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ESIA and SEA for a Responsible and Inclusive 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 environmental and social impact assessment (ESIA)¹ and strategic environmental assessment (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 mining projects is fairly well known, the positive role of SEA in developing a sector vision on responsible mining development is only recently becoming visible. The same applies to the proactive role of SEA in integrating mining activities in the broader context of regional development planning and in aligning these activities with existing national biodiversity policies.

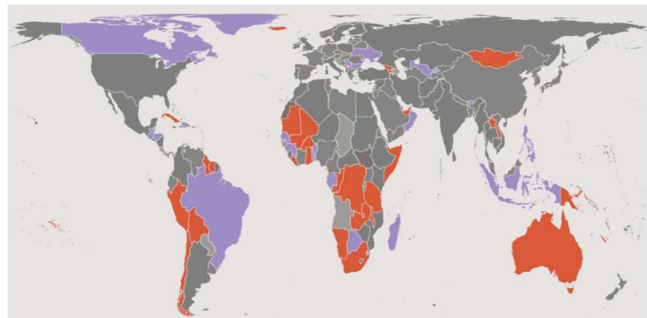
This document is relevant for:

- Government authorities responsible for regulation of the mining sector;
- Authorities responsible for regional development planning where mining is important;
- Authorities with responsibilities for protection of environment, biodiversity, human rights and social justice;

- International finance institutes and donors supporting mining development;
- Civil society organisations representing stakeholders and/or biodiversity (potentially) affected by mining activities;
- 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 has been significantly greater than growth in world gross domestic product. This increase has in large part been driven by the unprecedented growth in China, India and other emerging economies. Africa represents half of the top 20 countries with the highest mineral export contributions.



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 2012

¹ Multilateral development banks nowadays often use the term Environmental and Social Impact Assessment (ESIA) to emphasise the inclusive nature of impact assessment. The term EIA is used in most national legal contexts; whether social aspects are included or not differs per country

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.

Biodiversity Convention perspective on biodiversity mainstreaming through ESIA/SEA

Mainstreaming. The CBD Conference of Parties decided to consider the mainstreaming of biodiversity into the sectors of energy and mining, infrastructure, manufacturing and processing, and health (Decision XIII/3). From the perspective of the Convention, a key aim of mainstreaming biodiversity in these sectors is to avoid, reduce or mitigate any negative impacts, while maximizing any potential benefits to biodiversity. Article 6(b) of the Convention calls for Parties to “integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies”.

ESIA and SEA. Two of the most important tools for addressing the impacts from the infrastructure, energy and mining sectors, and to a lesser extent, the manufacturing and processing sectors, are environmental and social impact assessment (ESIA) and strategic environmental assessment (SEA) (CBD/SBSTTA/21/5). Convention Article 14 asks for the use of impact assessment, elaborated in “Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment” (Decision VIII/28), further detailed for marine and coastal areas in Decision XI/18.

The 2030 Agenda for Sustainable Development includes a number of goals that are closely related to the above mentioned sectors. Given the indivisible nature of the 2030 Agenda, these goals and targets must be achieved while also achieving the goals for biodiversity, climate action, as well as multiple targets for sustainability. ESIA and SEA are internationally practised, often legally embedded, instruments capable of assessing the consequences of policies, plans programmes and projects from an integrated SDG perspective.

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.

Issues linked to mining

The following components may be part of a mining project and 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 population; loss of livelihoods; loss of cultural and paleontological heritage.
- **Transport facilities:** new or improved roads providing access to formerly remote or closed natural 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 work force, surrounding communities and natural areas.
- **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 the area or lose their livelihoods, while new labour force may move into the area resulting in increased pressure on ecosystems and natural resources; 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 an ecosystem rehabilitation plan of the deserted area is often lacking; similarly, a social plan is needed for the dismissal of labour force and the future of surrounding communities.

The contribution of ESIA

Good Environmental Impact Assessment can prevent or remediate many issues at the level of individual projects. A series of good practices guidance documents on safe, fair and sustainable 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 on biodiversity offsets.

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), regulation of company dependencies on natural resources (e.g. water supply), 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 or offsetting 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 characterise countries with booming mining activities that cannot be addressed by ESIA at project level:

- Lack of in-country staff, expertise, regulations, policies and institutions to coordinate the development of new mining activities and to balance the interest 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 (SDGs); how can mining contribute to a National Biodiversity Strategy and Action Plan (NBSAP)?

What SEA can provide

To address the limitations of ESIA, two pro-active steps can be undertaken by countries or companies to address the challenges of mining development.

1) SEA for national sector planning

The first step is SEA for sector planning, to assist national mining departments / agencies in:

- Linking mining sector development to infrastructure development needs (road, rail, pipeline, water transport), governed by other departments;
- Aligning mining sector plans with other national policies, such as NBSAPs;
- Assessing the adequacy of the existing institutional capacity;
- Strengthening of the mining sector regulatory framework (environment, health & safety, cultural heritage, biodiversity, etc.);
- Addressing the cumulative effects of (often unregulated) artisanal and small-scale mining;
- Governance and revenue management; equitable distribution of mining revenues;
- Employment, required skills (technical and vocational education), spin off (e.g. creation of SMEs/value added industries);
- Population movements;
- Technology issues; investment in mining-related Research & Development;
- (Required capacity for) Compliance and enforcement mechanisms.

Example 1 illustrates how SEA can improve national sector planning.

Example 1: SEA 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 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;

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

Whereas the EIA process traditionally follows a standardised technical process, SEA is not prescriptive and there is no single way of doing it. The SEA seeks 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 GoM 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 a different level 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 Anandale, 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 SEA for regional development planning

2) SEA for regional development planning

A second step is to apply SEA in support of 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 conservation and development, characterisation of stakeholders;
- Regional inter-sectoral coordination for increased efficiency of transport network, rural and urban planning, biodiversity conservation efforts;
- Addressing human rights, land use rights, and community participation;
- Planning of public services where new mining development are expected (education, healthcare, public water supply).

Example 2 illustrates how SEA can improve regional development planning

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:

- Develop and assess 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.
- Provide 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

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 government does not implement an SEA, a company with large interests in a region can take the initiative for a regional SEA:

Edgar Basto, asset president at BHP Billiton Western Australia Iron Ore on the advantage of strategic regional planning: *“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 biodiversity and natural resources management. It provides clarity of tasks that need to be carried out, with clear division of responsibilities over different government agencies and private sector partners. It furthermore provides a clear view on the anxieties 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 and biodiversity receive the extra attention they require.

The NCEA

The Netherlands Commission for Environmental Assessment is an independent body of experts. It advises national and international governments on the quality of environmental assessment reports in order to contribute to sound decision-making. In addition, the NCEA supports the strengthening of EA systems in low and middle income countries and makes its extensive knowledge of environmental assessment available to all.

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The role of ESIA and SEA in mainstreaming biodiversity

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

List of mining related SEA's		
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 Gov'ment 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