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IDENTIFYING STAKEHOLDERS' ROLES WITH NET-MAPS: PAVING SAFER WALKS TO SCHOOL FOR CHILDREN IN MALAYSIA

Summary. The study's primary objective is to investigate stakeholders' roles in paving safer walks to school for children in Malaysia using Net-Maps. Net-Map, a systematic and interactive participatory technique, is employed to visualize and analyse complex social networks, aiding in the identification of key stakeholders and influential individuals. By leveraging this methodology, the study identifies crucial stakeholders essential for assessing the feasibility of walking to school in Malaysia. This approach enhances collaboration among stakeholders with diverse backgrounds and areas of expertise, contributing to shared objectives in improving pedestrian safety. The study found that government and political support, adequate budget allocation, and prioritizing safety are critical factors in advancing walking-to-school initiatives. Active stakeholder participation in decision-making is essential for securing their endorsement, which is vital for the successful implementation of these projects. Engaging stakeholders early ensures that safety measures are effectively implemented and sustained. Involving stakeholders in decision-making helps tailor policies to the unique needs of different regions in Malaysia, ensuring resources are efficiently allocated where they are most needed.

1. INTRODUCTION

Implementing safe pedestrian pathways protect children against accidents, injuries, and potential danger, cultivating a safe atmosphere during their trips to and from school. Safe pedestrian pathways facilitate regular physical activity, fostering a higher frequency of walking among children, thus enhancing their general health and well-being. Safe pedestrian routes ~~excursions~~ enable children to cultivate autonomy and self-assurance in traversing their environment. Enhancing the safety of walking to school diminishes the need for cars, thereby reducing traffic congestion and lowering carbon emissions and, in turn, contributing to a more sustainable environment. Safe pedestrian pathways promote community engagement by encouraging parents, children, and neighbours to walk and connect with each other, cultivating a more cohesive neighbourhood. Moreover, children who commute to school without any safety concerns are more likely to reach school punctually and be prepared for learning, which promotes academic achievement and enhances the overall school experience. However,

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in Malaysia, walking to school is possible but it is not always a safe or practical option. There are several risks involved. An important issue is the significant amount of traffic and unpredictable driving habits, especially in urban areas where road safety may be affected due to excessive speeding, inadequate pedestrian crossings, and insufficient road maintenance. In addition, the tropical climate presents unique difficulties. For instance, children may face the risk of dehydration or accidents due to the combination of high temperatures and frequent rainfall. Additionally, there is potential for criminal activity, such as minor theft or harassment, which may be worrisome in locations with lower levels of security.

Moreover, the absence of dedicated pedestrian routes in certain regions may compel children to travel along congested and hazardous streets. The combination of these elements increases the risk associated with walking to school, emphasizing the necessity for enhanced infrastructure and safety precautions. What is the cause of these problems and who is responsible for them? Based on the significance of safety when walking to school in Malaysia, this study intends to identify stakeholders' and agencies' responsibilities in providing sufficient facilities and infrastructures as well as recognizing problems. This study proposes that stakeholders and agencies are the main catalysts and have the most significant impact on transforming the reality of safe walking to school in Malaysia. However, this research does not examine the dangers associated with walking to school. Instead, it focuses on the involvement of agencies and stakeholders in providing safety facilities and infrastructure to promote walking to school among children. The Net-Map methodology is a suitable methodology for identifying the roles played by stakeholders and agencies in creating safer walks to school in Malaysia. Our previous findings [2, 3] highlight the significance of both the government and schools in facilitating a walkable environment for children. It is crucial to emphasise the role of the government, as our research has demonstrated that their willingness and efforts to create such an environment are as important as the motivation of children and parents to allow walking to school.

