Convention on Biological Diversity

UNDP

Aichi Biodiversity Target 11 Country Dossier: PAKISTAN

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GLOSSARY

AZEs	Alliance for Zero Extinction sites
CEPF	Critical Ecosystem Partnership Fund
EBSA	Ecologically or Biologically Significant Marine Area
EEZ	Exclusive Economic Zone
GCF	Green Climate Fund
GD-PAME	Global Database on Protected Area Management Effectiveness
GEF	Global Environment Facility
IBA	Important Bird and Biodiversity Area
ICCAs	Indigenous and Community Conserved Area Area (may also be referred to as territories and areas conserved by Indigenous peoples and local communities or "territories of life")
IPLC	Indigenous Peoples and Local Communities
KBA	Key Biodiversity Area
MEOW	Marine Ecosystems of the World
MPA	Marine Protected Area
NBSAP	National Biodiversity Strategy and Action Plan
OECM	Other Effective Area-Based Conservation Measures
PA	Protected Area
PAME	Protected Area Management Effectiveness
PPA	Privately Protected Area
PPOW	Pelagic Provinces of the World
ProtConn	Protected Connected land indicator
SOC	Soil Organic Carbon
TEOW	Terrestrial Ecosystems of the World
WDPA	World Database on Protected Areas
WD-OECM	World Database on Other Effective Area-Based Conservation Measures

Disclaimer

The designations employed and the presentation of material in this dossier do not imply the expression of any opinion whatsoever on the part of the Secretariat of the Convention on Biological Diversity (SCBD) or United Nations Development Programme (UNDP) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The information contained in this publication do not necessarily represent those of the SCBD or UNDP.

This country dossier is compiled by the UNDP and SCBD from publicly available information. It is prepared, within the overall work of the Global Partnership on Aichi Biodiversity Target 11, for the purpose of attracting the attention of the Party concerned and other national stakeholders to facilitate the verification, correcting, and updating of country data. The statistics might differ from those reported officially by the country due to differences in methodologies and datasets used to assess protected area coverage and differences in the base maps used to measure terrestrial and marine area of a country or territory. Furthermore, the suggestions from the UNDP and SCBD are based on analyses of global datasets, which may not necessarily be representative of national policy or criteria used at the national level. The analyses are also subject to the limits inherent in global indicators (precision, reliability, underlying assumptions, etc.). Therefore, they provide useful information but cannot replace analyses at a national level nor constitute a future benchmark for national policy or decision-making.

The preparation of this dossier was generously supported by: the Government of the Federal Republic of Germany, *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GMbH*; the European Commission; the Government of the United Kingdom of Great Britain and Northern Ireland; and the Government of Japan (Japan Biodiversity Fund). The dossier does not necessarily reflect their views.

EXECUTIVE SUMMARY

This document provides information on the coverage of protected areas (PAs) and other effective area-based conservation measures (OECMs), as currently reported in global databases (the World Database on Protected Areas (WDPA) and World Database on Other Effective Area-Based Conservation Measures (WD-OECM)). It also includes details on the status of the other qualifying elements of Aichi Biodiversity Target 11 based on this data. These statistics might differ from those reported officially by countries due to difference in methodologies and datasets used to assess protected area coverage, differences in the base maps used to measure terrestrial and marine area of a country or territory, or if global datasets differ from the criteria and indicators used at the national level. Where available, data from national statistics for the elements of Target 11 are included alongside records from these global databases. This dossier also provides a summary of commitments made under Aichi Biodiversity Target 11, and a summary of potential opportunities regarding elements of the target for future planning.

The dossier has been developed in consultation with the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), which manages the WDPA, WD-OECM and Global Database on Protected Area Management Effectiveness (GD-PAME). Parties to the CBD are requested to contact protectedareas@unep-wcmc.org with any updates to the information in these databases.

Aichi Biodiversity Target 11 Elements: Current status and opportunities for action

Coverage - Terrestrial & Marine

- **Status:** as of May 2021, terrestrial coverage in Pakistan is 98,288.1 km^2 (12.3%) and marine coverage is 1,707.4 km^2 (0.8%).

