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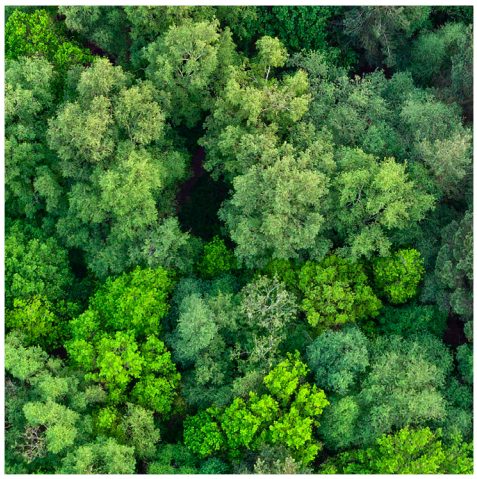
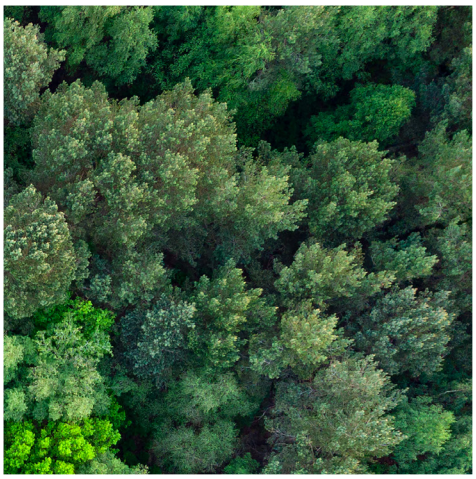
Advancing environmental and social performance across the energy transition

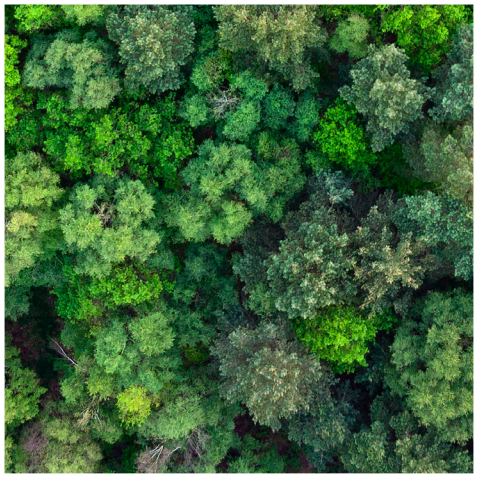
OIL AND GAS CLIMATE INITIATIVE

# Natural climate solutions: high carbon stock ecosystems management

## Guidance document for the oil and gas industry


October 2022

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# Executive summary

## PURPOSE AND SCOPE OF THIS GUIDANCE

Ipieca and the Oil and Gas Climate Initiative (OGCI) offer this guidance on natural climate solutions (NCS) management in order to support energy companies in their efforts to conserve, enhance and restore the high carbon stock ecosystems in which they operate. NCS management is a cost-effective climate mitigation option for companies to support the goals of the Paris Agreement.

This document complements and should be used in conjunction with existing guidance documents, especially *Biodiversity and ecosystem services fundamentals,* which Ipieca and IOGP published in 2016. The *BES fundamentals* guidance describes the biodiversity conservation basis for the oil and gas industry to operate in any ecosystem. This guidance on NCS management focuses more closely on carbon sinks and carbon stock baselines assessment within the context of oil and gas industry operational sites. It is based on the recognition that it is important for the oil and gas industry to develop and implement good NCS practices related to their operations and to apply a common approach where possible.

This document is the first in a series of guidance exploring NCS in detail that will be relevant to stakeholders as well as oil and gas industry professionals at both operational and strategic levels.

The scope of this document includes both 'green' carbon (land-based) and 'blue' carbon (stored in oceanic and coastal ecosystems). It covers carbon dioxide and methane, as well as other GHG gases. Considering that science and technology supporting NCS management are still evolving, this guidance is not designed to offer the most up-to-date carbon science, but recommends that companies seek and apply the latest, best available expertise for each of the six steps.

### NCS MANAGEMENT: SIX PRACTICES

Practice 1:
build NCS into governance and business processes

Practice 2:
engage stakeholders and understand their expectations around NCS

Practice 3:
understand NCS baselines

Practice 4:
assess NCS dependencies and potential impacts

Practice 5:
mitigate and manage NCS impacts and identify NCS opportunities

Practice 6:
select indicators, and measure and report NCS performance

### KEY RESOURCES AND REFERENCES

Ipieca-IOGP, *Biodiversity and ecosystem services fundamentals,* 2016.
https://www.ipieca.org/resources/good-practice/biodiversity-and-ecosystem-services-fundamentals/

# NCS management

## THE IMPORTANCE OF NCS MANAGEMENT

NCS are defined as actions that conserve, restore or improve the use or management of high-carbon ecosystems (e.g., peatlands, forests, wetlands, grasslands, agricultural lands, coastal ecosystems) while increasing carbon storage and avoiding greenhouse gas emissions. Sometimes these actions are referred to as nature-based solutions' (NbS) or ecosystem-based management, although NbS and ecosystem-based management usually also include a broader range of environmental and societal challenges, such as biodiversity loss, food and water security or natural disasters. According to the International Union for Conservation of Nature (IUCN), NbS are actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature.

