Resilience and Environmental Impact Assessment Regulations in Low and Middle-Income Countries

Afzal, Javaid; Hamed, Maged Mahmoud; Sanchez-Triana, Ernesto; Abebe, Asferachew Abate; Enriquez, Santiago; Farrell, Leanne; Fodor, Martin; Gomes Lima, Ana Luisa; Hajiyeva, Gulana Enar; Joshi, Gaurav D; Lagnaoui, Abdelaziz; Manzanillo, Marie Michelle Leonardo; Ochoa, Martin H; Staelens, Nathalie; and Bucknall, Julia*

Abstract

In many low-and-middle-income countries (LMICs), environmental impact assessment (EIA) is an instrument for identifying and assessing potential climate and environmental impacts of investment projects, evaluating alternatives, and designing mitigation, management, and monitoring actions. This paper examines the extent to which EIA regulations of LMICs include resilience considerations. In the context of exposure to climate and environmental risks, resilience is the capacity to 'bounce back," cope and adapt. The concept of resilience in environmental assessments has never been as relevant as it is now, especially considering the urgent need for investment in developing countries, whether to respond to the different recent crises (such as poverty incidence, pandemics, or food insecurity) or as part of the countries efforts to address the triple environmental crisis (climate, pollution, and biodiversity loss).

1. Introduction

Environmental and Social Impact Assessment (ESIA) has become a widespread environmental management tool. The United States was the first country to adopt it as part of its legal framework in 1969. Since then, many low and middle-income countries (LMICs) have adopted similar requirements for public and private investment projects. Colombia was among the first LMICs to include the EIA in its legislation in 1974 (SanchezTriana et al.,2005). In many LMICs, ESIAs have become the main environmental management tool, often used to replace command and control or market-based instruments to regulate pollution, biodiversity loss, and other environmental challenges (Sanchez-Triana, Enriquez, and Afzal, 2014).

This paper examines EIA regulations in the five regions of the World Bank to identify the extent to which they include resilience considerations as part of the countries' efforts to address the environmental crisis. Resilience, in this context, refers to the ability of a system or community to adapt and recover from environmental and social disturbances, shocks, or stresses such as biodiversity loss, pollution, or climate change. The analysis consisted mainly of a systematic review of the EIA regulations currently in place in select LMICs of Africa (AFR), East Asia and Pacific (EAP), Europe and Central Asia (ECA), Latin America and the Caribbean (LAC), Middle East and North Africa (MNA), and South Asia (SAR). Where information available, the paper describes other legal and policy instruments – beyond specific EIA legislation – that regulate activities for improved resilience and other EIA-related themes (for instance, the access to information requirements that are part of specific policies or regulations; building codes for climate-smart infrastructure; spatial planning regulations; nationally determined contributions (NDCs) and other specific climate related policies).

2. Africa[1]

In recent years, AFR countries have increased their recognition of the interconnection between EIA and climate resilience. Most countries have developed climate change policies, strategies, adaptation plans and programs and have integrated these into development planning process within relevant sectors and at different levels. However, very few AFR countries have updated their EIA legal frameworks to integrate

*All the co-authors work for the World Bank.

[1] This section is based on the information on EIA regulatory systems provided by Edichi Andoh et al (2023) and Hamed M. (2023)

provisions for climate change adaptation and mitigation – i.e. Cabo Verde, Nigeria, Kenya, Ethiopia, Tanzania, Seychelles, Mali, and Benin. No explicit provisions for climate change resilience are noted in the EIA legal framework of countries such as Burkina Faso, Chad, Cote d'Ivoire, Guinea, Mauritania, Niger, Ghana, Sierra Leone, Liberia, Cameroon, Gabon, Guinea Bissau, Senegal, The Gambia, and Togo.

3. East Asia[2]

Climate change resilience is existential to the EAP's development. However, the degree to which it is included in the EIA systems varies considerably. It ranges from virtually no reference in the EIA regulations (e.g., Thailand), through detailed technical guidelines for EIA preparation (e.g., Philippines), to anchoring in the national environmental law, such as in Vietnam and Lao PDR. Further variations exist between the written laws, regulations and guidelines pertaining to EIAs, and the actual practice. In countries with no mandatory EIA requirements, the EIA practice may consider climate change and climate resilience in response to overarching national climate strategies and master plans (e.g., Thailand and Cambodia), while in countries with relatively recent and modern EIA regulations, such as Myanmar, the actual practice may lag due to prevailing circumstances. Overall, the adequacy of the national EIA systems as a vehicle for advancing the climate resilience agenda remains to be seen.

