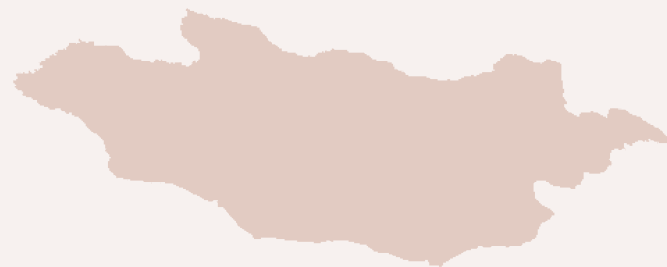# LANDSCAPE-SCALE PLANNING TO SUPPORT CONSERVATION, NOMADIC LIVELIHOODS AND SUSTAINABLE DEVELOPMENT IN MONGOLIA

GUIDING PRINCIPLE 3: COMPREHENSIVE LIFECYCLE ASSESSMENT OF SUSTAINABILITY

Infrastructure's environmental, social, and economic sustainability should be assessed as early as possible in the planning and preparation cycle, covering both financial and non-financial factors across interdependent projects, systems and sectors over their lifecycles. Assessments should consider the cumulative impacts on ecosystems and communities as part of a broader landscape, beyond a project's immediate vicinity, and take account of transnational impacts.

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BACKGROUND

Located between China and Russia in northern Asia, Mongolia is the world's least densely populated and largest landlocked country: it has a total land surface of 1.564 million kilometres² and an estimated population of over 3.3 million (UNDP 2020). Approximately 32 per cent of the population is nomadic or semi-nomadic, while more than 60 per cent of Mongolians live in urban areas (United Nations Educational, Scientific and Cultural Organization [UNESCO] 2018, p. 3). Due to its unique and complex geology, Mongolia is a leading producer of commodities such as coal and copper. Exploration and extraction are associated with large-scale infrastructure development across the country, which is also linked to the China-Mongolia-Russia economic corridor (Zoï Environment Network 2020). On average, Mongolia's mining sector accounted for 23.03 per cent of its GDP for the last three years (Extractive Industry Transparency Initiative [EITI] 2020), although mineral exports were significantly impacted by COVID-19 (UN 2020).

Mongolia's landscape broadly divides into four regions: the Altai mountains in the west; the Gobi Desert in the south; the vast steppe in the east; and taiga forests in the north. These landscapes support a diverse and globally significant flora and fauna, ranging from medicinal plants to the Asiatic wild ass. Land degradation is the country's most serious environmental problem, accelerating desertification and affecting Mongolia's remarkable ecosystem integrity and biodiversity. Over 70 per cent of Mongolia's rangelands are degraded to some extent, and over 75 per cent of the country's pasturelands suffer from degradation (Nyamtseren *et al.* 2013, p. 9). Decreased carrying capacity and productivity of land resources directly impact the nation's productivity and its efforts to achieve equitable and sustainable development. The main causes of land degradation are mining, infrastructure development and overgrazing, exacerbated further by climate change.

LANDSCAPE-SCALE PLANNING

Despite Mongolia's low population density, infrastructure development for mining and transportation represents a significant threat to Mongolia's fragile, semi-arid ecosystems. Without landscape-scale planning and corresponding mitigation measures to protect headwater areas and wildlife corridors, the unchecked expansion of economic infrastructure is not sustainable. It also risks undermining traditional rural livelihoods which rely on healthy ecosystems for nomadic herding.

The Government of Mongolia, with the assistance of TNC, has developed landscape-scale plans for the country that take into account biological resources, ecosystem services, climate change considerations and projected development. These plans integrated multiple values and objectives from the outset. They were formulated in accordance with a mitigation and offset policy that is helping Mongolia minimize the impacts on wildlife habitats and guarantee the long-term delivery of ecosystem services, while still allowing key economic sectors to flourish through new infrastructure development.

UPSTREAM INTERVENTIONS FOR CONSERVATION AND MITIGATION

As part of upstream conservation planning, the Government of Mongolia carried out an ecoregional assessment process, using a stakeholder-driven, integrated approach that eventually established conservation priority-setting maps for the entire country. Ecoregional assessment is a transparent, data-driven tool for identifying a set of places or areas that, taken together, represent the majority of native species habitats, natural communities and ecological systems found within a given target area. The assessment can support landscape-scale plans to produce a conservation portfolio of priority sites for conservation planning (Cameron, Cohen and Morrison 2012; Goldstein *et al.* 2017).

