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Strategic Environmental and Social Assessment of the Mining Sector in Mongolia 2013

Project Overview & Outcomes

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Agenda

- SESA Objectives and Outcomes
- SEA Regulation
- Mining Growth Policy Options
- SESA Approach
- Overview of Impacts
- Possible Responses, Gap Assessment, Policy Options
- SESA Action Plan
- Lessons learned

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SESA Objectives

In 2013, the need for a SESA of the mining sector was identified by the Ministry of Mining and the World Bank.

Broad objective

- "A comprehensive and participatory SESA that identifies priority actions with consideration of the environmental and socio-economic impacts and opportunities."

Specific Objectives

- Diagnose the key environmental and social problems and opportunities;
- Inform the ongoing reform and strengthening of the mining sector regulatory framework; and
- Propose specific measures that improve the environmental and social sustainability of mining in Mongolia.

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SESA Outcomes

Outcomes

1. Broadening of policy dialogue on mining sector reform; and
2. Development of a road map of environmental and social actions.

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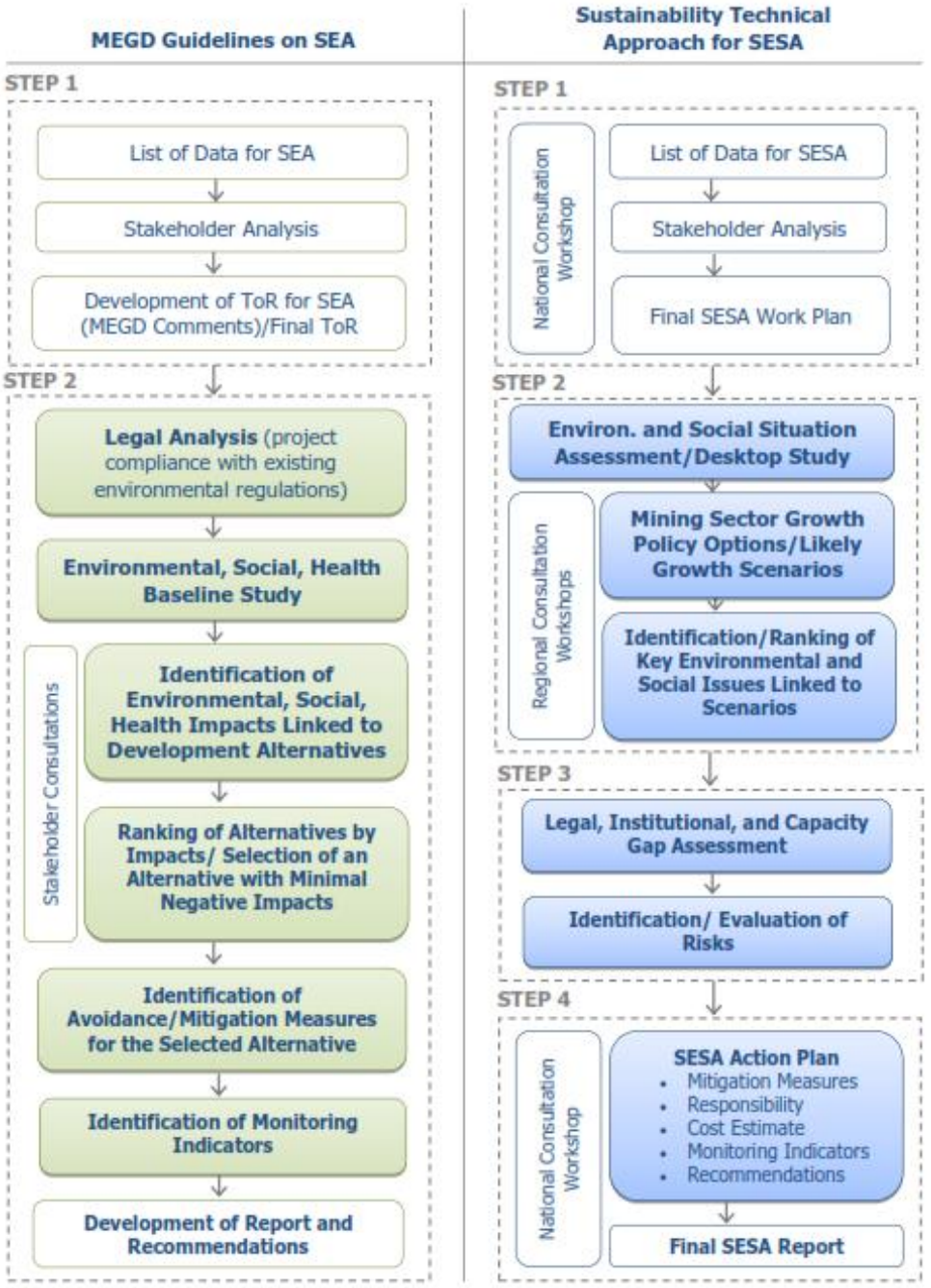
SEA Regulation

Alignment of SESA with MEGD Guidelines for SEA

- Mongolian SEA regulation relates to a specific kind of SEA, that is applied to a clear intervention, i.e. policy, plan, or programme.
- The SESA was not associated with a specific intervention, instead assessed the mining sector development looking at three scenarios.
- The Mongolian SEA regulation was approved after SESA had started.
- Sustainability followed the Mongolian SEA regulation procedure as closely as possible.
- SESA approach and the Mongolia SEA regulation coincide on key steps and components.