NCS management offers a powerful set of options for companies to support the goals of the Paris Agreement because it can provide 'over one-third of the cost-effective climate mitigation needed between now and 2030 to stabilize warming to well below 2 °C' (Griscom et al., 2017).

### NCS AND THE PARIS AGREEMENT

Under the Paris Agreement, limiting the global average increase in temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels requires rapid, deep and sustained reductions in global greenhouse gas emissions, including reducing global carbon dioxide emissions by 45% by 2030 relative to the 2010 level and to net zero around mid-century (IPCC, SR1.5). NCS, including the restoration of degraded lands and REDD+ projects (projects focused on reducing emissions from deforestation and forest degradation) could provide at least 30% of the emissions reductions needed to achieve this target.

Source: Intergovernmental Panel on Climate Change, Global Warming of 1.5 °C, 2018. https://www.ipcc.ch/site/assets/uploads/sites/2/2022/06/SR15_Full_Report_LR.pdf

Recent evidence (Griscom et al., 2017) reveals a linkage between high carbon storage areas, intact ecosystems, and biodiversity and ecosystem services. First, the more intact or undisturbed an ecosystem, the greater its potential to store carbon. Second, the more diverse the biodiversity of an ecosystem, the greater its carbon sequestration potential. Third, focusing on carbon maximization in an ecosystem can fail to show co-benefits for biodiversity. An obvious conclusion to draw from this linkage is that NCS management should seek first to maintain the ecosystem as close to its natural state as possible. Intact wilderness areas that serve as biodiversity and carbon reservoirs, on land and in oceans, merit special conservation efforts.

## THE IMPORTANCE OF NCS MANAGEMENT GOOD PRACTICE

Whilst NCS management can contribute positively to the challenge of mitigating and adapting to climate change by sequestering and storing carbon, it must be well designed and implemented to avoid adverse impacts to the ecosystem.

## KEY RESOURCES AND REFERENCES


Griscom, Bronson W. et al., *Natural Climate Solutions, PNAS* 114 (44) 11645-11650, 2017. https://www.pnas.org/content/114/44/11645

IPCC, *Global warming of 1.5 °C,* 2018. www.ipcc.ch/site/assets/uploads/sites/2/2022/06/SR15_Full_Report_LR.pdf

United Nations Framework Convention on Climate Change (UNFCC), *Paris Agreement,* 2015. https://unfccc.int/sites/default/files/english_paris_agreement.pdf

WBCSD, *Accelerating business solutions for climate and nature – Report I: Mapping nature-based solutions and natural climate solutions,* 2020. https://www.wbcsd.org/Programs/Food-and-Nature/Nature/Nature-Action/Resources/Accelerating-business-solutions-for-climate-and-nature-Report-I-Mapping-nature-based-solutions-and-natural-climate-solutions

# Practice 1: build NCS into governance and business processes

## RATIONALE

Several studies have shown a direct link between environmental, social and governance (ESG) practices and financial performance: 'Companies that do good by the environment, their labor force, and communities, do well financially' (IFC, 2012). NCS can be an important part of corporate sustainability strategies to decarbonize and overall lower their environmental footprints.

Following appropriate integration into corporate sustainability strategy and accompanying governance, and with those positive impacts from NCS reflected in ESG evaluative metrics, corporate investments in nature support global efforts to achieve the Paris Agreement goal of limiting global warming to 'well below 2°C'. This can also provide a demonstrable positive proof point to business decision and climate action portfolios.

