Project No. 101069500—AfroSAFE

AfroSAFE: Safe System for radical improvement of road safety in low- and middle-income African countries

HORIZON EUROPE—European Union's funding programme for research and innovation

Deliverable 6.1

Post-crash response mapping and data collection: Report

Deliverable due date: 2024-02-29

Project start: 2022-09-01
Duration: 48 months

Lead contractor for this deliverable:
NTU International A/S, Denmark

Version 1.0 (2024-02-29)

Dissemination Level

PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Document information

Authors: Liga Gutmane (NTU, Denmark)
Inna Gvozdareva (NTU, Denmark)
Ted Sheldia (NTU, Denmark)
Enoch Frederick Sam (University of Education, Winneba, Ghana)
Daniel Mwamba (Zambia Road Safety Trust, Zambia)
Susan Mawele (Zambia Road Safety Trust, Zambia)
Jacqueline Masaki (University of Dar es Salaam, Tanzania)

Quality check: Tejas Chandran (Autoliv, Sweden)

Project Coordinator
Aliaksei Laureshyn
Department of Technology and Society
Faculty of Engineering, LTH
Lund University

Box 118
221 00 Lund, Sweden

Phone: +46 46 222 91 31
Email: aliaksei.laureshyn@tft.lth.se

www: www.afrosafe-eu.africa

Coordinator of WP6
Nikolay Chavov
Business Development

Vestre Havnepromenade 5
9000 Aalborg, Denmark

Phone: +45 99 30 00 01
Email: nc@ntu.eu

Project funding

Horizon Europe
Grant Agreement 101069500

Revision and History Chart

Version	Date	Comment
1	2024-02-29	First official version

This project has received funding from Horizon Europe, the European Union’s funding programme for research and innovation under grant agreement No 101069500.

The present document is a draft; the approval from the EU Commission is pending.

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1 Summary

The United Nations General Assembly's adoption of a political declaration to cut road traffic deaths by 50% by 2030 is a key component of a global initiative to enhance road safety through improved infrastructure, safe system approaches, and international cooperation. The focus on post-crash care emphasizes expedited emergency medical response, a safe environment for first responders, and a comprehensive emergency care system framework to improve survivability and recovery from road traffic incidents.

The report delves into the critical issue of post-crash response systems in Tanzania, Ghana, and Zambia, highlighting the significant role these measures play in mitigating the adverse outcomes of road traffic crashes (RTCs). It takes stock of the current state of post-crash care, from pre-hospital care to rehabilitation and discharge processes, across selected corridors in these countries. The research methodology includes desk-based research, rapid assessments, key informant interviews, and focus group discussions, providing a comprehensive overview of the multifaceted aspects of post-crash care.

The common challenges faced by Ghana, Tanzania, and Zambia in terms of post-crash care include inadequate training and resources for first responders and limited emergency medical infrastructure, as well as lack of awareness. Moreover, key findings in this report point to several country-specific challenges:

- In Tanzania, the lack of a comprehensive Emergency Medical Services (EMS) infrastructure and coordination issues among various stakeholders are significant hurdles. Additionally, there is a notable deficiency in training and resources available for first responders.
- Ghana faces challenges related to the role of local residents as first responders, who often lack formal training in emergency care. Moreover, the efficiency of pre-hospital care and resource limitations impact the ability to provide prompt and effective care to crash victims.
- Zambia is working to enhance its emergency response capabilities but faces challenges in training and awareness, as well as in the strategic planning and implementation of post-crash response strategies.

The report underscores the need for targeted interventions and reforms to improve the efficiency and coordination of post-crash response systems such as implementing extensive training programs for emergency personnel, investing in the development and expansion of medical facilities and equipment, and launching widespread public awareness campaigns on emergency response protocols. This requires a concerted effort among stakeholders aiming to reduce fatalities and enhance the quality of care provided to RTC victims.

2 Introduction

According to the World Health Organization's Global Status Report on Road Safety 2023, the annual number of road traffic deaths amounts to 1.19 million per year. This report indicates that efforts to improve road safety are having an impact, but there's still a significant need for urgent action to further reduce these numbers. It highlights that road traffic crashes remain a leading cause of death among children and youth aged 5–29 years, emphasizing the global health crisis posed by road crashes (World Health Organization, 2023a, 2023b).

Furthermore, the report notes that over 90% of road traffic deaths occur in low- and middle-income countries, which is disproportionate to the number of vehicles and roads in these regions. Vulnerable road users, including pedestrians, cyclists, and motorcyclists, account for more than half of all road traffic deaths, underlining the importance of creating safer environments for these groups. The economic impact is also significant, with road traffic crashes costing most countries about 3% of their gross domestic product (GDP) (World Health Organization, n.d.-a, n.d.-b).

In addition, trauma care resources are severely impacted by RTCs in low- and middle-income countries (LMICs) with estimates indicating roughly one-third of trauma care in sub-Saharan Africa due to injuries arising from road traffic crashes (Vissoci et al., 2017). Based on panel reviews, improvements in the trauma care system are associated with an average 50% reduction in medically preventable deaths (Yeboah et al., 2014).

The concept of the "Golden Hour" is pivotal in the field of emergency care, that is, the urgent need for Basic Life Support (BLS) within the first 60 minutes following a crash to significantly enhance the victim's chance of survival. This period is crucial for providing immediate care to increase the chance of surviving a crash, predominantly from haemorrhage, which is most common in the minutes to hours following an injury. Thus, emphasizing the need for rapid transport to a hospital for definitive care (Life in the Fast Lane, n.d.).

Incorporating this understanding into the research emphasizes the vital role of post-crash care in reducing fatalities and aligns with the Sustainable Development Goals (SDGs) target 3.6. It also highlights the necessity for specialized emergency response systems in African countries, where traffic death rates are significantly higher than the global average (World Health Organization, 2023b).

2.1 Purpose of the report

This report aims to map corridors, key stakeholders, and initiatives in Tanzania, Ghana, and Zambia when it comes to post-crash response as well as evaluate post-crash response systems in specific corridors of the three countries.

2.2 Context and scope of the report

AfroSAFE, a pivotal initiative aimed at enhancing road safety across Africa, is dedicated to implementing comprehensive strategies to mitigate road traffic injuries and fatalities. Within this broad framework, Work Package 6 (WP6) focuses on post-crash response and specifically addresses the immediate actions and medical interventions following road crashes, aiming to reduce fatalities and improve recovery outcomes. By integrating WP6's focus on effective emergency care and support systems into the larger scheme of AfroSAFE, the project ensures a holistic approach to road safety, covering preventative measures as well as crucial post-crash responses, thereby enhancing the resilience and capacity of healthcare systems to manage and mitigate the impacts of road traffic incidents across the continent.

This assessment is grounded in the Safe System approach, as well as informed by the latest UN Global Road Safety Performance review recommendations (United Nations Economic Commission for Europe, n.d.), which stress on:

- Building comprehensive pre-hospital care systems.
- Enhancing coordination for emergency transportation.
- Systematic injury evaluation and prioritization.
- Training for healthcare professionals in high-trauma facilities.

The report will include:

- Mapping the corridors in Tanzania, Ghana, and Zambia.
- Identifying national, regional, and global partnerships and initiatives on post-crash response and key stakeholders working on post-crash response.
- Interviews with key stakeholders, including gathering information relating to legislative frameworks, access to EMS, pre-hospital care, hospital care, and rehabilitation and discharge.

This assessment will provide a comprehensive view of post-crash care in the selected corridors. It will cover:

- Pre-hospital care, including community response and first responder effectiveness.
- Transport and transfer protocols in line with international best practices.
- Hospital care quality, focusing on trauma and emergency care standards.
- Rehabilitation and discharge processes, emphasizing reintegration.
- Training quality for emergency care providers.
- Data systems efficiency in monitoring and improving post-crash care.

The report focuses on specific corridors in the three African countries to ensure a representative analysis of diverse settings: one rural, one urban, and one peri-urban, highlighting the unique challenges and opportunities present in each context for comprehensive understanding and targeted interventions.

2.3 Limitations

- The report focuses on specific corridors, which may not fully represent the national scenarios.
- Limitations in data availability are acknowledged.

3 Method

3.1 Overview

In order to map the current post-crash response situation in Tanzania, Ghana, and Zambia, rapid assessment, as well as desk-based research, focus group discussions (workshops) and interviews with key stakeholders, were undertaken. The data for the rapid assessment includes information relating to legislative frameworks, the role of the bystanders, access to EMS, pre-hospital care, hospital care, and rehabilitation and discharge collected via local project partners. Key informant interviews and focus group discussions were carried out with staff involved with pre-hospital care, hospital care, emergency dispatch services, fire-brigade and other relevant stakeholders in each of the corridors. This methodology ensures a holistic understanding of the post-crash care system in the selected corridors of Tanzania, Ghana, and Zambia (the criteria used for selecting the three corridors will be detailed in Section 3.3.1.)

The different methods of data collection are described below.

3.2 Desk-based research

Objective: To identify the involved stakeholders, keep abreast of recent studies and developments and facilitate the creation of initial research to prevent redundancy and put forward hypotheses. To complement field data with secondary information from various sources, providing a broader context to the findings.

Methodology:

- *Sources Review:* Analysis of scholarly articles.
- *Data Synthesis:* Integration of primary data collection findings with secondary research.

Areas of Focus: Analysis of existing situation relevant to post-crash care in Tanzania, Ghana, and Zambia.

3.3 Rapid assessment

Objective: To gather general information on legislative frameworks, the role of bystanders, access to EMS, and other aspects of post-crash care, including pre-hospital, hospital care, and rehabilitation.

Methodology:

- *Surveys:* Information received from project local partners in Tanzania, Ghana, and Zambia.

Data Collection Areas:

- Legal frameworks governing post-crash care.
- Standard operating procedures for emergency response.
- Resources for emergency rescue, including vehicle equipment and EMS operation.
- Data on emergency facilities' capabilities, and staff training levels.

3.4 Key informant interviews (KIIs)

Objective: To gather in-depth information from individuals directly involved in the post-crash response system, supplementing the rapid assessment findings.

Methodology:

- *Selection Criteria:* Interviewees are selected based on their roles in pre-hospital care, hospital care, emergency dispatch services, policing, and fire brigade services.
- *Interview Guide:* A structured guide is developed to ensure consistency and comprehensiveness in data collection.

Interviewees:

- *Hospital Staff:* Information on the hospital's operational aspects, quality of care, and training needs.
- *EMS Operational Staff:* Details about EMS facility management, dispatch records, and operational challenges.
- *Police and Fire-Brigade Personnel:* Information on facilities, management, and operational guidelines for responding to road traffic crashes.

3.5 Focus group discussions (FGDs)

Focus group discussion was exclusively conducted within Zambia to facilitate the engagement of diverse stakeholders, who were otherwise inaccessible. This methodology was not extended to all nations involved in the study, thereby ensuring a concentrated effort to foster collaboration in regions where it was deemed most effective and practicable.

Objective: To capture diverse perspectives from groups involved in the post-crash response system.

Methodology:

- *Participant Selection:* Diverse groups, including healthcare professionals, emergency service workers, police, and firefighters, are selected to participate in discussions.
- *Discussion Guide:* A structured format is followed to facilitate open and insightful discussions.

Discussion Themes:

- Professional experiences and perceptions of post-crash response.
- Challenges faced by healthcare professionals, emergency workers, police, and fire brigade.
- Recommendations for improving post-crash care systems.

4 Findings and discussion

4.1 Global best practices for post-crash care

The United Nations General Assembly unanimously adopted a political declaration to significantly improve global road safety, aiming to reduce road traffic deaths by at least 50% by 2030. This commitment is part of a broader effort to implement the Global Plan for the Decade of Action for Road Safety 2021–2030 (World Health Organization, 2021), focusing on enhancing road infrastructure, promoting safe system approaches, and fostering international cooperation in road safety, especially in developing countries (United Nations, 2022).

The Safe System approach focuses on reducing fatalities and serious injuries. The goal of the post-crash care component is to enhance the survivability of crashes through expedient access to emergency medical care while creating a safe working environment for vital first responders and preventing secondary crashes through robust traffic incident management practices (iRAP, n.d.)

Figure 1 shows a comprehensive breakdown of an emergency response organised by phases of care (scene, facility, follow-up). The phases intersect with several dimensions that include the physical treatment of patients (at the crash scene and hospital) and other considerations including the integration of mental health services, legal support and legislation, and data on crashes and injuries. The resultant matrix therefore allows for a holistic and comprehensive framework for the assessment of the post-crash response.

