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Collaborative Governance in Minimizing Traffic Accidents: Study on the Role of Pentahelix in East Aceh Regency, Indonesia

Suryana Asrul Sani¹, Muh. Azis Muslim²

^{1,2,3} Department of Public Administration, Faculty of Administrative Science, Universitas Indonesia, Depok, Indonesia.
Email: suryana.asrulsani@ui.ac.id¹

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ABSTRACT

Traffic accidents remain a significant concern, causing high mortality rates and severe injuries, particularly in East Aceh Regency. This study examines the role of collaborative governance through the pentahelix approach in minimizing traffic accidents. The pentahelix model involves government, academia, businesses, communities, and the media in traffic safety management. Using a literature study method, this research identifies key factors contributing to accidents, evaluates the role of various stakeholders, and explores strategies for effective collaboration. The findings highlight structural challenges, resource limitations, and the need for an integrated approach to accident prevention. The study recommends forming inclusive forums, enhancing knowledge sharing, and strengthening stakeholder coordination to improve road safety. A structured collaborative governance model can significantly reduce traffic accidents, especially among minors, ensuring a safer road environment.

Keywords: Traffic Accidents, Collaborative Governance, Pentahelix, Road Safety, East Aceh.

I. Introduction

Traffic accidents are always an ominous shadow and a fear for every road user. No one wants or desires an accident to happen. However, this does not happen suddenly; humans sit back and face it. Various efforts can be conceptualized and planned in the context of traffic safety management, which is the responsibility of all elements to realize peace, security, certainty, benefits, and order in traffic (Wirawan et al., 2022). Traffic accidents never choose who and what will be the victims; every human being has the same opportunity in the road space to face and experience it, so that the abstraction of this accident can be contemplated together.

According to The Institute for Health Metrics and Evaluations, traffic accidents were the 8th (eighth) cause of death in 1990 and rose to the sixth (sixth) cause in 2017 (Murray, 2018). According to reports from the World Health Organization, traffic accidents in Indonesia are considered the third biggest killer after coronary heart disease and Tuberculosis. (Usman et al., 2018). From this, it can be seen that traffic accidents significantly impact victims and are the international community's focus in handling them. Accidents are a humanitarian tragedy that is quantitatively greater than natural disasters or disease outbreaks, so handling them must be the focus of every element of policymakers (Zainafree et al., 2022). Accident prevention and handling cannot be done partially; all stakeholders must have synergy to focus on saving human lives on the road.



In concrete phenomena, accidents are caused by humans, vehicles, road infrastructure, and the environment. These factors focus on saving thousands of human lives from accidents (Muksalmina et al., 2022). The abstraction of traffic management, especially on the side of accidents, is always emphasized on the Indonesian National Police (Polri) in the function of Traffic, on the side of its function, that the Polri through the Traffic Corps (Korlantas Polri) is tasked with maintaining security, safety, order and smooth traffic, so that it focuses on maintaining the safety of every driver on the road. The emphasis on Polri is also based on the duties of the Polri as investigators in every criminal justice system (both general and special), placing it at the forefront in handling various cases. Therefore, Polri's decision regarding the execution of each investigation is important (Yasa Putra, 2020). Here, minimizing the number of traffic accidents is truly the joint responsibility of every stakeholder in the road space, to collaborate as a step in serving and saving humans on the road.

The number of accidents in Indonesia is relatively high, and some fatalities have implications for the safety of road users. From data collected by the National Crime Information Center (Pusiknas), the ranks of the Regional Police with the highest accident rates are:

Table 1. Regional Police with the Most Traffic Accident Case Reports for January-November 2023

No	Regional Police	Accident Case Report
1	East Java Regional Police	29,375
2	Central Java Regional Police	29,054
3	Metro Jaya Police	10,742
4	West Java Regional Police	8,571
5	South Sulawesi Regional Police	7,256
6	Bali Police	6,613
7	Yogyakarta Regional Police	6,244
8	North Sumatra Regional Police	5,889
9	Aceh Police	3,241
10	West Sumatra Regional Police	2,008