This study's main goal is to provide a better understanding of stakeholder identification using Net-Maps, thereby enhancing pedestrian route safety. Net-Map (short for "network mapping") is a methodical and interactive participatory technique employed to facilitate the visualization and analysis of intricate social networks. The main purpose of this tool is to aid individuals or groups in comprehending relationships, identifying influential actors, and gaining a more profound comprehension of a specific context or subject. The participants in previous studies demonstrated a considerable level of expertise and familiarity in the field of traffic safety. The utilization of this methodology enables the acquisition of more substantial data from the present study, as it has facilitated the identification of a significant stakeholder who plays a crucial role in evaluating the feasibility of walking to school in Malaysia. This tool enhances cooperation among individuals with varying interests and cultural backgrounds to collectively accomplish common goals. According to [8], the tool is simple and affordable, making it appropriate for individuals residing in rural communities with limited access to formal education. Additionally, the tool can be utilized by policymakers and stakeholders involved in international development efforts. Net-Map was developed by Eva Schiffer, a distinguished social scientist, and has gained significant traction across multiple academic disciplines, such as sociology, anthropology, development studies, and organizational analysis. This tool has significance in establishing a shared understanding of highly controversial topics. The tool was utilized by the White Volta Basin Board in Ghana to facilitate access to and effectively manage limited water resources. In a recent study conducted by [7], Net-Map was employed to facilitate the expansion of micro-retailers' influences in underserved areas of Kenya, specifically in the neighbourhood of Dukas. This expansion not only involved business-related activities but also encompassed engagement in various sectors such as health, agriculture, and education. Additionally, the Net-Map technique was employed to map various entities involved in the field of nutrition in India to extract valuable knowledge through a comprehensive analysis of the network and exert an impact on the mapping process [10]. According to [5], the purpose of Net-Map is to help individuals clarify intricate decision-making processes and formulate a successful strategy that takes into consideration multiple perspectives. Through the utilization of Net-Map, individuals can identify the participants or actors within a given network, comprehend the interconnections between them, evaluate their degree of influence, and ascertain their respective objectives. In addition, C. Sattler [7] analysed governance innovation processes in Europe, specifically in Finland, Germany, and Sweden, using the Process-Net-Map. This tool is used to gather and analyse

data to visually represent the innovation process in relation to a chronological timeline. The map presented all relevant events and individuals associated with the subject matter while also emphasizing the challenges faced and achievements attained during the endeavour.

When used to create visual representations of a social network, a Net-Map involves several steps, as illustrated in Fig. 1. The first step is to define the issue, the purpose of the mapping exercise, interview questions, and participants who need to be interviewed. A large sheet of paper or mapping sheet is positioned prior to data collection. The interviewees are asked to write down the names of the actors (individuals, groups, or organisations) that can influence the issue being examined. The names of the actors should be placed on actor cards and distributed on the map as nodes. It is highly recommended to use different colours of cards for different actors to enhance the clarity of the map. The third step involves identifying the relationships between actors. These relationships can be represented as lines connecting the nodes. In situations where actors exchange items, the arrow is depicted with dual heads. If two actors exchange multiple items, a link with several arrowheads of varying colours should be used. The level of influence of power for each actor within the network should be discussed in the fourth stage. According to [8], greater influence leads to taller towers, and actors with no influence can be placed at the ground level. Alternatively, actors' influences can be illustrated by the size of the circle or any other shape [1]. The fifth step focuses on discussing the goals or objectives of different actors. These can be depicted by noting the abbreviation next to actor cards. Once the map is completed, interviewees should be encouraged to reflect on their maps and adjust them if needed.

The documentation of the final Net-Map, along with the insights derived from the participants, is of utmost importance due to its utility in analysis, dissemination to stakeholders, and importance in the decision-making process. These insights can also be utilised to inform strategies and interventions pertaining to the network. Moreover, the process of mapping can be instrumental in identifying prospects for collaboration, areas that require enhancement, and potential points of leverage. It is important to acknowledge that the Net-Map exercise can be an iterative process encompassing multiple rounds of discussion and subsequent modifications to the map. According to [6], the process can improve the understanding of a specific situation in which individuals, groups, and organisations cooperate or compete in order to achieve common goals.

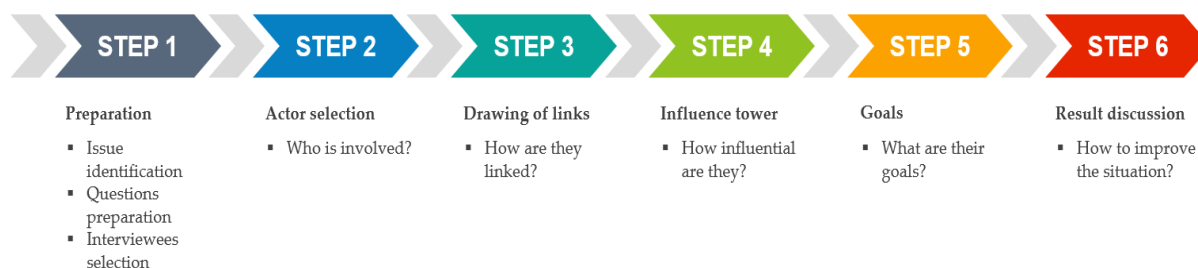


Fig. 1. Steps to use the Net-Map method. Source: Adapted from [7]

2. METHODOLOGY

Net-Map is a software application used for analysing social networks and mapping. It helps visually represent and analyse the relationships and interconnections within a network of individuals or institutions. Complex networks are commonly used to analyse and understand complex systems in various fields, including organisational management, development projects, and social research. When the Net-Map methodology is used for "identification", the main goal is to identify and acknowledge the major stakeholders, players, or influencers in a given network. The Net-Map methodology involves creating a visual representation that illustrates the interconnection of a network.