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Mining Growth Policy Options

Mongolian Economic Growth Scenarios and Assumptions, 2014 - 2025

Factor	Base	High	Low
Commodity Prices	IMF Metals (180) Copper Index =$720 Coal Index= $90	IMF Metals (200) Copper Index =$8800 Coal Index= $130	Metals (160) IMF Copper Index=$3300 Coal Index = $60
World growth	3.0%	4.0%	2.5%
Foreign Investment and policies	40% of GDP	50% of GDP	20% of GDP
Domestic Investment and policies	45/GDP Government Exp	45/GDP Government Exp	35/GDP Government Exp
Mineral production (share of GDP)	25%	35%	15%
Overall Average Growth Forecast	**8.0%**	**11.0%**	**6.5%**

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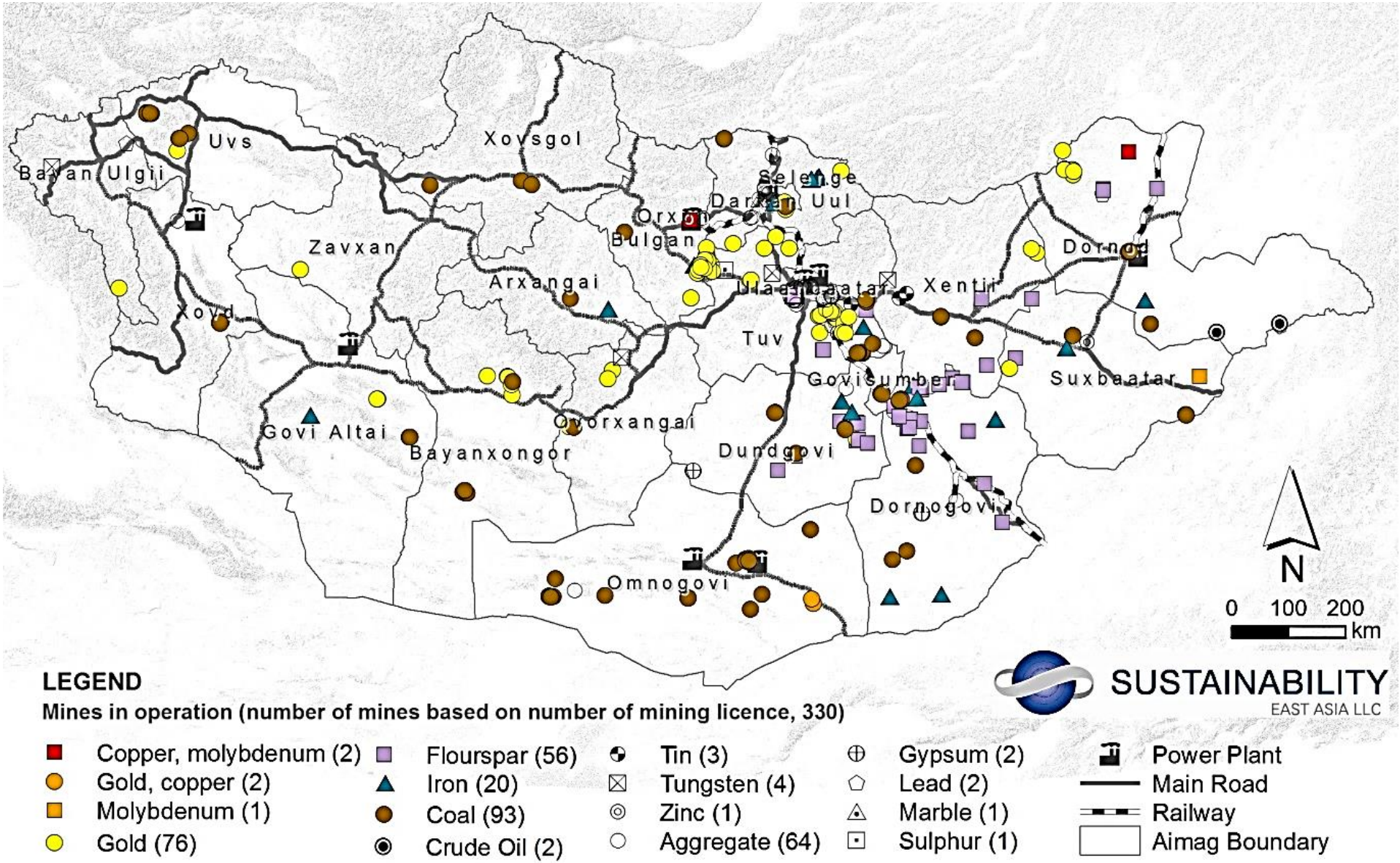
Base Growth Scenario, 2025



LEGEND

Mines in operation (number of mines based on number of mining licence, 330)

- Copper, molybdenum (2)
- Gold, copper (2)
- Molybdenum (1)
- Gold (76)
- Flourspar (56)
- Iron (20)
- Coal (93)
- Crude Oil (2)
- Tin (3)
- Tungsten (4)
- Zinc (1)
- Aggregate (64)
- Gypsum (2)
- Lead (2)
- Marble (1)
- Sulphur (1)
- Power Plant
- Main Road
- Railway
- Aimag Boundary

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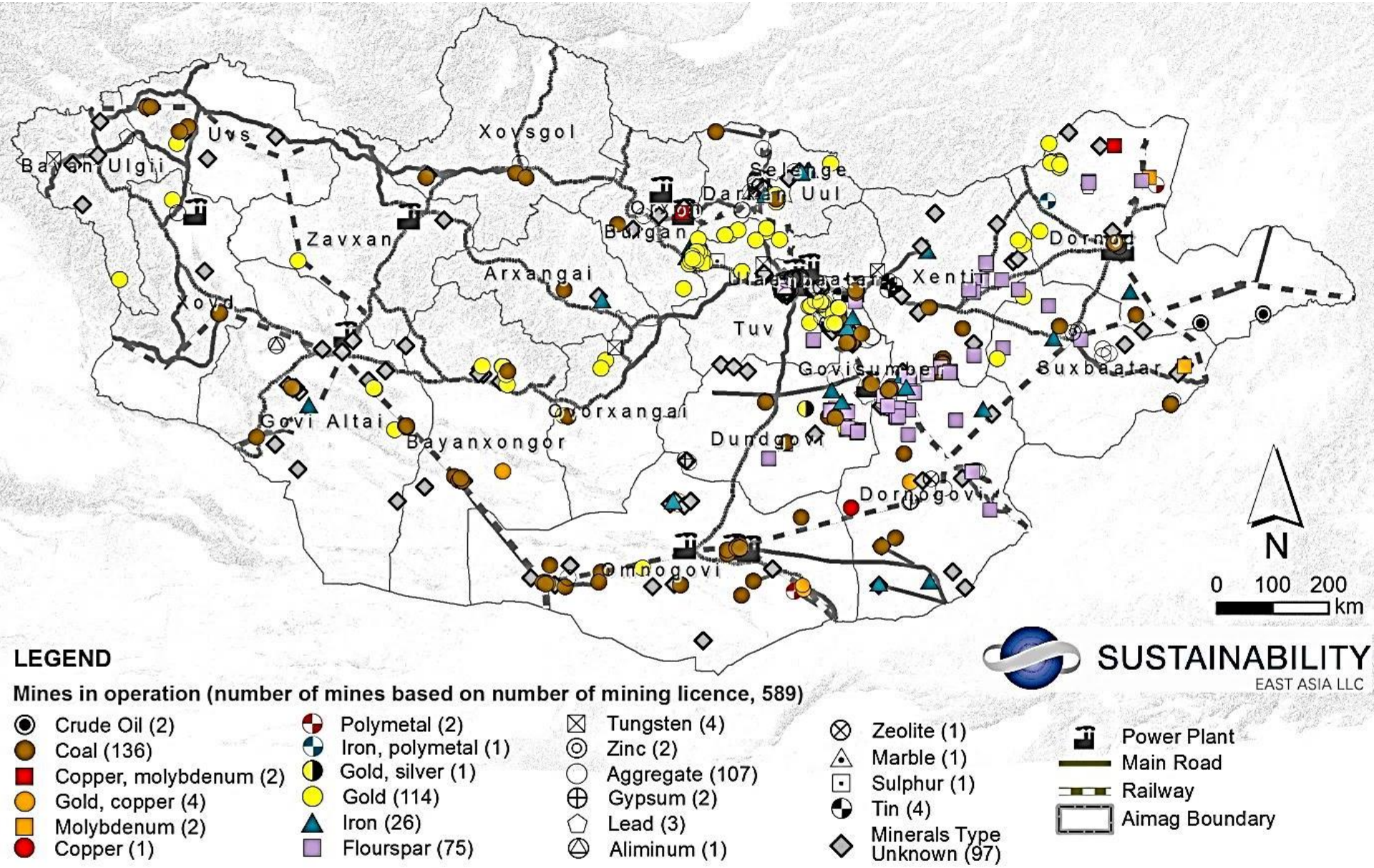
High Growth Scenario, 2025



