

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

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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 with the adoption of Decree 2811 of 1974 (Acerbi et al., 2014). In many LMICs, ESIA 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 the extent to which EIA regulations of in AFR, EAP, ECA, LAC, MNA, and SAR include resilience considerations as part of the countries’ efforts to address the triple environmental crisis (climate, pollution, and biodiversity loss). 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.

Sources for this analysis consisted mainly of a systematic review of the EIA policies currently in place in select countries of the five Regions in the World Bank. The analysis does not consider other policy instruments that are independent of EIA but that regulate areas reviewed in this paper (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 and other specific climate related policies).

This paper has ten sections. Sections 2 to 7 examine the considerations of resilience in EIA. Section 8 discusses the rationale for incorporating resilience considerations to LMICs EIA regulations. Section 9 summarizes the results of our analysis and Section 10 presents conclusions.

2. Africa.

In recent years, African countries have increased their recognition of the interconnection between EIA and climate resilience.

In West Africa, most countries have policies on climate change and have determined their respective national commitments as per UNFCCC guidance but very few countries have updated their EIA legal frameworks to integrate provisions for climate change adaptation and mitigation. where Provisions for Climate Change adaptation and mitigation have been integrated into EIA legal framework in countries like Cabo Verde, Nigeria, Kenya, Ethiopia, Tanzania, Seychelles, Mali and Benin. However, no explicit provisions for climate change resilience in the EIA legal framework are noted in countries like Burkina Faso, Chad, Cote d'Ivoire, Guinea, Mauritania, Niger, Ghana, Sierra Leone and Liberia, Cameroon, Gabon, Guinea Bissau, Senegal, The Gambia and Togo. However, majority of these 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.

3. EAP

Climate change resilience is existential to the East Asia's development however, the degree to which it is included in the East Asia countries EIA systems varies considerably. It ranges from virtually no presence in the EIA regulatory requirements, e.g. in Thailand, through availability of detailed technical guidelines for EIA preparation, e.g. in the 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. in Thailand or Cambodia, while in countries with relatively recent and modern EIA regulations, such as in 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. ECA

Europe and Central Asia is a heterogenous region with 32 countries ^[1]. Their regulations range from state-of-the-art (EU compliant) ones in member states like Romania and Poland to aspiring ones like Turkiye, Bosnia Herzegovina and Central Asian countries. These differences are reflected in considering climate change and resilience in their EIA regulations.

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 (CO₂, CH₄, N₂O) 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.

^[1] 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

The Turkish EIA regulation is aligned with the EU Directive on EIA, to a large extent.

EIA laws in Ukraine require consideration for climate change impacts and GHG emissions estimates. 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. LAC.

Latin America is highly vulnerable to the impacts of climate change, which include sea-level rise, extreme weather events, and changes in precipitation patterns. Environmental impact assessment can promote that development projects adapt to climate change. Many Latin American countries have developed policies and programs to address climate change adaptation. In terms of environmental impact assessment, many Latin American countries have laws and regulations in place to ensure that investment projects are subject to public disclosure and environmental reviews.

For example, in Brazil and Mexico environmental impact assessment include an analysis of the potential impacts of the project on the environment and the identification of measures to adapt to the impacts of climate change. The laws and regulations also require that adaptation measures be incorporated into the designs of the project.

In LAC, there is still much work to be done to ensure the design and implementation of 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 political will to enforce those regulations.

6. MNA.

Countries in the MNA region are in the process of adopting climate change aspects in the EIA system. There are significant variations amongst the countries in the policies and rules for EIA system and their implementation. In Egypt, environmental and social issues are adequately addressed by local legislation, policies, and guidelines. However, the capacity of implementing agencies in the governorates is not strong enough. The existing EIA Guidelines, last modified in 2009, provide detailed requirements for the EIA process, including social assessment and consultation. The guidelines are compatible with the WBG environmental assessment requirements to a large extent. Requiring consultation and disclosure for Category B projects can help increase transparency and public participation in the decision-making process. In Iraq, there are significant gaps in exiting legislation. Firstly, there are no clear requirements for EIAs to describe baseline environmental conditions with a certain level of detail for different categories of projects. Additionally, there are no clear requirements for consultation with stakeholders or to conduct cumulative impact assessments. This lack of clarity hinders the effectiveness of the EIA process and may lead to inadequate or incomplete assessments.

To address these issues, Iraq needs to establish clear requirements for baseline environmental conditions, stakeholder consultation, climate change resilience??, and cumulative impact assessments in the EIA process.