One goal of the Net-Map process is to identify actors who represent formal organisations that possess a comprehensive understanding and active involvement during the planning stage. These actors possess dual roles as parents and members of a parent-teacher association, thus necessitating a comprehensive

understanding of the grassroots issues to effectively implement this approach. The actors involved in this activity volunteer to promote and establish a pedestrian-friendly environment for children's travel to and from school despite potentially having varying motivations. The moderator elucidates the prevailing circumstances and subsequently identifies the various stakeholders who ought to be included in the discourse. Moreover, it is crucial to recognise the significance of this approach in ensuring that actors acknowledge the potential existence of a reciprocal relationship between two distinct agencies or stakeholders involved in the development of the walk to school programme. The participants involved in this Net-Map process are instructed to create a visual representation, in the form of a map, which encompasses nodes that symbolise individuals or entities, as well as links that symbolise relationships or interactions. In addition, it is possible to allocate attributes or qualities to the nodes in order to delineate their roles, influences, or significance within the network. The moderators addressed the research questions outlined below:

Research Question 1: Who are the key players and stakeholders involved in the establishment of the walk to school programme in Malaysia?

Research Question 2: What is the extent of their involvement, and what roles do they play?

Research Question 3: Which individual possesses the most elevated position and associated duties?

Research Question 4: What key issues and challenges were faced by the most prominent and significant agencies?

This study followed a qualitative case study approach, which was deemed appropriate for obtaining comprehensive and detailed insights into each case. The interview-based research method was also utilised to conduct participatory mapping of significant events and the individuals involved in a specific development process that is being investigated. The interviewees were encouraged to actively participate in the mapping exercise by engaging in the creation of event and actor cards. C. Sattler [7] has also used these methods to gain a deeper understanding of the development processes of three governance innovations through a two-part method comprising a retrospective analysis of their historical development and a prospective analysis of their future potential. The innovations examined include Habitat Bank in Finland (initiated in 2014), a national-level payments for ecosystem services initiative at its "baby stage", "adult stage", and "childhood stage" that promotes environmental awareness through cultural services provided by a science museum. Data were collected through Process-Net-Map interviews in Helsinki, Güstrow, Gothenburg, and Lund, targeting knowledgeable individuals about each innovation's process. M. Lubungu and R. Birner [5] used the same methodology in their study on rural farmers, which focused on identifying the innovation process in Zambia. Therefore, the primary rationale for selecting this method in the present study was its participatory nature and its capacity to effectively capture the perceptions of the interviewees. This study analysed the developmental process of governance. A summary is provided at the end, followed by a literature list.

3. FINDINGS

The process of transcribing discussion holds significant importance in qualitative research and social network mapping, as it enables researchers to engage with the interview data in a more efficient and structured manner. The process of converting recorded responses from participant interviews into a written format is known as transcription. The current discussion specifically focuses on child safety during walks to school in Malaysia. The discussion was conducted with a range of stakeholders, including parents, teachers, school administrators, government agencies, and community members. The primary objective of the discussion was to collect data pertaining to individuals' perceptions, roles, responsibilities, and contributions in ensuring child safety during their commute to school in Malaysia. The discussion was documented through written transcription, contingent upon the researcher's chosen approach, and consent was obtained from the participants. After the discussion was transcribed, the text data were utilised for qualitative analysis and the creation of actors for Net-Map. This Net-Map was used to identify the principal stakeholders and relationships, as well as the dissemination of information and resources pertaining to the issue of child safety during the commute to school in Malaysia. The

and facilities and road safety. I think maybe we need to add the key player for knowledge input (the one who provides the knowledge on road safety to the students and others).

Researcher: As far as I know, we still do not have a walking to school programme, right? Because MIROS only provide the recognition for Safe School (Sekolah Selamat).

Participant 2: Yes, it is true. So far, we have not organized such a programme.

Participant 3: Normally, the walking to school programme is part of the school initiatives.

Participant 1: Furthermore, the Malaysia IATSS Forum Alumni (MIFA) also just started their collaboration with schools/universities where the programme teaches students how to walk on the roadside.

Participant 5: I would like to suggest the Ministry of Science, Technology, and Innovation (MOSTI) because I think the weather is also one of the factors which influence students' walks to school. Also, I think we can add the Jabatan Penerangan Malaysia (JAPEN) and the insurance company.

Participant 2: I would like to suggest the Ministry of Investment, Trade, and Industry (MITI) because they are the ones who regulate automotive manufacturing and policies, which can also lead to children's safety. I think the most important is the minister or chief secretary because they play the key role of ensuring that high-impact projects are implemented. We can also add non-governmental organisations (NGOs) and academicians for educational and awareness purposes.