LEGEND

Mines in operation (number of mines based on number of mining licence, 589)

- Crude Oil (2)
- Coal (136)
- Copper, molybdenum (2)
- Gold, copper (4)
- Molybdenum (2)
- Copper (1)
- Polymetal (2)
- Iron, polymetal (1)
- Gold, silver (1)
- Gold (114)
- Iron (26)
- Flourspar (75)
- Tungsten (4)
- Zinc (2)
- Aggregate (107)
- Gypsum (2)
- Lead (3)
- Aliminum (1)
- Zeolite (1)
- Marble (1)
- Sulphur (1)
- Tin (4)
- Minerals Type Unknown (97)
- Power Plant
- Main Road
- Railway
- Aimag Boundary

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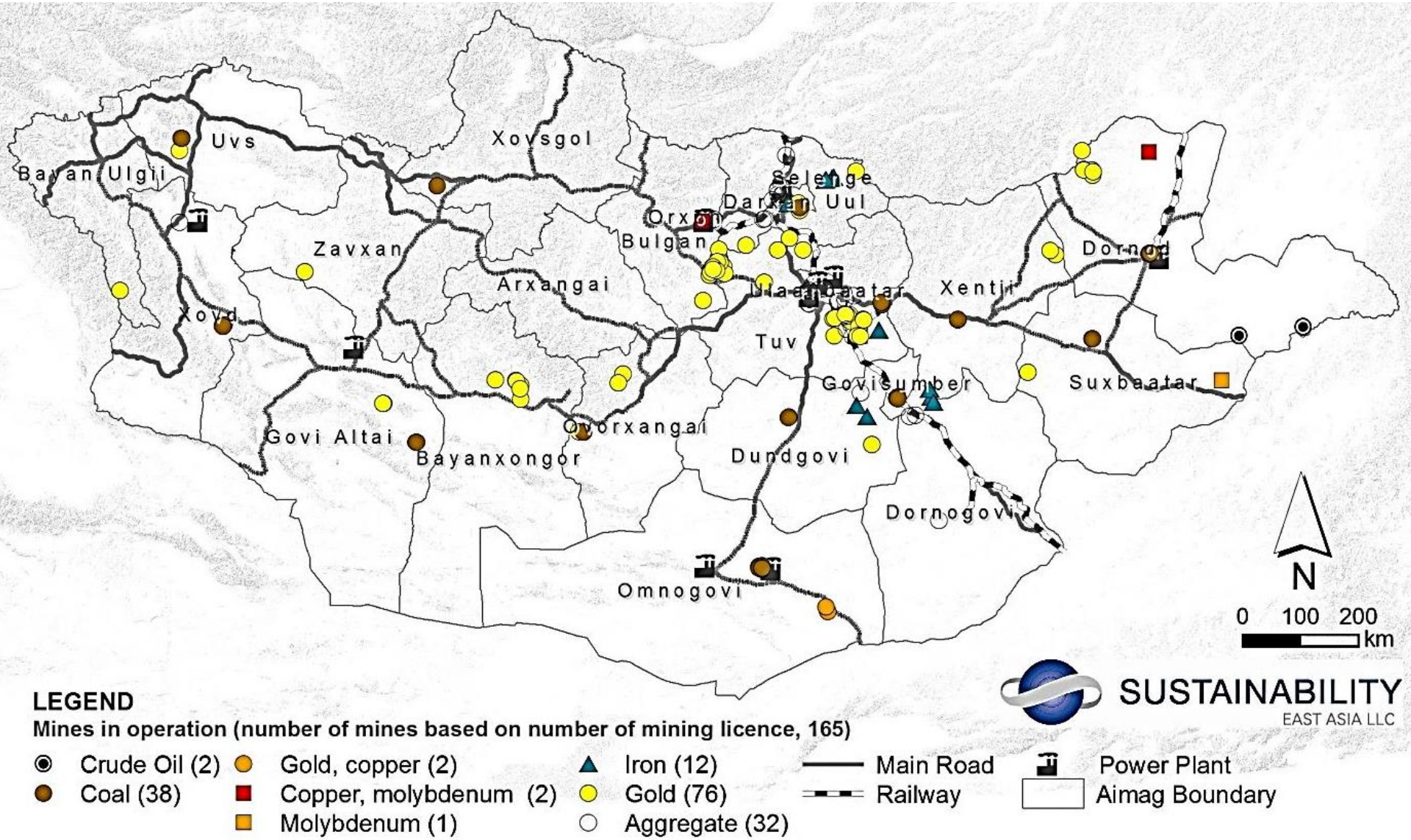
Low Growth Scenario, 2025