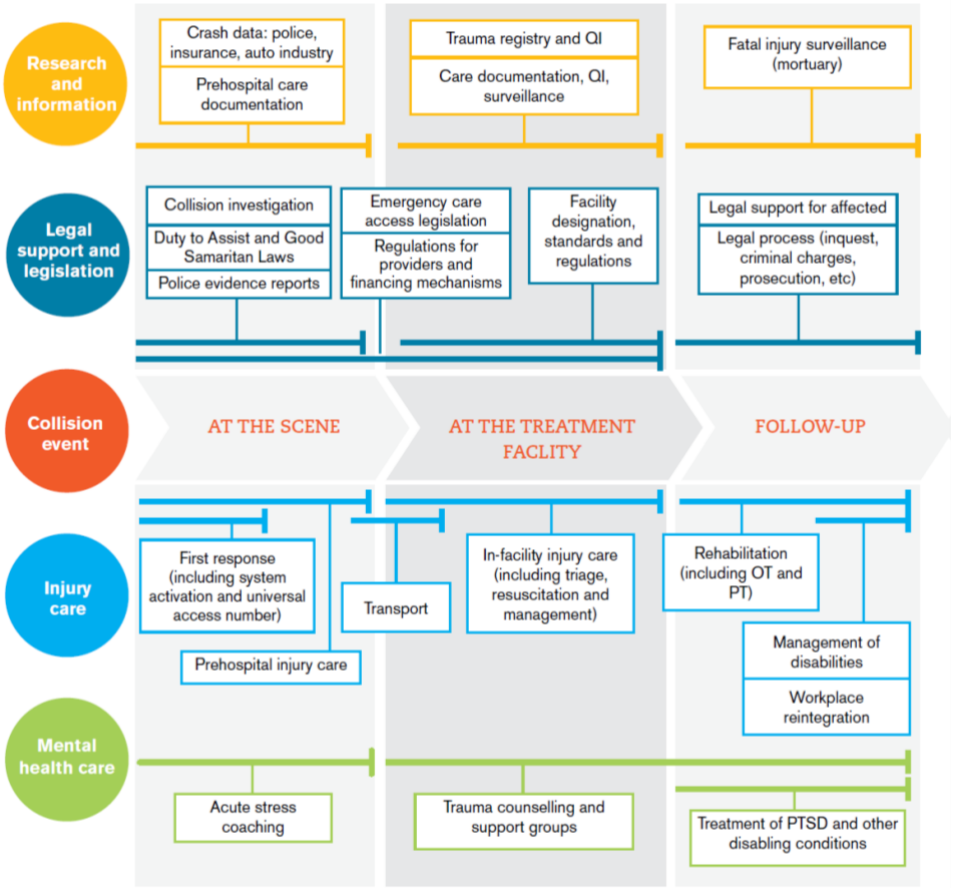

Figure 1: Key components of the post-crash response (QI = Quality Improvement; PT = Physiotherapy; OT = Occupational Therapy), (Source: WHO, 2016**)**

The WHO Emergency Care System Framework also conceptualises the system as a chain of essential functions of an emergency care system that may be applied using an associated Emergency Care System Assessment Tool to identify gaps and to create context-relevant priority action plans for improving post-crash care. For serious injuries, the chain of actions may be considered on a continuum consisting of a series of time-sensitive actions, beginning with the activation of the emergency care system by the victim or more commonly by lay bystanders at the scene of a crash, followed by emergency rescue and pre-hospital medical care, rapid transport of patients to an appropriate facility, facility-based emergency care, and lastly, any rehabilitative and psychosocial care that may be required and re-integration of the victim into society (World Health Organization, 2016, 2020).

To facilitate the development of sustainable, effective, low-resource pre-hospital trauma care systems in situations where professional emergency medical resources are currently limited, the WHO recommends developing two tiers of pre-hospital care:

1. **In tier-one**, large volumes of trained community members serve as first responders, thereby providing a cost-effective front line for rapid medical response.
2. **In tier two**, trained professional responders deliver more specialized pre-hospital care in a more formal, coordinated, and integrated manner.

The World Health Organization (2005) also recommends:

- improving the coordination of transportation to a healthcare facility through a universal, centralized access number with central dispatch.
- consistent and systematic evaluation of every injured person in a health care facility so that patients are treated in priority order.
- accredited courses on trauma care for doctors and nurses in hospitals receiving a high volume of trauma victims.

4.2 Review of the existing literature

The existing literature on post-crash care in the three African countries highlights the varied approaches and challenges faced by each nation. This review synthesizes key findings and recommendations from studies conducted in Ghana, Tanzania, and Zambia, providing a comparative perspective on post-crash care strategies and their effectiveness.

4.2.1 Ghana

In Ghana, the study by Sam et al. (2019) focuses on the role of local residents as first responders. The research, conducted along the Kasoa-Mankessim highway, involved structured interviews with 80 residents from 12 communities. Findings reveal that most respondents possess limited knowledge and professional training in emergency pre-hospital care. Their skills are primarily derived from practical experience in assisting RTA victims. The prevalent method of first aid is the "scoop and run" approach.

The study recommends:

- Implementing a functional layperson first responder system along road networks.
- Equipping individuals with necessary skills and first-aid supplies for basic life support services until definitive care is available.
- Providing periodic refresher training and incentives for laypersons.
- Establishing effective communication and transportation channels between communities, stakeholders, and health facilities.
- Making first-aid training mandatory for obtaining a driving license.

Further, Yeboah et al.(2014) focus on the efforts to minimize trauma deaths in a resource-limited setting like Ghana, emphasizing the importance of multidisciplinary approaches in improving post-crash care. The conclusions reveal that a high proportion of trauma fatalities might have been preventable by decreasing pre-hospital delays, ensuring adequate resuscitation in the hospital, and earlier initiation of care, including definitive surgical management. The study also showed that preventable death panel reviews are a feasible and useful quality improvement method in the study setting.

According to Duut et al. (2022), in the Ashanti region of Ghana, a significant proportion of residents in crash-prone areas exhibited a willingness to provide first aid, underscoring a communal readiness

to engage in bystander intervention following accidents. However, less than half of these individuals had received formal first aid training or possessed sufficient first aid knowledge, highlighting a critical gap in preparedness and efficacy of initial response efforts. As concluded by Mahama et al. (2018) in the Greater Accra region, the National Ambulance Service (NAS) demonstrated a high trauma patient survival rate, with an average emergency response time of 16.9 minutes, comparable to previous years. The survival rates were notably influenced by the promptness of response, with times under 17 minutes and the victim's level of consciousness at the time of ambulance arrival being significant factors.

4.2.2 Tanzania

In Tanzania, two articles by Lukumay et al (2018, 2019) examine the role of traffic police in post-crash care. These studies are based on interviews, questionnaires, and focus group discussions with traffic police officers in Dar es Salaam. These studies highlight that traffic police are often the first responders at crash scenes. They face mental challenges and lack adequate knowledge, skills, training, and equipment. There is a noted deficiency in both the knowledge and practice of post-crash first aid among the officers.

The recommendations of these studies include:

- Empowering frontline personnel, including traffic police.
- Ensuring comprehensive training in basic first aid skills for traffic police and other first responders.
- Investing in a trauma pre-hospital care system with accessible ambulances and trained personnel.
- Providing competency-based training with updated curricula and resources like manikins for practical skills enhancement.
- Distributing user-friendly post-crash first aid leaflets.

According to Chalya et al. (2012), road traffic accidents represent a significant public health issue in Tanzania, leading to a concerning level of illness and death. Immediate interventions aimed at decreasing road traffic accidents are crucial for minimizing the health consequences and fatalities associated with these incidents. Prompt identification and immediate management of injuries from road traffic accidents are critical for achieving the best possible outcomes for patients. Ndile et al (2020) research underscores possible enablers and obstacles to executing a Psychological First Aid (PFA) training initiative for non-professionals, as seen through the lens of heads of police departments and unions of a city bus, taxi, and motorcycle taxi drivers. This insight could benefit other interested parties and might empower leaders at the governmental level and senior health service officials to initiate measures that align with World Health Organization guidelines for pre-hospital emergency care.

4.2.3 Zambia

The existing literature on post-crash care in Zambia is limited.

The study by Biemba et al. (2014) focuses on Zambia's road safety interventions. The study concludes that Zambia has incorporated post-crash management into the mandatory training curriculum in all driving schools. Collaborations are underway between the Road Transport and Safety Agency (RTSA) and the Ministry of Education to include first aid in educational curricula and extend its reach to communities. The RTSA is also partnering with the Ministry of Health to develop national trauma centres and emergency wards for crash victims, and plans are in place to train trauma care health

staff. However, the implementation of the full package of WHO-recommended post-crash response measures is still in progress.

According to Sichembe et al. (2019), the information from Monze Mission Hospital (MMH) indicates that individuals between the ages of 15 and 44, particularly those who are young and active, are most susceptible to road-related injuries in the Monze district, with a notably higher incidence among males compared to females. Additionally, there appears to be a downward trend in the incidence of road injuries in the area. Nonetheless, these findings should be approached with significant caution, given the data's questionable reliability, which is likely compromised by extensive underreporting. Mwale et al. (2024) highlight the significant public health impact of RTCs globally, with low- and middle-income countries like Zambia experiencing a high toll in terms of fatalities and injuries. The effective collection and accuracy of RTC data in Zambia face obstacles such as underreporting and inadequate data-gathering methods. Enhancing RTC data collection infrastructure is essential for a precise assessment of the issue's scope and for devising successful strategies to decrease RTC-related deaths and injuries. To address these issues, the article recommends forming a multidisciplinary team for road crash data analysis, adopting technological solutions for data gathering and analysis, enhancing training and capacity building, initiating public awareness efforts, and improving cooperation among police, medical institutions, and Civil Registration and Vital Statistics (CRVS) systems.

In summary, the literature review on post-crash care across Ghana, Tanzania, and Zambia reveals key themes such as the critical training and knowledge gaps among first responders, including local residents and traffic police, and the evident willingness within communities to engage in post-crash interventions. Additionally, challenges in reliable data collection due to underreporting and inadequate methodologies are common, particularly in Ghana and Zambia, which complicates the assessment and strategic planning for post-crash care. Specific insights from Ghana highlight the need for a functional layperson first responder system and mandatory first-aid training for drivers, while in Tanzania, the emphasis is on empowering traffic police with basic first-aid skills and enhancing pre-hospital care systems. Zambia's focus is on integrating post-crash management training in educational curricula and developing national trauma centres. Collectively, these studies advocate for comprehensive training programs, improved data collection and analysis, and strengthened healthcare systems to enhance post-crash care outcomes in these countries.

4.3 Mapping of corridors, stakeholders, and initiatives

4.3.1 Mapping of corridors

Given project time constraints, the following approach was used: three representative corridors were prioritized for assessment.

The project corridors selected in an in-depth discussion with local partners are:

Tanzania: Nelson Mandela Road (*Figure 2*)– the road corridor is in an *urban area* in Dar es Salaam City.

This corridor is proposed because:

- It has a high traffic volume.

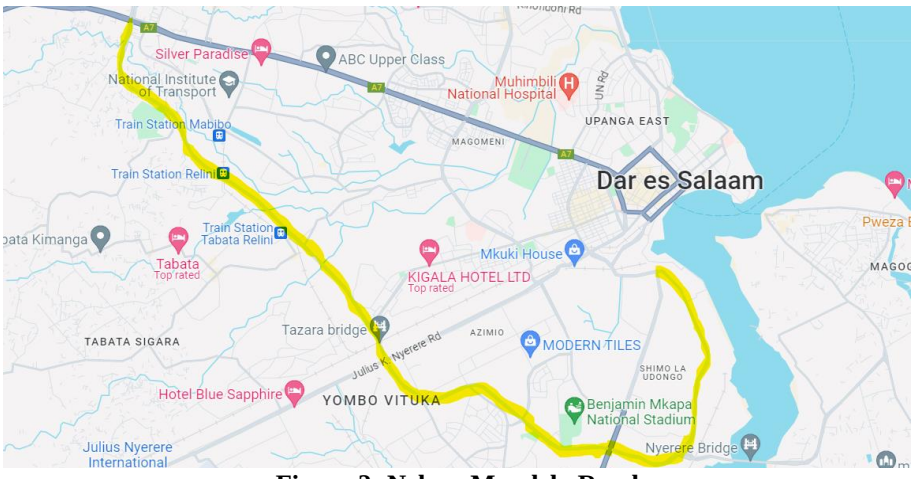

Figure 2: Nelson Mandela Road

- It has high interaction between vulnerable road users and vehicles.
- It is one of the major highways in the city experiencing many crashes throughout the year.

Ghana: Kasoa- Mankessim highway (*Figure 3*) – the road corridor is a *rural area*. The N1 highway runs through several communities. The section from Mankessim to Apam Junction is prioritised for this review.

This corridor is proposed because:

- It is one of the crash-prone roads in Ghana, recording frequent crashes with fatal outcomes.
- Most of the communities or sites along this highway are listed among the top twenty sites by crash frequency in the highway region.

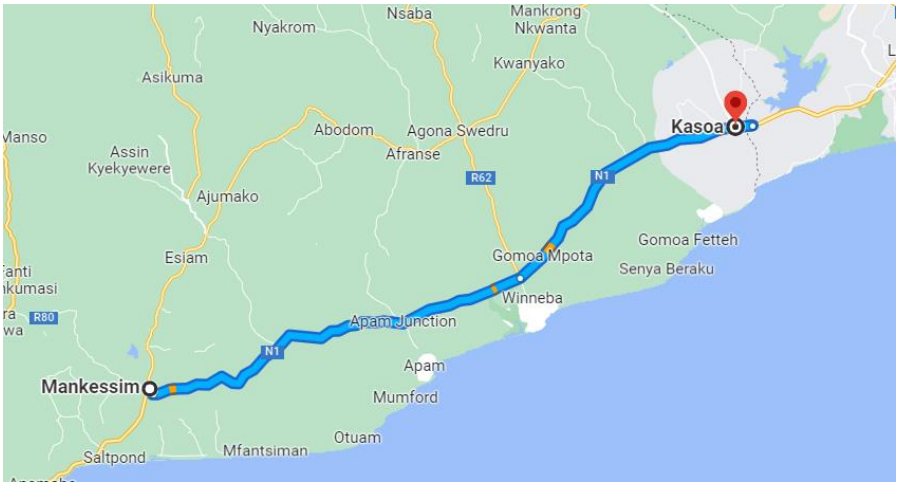

Figure 3: Kasoa- Mankessim highway

Zambia: Great East Road (*Figure 4*) – the proposed road corridor is a *peri-urban area* and runs from the Lusaka Town Centre notably through shopping malls, hotels, townships, the University of Zambia, Hospitals and through to other towns outside Lusaka and up to Malawi.

The exact scope of the selected corridor is between Lusaka city centre and Chelston township, accounting for a total of 12 kilometres.

This corridor is proposed because:

- It is one of the crash-prone roads in Lusaka recording frequent crashes with fatal outcomes.
- Lusaka has the highest rates of traffic crashes in the country, and this corridor contributes considerably.