Question 2

What are their roles in the implementation of the children walking to school programme?

Participant 6: For the future context, the key players that should provide the road infrastructure and facilities should be the local authorities (town planning). For the existing context, I think the data (evidence-based) are from schools. For instance, the school will give information on the children's safety, and they will also provide some suggestions on the improvement needed for infrastructure and facilities.

Participant 2: I think schools will provide input related to the issues and problems to the local authority, Ahli Dewan Undangan Negeri (ADUN), Ministry of Works (KKR), parents (PIBG), and Malaysian Institute of Road Safety Research (MIROS).

Participant 3: It is true that Ahli Dewan Undangan Negeri (ADUN) usually receives information from schools because they are part of the governing system, so they do have information, especially on funding from the state. Aside from that, they are also part of the exco on infrastructure and facilities.

Researcher: Okay, the next role will be providing data/information to other key players.

Participant 1: I would suggest that the police provide data to the Malaysian Institute of Road Safety Research (MIROS), the Ministry of Works (KKR), the local authority, and the Road Transport Department (JPJ).

Participant 4: I would like to elaborate more on the Ministry of Education. They have information on the students' safety information, which is under the department of Pengurusan Sekolah Harian (PSH). Normally, all the data from the Ministry of Education is available upon request, so any agencies that would like to acquire the data need to apply for the data.

Participant 3: Other than that, in terms of data supply, the Malaysian Institute of Road Safety Research (MIROS) normally distributes data which have been analysed to the Ministry of Transport (MOT) and local authorities.

Participant 2: The Minister of Transport chairs the National Road Safety Council, which comprises all road safety stakeholders in the public and private sectors. It deliberates on current road safety issues and allocates some funding to members to carry out road safety initiatives. I would like to give suggestions regarding the open data source. Usually, the Malaysian Institute of Road Safety Research (MIROS) must acquire some of the open data from the Department of Statistics.

Participant 3: For the ministry, the Ministry of Education normally provides information to the Ministry of Works (KKR).

Participant 2: In addition, I would like to suggest the state government because they chair the state-level road safety council and coordinate road safety initiatives within their states. But the state

government needs to acquire that information from the Malaysian Institute of Road Safety Research (MIROS), local authority, police, and the Road Transport Department (JPJ).

Participant 1: In terms of funding, the Economic Planning Unit (EPU) will distribute the funding to the ministries after the proposal paper has been presented in the Cabinet meeting, while for the local authority, normally, they get funding from the State or from the Ministry of Local Government and Development (KPKT). Other than that, the Ministry of Transport (MOT) provides funding to the Malaysian Institute of Road Safety Research (MIROS).

Participant 2: For insurance companies, they can provide data to the Malaysian Institute of Road Safety Research (MIROS).

Question 3

Now, participants are required to stack based on their roles that have been discussed earlier.

Researcher: Stacking will indicate their roles. Higher stacking will show that the key players have the most important roles in ensuring the programme will be successful.

Researcher: Six for the Malaysian Institute of Road Safety Research (MIROS) and Economic Planning Unit (EPU), five for the local authority and minister or chief secretary (KSU), three for the state government and Ministry of Works (KKR), two for the Ministry of Transport (MOT) and Ministry of Local Government and Development (KPKT), and one each for the community, police, parents, Road Transport Department (JPJ) and non-governmental organisations (NGOs).

Researcher: Referring to the staking, if the Malaysian Institute of Road Safety Research (MIROS) initiates the programme, would it be successful?

Participant 6: Although the Malaysian Institute of Road Safety Research (MIROS) is part of the main role, they can only provide the evidence. The most important is the Economic Planning Unit (EPU) because they are the ones who provide the funding, but from the Economic Planning Unit (EPU) perspective, they only provide the funding based on priority, whilst safety is of the lowest concern in Malaysia.

Researcher: I have heard that the Walking School Bus initiative has been introduced in Putrajaya.

Participant 2: I think it is because of the parents and local authority. Parents do not encourage their children to walk to school although they do have good infrastructure and facilities, while the local authority also does not enforce the regulations or make it compulsory for all students to walk to school.

Question 4

What are their goals if the children walking to school programme is to be conducted?

Participant 1: For parents, community, and school, they prefer the element of safety, while for the police, the Ministry of Transport (MOT), and the Malaysian Institute of Road Safety Research (MIROS), they would prefer a reduction in mortality rate. For the Economic Planning Unit (EPU) and the local authority, normally, they opt for cost-effectiveness, and the Ministry of Education usually focuses more on health when referring to the sustainable development goals (SDG) context.

Researcher: From our discussion, are there any key players that seem to have the least role function but a greater impact?