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SESA Approach

From Growth Scenarios to Environmental and Socio-economic Impacts

Growth scenario	What does each scenario mean for production of specific commodity?	Number and location of mines required to produce commodity tonnage	Environmental and socio-economic implications
Repeat for low, base, high →	X tonnes of commodity (coal, gold, copper etc.)	Y mines (no. of mines) Z mines (location. of mines)	→ Implications for each scenario

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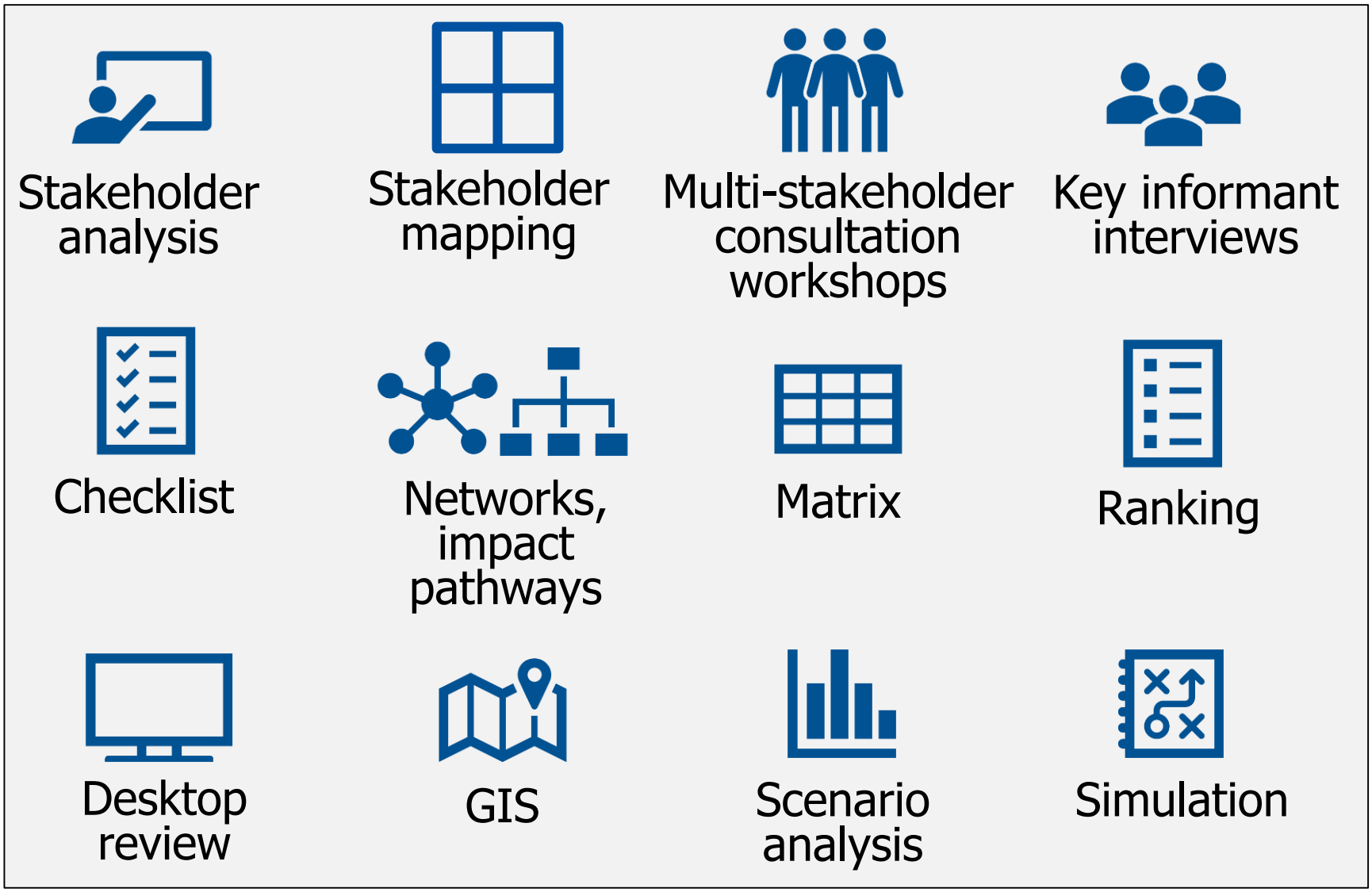
SESA Approach
Methods used in SESA



Source: Byambaa, B. (2017). SESA of the mining sector in Mongolia: Mitigating impacts on land and pasture use [PowerPoint slides]. Retrieved from TUM-Moodle.

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SESA Approach
Participatory Process

- **Multi-Stakeholder Consultation Workshops**
  - National Validation Workshop;
  - Round One Consultation;
  - Round Two Consultation.

Region	*Aimag*s / municipalities	Location	Participants	Date
Western	Bayan Olgii; Khovd; Uvs; Zavkhan; Gobi Altai	Khovd	20-25	24 January 28 February
Gobi	Bayankhongor; Umnugobi; Dundgobi; Dornogobi; Gobi-sumber;	Tsogttsetsii	20-25	23 January 3 April
Eastern	Dornod; Sukhbaatar; Khentii	Choibalsan	20-25	21 January 25 February
Northern	Khovsgol; Bulgan; Selenge; Darkhan-Uul; Orkhon	Erdenet	20-25	20 January 28 February
Khangai & Central	Tov; Arkhangai; Uverkhangai; Ulaanbaatar municipality	Ulaanbaatar	30-40	16 January 20 February

- **Key Informant Interviews**
- **Client Meetings**

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SESA Approach
Participatory Process

Round One Consultation: Key Objectives

- Investigate and substantiate the key environmental and social issues linked to mining development in Mongolia;
- Introduce the growth scenarios.