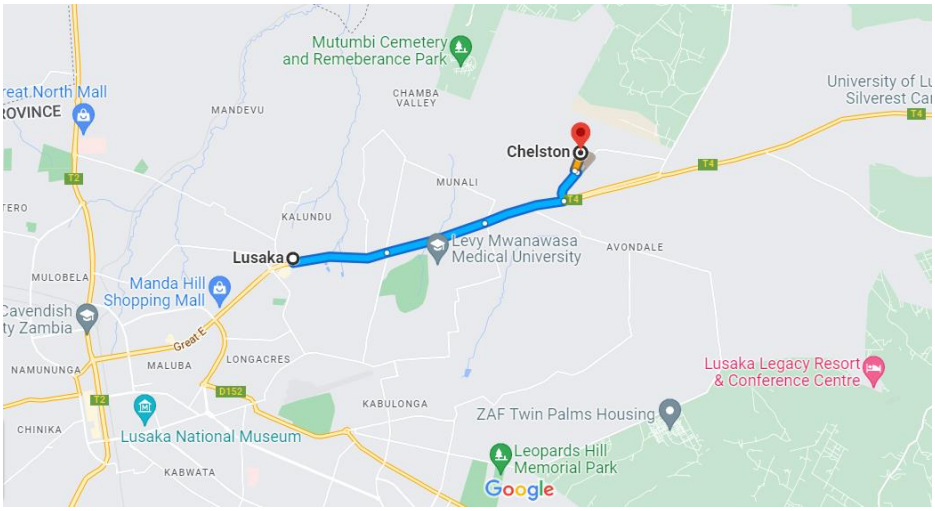

Figure 4: Great East Road

4.3.2 Mapping of initiatives

Table 1 shows a list of identified national, regional, and global partnerships and initiatives on post-crash response in Tanzania, Ghana, and Zambia:

Table 1: Partnerships and initiatives identified in the three countries.

Tanzania	**UNRSF's Strengthening Post-Crash Care Project:** The project will use the WHO emergency care toolkit to improve post-crash care and outcomes for victims of road traffic injuries in Tanzania by strengthening the capacity of first responders and hospitals to care for the injured.[1]
	The UNRSF and GRSF Partnership: The initiative aims to reduce road traffic deaths and serious injuries by improving road safety engineering, generating knowledge and boosting the capacity of key stakeholders. The project will also use applied research to recommend enhancements to the Ten Steps approach, and potential applications for existing and future development activities by the World Bank, other MDBs and bilateral agencies.[2]
	WHO's Commitment to Halve Road Traffic Deaths and Injuries in Tanzania: Following the release of the Global Plan for the Decade of Action in October 2021, the Tanzania National Road Safety Council embarked on developing a 10-year national roadmap adopting recommendations outlined in the global plan. This commitment was made during a stakeholder consultative meeting convened by the Council as part of the National Road Safety Week commemorations held in Arusha under the theme – "Take Care of Your Life and Others on the Road".[3]
	TanRAP Initiative: Initiative headed by the Ministry of Works and Transport (MoWT), which aims to build capacity and improve the safety of road infrastructure (indirectly related to post-crash response) in the country in partnership with other leading stakeholders such as Tanzania National Roads Agency (TANROADS), Tanzania Rural and Urban Roads Agency (TARURA), Tanzania Road Association (TARA), National Institute of Transport (NIT), Road Safety Ambassadors (RSA), Roads Fund Board (RFB), development banks, mobility clubs, road safety NGOs and industry.[4]
	Okoa Maisha Initiative: This initiative, launched in collaboration with Tanzanian emergency physicians and a local pre-hospital care company, focuses on training motorcycle taxi drivers in basic bleeding control. Recognizing the lack of a public emergency medical services system and the high costs of private ambulances, the Okoa Maisha Initiative (meaning "Save a Life" in Swahili) aims to empower taxi drivers to become first responders in road traffic accidents. The program has shown promising results, with taxi drivers effectively applying bleeding control interventions and transporting injured patients to healthcare facilities.[5]
	Post-Crash First Aid (PFA) Educational Program: This program focuses on providing basic knowledge and skills to traffic police for managing injury victims at the scene and en route to the hospital. Developed in accordance with WHO guidelines, the program included topics like scene survey, provider safety, and initial assessment and care of injury victims. The training aimed to improve the knowledge, perceived skills confidence, and skills utilization among traffic police officers.[6]

[1] https://roadsafetyfund.un.org/news/info-session-strengthening-post-crash-care-tanzania
[2] https://www.worldbank.org/en/news/press-release/2020/08/11/the-united-nations-road-safety-fund-and-the-global-road-safety-facility-announce-partnership-to-improve-road-safety-delivery-in-world-bank-funded-projects-in-tanzania
[3] https://www.afro.who.int/countries/united-republic-of-tanzania/news/committing-halve-road-traffic-deaths-and-injuries-tanzania
[4] https://irap.org/2022/09/tanrap-launched-to-eliminate-high-risk-roads-in-tanzania/
[5] https://hhi.harvard.edu/news/notes-field-new-approach-prehospital-care-trauma-patients-tanzania#:~:text=This%20led%20to%20the%20inception,first%20responders%20were%20saving%20lives.
[6] https://www.researchgate.net/publication/341610324_Implementing_a_layperson_post-crash_first_aid_training_programme_in_Tanzania_A_qualitative_study_of_stakeholder_perspectives

Ghana	**AMA's Accra Retrospective Hospital Report:** The Accra Metropolitan Assembly (AMA) has launched a report to complement road crash data and guide actions to improve road safety. The report focuses on injuries and fatalities from road accidents, emphasizing the need for improved safety for pedestrians and motorcyclists.[7]
	NRSA's Road Safety Awareness Campaigns: The National Road Safety Authority (NRSA) has been actively involved in conducting road crash awareness campaigns across Ghana. These campaigns focus on areas with high road fatality statistics and aim to educate the public on road safety measures. The NRSA's efforts are vital in reducing road accidents and enhancing post-crash response strategies.[8]
	Amend Road Safety Ghana: Since Amend's founding in 2005, they have aimed to use science, evidence-based programs and advocacy to help ensure safe, healthy and equitable journeys in developing countries as they grow and mobilize. They have offices in Ghana, Mozambique and Tanzania and they run programs in more than a dozen countries in the developing world at any given time, with a focus on sub-Saharan Africa.[9]
	AMA-BIGRS Initiative: The Accra Metropolitan Assembly (AMA), in collaboration with the Bloomberg Initiative for Global Road Safety (BIGRS), is implementing initiatives in various areas of road safety, including safer streets and mobility, communications, surveillance, and enforcement.[10]
	Drifan App: The Ghana Driver and Road Safety Foundation introduced the Drifan app, which addresses road safety from three perspectives: providing a platform for live road hazard reports, enabling continuous driver education, and organizing road safety awards. The app aims to alert authorities and community members about road hazards and offers drivers access to refresher training and education.[11]
	National Road Safety Authority's (NRSA) Advocacy: The NRSA has called for free medical care for road crash victims. This proposal emphasizes the importance of supporting victims through medical assistance and highlights the need for concerted action to reduce road crash deaths and injuries by 50% by 2030.[12]
	Kofi Annan Road Safety Award (Africa – Wide): The award recognises outstanding contributions in reducing fatalities and injuries from road crashes in Africa. By celebrating excellence in thinking and action, the award seeks to inspire governments, private sectors, civil society organizations, and individuals to develop and implement innovative initiatives that can save lives on the continent's roads.[13]
Zamb ia	**Share the Road Programme:** UNEP Share the Road Programme has partnered with UNDP Zambia to enhance and strengthen the capacity of the government of Zambia at the national and city levels to better design and implement policies and make investment decisions that

[7] https://ama.gov.gh/news-details.php?n=bzRuNTAxNTE4cTUybzVxbjg0NDA0b3IzNjgzcjE5cDA4cjAzN243bg==
[8] https://gna.org.gh/2022/11/nrsa-leads-2022-road-safety-campaign-launch/
[9] https://www.amend.org/about-amend/
[10] https://ama.gov.gh/news-details.php?n=NzBzMzducDIwMnI3c3A2bm9yNnJzcHJwODhwcDRvNXFvb242OHM1OQ==
[11] https://www.graphic.com.gh/news/general-news/ghana-news-drifan-a-digital-road-safety-platform-launched-in-ghana.html
[12] https://gna.org.gh/2023/11/road-safety-authority-calls-for-free-medical-care-for-road-crash-victims/
[13] https://www.kofiannanfoundation.org/our-work/kofi-annan-road-safety-award/#:~:text=The%20Kofi%20Annan%20Road%20Safety,from%20road%20crashes%20in%20Africa.

	prioritize the needs of pedestrians and cyclists (particularly vulnerable groups – including women, children, the elderly, and people living with disabilities).[14]
	CARE International's Work in Zambia: CARE International has been active in Zambia since 1992, initially responding to severe regional drought and extreme poverty. Although their primary focus isn't specifically on road safety or post-crash care, their work in crisis response, health, and community-based development programs contributes to the overall welfare and resilience of communities, which can indirectly support post-crash care systems.[15]
	Private Sector Road Safety Coalition: Coordinated by the International Road Federation (IRF), this initiative in Zambia builds upon the successful launches of private sector coalitions in Tanzania, Pakistan, and Morocco and is a significant step towards fostering road safety awareness, collaboration and action among leading private sector companies in each country and region.[16]
	Zambia Road Safe Corridor Initiative (ZRSCI): This initiative focuses on various aspects of road safety, including driver education, enforcement, emergency healthcare, and community awareness. It specifically addresses road sections between Lusaka and Kabwe and other critical areas, aiming to reduce crashes and improve road safety management.[17]
	Lakeshore Hope and Relief Zambia: Established in 2013, Lakeshore Hope and Relief Zambia is a non-political and non-governmental organisation registered under the NGO Act of 2009 with the Registrar of NGOs Ministry of Community Development and Social Service. They identify themselves as a non-political, non-religious Humanitarian and Relief Local Organisation with programs anchored on humanitarian principles to serve the most vulnerable populations. They aim to have an improved situation for road traffic victims through the promotion of their rights, amplified voices and improved legislation and policies.[18]
	Zambian Road Safety Trust: The Zambia Road Safety Trust is the nation's leading Road Safety Charity registered under the Zambian Government NGO Act of 2009 and a member of the Global Alliance of NGOs for Road Safety. The Zambia Road Safety Trust is an operational NGO, meaning they plan and carry out boots-on-the-ground projects to accomplish their objectives.[19]

4.3.3 Mapping of stakeholders

After in-depth consultations with local partners and based on secondary research, the following groups of key stakeholders were identified:

1. Hospitals
2. Pre-hospital Emergency Medical Services (EMS)
3. Emergency Dispatch Services
4. Police
5. Fire Brigade

[14] https://www.unep.org/topics/transport/active-mobility/share-road/zambia#:~:text=UNEP%20Share%20the%20Road%20Programmme,and%20cyclists%20(particularly%20vulnerable%20groups%20%E2%80%93

[15] https://www.care-international.org/our-work/where-we-work/zambia

[16] https://irfnet.ch/2023/07/07/private-sector-unites-to-support-road-safety-efforts-in-zambia/#:~:text=%E2%80%9CThe%20launch%20of%20a%20Private,make%20roads%20safer%20for%20everyone.

[17] https://www.pressreader.com/zambia/daily-nation-newspaper/20210326/281736977233322

[18] https://grassrootsjusticenetwork.org/connect/organization/lakeshore-hope-and-relief-zambia/

[19] https://zambianroadsafety.org/

6. Others

The tables below detail the key institutions, including such information as their name, location and role in post-crash response.

1. Hospitals

Country and corridor	Name of the institution	Location	Role
Tanzania *Nelson Mandela Road*	Muhimbili National Hospital	Kalenga Street, Malik Road, No 1048, West Upanga, Dar es Salaam, Tanzania	To receive all the causalities from the site of the crash, to triage all the causalities and channel them to appropriate sites
Ghana *Kasoa- Mankessim Highway*	Trauma and Specialist Hospital	99C5+RGW, Winneba, Ghana	Emergency medical care
Zambia *Great East Road*	UTH – University Teaching Hospital	Nationalist Rd, Lusaka, Zambia	Emergency medical care

2. Pre-hospital emergency medical services (EMS)

Country and corridor	Name of the institution	Location	Role
Tanzania *Nelson Mandela Road*	Private Ambulance Providers	Knight Support P.O. Box 60532, Ali Hassan Mwinyi Road, Dar-Es-Salaam	Pre-hospital care/Emergency medical care; transport victims to a hospital
Ghana *Kasoa-Mankessim Highway*	National Ambulance Service	Apam Kasoa Winneba Mankessim Moree	Pre-hospital care/Emergency medical care; transport victims to a hospital
Zambia *Great East Road*	Levy Mwanawasa Hospital Ambulance	Great East Road, 38836 Munali, Lusaka, Zambia.	Pre-hospital care/Emergency medical care; transport victims to a hospital

3. Emergency dispatch services

Country and corridor	Name of the institution	Location	Role
Tanzania	*Does not exist*		

Nelson Mandela Road			Professional telecommunicator, tasked with the gathering of information related to medical emergencies, the provision of assistance and instructions by voice, prior to the arrival of emergency medical services (EMS), and the dispatching and support of EMS resources responding to an emergency call.
Ghana *Kasoa- Mankessim Highway*	National Ambulance Service (Central Regional Dispatch Centre)	Cape Coast	
Zambia *Great East Road*	*Does not exist*		

4. Police

Country and corridor	Name of the institution	Location	Role
Tanzania *Nelson Mandela Road*	Police Force	Kibo Street Dar Es Salaam, 123 Tanzania	Ensures safety and traffic flow at the crash scene
Ghana *Kasoa-Mankessim Highway*	Motor Traffic and Transport Department of the Ghana Police Service	Winneba Kasoa Budumburu Apam Mankessim	Ensures safety and traffic flow at the crash scene
Zambia *Great East Road*	Lusaka Central Police Station	Church Rd, Lusaka, Zambia	Ensures safety and traffic flow at the crash scene

5. Fire brigade

Country and corridor	Name of the institution	Location	Role
Tanzania *Nelson Mandela Road*	National Fire and Rescue Service	Headquarters 1 Mtaa wa Zimamoto Viwandani-Dodoma	Extract victims from vehicle; Vehicle fire control; transport victims to a hospital
Ghana *Kasoa-Mankessim Highway*	National Fire Service	Winneba Kasoa Budumburu Apam Mankessim	Extract victims from vehicle; Vehicle fire control

Zambia *Great East Road*	Zambia Fire Brigade	Stand 660, Church Road, Lusaka, Zambia	Extract victims from vehicle; Vehicle fire control

6. Others

Country and corridor	Name of the institution	Location	Role
Tanzania *Nelson Mandela Road*	Emergency Medicine Association of Tanzania (EMAT)	Kalenga Street Dar es Salaam Tanzania	A non-profit association composed of Tanzanian emergency medicine physicians, nurses and allied health providers who are actively involved in the provision of emergency care in Tanzania.
	Tanzania Roads Agency (TANROADS)	3rd Floor, 10 Shaaban Robert Road/Garden Avenue Junction	National roads agency responsible for asset management of the case study corridor
	National Institute of Transport Centre of Excellence in Road Safety	Dar es Salaam, Tanzania	Advertised training of trainers in post-crash care
	Amend – Tanzania	Dar es Salaam, Tanzania	Scientific research to the provision of safe infrastructure, engineering, education, training, advocacy, and beyond.
	Road Transport & Safety Agency – Head office	Dedan Kimathi Road 10101 , Lusaka	To effectively implement policy on transport, traffic management and road safety
Zambia *Great East Road*	Zambia Army Zambia National Service Zambia Airforce	Various locations	To provide emergency response and rescue operations, medical assistance, and logistical support, especially in major incidents or in remote areas where civilian emergency services are overwhelmed or unavailable. They also assist in coordinating with civilian authorities and ensuring public safety during these incidents.