Participant 6: I think schools can actually play an important role in empowering this walking to school programme. Schools need to have the willpower and willingness to conduct the programme because they can provide initiative for the students to walk to school. For instance, schools can focus on a few residential areas in which those students who are living in those areas are forced to use walking as a mode of commuting to school without having to collaborate with other specific agencies. Only include the school community, parents (PTA), and students.

4. DISCUSSIONS

Based on the Net-Map analysis, the study concludes that the ministries and policymakers have a significant role because they set the budget for facilities and services in Malaysia and are the source of policy decisions. Furthermore, it is noteworthy that in the majority of decision-making scenarios and authoritative domains, the minister and the policymakers themselves are also indirectly involved in the endeavour to create a safer route to school. The hierarchical nature of governance is evident in the decision-making process, causing challenges for other stakeholders such as schools, NGOs, and parents. The recognition and understanding of stakeholders and their roles in the Malaysian environment of walking to school are crucial for several compelling reasons. Stakeholder engagement is essential for ensuring the effectiveness of policy design and execution. Stakeholders encompass a diverse array of perspectives, such as those of parents, students, teachers, government officials, urban planners, and community members. Furthermore, certain agreements and permissions from the ministry are required before schools, through the parent-teacher association (PTA), can create a programme on safe walk-to-school. In addition, the absence of standardised comprehensive programmes in schools and the lack of collaboration between the community, government, and schools are identified as further concerns. While the Malaysian Institute of Road Safety (MIROS) focuses on safety studies and research, it is important to note that the institute operates under the ministry and is subject to budgetary constraints approved by the economy planning unit. From a governmental perspective, it is advisable to designate the Economic Planning Unit (EPU) as a key player in ensuring the quality and integrity of the planning process, including the development and implementation of strategies related to child safety while walking to school. Alongside the EPU, other pertinent ministries should be involved: the Ministry of Transport (MOT) to address transportation safety issues, the Ministry of Economy (MOE) to consider economic factors impacting infrastructure development, the Ministry of Works (KKR) to oversee road maintenance and safety measures, the Ministry of Local Government and Development (KPKT) to ensure local governance supports safe walking routes, and the Ministry of Education to incorporate safety education into school programmes. PLANMalaysia should also contribute its urban planning expertise. At the local level, the Ahli Dewan Undangan Negeri (ADUN) can represent community concerns. Additionally, the Malaysian Institute of Road Safety Research (MIROS) could support these efforts by offering valuable research and expertise on road safety. In addition, the Ministry of Investment, Trade, and Industry (MITI) should be considered due to its regulatory role in automotive manufacturing and related policies, which directly impact road safety and, consequently, children's safety. The involvement of the minister or chief secretary is crucial, as they are responsible for overseeing and ensuring the successful implementation of high-impact projects, including those related to child safety. Furthermore, incorporating non-governmental organisations (NGOs) and academicians can enhance the educational and awareness aspects of child safety initiatives. NGOs can provide grassroots support and advocacy, while academicians can contribute research-based insights and educational programmes to foster greater awareness and safer practices.

Furthermore, it is essential to discuss the willingness and trust of parents in their children's capacity to walk to school. Factors such as distance, road users' behaviour, weather, and scheduling might be key considerations when deciding whether to allow children to walk to school. According to a study conducted by Harumain et. al [3], it may not be feasible for children to travel to school on their own, even if they live only 500 meters away, without the approval and confidence of their parents. Participant 6 emphasized that while the Malaysian Institute of Road Safety Research (MIROS) plays a crucial role in providing evidence-based insights on road safety, the Economic Planning Unit (EPU) is pivotal, as it allocates funding for various initiatives. However, the EPU often prioritizes funding based on broader priorities, and safety concerns may not always be at the forefront in Malaysia. The researcher noted the introduction of the Walking School Bus initiative in Putrajaya, which Participant 2 attributed to a lack of encouragement from parents and insufficient enforcement by local authorities despite the presence of good infrastructure. For a walking-to-school programme to be successful, goals vary among stakeholders. Parents, communities, and schools prioritize safety; the police, Ministry of Transport (MOT), and MIROS focus on reducing mortality rates; the EPU and local authorities emphasize cost-effectiveness; and the Ministry of Education aligns with health objectives under the sustainable

Engaging various stakeholders makes it possible to ensure that policies and strategies are comprehensive and consider the diverse requirements of the community. Actively involving stakeholders facilitates the identification of the most important challenges pertaining to the practice of walking to school in Malaysia. Parents may exhibit apprehension regarding the safety aspect, while students may possess valuable perspectives on the convenience of transport routes. Furthermore, urban planners can contribute their expertise in evaluating infrastructure and ensuring accessibility. Comprehending these matters is imperative to devise efficacious resolutions. When stakeholders are actively engaged, they assume the role of co-creators in the development of policies and strategies. The involvement of individuals guarantees that the formulated policies are pragmatic, implementable, and enduring. Additionally, it increases the likelihood of policy acceptance and successful implementation. The involvement of stakeholders in the decision-making process enhances the likelihood of their support and advocacy for policies and initiatives. The acquisition of buy-in from stakeholders is a crucial factor in ensuring the effective execution of any initiative pertaining to the promotion of walking to school. Stakeholders possess a comprehensive understanding of the local context and are knowledgeable about the distinct challenges and opportunities within their communities.