This approach has supported Mongolia's conservation objectives and informs how future economic development can be planned and designed to avoid and minimize impacts across the landscape, consistent with the mitigation hierarchy (Heiner *et al.* 2019). Nomadic herders benefit from conservation planning, as their livelihoods and cultural heritage depend upon the pastures provided by Mongolia's sparsely inhabited steppe (ADB 2013). The government initially implemented the approach in the eastern steppe region, followed by the South Gobi region, which was facing significant economic development challenges. Two additional ecoregional conservation plans were developed by 2017 to complete the process for the whole country.

During the planning process, the government also developed regulations and guidance on mitigation for addressing infrastructure projects. In 2012, the Mongolian Parliament amended the Environmental Impact Assessment (EIA) law to require biodiversity offsets for all mining and oil development projects (Mongolia, Parliament 2012). In 2014, the Ministry of Environment and Green Development developed a Guidance Handbook for implementing biodiversity offsets. To further support transparent and replicable implementation, the Ministry of Environment and Green Development, with the support of TNC, has developed a web-based Mitigation Design GIS Toolset that identifies impacts and calculates mitigation and offset requirements (TNC 2016a). The toolset includes an offset siting function. This identifies potential offset sites by comparing the ecosystem composition of the development footprint with portfolio sites. The function allows for identification of sites with similar ecosystem compositions and within several possible spatial extents, defined by political units (districts/ *soums*, provinces/*aimags*), within the bio-geographic study areas.

Mongolia's integrated planning framework moves beyond a reactive, project-by-project approach towards a proactive, regional vision that is consistent with broader conservation and sustainable development goals. It helps project developers avoid sensitive areas, creates incentives for companies to locate infrastructure in the least harmful areas, and allows government officials and the broader public to more transparently assess a project's impacts.

CAPACITY FOR RIGOROUS ASSESSMENTS

One of the main challenges found in developing and implementing a landscape-scale joint conservation and mitigation planning process is the availability of data. The process depends on existing data that is often coarse and incomplete, meaning that regular review of the planning process by an expert working group is essential throughout.

While the development of the Mitigation Design Tool provided a simplified method for evaluating project impacts and mitigation measures, capacity-building among government authorities in Mongolia remains a critical challenge, due to the high turnover of civil servants. However, over 100 government officials have been trained in mitigation requirements to secure the implementation of the rigorous environmental licensing procedures, and "train-the-trainers" programmes have been established to ensure knowledge continuity (TNC 2016b). Many economic development decisions worldwide can be made at a sub-national level. This means that effective planning processes need targeted capacity-building programmes to be provided for government officials at multiple levels, in order to ensure that plans can be implemented.

Building capacity for upstream, integrated, landscape-scale infrastructure planning can support several UN SDGs and their associated targets (UN 2020). Mongolia's efforts help protect freshwater (SDG 6 (Clean Water and Sanitation)) by identifying and safeguarding headwater areas and wetlands in order to maintain Mongolia's scarce water resources. By protecting grasslands and implementing offsets that support rangeland management, planning contributes to food security (SDG 2 (Zero Hunger)), reduces land degradation, and supports restoration and conservation (SDG 15 (Life on Land)). Mongolia's experience is also a good example of promoting strong institutions by increasing transparency of decision-making, reducing the potential for conflict, and strengthening government actions (SDG 16 (Peace, Justice and Strong Institutions)). The approach can also improve the siting of infrastructure, thereby contributing to SDG 9 (Industry, Infrastructure and Innovation).

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REPLICABILITY

Mongolia's experience with landscape-scale planning can serve as a model for other countries to expand protected areas and improve implementation of the mitigation hierarchy and offset policies. Countries can draw on Mongolia's processes to improve the sustainability of built infrastructure, while conserving natural capital essential for community livelihoods. Adopting landscape-scale planning offers a specific means of aligning economic recovery packages with social and environmental objectives in the post-

COVID-19 era. It also helps to reduce or avoid habitat fragmentation, leading to lower rates of interaction between humans and disease-carrying animals.

TNC has adapted and created similar applications to support other governments including in Australia, India and Indonesia. All the landscape-scale planning approaches serve the same purpose: empowering decision makers with the information needed to assess proposed development projects for potential environmental and social impacts.

KEY INSIGHTS

> Mongolia's landscape-scale plans incorporate multiple categories of resources, which helps decision makers account for and minimize cumulative impacts from infrastructure development.

> The planning process has informed new Parliamentary regulations and guidance for avoiding, minimizing, and offsetting impacts from infrastructure projects.

> When implementing nationwide ecoregional assessments, a stakeholder-driven engagement process was essential to ensure citizens' needs were incorporated into conservation priority maps and long-term plans.

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