with the data set by reading it several times. The second phase involves generating initial codes that identify features of the data that appeared interesting and could be assessed in a meaningful way in relation to road safety for aid and development organisations. In this phase, the researcher continuously looked for patterns to organize the data set in order to answer the research question. The third phase is conducted after finalizing the initial coding. This phase involves sorting the different codes into potential themes and collating all the relevant coded data within the themes. Themes were developed through interpretation. Finally, the fourth phase involved refining the themes, which entailed aggregating several sub-themes into main themes.

The data was coded in a systematic fashion across the entire data set, collating data (sections of text) relevant to each code. The collating codes were then organised into potential themes, gathering all data relevant to each potential theme. The researcher then checked if the themes worked in relation to the coded extracts and the entire data set, generating a thematic 'map' of the analysis. Ongoing analysis was then conducted to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme. The final analysis included the selection of vivid, compelling extract examples to illustrate the themes. The findings were relating back to the research question with regards the management of road safety for aid and development organisations by investigating leadership practices, safety norms, competence, policies, and road safety systems and procedures.



RESULTS AND DISCUSSION

A thematic analysis of the data was graphically represented and shown in Figure 1. The findings show that road safety in aid and development organisations is related to four main themes; leadership and country culture; crash management, intervention effectiveness and how to change the safety culture. For each of these four themes, sub themes emerged.

Figure 1 shows how safety culture is related to road safety leadership and the importance of leader's actions mirroring the safety message. A second subtheme identified the multinational and multicultural challenges of delivering aid and development programmes across low and middle-income countries. For the crash management theme, sub-themes identified a link between the impact of crashes and how crashes are managed; how at-risk behaviours and unsafe vehicles are associated with road traffic crashes and whether the crashes being recorded by the organisation represent a reliable data set. The intervention effectiveness theme relates to the participants beliefs with regards on-road driver training and vehicle tracking equipment as the main methods used for improving road safety. The organisation's commitment to evaluating the benefit of interventions also emerged as a sub-theme. Finally, the fourth theme named 'changing the safety culture' identified aid and development organisations commitment to road safety and getting road safety on the agenda to improve the safety culture.

In the following section, the findings for each theme and subtheme will be described and discussed with reference to previous studies. The results will be interpreted in the light of the Swiss Cheese Model to identify latent failures leading to active failures.

THEME 1: LEADERSHIP AND COUNTRY CULTURE

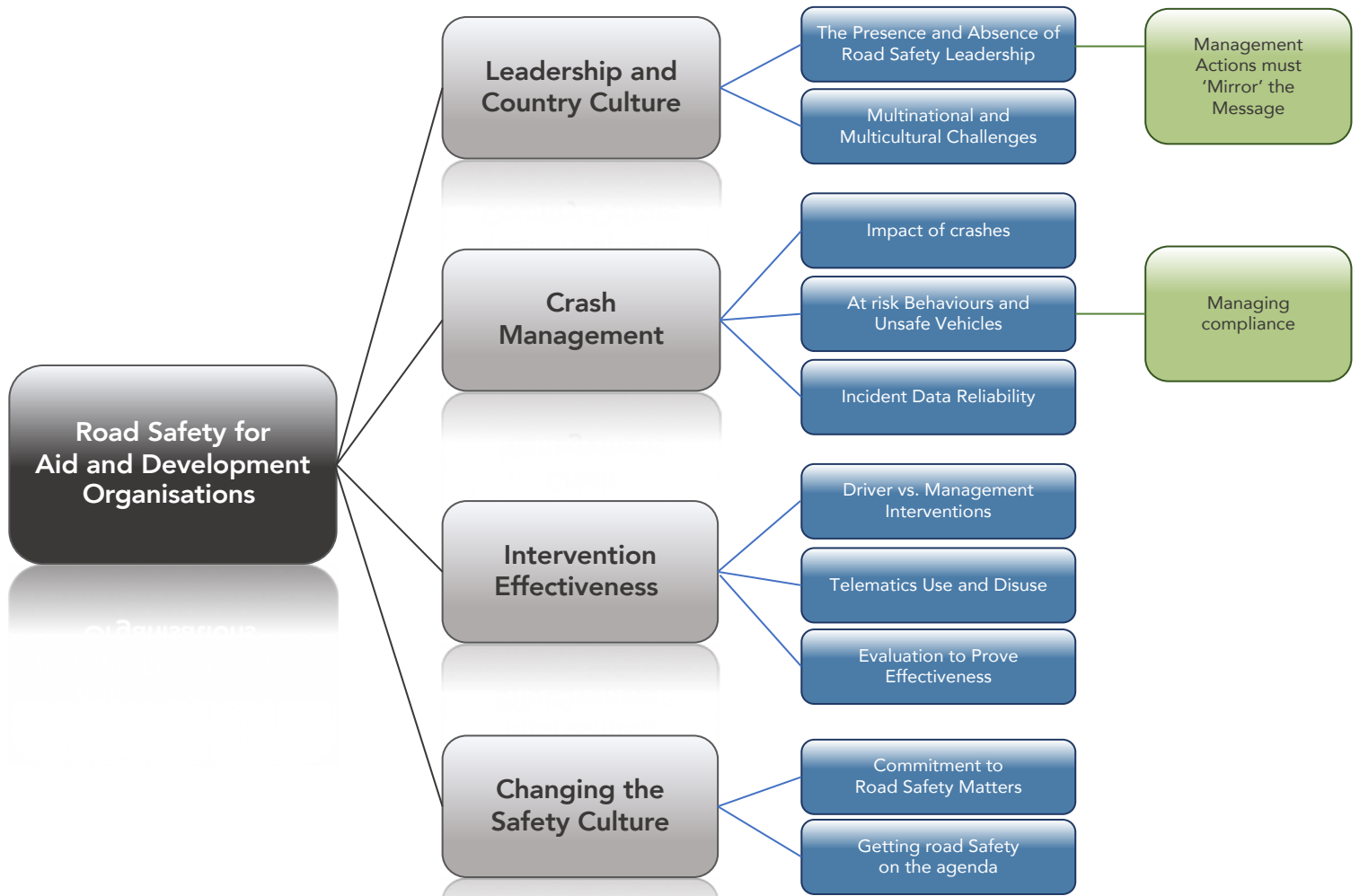


Figure 1: A Thematic Analysis of Road Safety in Aid and Development Organisations.

When asked what the participants believed were the ingredients of a positive safety culture, most participants highlighted the importance of the role of senior managers. Leadership can be defined as the process of influencing an organisation in its efforts towards achieving an aim or goal. The leader in any organisation is the person who can be differentiated from other members by his or her influence with regards goal setting and goal achievement.

“Before I joined they had two fatalities on motorbikes. I didn't see any subsequent reaction to that. I generally think our attitude to road safety if I'm being brutally honest, appears to be quite poor now. There will no doubt be plenty of country directors that will disagree with me and say that they think safety of all their staff is paramount. The message must come from the top. The country director and the senior management in country must be safety focused and deliver that message on a regular basis. People get the message, and they buy into that. The whole culture has got to come from, from the very top.” (P04).

“For anything to succeed if management is not supporting, it becomes very difficult.” (P01).

“If senior management takes road safety to heart and actively talks about it, then it will eventually be a natural thing. The culture needs to start from the top. As one of my older colleagues used to say, the fish stinks from the head and down.” (P06).

“I think any culture is driven from the top. Culture must be demonstrated and evidenced in how senior managers behave and having senior managers showing concern around safety and leading from the front. Then that kind of trickles down into the operations.” (P07).

“We have to a lot of questions for the people in the field to understand what happened to identify the real cause of the problem. We try to tell people that it is not only a driver problem but also a management problem.” (P14).

Competing demands for safety and pressures for efficiency when delivering on the mission seem difficult to manage. It appears that there are competing goals with no clear leadership on road safety. Many participants said that their aid and development organisation seemed to focus on the mission to the detriment of safety.

“There is this martyr complex ‘we have to take risks’ - that’s utter nonsense. There are no equivalent overseeing international organisations. There’s no business case, there’s no damage to the CEO, and there’s no legislation to make them improve. So, they are free to do what they want.” (P10).

“We’re in a sector of humanitarians who have no experience of transport, and they’re coming from a completely different background. The importance for them is not vehicles, it’s delivering a school building or an education program or something like that.” (P05).

When organisations invest in management systems, it is because of the management’s focus on safety – safety is prioritized within the organisation. Such an investment and prioritization cascades down to employees’ attitude and motivation for safety (Nævestad, Elvebakk, et al, 2018). Results presented here suggests that for many aid and development organisations, road safety is rather low on the list of priorities.

In contrast, organisations with a good safety record appeared to have senior management that were actively involved in improving road safety and a relatively low number of crashes.

“Road safety has a good degree of attention from my boss, and similarly his boss. I have met the senior management and I know that he had his hands quite well into transport issues as well. He pushed it forward by good long stretch with where we’re at. I updated quite a few of the policies. There is quite a lot of management interest.” (P11).

