International Standard

ISO 17620

First edition
2025-10

Biodiversity — Process for designing and implementing biodiversity net gain in development projects

Biodiversité — Processus de conception et de mise en œuvre du gain net de biodiversité dans les projets de développement

Reference number
ISO 17620:2025(en)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 331, *Biodiversity*.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Biodiversity encompasses the diverse spectrum of life found on Earth, spanning genetic, species and ecosystem levels. This includes a wide array of organisms, including plants, animals, fungi and microorganisms, along with the communities they form and habitats they live in. Biodiversity provides essential services for people, including carbon storage, clean water, air and food. It also underpins our wellbeing and is valued for its intrinsic worth.[1]

In recent years, recognition of the joint biodiversity and climate crisis has gained pace. Governments, businesses, organizations and the public are not only seeking to protect biodiversity, but also to enhance biodiversity through all sectors of society and the economy, including construction and development.[23]

For many years, balancing economic growth with environmental sustainability was seen as a trade-off, either sacrificing the natural environment, or holding back growth in order to protect nature. This is a misunderstanding and several initiatives have emerged wherein development projects play a role in protecting, restoring, and enhancing the environment. One such initiative is Biodiversity Net Gain (BNG).

BNG is a specific, quantifiable outcome from project activities that deliver demonstrable benefits for biodiversity compared to the starting or baseline state of biodiversity.

Between 2015 and 2018, the IUCN published a number of documents on net positive impacts on biodiversity [9]-[13] including from business[11] and conservation perspectives.[10] In 2018, the Business and Biodiversity Offsets Programme (BBOP), an international group of 70 companies, government agencies, financial institutions and civil society organizations, published *The BBOP Principles on Biodiversity Offsets*[6] and the *Standard on Biodiversity Offsets*[4] to support developments to achieve BNG in accordance with good practice. These principles aimed to set a benchmark of objectives including adhering to a mitigation hierarchy and avoiding adverse impacts on irreplaceable biodiversity features.

This document provides a conceptual framework for BNG and builds on, and adds to, the foundational work referenced above. It translates the principles and actions to implement them into a process. The aim of this document is to provide a consistent and structured process for designing and implementing BNG that is based on good practice. It is recognized that indicators and metrics for assessing BNG are at various stages of development. This document aims to support their use and development balancing the challenge of measuring the complexity of nature with the need for consistent, transparent and structured processes to halt and reverse loss of biodiversity.

It is intended that this document is of use to actors involved in development including ecologists, planners, biologists, auditors, developers, conservation organizations, land managers, planning authorities and organisations and investors. It can also be used by land managers and organizations aiming to generate BNG through management of their land.

This document is intended for projects of all sizes and for all types of development sectors. It can be applied to any project, including development projects that do not require planning permission or a building permit, as well as land management.

Most development plans and projects involve a logical sequence through the four broad stages of:

a) preparation;

b) design;

c) implementation;

d) management, monitoring and reporting.

The process of BNG within this document is founded on these stages, with the aim of applying them to small developments with minimal biodiversity impact, as well as large-scale developments involving project option appraisal or strategic planning.

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These stages can be put in parallel with those set out in ISO 14001 under the Plan, Do, Check, Act. The steps of the BNG assessment line up with a development project's life cycle and the ongoing delivery of management and monitoring to deliver the gains in biodiversity:

— Plan corresponds to the preparation and design stages,

— Do corresponds to the implementation and management stages,

— Check corresponds to monitoring,

— Act corresponds to reporting and adaptive management that follows.

Some activities described in this document and undertaken through a project are refined and updated as the BNG process is implemented. For example, a given project's biodiversity baseline can be assessed using desk-based studies during the preparation stage, and then updated following site surveys during the design stage. Annex A contains guidance on which activities can be relevant to different stages of the process.

The following projects should be actively avoided:

— projects that will negatively impact protected areas or areas under conservation measures, or

— projects with relatively high biodiversity for the region, whose destruction of biodiversity cannot achieve BNG.

These projects can follow the process in this document for biodiversity features that are not irreplaceable but cannot claim project-wide achievement of BNG. These projects will transparently and comprehensively refer to the adverse impacts on irreplaceable biodiversity features in communications and reports

The BNG process in this document does not substitute the requirements to assess ecological beneficial and adverse impacts and report them, e.g. as part of an Environmental Impact Assessment (EIA). Rather, this document builds on, and is not intended to repeat, existing good practices for project biodiversity surveys, impact assessments, mitigation and compensation.

