Netherlands Commission for
Environmental Assessment

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ESIA and SEA for a Responsible and Inclusive Mining Sector

Purpose and target groups

The purpose of this case is to provide information on recent experiences in the use of environmental and social impact assessment (ESIA) and strategic environmental assessment (SEA) for the mining sector.

The mining boom in the first decade of this century created serious environmental and social problems, especially in low and middle income countries. Effective use of ESIA and SEA can enhance the mining sector's contribution to sustainable and inclusive development and reduce negative consequences for underprivileged groups in society, and for the natural environment.

While the role of ESIA in assessing, avoiding, mitigating and compensating the impacts of large individual mining projects is fairly well known, the positive role of SEA in developing a sector vision on environmentally sustainable and socially inclusive mining development is only recently becoming visible. The same applies to the proactive role that SEA can play in integrating mining activities in the broader context of regional development planning.

This document is relevant for:

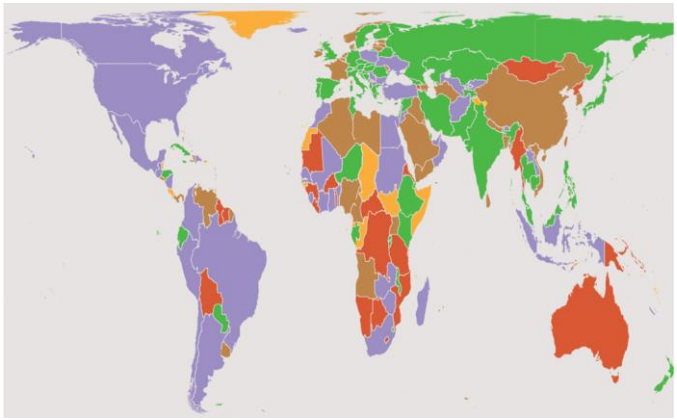
- Government authorities responsible for regulation of the mining sector;
- Authorities responsible for regional development planning where mining is important;
- Authorities with responsibilities for environmental protection, human rights and social justice;
- International finance institutions and donors supporting mining development;
- Civil society organisations representing stakeholders (potentially) affected by mining activities; and,
- Mining companies.

The mining sector

In 2010, the nominal value of world mineral production was nearly four times higher than it had been in 2002. During this period, growth in value was significantly greater than growth in world gross domestic product. This was largely driven by the unprecedented growth in China, India and other emerging economies. Half of the top 20 mineral export countries are African countries.

Since 2010 the world has seen a lowering of investment in new capacity, as markets are (temporarily) oversupplied. Presently, cost reduction is the main concern of large mining companies. This provides a window of opportunity to take some time to learn from the past and think about better planning and development of mining activities. This idea is reflected, for example, in a recent decision of the Conference of Parties of the Convention on Biological Diversity, calling for enhanced efforts towards the mainstreaming of biodiversity in (among others) the mining sector. Impact assessment is considered to be an important, legally embedded tool for such mainstreaming.

The mining sector covers a range of extractive operations including open cast mines, underground tunnel mines, open-air quarries, ore upgrading and processing facilities. Operations range from artisanal mining to multi-billion dollar investments by multinational companies. Mining activities require infrastructure that may include newly built or improved roads and railways, ports, pipelines, dams, industrial facilities, and settlements.



World map: Countries with highest (red) and second highest (purple) Mining Contribution Index, i.e. a ranking by the importance of mining within the national economy. ICCM 2014

Environmental and social issues associated with mining activity

The following aspects of mining projects may cause multiple environmental and social impacts:

- **Mine site:** complete clearing of vegetation and excavation with associated loss in biodiversity and ecosystem services; creation of dust and erosion; downstream sedimentation; surface and groundwater pollution; relocation of people; loss of livelihoods; loss of cultural and paleontological heritage.
- **Transport facilities**: new or improved roads providing access to formerly remote or closed areas; rail, pipelines, water transport, port facilities, leading to impacts such as habitat fragmentation, temporary or permanent loss of livelihood or income.
- **Ore processing and upgrading facilities**: industrial facilities with high energy demand, and high risk of pollution and accidents; health & safety risks for workers as well as surrounding communities.
- **Tailings**, usually with dams result in loss of land; may lead to dam breaks, pollution of ground- and surface water.
- **Resettlement / worker settlement**: original inhabitants may have to leave their homes or lose their livelihoods, while new labour may move into the area; artisanal mining is often associated to child labour; potential for social conflict and communicable diseases (AIDS).
- **Surrounding communities**: poverty conflicts among local communities, companies, and in-migrating communities over property rights and land use rights; risk of destabilisation of local economies and social structures.
- **Closure and rehabilitation**: after the decommissioning of a mine a rehabilitation plan of the deserted area is often lacking; similarly, a social plan is needed for the dismissal of the labour force and the future of surrounding communities.

The contribution of ESIA

Good environmental and social impact assessment can prevent or remediate many issues at the level of individual projects. A series of good practice guidance documents on safe, fair and responsible mining has been published by the International Council on Mining and Metals. ICMM is also taking part in the Cross Sector Biodiversity Initiative supporting innovative and transparent application of the mitigation hierarchy in relation to biodiversity and ecosystem services. In collaboration with over 75 organisations, the Business and Biodiversity Offsets Programme plays a major role with regard to biodiversity offsets

The benefits of good ESIA for a **mining company** include less (unexpected) problems during construction, operation and decommissioning, better relations with surrounding communities (license to operate), and better relations with government agencies.

The benefits for the **environment** include avoidance and/or mitigation of local and downstream negative impacts, good site rehabilitation after decommissioning of mined areas, and maintenance of important biodiversity values and ecosystem services for surrounding communities.

For **society**, good ESIA can maximise the benefits of a mining project (local economy, jobs, opportunities for SME's), while minimising the social and environmental costs.

What ESIA cannot provide

A number of major issues are faced by countries with booming mining activities that cannot be addressed by ESIA at the level of individual projects. These include:

- Lack of in-country staff, expertise, regulations, policies and institutions to coordinate the development of new mining activities and to balance the interests of the mining sector with other social, economic and environmental interests;
- Regulation of, and improved livelihoods for, artisanal miners;
- Cumulative effects of numerous mining activities;
- Assessment of the contribution of mining to a country development strategy: how can mining contribute to inclusive and sustainable growth?

What SEA can provide

SEA for national sector planning

To address the limitations of ESIA, two pro-active steps can be undertaken by countries or companies to address the challenges of mining development. The first step is to embrace SEA, to enable governments to:

- Link mining sector development to infrastructure development needs (road, rail, pipeline, water transport);
- Assess the adequacy of the existing institutional capacity (regulations, staffing, finances, enforcement);
- Strengthen the mining sector regulatory framework: what issues are pertinent and need to be regulated (environment, health & safety, cultural heritage, biodiversity, etc.);
- Address the cumulative effects of (often unregulated) artisanal and small-scale mining;
- Address governance and revenue management (macro-economic effects), and the equitable distribution of mining revenues;
- Enhance employment, required skills (technical and vocational education), and spin offs (e.g. creation of SMEs/value added industries);
- Predict population movements;
- Encourage investment in mining-related Research & Development; and,
- Develop stronger compliance and enforcement mechanisms.

An example of how SEA can improve national sector planning is provided in Box 1.

Main decisions	Main issues
National mining-related policies • Policy on large/artisanal mining (e.g. regional priorities, revenue management, local/foreign investment) • Mining regulatory framework (social, environmental, financial) • Additional sector investment needs (e.g. infrastructure, public services, urban planning) • Capacity development (R&D, vocational training, compliance & enforcement, etc.)	**National sector SEA** • Sector development scenarios • Assessment of the adequacy of institutions • Stakeholder analysis & consultation • Environmental and social priorities • Risk assessment • Governance arrangements
Regional development planning • Regional development priorities and planning • Sector intervention priorities • Public services planning & implementation • Regional sectoral and stakeholder coordination	**Regional planning SEA** • Analysis of regional development opportunities & constraints • Regional stakeholder consultation • Environmental and social priorities • Regional development scenarios (sector mix) • Sector interactions & cumulative impacts
Mining project • Siting and License decisions • Enforcement of Environmental and Social Management Plans • Roles & responsibilities of proponent and local government	**Project ESIA** • Mine site requirements (construction, operation, decommissioning) • Alternatives for transport, settlements and facilities • Resettlement planning and compensation • Community involvement plans

The development of a regulatory framework for mining can be thought of as consisting of three levels. Decisions and issues associated with each are outlined above.