“I’ve got a benchmark to low double figures for incidents per annum for a fleet of our size that seems quite good to me instinctively. There are zero fatalities to my knowledge. Many of them don’t even breach the threshold of a claim so they were relatively minor incidents.” (P11).

ACTION MUST MIRROR THE MESSAGE

When asked to consider what were the main ways that managers communicated their attitude to road safety, several experiences emerged and were grouped under the subtheme 'action must mirror the message'.

"The Advisory Committee also helps to link senior management with HQ to start applying things in operations. Sometimes drivers break the speed limits because managers require them to do it. We had a fatal traffic crash in which the driver needed to drive very fast because he was required so we are trying to activate a mechanism of our misconduct". (P02).

It is the top management that holds responsibility for the delivery of improved road safety. They are responsible for ensuring that information on the road traffic safety performance is acted upon including the extent to which objectives and road traffic safety targets have been met. They are responsible for compliance with legal and other requirements to which the organisation subscribes via its road safety policy. The management review should be the basis for improvements, understanding of nonconformities, and corrective action. It is also the basis for continual improvements.

"You can't have managers telling drivers to slow down and not speed, but then when they're running late for a meeting, popping into the vehicle and encouraging the driver to speed". (P07).

"You need that executive buy in and that must be very visible. A lot of times organisations come up and say we care about the environment and then, you know, they buy another private jet for the executives, the actions must mirror the message". (P13).

"One big boss had to travel to the airport after meeting. We pushed back on the time allowed as we are limited by speed limits set by the local traffic police and for our own policy, we have tracking system. It's not always pleasant because you become an irritation point for the big boss. But if you're too weak it may have very bad consequence to both to your driver and to your passenger. We can't do very much to get directors to be more focused on road safety. The main portion of our drivers have diplomatic status and whatever happens: it's not the director who takes care of the problem but their embassies, their governments". (P03)

Leaders make decisions regarding the direction in which they want the organisation to go. For aid and development organisations, decisions with regards to new missions have an impact on operations, how they recruit and train their drivers and riders and how safety is prioritized. Leader's decisions shape the organisation's overall strategy.

In line with the Swiss Cheese Model then, one of the main gaps in the defences seem to be the decisions the managers themselves take when using vehicles on business that demonstrate a poor commitment to safety. Previous research shows that drivers' perceptions of the value and priority given to safe driving by their supervisors predicts crashes (Newnam et al, 2008) including the frequency of the delivery of the message (Newnam et al, 2012).

Some participants believed that the CEO/directors must be accountable for the road traffic crashes if the culture is to change.

“On our driving courses, these stories are coming through that when a senior manager gets into a vehicle and they feel unsafe because the drivers speeding or talking on a cell phone, they don’t ask them to slow down and stop talking on the phone and then do something about it. It was surprising to hear how many senior managers would say ‘I’ve been in a vehicle and was literally clinging to the edge of my seat because the driver was going so fast’ but they did nothing, and it was just accepted. We need to change that. We need to make sure that it’s not OK to do those things and people should be held responsible and accountable for it. We must get people from the top down saying you know let’s get there safely. You don’t change a culture overnight”. (P07).

“Operations grew up country by country as they added more countries to their humanitarian work, and each country was a universe unto itself, and they have been doing things for decades the way they do things. There is an extreme reluctance to allow global oversight or global change, there’s extreme reluctance to spend money on something that could ultimately save money, lives, and health. They don’t want to change. And that’s it. Like an organisational statement. The people in the field who have been in charge for so long they’re resistant to change, They’re the blockers”. (P13).

“Nobody has ever had to tell a humanitarian organisation you must do everything you can to keep people safe and secure. We want really accurate stats and if people are getting injured and killed, you’ll lose your job as a CEO. There’s no push for that change in culture”. (P10).

A good safety culture drives an organisation toward safety goals regardless of operational pressure. The findings here show that management must have a stronger influence on prioritizing safety to identify latent failures and their link to active failures. One of the latent failures include lack of direct employer or supervisory control. Whilst there are local safety leaders to manage crashes and data, they seem to have limited authority to address unsafe behaviour.

“Our fleet focal person is a point of contact in each country. We show them how to run different vehicle reports, but they have no authority. And that is a serious gap, because they can pick out a driver that’s driving too fast, but they don’t have the authority to pull that driver in. it’s been raised a few times that they would like a better title, so they are recognized as a driver manager and report to a program manager. We’re trying to get that structural change within the organisation”. (P04).

“I don’t have any direct line control authority over how the various field offices run on a day-to-day basis fleet. So that been left down to the various national directors of those offices which does create a challenge. Field offices and regions are autonomous. They are left to manage it as they see fit so the challenge is that some do better than others. Working from a global fleet perspective, what we’re trying to introduce is sort of more standard approach to how we manage operations”. (P07).

However, having the resources to invest in safety management is important to develop a good safety culture within aid and development organisations.

“A fleet manager brought out a new driver training thing without consultation. There was a lot of push-backs because it was no policy telling everyone this is a new policy. And of course, there were howls”. (P10).

Safety leaders that have the authority to challenge at risk behaviour seem to have a more positive safety culture within one organisation, although this is not the norm for other organisations represented in this study.

“We have quite a hierarchical system, it's conversations I've had with a few local management staff that have a very close grip on infringements or potential infringements showing up in the telematics and they would hesitate in talking to people that they think are not driving in the correct manner”. (P11).

“The single most important factor is supervision. How knowledgeable about what's going on, how close they are to the day-to-day operations and therefore understand what they need to focus on and where things can go wrong and being all over at ground level, and how well informed their bosses are as well of what they're doing and how they're doing”. (P11).

Management plays a key role in promoting a positive safety culture. This can be best demonstrated by allocating resources, time, walk the talk, inspections, by participating in risk assessments and consultative committee meetings, and by being seen to take safety seriously.



TRAFFIC SAFETY IN LOW AND MIDDLE-INCOME COUNTRIES

Operating a fleet-based organisation delivering aid often across several countries with challenging local road conditions and traffic, involves workers and drivers outside the physical boundaries of their organisations. Several participants talked about the challenge of operating in developing countries and how this has an impact on road safety for aid workers and members of the public.

"I lived in Africa. I've lived in the Middle East and here in the UK, there's stiff penalties for using a phone but in our other developing countries it doesn't exist. I'll guarantee 90% our drivers are running around and when the phone rings, they pick it up. Half the countries don't even have a crash helmet law. We're very, very dependent on the individual management within country to push the safety factor. Have the drivers got a proper license?" (P04).

However, there is a suggestion from some participants that some drivers may be excusing their poor driving behaviour with reference to their working conditions and the complexity of undertaking standard risk management strategies such as licence checking. They discussed how the absence of important traffic laws in developing countries means that safe operations are difficult to achieve.

"What I constantly hear is, well, you don't know the conditions we're working in. It's different, either our country is different or the work we do is different". (P13).

"The problem in our organisation is that there is a lot of different nationalities. And if you have your European driving licence in Europe, it's not the same as in other countries where maybe you buy your driving licence and not take a test. (P14)

In Africa, for people from the Ivory Coast wearing a seat belt is not mandatory. They don't understand why you must fasten this belt and never do. Even for the driving license, it was not mandatory. It's not the same level if you have a crash, in Africa, a crash is an important thing, but in Bangladesh, nobody stops if you have a crash". (P14).

"If there are no traffic laws in the country, there are international standards. You need to take into consideration vulnerability of pedestrians and the fact that in various countries, a lot of people are using the roads and the infrastructure is not necessarily designed for sharing roads in a safe way". (P06).

"In fairness, without wanting to sound too flippant, it's just that we do operate in vulnerable conditions and countries. The majority of our crashes happen in the most vulnerable countries". (P07).

Some participants believed that the way aid and development organisations use the road is an example to others in the developing countries and that they should set a good example.

“We take a lot of care because this organisation should help other countries to go in the right direction. Not respecting traffic sign and not behaving safely will result in an accident”. (P08).

“We know that, if there is a speed limit, people tend to go above that, so in order to avoid them going even above what the national regulation defines, we decide a threshold that is little bit lower”. (P09).

“There should be an understanding that, we also need to comply with health and safety laws like corporates because we are also abiding by the rules and regulations. But who should be doing that because fleet managers by themselves are having difficulties”. (P10).

It is clear from the findings that aid and development organisations have challenging circumstances in which they operate. However, these challenging circumstances necessitate an even stronger focus on road safety rather than believing that there is nothing that can be done. Even some large NGOs appear to have a negative safety culture and do little to address road safety concerns when operating in developing countries.



THEME 2: CRASH MANAGEMENT

When a road traffic crash occurs, the cause must be found if it is to be prevented from happening again. It is possible to investigate a crash on an individual or system level. When investigating on an individual level, the aim is to understand why the driver behaved in a certain way. When investigating at a system level using Rasmussen's Risk Management Framework, the aim is to investigate what aspects of the organisation allowed the human error to occur to avoid unwanted crashes in the future by strengthening the defences. For aid and development organisations, the focus is on crash investigation at the individual level, if it occurs at all.

