

Standalone Vs. Integrated Sia Governance: A Systematic Review of Malaysian and International Frameworks

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ABSTRACT

Social Impact Assessments (SIA) are becoming more of a tool of social accountability, rather than compliance. However in Malaysia, the process is still very fragmented. In this review, the authors seek to shed light on how mature standalone SIA is in Malaysia in comparison to integrated SIA-EIA systems worldwide. There are inter-sectorial standardization issues of current frameworks, especially in relation to public accountability and closed systems, as Malaysia is the only country that has a specific legislation for the SIA process, but has not yet been able to progress to a mathematically-centred reporting system (e.g., value crystallization and causal mapping) which has been achieved in advanced integrated systems. Looking ahead, the writer and other Malaysian SIA proponents would look forward to have a "Geo-Impact" system in Malaysia that will incorporate the management of social impacts with spatial planning, and move towards a more integrated system.

Keywords: Social Impact Assessment (SIA), Environmental Impact Assessment (EIA), Impact Governance, Integrated Assessment Framework, Standalone SIA

INTRODUCTION

SIA emerged in the early 1970s at the same time as EIA as a methodological approach to predict and address the social impacts of development planning, especially large-scale construction projects and energy developments in rural communities (Freudenburg, 1986, 2019). SIA has grown beyond initial regulatory compliance over 50 years, to a social process that addresses social topics across the project lifecycle including human rights, social, community engagement and benefit-sharing, and social license to operate (Vanclay, 2020, 2023). There is growing awareness of the importance of SIA as a key element of development planning that considers the social aspects of projects, as well as environmental and economic. The concept of SIA was also employed as a theoretical prism to understand the impact of group identities on the appraisal, coping and justice seeking processes in response to past state violence. Social Cures and Social Curses are communities that can act as either "Social Cures" (support, shared identity, coping with stress) or "Social Curses" (exclusion, fear, denial of wrongdoing) in post-dictatorship contexts (Këllezi et al., 2022).

The Town and Country Planning Act 1976 (Act 172) and the subsequent post-2017 amendments introduced a standalone SIA mechanism in the Malaysian context, albeit with some prevailing issues like regulatory fragmentation and inadequate monitoring of SIA plans (Social Impact Management Plans (SIMPs)) (Rani & Sinniah, 2025; Suaree et al., 2022). This highlights the need for an integrated approach to promote the sustainability and social governance of development. This fragmentation has led to a number of regulatory mandates for SIAs to be carried out in an integrated framework like the SIAs in New Zealand and parts of Europe. The incorporation of the social assessment into environmental assessments has helped to achieve development projects that are more sustainable. The federal planning reviews and the SIA framework are geared towards the social impact governance (Khairi et al., 2022; Suaree et al., 2024a).

LITERATURE REVIEW

Malaysia's Standalone SIA Experience and International Comparisons

The experience of Malaysia concerning standalone SIA is influenced by a history of legislative traditions and a regulatory framework that is still developing and is less mature than its EIA counterpart. While the SIA legal framework was a milestone when it was introduced in 2017, the framework is unevenly applied, has inadequate cross-agency collaboration and has a limited enforcement framework related to SIMPs. These issues directly impact the community in a negative way by failing to sufficiently address the community's concerns over representation and the lack of mechanisms to address their grievances. By contrast, New Zealand, Taiwan and others have a more integrated SIA-EIA model which is more balanced. These models have systematic and consistent stakeholder participation as well as comprehensive, open and impact reducing social harm and legitimisation of the project through effective social impact mitigation. This comparison highlights the areas that SIA practice in Malaysia can be improved, especially participation and delineation of stakeholder roles throughout the project (Makmor et al., 2021; Suaree et al., 2024b).

This is because, without understanding the political economy environment in which the standalone SIA framework works, the weaknesses cannot be fully understood. This development and implementation of SIA in Malaysia has been shaped by a number of factors: (1) the federal-state administrative structure which resulted in fragmented responsibilities and coordination issues; (2) the influence of development interests, such as the interests of resource extraction and infrastructure, which may not be keen about the development of robust SIA processes that could slow down or limit projects; (3) the bureaucratic capacity constraints at both federal and state levels, including limited technical expertise in SIA and insufficient resources for monitoring and enforcement; (4) the historical trajectory of SIA implementation, that is, the dominance of EIA over SIA which resulted in institutional path dependency and the lack of attention on social aspects; and (5) the political sensitivity of certain development projects, which may lead to discretionary decision making that undermines the integrity of the SIA process. Importance of these political economy factors must be understood to be able to design effective reforms that take care of the technical and institutional aspects of SIA governance.

Methodological Integration (Technocratic and Participatory Approaches)

The literature reveals a clear and consistent focus on the need for the integration of the technocratic and participatory approaches in impact assessments. For example, international best practices, such as flood management projects in Taiwan and the management of renewable energy in Europe, illustrate that when communities' participatory (qualitative) perspectives are added to technocratic (quantitative) approaches, the range and depth of project outcomes are increased, and the outcomes are more readily accepted. Such hybrid approaches to the impact assessment processes of the project (where risks are assessed and communities' input on the impacts are considered) are necessary to ensure a more effective balance in addressing the impacts of proposed projects on the environment and society, and the balance created fosters relationships and trust with communities and stakeholders. When addressing complex and multidimensional problems in communities, these types of integrated approaches are especially useful in defining and prioritizing impacts and in developing and adjusting management processes that are responsive to shifting dynamics in communities (den Broeder et al., 2016).