- **Opportunities for action:** opportunities for the near-term include updating the WDPA with any unreported PAs, the recognizing and reporting OECMs to the WD-OECM, and the completion of two MPAs (*Pasni* and *Ras Milan*) currently in progress. In the future, focus on relatively intact areas, while addressing the elements in the following sections, could be considered when planning new PAs or OECMs.

Ecological Representativeness– Terrestrial & Marine

- **Status:** Pakistan contains 19 terrestrial ecoregions, 2 marine ecoregions, and 1 pelagic province: the mean coverage by reported PAs and OECMs is 14.0% (terrestrial), 1.9% (marine), and 0.0% (pelagic); 3 terrestrial ecoregions and 1 pelagic province have no coverage by reported PAs and OECMs.

- **Opportunities for action:** there is opportunity for Pakistan to increase protection in terrestrial and marine ecoregions and pelagic provinces that have lower levels of coverage by PAs or OECMs. Ecoregions which currently have no coverage by PAs or OECMs are key areas for action.

Areas Important for Biodiversity

- **Status:** Pakistan has 37 Key Biodiversity Areas (KBAs): the mean protected coverage of KBAs by reported PAs and OECMs is 36.6%, while 12 KBAs have no coverage by reported PAs and OECMs.

- **Opportunities for action:** there is opportunity for Pakistan to increase protection of KBAs that have lower levels of coverage by PAs and OECMs; priority could be given to those with no current coverage.

Areas Important for Ecosystem Services

- **Status:** coverage of areas important for ecosystem services: In Pakistan, 4.7% of aboveground biomass carbon, 8.1% of belowground biomass carbon, 8.8% of soil organic carbon, 1.1% of carbon stored in marine sediments is covered by PAs and OECMs.

- **Opportunities for action:** for carbon, there is opportunity for Pakistan to increase PA and OECM coverage in both marine and terrestrial areas with high carbon stocks. Protecting areas with high carbon stocks secures the benefits of carbon sequestration in the area.

- For water, there is opportunity to increase the area of the water catchment under protection by PAs and OECMs, or in cases where there is high levels of protection, focus on effective management for these areas. Protecting the current area of forested land and potentially reforesting would have benefits for improving water security.

Connectivity and Integration

- **Status:** coverage of protected-connected lands is 4.6%.

- **Opportunities for action:** there is opportunity for a targeted increase in connecting PAs or OECMs and to focus on PA and OECM management for enhancing and maintaining connectivity. Improving connectivity increases the effectiveness of PAs and OECMs and reduces the impacts of fragmentation.

- As well, a range of suggested steps for enhancing and supporting integration are included in the voluntary guidance on the integration of PAs and OECMs into the wider land- and seascapes and mainstreaming across sectors to contribute, inter alia, to the SDGs (Annex I of COP Decision 14/8).

Governance Diversity

- **Status:** governance type is not reported for any of the sites in Pakistan currently reported in the WDPA.

- **Opportunities for action:** increase efforts to identify the governance types for the 100.0% of sites that do not have their governance type reported. If applicable, explore opportunities for governance types that have lower representation.

- There is also opportunity for Pakistan to complete governance and equity assessments, to establish baselines and identify relevant actions for improvement. As well, a range of suggested actions are included in the voluntary guidance on effective governance models for management of protected areas, including equity (Annex II of COP Decision 14/8).

Protected Area Management Effectiveness

- **Status:** 0.2% of terrestrial PAs and 0.0% of marine PAs have completed Protected Area Management Effectiveness (PAME) assessments reported.
- **Opportunities for action:** the 60% target for completed management effectiveness assessments (per COP Decision X/31) **has not** been met for terrestrial PAs and **has not** been met for marine PAs. Therefore, there is opportunity to increase protected area management effectiveness (PAME) evaluations for both terrestrial and marine PAs to achieve the target.
- There is also opportunity to implement the results of completed PAME evaluations, to improve the quality of management for existing PAs and OECMs (e.g. through adaptive management and information sharing, increasing the number of sites reporting 'sound management') and to increase reporting of biodiversity outcomes in PAs and OECMs.