"I just found out maybe three weeks ago that there were two more fatalities that I never found out about in the last year, didn't know anything about them." (P13).

"I know our senior leadership don't know not only how many of our staff have been killed in traffic collisions, they don't know how many community members we've killed by running over them, right?" (P10)

"I've noticed that [managers] have road traffic crashes with casualties but they didn't add anything on the risk register. When something is added on the risk register then it makes the managers in this operation accountable for it". (P02).

"We operate 35% of our fleet in 16 of the top 25 countries with the highest vehicular death rate for 100,000 people. In Africa, we have 75% of our vehicles, and this country accounts for the highest proportion of vehicular deaths for pedestrians and cyclists in the world. During the period 2007 to 2018, vehicles were involved in approximately 300 reported traffic collisions and hardly any were reported". (P10).

"I had to create another platform for incident report as there was no really structure for incident reporting." (P05).

The interaction between these parties needs to be more effective if safety is to be improved. This means that the workplace must have a "reporting culture". It should be habitual that all employees and/or associates travelling in aid and development vehicles notify about situations that increase the risk of road traffic crashes taking place. However, the findings suggest that several aid and development organisations fail to report crashes accurately.

IMPACT OF CRASHES

A sub-theme emerged called 'impact of crashes'. Most participants highlighted that strongest impact of crashes on aid and development organisations is loss of human life or causing injury and especially how this affected their reputation locally.

"The only time we managed to kill the people we're supposed to be looking after is with our people who are driving". (P10).

"Number one, is the health of the driver but it also means our clients are not getting inputs at the right time". (P01)

"Very important for us is the reputation of our organisation because our vehicles are recognized by local population, we are visible on the road". (P08).

"God forbid, to kill people. But the main problem which has really become very, very important in our mission, is reputation, especially accidents causing damage to third party vehicles because the mission is located in both government-controlled and non-government-controlled area. In a recent case, the third-party driver had children inside not wearing seat belts and they head injuries. It became such a problem that it was brought to political discussion as number one question on the agenda. (P03).

"It is our intention not to be involved in a fatal accident that may lead to a reputation damage and we can't afford any situation like that. In 2012, we had fatal incidents and we're still having problems". (P05).

"First, you are going to have the impact on lives. Injuries can produce loss of time in our workforce. But we also need to deal with the emotional implications of traffic crashes. Plus, when we lose money related to the conditions of our vehicles, then we cannot use this this money for our work. It has an impact on investments plans too, because you need to start developing an investment plan to implement countermeasures. And that can have an impact on selecting the suppliers". (P02).

"First, you've got the personal injury of your employee and possibly a third party and all that comes with that. The emotional side and dealing with friends, family, relatives. If somebody's in a fatality or badly injured, that's time consuming and it's a strain on everybody". (P04).

"It's a reputational issue. If we are seen to think that we are somehow having the right of way or can just conduct ourselves in any way that we want to, just because we're there delivering aids to a country it's not a good standard to abide by because you're there to assist, not to cause additional harm". (P06).

"Our death rates are relatively high by comparison and as a humanitarian organisation committed to improving the lives of children particularly, the fact that we had eight children killed last year in road traffic crashes alone is of concern. People are genuinely sorry and concerned when a crash happens, but they move on very quickly". (P07).

"The first impact has been reputational because when we had some security incidents last year, they involve deaths of local people in small villages and especially when it happened involving children, obviously the reaction of the people locally was not very happy. We managed to overcome that difficulty, but reputation and obviously the loss of life has been the two main concerns and biggest impact for us". (P09).

"There's been one case where a staff member who was well known, well respected killed in a crash and everybody saw the impact that it had on the family. It galvanized the thinking and created that burning platform. All of a sudden, there was a huge effort on the part of that region and senior executives to get staff trained around improving road safety". (P07).

"If a road traffic accident happens due to our bad behaviour, this could impact on our reputation. It could be in the newspaper. If we have a good reputation, the local people will respect us and our decisions and recommend us for other things in the country". (P08).

"The first would be loss of access to the area which has not been the case because we managed to re-establish good relations with the communities but definitely thought we would not be welcomed anymore in those areas. And if this happens several times and we don't put any measures to avoid it, then we could very easily get to the point when they don't want to fund this as anymore". (P09).

"Anything that has to do with security has an impact on the reputation because in the field, you have a local population involved and newspapers and local authorities so anything that is branded and involves our staff will have a reputation cost". (P12).



Most participants mentioned the financial impact or crashes on their organisation as well.

There's, of course, the financial impact, like the loss of the vehicle and having to hire a vehicle perhaps, or replace that vehicle, even a minor scratch, you're looking at £2000 to £3000. If you're talking of fatality, £10 to £15,000. And the increase in insurance period premiums. Health and safety in developing world is almost non-existent, and there's a lack of appreciation of how much damage and how much cost is involved with an accident. (P04).

However, some participants felt that there was no impact of crashes because not enough is done to improve road safety.

"I think that the impact on the larger organisation, it's minimal, it's almost non-existent". (P13).

Given that most participants were able to identify significant impact of crashes, it is rather surprising that little appears to be done to improve road safety to lessen its impact. This appears to have led to some cynicism on the part of some managers who have come up against barriers by senior leaders with regards developing safer systems for improved road safety.

"In the countries we operate, if something happens, there's a minimal cash payment to the family and a lot of lip service to 'it's a terrible thing'. All life is sacred, etcetera, etcetera. But when it comes down to it, I don't believe the corporate line". (P13).

AT-RISK BEHAVIOURS AND UNSAFE VEHICLES

Active failure can be seen when at-risk behaviours are observed. Speed has been found to be the main contributor to crash involvement for people driving for work. At higher speeds, the time to react to events is shorter and reduces the manoeuvrability. Thus, speeding increases crash occurrence and its severity (Aarts & Van Schagen, 2006), especially when driving for work. The participants often referred to the most common at-risk behaviour they have encountered is excessive speed.

"We have problems with the excess of speed events". (P02).

"Reason number one is excessive speed". (P09).



However, amongst organisations that seem to be doing more to manage road safety, the need to understand the root cause of speed means they have looked at the problem with a wider lens than just blaming the driver taking a more systems approach.

"I'd suggest that the initial cause of most of our crashes would be speed so one of our big focus areas is to reduce speed. I'm really keen on every occasion to totally understand the root cause and go back and dig deeper because it isn't just speeding, it's why was the driver speeding and why was it OK to be doing that speed? Why was the driver late coming back from the field office? Why didn't we plan the journey properly?". (P07).

Others reported that drivers may be blaming victims.

"What interested me most when I started reading the crash reports, what struck me most was that about 6 out of 10 of the narrative said that the victim or the pedestrian suddenly jumped in front of my vehicle, and it was almost like blaming the victim of the crash for the crash". (P07).

Participants highlighted the importance of the use of appropriately procured and maintained vehicles. Inadequately maintained vehicles are more likely to be involved in crashes (Knipling, 2011b). In an examination of the link between vehicle conditions and crash risk, drivers who had had one or more vehicle condition violations had crash likelihoods that were 1.7 times higher than those who had not committed any violation (Blower, et al., 2010).

"Because we try to disguise our presence in the field, we need to rent vehicles that are used locally in remote regions of the countries, so you don't really have access to the best quality of cars. Then sometimes even if the owner is responsible for the maintenance, it's not always performed. We might find cars that are not 100% safe". (P09).

"This is what are we now reinforcing not only with the drivers but with the country offices and the security staff to make sure of the car's maintenance before the trip and during the trip". (P05).

"I got in a car in Afghanistan. It drove me nuts. Got in there. No work with seatbelts in the back of the car. How do you even procure a vehicle with no working seat belts?". (P10).

"Not all of them is the driver's fault, vehicles are heavy, roads are bad. Sometimes the tyre splits because of the heavy load". (P03).



Strategy can be seen as the long-term direction of an organisation and will impact on all actors in the system and affect road safety for aid and development organisations. If a low transport budget is in place to achieve humanitarian goals, then vehicles will be used over a longer time and cost-cutting exercises could lead to poor vehicle maintenance (Soro, 2020).

As one participant astutely explained.

"You need to think about the whole all the components of the system, not only in the human factor". (P02).

MANAGING COMPLIANCE

Participants were asked whether compliance of road safety policies is regularly checked. This sub-theme identifies a link to poor compliance monitoring and at-risk behaviours. Participants discussed how management fail to ensure that policies are adhered to at ground level. Lack of compliance checking represents yet another latent failure according to the Swiss cheese model.

"I've never seen any checks. The management processes and procedures say that every three years our country office should deliver driver training one way or another. And that's in black and white. That's in the manual. You know that should be done and I guarantee it's not getting done". (P04).

"Every two hours the driver should take a 15-minute break. That doesn't happen. In some of the better places it might. Drivers are supposed to make sure that everybody has their seatbelt on but to the best of my knowledge, nobody in country is checking any of that". (P13).

One of the problems that may be associated with lack of compliance checking is poor supervision. Participants were asked whether those driving or riding vehicles were adequately supervised, and it appears that supervision varies from office to office.

