

BIODIVERSITY BASELINES FOR DEVELOPMENT AND CONSERVATION



Baseline assessments give a snapshot of an area's biodiversity in time. Credit: Juan Pablo Moreiras/FFI.

Snapshot in time

Species and ecosystems are as intricate as they are diverse. One of the biggest challenges for integrating conservation into sustainable development is to understand how mining and oil and gas projects, and their associated infrastructure, impact biodiversity and the environment. In order to predict how a proposed project might affect a natural system, it is important to first understand the current conditions - the baseline environment.

A baseline assessment is a snapshot of an area's biodiversity which acts as a reference for comparing changes. A baseline can highlight areas of importance for biodiversity, identify threats to species and habitats and help understand how local communities use and value resources. With this crucial information, companies and decision makers can identify key risks to biodiversity, predict future environmental impacts from development and land use changes, design actions to manage these impacts and identify indicators to monitor and evaluate their success.

What's in a baseline?

Baseline studies aim to give not only a benchmark of an area's biodiversity but a picture of its overall importance in the landscape. In addition to records of species, habitats and ecosystems, baselines should capture the way different aspects of a landscape function, interact and change over time. This might include food web relationships, hydrological cycles, or seasonal changes to habitats and species, such as breeding and migration events. Assessments should also consider historical, existing and expected pressures on biodiversity, such as human activity or nearby developments, to better predict how the baseline might change over time.

A key challenge for baseline assessments is to capture all these variations in a limited period of time and with limited resources. For this reason, it is crucial to begin assessments early in the development process, particularly before a project or activity begins.

Linking human and natural systems

Local communities, indigenous people and society use, benefit from and value biodiversity in diverse ways. Baseline surveys therefore need to understand these links with biodiversity at both local and wider scales in order to predict and manage the social impacts of a project. Examples of such impacts could include shortages of a key commodity, loss of the quality or quantity of a resource needed by a local community or damage to an area or species of cultural significance.



Baselines should capture how different aspects of a landscape function, interact and change over time.
Credit: Pippa Howard/FFI.



An important component of baselines is understanding the links between people and nature.
Credit: Jeremy Holden/FFI.



Predator-prey relationships are one example of information captured in a baseline.
Credit: Pippa Howard/FFI.

Managing risks and opportunities

Biodiversity impacts are not just a risk to the environment and society – but to the operations and businesses responsible for such effects. Poor environmental management could damage a company's reputation through restricting access to land, resources or financing. Moreover, it could harm a company's social licence to operate, the ongoing support from communities and other stakeholders for a business and its operations. Baselines are an essential tool for companies to identify and monitor these risks, and find opportunities to conserve biodiversity in the landscapes where they operate.

Mitigating impacts

Companies rely on baseline information to understand and predict the direct, indirect and cumulative environmental and social impacts of development in order to put in place plans to avoid and mitigate them. This is done through the mitigation hierarchy, a prioritised set of steps to alleviate environmental harm through avoidance, minimisation, restoration and offsetting of negative impacts to biodiversity. The mitigation hierarchy aims to avoid and minimise impacts wherever possible, and can only be implemented effectively if comprehensive baseline data is available early in the project lifecycle.

One of the best ways to fully understand and manage the impacts to biodiversity and the environment is to involve stakeholders present in the landscape. Consulting with these groups, such as local communities, conservation organisations and universities, can help to build comprehensive baselines. This improves baseline information by drawing on local knowledge, in turn helping businesses ensure that projects meet stakeholder expectations and minimise reputational and operational risks.

Our work with baselines

Fauna & Flora International has led and contributed to both site and landscape level baseline assessments in a variety of environments. These include designing baseline assessments and scopes of work for the exploration & production (e&p) Division of Italian oil and gas company eni in Ecuador, Alaska, Indonesia, Mozambique, Congo, Gabon, Italy, Norway and Pakistan; a landscape level assessment of the Central Namib Desert for the Namibian Ministry of Environment and Tourism; an ecosystem services assessment in Peru for Repsol; site-level assessments for Anglo America in southern Africa; and critical habitat assessments for Rio Tinto in Mongolia.

References

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