Source: National Police Criminal Investigation Center, 2023

The data in Table 1 shows the highest number of traffic accident reports that occurred in the ten Regional Police in Indonesia in the period January-November 2023. The highest Regional Police is the East Java Regional Police with 29,375 cases, and the Aceh Regional Police is in ninth position with 3,241 accident case reports. This raises serious concerns about the number of victims caused by accidents on the road. The Aceh Regional Police is the westernmost Regional Police in Indonesia, the endpoint of the journey on the island of Sumatra. In the Aceh Regional Police itself, there is a regional police resort unit with the third-highest accident rate in the Aceh jurisdiction. That accidents in the Aceh Regional Police jurisdiction are classified as high by considering the following accident case report data:

Table 2. Highest Number of Accident Cases in the Aceh Police Jurisdiction 2023

No	Jurisdiction of the Police	Number of Accident Cases
1	Banda Aceh Police Station	687
2	Bireuen Police Station	484
3	East Aceh Police	424
4	Aceh Besar Police Station	273
5	Pidie Police Station	211

Source: Sub-Directorate of Law Enforcement, Traffic Directorate, Aceh Police, 2023

Accidents in East Aceh Regency are among the highest in Aceh Province, which can be linked to data from the Gakkum Subdit Ditlantas Polda Aceh (2023). From January to December 2023, in the East Aceh Police, there were 424 accidents, the third rank after the Banda Aceh Police with 687 accidents, and the Bireuen Police with 484 accidents. This shows that East Aceh Regency is one of the highest accident points in Aceh Province.

During 2023, based on data obtained from the Gakkum Unit of the East Aceh Police Traffic Unit, there were the following number of traffic accidents:

Table 3. Number of Accidents from January to December 2023, East Aceh Police

Period January-December	Amount	Victim		
	LACQUER	MD	LB	LR
Amount	424	71	47	640

Source: East Aceh Traffic Police Law Enforcement Unit, 2023.

Based on data from the Gakkum Unit of the East Aceh Police Traffic Unit, the number of accidents in East Aceh Regency in 2023 was 424, with details of 71 fatalities, 47 serious injuries, and 640 minor injuries. This is a high number, with the number of lives lost on the roads of East Aceh Regency totaling 71 people. This makes it important for every stakeholder on the road to make maximum handling and prevention efforts to minimize the risk of fatal accidents in the jurisdiction of the East Aceh Police, which is high and has claimed many victims. If associated with the age of traffic accident victims that occurred in the jurisdiction of the East Aceh Police, the following data can be obtained:

Table 4. Number of Accident Victims Based on Age

Period January-December	Victim					
	0 - 9	10 - 15	16 - 30	31 - 40	41 - 50	51 and above
Amount	49	89	266	91	106	157

Source: East Aceh Traffic Police Law Enforcement Unit, 2023.

It can be seen from the data that the largest age group of victims is in the productive age, which is almost 500 victims. The context of the productive age ranges from 15-64 years (Ramadhan, 2024). In this productive age, there are also victims of traffic accidents among minors; in this context, children, as a vulnerable group, must receive good protection for road safety to fulfill their optimal development rights. Based on these data, 138 minors are victims of traffic accidents are 138 people; this is very concerning because children who are the next generation of the nation must lose their lives on the road. In handling traffic accidents involving minors, there should be good collaboration between parental responsibility and the involvement of other agencies. However, in Aceh, it only focuses on the police, who are active in preventive and repressive activities; there has been no significant role played by policymakers and other parties (Wati, 2017).

The high number of traffic accidents, especially those involving minors in Indonesia, is a critical issue in transportation safety, with Aceh Province ranked ninth highest with 3,241 accident cases. In the internal report of the Aceh Police, East Aceh district, the policy of handling traffic accidents by the East Aceh Police recorded the third highest number. In its accident report, there were 424 accident cases, with the number of victims being 138 minors. In handling it, although various law enforcement efforts have been implemented, the high number of accidents involving minors shows the limitations of the local government's top-down handling approach. Collaborative governance through the role of the pentahelix offers a more systemic and integrative perspective by involving all parties in efforts to prevent traffic accidents.