"Well, it depends. I've been in about like 15 missions, so, if I'm telling you what it was happening in Liberia compared to what was happening in my office in Pakistan or in my office in Salvador, it's very different, of course, they do have supervisor. Sometimes it's the logistic officer that is supervising the fleet. Sometimes if the fleet is very big there, there is a fleet officer." (P12).

Many participants emphasized the need for clear controls and regulations and a mandate requiring them to follow the policies and procedures. The participants reported that regulations alone are insufficient; it is crucial that the control system works to increase compliance. Poor supervision is identified from the data as a latent failure.



CRASH DATA RELIABILITY

Basic fleet risk management strategies include the systematic documentation of crashes. The purpose of this is to understand the risks so that they can be controlled and managed. Without an accurate and reliable crash database it is not possible to identify potential risks. Participants were therefore questioned on how crashes are recorded within their respective aid and development organisations.

Whilst some participants report that their data is accurate and reliable.

"it's 100% reliable because there are two dept reporting the incident to the security operation centre". (P05).

"A person is obliged to call our monitoring center immediately and inform transport. The person involved must fill in the information within 48 hours. We follow local procedure and involve the police". (P08).

Others are only just setting up a database.

"The database is being implemented but we are not using it right now. Because this idea was developed for the supplier who is going to conduct the road traffic crash investigations". (P02).

"We have recently introduced an incident reporting system and I get the alert that something's happened and I can go in and have a look at the report. It's relatively new, but at least it's giving us a platform where we can record incidents". (P04).

For those with a system in place, some participants were concerned about the reliability of the data and gaps in the information.

"Serious and fatal crashes are reported, and I know this sounds strange to hear, but I think the reporting is immature. All fatal serious injury reports are put through. I don't think they are reported for minor damage, only if the crash is particularly severe. So even though we've a fair few there are quite a lot that probably go unreported". (P07).

"It's about the people entering the data and nearly every report that I read, it's not giving me the data I need, like no explanation of the vehicle, did it run off the road, what speed were they doing? What was the time of day? What was the road conditions? Were there any other vehicles involved? What damage was done? So, it's very difficult to build a picture of what's happening and how to address it". (P04).

One participant explained why crash data reliability is poor.

"Country representatives protect their turf, and they don't want to be seen as though they're having incidents cause they think they look bad or they can't be bothered. We've had no incidents in Afghanistan, nothing for 4 months, no problems with the Taliban, like, apparently nothing. I'll give you an example. For 2021, there were six crash repairs put in the system out of 1200 vehicles driving 14 million kilometres and I know that's wrong". (P10).

"We have recently implemented a centralized incident reporting tool that everybody supposed to report any incident, but they don't always. I would say most are not recorded. I'm sure I only have 20% of the data. The people are saying they don't want to pay the couple of bucks a month for a driver". (P13).

"People report what they want and don't report what they want and if there's a repair for a crash it's not always recorded". (P13)

Poor crash data collection is another latent failure. With a poor understanding of the nature of the risk, the risk cannot be managed. This gap must be addressed if fleet risk management for aid and development organisations safety culture is to improve.



CAUTION
BAD DATA
AHEAD

THEME 3: INTERVENTION EFFECTIVENESS

A main theme of intervention effectiveness emerged in the data to cover all instances of participants discussing how their organisation managed road safety in terms of the interventions they had put in place. Within this main theme, three subthemes emerged to describe driver versus management interventions, the use of telematics and how they are disused. Finally, a subtheme of evaluations conducted to prove effectiveness emerged.



DRIVER VERSUS MANAGEMENT INTERVENTIONS

Within traffic safety, various paradigms have emerged. Previous road safety research used a skill model to explain the causes of crashes. In the 1970s and 1980s, this changed to also include motivation and risk models in which road traffic collisions can also be explained by the motives behind the driver's decision-making processes (Fuller, 2005; Wilde, 1982). However, it appears that the focus for managing road safety within aid and development organisations is with the use of skills-based driver training. Yet, previous research has repeatedly found that this approach to managing risk has not been effective (Dorn and af Wählberg, 2022).

"Defensive driving can reduce the amount of traffic crashes". (P02).

"Colleagues, which are employed as drivers have to pass driver training, not only on skills but eco driving training to get our permit to drive official vehicles". (P08).

"There was a difficult cost hurdle to start behind the wheel training which is something that should be provided to the actual drivers that go out in the field". (P13).

"We try to do driver training for the driver and plan to do it in several countries". (P14).

"I focused on driver education including the driving handbook and also videos. I assessed training facilities worldwide to make sure that whenever we have to send drivers for training, that all trainers are certified." (P05).

There is consensus among the interviewees that driver competence is an important factor in enhancing road safety. According to the participants in both the interview study and focus group, skills-based driver training influences the level of competence.

However, some organisations seem to be developing online courses as well as delivering practical driver training, and others have developed their own in-house emotion-based appeals using previous crashes as case studies.

“We asked the two of most prominent vehicle providers, to make online courses. Then we had field teams preparing training for winter driving”. (P03).

“I went out and found a company that provides online driver training courses, small modules that can be provided in multiple languages. They have a video component for real life examples so that took a year and a half to bring to the field and that was quite affordable”. (P13).

“We’ve been working with an international road safety training provider to develop a driver training program to improve hazard recognition and reduce crashes. Now we’ve got a series of four online modules which introduces the basics, then they go on a two-day practical driving course delivered by experienced trainers”. (P07).

“There’s some hard hitting the videos using a road traffic collision we’ve had as the example”. (P10).

This type of intervention has been evaluated by several researchers and either found to have no effect (Dale et al, 2017), or small, short-term effects (Cutello et al, 2020b).

For some the focus is on communication campaigns targeting drivers and road safety focal point personnel and managers. In line with Rasmussen’s Risk Management Framework and the Swiss Cheese Model, this approach is likely to be more effective than skills-based driver training as it is more likely to develop a greater understanding of the challenges faced by both parties and lead to the development of new solutions to address these challenges. It is therefore an approach that is more likely to lead to an effective outcome (Elvebakk et al., 2020; Newnam & Oxley, 2016)

“I just recently had a 3-day workshop for not only drivers, but also for road safety focal point and other senior managers, the mid-level senior managers to understand that it's not only a driver problem but many other people’s problem. It's not for only the drivers to understand, the driver needs to understand about their communication with their own supervisors or even the staff. It's a communication campaign all the way”. (P05).

“We have the Safety Week to familiarize people with the Safety issues. There are also webinars sometimes and, a lot of reminders and trainings going on. The role of the managers is very important because they are the one sponsoring both the safety events and all the training”. (P12).

Another factor is the nature of the interactions between the various actors and agents in the system. This covers communication, cooperation, coordination, leadership, decision making, and learning. These factors are important within each organisation but even more important in the relationship between the different parties in the system surrounding mission-related driving. Challenges in managing road safety for aid and development organisations occur when communication and collaboration between different actors fail. To strengthen this defence barrier according to the Swiss Cheese Model, it is essential that every actor is familiar with its own, and each other's, challenges, and opportunities. This can be achieved with a road safety intervention based on communication that aims to bring these individuals closer together (Elvebakk et al., 2020; Newnam & Oxley, 2016).

Others place greater emphasis on incentive schemes to improve driver behaviour.

"We are also running a project for giving a bonus to drivers if they behave properly. If he misbehaves, he's going to lose the bonus, and this is related to a demerit point system". (P02).

"In Kazakhstan we had a big problem with speeding, and we ran an incentive scheme. They were on two weeks on two weeks off shifts. If they did their two weeks shift and didn't have any speeding events there was a bonus. Then when they came back on shift and did another two weeks with no speeding, there was another bonus. If they did speed, they lost everything and they had to go back to the beginning again". (P04).

Participants working for organisations with a good safety record were asked what they believed were the main factors responsible and several safety systems were mentioned as contributing to road safety.

"I think the organisation is quite mature at those local levels. I think the policies we're pretty robust in terms of training and driver's hours, familiarisation with the fleet and at least some basic background on how to minimise the risk of accidents. To drive one of our vehicles, we have a combination of national and locally approved staff and international staff. You need to demonstrate your driving for car rental with your national driving licence, but also go through a procedure with the driving assessors before you'll get a permit. How that is implemented is left to local decision makers. Training is strongly encouraged". (P11).



TELEMATICS USE AND DISUSE

In-Vehicle-Monitoring-Systems, also known as telematics, allow the collection of data for on-road behaviour and location measuring a range of different parameters including exceeding speed limits, acceleration/deceleration, etc. Limited visibility of the driving workforce has led to an explosion of interest in telematics to keep track of vehicles, especially for aid and development organisations operating in a difficult and often remote terrain. Implementing telematics into all vehicles means that organisations would find it easier to track and monitor driver behaviour, driving-resting time, and loading-unloading time. Measures could thus be put in place to avoid certain situations and create safer transport routes.