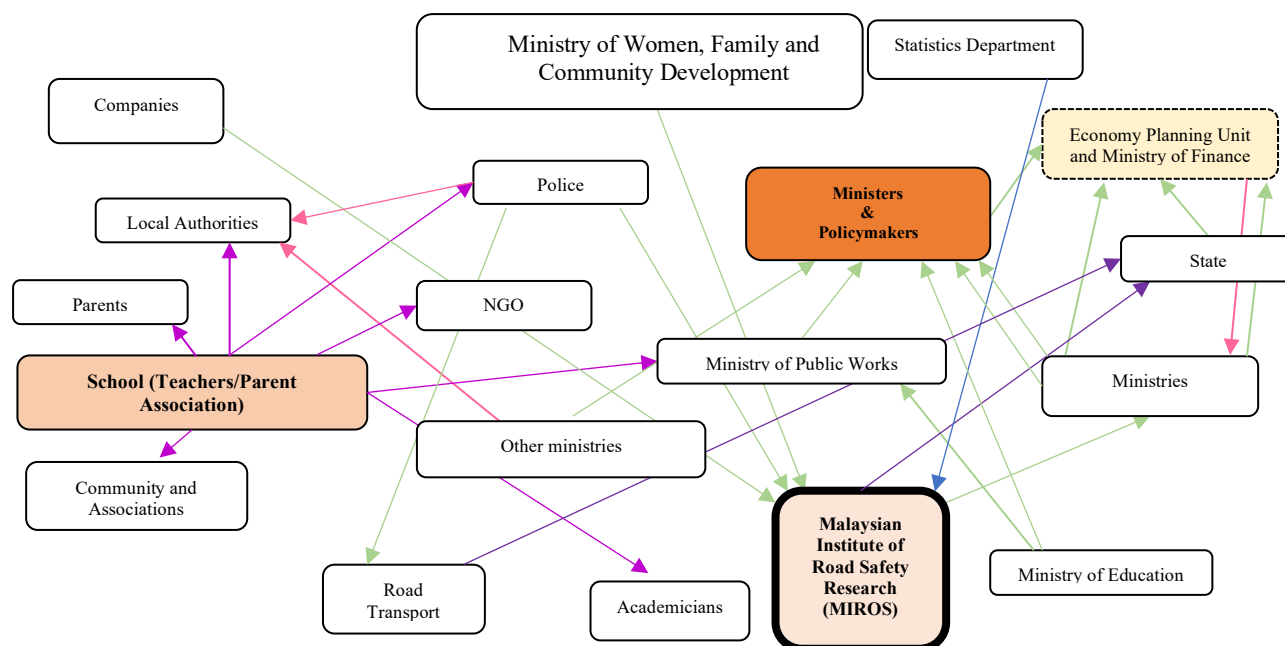


Fig. 3. Digitalizing the Net-Map findings

The contributions provided by individuals assist in customising policies and interventions to cater to the distinct requirements of various regions within Malaysia. The efficient allocation of resources can be facilitated by comprehending the needs and priorities of diverse stakeholders. This approach guarantees that investments are allocated to the areas that require them the most, thereby maximising the utilisation of resources. The inclusion of stakeholders in the decision-making process facilitates the enhancement of transparency and accountability. This principle establishes accountability for decision-makers and safeguards against policies being influenced solely by political motivations instead of prioritising the welfare of the community. The involvement of stakeholders facilitates the continuous provision of feedback and assessment of policies. Continuous assessment plays a crucial role in facilitating the implementation of necessary policy adjustments, thereby contributing to improved outcomes over a period. The engagement of stakeholders facilitates the empowerment of communities, enabling them to assume responsibility for the matter at hand. This phenomenon could give rise to

grassroots initiatives, volunteer endeavours, and community-led solutions that complement governmental endeavours. In numerous instances, the involvement of stakeholders is not solely a commendable approach but is also a legal obligation. The inclusion of affected parties in the decision-making process is often required by laws and regulations. Neglecting to engage in such consultation can lead to legal disputes and opposition from the public. In the Malaysian context of commuting to schools, the active engagement of various stakeholders, including parents, students, educators, urban planners, government authorities, and community organisations, could foster the development of safer, more accessible, and efficient pathways for students to reach schools. Additionally, it cultivates a sense of community engagement and collective accountability for the welfare of students, thereby potentially yielding enduring beneficial outcomes for Malaysian society.