INTRODUCTION

The Strategic Plan for Biodiversity 2011-2020 was adopted at the tenth meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) held in Nagoya, Aichi Prefecture, Japan from 18-29 October 2010. The vision of the Strategic Plan is one of "Living in harmony with nature" where *"By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people"* (CBD, 2010). In addition to this vision, the Strategic Plan is composed of 20 targets, under five strategic goals. Aichi Biodiversity Target 11 states that *"By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes."*

With the conclusion of the Aichi Biodiversity Targets in 2020, Target 11 on area-based conservation has seen success in the expansion of the global network of protected areas (PA) and other effective area-based conservation measures (OECMs). The negotiation of the post-2020 Global Biodiversity Framework (GBF) and its future targets provide an essential opportunity to further improve the coverage of PAs and OECMs, to improve other aspects of area-based conservation, to accelerate progress on biodiversity conservation more broadly, while also addressing climate change, and the Sustainable Development Goals. This next set of global biodiversity targets are to be adopted at the fifteenth meeting of the Conference of the Parties to the Convention on Biological Diversity. These new targets must aim to build upon lessons learned from the last decade of progress to deliver transformative change for the benefit of nature and people, to realize the 2050 Vision for biodiversity.

The United Nations Development Programme (UNDP) and the Secretariat of the Convention on Biological Diversity have developed the Aichi Biodiversity Target 11 Country Dossiers, which provide countries with an overview of the status of Target 11 elements, opportunities for action, and a summary of commitments made by Parties over the last decade. Each dossier can support countries in assessing their progress on key elements of Aichi Biodiversity Target 11 and identifying opportunities to prioritize new protected areas and OECMs.

This dossier provides an overview of area-based conservation in Pakistan. Section I of the dossier presents data on the current status of Pakistan's PAs and OECMs. The data presented in Section I relates to each element of Target 11. Section I also presents the PA and OECM coverage for two critical ecosystem services: water security and carbon stocks. In addition, the dossier presents potential opportunities for action for Pakistan, in relation to each Target 11 element. The analyses present options for improving Pakistan's area-based conservation network to achieve enhanced protection and benefits for livelihoods and climate change. Section II presents details on Pakistan's existing PA and OECM commitments as a summary of existing efforts towards achieving Target 11. This gives focus not only to national policy and actions but also voluntary commitments to the UN.

Furthermore, where data is available, this dossier provides information on potential OECMs, Indigenous and Community Conserved Areas (ICCAs; also, often referred to as territories and areas conserved by Indigenous peoples and local communities or "territories of life") and Privately Protected Areas (PPAs) and the potential contribution they will have in achieving the post-2020 targets.

The information on PAs and OECMs presented here is derived from the World Database on Protected Areas (WDPA) and World Database on Other Effective Area-Based Conservation Measures (WD-OECM). These databases are joint products of UNEP and IUCN, managed by UNEP-WCMC, and can be viewed and downloaded at www.protectedplanet.net. Parties are encouraged to provide data on their PAs and OECMs to UNEP-WCMC for incorporation into the databases (see e.g., Decisions 10/31 and 14/8). The significant efforts of Parties in updating their data in the build up to the publication of the Protected Planet Report 2020 (UNEP-WCMC and IUCN, 2021) were greatly appreciated. UNEP-WCMC welcomes further updates, following the data standards described here (www.wcmc.io/WDPA_Manual), and these should be directed to protectedareas@unep-wcmc.org. The statistics presented in this dossier are derived from the May 2021 WDPA and WD-OECM releases, unless explicitly stated otherwise. Readers should consult www.protectedplanet.net for the latest coverage statistics (updated monthly).