Legal, Institutional, and Policy Frameworks

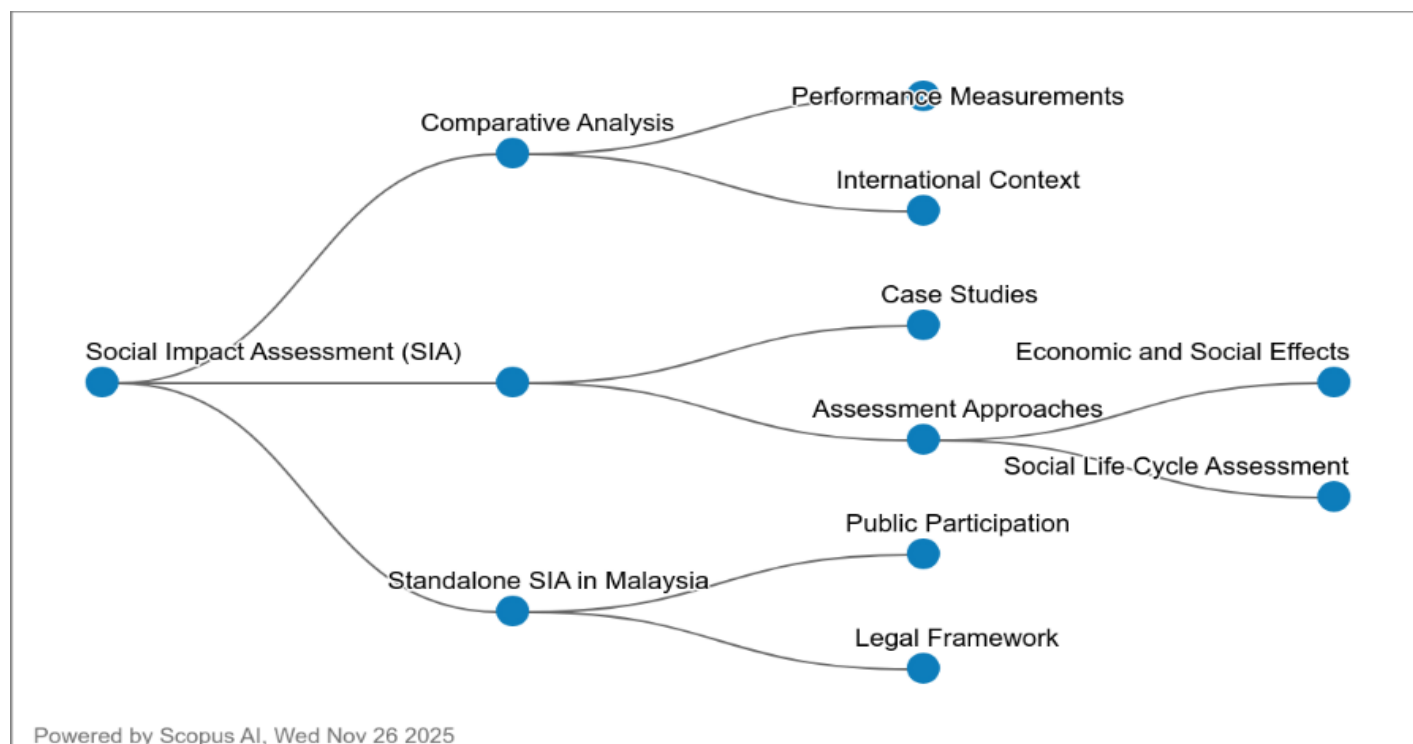
However, the review reveals that further research and policy work are still much to be done in the aspects of legal and institutional on SIA in Malaysia. Recent reforms have made adjustments to the standalone SIA framework, but they have yet to be fully realized in terms of standalone flexibility with the integrated EIA system. They report that the existing regulations have overlapping and contradictory mandates and unclear guidance on stakeholder engagement and ways to maintain the participation of the public. The ongoing research in the European and Asian countries shows that the impact of social evaluation and its effectiveness are increased with better integrated and formalized legal frameworks. The absence of these frameworks in Malaysia suggests that SIA and EIA policies need to be linked to enhance the management of the social impact using more harmonized policies from other countries (Lee et al., 2021; Rani & Sinniah, 2025).

Monitoring Frameworks and Accountability Mechanisms

Lastly, the effectiveness of both standalone and integrated SIA models is directly related to the strength of the monitoring frameworks and accountability mechanisms. Malaysia's nexus challenges and their international relative cases, particularly the evidence of the SIMP construct, suggest that poor stakeholder role definition, inconsistent SIMP deployment, and poor governance fragmentation negatively impact social outcome losses. Although the decentralised governance system in Malaysia has been designed with some form of adaption to local governance systems, the system has often resulted in poor integration, lack of coordination, and inadequate opportunities for purposeful community involvement. Global comparative decentralised governance systems suggest that fully functional integrated monitoring systems where stakeholder roles, accountability, and community engagement are well articulated and defined close the social equity imbalances. In the light of systems of integrated assessments that are of advanced stages, Malaysia can address social equity imbalances through more justified, transparent, and sustainable social impact governance (Rani & Sinniah, 2025).

Overall, the literature suggests that the Malaysia SIA framework, while promising, is also limited in terms of regulation, methodology, and participation. Integrated SIA-EIA frameworks from abroad can help in terms of better stakeholder participation, methodology, and legal integration. The potential of the adoption of integrated, participatory, and adaptive assessment models for Malaysia and other countries is particularly strong for social impact governance. Therefore, this is the first step for other researchers, policymakers, and practitioners in social impact assessment to build on their work (Khairi et al., 2022; Kruger et al., 2020).

The concept map in Figure 1 portrays some of the scope and structure of Social Impact Assessment (SIA) research and how some central themes coalesce and converge to provide a pathway for the literature review. SIA at the centre maps onto comparative, methodological, contextual, and regulatory dimensions of SIA research, which indicates that there is a degree of interdisciplinary and governance cross-connection of research in SIA. The upper cluster is focused on comparative and international performance measures, suggesting that there is an important research gap in the evaluation of SIA implementation and how accountable outcomes are measured. Mulloth & Rumi (2021) find, in a real-world social enterprise case, a lack of standardization and guidance for selecting impact-measurement methods and persistent weaknesses in leading conceptions of social impact, which complicates performance evaluation and accountability for outcomes.