Moreover, on the side of underage accidents, a more comprehensive approach is required. It involves institutions specifically handling children, such as the National Commission for Women's Empowerment and Child Protection. With the concept of a child by Law of the Republic of Indonesia Number 23 of 2002 concerning Child Protection, a person who is not yet 18 years old, including children who are still in the womb. In this context, a child is not an adult in small form, but a human being who, because of their condition, has not reached a mature level of growth and development, and everything is different from adults in general (Anjarani, 2020). Focusing on children requires a more comprehensive and collaborative approach in this context.

Academic studies on traffic safety for minors focusing on implementing collaborative governance are still limited, especially in identifying how pentahelix synergy can be optimized in areas with high accident rates. This study aims to fill the conceptual gap on effective collaborative mechanisms to minimize traffic accidents, especially in the East Aceh district. This study explores the contribution of pentahelix actors in their initiatives on road safety, identifies structural and operational constraints, and develops evidence-based governance in line with socio-political conditions. Starting with the main research question, how can collaborative governance through the pentahelix approach be applied to minimize traffic accidents in the East Aceh district? This study will examine various dimensions, including the main factors causing accidents, the strategic role of actors, and challenges in cross-sector coordination.

II. Research Method

The writing of research related to the implementation of collaborative governance through the pentahelix approach to minimize underage traffic accidents in East Aceh district uses the literature study approach method (Creswell & Creswell, 2018). The data collection method used by the author in this study is sourced from secondary data from journals, government publications, and other relevant sources. This study uses descriptive writing to describe the problems studied. The conceptual and theoretical foundations in this study are used as a tool for readers to understand the analysis presented by the author.

III. Results and Discussion

The Indonesian government is focusing on achieving Indonesia Emas 2045 and achieving the demographic bonus of the Indonesian population. This aligns with Indonesia's grand vision to become a developed country and a superpower in the future (Nasrul, 2023). Related to the demographic bonus, it is a phenomenon of an explosion in the productive-age population, which can be the basic capital in national development. In the Indonesian context, handling this demographic bonus is something that must be considered, because if it is not handled correctly, it will cause significant losses for Indonesia, so the demographic bonus at productive age must be able to get good handling, so that it has an impact on good things (Sutikno, 2020). The impact on the demographic context in this discussion is focused on transportation safety, so this accident is an important focus in this case.

Handling traffic accidents is indeed the focus of the Indonesian National Police (Polri) through its Traffic function, in terms of investigation and inquiry. However, this must also be a shared responsibility of all stakeholders and road users. In terms of those responsible for highways, Indonesia has two government institutions, namely the Directorate General of Highways and the Directorate General of Land Transportation, for handling safety infrastructure, road organizers and managers, and planning and aligning safety signs with road functions (Muksalmina et al., 2022). Then, the Police are the organizers and coordinators of road safety and law enforcement. Related to the role of protecting minors, the role of the National Commission for Child Protection (Komnas PPA) as a supporting element that focuses on child protection, plays a strategic role in policy advocacy and monitoring the implementation of handling and anticipating accidents in road space (Anjarani, 2020). In terms of traffic safety, that is not limited to the absence of accidents, but more broadly, namely, creating a safe, comfortable, and safe environment for road users. International understanding of traffic safety involves elements of government, business, and civil society, with the primary goal of increasing awareness of the importance of traffic safety (Sugiyanto & Santi, 2016). So, as a logical alternative to this accident problem, every element in every road user should be involved because the road space is so complex.

The analysis that emerged on collaborative governance based on the involvement of pentahelix actors, based on literature studies, significantly increased the coordination and effectiveness of cross-sector interventions in minimizing accidents involving minors in the East Aceh district. The participatory context of government elements, academics, the business world, the community, and the media can play a crucial role in accelerating the process of communication, decision-making, and implementation of policies in road

spaces oriented towards safety (Ansell & Gash, 2008). In the results found in the literature related to collaborative governance, there are challenges in the form of structural constraints related to limited resources, misalignment of information systems, and resistance to change from several parties (Nurza, 2024). Increasing coordination and effectiveness of cross-sector collaboration through implementing pentahelix-based collaborative governance shows theoretical alignment regarding the importance of synergy between actors in dealing with complex issues. Active participation of the government, academics, the business world, the community, and the media can increase responsiveness in policy implementation (Kelvin et al., 2022).