4. Europe and Central Asia[3]

Europe and Central Asia is a heterogenous region with 32 countries[4]. Their regulations range from state-of-the-art in EU members or aspiring ones (Romania, Poland, Turkiye and Bosnia and Herzegovina), to those of Central Asian countries. These differences are reflected in how EIA regulations consider climate change and resilience. EIA legislative framework and related guidelines in Romania require consideration for climate change impacts and GHG emissions estimates. Sector-specific guidelines for EIA development provide basic support for such calculations. The EIA process for high-risk projects in Uzbekistan requires estimation of quantities of GHG (CO_2, CH_4, N_20) emissions. However, these emissions are not systematically presented or analyzed from climate change or resilience perspective (local, regional, or global) nor entered in a GHG monitoring database. The Turkish EIA regulation is aligned with the EU Directive on EIA, to a large extent. In Ukraine, EIA laws require consideration for climate change impacts and GHG emissions estimates, and SEA law requires assessment of planned activities on climate but does not have any specific wording for 'climate change' or 'resilience'. EIA in Georgia requires considering impacts of climate change and likely natural disasters on the proposed investment projects and provision of GHG emission estimates. EIA reports are consulted and disclosed.

5. Latin America [5]

Latin America is highly vulnerable to climate change impacts, such as sea-level rise, extreme weather events, and changes in precipitation patterns. Many LAC countries have developed policies and programs to address climate change adaptation. In terms of EIA, consideration of climate change vary across the countries. For example, in Brazil and Mexico the EIA must also analyze of the potential impacts of the project on the environment and identify measures to adapt to the impacts of climate change. The laws and regulations also require that adaptation measures be incorporated into project design. Notwithstanding, there is still much work to be done in LAC to ensure the design and implementation of

[2] This section is based on the information on EIA regulatory systems in South East Asia provided by Fodor et al (2023).

[3] This section is based on the information on EIA regulatory systems in Europe and Central Asia Countries provided by Abate et al. (2023)

[4] Albania, Armenia, Austria, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kosovo, Kyrgyz Republic, Latvia, Lithuania, Moldova, Montenegro, North Macedonia, Poland, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Tajikistan, Turkmenistan, Türkiye, Ukraine, Uzbekistan

[5] This section is based on the information on EIA regulatory systems in Latin American and Caribbean Countries provided by Gomez et al (2006) and Ndirangu, B. K. and M. Pinheiro (2023).

efficient and effective interventions to ensure poverty alleviation and the sustainability of adaptation actions. Overall, the effectiveness of EIA regulations in building resilience to climate change, biodiversity loss, and pollution in middle-income countries is influenced by a range of factors, and ongoing efforts are needed to improve the quality of regulations, strengthen the capacity of regulatory agencies, and promote the political will to enforce those regulations.

6. Middle East and North Africa

The Middle East and North Africa (MNA) region is taking steps towards integrating climate change into its Environmental Impact Assessment (EIA) system. However, there are significant variations among countries in their policies, rules, and implementation of the EIA system. Overall, while MNA countries are making progress toward integrating climate change into their EIA systems, there is still a need to strengthen capacity, clarify requirements, and improve stakeholder participation and consideration of climate resilience in the EIA process. For example, in Egypt, environmental and social issues are adequately addressed by local legislation, policies, and guidelines. The Government is strengthening EIAs to build resilience to the impacts of the global environmental crisis. In Iraq, the regulations are advancing to establish clear guidelines for EIA baseline conditions, stakeholder consultation, climate change resilience, and cumulative impact assessments. Jordan's environmental assessment legislative framework is detailed. The Government of Jordan is formulating guidelines to strengthen climate resilience.

7. South Asia[6]

SAR countries are extremely vulnerable to climate change, with Bangladesh, Pakistan and Nepal listed among the 10 most affected countries by weather-related loss events (Global Climate Risk Index, 2021). Except for Bhutan and the Maldives, the region faces alarming levels of environmental pollution and biodiversity losses. Improving resilience to those three types of externalities is a top priority for this region and a condition to poverty reduction and sustainable growth.