4.4 Collected data

4.4.1 Rapid assessment framework

Legislative Framework – National/Regional	
Do any of the following documents exist? Government Acts stipulating the requirements and conditions to provide public access to: ○ Hospital Emergency Medical Services (EMS)? ○ Pre-Hospital Care Services (Ambulance Service)?	Tanzania: No Ghana: Yes Zambia: No
Are there documented standard Operating procedures (SOPs)?	Tanzania: Some form of SOPs for emergency care exists. Ghana: Yes Zambia: Yes
Do any Regional procedures exist?	Tanzania: No Ghana: No Zambia: No
Does Legislation exist to protect members of the public and first responders from legal action, after providing assistance at a Road Traffic Collision?	Tanzania: No Ghana: Yes Zambia: No

Role of the Bystander	
Are there any publications provided to the general population advising them of what actions to take in the event of a Road Traffic Collision?	Tanzania: No Ghana: No Zambia: No
Are vehicles obliged to carry First Aid kits?	Tanzania: Public vehicles Ghana: Yes

	Zambia: Only buses and minibus taxis
Are vehicles obliged to carry Warning Triangles?	Tanzania: Yes Ghana: Yes Zambia: Yes
Are First Aid training courses available to the community?	Tanzania: Yes Ghana: Yes Zambia: Yes
Is First Aid taught in the Workplace?	Tanzania: Yes Ghana: Yes Zambia: Yes, often

Easy access to the EMS system	
Is there a single National Telephone number to access the Emergency Services in the event of a Road Traffic Collision?	Tanzania: Yes Ghana: Yes Zambia: Yes
Is the general public aware of how to request the Emergency Services in the event of a Road Traffic Collision?	Tanzania: Yes Ghana: Yes Zambia: Varies
Are there dedicated Emergency Call centres with trained staff?	Tanzania: Yes Ghana: Yes Zambia: No
Do the call centre staff provide first aid advice over the telephone to the caller?	Tanzania: No Ghana: Yes Zambia: No

Emergency Rescue Systems	
Who is responsible for the rescue of victims of Road Traffic Collisions who may be trapped in their vehicles?	Tanzania: Fire and Rescue Services Ghana: National Fire Service Zambia: Zambia Fire Brigade
What facilities/resources are currently available for Emergency Rescue?	Tanzania: Ambulances, Hospitals with Emergency Departments, Equipment and training for extrication procedures, Police Force Ghana: Ambulances, Fire appliances with extrication equipment Zambia: Ambulances, Hospitals with Emergency Departments, Equipment and training for extrication procedures, Police Force
Is there a standardized vehicle equipment list?	Tanzania: Yes Ghana: Yes Zambia: Yes
Are ALL Rescue vehicles equipped with 'The Jaws of Life'?	Tanzania: No, availability varies Ghana: No, availability varies Zambia: No, availability varies
Are ALL Rescue vehicles equipped with Pneumatic Spreaders?	Tanzania: No, availability varies Ghana: No, availability varies Zambia: No, availability varies
Are ALL Rescue vehicles equipped with Pneumatic cutting equipment?	Tanzania: No, availability varies Ghana: No, availability varies Zambia: No, availability varies
Are all Emergency Service personnel trained in rescue techniques, Police, Fire, and Ambulance?	Tanzania: No, it varies Ghana: Yes

	Zambia: No, it varies
Do all Emergency services carry some rescue equipment?	Tanzania: No, it varies Ghana: Ambulance and Fire Service Zambia: No, it varies
Do the emergency services undertake joint training exercises?	Tanzania: Yes, however, the extent and frequency of such joint training exercises vary. Ghana: Yes Zambia: No
Is there a standard data set collected for each incident attended by the Rescue Service?	Tanzania: Yes Ghana: Yes Zambia: Yes
Does the rescue service share its data with any other agencies?	Tanzania: Partly Ghana: Yes Zambia: Partly
How would you rate the overall condition of the Rescue Service facilities?	Tanzania: Below the global average Ghana: Above average Zambia: Below the global average

Pre-Hospital Medical Care	
How many Ambulances are there that will respond to Road Traffic Collisions country-wide?	Tanzania: Unknown Ghana: 295 Zambia: 200
What is the overall condition of the Ambulances?	Tanzania: In urban areas, particularly in larger cities like Dar es Salaam and Arusha, private companies offer more modern and better-equipped ambulance services. However, in rural and less urbanized regions, the availability and

	condition of ambulances are likely more limited, with challenges related to equipment, maintenance, and medical supplies. Ghana: All Ambulances are equipped with Advanced life support equipment. Zambia: Limited availability, especially in rural or remote areas, variability in the quality and maintenance of the vehicles, and potential shortages in medical equipment and supplies onboard.
Is there a standardized vehicle equipment list?	Tanzania: Private ambulance providers in Tanzania, like Knight Support, operate advanced life support (ALS) ambulances equipped with essential medical tools such as Automated External Defibrillators (AEDs). Ghana: Yes Zambia: The standards for ambulance equipment can vary depending on the service provider and the region within Zambia.
Who is Responsible for the Provision and management of the Ambulance Service?	Tanzania: Private companies and non-governmental organizations Ghana: The National Ambulance Service Zambia: The Zambian government, through the Ministry of Health, provides ambulance service
How is the service funded?	Tanzania: Combination of government budget allocations and private funding Ghana: Through Government subvention Zambia: Combination of government budget allocations and private funding
What Training does the Ambulance Crew receive?	Tanzania: Basic and Advanced Life Support, emergency vehicle operation, trauma care, patient assessment and

	management, effective communication, cultural competence, and ethical practice. Ghana: Emergency Medical Technology (Basic and Advanced) Zambia: Basic Life Support and Advanced Life Support skills, emergency driving techniques, trauma care, patient assessment and management, as well as effective communication and coordination with medical facilities.
To what extent is Trauma training included in the training program?	Tanzania: Significant extent Ghana: To a large extent Zambia: Substantial extent
Is the training program validated or accredited by any external organization?	Tanzania: Not yet Ghana: Not yet Zambia: No
Is Infection prevention and control covered in the training program?	Tanzania: Yes Ghana: Yes Zambia: Yes
Does the ambulance service have documented required standards of performance (SOPs)	Tanzania: Yes Ghana: Yes Zambia: Yes, but only formally (on paper)
Does the organization have operational 'Key Performance Indicators' for Response Times, On Scene Times, Travel to Hospital Times, and Patient handover Times?	Tanzania: Yes Ghana: Yes Zambia: No specific documentation or detailed public information confirming the use of Key Performance Indicators (KPIs).
Is a standard Patient Care Record used by Ambulance Crews?	Tanzania: Yes Ghana: Yes

	Zambia: Yes
Does the Ambulance Service have its own dedicated control room?	Tanzania: Often Ghana: Yes Zambia: In urban areas
Is there a standard data set collected for each incident attended by the Ambulance Service?	Tanzania: Yes Ghana: Yes Zambia: Yes
Does the Ambulance service share its data with any other agencies?	Tanzania: Yes Ghana: Yes Zambia: Yes
Are accident 'Black Spots' identified?	Tanzania: Yes Ghana: Yes Zambia: Yes
How would you rate the overall condition of the Ambulance Service facilities?	Tanzania: Below global average Ghana: Above average Zambia: Below global average

Hospital Based Trauma Care	
How many Hospital Emergency departments are there along the pilot corridor?	Tanzania: 1 Ghana: There are no dedicated emergency departments/facilities along the corridor but there is a trauma and specialist hospital with an emergency ward for accident cases in Winneba (a town along the proposed corridor). Also, there are other local health facilities in some major towns along the corridor which can be used. Zambia: 2

Are there any other Emergency facilities along the pilot corridor i.e., Emergency clinics?	Tanzania: No Ghana: Yes Zambia: Yes
What specialities are available 24/7 at each Emergency department?	Tanzania: General surgery, neurosurgery, orthopaedics and traumatology department and other medical departments, laboratory, and pharmacy department. Ghana: Doctors, emergency nurses and physician assistants who attend to any case of trauma. Zambia: Orthopaedic surgeons, Neurosurgeons, physiotherapists, and Emergency Nurses are found in hospitals while in clinics registered nurses, and emergency medicine physicians can be found in clinics as well as hospitals.
Have the Emergency department Doctors received training in Emergency Medicine?	Tanzania: Yes, but there is a need to improve on Advanced Trauma Life Support (ATLS). Ghana: There is no emergency physician but Emergency nurses. Training received includes Basic trauma life support and advanced trauma life support. Zambia: Yes
Have the Emergency Department Nurses received training in Emergency Medicine?	Tanzania: Yes, but more training is needed on primary trauma care and Advanced Trauma Life Support (ATLS). Ghana: Yes Zambia: It varies
How frequently is Emergency medicine training updated for Doctors and Nurses?	Tanzania: Every two years Ghana: Annually Zambia: It is hardly updated
Are there sufficiently trained staff available 24/7?	Tanzania: Yes Ghana: It depends

	Zambia: No
Does the department receive an alert call from the Ambulance Service when a seriously injured patient is en route to them?	Tanzania: Yes, through the department's telephone Ghana: Usually Zambia: It varies
Can the department communicate with the Ambulance Crew?	Tanzania: Yes Ghana: Yes Zambia: Yes
Is there a standard documented procedure for a clinical patient handover? Ambulance crew to Hospital staff?	Tanzania: Yes Ghana: Yes Zambia: It varies from hospital to hospital
Is a triage system used in the department?	Tanzania: Yes Ghana: Yes Zambia: Yes
Is there a dedicated resuscitation area within the Emergency department?	Tanzania: Yes Ghana: Yes Zambia: Yes
Are there sufficient critical beds available within the hospital?	Tanzania: No Ghana: It depends Zambia: A gap exists between the interview assertion of the existence of sufficient critical beds and the on-the-ground observation revealing an actual shortage in critical bed spaces.
Is there an appointed clinical lead for Emergency Medicine?	Tanzania: Yes Ghana: Yes Zambia: Yes

Does the hospital have an Intensive Care Unit?	Tanzania: Yes Ghana: Yes Zambia: Yes
Are documented procedures in place for the transfer of critically ill patients to alternative facilities when required?	Tanzania: Yes Ghana: Yes Zambia: Yes
Is there a standard data set collected for each patient attending the Emergency department?	Tanzania: Yes Ghana: Yes Zambia: Yes
Is there a Trauma Registry?	Tanzania: Tanzania has made strides in setting up trauma registries, ongoing efforts are needed to improve the capture rate of essential data and ensure the sustainability of these registries. Ghana: Yes Zambia: Yes
Do the Hospitals share their data with any other agencies?	Tanzania: Yes, depending on the nature of the data and the purpose of sharing. Ghana: Yes, when necessary Zambia: Yes, depending on the nature of the data and the purpose of sharing.
How would you rate the overall condition of the Emergency department facilities?	Tanzania: Below average Ghana: Average Zambia: Below average

Rehabilitation and Discharge	
What rehabilitation facilities are available within the hospital?	Tanzania: Limited access to rehabilitative services and

	follow-up care. Ghana: Physio Zambia: A range of surgical specialities with patients recovering in a theatre recovery suite. In terms of mental health support, there is an emphasis on counselling and organized support groups to help affected individuals navigate the path to recovery and prevent psychological disabilities.
At what point in the treatment of Road Crash victims do rehabilitation specialists become involved in their care?	Tanzania: At a later stage, after initial medical treatment and stabilization of the victims. Ghana: After surgery and bone healing Zambia: At different stages of patient care, depending on the severity of the injuries and the availability of qualified personnel.
Are community rehabilitation facilities available?	Tanzania: Yes Ghana: No Zambia: Yes
Are there sufficient, trained staff to provide adequate rehabilitation services?	Tanzania: No Ghana: No Zambia: No
Is a transport system provided/available for non-ambulatory patients to access rehabilitation services?	Tanzania: No Ghana: No Zambia: No

4.4.2 Key informant interviews

Key Informant interviews[20] were conducted with the following stakeholders:

- Trauma and Specialist Hospital, Winneba, Ghana
- The National Ambulance Service, Ghana
- National Fire Service, Efutu Municipality, Ghana
- University Teaching Hospital, Zambia
- Levy-Mwanawasa Hospital, Zambia
- Fire Brigade, Zambia
- Zambia Police
- Muhimbili Hospital, Tanzania
- Emergency Plus Medical Services Tanzania (private ambulance)
- Fire and Rescue Force, Tanzania

Data collected from hospitals

The following topics were the focus of the interviews with Hospitals:

- Specialities Available 24/7 in the Emergency Department
- Training in Emergency Medicine
- Staff Availability for Road Traffic Crashes
- Coordination with Ambulance Services
- Triage and Resuscitation Facilities
- Critical Bed Availability and Intensive Care Units
- Data Collection and Sharing
- Critical Equipment and Services
- Overall Condition of Emergency Department Facilities
- Bystander Training in Emergency Situations

Data collected from EMS

The following topics were the focus of the interviews with EMS:

- Coverage and Operational Reach
- Staffing and Training
- Response Protocols and Performance Indicators
- Emergency Numbers and Public Awareness
- Equipment and Capabilities
- Challenges and Future Directions
- Community Engagement and Training
- Management and Assessment
- Collaborations and Accreditation
- Future Personnel Development

[20] See full Key Informant Interview forms in Appendix 1

Data collected from fire brigades

The following topics were the focus of the interviews with Fire Brigades:

- Staffing and Capacity
- Response to Emergencies
- Training and Development
- Equipment and Resources
- Collaboration and Coordination with Other Services
- Challenges and Recommendations
- Facility and Operational Conditions
- Public Engagement and Communication
- Community Training and Emergency Response

Data collected from police

The following topics were the focus of the interviews with the Police:

- Response to Road Traffic Crashes
- Equipment and Training
- Challenges and Coordination
- Community Engagement
- Accident Black Spots
- Improvement Opportunities

It must be mentioned that when it comes to post-crash response services in Ghana, the involvement of the police is minimal, hence no interview was conducted with them at this stage. Their focus is on managing traffic flow and preventing theft at the scene, essentially maintaining peace and security.