Some data from the WDPA and WD-OECM are not made publicly available at the request of the data-provider. This affects some statistics, maps, and figures presented in this dossier. Statistics provided by UNEP-WCMC (terrestrial and marine coverage) are based upon the full dataset, including restricted data. All other statistics, maps, and figures are based upon the subset of the data that is publicly available.

Where data is less readily available, such as for potential OECMs, ICCAs and PPAs, data has also been compiled from published reports and scientific literature to provide greater awareness of these less commonly recorded aspects. These data are provided to highlight the need for comprehensive reporting on these areas to the WDPA and/or WD-OECM. Parties are invited to work with indigenous peoples, local communities and private actors to submit data under the governance of these actors, with their consent, to the WDPA and/or WD-OECM.

Overall, PAs and OECMs are essential instruments for biodiversity conservation and to sustain essential ecosystem services that support human well-being and sustainable development, including food, medicine, and water security, as well as climate change mitigation and adaptation and disaster risk reduction. The data in this dossier, therefore, aims to celebrate the current contributions of PAs and OECMs, whilst the gaps presented hope to encourage greater progress, not just for the benefit of biodiversity and the post-2020 GBF, but also to recognize the essential role of PAs and OECMs to the Sustainable Development Goals and for addressing the climate crisis.

SECTION I: CURRENT STATUS

Aichi Biodiversity Target 11 refers to both protected areas (PAs) and other effective area-based conservation measures (OECMs). This section provides the current status for all elements of Aichi Biodiversity Target 11 where indicators with global data are available. Statistics for all elements are presented using data on both PAs and OECMs (where this data is available and reported in global databases like the WDPA and WD-OECM). It is recognized that statistics reported in the WPDA and WD-OECM might differ from those reported officially by countries due to differences in methodologies and datasets used to assess protected area coverage and differences in the base maps used to measure terrestrial and marine area of a country or territory. Details on UNEP-WCMC's methods for calculating PA and OECM coverage area available here. The global indicators adopted here for presenting the status of other elements of Target 11 may also differ from those in use nationally. Where available, results from national reporting are also included.