“If the speed limit is broken, it automatically reports to all interested people. It's not like you immediately punish person but you ask them to please explain why this speed limit was broken. Now, every time the driver pushes the accelerator, he knows that question will come”. (P03).

“We can look at any vehicle anywhere in the world and see where it's going, what speed it is travelling at, and we can look if there's been an accident in that vehicle. All country offices have access to it, but some countries are more engaged than others. We do a monthly report and give it to the countries including the number of speeding incidences and then we can drill down and look at it”. (P04).

However, some participants discussed the struggles they have experienced trying to get telematics installed in their fleets.

“When we discussed the idea of purchasing more GPS to cover our fleet, it wasn't completely accepted. We had to lobby a lot on the on the importance of using GPS and actually the way we convinced them is by simply checking what other or NGOs we're doing in the area, and when they realize that other NGOs were all using GPS. They understood that it was the best way forward”. (P09).

“The tracking system program has been in place just for this year, a few months ago. But the tracking system is only for the Armoured vehicle program so far”. (P05).

“We can see the data on what the driver was doing prior to the crash, but very few offices have actually used their vehicle tracking capability in a proactive way. So would we're looking to introduce a sort of a more proactive use and get managers to constantly continually review data”. (P07).

“What I'm trying to do is create leading rather than lagging indicators. Many offices haven't been educated in the value of using vehicle tracking capability. It was probably introduced more as a security tool so unfortunately a lot of the vehicle tracking system providers don't provide particularly informative reporting”. (P07).

“There is a role for telematics, but again if it's rolled out properly and that doesn't get around the fact that some of our countries won't have the capability of having that stuff, and if you've got motorcycles, taxis, that doesn't help”. (P10).

“We have vehicle tracking systems and of various types, mainly used for safety and security. If somebody's involved in an incident or has a problem, then we're gonna know where they are. But I've only got of a very limited number of vehicles. At local level they can see their fleets, depending on the mission, and the speed travelled. We're starting to introduce a new system which gives us a bit more functionality. I understand the benefits and the power of such a system, but that doesn't exist here yet to my knowledge”. (P11).

However, one participant reported that the use of telematics has helped to reduce speeding events, but this seems to vary from country to country.

“From talking to countries they look for that report each month to see how many speeding offences they've had. They'll look at which vehicle is, if it's the same driver, they'll pull him in him or her in and speak to them and some countries really do try and address that and they want to see zero tolerance for it and others don't”. (P04).

Promoting telematics as a tool for saving fuel may be beneficial to improving the take up of telematics. Almeida et al (2012) assessed the environmental sustainability of development organisations by quantifying the carbon footprint. Overland mobility was found to be responsible for 20% of total annual emissions. Increasing fuel efficiency will save operational cost especially as aggressive driving may contribute up to 40% higher fuel consumption compared to normal driving (Brundell-Frej and Ericsson, 2005).



EVALUATION TO PROVE EFFECTIVENESS

A key component in any management system is to evaluate performance in relation to the specified goals and to investigate and understand relevant crashes and road traffic crashes, performing internal or external audits reported to management. However, there is little evidence that any form of evaluation of the effectiveness of interventions to improve road safety is being undertaken. Evaluation appears to be extremely low on the priority list if it is on the list at all. Perhaps the task seems too large to manage for some road safety focal points.

"I have been trying to educate them on how to look at that data and read the data and evaluate the data but there is again no central repository for the data. I would have to collect data from ten, 15, 20 Systems across the globe and evaluate them and I'm the only person here. I don't have the time to do everything that has to be done". (P13).

"No, we haven't evaluated the effectiveness of the online program for a number of reasons. One, because each country is doing their thing. Second thing is that the ability to get data and track data that's non-existent for accidents and safety. The closest I have been able to come to that is to show that of the crashes almost 80% of them were involving drivers who have not taken the training". (P13).

"We have the speeding incidents dramatically reduced and run a speeding report every month and the numbers over the last couple of years have come down substantially" (P04).

"We implement telematics mostly on speed limits, so we set-up to receive notifications related to that compared with the previous period. It was obvious that speed was lower than before. Drivers started to take more care because they are aware that someone is watching all the time. Before there were more accidents, and we were on the road more". (P08).

One participant is planning to undertake an evaluation of their driver training intervention using telematics.

"We try to do driver training for the driver and plan to do it in several countries, but for us we have to wait until the end of the year when we have the data analysed from the black boxes to give us some objective evidence of what the solution may be best to implement as part of a fleet safety program". (P14).

Evaluating road safety interventions is critical for understanding what works and what does not work. Perhaps the lack of evaluation is leading aid and development organisations to implement skills-based driver training because they lack awareness of the root causes of the road safety problem.

THEME 4: CHANGING THE SAFETY CULTURE

For this theme, participants described and explained how to change the safety culture. Previous research shows that improving the safety culture involves both a top-down and bottom-up message that road safety is a priority. One participant discussed the issue at the driver level but recognised that a top-down approach is required.

“Driver training, data management, proactively managing drivers who are identified as speeding regularly - all of those things on their own aren't going to change anything. This has to be a culture change. There must be constant consistent messaging around these issues”. (P09).

COMMITMENT TO ROAD SAFETY

In a system thinking approach the goal is to eliminate, mitigate, or control hazards to avoid crashes and losses (Leveson, 2021). To achieve such goals, commitment to safety is essential (Rasmussen, 1997). Organisations in which management commitment to safety is strong, have reported low road traffic crash rates while, such commitment has been found to be characteristically absent in high crash-involved companies in the trucking industry, demonstrated a strong correlation between management practices to the strong presence of safety culture (Arboleda et al, 2003).

Participants were asked what they believed shows organisational commitment to developing a safety culture. The following extracts show that some aid and development organisations seem to exhibit a commitment to safety whereas other do not.

“Just by aggressively researching, engaging other people and sharing with them the new technologies”. (P01).

“Understanding about risk factors, monitoring risk factors and applying corrective actions when they are identified. It will also include giving communications based on an analysis of the problem. So, it includes good quality data for conducting the analysis and identifying the problems, and then creating communications based on that. Prioritising decisions based on evidence”. (P02).

One participant described the benefit of a top-down approach in their organisation.

“The positive effect is mainly after the policy document was approved. The vice President signed it, and it represents a lot of serious support from the top manager. I think that's the key. So having that support allow me to explore other options internally. The staff road safety committee meet regularly and assess what we are planning to do. It is a serious business, so we really have a serious structure in order to report the risk of the staff being on the road. I think it's a team work always. It's time consuming, but sometimes you must keep motivating yourself, pushing and pushing and pushing”. (P05).



Whereas other organisations seem to have a more de-centralized approach to managing road safety, with officers in the field left to implement the policies without oversight from HQ.

“One of my tasks is to put in place some regular, probably monthly reporting, because the field officers are quite autonomous in the implementation of the regulations. We set the policy, but how they implement the policy is up to them. It's a little bit bureaucratic, so it needs to be fairly light touch, but there'll be some key performance indicators”. (P11).

“I'm under pressure now to put solutions in place. I feel the pressure coming from the top down to make it happen and I'm thankful and glad because if it weren't I'd probably be more concerned. (P07).

“Celebrate the successes, keep reinforcing on a regular basis the commitment of the organisation, because people must believe that it's happening. When I do visit the field drivers and the fleet managers are committed to making things better, to being safe and they're focused, so I'm heartened by that. We've got a little bit of bottom up coming and certainly I'm pushing top down”. (P13).

One participant mentioned that commitment to road safety had positively changed in their organisation in recent years and how this appears to have improved their approach to road safety rules.

“It was bad a few years ago but now it's different. The director and all the managers are more sensitive about the topic of road safety. We can tell because we have the committee for road safety, and they are with us. We have a lot of people positive towards road safety action and to upgrade the situation, but I'm not sure that it is most of our organisation. The managers in the field follow the road safety rules and they want to do better”. (P14).

GETTING ROAD SAFETY ON THE AGENDA

Given the importance of the role of leadership in driving a safety culture, participants were asked how to get road safety on the senior manager agenda. Participants were also asked how they had dealt with those senior managers that do not engage with road safety.

"This needs a strategy. I have one region with good support from drivers and staff, but the senior manager is not really into it. So, I ask them to invite me to meetings and then I present the program with the supporting documents that the Vice President signed and tell them that you guys are listed here with roles and responsibilities. Constantly pushing. It's about how to make this tangible to them in terms of cost and what they can benefit from" (P04).

"Based on my experience, I think it's personality driven. We have to sell road safety and not like an expensive item that they have to consider in the yearly budget. I think education is the key. If there is a strong communication material, or a proper work plan with materials not a work plan. It has to be very simple". (P05).

"It needs to be talked about and acknowledged that it is a factor that affects how we work and how we go about our work. Management, senior management needs to push this downwards as well ". (P06).

"There is no point to try to implement procedures that are very nice on paper, if they're not adapted to the context. Your context analysis, your procedures, need to be translated in simple terms to the people and teams that have different kind of profiles". (P09).