4.4.3 Focus group discussion

One post-crash response workshop was held in Lusaka, Zambia on 21.06.2023[21]. The post-crash response workshop intended to meet specific objectives:

1. Establish gaps and challenges in post-crash response
2. Identify pressing needs and possible solutions for post-crash response
3. Identify opportunities for joint initiatives, resource sharing, and coordination for effective resource use in post-crash response
4. Agree on data sharing among main stakeholders on post-crash response
5. Share experiences, perspectives, and insights regarding post-crash response

Participants were drawn from eight key institutions that deal with road traffic accidents in Zambia, including:

- University Teaching Hospital
- Levy Mwanawasa Hospital Ambulance
- Zambia Police
- Zambia Fire Brigade

[21] See AfroSAFE: Post-Crash Response Workshop Report in Appendix 2

- Ministry of Health
- Ministry of Transport and Logistics
- Road Transport and Safety Agency
- Zambia Road Safety Trust

The workshop on post-crash response in Zambia identified several key gaps, challenges, and solutions, as well as opportunities for coordination and data sharing among the different stakeholders involved. Here's a summary of the findings:

Challenges and recommended countermeasures

- Inadequate Equipment and Transport: Solutions include procurement of necessary equipment and transport by the Ministry of Health (MoH) and stakeholders.
- Inadequate Staff: Addressed through recruitment and training at various levels by the MoH and Zambia Road Safety Trust (ZRST).
- Inadequate Training: The suggested solution is training at various levels by the MoH and ZRST.
- Poor Coordination: The proposed solution is establishing a single emergency code by the Zambia Information Communication Technology Authority (ZICTA) and stakeholders.
- Insufficient Data Sharing: Addressed through creating an information-sharing platform by the Ministry of Technology and all stakeholders.
- Inadequate Ambulance Service: Suggested solution is implementing an Ambulance Act and encouraging private sector services, by the MoH and Parliament.
- Untrained Drivers in Post-Crash Response (PCR): Addressed by providing training by the MoH and the Road Traffic and Safety Agency (RATSA).
- Inadequate Legal Framework for PCR Coordination and Action: The solution is the development of a PCR strategy by the MoH, the Ministry of Transport and Logistics (MTL), and ZRST.

Opportunities for Coordination

- Simultaneous movement of first responders to crash scene: Using the same transport and working together to assist accident victims.
- Joint training: In post-crash and other emergency responses.
- Information sharing: Among stakeholders for effective action.
- Post-crash reviews: For improving future response.
- Resource sharing: Such as police and fire brigade collaborating in transport and training.

Data Sharing: It was observed that different stakeholders/first responders need different information on an accident scene. One protocol detailing all information required on an accident scene needs to be developed. The available stakeholders may take all the information required for the protocol. This information may be shared later.

Overall, the workshop highlighted the need for improved coordination, equipment, training, and legal frameworks to enhance the effectiveness of post-crash responses in Zambia.

5 Conclusions

The comprehensive examination of post-crash response systems in Tanzania, Ghana, and Zambia, as delineated in this report, highlights the role of these measures in mitigating the adverse outcomes of RTCs. Through a methodological approach involving desk-based research, rapid assessments, key informant interviews, and focus group discussions, the report has illuminated the multifaceted aspects of post-crash care, ranging from pre-hospital care to rehabilitation and discharge processes.

The study's findings from key informant interviews across several African countries highlight varied levels of preparedness and response to road traffic crashes within hospital and emergency services. Hospitals generally have specialized emergency departments with trained personnel, but face challenges like insufficient equipment and the need for more efficient training and facility expansion. Emergency services, including ambulance and fire services, emphasize the need for broader coverage, better training, and improved equipment. Coordination among services and with the community is crucial, alongside enhancing public awareness and training in emergency response.

Despite the varying degrees of implementation and challenges faced by each country, the necessity for a robust, efficient, and coordinated post-crash response system is recognized. The disparities in infrastructure, training, equipment, and public awareness across the studied corridors show the need for targeted interventions and reforms.

Below are outlined some of the country-specific challenges:

Tanzania

- **Inadequate Infrastructure**: Tanzania faces challenges related to the lack of a comprehensive EMS infrastructure, particularly in rural and remote areas. The absence of organized on-scene response mechanisms significantly hinders the effectiveness of post-crash care.
- **Limited Training and Resources**: There is a notable deficiency in both training and resources available for first responders, including traffic police, who often serve as the initial point of contact at crash scenes. The lack of adequate training in basic life support and emergency care procedures compromises the quality of immediate care provided to crash victims.
- **Coordination Issues**: There is a need for better coordination among various stakeholders involved in post-crash response, including healthcare facilities, EMS, police, and fire services. Fragmented communication and operational protocols can lead to delays in crash victim care.

Ghana

- **Role of Local Residents**: In Ghana, particularly along the Kasoa-Mankessim highway, residents often act as first responders due to the proximity of communities to crash-prone areas. However, these individuals typically lack formal training in emergency care, relying instead on practical experience, which may not always align with best practices in trauma care.
- **Challenges in Pre-Hospital Care**: The efficiency of pre-hospital care, including the timeliness and quality of emergency medical transportation and first aid, is a critical concern. The "scoop and run" approach, while pragmatic, may not always be the most effective method of ensuring the best outcomes for crash victims.
- **Resource Limitations**: The availability of resources, including ambulances, trained medical personnel, and essential medical supplies, is a significant challenge. These limitations impact the ability to provide prompt and effective care to crash victims, potentially increasing the risk of preventable fatalities and complications.

Zambia

- **Emergency Response Capabilities**: Zambia is working to enhance its emergency response capabilities, but the existing infrastructure and resources are often insufficient to meet the needs of crash victims effectively. The lack of adequately equipped emergency communication centres and ambulances can delay the delivery of critical care.
- **Training and Awareness**: There is a need for comprehensive training programs for emergency care providers, including first responders and hospital staff. Additionally, public awareness regarding post-crash response and basic first aid measures is crucial to improving community engagement in emergency care scenarios.
- **Strategic Planning and Implementation**: While Zambia has developed strategies focusing on post-crash response as part of its broader road safety initiatives, the full implementation of these plans, including the establishment of trauma centres and the integration of first aid training into educational curricula, remains an ongoing process.

This report synthesizes the current state of post-crash response systems in Tanzania, Ghana, and Zambia and lays the groundwork for future advancements. Going further, it is paramount to undertake an in-depth analysis that examines the alignment, interest, and influence of various stakeholders. This strategic approach is crucial for fostering meaningful partnerships, leveraging existing capacities and expertise, and preventing the unnecessary duplication of efforts. By segmenting the analysis according to the distinct phases of care—namely, at the scene, within healthcare facilities, and throughout the follow-up process—we can systematically identify the needs and gaps that exist between the current state of post-crash response services and established benchmarks.

Building on the results of the stakeholder analysis and the identified needs and gaps, the next step involves formulating recommendations based on international best practices. These recommendations will serve as the foundation for developing specific, realistic, and time-bound action plans. Each plan will include detailed cost estimates, ensuring that proposed interventions are financially viable and sustainable. To ensure the relevance and effectiveness of these action plans, it is imperative to present them to key stakeholders in the selected countries for feedback. This collaborative approach not only validates the proposed strategies but also fosters a sense of ownership and commitment among stakeholders, enhancing the likelihood of successful implementation.

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Appendix 1

HOSPITAL INTERVIEW AGENDA

Before the interview
Respondent information collection (title, department, description of position)
Introduction
• Briefly explain the objective of the meeting and the post-crash care component of the AfroSAFE project
• Explain the rationale behind the interview, including what's there for the stakeholders and what might come because of the assessment if they participate
• Explain the interview process and agenda, including the subject matters so the respondent can prepare. Agree on the length of the interview.
During the interview
Short introduction, including a recap of the objectives
Questions regarding the general hospital information
Recommended time for one question: 3- 4 min
NB! In case the details are not available at the moment of the interview, agree with the respondent to provide them afterwards (e.g., staff numbers, potential audit results, etc.)
Specific Questions
Recommended time for one question: 7-8 min
NB! In case the details are not available at the moment of the interview, agree with the respondent to provide them afterwards (e.g., frequency of training, communication between the departments and institutions, procedures for patient transfer, etc.)
During the interview and after the interview
Conclusion
• Allow the respondent to pose any questions they may have
• Provide contact information should the respondent have further questions
• Remind the respondent to provide any information not available at the time of the meeting at a convenient time for the respondent using the contact information provided
• Agree on the possibility of additional meetings held if the necessity arises
• Thank the respondent for their time and help

INTERVIEW FORM - HOSPITAL

POSITION TITLE:
POSITION DEPARTMENT:
DESCRIPTION OF POSITION:

CONDUCTED BY:
INTERVIEW DATE:
INTERVIEW START TIME:
INTERVIEW END TIME:

GENERAL HOSPITAL INFORMATION:

PHYSICAL LOCATION OF THE HOSPITAL (AND GOOGLE POSITION IF POSSIBLE):

CATCHMENT AREAS (AT THE LOWEST GEOGRAPHICAL LEVEL) THAT ARE SERVED BY THE FACILITY:

INDICATE IF THE FACILITY IS PUBLIC / PRIVATE / OTHER:

INDICATE THE FORMAL LEVEL/CATEGORIZATION OF THE HOSPITAL IN TERMS OF SERVICES BEING OFFERED (IF DEFINED):

DOES THE HOSPITAL HAVE AN OPERATIONAL PLAN?

WHAT IS THE NUMBER OF STAFF BY CATEGORY ON A TYPICAL SHIFT (OR ACTUAL NUMBERS BY SHIFT)?

WHAT IS THE LEVEL OF TRAINING OF THE HOSPITAL STAFF (E.G., NR ATLS-TRAINED)?

PROVIDE DETAILS ON ANY HOSPITAL ASSESSMENTS/ REVIEWS/ AUDITS UNDERTAKEN PREVIOUSLY (IF ANY):

IS THERE A TRAUMA REGISTRY IN PLACE, OR ANOTHER FORMAL INFORMATION SYSTEM WHERE INJURY, TREATMENT, AND OUTCOME DATA ARE COLLECTED?

SPECIFIC QUESTIONS

- WHAT SPECIALTIES ARE AVAILABLE 24/7 AT EACH EMERGENCY DEPARTMENT? COMMENT ON THE QUALITY OF THE SERVICES.

- HAVE EMERGENCY DEPARTMENT DOCTORS RECEIVED TRAINING IN EMERGENCY MEDICINE? DO YOU FEEL THAT THEIR LEVEL OF TRAINING IS ADEQUATE? WHAT COULD BE IMPROVED?

- HAVE THE EMERGENCY DEPARTMENT NURSES RECEIVED TRAINING IN EMERGENCY MEDICINE? DO YOU FEEL THAT THEIR LEVEL OF TRAINING IS ADEQUATE? WHAT COULD BE IMPROVED?

- HOW FREQUENTLY IS EMERGENCY MEDICINE TRAINING UPDATED FOR DOCTORS AND NURSES? DO YOU THINK ITS SUFFICIENT? IF NOT, WHAT WOULD BE SUFFICIENT?

- ARE THERE SUFFICIENTLY TRAINED STAFF AVAILABLE 24/7 IN CASE OF A ROAD TRAFFIC CRASH? IF NOT, WHAT HAPPENS WHEN THE STAFF IS NOT AVAILABLE?

- DOES THE EMERGENCY DEPARTMENT RECEIVE AN ALERT CALL FROM THE AMBULANCE SERVICE WHEN A SERIOUSLY INJURED PATIENT IS EN ROUTE TO THEM? CAN THE DEPARTMENT COMMUNICATE WITH THE AMBULANCE CREW? WHAT IS THE USUAL PROCEDURE?

- IS THERE A STANDARD DOCUMENTED PROCEDURE FOR A CLINICAL PATIENT HANDOVER? AMBULANCE CREW TO HOSPITAL STAFF? IS IT FOLLOWED BY THE HOSPITAL STAFF? IS IT SUFFICIENT IN YOUR OPINION?

- IS A TRIAGE SYSTEM USED IN THE DEPARTMENT? IS IT EFFECTIVE?

- IS THERE A DEDICATED RESUSCITATION AREA WITHIN THE EMERGENCY DEPARTMENT? IS IT SUFFICIENT?

- ARE THERE SUFFICIENT CRITICAL BEDS AVAILABLE WITHIN THE HOSPITAL? IF NOT, WHAT IS THE SHORTAGE?

- IS THERE AN APPOINTED CLINICAL LEAD FOR EMERGENCY MEDICINE? IS THE TEAM STRUCTURES AND COMMUNICATIONS EFFECTIVELY MAINTAINED?

- DOES THE HOSPITAL HAVE AN INTENSIVE CARE UNIT? IS IT SUFFICIENT?