## ELEMENTS OF GOOD PRACTICE

### Articulate commitment at the highest level and throughout the company

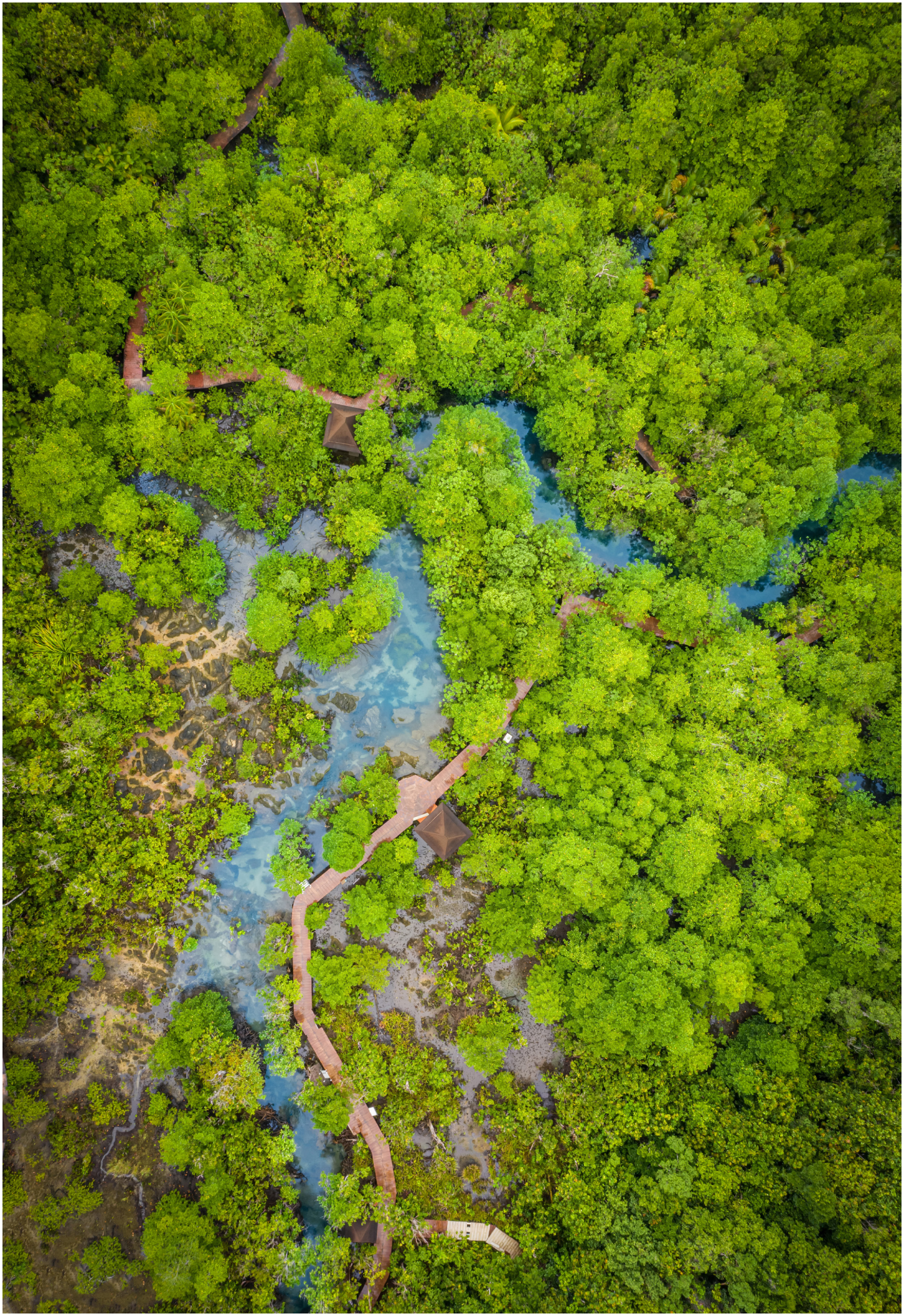
Successful implementation of NCS depends on clear articulation of a company's commitment and strategy to its climate ambition and targets. Company-wide policies express overall commitment and intention regarding business practices. While such policies are, by definition, relatively general, they can strengthen the case for effective NCS management and performance throughout a company.

### Systematically integrate NCS into governance and business processes

There are multiple routes to integrate NCS into the systems and processes at the business unit and project level across the life cycle of assets. NCS can be integrated into a company's governance with senior management involvement and oversight. NCS can also be integrated into an existing environmental management system. The objective of systematic integration is to move NCS from being a matter of local regulation, or an individual project, to being an expected and internally verifiable management commitment across all stages of an asset's life cycle.

**KEY RESOURCES AND REFERENCES**

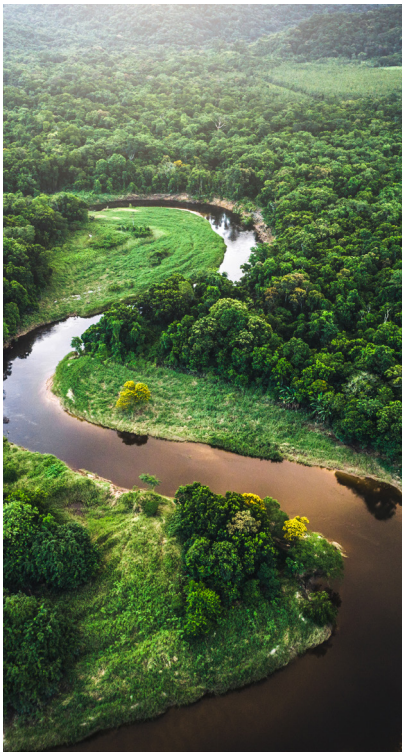
IFC, *The Business Case for Sustainability,* 2012. https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_brochure_businesscaseforsustainability