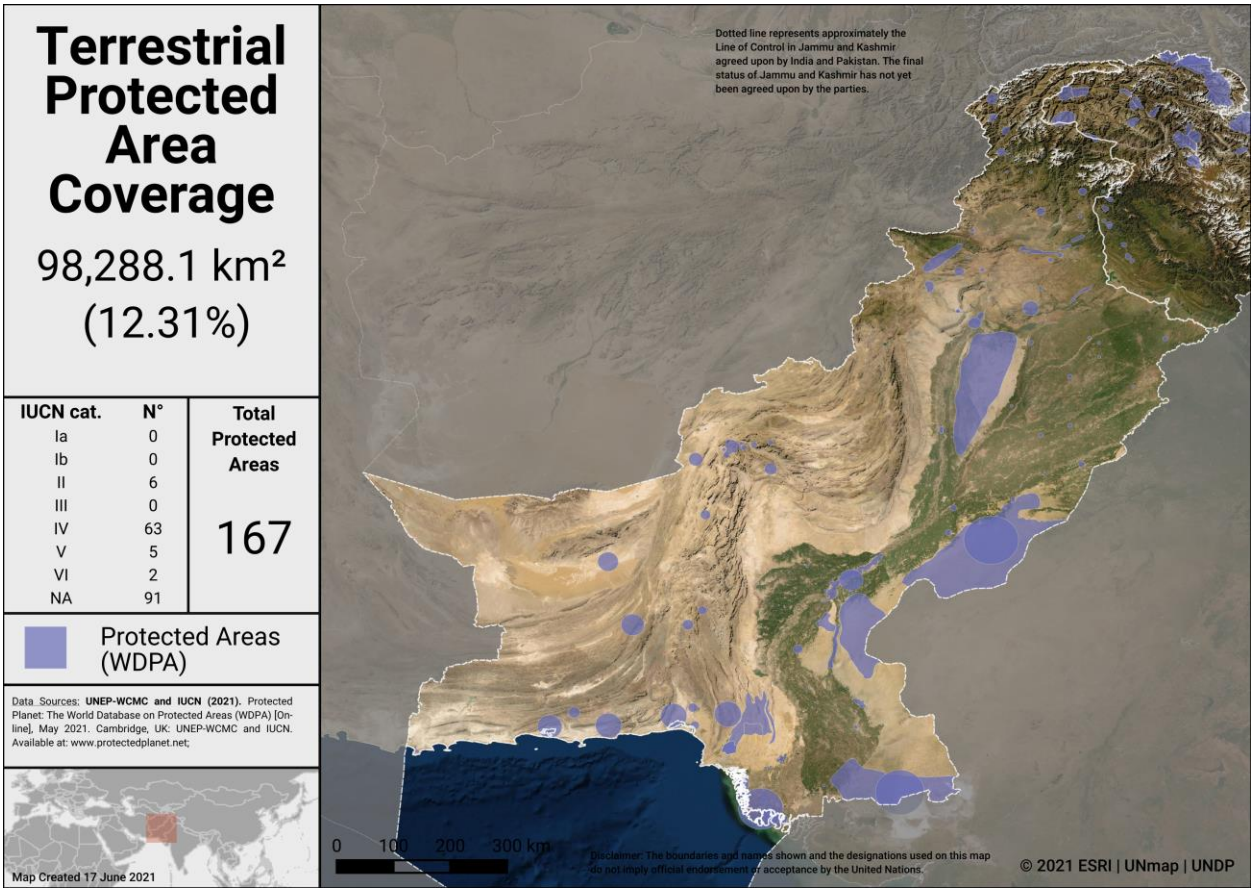
COVERAGE - TERRESTRIAL & MARINE

As of May 2021, Pakistan has **178** protected areas reported in the World Database on Protected Areas (WDPA). 7 PAs that are proposed or have a status of 'not reported' (including 5 PAs with no spatial boundary and no area listed in the WDPA), and a further 1 UNESCO-MAB Biosphere Reserve, are not included in the following statistics (see details on UNWP-WCMC's methods for calculating PA and OECM coverage **here**).