"You need the data to create the concern, and to tell a story. Then how do you influence people in a highly matrixed organisation? An old manager called it circling the wagons. If I need to meet with seven people as a group and they need to say yes, approach each one individually. Talk to them, gain their insight. Address their concerns and get them on board individually so when they are in the meeting, everybody's already said yes. The power of reported data is probably second to none in terms of changing people's thinking and convincing them of the need to think. We're not providing in depth analytical reports, we've just taken the data and turn it into something that tells a story". (P10).

One participant suggested leveraging organisations by comparing them with similar organisations to shame them into taking action towards road safety.

"Some comparison with other organisations is really useful, because nobody wants to be underperforming against their peers. So that's added value to the discussions". (P07).

Others suggested the value of data in building a business case and demonstrating the financial costs of crashes.

“If we present them with the statistics of the incidents that we have in our context and we know by many sources that road accidents are always one of the major incidents that humanitarians face, we can extract those data and then show them how we have avoided certain major consequences because of the presence of the GPS. They would understand the added value no matter what the cost is”. (P09).

“If you were losing money through inefficient operation or poor road safety records, you have to root it out. One of my jobs is to produce an annual fleet report, and that was fleet report covers all aspects of operation and financing which would include road safety. That report is signed off by the director. The report will be shared with 57 participating states. That’s a high level of scrutiny. They can ultimately call the shots and provide the money. I mean, it just stands to reason that if you write in a report and everybody’s looking at what they commit to paper, if the says report that we crashed 14 vehicles and we had to pay two and a half million quid to replace them, the alarm bells will go ringing”. (P11).



SUSTAINABLE DEVELOPMENT GOALS

DECADE OF ACTION FOR ROAD SAFETY

2021 - 2030

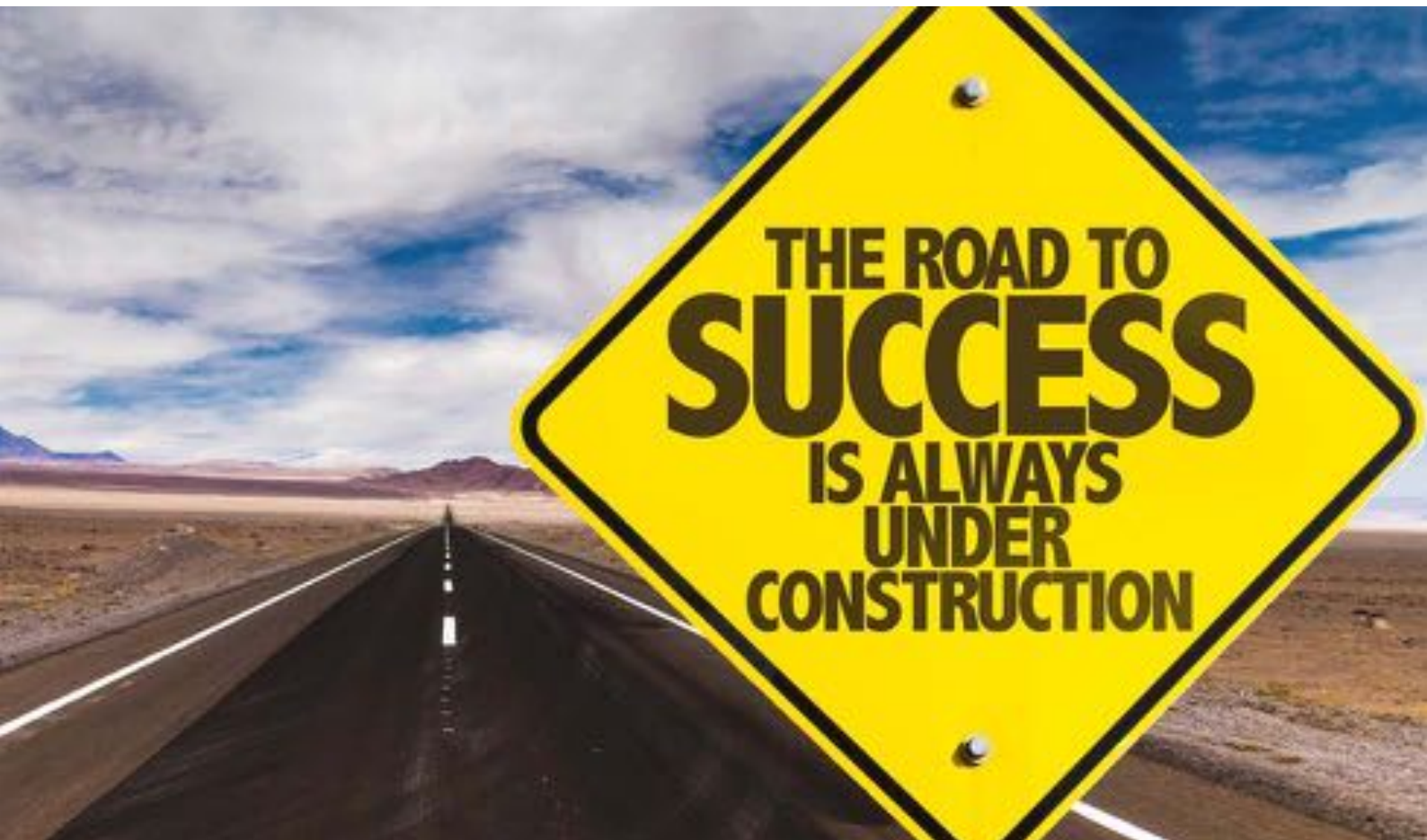
One participant mentioned the value of achieving ISO 39001 certification. The safety factors in ISO 39001 are shown to have a major impact on traffic safety (Gitelman et al, 2014). This guides organisations to set up a management system containing requirements that are documented and can be controlled. It includes sections on the context of the organisation, leadership, planning, support, operations, performance evaluation, and finally continual improvements. In the certification process, the organisation must confirm that it is living up to the demands in the standard and the management system. The certification can be done internally, or, in the most ambitious cases, the certification is performed by an accredited third-party certification body. Safety performance factors are used to determine, monitor, and measure road traffic safety objectives and targets including what should be done, what resources would be required, who in the organisation holds responsibility, when results will be available, and how the results are to be evaluated. Participants mentioned the benefits of this approach but acknowledged that resources to implement ISO 39001 certification meant that the benefits were not realised over the long term.

“After 2017 food for peace, new compliance issues for NGOs states that you must have a full risk assessment that must be compliant with ISO 31,000. So, they became much stricter, and they had security managers that could fulfil those requirements. Before that it used to be submit security plan. Nobody will read it. That has now been watered down and it's got easier to comply, and I know why. It's because lots of people submitting proposals couldn't meet very basic safety and security requirements because they don't have qualified security staff. If the donors could do it, great. But the donors themselves don't have people that know what they're looking at when they're reviewing security measures or safety.” (P10).

For road safety within aid and development organisations the findings suggest that road traffic collisions are caused not only by the decisions and actions of road users but also those of management and stakeholders including local and national safety regulators and national governments who allocate funding to safety initiatives. Considering the Swiss Cheese Model, the data shows that key defences within aid and development organisations have wide gaps that allow a sequence of events to result in a road traffic collision. Whilst participants seem to understand what the organisation must do to improve safety culture, no systematic approach to doing so was advanced. Participants also lack the authority to implement a widescale fleet risk management program. However, one aid and development organisation have designed and implemented such a program, although evaluation has yet to be conducted.

The International Committee of the Red Cross and Red Crescent (ICRC) have developed a fleet safety program that aims to address attitudes and behaviour to mitigate the risk of travelling from one place to another. The aim of the program is to develop awareness of the risks to avoid, limit potential negative consequences and understand the extent to which the organisation knowingly accepts the risk. The program includes a comprehensive coordination between ICRC staff members alongside the global structure of risk management in which risks are identified, analyzed, and risk mitigation strategies are implemented and reviewed. It includes tools for better management of crashes, defining a clear process on how to proceed when a crash takes place. There is a strong emphasis on data collection, analyses, and monitoring. The program considers that road safety is a shared responsibility and intervenes with respect to all the pillars of the safe system (road safety management, safer roads, safer vehicles, safer road users and post-crash response).

Developing and maintaining a positive safety culture can be an effective tool for improving safety within any organisation (Vecchio-Sudus and Griffiths, 2004. Hale (2000) listed elements for a good safety culture, these include importance to safety; involvement of workers at all levels; role of safety staff; the caring trust (that all parties to have a watchful eye and helping hand to cope with inevitable slips and blunders); openness in communication; belief in safety improvements; and integration of safety into the organisation.



GENERAL DISCUSSION

The research question aimed to identify how road safety is managed for aid and development organisations by investigating leadership practices, safety norms, competence, policies, and road safety systems and procedures. From the results presented here, many humanitarian aid organisations appear to invest little in road safety interventions and in some cases, subcontract the driving task and fail to manage the risk of driving for work. In many cases, a negative safety culture prevailed with four main themes emerging as being associated with poor road safety. For the first theme, participants gave accounts of poor road safety leadership and how a leader's actions had failed to mirror the road safety message. The challenge of operating in multinational and multicultural environments when delivering aid and development programmes across low and middle-income countries also emerged as an issue not being effectively managed by aid and development leaders. Participants considered that there was little that could be done to improve road safety given the condition of roads and poor road safety management within various countries.