NOTE A project can involve requirements to achieve BNG from, for example, a planning requirement or compliance with legislation. This document covers a process to achieve BNG, notwithstanding any such requirements. It does not infer compliance with any planning condition.

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Biodiversity — Process for designing and implementing biodiversity net gain in development projects

1 Scope

This document specifies a process to design, implement, maintain and monitor biodiversity net gain (BNG) outcomes throughout the life cycle of spatially explicit development projects, until the expected outcome on biodiversity has been realized as proportionate to the project.

This document provides a framework to demonstrate that a project:

— has followed a process that is based on good practice and indicators of biodiversity change,

— is aligned with the vision, goals and targets of the Convention on Biological Diversity and the Global Biodiversity Framework.[23]

This document covers terrestrial and freshwater habitats, and intertidal habitats down to the mean low water mark, as the process and methods to deliver net gain for marine habitats are different from the approach set out here. It does not cover the detailed requirements associated with the delivery of biodiversity enhancements or management.

This document is applicable for projects that affect biodiversity and those with limited or no impact on biodiversity, as well as projects aiming to achieve BNG either onsite or offsite, or both.

BNG can be applicable to any sector of industry, including residential, mixed-use, energy, water, extractive industry, transport, communications agriculture, forestry and infrastructure.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
adaptive management
continuous process of revising management plans to take results to date into consideration

Note 1 to entry: Such management is adaptive, because lessons learned are put in practice in the next cycle.

[SOURCE: Business and Biodiversity Offsets Programme (BBOP) Glossary, 2018[5]]

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3.2
additionality
property of measures to achieve *biodiversity net gain* (3.5), where the conservation outcomes it delivers are demonstrably new and additional, and would not have resulted without the development project on intervention

[SOURCE: Business and Biodiversity Offsets Programme (BBOP) Glossary, 2018,[5] modified — "a biodiversity offset" was replaced by “measures to achieve biodiversity net gain” and "the offset" was replaced by "the development project".]

3.3
biodiversity baseline
description of existing conditions to provide a starting point (e.g. pre-project condition of biodiversity) against which comparisons can be made (e.g. post-impact condition of biodiversity), allowing the change to be quantified

[SOURCE: Business and Biodiversity Offsets Programme (BBOP) Glossary, 2018,[5] modified — "biodiversity" has been added to the term for clarity.]

3.4
biodiversity metric
standardized way to measure biodiversity loss and gain in a consistent and robust way by using surrogate or proxy measures, which represent biodiversity that can be used throughout the project and to assess a biodiversity net gain

Note 1 to entry: The outputs of the metric are not absolute values but provide a proxy for the relative biodiversity worth of a site pre- and post-intervention. The quality and reliability of outputs depend on the quality of the input.

[SOURCE: BS 8683, 2021[1]]

3.5
biodiversity net gain
BNG
specific, quantifiable outcome of project activities that deliver demonstrable benefits for biodiversity compared to the *biodiversity baseline* (3.3) situation

Note 1 to entry: BNG is defined relative to an appropriate reference scenario such as a baseline.

[SOURCE: BS 8683, 2021,[1] modified — note to entry has been added.]

3.6
biodiversity offset
measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken

[SOURCE: Business and Biodiversity Offsets Programme (BBOP) Glossary, 2018[5]]

3.7
compensation
measures to recompense, make good or pay damages for loss of biodiversity caused by a project

[SOURCE: Business and Biodiversity Offsets Programme (BBOP) Glossary, 2018,[5] modified — definition has been shortened.]

3.8
competent person
person who can demonstrate they have acquired through training, qualifications or experience, or a combination of these, the knowledge and skills enabling that person to perform a specified task

[SOURCE: BS 8683, 2021[1]]

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3.9
cumulative effect
change in the environment caused by multiple interactions among human activities and natural processes that accumulate across space and time

[SOURCE: Canada-wide Definitions and Principles for Cumulative Effects, 2014[7]]

3.10
environmental impact assessment
environmental assessment
EIA
critical appraisal of the likely effects of a proposed project, activity, or policy on the environment, both positive and negative and including potential *cumulative effects* (3.9) that could result from the project, activity, or policy

[SOURCE: Business and Biodiversity Offsets Programme (BBOP) Glossary, 2018,[5] modified — "environmental impact assessment" has been added as a preferred term; the definition has been expanded to include "potential cumulative effects that could result from the project, activity, or policy".]