- ARE DOCUMENTED PROCEDURES IN PLACE FOR THE TRANSFER OF CRITICALLY ILL PATIENTS TO ALTERNATIVE FACILITIES WHEN REQUIRED? ARE THEY FOLLOWED? ARE THEY SUFFICIENT?

- IS THERE A STANDARD DATA SET COLLECTED FOR EACH PATIENT ATTENDING THE EMERGENCY DEPARTMENT? IF YES, WHAT IS INCLUDED IN THE DATA SET? DO YOU FEEL ITS SUFFICIENT?

- DO THE HOSPITALS SHARE THEIR DATA WITH ANY OTHER AGENCIES? IN WHICH CASES? IS COMMUNICATION AND COORDINATION EFFECTIVE?

- IN YOUR OPINION, ARE THERE ANY CRITICAL EQUIPMENT AND SERVICES MISSING? IF YES, WHAT IS MISSING THAT YOU BELIEVE IS CRUCIAL FOR ENSURING EFFECTIVE POST-CRASH CARE?

- HOW WOULD YOU RATE THE OVERALL CONDITION OF THE EMERGENCY DEPARTMENT FACILITIES (ON A SCALE FROM 1 TO 10)? COMMENT OF THE REASONS FOR THE GIVEN RATING.

- DO YOU HAVE ANY SUGGESTIONS FOR IMPROVEMENT IN THE FUNCTIONING OF BOTH HOSPITAL AND PRE-HOSPITAL EMERGENCY CARE SERVICES? WHAT ARE THE PRIORITIES IN YOUR OPINION?

- DO YOU HAVE ANY OTHER COMMENTS REGARDING EMERGENCY MEDICAL CARE IN CASE OF A ROAD TRAFFIC CRASH IN YOUR HOSPITAL?

- SINCE THERE IS NEARLY ALWAYS A DELAY BETWEEN THE TIME OF THE INCIDENT AND THE ARRIVAL OF EMERGENCY RESPONDERS, DO YOU FEEL THAT THE BYSTANDERS (A PERSON WHO IS PRESENT AT THE INCIDENT BUT NOT A PART OF IT) ARE ABLE TO PROVIDE BASIC CARE BEFORE EMERGENCY RESPONDERS ARRIVE? DO YOU FEEL THAT BYSTANDERS HAVE A DUTY OF CARE AND THE NECESSARY TRAINING IN THIS AREA?

AMBULANCE INTERVIEW AGENDA

Before the interview

Respondent information collection (name, title, department, description of position)

Introduction

- Briefly explain the objective of the meeting and the post-crash care component of the AfroSAFE project
- Explain the rationale behind the interview, including what's there for the stakeholders and what might come because of the assessment if they participate
- Explain the interview process and agenda, including the subject matters so the respondent can prepare. Agree on the length of the interview.

During the interview

Short introduction, including a recap of the objectives

Questions regarding the general hospital information

Recommended time for one question: 3- 4 min

NB! In case the details are not available at the moment of the interview, agree with the respondent to provide them afterwards (e.g., staff or vehicle numbers, etc.)

Specific Questions

Recommended time for one question: 7-8 min

NB! In case the details are not available at the moment of the interview, agree with the respondent to provide them afterwards (e.g., facilities/resources that are currently available for emergency rescue, availability of standard patient care record, whether the training program is validated or accredited by any external organization, etc.)

During the interview and after the interview

Conclusion

- Allow the respondent to pose any questions they may have
- Provide contact information should the respondent have further questions
- Remind the respondent to provide any information not available at the time of the meeting at a convenient time for the respondent using the contact information provided
- Agree on the possibility of additional meetings held if the necessity arises
- Thank the respondent for their time and help

INTERVIEW FORM - AMBULANCE

RESPONDENT'S NAME:
CONDUCTED BY:
INTERVIEW DATE:
INTERVIEW START TIME:

INTERVIEW END TIME:
POSITION TITLE:
POSITION DEPARTMENT:
DESCRIPTION OF POSITION:

GENERAL EMS INFORMATION:

PHYSICAL LOCATION OF THE EMS (AND GOOGLE POSITION IF POSSIBLE):

CATCHMENT AREAS (AT THE LOWEST GEOGRAPHICAL LEVEL) THAT ARE SERVED BY THE FACILITY:

INDICATE IF THE FACILITY IS PUBLIC / PRIVATE / OTHER:

PLEASE PROVIDE STAFFING NUMBERS BY THE LEVEL OF CARE (BASIC, INTERMEDIATE, ADVANCED) ON A TYPICAL SHIFT OR PER “SHIFT GROUP” (FOR EXAMPLE, THERE MAY BE A TOTAL OF FOUR SHIFT GROUPS THAT WOULD WORK DIFFERENT SHIFT HOURS TO COVER ALL HOURS OF A MONTH):

PLEASE PROVIDE THE TOTAL RESPONSE VEHICLES AVAILABLE, I.E., THE TOTAL FULLY FUNCTIONAL VEHICLES AVAILABLE BY TYPE INCL. RESCUE VEHICLES, ACCESS TO AIR AMBULANCE SERVICE, ETC.

DOES THE AMBULANCE SERVICE HAVE DOCUMENTED REQUIRED STANDARDS OF PERFORMANCE (SOPS)?

DOES THE ORGANIZATION HAVE OPERATIONAL ‘KEY PERFORMANCE INDICATORS’ FOR RESPONSE TIMES, ON-SCENE TIMES, TRAVEL TO HOSPITAL TIMES, AND PATIENT HANDOVER TIMES?

SPECIFIC QUESTIONS:

- IS THERE A SINGLE NATIONAL TELEPHONE NUMBER TO ACCESS THE EMERGENCY SERVICES IN THE EVENT OF A ROAD TRAFFIC COLLISION AND IS THE GENERAL PUBLIC AWARE OF HOW TO REQUEST THESE SERVICES?

- ARE THERE DEDICATED EMERGENCY CALL CENTERS WITH TRAINED STAFF AND DO THE STAFF PROVIDE FIRST AID ADVICE OVER THE TELEPHONE TO THE CALLER?

- WHO IS RESPONSIBLE FOR THE RESCUE OF VICTIMS OF ROAD TRAFFIC COLLISIONS WHO MAY BE TRAPPED IN THEIR VEHICLES?

- WHAT FACILITIES/RESOURCES ARE CURRENTLY AVAILABLE FOR EMERGENCY RESCUE? IS THERE A STANDARDIZED VEHICLE EQUIPMENT LIST? ARE ALL AMBULANCE VEHICLES EQUIPPED WITH 'THE JAWS OF LIFE', PNEUMATIC SPREADERS, PNEUMATIC CUTTING EQUIPMENT, ETC.?

- ARE ALL EMERGENCY SERVICE PERSONNEL TRAINED IN RESCUE TECHNIQUES, POLICE, FIRE, AND AMBULANCE? DO EMERGENCY SERVICES UNDERTAKE JOINT TRAINING EXERCISES?

- IS THERE A STANDARD DATA SET COLLECTED FOR EACH INCIDENT ATTENDED BY THE AMBULANCE SERVICE? DOES THE AMBULANCE SERVICE SHARE ITS DATA WITH ANY OTHER AGENCIES?

- ARE ACCIDENT 'BLACK SPOTS' IDENTIFIED?

- IS A STANDARD PATIENT CARE RECORD USED BY AMBULANCE CREWS?

- DOES THE AMBULANCE SERVICE HAVE ITS OWN DEDICATED CONTROL ROOM?

- WHO IS RESPONSIBLE FOR THE PROVISION AND MANAGEMENT OF THE AMBULANCE SERVICE?

- HOW WOULD YOU RATE THE OVERALL CONDITION OF THE AMBULANCE SERVICE FACILITIES? FROM 1 TO 10. HOW IS THE SERVICE FUNDED?

- WHAT IS THE OVERALL CONDITION OF THE AMBULANCES? FROM 1 TO 10.

- WHAT TRAINING DOES THE AMBULANCE CREW RECEIVE? IS THE TRAINING PROGRAM VALIDATED OR ACCREDITED BY ANY EXTERNAL ORGANIZATION?

- TO WHAT EXTENT IS TRAUMA TRAINING INCLUDED IN THE TRAINING PROGRAM? IS INFECTION PREVENTION AND CONTROL COVERED IN THE TRAINING PROGRAM?

- DO YOU FEEL COMPETENT IN DEALING WITH EMERGENCIES INVOLVING VEHICLE CRASHES AND WOULD YOU REGARD YOUR LEVEL OF TRAINING AS ADEQUATE? PLEASE PROVIDE REASON/S FOR TRAINING NOT BEING ADEQUATE IF APPLICABLE AND ELABORATE ON OPPORTUNITIES FOR IMPROVEMENT.

- DO YOU HAVE ACCESS TO THE NECESSARY EQUIPMENT REQUIRED TO CARRY OUT YOUR DUTIES (PERSONAL AND VEHICLE)? PLEASE ELABORATE ON ANY EQUIPMENT THAT IS NOT AVAILABLE.

- ARE THERE ANY OTHER CHALLENGES EXPERIENCED THAT YOU WISH TO SHARE?

- SINCE THERE IS NEARLY ALWAYS A DELAY BETWEEN THE TIME OF THE INCIDENT AND THE ARRIVAL OF EMERGENCY RESPONDERS, DO YOU FEEL THAT THE BYSTANDERS (A PERSON WHO IS PRESENT AT THE INCIDENT BUT NOT A PART OF IT) ARE ABLE TO PROVIDE BASIC CARE BEFORE EMERGENCY RESPONDERS ARRIVE? DO YOU FEEL THAT BYSTANDERS HAVE A DUTY OF CARE AND THE NECESSARY TRAINING IN THIS AREA?

FIRE BRIGADE INTERVIEW AGENDA

Before the interview
Respondent information collection (name, title, department, description of position)
Introduction
• Briefly explain the objective of the meeting and the post-crash care component of the AfroSAFE project • Explain the rationale behind the interview, including what's there for the stakeholders and what might come because of the assessment if they participate • Explain the interview process and agenda, including the subject matters so the respondent can prepare. Agree on the length of the interview.
During the interview
Short introduction, including a recap of the objectives
Questions regarding the general hospital information
Recommended time for one question: 3- 4 min *NB! In case the details are not available at the moment of the interview, agree with the respondent to provide them afterwards (e.g., staff numbers or availability of guidelines, etc.)*
Specific Questions
Recommended time for one question: 7-8 min *NB! In case the details are not available at the moment of the interview, agree with the respondent to provide them afterwards (e.g., facilities/resources that are currently available for emergency rescue, whether the training program is validated or accredited by any external organization, etc.)*
During the interview and after the interview
Conclusion
• Allow the respondent to pose any questions they may have • Provide contact information should the respondent have further questions • Remind the respondent to provide any information not available at the time of the meeting at a convenient time for the respondent using the contact information provided • Agree on the possibility of additional meetings held if the necessity arises • Thank the respondent for their time and help

INTERVIEW FORM – FIRE BRIGADE

RESPONDENT'S NAME:
CONDUCTED BY:
INTERVIEW DATE:
INTERVIEW START TIME:
INTERVIEW END TIME:

POSITION TITLE:
POSITION DEPARTMENT:
DESCRIPTION OF POSITION:

GENERAL FIRE BRIGADE INFORMATION:

PHYSICAL LOCATION OF THE FIRE BRIGADE (AND GOOGLE POSITION IF POSSIBLE):

CATCHMENT AREAS (AT THE LOWEST GEOGRAPHICAL LEVEL) THAT ARE SERVED BY THE FACILITY:

PLEASE PROVIDE THE STAFFING NUMBERS OF THE FIRE BRIGADE.

PLEASE PROVIDE THE GUIDELINES FOR RESPONDING TO ROAD TRAFFIC CRASHES.

SPECIFIC QUESTIONS:

- WHO IS RESPONSIBLE FOR THE RESCUE OF VICTIMS OF ROAD TRAFFIC COLLISIONS WHO MAY BE TRAPPED IN THEIR VEHICLES?
- ARE THE GUIDELINES FOR RESPONDING TO ROAD TRAFFIC CRASHES APPROPRIATE AND IMPLEMENTABLE? ARE THERE ANY GAPS?
- WHAT FACILITIES/RESOURCES ARE CURRENTLY AVAILABLE FOR EMERGENCY RESCUE? IS THERE A STANDARDIZED VEHICLE EQUIPMENT LIST? WHAT ARE THE GAPS?
- ARE ALL RESCUE VEHICLES EQUIPPED WITH 'THE JAWS OF LIFE', PNEUMATIC SPREADERS, PNEUMATIC CUTTING EQUIPMENT, AND OTHER CRUCIAL EQUIPMENT?
- DO YOU HAVE ACCESS TO THE NECESSARY EQUIPMENT REQUIRED TO CARRY OUT YOUR DUTIES (PERSONAL AND VEHICLE)? PLEASE ELABORATE ON ANY EQUIPMENT THAT IS NOT AVAILABLE.

- ARE ALL EMERGENCY SERVICE PERSONNEL TRAINED IN RESCUE TECHNIQUES, POLICE, FIRE, AND AMBULANCE? DO EMERGENCY SERVICES UNDERTAKE JOINT TRAINING EXERCISES?

- IS THERE A STANDARD DATA SET COLLECTED FOR EACH INCIDENT ATTENDED BY THE FIRE BRIGADE? DOES THE POLICE SHARE ITS DATA WITH ANY OTHER AGENCIES?

- HAVE YOU EXPERIENCED ANY CHALLENGES WITH THE EMERGENCY DISPATCH SYSTEM REGARDING COORDINATION AND TIMELINESS OF EMERGENCY SERVICES IN GETTING TO THE CRASH SCENE, INCLUDING THE FIRE BRIGADE? PLEASE ELABORATE.

- HOW WOULD YOU RATE THE OVERALL CONDITION OF THE FIRE BRIGADE SERVICE FACILITIES AND VEHICLES? FROM 1 TO 10. HOW IS THE SERVICE FUNDED?

- WHAT TRAINING DO THE FIREFIGHTERS RECEIVE? IS THE TRAINING PROGRAM VALIDATED OR ACCREDITED BY ANY EXTERNAL ORGANIZATION?