Sources: Scopus AI

Figure 1: Concept Map of Core Themes and Research Domains in Social Impact Assessment (SIA)

The middle stream is focused on the knowledge used in case studies, assessment methodologies, and the social or economic impacts of community results indicating a real need to help communities to do better in SIA. The constricted bottom pathway is a singular focus on Standalone SIA in Malaysia, regulatory frameworks and public involvement, suggesting that Malaysia's contextual uniqueness derives its quality from its regulatory and public involvement, making it a suitable context for the refinement of policy. The SIA in Malaysia is obligatory under the Town and Country Planning Act 1976 (Act 172), and was first incorporated under the amendment of the Act in 2017, as a separate mechanism from EIA (Suaree et al., 2022). The map portrays the evolution of SIA research from a conceptual scope to a comparative, pragmatic and situational scope and suggests that strong SIA calls for robust legal frameworks, inclusive participation and ongoing monitoring both spatially and temporally to increase the social optimality (Suaree et al., 2023).

MATERIAL AND METHODS

Identification

In this review, and in accordance with PRISMA, we begin with the Identification phase, the first step in developing a balanced and systematic approach to comprehensively reviewing the literary works. As illustrated in Table 1, we conducted a preliminary broad sweep of the wide range of databases available to us, during the first stage, and focused on the two main academic indexing services, Scopus and Science Direct, and the main keywords “social impact assessment (SIA), environmental impact assessment (ESIA / EIA), community impact assessment.” This search yielded 452 records in Scopus and 1,010 records in Science Direct, creating a first approximation of 1,462 records that may be relevant to our search. While Scopus databases are acknowledged to cover the most influential and peer-reviewed publications across all fields, Science Direct databases are known to comprehensively cover scientific and social scientific publications. The combination of these two databases is justified and minimizes the possibility of bias from using a single source.

The dataset range shows the level of development and growth of research in impact evaluation studies around the world. The much greater output of Science Direct indicates greater publishing coverage in applied environmental and social research publications within Elsevier. On the other hand, the more specialized but higher quality collection of Scopus suggests greater selectivity in indexing, which positively impacts the credibility of the records. Considering the volume of literature at the identification stage, it is reasonable to assume that it increases the likelihood of uncovering core theories, comparative analysis, and policy discourse relevant to the SLR purpose. Thus, the dataset is robust enough to move to the screening step in PRISMA, providing enough confidence in coverage and representativeness.

Scopus	TITLE-ABS-KEY (("social impact assessment" OR "SIA" OR "community impact assessment") AND ("environmental impact assessment" OR "EIA" OR "ESIA")) AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2022) OR LIMIT-TO (PUBYEAR , 2023) OR LIMIT-TO (PUBYEAR , 2024) OR LIMIT-TO (PUBYEAR , 2025)) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "re")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (SUBJAREA , "ENVI") OR LIMIT-TO (SUBJAREA , "SOCI")) Date of Access: December 2025
Science Direct	("social impact assessment" OR "SIA" OR "community impact assessment") AND ("environmental impact assessment" OR "EIA" OR "ESIA") Date of Access: December 2025

Table 1: The search string

Screening

1,462 records were first acquired and then put through the PRISMA process as an initial dataset. Using the inclusion/exclusion criteria illustrated in Table 2, and after a thorough vetting for eligibility, 1,203 records were removed. This reflects how indispensable filtering criteria are in the SLR process. Out of the 259 records, 259 were selected for the Scopus and Science Direct records detailed assessment. This was then brought down by duplicate removal to 12 unique records, ensuring the absence of redundancy. Remaining here is in the collection for eligibility. This is the first filtering. This reflects the refinement. This is also for first assessment. This reflects the refinement. This speaks to the breadth of the SLR process Free of duplicates, the collection is both current and of high quality ensuring the findings derived from the SLR speak to the breadth of the SLR process.

CRITERION	INCLUSION	EXCLUSION
Language	English	Non-English
Time line	2019 – 2025	< 2019
Literature type	Journal (Article)	Conference, Book, Review
Publication Stage	Final	In Press
Subject	Environmental Science, Social Science	Besides Environmental Science, Social Science