However, none of the EIA regulations in SAR explicitly refers to climate resilience (or even climate change). In some cases, the overarching environmental law mentions climate change, and all EIA systems have some requirements on potential impacts and mitigation measures that are relevant to climate change mitigation and adaptation. In Afghanistan, the regulations emphasize the use of renewable resources, clean technologies, and methods, and require the proponent an inventory of air pollutants (hazardous air pollutants). In Bangladesh, developers must consider (i) climate as part of the project's environmental conditions described in the EIA, and (ii) other environmental information relevant for climate change mitigation and adaptation (for example, GHG samples when applicable and flood risks in the project area). EIA regulations in Bhutan advise the proponent to assess and address impacts associated with climate change mitigation and adaptation (such as, flood risks and GHG emissions). In India, the EIA shall determine the baseline for valued ecosystem components for the study area, and consider the project's impacts on land, water, vegetation, fauna, air, aesthetic, and socio-economic environments. In the Maldives, developers must assess coastal erosion, weather-induced flooding, as well as potential GHG emissions. In Nepal, the proponent shall assess risks and impacts related to landslides and floods (including glacial lake outburst flood) which are likely to be exacerbated by climate change. In Pakistan, discussions are in progress at federal and provincial levels to integrate and review the EIA and Initial Environmental Examination with a climate-sensitive lens. In Sri Lanka, approving authorities can request the developer to cover climate-related impacts as part of the EIA Term of Reference. Additionally, some countries have adopted building codes and technology standards to reduce pollution (and GHG emissions), increase resource efficiency, and improve climate resilience.

[6] This section is based on the information on EIA regulatory systems in South Asia provided by Gomes-Lima et al (2023)

8. Resilience in LMICs EIA regulations.

The effectiveness of EIA regulations in building resilience to environmental crisis in low and middle-income countries is influenced by a range of factors, and continuous efforts are needed to improve the quality of regulations, strengthen the capacity of regulatory agencies, and promote political will to enforce those regulations. As discussed in this paper, countries across the globe have responded to climate change needs and have developed national policies, strategies, and programs to better prepare themselves for the challenges thereof. However, we see a large variation in countries in integrating resilience into their EIA system. In recent years, LMICs' EIA regulations have increased recognition of the interconnection between EIA and resilience, climate change, and other environmental risks. Proponents are required to assess certain impacts and propose mitigation measures that are closely related to climate change mitigation and adaptation in some countries (for example, Kenya, Tanzania, Rwanda, Cabo Verde, Benin, Lao PDR, Myanmar, Vietnam, Cambodia, Romania, Bosnia and Herzegovina, Turkiye, Bangladesh, Bhutan and Maldives). The rationale for including resilience considerations in EIA regulations include:

(i) Identifying and addressing potential environmental risks on common public goods such as biodiversity, water quality, and air quality or climate and, therefore, enhancing the resilience of ecosystems and communities by promoting long-term sustainability.

(ii) Enhancing community engagement by opening decision-making of investments to public scrutiny (Sanchez-Triana et al., 2014). EIA typically involves a process of public consultation and engagement, which can help to build community resilience by promoting public awareness sense of belonging and social inclusion.

(iii) Promoting adaptive management that enables ongoing monitoring, evaluation, and adjustment of environmental impacts and outcomes. This can enhance the resilience of ecosystems and communities by enabling them to adapt to changing environmental conditions and challenges.

9. Analysis Results

In many countries, ESIA has become the main environmental management tool and is often the only instrument used to address complex environmental problems, serving as a *de facto* substitute for regulations in key areas, such as pollution control, biodiversity conservation, effective land-use planning, and increasingly, climate change.

However, LMICs across and within regions vary significantly in terms of whether ESIA laws and regulations have incorporated requirements to integrate climate change and other resilience-specific considerations. Among countries where such requirements exist, there are significant differences in the level of detail of relevant provisions, including the approaches and methodologies that must be used to comply with these requirements. While recognizing the importance of aligning ESIA with climate change policies such as NDCs, and recognizing the important steps taken by multiple countries to date, the analysis of existing legal documents found significant gaps in areas such as the definition of clear indicators and means of verification to assess progress in enhancing resilience, detailed information describing how authorities will enforce resilience-related requirements, and a systematic approach to using information from ESIAs to assess progress in meeting NDCs, among others.