- TO WHAT EXTENT IS FIRST AID TRAINING INCLUDED IN THE TRAINING PROGRAM?

- DO YOU FEEL COMPETENT IN DEALING WITH EMERGENCIES INVOLVING VEHICLE CRASHES AND PEOPLE TRAPPED IN VEHICLES AND WOULD YOU REGARD YOUR LEVEL OF TRAINING AS ADEQUATE? PLEASE PROVIDE REASON/S FOR TRAINING NOT BEING ADEQUATE IF APPLICABLE AND ELABORATE ON OPPORTUNITIES FOR IMPROVEMENT.

- ARE THERE ANY OTHER CHALLENGES EXPERIENCED THAT YOU WISH TO SHARE?

- SINCE THERE IS NEARLY ALWAYS A DELAY BETWEEN THE TIME OF THE INCIDENT AND THE ARRIVAL OF EMERGENCY RESPONDERS, DO YOU FEEL THAT THE BYSTANDERS (A PERSON WHO IS PRESENT AT THE INCIDENT BUT NOT A PART OF IT) ARE ABLE TO PROVIDE BASIC CARE BEFORE EMERGENCY RESPONDERS ARRIVE? DO YOU FEEL THAT BYSTANDERS HAVE A DUTY OF CARE AND THE NECESSARY TRAINING IN THIS AREA?

POLICE INTERVIEW AGENDA

Before the interview
Respondent information collection (name, title, department, description of position)
Introduction
• Briefly explain the objective of the meeting and the post-crash care component of the AfroSAFE project • Explain the rationale behind the interview, including what's there for the stakeholders and what might come because of the assessment if they participate • Explain the interview process and agenda, including the subject matters so the respondent can prepare. Agree on the length of the interview.
During the interview
Short introduction, including a recap of the objectives
Questions regarding the general hospital information
Recommended time for one question: 3- 4 min *NB! In case the details are not available at the moment of the interview, agree with the respondent to provide them afterwards (e.g., staff numbers or availability of guidelines, etc.)*
Specific Questions
Recommended time for one question: 7-8 min *NB! In case the details are not available at the moment of the interview, agree with the respondent to provide them afterwards (e.g., facilities/resources that are currently available for emergency rescue, whether the training program is validated or accredited by any external organization, etc.)*
During the interview and after the interview
Conclusion
• Allow the respondent to pose any questions they may have • Provide contact information should the respondent have further questions • Remind the respondent to provide any information not available at the time of the meeting at a convenient time for the respondent using the contact information provided • Agree on the possibility of additional meetings held if the necessity arises • Thank the respondent for their time and help

INTERVIEW FORM - POLICE

RESPONDENT'S NAME:
CONDUCTED BY:
INTERVIEW DATE:
INTERVIEW START TIME:
INTERVIEW END TIME:
POSITION TITLE:

POSITION DEPARTMENT:
DESCRIPTION OF POSITION:

GENERAL POLICE INFORMATION:

PHYSICAL LOCATION OF THE POLICE (AND GOOGLE POSITION IF POSSIBLE):

CATCHMENT AREAS[22] (AT THE LOWEST GEOGRAPHICAL LEVEL) THAT ARE SERVED BY THE FACILITY:

PLEASE PROVIDE THE STAFFING NUMBERS OF THE POLICE STATION.

PLEASE PROVIDE THE GUIDELINES FOR RESPONDING TO ROAD TRAFFIC CRASHES.

SPECIFIC QUESTIONS:

- IN THE EVENT OF A CRASH, WHICH EMERGENCY SERVICE IS GENERALLY FIRST TO ARRIVE ON THE SCENE (POLICE/ EMS)?
- WHO IS RESPONSIBLE FOR THE RESCUE OF VICTIMS OF ROAD TRAFFIC COLLISIONS WHO MAY BE TRAPPED IN THEIR VEHICLES?
- ARE THE GUIDELINES FOR RESPONDING TO ROAD TRAFFIC CRASHES APPROPRIATE AND IMPLEMENTABLE? ARE THERE ANY GAPS?
- WHAT FACILITIES/RESOURCES ARE CURRENTLY AVAILABLE FOR EMERGENCY RESCUE? IS THERE A STANDARDIZED VEHICLE EQUIPMENT LIST? WHAT ARE THE GAPS?

[22] Police catchment areas define the primary population of police and are central to assessing the potential demand on that police station. Catchment area is a geographic area that can be outlined on a map. While catchment population is the estimate of the population served by a police force; it is the population in the catchment area. Please indicate both the geographical catchment area and the population of the area.

- DO YOU HAVE ACCESS TO THE NECESSARY EQUIPMENT REQUIRED TO CARRY OUT YOUR DUTIES (PERSONAL AND VEHICLE)? PLEASE ELABORATE ON ANY EQUIPMENT THAT IS NOT AVAILABLE.

- ARE ALL EMERGENCY SERVICE PERSONNEL TRAINED IN RESCUE TECHNIQUES, POLICE, FIRE, AND AMBULANCE? DO EMERGENCY SERVICES UNDERTAKE JOINT TRAINING EXERCISES?

- IS THERE A STANDARD DATA SET COLLECTED FOR EACH INCIDENT ATTENDED BY THE POLICE? DOES THE POLICE SHARE ITS DATA WITH ANY OTHER AGENCIES?

- ARE ACCIDENT ‘BLACK SPOTS’ IDENTIFIED?

- HAVE YOU EXPERIENCED CHALLENGES WITH THE EMERGENCY DISPATCH SYSTEM REGARDING COORDINATION AND TIMELINESS OF EMERGENCY SERVICES IN GETTING TO THE CRASH SCENE, INCLUDING THE POLICE? PLEASE ELABORATE.

- HOW WOULD YOU RATE THE OVERALL CONDITION OF THE POLICE SERVICE FACILITIES? FROM 1 TO 10. HOW IS THE SERVICE FUNDED?

- WHAT TRAINING DOES THE POLICE RECEIVE? IS THE TRAINING PROGRAM VALIDATED OR ACCREDITED BY ANY EXTERNAL ORGANIZATION?

- TO WHAT EXTENT IS FIRST AID TRAINING INCLUDED IN THE TRAINING PROGRAM?

- DO YOU FEEL THAT POLICE OFFICERS WHO DEAL WITH ROAD TRAFFIC CRASHES ARE COMPETENT IN DEALING WITH EMERGENCIES AND WOULD YOU REGARD THEIR LEVEL OF TRAINING AS ADEQUATE? PLEASE PROVIDE REASON/S FOR TRAINING NOT BEING ADEQUATE IF APPLICABLE AND ELABORATE ON OPPORTUNITIES FOR IMPROVEMENT.

- ARE THERE ANY OTHER CHALLENGES EXPERIENCED THAT YOU WISH TO SHARE?

- SINCE THERE IS NEARLY ALWAYS A DELAY BETWEEN THE TIME OF THE INCIDENT AND THE ARRIVAL OF EMERGENCY RESPONDERS, DO YOU FEEL THAT THE BYSTANDERS (A PERSON WHO IS PRESENT AT THE INCIDENT BUT NOT A PART OF IT) ARE ABLE TO PROVIDE BASIC CARE BEFORE EMERGENCY RESPONDERS ARRIVE? DO YOU FEEL THAT BYSTANDERS HAVE A DUTY OF CARE AND THE NECESSARY TRAINING IN THIS AREA?

Appendix 2

AfroSAFE: POST-CRASH RESPONSE WORKSHOP REPORT

ZAMBIA

June 2023

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1. INTRODUCTION

The World Health Organization (2021) reports that more than 1.25 million people are killed by traffic injuries every year. The post-crash response is, therefore, a critical concern that should be well planned for and managed in every country (UN, 2020). Zambia Road Safety Trust in collaboration with NTU International A/S and with the support of the EU held a Post-crash workshop on 21st June 2023. The main objective was to gather information on stakeholder engagements and collaboration for an effective and efficient post-crash response. Statistics show an upward trend in road traffic fatalities in Zambia (RTSA, 2018:29). The workshop was therefore important to establish ways of reducing these road traffic fatalities through an efficient post-crash response system. The sub-objectives of the workshop are outlined below.

Picture 1: Director Mr. Daniel Mwamba officially opens workshop

A. WORKSHOP OBJECTIVES

The post-crash response workshop intended to meet specific objectives, including:

i. Establish gaps and challenges in post-crash response
ii. Identify pressing needs and possible solutions for post-crash response
iii. Identify opportunities for joint initiatives, resource sharing, and coordination for effective resource use in post-crash response
iv. Agree on data sharing on post-crash response
v. Share experiences, perspectives, and insights regarding post-crash response

B. WORKSHOP PARTICIPANTS

Participants were drawn from eight (8) key institutions that deal with road traffic accidents in Zambia, including:

i. University Teaching Hospital
ii. Levy Mwanawasa Hospital Ambulance
iii. Zambia Police
iv. Zambia Fire Brigade
v. Ministry of Health
vi. Ministry of Transport and Logistics
vii. Road Transport and Safety Agency
viii. Zambia Road Safety Trust

A total of 14 participants attended the post-crash response workshop, the list of attendance is attached as ***Annex 6.1***.

C. WORKSHOP AGENDA

The workshop was delivered through lecture presentations, plenary sessions, and group discussions. See the full program of the workshop as ***Annex 6.2***.

2. WORKSHOP ACTIVITIES

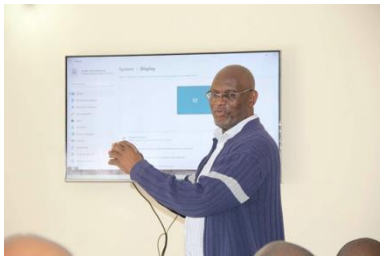
The workshop discussions were segmented into five (5) areas as outlined below:

A. WELCOMING REMARKS

The Executive Director of the Zambia Road Safety Trust, Mr. Daniel Mwamba, welcomed the participants and encouraged them to participate freely in the deliberations. He emphasised the need to share information to come up with strategies that may help to improve road safety in Zambia.

B. INTRODUCTIONS

Each participant introduced themselves indicating their full names and the organisations they were representing in the workshop. There were two representatives from the Zambia Police Service, two from the University Teaching Hospital, one from Levy Mwanawasa Hospital, one from the Road Safety Agency, two from the Zambia Fire Brigade, one from the Ministry of Transport and Logistics, one from the Ministry of Health and two from the Zambia Road Safety Trust.



Picture 2: Facilitator Dr. Kayula emphasising a point

C. PRESENTATION ON POST-CRASH RESPONSE FINDINGS

Mr. Mwamba made a presentation on the AfroSAFE project overall, and specifically Work Package 6 on post-crash response. He outlined activities of the project in three African countries - Ghana, Tanzania and Zambia - including research studies, training and collaborations/coordination that the project intends to foster in four years of its existence.

While Low- and middle-income countries may have fewer motorised means of transport and smaller populations, statistics presented showed that Africa had the highest number of traffic fatalities worldwide, at 93%.

So far the project in discussion with local stakeholders has selected accident-prone corridors in the three countries - Ghana, Tanzania and Zambia - and an initial research design was already developed for data collection that will use rapid assessment, desk reviews, surveys and interviews. The post-crash response workshop in Zambia was designed for stakeholders to discuss post-crash care and to prepare stakeholders for comprehensive interviews. It was explained how the desk review revealed activities on post-crash response in Zambia and the awareness programs introduced in the Zambian education curriculum. It was also reported that Zambia had developed national trauma centres and created emergency wards for accident victims.

D. PLENARY GENERAL DISCUSSION ON POST-CRASH RESPONSE

The plenary discussed the general topics on post-crash response including helping the participants to have a unified understanding of the phrase 'post-crash response'. Thereafter, the discussion sought to understand the institutions that are responsible for post-crash response (their mandates) and how these institutions coordinated the implementation of post-crash response. The discussion also delved into knowing the roles of stakeholder institutions and bystanders in post-crash response as well as whether there was a country map for accident-prone areas in Zambia.

Picture 3: Participants in a plenary discussion

The police concurred with Liu (2022) that a quick response is critical for minimising casualties and property losses after accidents have occurred. The discussion confirmed the assertions by Tiwari et. al. (2020) that post-crash effects are not only on the vehicles and injuries or death of victims, but that effects are also on the general body and

mental health of both the victims and relatives. This makes it even more imperative to plan for efficient handling of the post-crash response.

The role of bystanders or witnesses was discussed in plenary with suggestions for organizing training for the communities. The need for mapping of accident-prone areas was agreed upon so that it compliments communities to be prioritised in training on the post-crash response by communities.

E. GROUP DISCUSSION

The group discussion sought to answer twelve pertinent questions on various actions, the capacity of institutions, coordination, and protocols for the post-crash response. The questions and institutional responses are attached as ***Annexes 6.3 and 6.4*** respectively.

Picture 4: Participants in a group discussion

The plenary was divided into three groups. One comprised representative institutions at the policy level, the second of law enforcement agencies, and the third of health facilities. The policy level was represented by the Ministry of Health, the Ministry of Transport & Logistics, the Fire Brigade, the National Association for Smallholder Farmers (NASFA), and the Zambia Road Safety Trust. Law enforcement agencies were represented by Zambia police and the Road Transport and Safety Agency. While the health institutions group was comprised of the University Teaching Hospital and Levy Mwanawasa Hospital. The discussion aimed to highlight gaps and challenges that the post-crash response system is facing in Zambia, particularly regarding coordination and collaboration, protocol observance and information sharing.

3. FINDINGS

The findings have been discussed in line with the objectives of the workshop. Equally, conclusions were made in line with the workshop objectives.