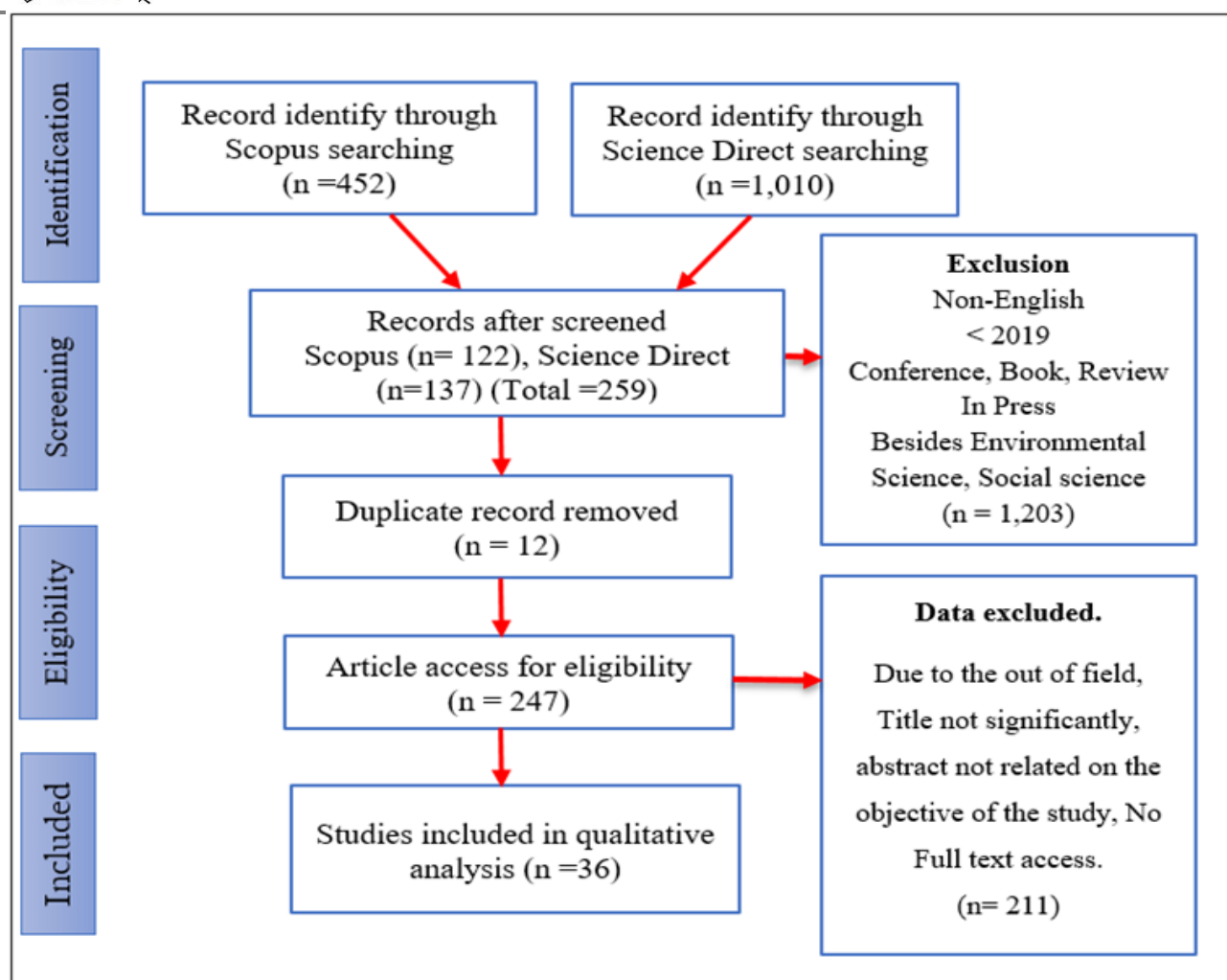
Table 2: The selection criterion is searching

Eligibility

During the Eligibility stage, all 247 articles were reviewed for compliance with the updated research parameters. The review process included title, abstract, and full text evaluations for research article relevance. As shown in Figure 2, 211 articles were eliminated for not meeting the eligibility criteria. This shows that although numerous articles discussed subjects pertaining to the impact of an issue, the articles were not relevant, accessible, and research contributory. As a result, 36 studies were selected for qualitative synthesis. This pool of studies is evidence that has survived the most rigorous contextual relevance filtration process and thematic qualitative synthesis, in the synthesis. This corpus, together, enables the researcher to compete meaningfully and to broaden the scope of analysis in the area under research.

Data Abstraction and Analysis

Integrative analytical approach was used to combine the different research approaches. The authors' coding scheme was designed to derive primary themes and sub-themes systematically related to the research questions. This involved meticulous consideration of the text and the trend of multiple studies on Standalone Social Impact Assessment (SIA) in Malaysia and Integrated SIA in Malaysia and other countries in the context of Environmental Impact Assessment (EIA).



Sources: (Page et al., 2021)

Figure 2. Flow diagram of the proposed searching study

To ensure analytical rigour, the authors worked together to validate the boundaries of the themes during the analysis and any disagreements were resolved to ensure clarity, coherence and analytical stability. The following three broader questions guided the qualitative synthesis of the study: (1) What are the roles of different national legal frameworks, policy tools, and governance systems on social and environmental impact assessments (SIA/EIA) in relation to implementation, enforcement, and compliance?; (2) What are the main methods, analytical frameworks, and evaluation approaches in EIA/SIA, and how do these contribute to enhancing assessment accuracy, inclusiveness, and quality of decision-making?; and (3) How do different contextual factors affect the performance of SIA/EIA frameworks in relation to assessment quality, community outcomes, and sustainability results across various sectors (e.g., mining, energy, infrastructure, and waste management)?

Limitations of the Review

There are limitations to this systematic review. First, because the selection of English language publications only, there is a risk that relevant studies from other languages were not captured in the review, which could be the case in certain non-Anglophone countries where there may be a high level of SIA practice but with limited publication in English. Second, the use of Scopus and Science Direct, for good reasons, may have missed some relevant grey literature, such as government reports, practitioner guidelines and conference proceedings, which might include some useful practice-based material. Third, even though book chapters and review articles were not included, this requirement was needed for methodological consistency and may have restricted the spectrum of the synthesis. Fourth, the number of final studies (36) is relatively small, considering the specific focus on SIA governance and methodological innovation, instead of the whole SIA literature. However, although these limitations exist, the systematic nature of the identification, screening and eligibility assessment, as well as the

thorough thematic coding and synthesis, means the findings are based on a strong and transparent evidence base. This review could be extended to incorporate grey literature and literature in other languages to gain a more fuller picture of how SIA practice is being carried out in other countries in the future.

DISCUSSION

Legislation, Policies, and Governance of SIA/EIA

The evolution of Social Impact Assessment (SIA) has resulted in a shift from regulatory compliance to thinking and dealing with socio-centric development issues and building a social license to operate that considers human rights, gender and intersectionality perspectives (Vanclay, 2024). Host-country contexts are where the SIA is being implemented, from the effectiveness of SIA. For instance, the Russian Federation and other countries with transitional economies, face challenges in the implementation of SIA due to poorly designed regulations and a lack of stakeholder involvement from the corporate sector (Gulakov et al., 2020). The regional comparative summary of governance frameworks demonstrates that the standalone SIA under the Town and Country Planning Act 1976 has often been beset by poorly-defined roles of stakeholders, lack of oversight and high levels of public dissatisfaction. This is not the case in the other countries where governance is an international integrated system with Environmental Acts, here there is a proper distribution of roles and a more transparent and responsible governance. What distinguishes the two systems is the involvement of the public which is regarded as one of the most essential components in the safeguarding of community interest and project's legitimization (Suaree et al., 2024b). This is illustrated in the case of Bakun Hydro-electric Project in Malaysia where insufficient engagement with the local and indigenous community was achieved, with 90% of the respondents having shown dissatisfaction and the maximum 80% of the authorities felt that the project is not following the EIA procedures set (Ho et al., 2020). This shows that there is little or no stakeholder participation, which is essential to achieve social justice, as is suggested by the legislations.