10. Conclusions

In conclusion, ESIA and resilience are linked through their shared focus on managing environmental risks and building the capacity to withstand and recover from environmental and social disturbances, shocks, or stresses such as climate change. Several countries have included climate resilience considerations to address man-made and natural disasters. Overall, the integration of resilience into EIA regulations is helping to ensure that proposed development projects contribute to the long-term resilience of the

ecosystem and communities. However, thinking beyond the project-level, LMICs could mitigate the risk of placing an undue burden on their ESIA system by developing a comprehensive set of environmental policy and management instruments, including (i) command-and-control measures; (ii) economic and market-based instruments; and (iii) other means, including public disclosure, and legal actions. A comprehensive set of instruments for environmental policy (including ESIA) is required to strengthen resilience as part of countries' efforts to address the triple environmental crisis (climate, pollution, and biodiversity loss).

References

Abate, A., Hajiyeva, G. E., Asaolu A. O., Joshi G. D., Kapanadze D., Kreso, E., Dolek, E., Yurtkuran, M., Cem Icten, T., Rakovych, O., Ali, L.N., Akhmedkhogjaeva, N., Privarova, M., and Kaal, E. (2023). Environmental Impact Assessment and Resilience in Europe and Central Asia (ECA) Region of the World Bank. Poster presented at the 2023 IAIA Conference. Kuching.

Edichi Andoh, **B., A.** Emadak, T. Bennouna, J. Nkombela Mukungu, R. Nemer, F. Prost, M. Bessan, K. Komlan, M. Keita, S. Hussein Seye, and A. Lagnaoui (2023) Legal Framework of Environmental Impact Assessment in West Africa. Poster presented at the 2023 IAIA Conference. Kushing.

Fodor, M,**K Wynn**, V. Phetnavongxay , S. Van Nguyen , S Fa and W. Udchachone (2023) Legal Framework of Environmental Impact Assessment in South East Asia.. Poster presented at the 2023 IAIA Conference. Kuching. Gomes Lima, A.L, D. R. Ghimire, G, M. Wijeyeratne , N. Rajapakse , S. Ahmed and S. Shobair (2023) Challenges and Advances in Environmental Impact Assessments in South Asia. Poster presented at the 2023 IAIA Conference. Kuching.

Gomez, G., S. Enriquez, and E. Sanchez-Triana (2005) Environmental Impact Assessment Systems in Latin America and the Caribbean. Poster presented at the 2005 Conference of the International Association for Impact Assessment, Seoul Korea, https://www.ifc.org/wps/wcm/connect/24aa4b50-9f53-40a2-a2ca-ed4a3f55de74/3_EIA+in+LAC+poster.pdf?MOD=AJPERES&CVID=jyAyUsF

Ndirangu, B. K. and **|.** M. Pinheiro (2023) Legal Framework of Environmental Impact Assessment in Latin America and the Caribbean. Poster presented at the 2023 IAIA Conference. Kuching.

Sanchez-Triana, E. and S. Enriquez (2005) Environmental Impact Assessment Systems in Latin America and the Caribbean. Conference Proceedings of the Annual Conference of the International Association for Impact Assessment, Seoul Korea. https://www.ifc.org/wps/wcm/connect/564c249d-44fb-4be3-9c25-b98359e90bd8/2_EIA+in+LAC+IAIA+Seoul.pdf?MOD=AJPERES&CVID=jyvDroA

Sanchez-Triana, Ernesto Santiago Enriquez, and Javaid Afzal (2014). "The role of international organizations and development banks in Pakistan's Environmental Impact Assessment Practices." In Fischer, T. (ed), *Environmental Impact Assessment Handbook for Pakistan*. Government of Pakistan and International Union for Conservation of Nature and Natural Resources https://eia.nl/docs/mer/diversen/pos722-eia-handbook.pdf

World Bank (2017). World Bank Environmental and Social Framework. World Bank, Washington, DC. https://thedocs.worldbank.org/en/doc/837721522762050108-0290022018/original/ESFFramework.pdf#page=29&zoom=80