# Practice 2: engage stakeholders and understand their expectations around NCS

## RATIONALE

Stakeholder engagement is an important step in understanding how local communities, local government agenices, non-governmental organizations (NGOs), value and use carbon stock ecosystems, including those on which a company's operations may rely (e.g., water supply), and how a company's activities may affect the quality and quantity of, or access to, such ecosystem services or dependencies. It can also lead to the identification of opportunities to make a positive contribution to the conservation of high carbon stock ecosystems (e.g., forests). In addition to their knowledge of the local ecosystem and the provisioning, cultural and regulating services they provide, stakeholders can provide historical perspective and traditional knowledge and identify areas of cultural or spiritual importance. Civil society and local communities also benefit from NCS projects.



### INCREASING SOCIAL SERVICES FOR LOCAL COMMUNITIES: REDD+ PROJECTS

One example of the way that NCS can also benefit local communities can be found in REDD+ projects (Reducing Emissions from Deforestation and Degradation). Some oil and gas companies are allocating funds to projects such as the Alto Mayo Protected Forest project in Peru, a joint project run with the support of BHP Billiton and managed by Conservation International. This project aims to protect around 182,000 hectares of threatened forest and to sequester up to 15 million tonnes of CO2 in the long term. Linked to the direct positive impact on climate, this REDD+ project has helped to establish sustainable agricultural practices and to increase social services for the local communities, such as coffee and cacao agroforestry systems and alternative economic activities such as aquaculture and products derived from medicinal plants.

BHP Foundation, *Alto Mayo: establishing a sustainable economic model in the Amazon.* https://www.bhp.com/-/media/documents/community/bhpfoundation/190606_bhpfoundation_altomayo.pdf?la=en

Ipieca, *The role of carbon offsets in greenhouse gas mitigation and enhanced ambition*, 2021. https://www.ipieca.org/resources/workshop-report/the-role-of-carbon-offsets-in-greenhouse-gas-mitigation-and-enhanced-ambition

## ELEMENTS OF GOOD PRACTICE

### Develop a clear and comprehensive list of potential stakeholders

Starting at the first phase of a project, it is important to work with community leaders, indigenous communities, regulatory agencies and government, local and regional experts, and the scientific community to identify the potential impacts and dependencies of the project on local ecosystems, including on livelihoods, culture, and access to land and resources. Identifying these impacts should result in the identification of the stakeholders who could be directly or indirectly affected, whether positively or negatively. Undertaking an environmental, social and health impact assessment should also help in creating an inclusive list.

### Engage stakeholders early and throughout the life of the project

Engaging stakeholders early and continually throughout the life cycle of a project can help organizations anticipate and avoid potential conflicts that otherwise might lead to an increase in cost due to project delays, shutdowns and reputational impacts. Engagement should be sustained for as long as the activities and impacts endure, since new stakeholders may emerge, and existing ones may change in the intensity of their engagement over the project cycle.

### Be inclusive, transparent and adaptive

In all cases, attention should be given, consistently and sensitively, to social, economic, cultural and gender dynamics. This is to ensure that respect is provided to all stakeholders and that patterns of marginalization are not inadvertently reinforced, but, instead, equitable access is provided to project-related processes and decision-making opportunities. Circumstances requiring free, prior and informed consent (FPIC) should be understood and respected, especially when a project impacts land customarily used or traditionally owned by Indigenous Peoples, or when a project may significantly impact their critical cultural heritage. In some instances, FPIC is a legally binding requirement.

Stakeholder engagement should aim to be inclusive and transparent with a responsive governance process that includes a grievance resolution mechanism. It should also be adaptive, with its goals and outcomes reassessed over time to reflect the interests of the stakeholders as appropriate. Increasingly, engagement with stakeholders is formalized through community agreements and contracts to ensure that the interests of stakeholders are equitably and transparently met (Ipieca 2019).

## KEY RESOURCES AND REFERENCES


Ipieca, *Community development agreements guidance document for the oil and gas industry,* 2019. https://www.ipieca.org/resources/good-practice/community-development-agreements-guidance

Ipieca, *Indigenous Peoples and the oil and gas industry: context, issues and emerging good practice,* 2012. https://www.ipieca.org/resources/good-practice/indigenous-peoples-and-the-oil-and-gas-industry-context-issues-and-emerging-good-practice

Ipieca, *The role of carbon offsets in greenhouse gas mitigation and enhanced ambition,* 2021. https://www.ipieca.org/resources/workshop-report/the-role-of-carbon-offsets-in-greenhouse-gas-mitigation-and-enhanced-ambition

# Practice 3: understand NCS baselines

## RATIONALE

Understanding the carbon, environmental and social conditions (Ipieca and the Danish Institute for Human Rights, 2013), including biodiversity and ecosystem services (BES), is necessary in order to assess the potential risks, impacts and co-benefits of any NCS-related project (Ipieca, 2021). Estimating carbon stocks in land and water can provide relevant information for improving project-related decisions along a project's entire life cycle. A baseline assessment is also essential to determine the net GHG removal eligible for carbon credit certificates.