A situation-specific approach to adaptation of SIA practices to international standards exists, while the social impact of stakeholder engagement is less understood in transitional economies (Gulakov et al., 2020). Conversely, the social impact and social resilience in the case of South Africa can be assessed more comprehensively in combination with the Disaster Risk Assessment (DRA) framework and SIA. However, the effectiveness of these systems is dependent on the careful description of each separate step in each system. The lack of good enforcement, alternative finding mechanisms and institutional capacity are also challenges to the protection offered by the laws as happened in the case of the failed ESIA framework in the Democratic Republic of the Congo (Osei & Effah, 2023). As evident in the literature, four issues emerge on SIA/EIA governance that is not always addressed in these studies: (1) challenges with the alignment of local systems with international standards (Gulakov et al., 2020; Suarez et al., 2024a; Vanclay, 2024); (2) embedding SIA into EIA processes (Kruger et al., 2020; Suarez et al., 2023, 2024b); (3) moral and legal need for the public to be involved (Ho et al., 2020; Osei & Effah, 2023); and (4) absence of legal clarity and presence of institutional capacity frameworks, social sustainability will not be guaranteed in the absence of environmentally integrated governance.

Progress in Methodology and Assessment Practices

Over the past few years, SIA and EIA have demonstrated some good progress in their methodologies and the identification of human-centred and participatory approaches that can help to address some of the most critical gaps. For example, participants in comparative studies have noted that traditional assessments almost always fail to gain the qualitative input of affected communities and demonstrate procedural gaps, lack of compliance, and overly restrictive terms of reference that ignore cultural and ecological issues, as noted in the case studies conducted in Indonesia, India, Uganda and Canada (Kahangirwe & Vanclay, 2022; Khairi et al., 2022; Pimentel da Silva et al., 2021; Romianingsih et al., 2023). The new assessment frameworks have been designed to take these into consideration and have increased the emphasis on comprehensive assessments. This can be observed in the WeValue InSitu approach of Nepal, where the communities voice their collective social values for the purposes of creating plans for mitigation (Pazhoor et al., 2025). The Integrated Environmental and Health Impact Assessment (IEHIA) framework is, on the other hand, the first one to attempt to consider the health of people in the assessments of projects (Cofone et al., 2024).

The next step will focus on the systematisation of impact measurement and embedding of the socio-economic context. (Sawaengsak et al., 2019) proposed the Weighted Aggregation Method for Thailand and Orenstein et al., (2019) proposed Standardized Parameters for Effect Characterization to cope with the definition and assessment of cross-assessment inconsistencies to increase accuracy and relevance to stakeholders. This currently is a dis-service to risk assessment in the case of the assessment of industrial plumes in India (Budde et al., 2025). Some integration of some higher order social structures (Aledo et al., 2021) into SIA in Chile, the linkage of corporate social investments to real community benefits (Gulakov et al., 2020) and the integration of environmental risk assessment and social impact assessment in Ukraine (Mykhaylenko et al., 2021) will expand the range of predictive and operational capacity of SIA.

Review of literature from different countries reveals that there are gaps with regard to conventional assessment methods which have failed to take into account the socio-economic context. Among the different approaches, values-based assessment, weighted aggregation, causal network analysis and integrated health and environmental impacts offer the framework that is needed to ensure the flexibility needed for SIA to be a meaningful, holistic and integrated approach to planning and human centred sustainable development.

The Role of Digital Technologies in Advancing SIA Practice

Digital technologies have a great potential for improving SIA practice and overcoming some of the limitations noted in this review. Geographic Information Systems (GIS) and participatory GIS can support the spatial visualisation of social impacts, the identification of vulnerable communities and the incorporation of social data and information with environmental and spatial planning data and information. Analysis of social media and big data can help to gain insight into community perception, concerns and values that may not be identified within 'traditional' consultation processes. Machine learning (ML) and predictive analytics tools can aid in the analysis of scenarios and help identify potential social impacts before they happen. Mobile technologies and digital platforms have the potential to support more inclusive and accessible community engagement, especially for remote and marginalised communities. For the Malaysian situation, the use of these technologies may help to tackle some of the participation gaps and data gaps that have been mentioned in the SIA framework and the proposed Geo-Impact system will offer the institutional framework for the use of these technologies. But, the use of digital technologies should also come alongside understanding of digital exclusion, data privacy and capacity building in relation to digital literacy and data analysis.

Sectoral and Contextual Applications of SIA/EIA

The relevance of SIA/EIA is clear when trying to mitigate socio-environmental effects across a number of different sectors. It is important to acknowledge how scientific and indigenous knowledge and practitioner knowledge, together, can contribute to economic gain without impacting the health and safety of the environment (Macura et al., 2019; Pesigan & Ramzan, 2020) with regards to resource extraction. Institutional weaknesses, absence of legal enforcement and fake public participation undermine the effectiveness of such an assessment. Low assessment and monitoring systems have been cited to have negative effects in society. Poor monitoring and poor assessment has led to catastrophic failures of the tailings dams in Brazil and to the Ethiopian mining and brewing/processing implementations (de Paiva et al., 2024; Haile et al., 2025; Hirpe & Seo, 2022).