In Jordan, country's environmental assessment legislative framework is detailed and comprehensive. According to the Environmental Classification and Licensing Regulation 69 of 2020, EIAs must be undertaken by accredited consultants. A Risk Assessment must be included in an EIA if required by the EIA Committee or if the project will use, store, produce, or generate hazardous substances or wastes during any of the project phases.

The consultation requirements are limited to projects from Category 1, where various stakeholders impacted or interested in the E&S performance of the project are invited, but the participation of relevant stakeholders in consultation sessions is weak. Furthermore, Jordan's EIA system does not clearly consider project climate resilience, though new instructions under preparation by MoEnv will address this issue.

In Lebanon, a comprehensive and well-developed environmental assessment legislative framework since the issuance of the Environmental Protection Law (444 of 2002) and its complementary regulations, including the Strategic Environmental Assessment (SEA) Decree (8213 of 2012) and the EIA Decree, which defines the projects that require environmental assessment and the rules that should be followed when preparing EIAs. Environmental non-governmental organizations (NGOs) and private initiatives are very active and can act as a balancing force against pressure from developers who advocate for their projects without proper environmental control measures.

In Tunisia there is a legal and regulatory framework that covers various aspects of environmental and social (E&S) management. The framework includes both horizontal and sector-specific texts and features preventive instruments such as environmental impact assessments (EIAs), incentives like financial aid and tax incentives, as well as coercive measures in case of environmental offenses.

7. SAR

South Asia 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.

EIA regulations in SAR typically require the proponents to assess impacts on physical, chemical, biological, social, and cultural conditions, and on environments. The assessment covers public goods such as forests, land, water, and air quality.

In Afghanistan, the regulations strongly emphasize the use of renewable resources, clean technologies, and methods; require proponents to inventory air pollutants (hazardous air pollutants) from different emission sources to determine the significance of pollutants compared to prescribed national limits and propose mitigation measures to comply with the standards.

In Bangladesh, the Environmental Conservation Rules (2023) require the proponent to 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).

In Bhutan, the EIA Regulations advise the proponent to assess and, if applicable, address impacts associated with climate change mitigation and adaptation (such as, flood risks in the project area; GHG emissions from combustion, processes, and utilities).

In India, for example, the EIA shall determine the baseline for the valued ecosystem components for the study area, and consider the project's impacts on land, water, vegetation, fauna, air, aesthetic, and socio-economic environments. 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.

The Maldives' Environmental Protection Agency requires proponents to 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, Central Environmental Authority and Project Approving Agency can request climate-related impacts to be covered as part of Term of Reference requirements.

Additionally, some countries have adopted building codes and technology standards to reduce pollution (and GHG emissions), increase resource efficiency, and improve climate resilience.

8. Resilience in LMICs EIA regulations.

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 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/or programs to better prepare themselves for challenges thereof. However, we see a large variation in countries in integrating resilience into their EIA system. Assessment of biodiversity loss and pollution is largely part of the impacts assessment on biological and physical resources. In recent years, LMICs EIAs 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 countries, for example Kenya, Tanzania, Rwanda, Cabo Verde, Benin across Africa, in Lao, Myanmar, Vietnam and Cambodia in EAP Region and in Romania, Bosnia and Herzegovina, and Turkiye, across ECA and in SAR, these are Bangladesh, Bhutan and Maldives. The Following are some ways in which regulations link EIA and resilience.

The rationale for including resilience considerations into EIA regulations include:

- 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.
- Enhancing community engagement by opening up decision-making of investments to public scrutiny (Sanchez-Triana 2001): 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.
- Promoting adaptive management that enable 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.

In West Africa, with the launch of the World Bank’s Environmental and Social Framework several countries started engaging in updating their respective regulatory frameworks to incorporate social aspects to better address the needs of vulnerable groups and focus on climate resilience to address man-made and natural disasters. Many countries have signed MoUs to bring their respective EIA legal frameworks in line with the World Bank’s Environmental and Social Framework.

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 use information from ESIA 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 of ecosystems and communities to withstand and recover from environmental and social disturbances, shocks, or stresses such as biodiversity loss, pollution, or climate change. Overall, the integration of resilience into EIA regulations can help to ensure that proposed developments are sustainable and contribute to the long-term resilience of the ecosystem and communities.

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) direct government regulation through what are referred to as command-and-control measures; (ii) economic and market-based instruments; and (iii) other means, including public disclosure, legal actions, and formal negotiation. A diversified policy and regulatory toolkit is required to efficiently and effectively include resilience considerations as part of countries’ efforts to address the triple environmental crisis (climate, pollution, and biodiversity loss).

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