### NCS BASELINE ASSESSMENT STEPS

1. Define the project area and boundaries, including the area of influence, using reliable documentation and geographic information system (GIS) data.
2. Identify and estimate the potential carbon stock and primary GHG sources and sinks in the project site and influence areas in order to quantify, monitor and verify GHG removals. Identification of the carbon stock may be based on existing published data, if available and reliable.
3. Identify the specific additional studies that will address data gaps in relation to drivers and dependencies affecting carbon stocks and BES, reflecting the project priorities:
    - Define a methodology and sampling protocol for carbon stock assessment and monitoring. Methodologies for a carbon stock assessment and monitoring can be refined to include, as a minimum, country and regional ecosystem-specific data and – for more accurate evaluation and quantitative surveys – site-specific field studies using technically validated methodologies, including over-time plot measurements and monitoring in the project area.
    - Identify carbon stock primary and secondary variation cause. Drivers influencing carbon stock loss and gain over time and future projections should be assessed by using socioeconomic and environmental data, governmental and environmental plans and policies, and sources such as remote sensing data, IPCC land use change factors, national inventory data portals, peer-reviewed studies, expert opinion, and local and indigenous knowledge.
4. Identify co-benefits, prioritizing BES and using good practice in stakeholder engagement, in order to discover any significant differences between the project's potential impacts and the baseline.

### KEY RESOURCES AND REFERENCES

Ipieca, *The role of carbon offsets in greenhouse gas mitigation and enhanced ambition*, 2021. https://www.ipieca.org/resources/workshop-report/the-role-of-carbon-offsets-in-greenhouse-gas-mitigation-and-enhanced-ambition

Ipieca and the Danish Institute for Human Rights, *Integrating human rights into environmental, social and health impact assessments*, 2013. https://www.ipieca.org/resources/good-practice/integrating-human-rights-into-environmental-social-and-health-impact-assessments-a-practical-guide-for-the-oil-and-gas-industry

## ELEMENTS OF GOOD PRACTICE

### Undertake a baseline assessment at the feasibility and design phases of a project before key decisions and milestones are developed

Integrate the baseline assessment into the project design at the earliest possible stage to enable mitigation measures, optimize positive impacts and support a future monitoring programme.

### Integrate NCS baseline assessment with good practice in stakeholder engagement

Identify and prioritize the most important biodiversity and ecosystem services goals related to the project site and influence area and align with stakeholder interests, including through consultation with the local community.

### Use the best climate, ecosystem and social science available

Blue and green carbon stocks are not static. In establishing NCS baselines, it is important to rely on the best available measurement methodologies and data. Use IPCC Carbon Assessment Tier 3 methodologies and include locally sourced data whenever possible. (See IPCC Carbon Assessment Tiers box.)

### Collaborate with outside experts

Especially in cases where carbon credits are involved, certification by internationally recognized independent third parties is desirable to ensure that the data is trusted as being of high integrity. Working in partnership with NGOs and other credible players contributes to the success of NCS projects.

## IPCC CARBON ASSESSMENT TIERS

The IPCC has identified three basic methods for assessing and measuring carbon inventories, which become progressively higher-order and increasingly accurate from Tier 1 to Tier 3. All three methods rely on the availability of adequate data and resources. IPCC Tier 2 and Tier 3 carbon assessment methodologies are recommended whenever possible. In the cases where site-specific data do not exist or cannot be obtained, Tier 1 estimates and global averages can be used.

Summary of IPCC Carbon Assessment Tiers

| | |
|---|---|
| IPCC default factors | Tier 1 assessments employ the gain-loss method and default emission factors and data described in the IPCC Guidelines. With an error range of +/- 50% for above-ground pools and +/- 90% for the variable soil carbon pools, Tier 1 assessments have the least accuracy and are recommended to be, at minimum, combined with spatially explicit (ideally, site-specific) data derived from remote sensing. |
| Site-specific data for key factors | Tier 2 assessments generally use the same methodology as Tier 1 but include additional emission factors and other parameters or data that are site-specific, ideally, or at minimum, country and ecosystem-specific. For example, one may consider drawing upon the mean carbon stock as provided by a reputable source for the same ecosystem type within the same country. |
| Detailed inventory of key carbon stocks, repeated measurements of key stocks through time or modelling | Tier 3 assessments are higher-order methods, and utilize modelling based on plot data and specific on-site data of carbon stocks and repeated measurements of key carbon stocks through time to provide estimates of change or flux of carbon into or out of the area. While more complex, this process of modelling and tracking carbon stock systems may provide estimates for inter-annual variability for the NCS project, and results may contribute to the larger knowledge base. |

Source: drawn from Coastal Blue Carbon methods for assessing carbon stocks and emissions factors and the REDDcompass. Original information from: IPCC, Guidelines for national greenhouse gas inventories, 2006.