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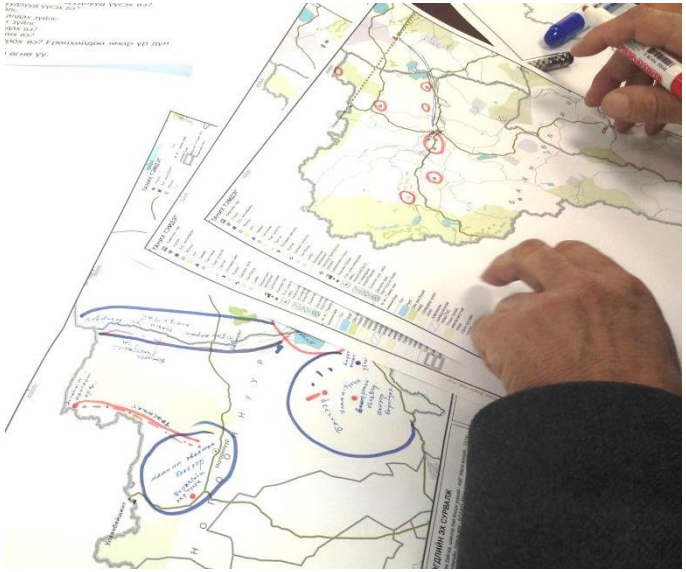
SESA Approach
Participatory Process

Round Two Consultation: Key Objectives

- Present the mining sector growth policy options scenarios;
- Consult with participants on the environmental and social benefits and trade-offs linked to the mining sector growth scenarios at the national, *aimag*, and *soum* level.





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Examples of
Overview of Impacts

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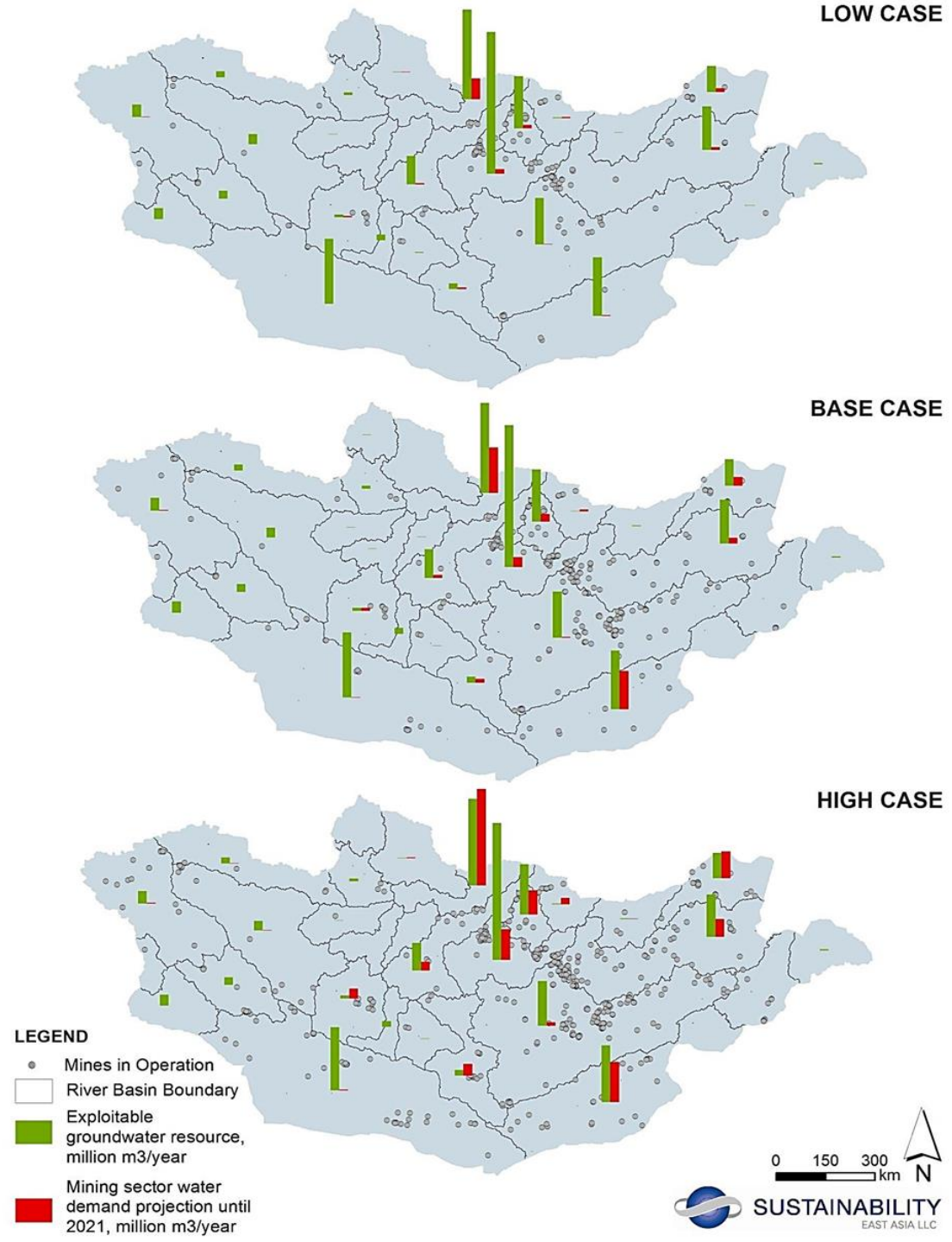
Potential impacts of mining on groundwater resources