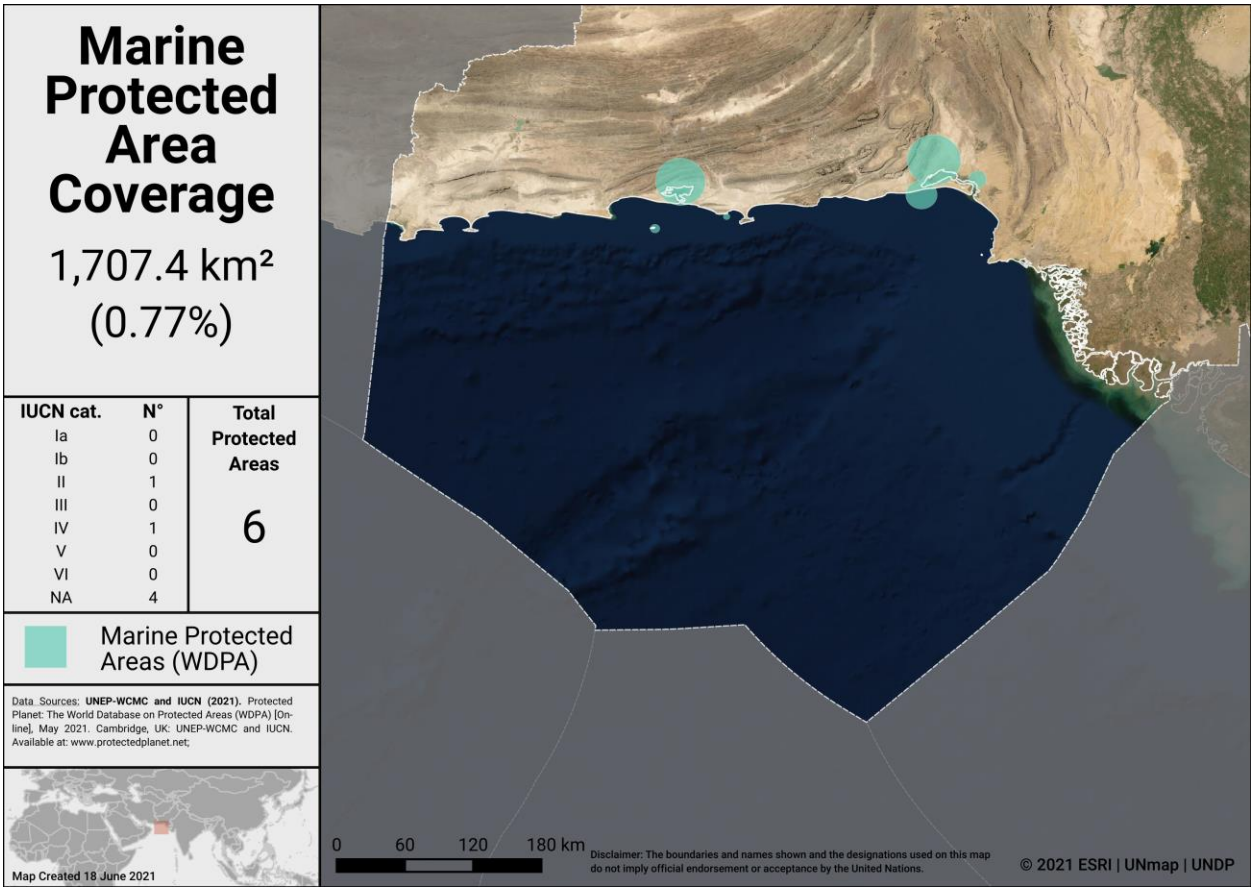
As of May 2021, Pakistan has **0** OECMs reported in the world database on OECMs (WD-OECM).

Current coverage for Pakistan:

- 12.3% terrestrial (167 protected areas, 98,288.1 km^2)
- 0.8% marine (6 protected areas, 1,707.4 km^2)