The second main theme highlighted crash management with two sub-themes on the impact of crashes and how crashes are managed. Participants reported many crashes in which at-risk behaviours and unsafe vehicles were associated with road traffic crashes. The impact of crashes was reported as severe from a human financial and reputational perspective, yet many crashes are not recorded accurately. The third theme relates to intervention effectiveness and relate to participants' beliefs about the value of on-road driver training. The data suggests that the focus for road safety interventions within aid and development organisations appear to be mainly skills-based driver training. However, previous research has shown that evidence for effectiveness is weak at best (Dorn and af Wåhlberg, 2022). Telematics or vehicle tracking equipment also emerged as a main method for improving road safety, but only one participant reported that their organisation were using telematics to provide feedback to drivers about speed and high-risk events. No participants reported that they were actively evaluating the interventions leading to little insight about whether these interventions are effective. Only one organisation seemed to consider the wider systemic contributory factors in the design of a communication intervention for all levels of the organisation including management.

The third theme relates to intervention effectiveness and provides accounts that relate to participants' beliefs about the value of on-road driver training. Many studies have shown that skills-based driver training has failed to demonstrate a safety benefit and cannot be relied upon to contain road user error in the absence of effective road safety management by the leaders higher up the chain of command. The findings suggest that road traffic collisions are caused not only by the decisions and actions of road users but also those of management and stakeholders including local and national safety regulators and national governments who allocate funding to safety initiatives. Relatively few aid and development organisations appear to demonstrate good leadership to support safe performance as a road user with operational activities focused on delivering on the mission rather than road safety. Road safety seems to be underpinned by a complex sociotechnical system of country offices, HQ, local offices, road safety focal points operating in a multinational context. The data shows that key defences have wide gaps in which road traffic collisions are the inevitable result caused by a sequence of events due to latent failures.

Finally, the fourth theme described how aid and development organisations could change the safety culture and get road safety on the agenda. The evidence suggests that to improve work-related road safety on missions, it is necessary to focus beyond an individual's compliance with safety procedures and instead look to better leadership. Rasmussen (1997) states that sharing information, both top-down and bottom-up is a prerequisite for controlling safety in terms of how aid and development organisations prioritize interaction, communication, collaboration, and cooperation. The first step is about identifying the decision makers in the system, which could be done by mapping the relationships between the decision makers. The second step relates to gathering information about the action targets for all actors, including safety-related objectives. The third step is sharing information, both top-down and bottom-up, within the system as it is especially important that decision makers be well acquainted with information about work processes at the lower levels. The fourth step aims to establish the competence and capability of the various actors. This is not only a matter of formal knowledge but also tacit knowledge and practical skills. The last step concerns commitment and includes whether the actors and decision makers are committed to safety and whether they are aware of safety constraints.

Safe operations are likely to reassure investors or donors, but donors must demand safer road transport so that aid and development organisations invest more in road safety to develop a safety culture. When taking the Swiss Cheese Model into account in the interpretation of the data, several latent failures can be observed in the data:

- The actions and decisions made by management failing to lead by example on road safety
- Insufficient resources allocated to road safety
- Leaders turning a blind eye to unsafe behaviours
- Information about road safety not being passed on to the relevant individuals and groups
- Poor supervision
- Lack of direct employer or supervisory control
- Lack of compliance checking
- Poorly maintained vehicles
- Poor crash management
- Ineffective road safety interventions
- Poor use of telematics
- Lack of evaluations of road safety interventions
- The passive role of donors in requiring safe operations as a condition of the allocation of funds
- Operating in developed countries with poor road infrastructure and traffic laws



RECOMMENDATIONS

- Design and develop a communication programme so that decision makers, local managers, supervisors, and drivers can be made aware of each other's challenges and find solutions.
- A change in the hierarchy culminating in local safety leaders being given more authority to sanction poor road user behaviour is required.
- The design of interventions to influence safe road user behaviour to encourage drivers to discuss situations that place them at risk on the road (e.g., group discussions, feedback, and goal setting in improving road user behaviour).
- Better use of telematics to feedback scores to drivers to develop self-awareness of personal risks on each journey.
- Implementation of fleet safety programs like the one rolled out by the International Committee of the Red Cross and Red Crescent (ICRC).
- Demonstrate a commitment to road safety with follow-up 'nudges' to remind road users of the importance of safety when travelling on mission.
- Conduct intervention evaluations to ensure they are fit for purpose and continue to demonstrate that they are effective for improving road safety.
- Use data to build a business case for more resources to manage road safety.
- Lobbying governments in developing countries to develop safer roads and road users with better traffic and road infrastructure, better driver and rider licensing processes, and better enforcement of traffic laws.
- Use telematics to promote eco-driving to save fuel and reduce carbon dioxide (CO₂) emissions as fuel efficient driving is also safer driving.

REFERENCES

- Aarts, L., & Van Schagen, I. (2006). Driving speed and the risk of road crashes: A review. *Accident Analysis & Prevention*, 38(2), 215-224.
- Almeida, J. et al., (2014) Sustainability in Development Cooperation: Preliminary Findings on the Carbon Footprint of Development Aid Organisations. *Sustainable Development*. 22, 349–359.
- Arboleda, A., Morrow, P.C., Crum, R. and Li, M.C.S. (2003). Management practices as antecedents of safety culture within the trucking industry: similarities and differences by hierarchical level. *Journal of Safety Research*, 34, 189–197.
- Argilés-Bosch, J. M., Martí, J., Monllau, T., Garcia-Blandón, J., & Urgell, T. (2014). Empirical analysis of the incidence of accidents in the workplace on firms' financial performance. *Safety Science*, 70, 123-132.
- Avant, D. (2007). NGOs, corporations and security transformation in Africa. *International Relations*, 21, 143–161.
- Blower, D., Green, P., & Matteson, A. (2010). Condition of trucks and truck crash involvement: Evidence from the large truck crash causation study. *Transportation Research Record: Journal of the Transportation Research Board* (2194), 21-28.
- Braun, V. and Clarke, V. (2006). Using thematic analysis in psychology, *Qualitative Research in Psychology*, 3:2, 77-101,
- Crundall, D. Stedmon, A.W. Crundall, E. Saikayazit R. (2014). The role of experience and advanced training on performance in a motorcycle simulator. *Accident Analysis and Prevention*, 73, pp. 81-90.
- Cutello, C.A., Hellier, E., Stander, J., Hanoch, Y., 2020b. Evaluating the effectiveness of a young driver-education intervention: Learn2Live. *Transp. Res. Part F Traffic Psychol. Behav.* 69, 375–384.
- Dale, H., Scott, C., Ozakinci, G., 2017. Safe Drive Stay Alive: Exploring effectiveness of real-world driving intervention for pre-drivers and the utility of the Health Action Process Approach. *Inj. Prev.* 23 2 , 1–20.
- de Moraes V.Y., Godin, K. Dos Reis, F.B. Belloti, J.C. & Bhandari M. (2014). Status of road safety and injury burden: *Brazil Journal of Orthopaedic Trauma*, 28 pp. S45-S46
- Dorn, L. and af Wåhlberg, A. (2022). Traffic safety in organisations. *Fleet Forum*.
- Downs, C. Keigan, M. Maycock, G. & Grayson G. (1999). *The Safety of Fleet Car Drivers: A Review*. Transport Research Laboratory, Berkshire
- Elvebakk, B., Nævestad, T.-O., & Lahn, L. C. (2020). Mandatory periodic training for professional drivers: A Norwegian study of implementation and effects. *Transportation Research Part F: Traffic Psychology and Behaviour*, 72.
- Fuller, R. (2005). Towards a general theory of driver behaviour. *Accident Analysis & Prevention*, 37(3), 461-472.
- Gitelman, V., Vis, M., Weijermars, W., & Hakkert, S. (2014). Development of road safety performance indicators for the European Countries. *Advances in Social Sciences Research Journal*, 1, 138–158.
- Global Humanitarian Assistance. (2012). Private funding: An emerging trend in humanitarian donorship. URL: <https://devinit.org/wp-content/uploads/2012/04/Private-funding-an-emerging-trend.pdf>. Accessed October 13th 2022.
- Hale A.R. (2000). Editorial: culture's confusions. *Safety Science*, 34, pp. 1-14.

Haworth, N., Tingvall, C., & Kowadlo, N., (2000). Review of best practice road safety initiatives in the corporate and/or business environment. Monash University Accident Research Centre, Report No. 166: Melbourne.

Haworth, N., & Rowden, P. (2006). Investigation of fatigue related motorcycle crashes—literature review (RSD0261). Report to VicRoads. Queensland University of Technology, Brisbane.

Heyse, L. (2016). *Choosing the Lesser Evil: Selecting Humanitarian Aid Projects*. Routledge, Taylor & Francis. London and New York.