3.11
irreplaceable biodiversity feature
feature that cannot be recreated within the lifetime of the project and operation because it would be technically very difficult or impossible to recreate taking into account the feature's age, uniqueness, species diversity, rarity and environmental or historical context

Note 1 to entry: See Annex B for further details.

[SOURCE: BS 8683, 2021[1], modified — the term "habitat" has been replaced by "feature"; the timescale has been updated to refer to the lifetime and operation of the project; note to entry has been added.]

3.12
like-for-like or better
after the avoidance and minimization stages of the mitigation hierarchy, biodiversity net gain is achieved by restoring affected biodiversity or offsetting residual biodiversity loss with the same type of biodiversity (like-for-like) or with a type that is of a higher conservation value (better)

EXAMPLE A marsh must be replaced by a marsh and cannot be replaced by a woodland.

Note 1 to entry: The "same type of biodiversity" should be defined using the functional group level within the International Union for Conservation Of Nature (IUCN) Global Ecosystem Typology, or an equivalent national habitat or ecosystem typology. This is known as "like-for-like". This is sometimes modified to "like-for-like or better", in which the offset conserves components of biodiversity that are of a higher value than those affected by the development project for which the offset is envisaged, with regard to the metrics used to measure biodiversity loss and gain of the project.

Note 2 to entry: "Like-for-like" is sometimes also referred to as "in-kind". Whereas "out of kind" is when losses of biodiversity are offset by gains in a different type of biodiversity. Where out of kind habitats are the result of a project, it is important to ensure that the habitats that result from the development project support the same type of biodiversity that was present before the project and that this is supported by a robust evidence base provided by external independent expertise. "Trading down", where conservation habitats of lower quality are provided in replacement is not allowed in projects seeking BNG. BNG policies are often based on this principle either of "like-for-like" or "like-for-like or better".

[SOURCE: BS 8683, 2021[1], modified — example and notes to entry have been added.]

3.13
management and monitoring plan
action plan or system, which addresses the how, when, who, where and what of integrating environmental and social mitigation and monitoring measures throughout an existing or proposed operation or activity

[SOURCE: Business and Biodiversity Offsets Programme (BBOP) Glossary, 2018,[5] modified — the term has been changed from "environmental and social management plan"; the second sentence of the definition has been removed.]

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3.14
mitigation hierarchy
sequence of actions to anticipate and avoid impacts on biodiversity and ecosystem services; and where avoidance is not possible, minimize; and, when impacts occur, rehabilitate or restore; and where significant residual impacts remain, offset

Note 1 to entry: The BNG process follows these steps and then goes beyond addressing residual adverse impacts to deliver a gain for biodiversity. Its application requires taking each step in turn, focusing on all possibilities before moving on the next step.

Note 2 to entry: A significant residual impact is assessed and documented in a manner that is suitable for the given project. The prerequisites and time scales will differ between projects, but must be considered individually in order to carefully determine what can or should be done in a given project.

[SOURCE: CSBI, 2015,[8] modified — notes to entry have been added.]

3.15
area directly affected by the project
area of land or water covered or impacted by a project

Note 1 to entry: This can include the direct physical coverage (i.e. the area on which the project physically stands) and surrounding area directly affected by the project (i.e. the area affected by disturbances that directly emanate from the project, such as noise and light pollution).

[SOURCE: Business and Biodiversity Offsets Programme (BBOP) Glossary, 2018,[5] modified — the term has been changed from "footprint"; part of the definition has been moved to the note to entry.]

3.16
project option appraisal
assessment by which different project implementation options (engineering) are compared in terms of economic, environmental and social outcomes to choose the best approach to reduce residual impacts and achieve sustainability

[SOURCE: Business and Biodiversity Offsets Programme (BBOP) Glossary, 2018,[5] modified —"project option appraisal" has been added as the preferred term instead of "Analysis of alternatives/options".]

3.17
residual impact
remaining adverse impact on biodiversity after appropriate avoidance, minimisation and rehabilitation measures have been taken according to the mitigation hierarchy

[SOURCE: Business and Biodiversity Offsets Programme (BBOP) Glossary, 2018[5]]

3.18
stakeholder
interested party
person or organization that can affect, be affected by, or perceive itself to be affected by a decision or activity

[SOURCE: ISO 55000:2024, 3.3.2]

4 Abbreviated terms

BBOP	Business and biodiversity offsets programme
BNG	Biodiversity net gain
EIA	Environmental impact assessment
MMP	Management and monitoring plan
NGO	Non-governmental organization

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