A. GAPS AND CHALLENGES IN POST-CRASH RESPONSE IN ZAMBIA

The group discussions brought out various post-crash response (PCR) challenges and possible solutions listed in Table 1 below:

Table 2: PCR Challenges and proposed solutions

SN	CHALLENGE/GAPS	SOLUTION	INSTITUTION
01	Inadequate equipment and transport	Procure equipment and transport	MoH, stakeholders
02	Inadequate staff	Recruitment of more staff and training at various levels	MoH, ZRST
03	Inadequate training	Training at various levels	MoH, ZRST
04	Poor coordination	Single emergence code	ZICTA, Stakeholders
05	Insufficient data sharing	Information sharing platform	Ministry of Technology, All Stakeholders
06	Inadequate ambulance service	Ambulance Act, private sector services	MoH, Parliament
07	Some drivers are not trained in PCR	Training	MoH, Ratsa

o8	Inadequate legal framework for PCR coordination and action	PCR strategy	MoH, MTL, ZRST

Challenges in coordination are a result of differences in mandates among the stakeholders responsible for various aspects of post-crash response. Whereas some stakeholders handle components of investigation regarding the causes of accidents to bring the culprit to book, others are concerned about injuries and prevention of death of the victim. A police officer would, for example, consider the removal of victims from an accident vehicle to safety as tampering with evidence, while a paramedic would want to evacuate the victim to safety for medical support. In another typical incidence, the witness may send a message to just one of the service providers of post-crash response, hence message may not reach all stakeholders. ***All these scenarios would require that general protocols be established for the flow of information and intervention in the accident scene in a streamlined manner.***

Inadequate equipment may require a good listing of appropriate or available advanced equipment to be procured to meet the requirements of all stakeholders who play a part in post-crash response. On the other hand, ***inadequate staff and inadequate training*** may require coordinated effort in training the staff or sharing staff on site.

The post-crash service providers require different information from the victims and where the information is the same, such may require sharing (see part 3.4 below). This is because some information is not relevant to some stakeholders. While the police and RTSA may want to know the number and types of vehicles involved in the accident, paramedics may not need such information to save the lives of the victims.

It was concluded that it is ***not all ambulance drivers, let alone ordinary drivers who are trained in basic post-crash response actions***. As such some drivers simply arrive at the scene either to pick up victims of the accident without any basic care for patients or watch the unfolding accident events and scene like any other bystanders.

B. PRESSING NEEDS AND SOLUTIONS

Among the pressing needs identified were issues related to administration, coordination, and legal operations. The list below highlights the most pressing needs:

i. **Training for staff and community**. The community training would include bystanders, communities in accident-prone areas, and owners of toll vehicles that mostly rush for money as they take accident vehicles to police stations. Members of the community also tend to take pictures and videos of accident victims instead of rendering some approved help. In other instances, untrained assistants tend to worsen the victim's situation and the help may be fatal. Training would also support the hugely understaffed institutions.

ii. **Equipment** was another pressing need for improved post-crash response. Equipment like hydraulic cutting equipment, first aid kits, Portable oxygen, Pulse oximeter, stethoscopes, and jaws of life.

iii. **Transport (Ambulances) and fire engines** were discussed as being in short supply and a dire need for most districts in Zambia.

iv. **Technical support** was also listed as one of the urgent needs, to establish a robust, efficient post-crash response system that is well coordinated.

C. OPPORTUNITIES FOR COORDINATION

The current post-crash response and care coordination is fragmented leading to duplicated resources and miscommunication among stakeholders hampering the overall effectiveness of post-crash response, leading to delays, inefficiencies, and potentially avoidable harm to the affected individuals. However, police and fire brigade do hand over cases to the paramedics or health personnel immediately after they have done their preliminary roles of securing the victim from the accident scene and collecting information for possible prosecution of offenders.

Opportunities for coordination include:

i. Moving to the crash scene at the same time.
ii. Using the same transport.
iii. Working simultaneously to relieve the accident victims.
iv. Training together on post-crash response and other emergency responses.
v. Sharing information on the victim necessary for other stakeholders to do their work effectively.
vi. Post-crash victim support reviews to enhance future occurrences.
vii. Resource sharing, for example, police driving with the fire brigade back to the station or sharing training resources.
viii. Procedures that are meant to collect common data may be done together.

D. DATA SHARING

Generally, the mandates of respective institutions may require different data. The police may require information that may pinpoint the culprit to prove the guilty verdict while the fire brigade and health personnel may want to relieve the victim from pain and forestall death.

Table 3: Data collected by the institutions

SN	TYPE OF DATA	HEALTH	POLICE	FIRE BRIGADE	RTSA	OTHERS
01	Name	X*	X			
02	Age	X	X			
03	Sex of victim	X	X	X		
04	Number of Victims	X	X	X	X	
05	Type of Injuries	X	X	X	X	
06	Status of patient	X	X		X	
07	Type of cars		X	X	X	
08	Number of cars		X	X	X	
09	Action taken	X	X	X		

X* Data needed

E. EXPERIENCE SHARING

The discussion was useful for sharing information across institutions. Learning from other institutions made it easy to prepare grounds for collaborations and coordinated work.

4. CONCLUSION

A. GAPS AND CHALLENGES IN POST-CRASH RESPONSE IN ZAMBIA

There were about eight (8) major challenges (see Table 1) identified during the discussions. These challenges have a negative impact on the efficiency of post-crash response. Most of the challenges are affected by the availability of finances. If the challenges are sorted out, the post-crash response will be improved in the country.

B. PRESSING NEEDS AND SOLUTIONS

The most pressing needs relate to training, equipment, transport, and technical know-how. The need for training was identified as resulting from low numbers of staffing and low levels of training. The need for capacity building relevant to post-crash response was also seen to be necessary. Coordination may support synergies and the use of expertise from other institutions while training will improve capacity among staff, especially at higher levels of training.

RTSA has already introduced education and awareness programs among minibus drivers, workplace orientation and school education programs (RTSA, 2021).

C. OPPORTUNITIES FOR COORDINATION

The workshop participants listed a number of opportunities for collaboration and coordination, such as:

i. Training that may target staff and community done together.
ii. Co-actions through a combined response protocol where roles are shared according to expertise.
iii. Single code for emergence calls. This may help to receive emergency calls at the same time to reduce the different timeframes for emergency response.
iv. Data sharing for common information.
v. Post-crash response reviews to analyse the crash and response challenges and successes.

D. DATA SHARING

It was observed that different stakeholders need different information on an accident scene. ***One protocol detailing all information required on an accident scene needs to be developed***. The available stakeholders may take all the information required for the agreed form. This information may be shared later. This then means that some parts of the training such as data collection may be passed on to all stakeholders. This will make it easier to understand what information may satisfy all the stakeholders.

E. EXPERIENCE SHARING

The workshop provided an opportunity for experience sharing and discussing effective strategies for coordinating and responding to road accidents. It aimed to explore ways to improve coordination and response efforts when dealing with such incidents.

In conclusion, it may be said that the workshop met all its objectives and that stakeholders will be looking forward to follow-up activities such as training, coordination activities as well as possible procurement of missing equipment. ***The workshop was resourceful and there is a need to hold similar workshops annually.***

5. GUIDE FOR COORDINATION AMONG STAKEHOLDERS

It is important to develop some guidelines for the coordination and collaboration of the different players in the post-clash response. Coordination and collaboration will help to streamline the protocols and procedures when intervening in an accident. An accepted procedure will help the police to get their information and the other service providers who usually need the victims to be secured in an environment that reduces further risk to life will do their part in the shortest period of time.

A. SINGLE EMERGENCY CODE (NUMBER)

There is a need for a single code system (number) for reporting RTAs to stakeholders. This system will alert all the emergency post-crash service providers at the same time.

B. AN ACTIONS FLOW CHART

There is a need for a procedure of reporting and service delivery in a flow chart form to streamline points of intervention by each service provider efficiently and swiftly. There should be exceptions when not all the post-crash response providers are available on the accident scene.

C. MEDIA ENGAGEMENT

Media houses are an integral part of the post-crash response. Whereas evidence of the accident needs to be collected and photos or videos captured, there is a need to ensure the quick provision of support to the victims. Many community support groups and individuals or bystanders, rush to take pictures and share them on social media, which can negatively influence the outcomes. Therefore, there is a need to raise awareness against such practices.

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UN. 2020. **Road safety performance review-Ethiopia**. Pp44-49. United Nations Economic Commission for Europe.

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6. ANNEXES

Annex 6.1: Program of activities

TIME	ACTIVITY	RESPONSIBLE PERSON
09:00 – 09:15	Introductions and workshop objectives	Frank Kayula
09:15 – 09:30	Opening remarks	Daniel Mwamba
09:30 -10:30	Presentation on past activities and plans	Daniel Mwamba
10:30 – 11:00	Health Break	ZRST
11:00 -11:30	Plenary discussions	Frank Kayula
11:20 – 12:00	Group discussions	Frank Kayula
12:00 – 12:40	Group presentations	Frank Kayula
12:40 – 13:00	Closing session	Daniel Mwamba
13:00 – 13:30	Lunch and dispersal	ZRST

Annex 6.2: List of participants

SN	FULL NAME	ORGANISATION	POSITION
1	Dr. Isaac Sakala	Levy Hospital	Orthopaedic & trauma lead
2	Dr. Frank Kayula	NASFA	CEO
3	Paul Siloka	Zambia Police	Road safety coordinator
4	Patrick Kadimba	Zambia Police	Road Safety awareness officer
5	Brian Phiri	UTH	Senior driver
6	Brian Mulubwa	Ministry of Health	Chief Health Promotion Officer
7	Chikumbuso Moyo	University Teaching Hospital	Assistant Technical Officer
8	Fanwell Mubamba	Fire Brigade	Divisional Officer
9	Brian Kalenga	Fire Brigade	Assistant Divisional Officer
10	Gabriel Mubuyaeta	RTSA	Road Safety Engineer
11	Oscar ALikuleti	Ministry of Transport	Transport Officer
12	Daniel Mwamba	Zambia Road Safety Trust	Director/ Chairman
13	Mailos Mwale	Zambia Road Safety Trust	Programmes Officer
14	Susan Mawele	Zambia Road Safety Trust	Project Officer – AfroSAFE project

Annex 6.3: Questions for group discussions

1. What are the key elements of an effective post-crash response?
2. What is your mandate in relation to post-crash response?
3. Do you have protocols for post-crash-response?
4. What is the staff capacity in terms of numbers and qualifications?
5. Are there training needs?
6. Have the staff received specialised training in emergency medicine?
7. Do you offer 24/7 services?
8. Are emergency staff available 24/7?

9. Do you have an emergency alert call system between ambulance and emergency staff?
10. Is there standard data collected for each patient? What is the content?
11. Can you rate the Ambulance service facility from 1 -10?
12. Give reasons for your rating.
13. Who is responsible for rescuing RTA victims trapped in vehicles?
14. What equipment is available and what would you need for you to offer more effective rescue services?

Annex 6.4: Institutional responses to questions

QUESTIONS	POLICY LEVEL RESPONSES	LAW ENFORCEMENT AGENCIES	HEALTH INSTITUTIONS
1. What are the key elements of an effective post-crash response?	▪ Policy support for emergency handling ▪ Recruitment of qualified staff for emergency medicine ▪ Ensuring comfort for RTA victims ▪ Ensuring the availability of medicines	▪ Understanding of the Road Safety Act ▪ Effective communication ▪ Network response centers ▪ Adequate response vehicles ▪ Adequately trained personnel ▪ Save lives & secure property	▪ Saving lives ▪ Medical handling of victims of RTA ▪ Establishing RTA complications of the victim ▪ Treatment ▪ Comfort for victim
2. What is your mandate in relation to post-crash response?	▪ Provide equipment and first aid ▪ Provide transport for carrying the victim to a health facility ▪ Ensure trained staff	▪ Establish a case and pinpoint the culprit ▪ Rescue operation ▪ First aid ▪ Transport the victim to a health facility	▪ Provide first aid ▪ Transport the victim to a health facility ▪ Provide further treatment at a health facility
3. Do you have protocols for post-crash-response?	Yes, there are protocols	Yes, there are protocols	Yes, there are protocols
4. What is the procedure for the post-crash response?	▪ Triage ▪ First Aid ▪ Transport ▪ Handover	▪ Rescue ▪ Triage ▪ First Aid ▪ Transport ▪ Handover to health institution ▪ Preserve accident scene for courts	▪ Triage ▪ First Aid ▪ Transport ▪ Further Test ▪ Counselling
5. Are there training needs?	There is a need to upgrade staff professionally	Need to train new staff in first aid, response to RTAs and emergency handling	Need to train staff regularly in emergency handling and for career progression
6. Have the staff received specialised training in emergency medicine?	Not at the Ministry level. There is emergency training for staff	Mainly in first aid and a few in emergency medicine and Jaws of Life	Some staff have undergone emergency medicine, but more need to be trained. Trainers are available at Levy
7. Do you offer 24/7 services?	Not at the ministries	Yes but need transport and equipment for emergency	At big Health facilities, yes, including district Hospitals
8. Are emergency staff available 24/7?	Not really	Inadequate staff levels	Not enough staff for emergency services
9. Do you have an emergency alert call system between	No	No, but there is a common user code	Yes. There is a code and ambulance drivers do communicate with

ambulance and emergency staff?			hospitals, but systems are not always functioning
10. Is there standard data collected for each patient? What is the content?	In hospitals and among RTSA and police officers	Yes there is: ▪ Time of accident ▪ Causer of accident ▪ Addresses of victims & suspected offender ▪ Place of accident ▪ Number of victims ▪ Sex of victims ▪ Type & No. of vehicles ▪ Action taken	Yes, we need to know: ▪ Place of accident ▪ Number of victims ▪ Names of victims ▪ Ages and sex ▪ Type of injury ▪ Status of patient
11. Can you rate the Ambulance service facility from 1 -10?	5	5	8
12. Give reasons for your rating.	They are not adequate, we need at least one in each health facility	There is sometimes poor communication with ambulance services. Too few ambulances for the challenges faced	Our hospitals have access to ambulance services, but the facilities on the vehicles may not be working
13. Who is responsible for rescuing RTA victims trapped in vehicles?	Local government/ Fire brigade	Fire brigade	Fire brigade
14. What equipment is available and what would you need for you to offer more effective rescue services?	▪ More fire engines ▪ More fire hydrants ▪ More spreaders, cutters, ram bars, etc	▪ Ambulances ▪ Hydraulic Cutting equipment ▪ More First Aid Kits	▪ More ambulances ▪ First Aid kits ▪ Portable oxygen ▪ Pulse Oxymeters ▪ Stethoscopes