SEA for regional development planning

A second step is to apply SEA to support authorities to integrate (new) mining activities in regional development planning, by:

- Assessing potential positive and negative interactions with other productive sectors (livestock, agriculture, fisheries, etc.);
- Establishing priorities for development and characterisation of stakeholders;
- Promoting regional inter-sectoral coordination for increased efficiency of transport networks, rural and urban planning;
- Addressing human rights, land use rights, and community participation; and,
- Planning of public services where new mining developments are expected (education, healthcare, public water supply).

An example of how SEA can improve regional development planning is provided in Box 2.

Advantages of SEA

For mining companies, the use of SEA by government agencies has the advantage of working with well-prepared government agencies that know what social, economic and environmental issues are at stake. Necessary regulatory instruments have been prepared. Such clarity on roles and responsibilities for private companies and government agencies may contribute to effective investment in the mining sector and maximising benefits for companies as well as society. The process takes place within transparent boundaries of sustainable and inclusive development and is established in collaboration with stakeholders from society. If for whatever reason a government does not implement an SEA, a company with significant interests in a region can take the initiative. The following quote from an executive of a large Australian mining company, amplifies this point:

Edgar Basto, asset president at BHP Billiton Western Australia Iron Ore:
"*Previously, we worked through the approval process for individual projects in isolation. We can now look at how future developments may interact and think about what we need to do to manage any impacts in advance. It gives the company, industry, the community and regulators a more comprehensive understanding of the region, which ultimately helps everyone to more effectively manage our natural resources. It's about being transparent in our future plans and recognising that environmental impacts are not confined to one particular mining project and should be looked at more holistically.*"

For governments, the use of SEA leads to better preparedness and strengthened governance for environmental and natural resources management. It provides clarity of tasks that need to be carried out, with clear division of responsibilities between different government agencies and private sector partners. It furthermore provides a clear view of the concerns and aspirations of other stakeholders in society.

For society, the use of SEA may lead to a better contribution of mining activities to regional and national development, while minimising the negative consequences of mining developments. The weakest groups in society receive the extra attention that they require.

Box 1: Strategic environmental assessment for the Mongolia Mining Sector

Mining is an important source of growth in Mongolia and is likely to remain so in the foreseeable future. However, there was no clear and shared vision of how mining growth may affect the development of Mongolia and the lives of Mongolians. To address this issue, an SEA was carried out with the following objectives:

- Diagnose the key environmental and social problems and opportunities associated with the rapid growth of Mongolia's mining sector;
- Identify the policy, legal, regulatory, and institutional adjustments and capacity-building actions needed to minimise the adverse environmental and social impacts of mining operations and associated infrastructure development, while enhancing the positive impacts; and,

- Propose specific measures that the government can implement to improve the environmental and social sustainability of mining in Mongolia.

The SEA sought to facilitate a shared understanding at all levels of Mongolian society of the synergies, trade-offs, and weaknesses of the mining sector in order to assist the government to identify priority actions that can be taken to foster the environmentally sustainable and socially equitable development of the mining sector.

Three scenarios were developed depicting different levels of economic growth and what this means for production of specific commodities, the number and type of mines, and the associated infrastructure in place to support mining development up to 2025. The environmental and socio-economic impacts associated with each scenario were described and possible responses to manage these impacts were suggested for environmentally sustainable and socially equitable outcomes. This resulted in an assessment of institutional and political economy gaps impeding the implementation of the recommended responses and the policy options required to address the identified gaps.

The SEA commenced in Step 1 with a situation assessment and stakeholder analysis to create understanding of the mining sector, the key environmental and socio-economic issues, and main actors. Step 2 involved stakeholder validation and refinement of the identified issues; the impact of the three growth scenarios on key issues; and the development of possible response options to manage the issues. Step 3 assessed the institutional and political economy gaps to implement the recommended responses and provides policy options to close the identified gaps. In Step 4, recommendations were provided in the form of an Action Plan. The approach included extensive stakeholder consultation and validation throughout.