In handling these problems, active collaboration is needed between stakeholders from the government side first to formulate strategies that focus on reducing and minimizing the level of traffic accidents, which can be done through government forums such as the Traffic Safety Forum which contains stakeholders in the transportation sector to discuss the direction of handling traffic accidents. Here, the focus of collaboration is still limited to the government side, so the perspective is limited to state administrators in the field of road traffic. Therefore, it needs to be expanded again with the Pentahelix concept to synergize all existing elements for more optimal and comprehensive handling. Each element's role in the social interaction constellation needs to be focused on as a pillar in working together to handle this complex accident problem. This recommendation is based on the synergy between the government and other elements, namely the pentahelix, where the role of pentahelix collaboration is to innovate and contribute to existing problems (Halibas et al., 2017). In its orchestration, activities, facilities, services, and the creation of values and benefits for analyzing these problems require drivers, namely through the role of government, business, academics, communities, and the mass media (Vani et al., 2020). The context of handling accidents in East Aceh Regency can be constructed through a collaboration strategy using the pentahelix model.

1. Government

As previously explained, the government in its partial side has parts that accommodate interests in road space, such as the Police (Aceh Timur Police), the Ministry of Transportation (Aceh Provincial Transportation Agency/ East Aceh Regency Transportation Agency) and the Ministry of PUPR (BPJN) and the National Commission on Women and Children (Komnas PPA). A forum related to traffic discussions (Traffic Forum) has been held, but it is limited only to normative behavior and formalities, and is structured and rigid. The resolution of problems is limited to proposals, and follow-up is limited to budget allocation and bureaucracy.

2. Academics

The activities of universities in community service, research, and providing knowledge have been widely carried out, but their actions are limited to journals, scientific works, or meetings. So, they have been unable to provide a concrete influence on creating policies for handling this accident.

3. Business

The private sector context allocates funding for traffic accident prevention efforts, as well as for accident victims. Sustainability is still limited in this case, and the business actors only focus on the moment. The business sector also has an important role in handling traffic accidents.

4. Community

Community groups here focus more on community organizations, non-governmental institutions, and community members. Many community groups are also observers of accidents, but are still limited to partnerships and cooperation within the government.

5. Mass media

The media has a significant role in disseminating information, especially about traffic accidents. The media also plays an important role in disseminating content to maintain traffic safety.

IV. Conclusion

In its implementation, in order for the synergy between the pentahelix elements to be optimal, especially in their collaboration to focus on handling and prevention as well as persuasive education regarding accidents, it is necessary to strengthen the strategy, namely:

1. The formation of a large forum that is inclusive. By embracing all elements of society, stakeholders who care about handling traffic accidents can do so. With a multidisciplinary approach, the perspective and paradigm are increasingly broad, so they can compare all input suggestions for handling traffic accidents.
2. The formation of knowledge management in the existence of the forum. The importance of sharing knowledge, knowledge transfer, and active processes of cultivating knowledge activities that academics can initiate can help the elements of each stakeholder continue to update their knowledge about handling traffic accidents, along with their paradigm approaches.
3. Real action in the context of handling traffic accidents. When focusing solely on the government, the handling of procurement and road infrastructure repair is hampered by bureaucracy and the allocation of funds. So, with this inclusive forum, various suggestions and inputs can be realized immediately by involving the business sector in services to handle traffic accidents.
4. Knowledge sharing as a principle in knowledge dissemination. Mass media play an important role and do not only focus on their existence but must be a means or channel to provide education, socialization with educational content on traffic safety, and provide opinions that build and stabilize social explanations of the traffic accident phenomenon, focusing on education on safety knowledge massively.
5. Active and real collaboration from the community. The existence of suggestions and input from various paradigms and approaches, the most real means of implementation is for the community to implement and amplify the results of the forum to be disseminated to the surrounding community, so that the community is also a social supervisor of traffic safety.
6. Preparation of technical and regulatory frameworks for all parties. This can be in the form of preparing technical policies regarding distributing information and data between organizations in an inclusive forum while prioritizing benefits, confidentiality, and protection for the community. Preparation of a workflow between institutions to facilitate various parties who wish to collaborate with the government or other pentahelix elements. Preparation of operational regulations for the business sector to encourage the provision of facilities and infrastructure, as well as incentives for communities who play an active role, adjusted to the capabilities of the business sector.

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