The same complexities can be observed with regard to urban infrastructure and renewable energy projects. Social impacts in the transport sector in Amsterdam, Sydney and Sweden have been observed, possibly due to the weak institutionalisation and unequal practice of formal SIA/EIA (Antonson & Levin, 2020; Mottee et al., 2020a, 2020b). Furthermore, excluding stakeholders in the process may result in social conflict, and the project may lose its legitimacy (Gulakov & Vancly, 2019; Omenge et al., 2020). Conversely, where Indigenous cultural values are combined with natural data, there is a reduction in conflict, an increase in community empowerment and better conservation outcomes as is the case in Northern Australia (Heiner et al., 2019).

Clearly successful sectorial use of SIA/EIA is more than just technical design. It requires robust institutional structures, flexible government, and participatory stakeholder involvement. Contextual planning for mitigation has always been better for socio-environmental outcomes among all mapped sectors from mining, to urban

transport to e-waste. New pro SIA/EIA practitioners will pay attention to socio-cultural vulnerabilities, gender equity and governance gaps throughout the assessment process.

Policy and Management Implications

National impact systems are meant to simplify requirements, procedures, and enforcement, and improve monitoring. These systems' findings can assist policy makers in redefining assessment criteria, establishing monitoring and assessment frameworks that include feedback, and considering the vulnerabilities of the affected communities in the assessment criteria. These findings can also be used by industry and management to refine corporate SIA frameworks, shift to social license to operate (SLO), and add axes to the frameworks that measure the protection of livelihoods, the exercise of land rights, gender equity, and the rights of Indigenous peoples. Further, hybrid health-risk assessments and AI tools for prediction are areas with significant potential for further study.

CONCLUSION

The present review of 36 primary studies within the time span of 2019–2025, looked into Malaysia's standalone Social Impact Assessment (SIA) frameworks and how these compared to the EIA integrated models around the world. When integrated across various legal, methodological and sectoral dimensions, the findings indicate that Malaysia's standalone SIA, in terms of its structure, is weaker than its counterparts SEIAs, while the models that are integrated at international levels demonstrate greater flexibility in monitoring and scope, and greater proactivity in Continuous Stakeholder Engagement (CSE). There is a clear shift in the kind of frameworks that are being used, from a compliance framework to a community-based (responsive) framework of impact assessment. From a sectoral point of view, the community are the most disadvantaged by the absence of governance and the resulting negative impacts of regulatory failure are always increased community conflict and worse environmental effects. The integrated SIA in EIA models is a step on the way to better governance and sustainable outcomes. Therefore, the review can serve as a guideline to recommend that SIA in EIA systems can be integrated to enhance governance in Malaysia. Looking ahead, a "Geo-Impact" system, one that tightly integrates the governance of social impacts with spatial planning, will provide a realistic way forward to help break down the current lack of integration and to deliver greater sustainability and more effective outcomes for the community.

The Geo-Impact System: A Proposed Framework

The underlying concept of the new 'Geo-Impact' system is an innovative idea of combining social impact governance and spatial planning. The system would comprise three interrelated elements: (1) a spatial data infrastructure that integrates social, environmental and economic data at appropriate scales where potential social impacts could be visualised and analysed; (2) a governance framework that outlines the roles and responsibilities of various agencies and stakeholders in assessing, monitoring and mitigating social impacts; and (3) a participatory platform that would allow for engaging community members in meaningful ways in the identification of social values, the assessment of potential social impacts and the development of mitigation measures. To implement it would need: (a) legislative changes to ensure that SIA and spatial analysis are integrated with spatial planning processes; (b) capacity development for planners, assessors and decision makers in SIA and spatial analysis; (c) investment in data infrastructure and analytical tools; (d) inter-agency coordination mechanisms; and (e) the development of guidelines for participatory engagement. Pilot studies could be conducted in chosen development corridors to test and tweak the system prior to state-wide rollout. The Geo-Impact system presents a practical route towards overcoming the current fragmented and governance challenges of SIA in Malaysia.

Policy Recommendations and Implementation Roadmap

Specific policy recommendations for strengthening SIA governance in Malaysia, based on the findings of this review, are as follows: (1) Amend the Town and Country Planning Act 1976 to introduce mandatory SIA integration with EIA for all major development projects with clear timelines for integration and transitional arrangements; (2) Create a national SIA coordination body comprising relevant federal and state agencies to

promote inter-agency collaboration, develop standardised guidelines and monitoring SIA implementation; (3) Develop and implement a national capacity-building programme for SIA practitioners, including training on participative methods, social impact assessment techniques, monitoring and evaluation; (4) Create and implement a mandatory monitoring and evaluation framework for Social Impact Management Plans (SIMPs) with clear definition of roles and responsibilities, reporting requirements and accountability mechanism; (5) Pilot the proposed 'Geo-Impact' system in selected development corridors and evaluate it independently for state-wide implementation; and (6) Create a national SIA research programme for evidence-based policy development and methodological innovation. Recommended actions should be adopted in a gradual manner, over 5-10 years, with the possibility for subsequent adjustments as experience and new knowledge accumulates.