# Practice 4: assess NCS dependencies and potential impacts

## RATIONALE

A clear understanding of the NCS baselines of any project leads to an appreciation of the dependencies and potential impacts of a project. 'Dependencies' are natural resources and processes that the project depends on, including BES, such as the use of water or erosion control. 'Impacts' are changes in the natural and socio-economic environment wholly or partially resulting from the project's implementation.

## ELEMENTS OF GOOD PRACTICE

Elements of good practice in assessing dependencies and impacts are closely aligned with those used to understand NCS baselines. Assessment should be undertaken using the best available science, aligning with a company's internal governance, following good practice for stakeholder engagement, and as an essential component of the baseline assessment.

### Assess dependencies and impacts as soon as possible in the life cycle of a project

The earlier the assessment, the greater the opportunity to optimize positive impacts. An early assessment also increases opportunities to avoid negative impacts rather than to have to minimize them at a later stage.

### Rank the significance of individual dependencies and impacts

Matrices to map out dependencies and impacts, while complex, can be useful to help clarify definitions, weigh competing demands and identify risks. With expert and stakeholder input, an ecosystems services checklist for dependencies and impacts (Ipieca, 2011) can inform decision-making and help to categorize dependencies and impacts as having higher or lower significance.

### Establish a continuous cycle of assessment, including continuous stakeholder engagement

Assessment processes can be repeated until mitigation or management measures have been identified that reduce risk or identify steps that might lead to more positive outcomes.

## KEY RESOURCES AND REFERENCES


Ipieca-IOGP, *Biodiversity and ecosystem services fundamentals*, 2016. https://www.ipieca.org/resources/good-practice/biodiversity-and-ecosystem-services-fundamentals

Ipieca-IOGP, *Ecosystem services guidance: biodiversity and ecosystem services guide*, 2011. https://www.ipieca.org/resources/good-practice/ecosystem-services-guidance-biodiversity-and-ecosystem-services-guide

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IOGP, *Environmental-Social-Health Risk and Impact Management Process*, 2014. https://www.iogp.org/bookstore/product/environmental-social-health-risk-and-impact-management-process

# Practice 5: mitigate and manage NCS impacts and identify NCS opportunities

## RATIONALE

After baseline conditions are understood, and dependencies and impacts are assessed, project managers must make decisions about what actions to take. This section uses a nature conservation mitigation hierarchy framework ('avoid, minimize, restore, offset') as applied to on-site NCS management.

## ELEMENTS OF GOOD PRACTICE

### Avoid impacts on carbon sinks and biodiversity if at all possible—and especially if the assessments show high value with high certainty

(IPCC, 2010 & 2019).

### If negative impacts cannot be avoided, minimize them

### Restore impacted ecosystems insofar as possible

For more information on implementing these elements of good practice please see the NCS management – the mitigation hierarchy table (page 12).

### Offset negative impacts

If it is impossible to avoid, minimize, or restore, as a last resort, carbon offsets alone or a carbon offset project could be initiated – again, with a carbon assessment and high integrity monitoring, reporting, and third-party verification (Ipieca, 2021).

## KEY RESOURCES AND REFERENCES


Ipieca, *The role of carbon offsets in greenhouse gas mitigation and enhanced ambition*, 2021. https://www.ipieca.org/resources/workshop-report/the-role-of-carbon-offsets-in-greenhouse-gas-mitigation-and-enhanced-ambition

IPCC, *Guidance note for lead authors of the IPCC fifth assessment report on consistent treatment of uncertainties*, 2010. https://www.ipcc.ch/site/assets/uploads/2017/08/AR5_Uncertainty_Guidance_Note.pdf

IPCC, *Special report on climate change and land*, 2019. https://www.ipcc.ch/srccl/chapter/summary-for-policymakers