Adapted from Annandale, D., S. Giles & B. Byambaa (2014). Strategic Environmental and Social Assessment of the Mining Sector of Mongolia. Government of Mongolia, Ministry of Mining & World Bank

Box 2: Strategic environmental assessment for the central Namib Uranium Rush

A favourable outlook for the world uranium market triggered interest in uranium exploration in Namibia, with 36 exploration licences for nuclear fuels being granted in the central part of the Erongo Region (central Namib) by 2007. The sudden scramble for prospecting rights urged the Namibian government to place a moratorium on further uranium prospecting licences. This was to ensure that the authorities and other stakeholders could consider how best to manage the "Uranium Rush".

An SEA for the so-called "central Namib Uranium Rush" was undertaken in 2009. Mindful of the legislative and policy gaps on uranium mining and radiation protection in Namibia and the lack of a coherent development vision in the Erongo Region, the Terms of Reference required the SEA to deliver the following:

- Development and assessment of viable scenarios of mining and associated developments as a basis for decision-making and formal planning;
- Recommendations on sustainable mining development in the Erongo Region;
- Solutions on (cumulative) impacts and challenges stemming from the mining operations;
- Outline of a Strategic Environmental Management Plan (SEMP).

The Uranium Rush offers a number of potential positive impacts ranging from increased government revenues to upgrading of infrastructure and health care facilities. However, constraints can put these benefits at risks, in particular the capacity of physical infrastructure and the capacity of government at all levels to cope with the Uranium Rush. Further cumulative impacts were identified on natural resources, biodiversity and heritage landscapes, health, tourism, social structures, and stress on government ministries and parastatals.

Mining is in itself not sustainable, but there are a number of ways in which mining can leave a net positive legacy, if it is managed correctly by all parties. The first step is to understand the nature of the potential cumulative impacts at a regional scale and to predict unintended consequences of the proposed actions. The SEA offers proactive guidance for decision makers ahead of development.

To ensure that the Uranium Rush results in sustainable development for Namibia, national government, mining companies, local authorities and civil society must work together to implement the Strategic Environmental Management Plan (SEMP), which has been formulated with considerable input from many stakeholders during this SEA process. Political will, technical capacity, enabling policies and laws, and mutually-beneficial partnerships are needed to ensure that adequate capacity exists. Strong capacity, transparency and consistency in decision making will ensure that the Uranium Rush is a blessing and not a curse. The bottom line is the need for good governance.

Adapted from MME (2010). Strategic Environmental Assessment for the Central Namib Uranium Rush. Ministry of Mines and Energy, Windhoek, Republic of Namibia.

List of mining related SEAs

Name	Country /region	Type of SEA
2016 BHP Billiton Western Australia Iron Ore	Australia	SEA for its central Pilbara iron ore assets
2014 (start) Bulk Seabed Mining	Namibia	SEA of Cumulative Impacts on the Marine Ecosystem
2014 Mining Sector SEA	Mongolia	SESA for Government of Mongolia, Ministry of Mining & World Bank
2012 Coal mining in Upper Hunter Valley	Australia	SEA on cumulative impacts on biodiversity values
2010 Uranium Mining	Namibia	Regional SEA by Ministry of Mines & Energy
2008/2010 Mineral Sector Strategic Assessment	West Africa	SESA for mining sector reform (I-SEA) World Bank
2009 Malawi Mineral sector review	Malawi	Rapid SESA for mining sector reform (I-SEA) World Bank
2008 Mining Technical assistance project	Sierra Leone	SESA for mining sector reform (I-SEA) World Bank
2008 Responsible Mining	Ghana	SEA
2003 Greenstone Belt Gold Mining	Suriname	Regional EA
2000 Resource Use Options at Wavecrest	South Africa	Strategic Assessment of Resource Use Options

The NCEA

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Contact

Mr. Arend Kolhoff, Technical Secretary
T: +31-30-2347604 - akolhoff@eia.nl