4.1. The role of the government and politicians' willingness

Safe Routes to School (SRTS) was introduced nationwide in America. The existing federal transportation legislation, known as the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), allocated a total of \$612 million to the promotion of walking and bicycling as viable transportation options for children [6]. The objective of this funding programme was to enhance the safety and attractiveness of these modes of transportation. Managers of Safe Routes to School (SRTS) can facilitate the establishment of programmes within various regions through the designation of routes and the recruitment of volunteers. While the effectiveness of government intervention and political commitment in resolving this issue remains uncertain, the implementation of this initiative may support parents, communities, and educators in promoting the adoption of the walking to school programme. It is unclear, however, whether there are differences between schools located in rural areas and states other than Kuala Lumpur. In summary, despite the possibilities of enhancing infrastructure and the preparedness of schools to implement the walk to school programme, there remains uncertainty regarding perceptions of and support for the community and parents towards these initiatives. O. Stewart et al. [10] also found that the presence of built environment factors may have played a role in the development of parental apprehension regarding traffic and criminal risks. The absence of infrastructure to support pedestrians and cyclists, such as sidewalks, bike paths, walking trails, street trees, lighting, and windows facing the street, along with limited connectivity of the street network, which restricts the availability of walking routes with lower traffic volume, and the presence of barriers such as major streets and railroads along the designated paths. Young children may be particularly susceptible to traffic and criminal hazards because of their ongoing physical, cognitive, and psychosocial development.

4.2. The influence of budget on investment in facilities

The allocation of financial resources towards enhancing infrastructure and facilities. Investments in walkways near school neighbourhoods are frequently cited as significant factors in promoting safety and encouraging the adoption of walking initiatives for commuting to school. In Japan, certain sections of residential and educational zones may lack adequate pedestrian infrastructure, resulting in children having to traverse shared roadways alongside various modes of transportation on their way to school. However, before each academic year, school administrators, law enforcement officials, parents, and community organisations collaboratively designate and establish specific routes for students. Through this initiative, all parties responsible for ensuring the safety of children walking to school actively participate and ensure that children are adequately protected while walking, even in areas where dedicated walkways are absent. Regarding the matter at hand, the implementation of a community car patrol has been established to monitor the surrounding neighbourhood and areas frequented by schoolchildren, with the primary objective of ensuring their safety during road crossings. This indicates that the potential impact of budget allocation, financial resources, and investment in facilities would not be a determining factor in this scenario.

4.3. Making safety a priority

N.C. McDonald and A.E. Aalborg [3] found that modifying the travel behaviours of the 50% of children who were transported to school by car despite being permitted to walk unaccompanied presents a significant difficulty. In addition, the research found that parents who have safety concerns may modify their behaviour by arranging for their children to be accompanied by trusted adults during their commute to school. Nevertheless, it may prove to be more challenging to enhance the frequency of walking among the approximately 40% of children who are permitted to walk independently but are driven for the sake of convenience. The issue of parental perception regarding the convenience of their children's transport to school is a multifaceted and intricate matter. Multiple factors contribute to this perception, and it is imperative to comprehend them in order to effectively address the challenges associated with promoting walking to school in Malaysia and comparable contexts. Parents frequently experience demanding schedules, encompassing professional commitments, domestic tasks, and various other obligations. Parents may perceive the act of driving their children to school as a time-efficient alternative, particularly when considering the comparatively long duration required for walking. The perception of convenience can play a significant role in individuals' decision-making processes. Parents may perceive walking to school as less predictable due to various factors such as adverse weather conditions or potential delays. The perceived inconvenience associated with managing such uncertainties can impact individuals' decision-making processes. Numerous parents engage in the simultaneous management of various responsibilities, such as transporting multiple children to distinct schools, commuting to their places of employment, and overseeing domestic chores. As a result, the prevailing options for most children are limited to supervised walking. Therefore, the way they travel to school depends on scheduling constraints and the transportation choices of the adults who are responsible for them.

Individuals may perceive driving as a more effective means of incorporating obligations into their daily schedules. Although walking is generally perceived as a safe mode of transportation, parents may harbour apprehensions regarding the safety of their children while walking to school, especially if the chosen route requires their children to cross heavily trafficked roads or areas with restricted visibility. The prioritisation of perceived safety in driving can surpass other factors. A significant number of households residing in urban and suburban regions of Malaysia possess automobiles, with the car frequently being regarded as an emblem of convenience and luxury. The perceived comfort and shelter provided by car transportation may make it a more appealing option for parents when considering the transportation of their children. The decisions made by parents regarding their children's transportation can be influenced by social norms and peer pressure. If a significant number of parents within a community opt to transport their children to school by car, other parents will likely adopt this behaviour as well to adhere to prevailing social expectations. It is imperative to consider the perceived convenience for parents when promoting active transport to school while also recognising the various challenges they encounter in their everyday routines. The establishment of collaborative initiatives involving schools, local governing bodies, and parents can effectively achieve a harmonious equilibrium between the convenience of individuals and the overall welfare of children.