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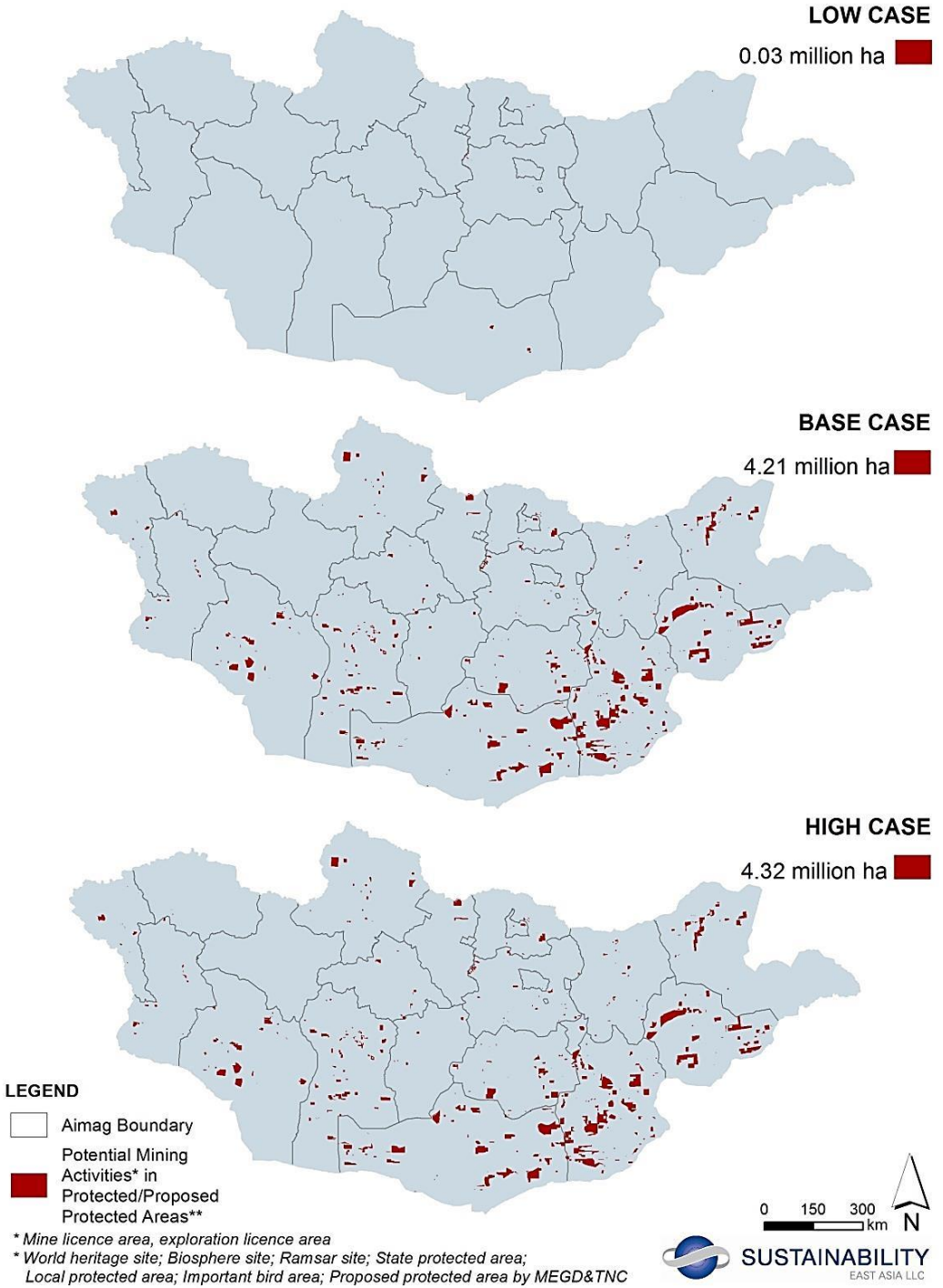
Potential mining activities in protected/ proposed protected areas



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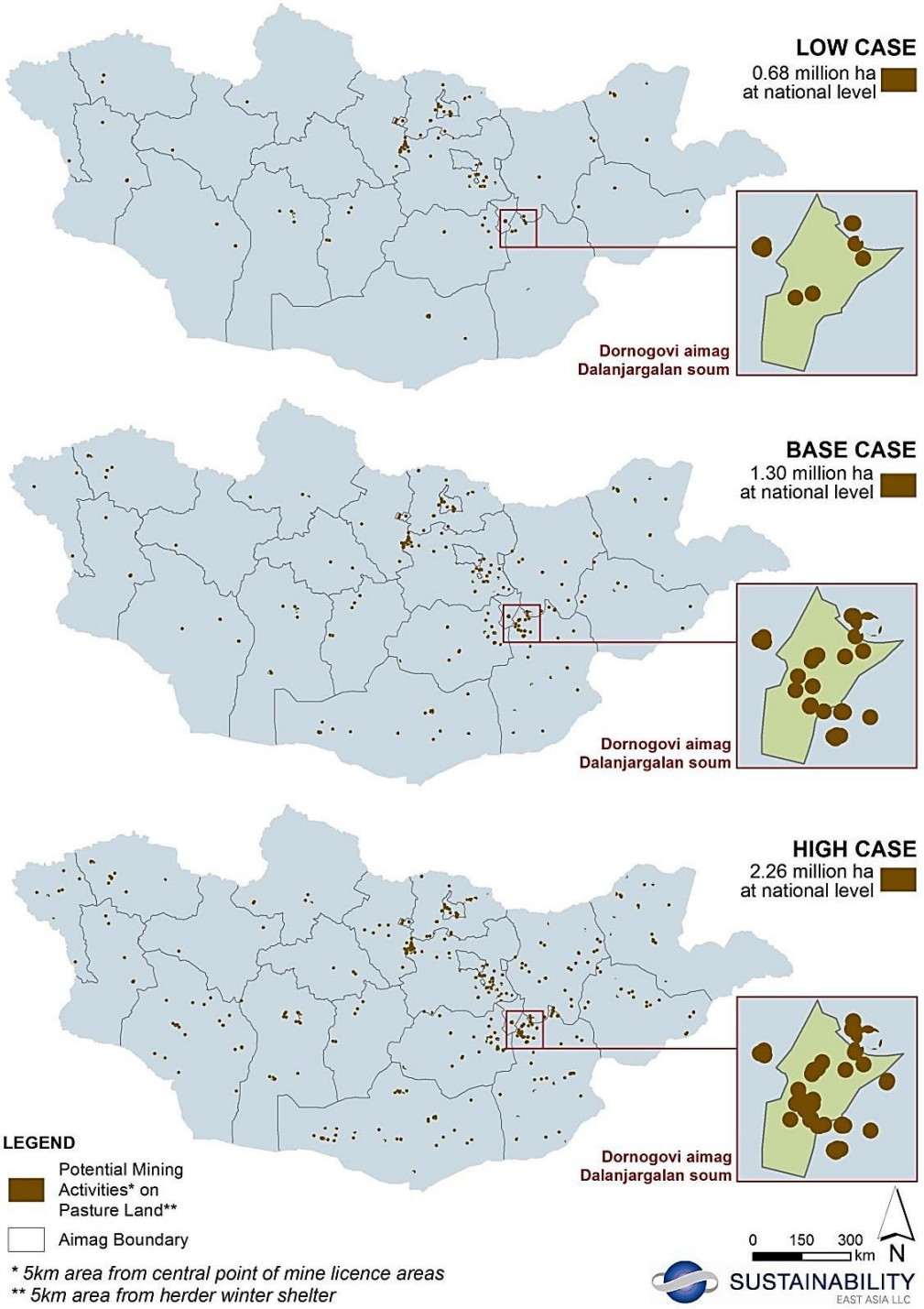
Potential mining activities on pasture land