ISO 39001:2012. (2012). Road traffic safety (RTS) management systems – Requirements with guidance for use. Geneva.

Knipling, R. R. (2011b). Potential safety benefits of motor carrier operational efficiencies: a synthesis of safety practice (Vol. 20): Transportation Research Board.

Larsson, P., & Tingvall, C. (2013). The safe system approach—A road safety strategy based on human factors Principles. International Conference on Engineering Psychology and Cognitive Ergonomics.

Leveson, N. (2021). Safety III: A systems approach to safety and resilience. In.

Li, Y., & Itoh, K. (2014). Safety climate in trucking industry and its effects on safety outcomes. *Cognition, Technology & Work*, 16(2), 131-142.

Lindberg, H., & Håkansson, M. (2017). *Vision Zero 20 years*. Stockholm: ÅF.

Lynn, P. & Lockwood C. (1998). *The Accident Liability of Company Car Drivers*. Transport Research Laboratory, Berkshire.

Mohan, D. (2009) 'Road safety in less-motorized environments: Future concerns', *International Journal of Epidemiology*, 31(3), pp. 527–532.

Newnam, S., & Goode, N. (2015). Do not blame the driver: A systems analysis of the causes of road freight crashes. *Accident Analysis and Prevention*, 76, 141-151.

Newnam, S., Griffin, M.A., Mason, C., 2008. Safety in work vehicles: a multilevel study linking safety values and individual predictors to work-related driving crashes. *J. Appl. Psychol.* 93 (3), 632.

Newnam, S., & Oxley, J. (2016). A program in safety management for the occupational driver: Conceptual development and implementation case study. *Safety Science*, 84, 238-244.

Newnam, S., Lewis, I., & Watson, B. (2012). Occupational driver safety: Conceptualising a leadership-based intervention to improve safe driving performance. *Accident Analysis & Prevention*, 45, 29-38.

Newnam, S., Lewis, I., Warmerdam, A., 2014. Modifying behaviour to reduce over-speeding in work-related drivers: an objective approach. *Accid. Anal. Prev.* 64, 23–29.

Newnam, S., Warmerdam, A., Sheppard, D., Griffin, M., & Stevenson, M. (2017). Do management practices support or constrain safe driving behaviour? A multi-level investigation in a sample of occupational drivers. *Accident Analysis and Prevention*, 102, 101-109.

Nævestad, T.-O., Elvebakk, B., & Phillips, R. O. (2018). The safety ladder: developing an evidence-based safety management strategy for small road transport companies. *Transport Reviews*, 38(3), 372-393.

Nævestad, T.-O., Elvebakk, B., & Ranestad, K. (2021). Work-Related Accident Prevention in Norwegian Road and Maritime Transport: Examining the Influence of Different Sector Rules. *Infrastructures*, 6(5), 72.

- Rasmussen, J. (1997). Risk management in a dynamic society: a modelling problem. *Safety Science*, 27(2), 183-213.
- Reason, J. (1990). *Human error*. Cambridge university press.
- Reason, J. (1998). Achieving a safe culture: theory and practice. *Work & stress*, 12(3), 293- 306.
- Reason, J., & Hobbs, A. (2017). *Managing maintenance error: a practical guide*.
- Salamon. L. (1999) *America's Nonprofit Sector*. New York: The Foundation Center.
- Schein E.H. (1992). *Organisational Culture and Leadership*. (second ed.), Jossey-Bass, San Francisco
- Soro, W.L. (2020). *Towards an understanding of financial influences on heavy vehicle safety outcomes*. PhD Thesis: Queensland University of Technology.
- Stoddard, A., Harmer, A., & DiDomenico, V. (2009). *Providing aid in insecure environments: 2009 update* (Vol. HPG Policy Brief 34). London: Humanitarian Policy Group.
- Stoddard, A., Harmer, A., & Haver, K. (2006). *Providing aid in insecure environments: Trends in policy and operations* (Vol. HPG Report 23, pp. 1–67). London: Humanitarian Policy Group.
- Stoddard, A., Harmer, A., & Hughes, M. (2014). *Unsafe passage: Road attacks and their impact on humanitarian operations*. New York, NY: Humanitarian Outcomes.
- Tingvall, C., & Lie, A. (2017). *Traffic safety from Haddon to Vision Zero and beyond*. In: *Blue Book of automobile safety 2017* (pp. 316–333). China: Social Science Academic Press.
- United Nations. (2020). *General Assembly Resolution A/74/L.86*.
- Waal, A., de. 1997. *Famine Crimes: Politics and the Disaster Humanitarian Industry in Africa*. London/Bloomington/ Indianapolis: African Rights, The International African Institute and Indiana University Press.
- Weick, K. E., & Sutcliffe, K. M. (2001). *Managing the unexpected* (Vol. 9). San Francisco: Jossey-Bass.
- Wilde, G. J. (1982). The theory of risk homeostasis: implications for safety and health. *Risk analysis*, 2(4), 209-225.
- Williamson, A., Friswell, R., & Sadural, S. (2001). *Driver fatigue: A survey of long- distance heavy vehicle drivers in Australia*. Retrieved from: https://infrastructure.gov.au/roads/safety/publications/2001/pdf/Fatig_Trans_6.pdf
- World Health Organisation. (2004). *World report on road traffic injury prevention*. Geneva: WHO.
- World Health Organisation. (2015). *Global status report on road safety 2015*: World Health Organisation.
- World Health Organisation. (2018). *Global status report on road safety 2018*: World Health Organisation.

APPENDIX - INTERVIEW SCHEDULE

Introduction:

Fleet Forum are interested in hearing your views about how to get road safety on an organisation's agenda. We have been commissioned to investigate this topic and would be interested to hear your views.

- You may withdraw at any time
- Recording the interview
- Data is anonymised

Experience

- What is your current position in the workplace?
- What kind of experience do you have working with fleets?
- Are you currently involved in fleet safety?
- Are there others in the organisation equally involved in fleet safety?
- Can you describe how much of your working week is devoted to fleet safety?
- What kind of previous experience have you had working in fleet safety?

Impact of Crashes

In your opinion, how do road traffic collisions impact on aid and development organisations?

- Reputation
- Access to communities
- Delays in programme delivery
- Cost to compensate communities for loss of lives
- Impact on the lives of people involved
- What else?

Fleet Safety

- What interventions have you been involved with the aim of improving crash rates when driving for work?
- What were the results?
- Do you have any written-up case studies?
- Thinking about some of the experiences you have had working in fleet safety, can you tell me what you think has been most successful and why?
- Have you had experience of the following types of fleet safety interventions?
 - Ensuring awareness of practices and processes relating to the company's fleet safety policy
 - Defining safe driving responsibilities and communicating the organisation's commitment to the policy
 - Selecting drivers based on safe driving records
 - Managing identified driver risks e.g., licence checking, drug and alcohol random tests
 - Ensuring safe driving components are included in employee inductions
 - Conducting safety training needs analyses
 - Evaluating driver training interventions
 - Recognizing good and poor driving behaviour through an incentive/disincentive scheme
 - Conducting route assessments and planning road journeys

Fleet Safety (continued)

- Have you had experience of the following types of fleet safety interventions?
 - o Scheduling driver's tasks
 - o Organising safe shift patterns
 - o Selecting appropriate fleet vehicles and documenting maintenance procedures
 - o Monitoring driving activities via telematics/cameras
 - o Managing access to vehicles
 - o Recording fleet incident involvement
 - o Monitoring and controlling safe and legal driving hours?
 - o Managing loading, unloading and rest breaks?

Benchmarking

For effective benchmarking, organisations must carefully and systematically document crashes, incidents, and rule violations. The database can then serve as a benchmark against which a fleet safety intervention can be evaluated.

- Does your organisation benchmark crashes, incidents and violations?
- What is the procedure for gathering information after a crash?
- How is crash data coded for culpability?
- Is the data reliably entered?
- How is effectiveness of a fleet safety intervention evaluated?

How to influence directors

Senior management make decisions with regards how much an organisation should focus on fleet safety.

- Have you worked with a senior manager in the past or currently that has been pro-active with regards fleet safety? Can you give me an example of what happened and the decision they made?
- Did they deal quickly and effectively with safety issues raised?
- What balance do their actions show between safety and production?
- What do you think are the main barriers for directors when it comes to fleet safety?
- What do you think are the main triggers for directors taking action to improve fleet safety?
- How can directors be better influenced to take action?

Safety Culture

Characteristics and attitudes in organisations and individuals communicate that safety is an overriding priority. What would you say are the main signs of a positive safety culture?

Management commitment: Active involvement of senior management

Visible management: Leading by example on the 'shop floor'

Good communications: Fleet safety part of everyday conversations amongst all levels of employees

Active employee participation: Active involvement in safety by employees

Monitoring: Monitoring a suitable cross-section of employees to determine attitudes to safety values

Taking the above into account, would you consider that you have worked or are currently working for an organisation with a positive safety culture?



Anything else you would like to mention?

Debrief - What happens next?

- How the data will be transcribed and analysed
- Your responses will be anonymised in our report