Terrestrial Protected Areas in Pakistan



Marine Protected Areas in Pakistan

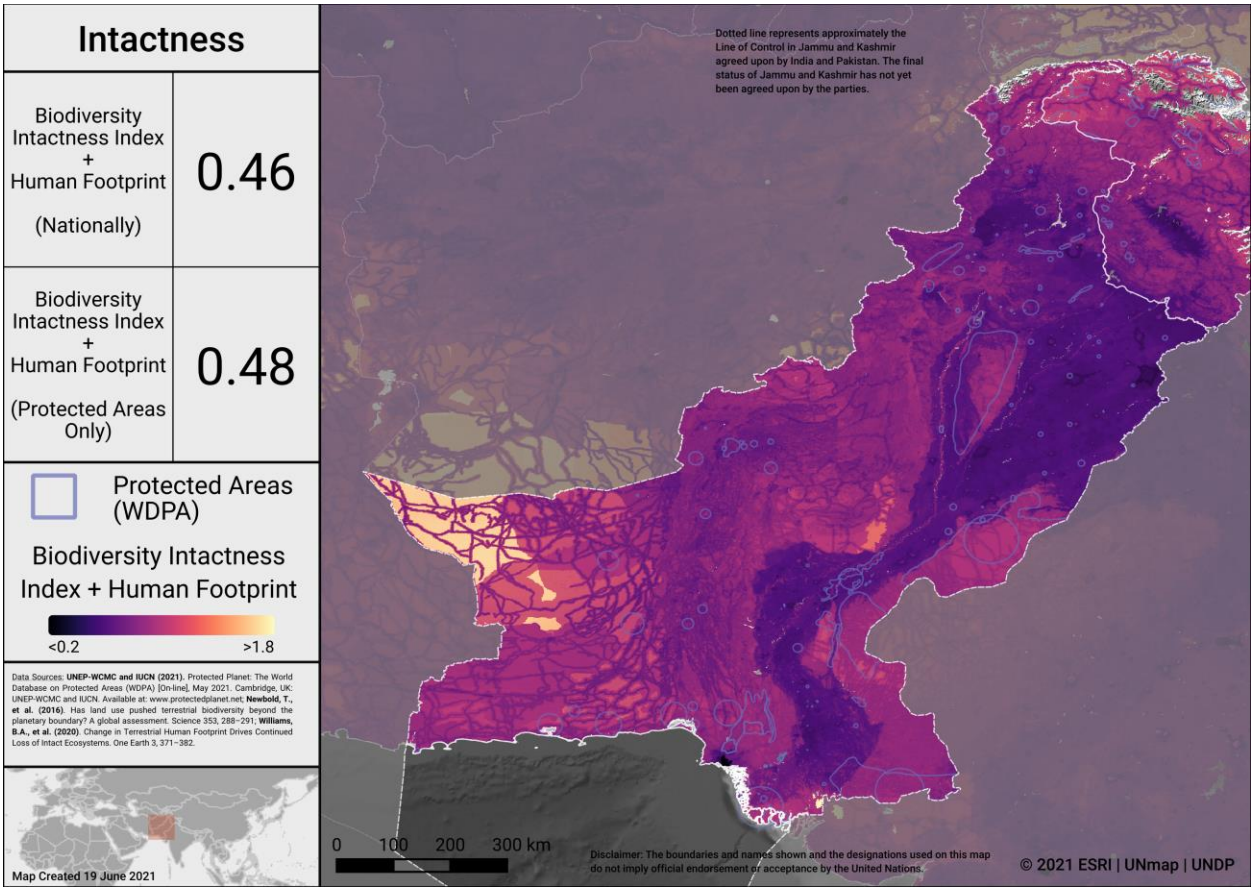
The activities of the Protected Areas Initiative' (PAI) include: Declaration of new PAs, preparation of management plans and their implementation. The initiative aims at enhancing the PA coverage up to 15% from the current figure of 12.3%. It includes both marine and terrestrial PAs. With respect to Marine PAs, the declaration of *Pasni* and *Ras Milan* MPAs is currently in progress. Declaration of MPAs has many aspects and contain diverse stakeholders. The selection of potential MPAs has economic, social and biological implications. Considering these issues, the process was initiated in 2018 and recently, the above-mentioned two MPAs are being finalized for completing the formalities of declaration. Hopefully this will catalyze development of other MPAs.

Potential OECMs

There are currently no potential OECM examples available for Pakistan.

Opportunities for action

Opportunities for the near-term include updating the WDPA with any unreported PAs, the recognizing and reporting OECMs to the WD-OECM, and the completion of two MPAs (*Pasni* and *Ras Milan*) currently in progress. In the future, as Pakistan considers where to add new PAs and OECMs, the map below identifies areas in Pakistan where intact terrestrial areas are not currently protected. Focus on relatively intact areas, while addressing the elements in the following sections, could be considered when planning new PAs or OECMs.



Intactness in Pakistan

To explore more on intactness visit the UN Biodiversity Lab: map.unbiodiversitylab.org.

ECOLOGICAL REPRESENTATIVENESS – TERRESTRIAL & MARINE

Ecological representativeness is assessed based on the PAs and OECMs coverage of broad-scale biogeographic units. Globally, ecoregions have been described for terrestrial areas (Dinerstein et al, 2017), marine coastal and shelf ecosystems (to a depth of 200m; Spalding et al 2007) and surface pelagic waters (Spalding et al 2012).

Pakistan has 19 **terrestrial** ecoregions. Out of these:

- 16 ecoregions have at least some coverage from PAs and OECMs.
  - 2 of the remaining ecoregions cover <0.1% of the country
- 4 ecoregions have at least 17% protected within the country.
- The average coverage of terrestrial ecoregions is 14.0%.