No	Priority Issue	Sub-issues	Pos.	Neg.	Significance								
					LOW CASE			BASE CASE			HIGH CASE		
					Soum	*Aimag*	National	*Soum*	*Aimag*	National	*Soum*	*Aimag*	National
	ENVIRONEMTAL ISSUES												
1	Water	Unsustainable water resource use		X	Minor	Minor	Minor	Major	Major	Major	Major	Major	Major
		Changes in hydrological regimes		X	Minor	Minor	Minor	Medium	Medium	Medium	Major	Major	Major
		Water level lowering and herder well access		X	Minor	Minor	Minor	Medium	Minor	Medium	Major	Major	Major
2	Land & Pasture Use	Impacts on protected areas		X	Minor	Minor	Minor	Minor	Medium	Medium	Major	Major	Major
		Land/ pasture and soil quality deterioration		X	Medium	Medium	Medium	Major	Major	Major	Medium	Medium	Minor
3	Air Quality	Air quality deterioration		X	Minor	Minor	Minor	Major	Minor	Minor	Medium	Minor	Minor
4	Environmental Management	Waste generation		X	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
		Environmental management by mining companies		X	Minor	Minor	Minor	Minor	Medium	Minor	Medium	Minor	Minor
		Environmental regulation and institutional capacity		X	Minor	Minor	Minor	Minor	Minor	Minor	Major	Medium	Medium
		Rehabilitation by mining companies		X	Medium	Medium	Medium	Major	Major	Major	Medium	Medium	Minor
		Biodiversity disturbance		X	Minor	Minor	Minor	Major	Major	Medium	Major	Major	Major
	SOCIAL ISSUES												
5	Artisanal & Small-scale Mining	Marginalisation of the artisanal and ASM		X	Medium	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
		Health, safety and environmental issues associated with the ASM		X	Medium	Minor	Minor	Minor	Medium	Medium	Minor	Minor	Minor
		Economic impacts of the ASM sector		X	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
6	Cultural Heritage	Loss of intangible cultural heritage		X	Minor	Minor	Minor	Major	Minor	Major	Major	Major	Major
7	Human Rights & Community Participation	Lack of community participations and information		X	Minor	Minor	Minor	Medium	Medium	Medium	Medium	Minor	Medium
		Human rights and community participation		X	Minor	Minor	Minor	Major	Medium	Major	Major	Major	Major
8	Health & Safety	Community health and safety		X	Minor	Minor	Minor	Major	Major	Medium	Major	Medium	Medium
		Occupational health and safety		X	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
		Livestock health and safety		X	Minor	Minor	Minor	Major	Medium	Medium	Medium	Minor	Minor
	ECONOMIC ISSUES												
9	Governance & Revenue Management	Macro-economic effects		X	Minor	Minor	Minor	Medium	Medium	Medium	Medium	Medium	Medium
		Revenue management		X	Minor	Minor	Minor	Medium	Medium	Medium	Medium	Medium	Medium
10	Regional Planning & Infrastructure	Increased pressure on public services and infrastructure		X	Minor	Minor	Minor	Medium	Minor	Minor	Medium	Medium	Minor
11	Employment & Skills	Population influx in mining development areas		X	Minor	Minor	Minor	Medium	Minor	Minor	Medium	Medium	Minor
		Limited employment from communities		X	Minor	Minor	Minor	Medium	Minor	Minor	Medium	Minor	Minor
9	Governance and Revenue Management	Revenue to budget	X		Minor	Minor	Minor	Minor	Minor	Medium	Medium	Major	Major
10	Regional Planning & Infrastructure	Regional infrastructure development	X		Minor	Minor	Minor	Minor	Minor	Minor	Medium	Major	Medium
11	Employment & Skills	Employment opportunities in the mining sector	X		Minor	Minor	Minor	Minor	Minor	Minor	Medium	Medium	Medium
		Livelihood improvement	X		Minor	Minor	Minor	Minor	Minor	Minor	Medium	Medium	Medium
		Development of SMEs and skills development	X		Minor	Minor	Minor	Medium	Medium	Medium	Major	Medium	Medium
12	Technology	Use of energy efficient, modern mining technology	X		Minor	Minor	Minor	Minor	Minor	Minor	Minor	Medium	Medium

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Example of Significant Environmental Impacts

Water

Low Growth Scenario	• Potential for local level water use conflicts to occur at both a *soum* and *aimag* level in Selenge, Khuvsgul and Bulgan *aimags*.
Base / High Growth Scenario	• Significant mine water use conflicts with current and future water resource users. • Considerable impacts of mine abandonment on the environment including sedimentation of surface water, leaching of chemicals from mine tailings, acid mine drainage and localised changes to surface water regimes. • The need to continue to build a body of knowledge on availability of water resources between all stakeholders is viewed as a high priority issue. The lack of data on water resource availability and stakeholder uncertainty surrounding the impacts of mine water use continue to elevate this issue under all mine growth scenarios, although the risks are perceived to increase with increased mining activity.

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Example of Significant Social Impacts

Human Rights and Community Participation

Low Growth Scenario	• Human rights and public participation impacts may still be significant, if not well managed. • Opportunity for slower scale up to test and pilot options at appropriate levels.
Base Growth Scenario	• Potential for poor oversight and capacity of GoM to monitor mining companies' social performance in base case. • Conduct of land acquisition and resettlement remains inconsistent and influx management varies. • Consideration of human rights is very low to absent.
High Growth Scenario	• High potential for significant impacts on human rights and public participation as legal and regulatory system is rapidly stretched beyond capacity. • Short-term limitation in GoM capacity to facilitate public benefits and meaningful participation of communities due to poor capacity in human resources to adapt to rapidly changing circumstances. • In the long term there will be an increase in capacity to incorporate community participation and foster a human rights-based approach.