5. CONCLUSIONS

The active participation of stakeholders in the decision-making process increases the probability of obtaining their endorsement and promotion of policies and initiatives. Securing the support and agreement of stakeholders is a vital element in guaranteeing the successful implementation of any endeavour related to the advancement of walking to school. Stakeholders demonstrate a thorough understanding of the specific circumstances and unique obstacles and prospects inherent in their localities. The involvement of individuals plays a crucial role in tailoring policies and interventions to meet the specific needs of different regions in Malaysia. The comprehension of the needs and priorities of diverse stakeholders can facilitate the efficient allocation of resources. This methodology ensures that investments are distributed to the areas with the greatest need, thereby optimising resource utilisation.

The involvement of stakeholders in the decision-making process promotes the improvement of transparency and accountability. This principle serves to establish a system of accountability for decision-makers and safeguards against policies that are driven solely by political motivations, thereby prioritising the well-being of the community. The active participation of stakeholders enables the ongoing solicitation of feedback and evaluation of policies.

Continuous assessment plays a pivotal role in facilitating the implementation of essential policy adjustments, thus making a significant contribution to enhanced outcomes over time. Various stakeholders play crucial roles in empowering communities, allowing them to take ownership and accountability for the issue under consideration. This phenomenon possesses the capacity to engender grassroots initiatives, volunteer endeavours, and community-led solutions that function as a supplementary component to governmental endeavours. In various cases, the engagement of stakeholders is considered not only a praiseworthy strategy but also a mandated legal requirement. The involvement of stakeholders in the decision-making process is frequently mandated by legal and regulatory frameworks. Failure to participate in such consultation can result in legal disputes and public opposition. In the specific context of commuting to schools in Malaysia, the active involvement of multiple stakeholders, such as parents, students, educators, urban planners, government authorities, and community organisations, could promote the creation of safer, more accessible, and efficient routes for students to travel to school. Moreover, it fosters a sense of community involvement and shared responsibility for the well-being of students, which could result in long-lasting positive effects on Malaysian society.

To foster the adoption of walking to school in Malaysia, it is imperative to address the prevailing challenges through urban planning, enhanced pedestrian infrastructure, road safety initiatives, public awareness campaigns, and active community involvement. Promoting the creation of safer and more pedestrian-friendly surroundings can enhance the feasibility of children walking to school, thereby allowing them to reap the advantages associated with this mode of transportation. The act of commuting to school on foot is undeniably a crucial component of a child's growth, as it promotes engagement in physical exercise, cultivates self-reliance, and instils a notion of accountability. Nevertheless, the act of commuting on foot to school in various urban and suburban regions of Malaysia often presents considerable difficulties. Rapid urbanisation and the suburban sprawl in Malaysia have contributed to the spatial expansion of cities and towns, increasing the distances between residential areas and schools. A significant number of children reside considerable distances from their schools, rendering walking an impracticable mode of transportation owing to the extended duration of travel. Insufficient pedestrian infrastructure, including sidewalks, crosswalks, and pathways designed to accommodate pedestrians, is a prevalent concern observed in numerous residential areas across Malaysia. The absence of proper infrastructure poses a significant risk to pedestrian safety, particularly when they navigate roads with high traffic volumes. The issue of ensuring the safety of children during their commute to school is of utmost importance.

The road network in Malaysia frequently experiences traffic congestion and may exhibit deficiencies in terms of traffic management. Concerns have arisen among parents regarding their children's ability to navigate through heavily trafficked streets, especially during periods of high congestion. Malaysia has a tropical climate characterised by elevated temperatures and substantial precipitation. Severe meteorological phenomena can render the act of commuting to school on foot an unpleasant and potentially hazardous experience, given the scarcity of protective cover against precipitation and extreme temperatures. Certain Malaysian communities have a set of cultural norms and practices that may deter children from engaging in independent walking, particularly within urban settings. Parental decisions regarding whether their children walk to school can be influenced by various factors, including concerns related to safety, stranger danger, and adherence to social norms. Traffic congestion poses a substantial concern in numerous urban areas in Malaysia, resulting in erratic travel durations and an escalated likelihood of pedestrian-related accidents. Walking to school can potentially be a source of stress and compromise safety. Numerous parents hold the perception that transporting their children to school by car is a more convenient and time-efficient alternative, particularly when faced with multiple obligations and time limitations.

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