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REFERENCES

1. Aledo, A., Ortiz, G., Mañas-Navarro, J. J., Climent-Gil, E., & Vallejos-Romero, A. (2021). Incorporating supra-local social structure into social impact assessment using causal network analysis. *Environmental Impact Assessment Review*, 89. <https://doi.org/10.1016/j.eiar.2021.106604>
2. Antonson, H., & Levin, L. (2020). A crack in the Swedish welfare façade? A review of assessing social impacts in transport infrastructure planning. *Progress in Planning*, 138. <https://doi.org/10.1016/j.progress.2018.11.001>
3. Budde, S., Chani, P. S., & Agrawal, S. (2025). Framework for Evaluating and Mitigating Industrial Air Pollution in India: Systematic Review of Concepts and Unmet Needs. *Journal of Hazardous, Toxic, and Radioactive Waste*, 29(1). <https://doi.org/10.1061/JHTRBP.HZENG-1356>
4. Cofone, L., Sabato, M., Di Rosa, E., Colombo, C., & Paglione, L. (2024). Evaluating the Environmental Impact of Anthropogenic Activities on Human Health: A Systematic Review. *Urban Science*, 8(2). <https://doi.org/10.3390/urbansci8020049>
5. de Paiva, C. A., Barella, C. F., & Fonseca, A. (2024). Assessing and managing safety risks to downstream communities (in hindsight): What went wrong in the licensing and impact assessment procedures of Brazil's deadliest dam breaks? *Environmental Impact Assessment Review*, 106. <https://doi.org/10.1016/j.eiar.2024.107536>
6. den Broeder, L., Chung, K. Y., Geelen, L., Scholtes, M., Schuit, A. J., & Wagemakers, A. (2016). We are all experts! Does stakeholder engagement in health impact scoping lead to consensus? A Dutch case study. *Impact Assessment and Project Appraisal*, 34(4), 294–305. <https://doi.org/10.1080/14615517.2016.1176413>
7. Freudenburg, W. R. (1986). Social Impact Assessment. *Annual Review of Sociology*, 12(1), 451–478. <https://doi.org/10.1146/annurev.so.12.080186.002315>
8. Freudenburg, W. R. (2019). Social Impact Assessment. In *Rural Society in the U.S.: Issues for the 1980s*. Routledge. [https://doi.org/10.1016/s0195-9255\(82\)80047-4](https://doi.org/10.1016/s0195-9255(82)80047-4)
9. Gulakov, I., & Vancly, F. (2019). Social impact assessment and stakeholder engagement in the Russian Federation: Representativeness, deliberativeness and influence. *Environmental Impact Assessment Review*, 75, 37–46. <https://doi.org/10.1016/j.eiar.2018.11.004>
10. Gulakov, I., Vancly, F., Ignatev, A., & Arts, J. (2020). Challenges in meeting international standards in undertaking social impact assessment in Russia. *Environmental Impact Assessment Review*, 83. <https://doi.org/10.1016/j.eiar.2020.106410>
11. Haile, N. Z., Huluka, A. T., & Bedemo Beyene, A. B. (2025). An Appraisal of Environmental and Social Impact Assessment in Ethiopia: The Case of Mining Investments in the Benishangul-Gumuz Region. *Environmental Management*, 75(5), 1099–1111. <https://doi.org/10.1007/s00267-025-02130-4>

12. Heiner, M., Hinchley, D., Fitzsimons, J., Weisenberger, F., Bergmann, W., McMahon, T., Milgin, J., Nardea, L., Oakleaf, J., Parriman, D., Poelina, A., Watson, H., Watson, K., & Kiesécker, J. (2019). Moving from reactive to proactive development planning to conserve Indigenous community and biodiversity values. *Environmental Impact Assessment Review*, 74, 1–13. <https://doi.org/10.1016/j.eiar.2018.09.002>
13. Hirpe, L., & Seo, S. B. (2022). An appraisal of environmental and social impact assessment in ethiopia: The case of meta abo brewery. *Sustainability (Switzerland)*, 14(1). <https://doi.org/10.3390/su14010133>
14. Ho, P., Nor-Hisham, B. M. S., & Zhao, H. (2020). Limits of the environmental impact assessment (EIA) in Malaysia: Dam politics, rent-seeking, and conflict. *Sustainability (Switzerland)*, 12(24), 1–16. <https://doi.org/10.3390/su122410467>
15. Kahangirwe, P., & Vanclay, F. (2022). Evaluating the effectiveness of a national environmental and social impact assessment system: lessons from Uganda. *Impact Assessment and Project Appraisal*, 40(1), 75–87. <https://doi.org/10.1080/14615517.2021.1991202>
16. Këllezi, B., Wakefield, J., Bowe, M., Livingstone, A., & Guxholli, A. (2022). Communities as conduits of harm: A social identity analysis of appraisal, coping and justice-seeking in response to historic collective victimization. *Journal of Community & Applied Social Psychology*, 32(5), 877–891. <https://doi.org/10.1002/casp.2617>
17. Khairi, A. N. A., Ponrahono, Z., & Sahrir, S. (2022). Evaluation Of Social Impact Assessment (Sia) Practices Using Swot Analysis: A Case Study In India. *Planning Malaysia*, 20(3), 196–204. <https://doi.org/10.21837/PM.V20I22.1138>
18. Kruger, L., Sandham, L. A., & Van Niekerk, D. (2020). Improved SIA through DRA integration: lessons from a South African legislative comparison. *Impact Assessment and Project Appraisal*, 38(1), 71–82. <https://doi.org/10.1080/14615517.2019.1697570>
19. Lee, C.-C., Huang, K.-C., Kuo, S.-Y., Cheng, C.-K., Tung, C.-P., & Liu, T.-M. (2021). Development of a social impact assessment for the water environment: A professional perspective. *Water (Switzerland)*, 13(23). <https://doi.org/10.3390/w13233355>
20. Macura, B., Haddaway, N. R., Lesser, P., & Nilsson, A. E. (2019). Mapping the predicted and potential impacts of metal mining and its mitigation measures in Arctic and boreal regions using environmental and social impact assessments: A systematic map protocol. *Environmental Evidence*, 8(1). <https://doi.org/10.1186/s13750-019-0166-2>
21. Makmor, M., Salleh, H., & Nordin, N. A. (2021). Development of public participation framework for environmental impact assessment. *International Journal of Global Environmental Issues*, 20(1), 60–79. <https://doi.org/10.1504/IJGENVI.2021.120435>
22. Mottee, L. K., Arts, J., Vanclay, F., Miller, F., & Howitt, R. (2020a). Metro infrastructure planning in Amsterdam: how are social issues managed in the absence of environmental and social impact assessment? *Impact Assessment and Project Appraisal*, 38(4), 320–335. <https://doi.org/10.1080/14615517.2020.1741918>
23. Mottee, L. K., Arts, J., Vanclay, F., Miller, F., & Howitt, R. (2020b). Reflecting on How Social Impacts are Considered in Transport Infrastructure Project Planning: Looking beyond the Claimed Success of Sydney's South West Rail Link. *Urban Policy and Research*, 38(3), 185–198. <https://doi.org/10.1080/08111146.2020.1730787>
24. Mulloth, B., & Rumi, S. (2021). Challenges to measuring social value creation through social impact assessments: the case of RVA Works. *Journal of Small Business and Enterprise Development*, 28(7), 1056–1073. <https://doi.org/10.1108/JSBED-06-2021-0219>
25. Mykhaylenko, V., Havryliuk, R., Blyzniuk, M., Kriipsalu, M., Hoffmann, M., Denafas, G., Sholokhova, A., Hogland, W., Nauchu, N., & Gulevets, D. (2021). Acquiring Practice In Environmental And Social Impact Assessment: Case Study Of Lviv City Dumpsite, Ukraine. *Environmental Problems*, 6(3), 154–167. <https://doi.org/10.23939/ep2021.03.154>
26. Omenge, P. M., Obwoyere, G. O., Eshiamwata, G. W., Makindi, S. M., & Nathwani, J. (2020). Environmental and social impact assessment procedural steps that underpin conflict identification: Reference to renewable energy resource development in Kenya. *International Journal of Energy Production and Management*, 5(2), 157–174. <https://doi.org/10.2495/EQ-V5-N2-157-174>
27. Orenstein, M. R., Westwood, E., & Dowse, S. (2019). Effect characterization in social impact assessment: a scan of current practice. *Impact Assessment and Project Appraisal*, 37(1), 48–56.