## NCS MANAGEMENT – THE MITIGATION HIERARCHY

Priority  Second level priority

| MH | SUGGESTED ACTIONS | | | |
|---|---|---|---|---|
| | Exploration and appraisal | Pre-project planning | Development and operation | Decommissioning |
| AVOID | • Avoid leasing or exploration in high carbon stock ecosystems and high biodiversity areas, especially in those that are threatened or difficult to replace | • Adjust the location or the scope of the development activities that might expand production or facilities in areas of high carbon stock and high biodiversity, especially those that are threatened or difficult to replace<br>• Identify engineering solutions or change project designs (including the design of the access roads and other logistical infrastructures) to avoid potential impacts (such as might result, for example, from a crossing built in a mangrove forest) | • For projects that already exist, establish fauna monitoring and biodiversity conservation | • Minimize decommissioning impacts where possible |
| MINIMIZE | • Use non-seismic geophysical investigation tools to minimize impacts on high carbon stock ecosystems and high biodiversity areas, especially those that are threatened or difficult to replace | • During pre-project planning identify engineering solutions to or alternatives for the project design (including the design of the access roads and other logistical infrastructures) that can minimize the size and scale of a project's footprint and reduce as much as possible the duration, intensity, extent and likelihood of impacts on high carbon, biodiverse ecosystems<br>• Reorient or relocate the development site to avoid areas of high carbon and high biodiversity | • Integrate minimal impact indicators into restoration efforts<br>• Minimize discharges (i.e., use abatement controls) to minimize the extent and duration of emissions or pollutants that might impact high carbon \ biodiversity areas<br>• Minimize the use of resources, such as fresh water, that can negatively impact high carbon\biodiversity ecosystems | |
| REHABILITATE / RESTORE | | | • Restore or rehabilitate the ecosystem that has been degraded by project impacts; or restore or rehabilitate a similar nearby ecosystem in order to recover at least equal carbon value | • Revegetate development sites after decommissioning, and return ecosystem back to previous condition |
| OFFSET | | | • Apply conservation actions to areas not impacted by the project that compensate for the loss of carbon value that cannot be avoided, minimized, or restored locally<br>• Offset Scope 1 and 2 facility emissions with high integrity NCS credits, applying Natural Climate Solutions Alliance principles and in alignment with the Ipieca-IOGP *BES fundamentals*<br>• Support national and local projects that aim to mitigate carbon emissions, and protect or restore carbon sinks | |

At each step of the project cycle, first attempt to avoid adverse impacts, and if that is impossible, then minimize harm, and so on down the mitigation hierarchy. For example, during development of a project, try to avoid or minimize adverse impacts to high carbon and biodiversity rich areas or to the local community before taking actions that result in the need to restore the ecosystem; offset only as a final option. This table also reveals that each step of the project cycle tends to align with steps in the mitigation hierarchy. For example, it is easier to avoid NCS impacts earlier in the project cycle, such as during exploration, than it is during operation. These alignments are presented as priority and second-level priority opportunities for NCS action.

# Practice 6: select indicators, and measure and report NCS performance

## RATIONALE

Ongoing measurement and transparent reporting are necessary not only for effective NCS management, but also for trust-building among all the stakeholders of any project.

## ELEMENTS OF GOOD PRACTICE

### Select indicators for monitoring carbon and BES-related impacts and risks

As with baseline and impact assessments, these indicators should be selected in consultation with both experts and community stakeholders.

### Share performance measurements in an ongoing, transparent way

Disclosure and transparency are an essential part of NCS management. Any data relating to relevant activities, such as for climate finance, technology investment or climate targets, should also be reported. In alignment with Equator Principle 10, Reporting and Transparency (Equator Principles—EP4, 2020), companies are also encouraged to report commercially non-sensitive, project-specific climate, biodiversity and other ecosystem data to relevant national and global data repositories, such as the Global Biodiversity Information Facility (GBIF).

### Engage a third party for verification

A third-party verification/standard institution, such as Verra, the American Carbon Registry or the Gold Standard Foundation, among others, can assist in finding bodies to verify the mechanisms for measurement, reporting and transparency.

## KEY RESOURCES AND REFERENCES


International Finance Corporation, *Equator principles*, 2020. https://equator-principles.com/app/uploads/The-Equator-Principles_EP4_July2020.pdf

Ipieca-IOGP, Practice no. 6: Select, Measure and Report BES Performance Indicators, *Biodiversity and ecosystem services fundamentals*, 2016, p. 41. https://www.ipieca.org/resources/good-practice/biodiversity-and-ecosystem-services-fundamentals

# Acronyms

BES Biodiversity and ecosystem services

EIA Environmental impact assessment

ESG Environmental, social and corporate governance practices

FPIC Free, prior and informed consent

GBIF Global Biodiversity Information Facility

GIS Geographic information system

IETA International Emissions Trading Association

IFC International Finance Corporation

IOGP The International Association of Oil & Gas Producers

IPCC Intergovernmental Panel on Climate Change

IUCN International Union for Conservation of Nature

NbS Nature-based solutions

NCS Natural climate solutions

NCSA Natural Climate Solutions Alliance

REDD Reducing Emissions from Deforestation and forest Degradation

REDD+ REDD plus forest restoration and the sustainable management of forests

WBCSD World Business Council for Sustainable Development

# Glossary[1]

Area of influence: the wider landscape or seascape including areas which may be directly or indirectly impacted by the project or subject to cumulative impacts considering other developments in the area