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Example of Significant Economic Impacts

Governance and Revenue Management

Low Growth Scenario	• Ability of GoM to invest in capacity building and good governance structures is constrained at all levels. • Role of civil society in strengthening governance remains limited.
Base Growth Scenario	• GoM's ability to allocate revenues for, and conduct, development and capacity building is limited and therefore development remains unevenly distributed geographically. • Civil society matures slowly in contributing to governance and accountability.
High Growth Scenario	• Short-term lag before higher mining revenues filter through in the form of increased governance capacity in the longer-term beyond 2025. • Short-term lag includes corruption and misappropriation of finances; poor administrative and audit capacity; weak governance structures and poor regulatory implementation at *soum* and *aimag* levels; and inequitable distribution of mining revenues. • Civil society benefits from external support to strengthen its role in governance and accountability in revenue management.

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Possible Responses (Example)

Water

Possible Responses	
• **Capacity building;** • **Identify the future water demands;** • **Increase water use efficiency and water re-use.**	
Soum	• Implement participatory environmental programmes to monitor herder wells with involvement of local communities; • Identify and assess mine water supplies that pose low risk to herder water supplies. This includes developing measures to effectively communicate and demonstrate water resource aquifers used for mine water supply (deep, low quality, fossil water) as opposed to herder water supplies (shallow, fresh and recharged). The issue is determining, communicating and demonstrating how the mining of deep groundwater impacts the use of shallow water for herding.
Aimag	• Identify future water demands, in *aimags*/regions where high scenario points to future problems; • Raise awareness among mining companies about new regulations on water fee structures that create financial incentives and promote advanced water use and recycling technologies. While most mines do recycle water from tailing, the same is not necessarily true for groundwater inflows to open pits or underground. Measures can include construction of water ponds that collect groundwater discharged from open pits; • Ensure water is metered in all mines and engage public in water monitoring; • Obtain a more detailed picture of the spatial (and vertical) distribution of groundwater (quantity and quality), and possibilities to increase water use efficiency and water re-use.
National	• Expand monitoring network of groundwater boreholes used for mining activities to build public common understanding about groundwater use for mining; • Improve capacity, coordination, and responsibilities for mine water resource management between organisations working in water sector; • Raise awareness among mining companies about new regulations on water fee structures that create financial incentives and promote advanced water use and recycling technologies. Water is not recycled in all mines, thus it can include construction of water ponds that collect groundwater discharged from open pits; • Promote programs that increase the understanding of water resource management issues throughout all the relevant stakeholders including government, herders, communities, mining companies and civil society (see also Section 4.3.3on Human Rights and Community Participation); • Obtain a more detailed picture of the spatial (and vertical) distribution of groundwater (quantity and quality), and possibilities to increase water use efficiency and water re-use; • Abandonment: Regulation and implementation monitoring, recourse for authorities to require minimum standards in temporary or permanent mine closure required.

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Gap Assessment

Example of the Linkage between Priority Issues, Responses, Gaps, and Policy Options

Priority Issue	Possible Responses	Regulatory, institutional, capacity gaps	Policy options for addressing gaps
Mining/pasture use conflict →	Relocate herders →	No law on involuntary land acquisition →	Develop law on involuntary land acquisition
	Pasture management plan →	Limited capacity to improve pasture use →	Provide budget to organize pasture use improvement activities

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Gaps and Policy Options (Example)

Water

Priority Issues	Possible Responses	Level	Scenario	Regulatory, Institutional, Capacity Gaps	Gap-Filling Policy Options
Water resource use	Identify future water demands, in *aimag*s/regions where high scenario points to future problems	*Aimag*	Base High	There are gaps in understanding: (i) the nature of water resources (water resource studies planned on an ad hoc project-by-project basis and not through a regional or national planning framework); and, (ii) projections of future water demand from mining activities.	Implement two sets of studies, to be undertaken every 5 years: (i) national water resource availability study; (ii) national water demand study.
	(i) Ensure water is metered in all mines. (ii) Engage public in water monitoring.	*Aimag*	Low Base High	No regulations exist that allow communities to participate in water monitoring	Make amendments to EIA regulations that would allow communities to participate in water monitoring and provide mechanisms for addressing results
Changes in hydrological regimes	Obtain a more detailed picture of the spatial (and vertical) distribution of groundwater (quantity and quality), and possibilities to increase water use efficiency and water re-use	*Aimag* National	Low Base High	The availability of groundwater resources suitable for mining water supplies is poorly understood. Knowledge gap regarding the impact on shallow water systems used by communities and herders from the drawdown effects from mining water use in the deeper sedimentary basins.	Provide River Basin Authorities (RBA) with resources and capacity to undertake and publish required studies
Water level lowering and herder well access	Implement participatory environmental programmes to monitor herder wells with involvement of local communities	*Soum*	Base High	Low capacity to organise and implement community-based monitoring	Guidelines to be developed under the Law on EIA, to support community-based monitoring and results sharing

SESA Action Plan

SESA Action Plan includes:

- Possible responses to address key issues;
- Scenarios and levels at which possible responses need to be implemented;
- Responsible parties for implementation;
- Regulatory, institutional, and capacity gaps;
- Gap-filling policy options;
- Priorities for implementation.

SESA Action Plan:

- **Identified 12 priority issues, 25 issues;**
- **Suggested 121 possible responses (measures).**

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Lessons Learned

- The success of the SESA outcomes is dependent on the participatory nature of the SESA process. By taking the environmental and social priorities of stakeholders as its starting point, the SESA process seeks to ensure that:
  - (i) the priorities of stakeholders receive appropriate attention;
  - (ii) actions are taken to eliminate or mitigate the effects of policy changes on diverse stakeholders, particularly the most vulnerable groups such as women, elderly, and youth; and
  - (iii) recommendations are perceived as legitimate by the majority of the population, which is critical for long-term sustainability.
- The outcomes of SESA are dependent on their uptake by the GoM/relevant parties and the political will to implement the recommendations.

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Lessons Learned

- The challenge of keeping the policy dialogue alive after the SESA report has been submitted and delivering on the findings and recommendations of the SESA.
- The need to avoid thinking of the SESA as a short-term process leading to the preparation of a report to influence decision-making.
- Follow up monitoring is required. Formation of an implementation secretariat charged with monitoring and evaluation of SESA actions.

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Thank you.