<https://doi.org/10.1080/14615517.2018.1522839>

28. Osei, F. A., & Effah, E. A. (2023). A critical review of environmental assessment legislation in the Democratic Republic of the Congo. *Environmental Health Engineering and Management*, 10(4), 459–467. <https://doi.org/10.34172/EHEM.2023.49>
29. Pazhoor, S., Pandey, S., Palmer, D. A., Timilsina, B., Huang, Y., Zhang, Y., Gaire, B., Timilsina, B., Marasini, R., & Harder, M. K. (2025). Towards making EIA more human-centric: Demonstration in Nepal of a values crystallization approach to capture local shared values for scoping use. *Environmental Impact Assessment Review*, 110. <https://doi.org/10.1016/j.eiar.2024.107697>
30. Pesigan, C. M., & Ramzan, R. (2020). Sustainability Potentials of Informal Gold Recovery from Discarded Mobile Phones: E-waste Management Insights for Global Business and Trade. *Journal of Global Business and Trade*, 16(2), 31–47. <https://doi.org/10.20294/jgbt.2020.16.2.31>
31. Pimentel da Silva, G. D., Parkins, J. R., & Sherren, K. (2021). Do methods used in social impact assessment adequately capture impacts? An exploration of the research-practice gap using hydroelectricity in Canada. *Energy Research and Social Science*, 79. <https://doi.org/10.1016/j.erss.2021.102188>
32. Rani, Y. A., & Sinniah, G. K. A. (2025). Social Impact Assessment Monitoring Mechanism In Development Projects: A Review On Malaysian Practices. *Planning Malaysia*, 23(3), 329–345. <https://doi.org/10.21837/pm.v23i36.1763>
33. Romianingsih, N. P. W., Utomo, S. W., & Hamzah, U. S. (2023). A Comparative Study Of Different Practices In Environmental Impact Assessment. *Journal of Environmental Science and Sustainable Development*, 6(1), 50–69. <https://doi.org/10.7454/jessd.v6i1.1195>
34. Sawaengsak, W., Olsen, S. I., Hauschild, M. Z., & Gheewala, S. H. (2019). Development of a social impact assessment method and application to a case study of sugarcane, sugar, and ethanol in Thailand. *International Journal of Life Cycle Assessment*, 24(11), 2054–2072. <https://doi.org/10.1007/s11367-019-01624-8>
35. Suaree, N. A. S. M., Abdul Kader, S. Z. S., Osman, M. M., Abdul Manaf, Z. I., & Wan Jaffree, W. K. A. (2023). A Comparative Analysis Of The Legal Frameworks For Sia And Eia In Malaysia. *Planning Malaysia*, 21(6), 87–99. <https://doi.org/10.21837/PM.V21I30.1388>
36. Suaree, N. A. S. M., Abdul Kader, S. Z. S., Osman, M. M., & Manaf, Z. I. A. (2022). The Development Of Policy And Legal Framework For Social Impact Assessment In Malaysia. *Planning Malaysia*, 20(3), 295–305. <https://doi.org/10.21837/Pm.V20i22.1146>
37. Suaree, N. A. S. M., Kader, S. Z. S. A., & Osman, M. M. (2024a). Social Impact Assessment: A Comparison Of The Legal Frameworks In Malaysia And New Zealand. *Planning Malaysia*, 22(4), 184–197. <https://doi.org/10.21837/pm.v22i33.1542>
38. Suaree, N. A. S. M., Kader, S. Z. S. A., & Osman, M. M. (2024b). The Implementation Of Public Participation For Sia And Eia In Malaysia. *Planning Malaysia*, 22(1), 13–23. <https://doi.org/10.21837/pm.v22i30.1420>
39. Vanclay, F. (2020). Reflections on Social Impact Assessment in the 21st century. *Impact Assessment and Project Appraisal*, 38(2), 126–131. <https://doi.org/10.1080/14615517.2019.1685807>
40. Vanclay, F. (2023). After 50 years of social impact assessment, is it still fit for purpose? *Current Sociology*, 72(5), 774–788. <https://doi.org/10.1177/00113921231203189>
41. Vanclay, F. (2024). After 50 years of social impact assessment, is it still fit for purpose? *Current Sociology*, 72(4), 774–788. <https://doi.org/10.1177/00113921231203189>