Blue carbon: carbon stored in coastal and marine ecosystems, such as mangroves, tidal marshes and seagrass meadows.[2]

Carbon credit: the IETA defines a carbon credit as a tradeable instrument that represents either 1) a permit to emit one tonne of $CO_2$ or equivalent GHG ($tCO_2e$) into the atmosphere; or 2) a certificate that represents the avoidance or removal of one tonne of $CO_2$ or equivalent GHG ($tCO_2e$) from the atmosphere.

Dependencies: the Taskforce on Nature-related Financial Disclosures defines dependencies as aspects of ecosystem services that an organization or other actor relies on to function. Dependencies include ecosystems' ability to regulate water flow, water quality, and hazards like fires and floods; provide a suitable habitat for pollinators (who in turn provide a service directly to economies); and sequester carbon (in terrestrial, freshwater and marine realms).

Ecosystem-based management or approach entails integrating the entirety of issues and interactions within an ecosystem – including human, geo-physical, ecological and climate phenomena – rather than considering these issues in isolation.

Ecosystem services: according to the International Union for Conservation of Nature and Convention on Biological Diversity, ecosystem services are functions of the natural system that deliver basic materials needed for human survival and underpin other aspects of a good life, providing for health, security, good social relations and well-being.

The Equator Principles are intended to serve as a common baseline and risk management framework for financial institutions to identify, assess and manage environmental and social risks when financing projects.

Free, prior and informed consent (FPIC) is 'a specific right that pertains to indigenous peoples and is recognized in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). It allows them to give or withhold consent to a project that may affect them or their territories. Once they have given their consent, they can withdraw it at any stage. Furthermore, FPIC enables them to negotiate the conditions under which the project will be designed, implemented, monitored and evaluated. This is also embedded within the universal right to self-determination.' (https://www.fao.org/indigenous-peoples/our-pillars/fpic/en)

Geographic information system (GIS) is a system that connects data to a map.

Green carbon: carbon contained in living vegetation and soil in forest ecosystems of the terrestrial realm.[3]

Nature-based Solutions (NbS) was defined by the IUCN in 2016 as 'actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.'

Natural climate solutions (NCS) were first defined by a study published in the Proceedings of the US National Academy of Sciences (2017) as 'actions that conserve, restore or improve the use or the management of high carbon ecosystems (e.g., forests, wetlands, grasslands, and agricultural lands) while increasing carbon storage and/or avoiding greenhouse gas emissions.'

1 Some of these definitions have been obtained from the Ipieca-IOGP, *Biodiversity and ecosystems services fundamentals: guidance document for the oil and gas industry,* 2016. https://www.ipieca.org/resources/good-practice/biodiversity-and-ecosystem-services-fundamentals

2 Murray, B.C., Pendleton, L., Jenkins, W.A. and Sifleet, S. Green payments for blue carbon: economic incentives for protecting threatened coastal habitats. https://nicholasinstitute.duke.edu/sites/default/files/publications/blue-carbon-report-paper.pdf

3 Mackey, B.G., Keith, H., Berry, S.L. and Lindenmayer, D.B. Green carbon: the role of natural forests in carbon storage. Part 1, A green carbon account of Australia's south-eastern Eucalyptus forest, and policy implications. ANU E Press, Canberra, Australia, 2008.

ipieca

Ipieca is the global oil and gas association dedicated to advancing environmental and social performance across the energy transition. It brings together members and stakeholders to lead in integrating sustainability by advancing climate action, environmental responsibility and social performance across oil, gas and renewables activities.

Ipieca was founded at the request of the United Nations Environment Programme in 1974. Through its non-lobby and collaborative approach Ipieca remains the industry's principal channel of engagement with the UN.

OIL AND GAS CLIMATE INITIATIVE

The Oil and Gas Climate Initiative is a CEO-led organization bringing together 12 of the largest companies worldwide to lead the oil and gas industry's response to climate change. It aims to accelerate action towards a net zero emissions future consistent with the Paris Agreement. Together, OGCI member companies represent almost 30% of global oil and gas production.

OGCI members set up OGCI Climate Investments to create a US$1 billion-plus fund that invests in companies, technologies and projects that accelerate decarbonization within energy, industry, built environments and transportation.

Combined, OGCI members have invested more than US$35 billion in low carbon solutions over the past five years.

OGCI members are Aramco, bp, Chevron, CNPC, Eni, Equinor, ExxonMobil, Oxy, Petrobras, Repsol, Shell and TotalEnergies.

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