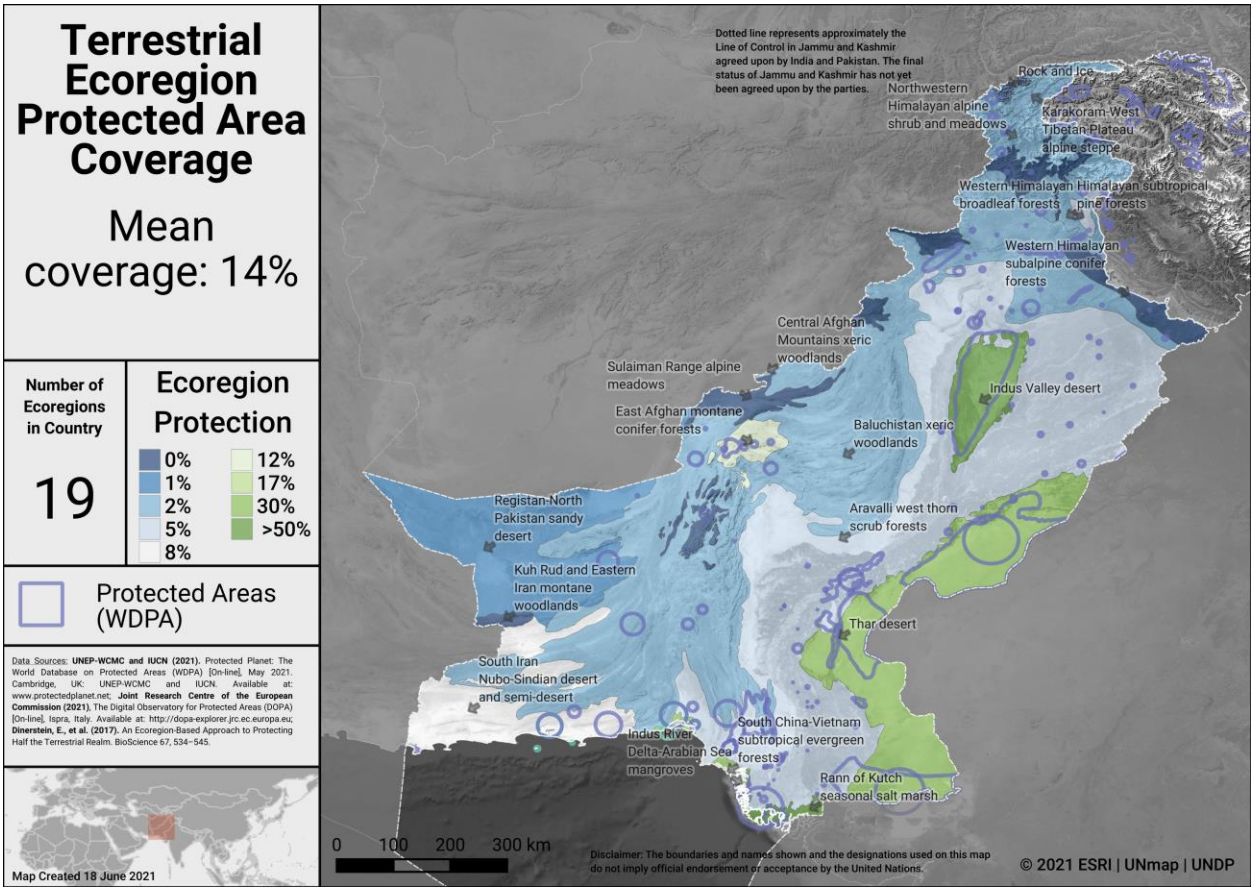
Pakistan has 2 **marine** ecoregions and 1 **pelagic province**. Out of these:

- 2 marine ecoregions and 0 pelagic provinces have at least some coverage from reported PAs and OECMs.
- 0 marine ecoregions and 0 pelagic provinces have at least 10% protected within Pakistan's exclusive economic zone (EEZ).
- The average coverage of marine ecoregions is 1.9% and the coverage of the 1 pelagic province is 0.0%.

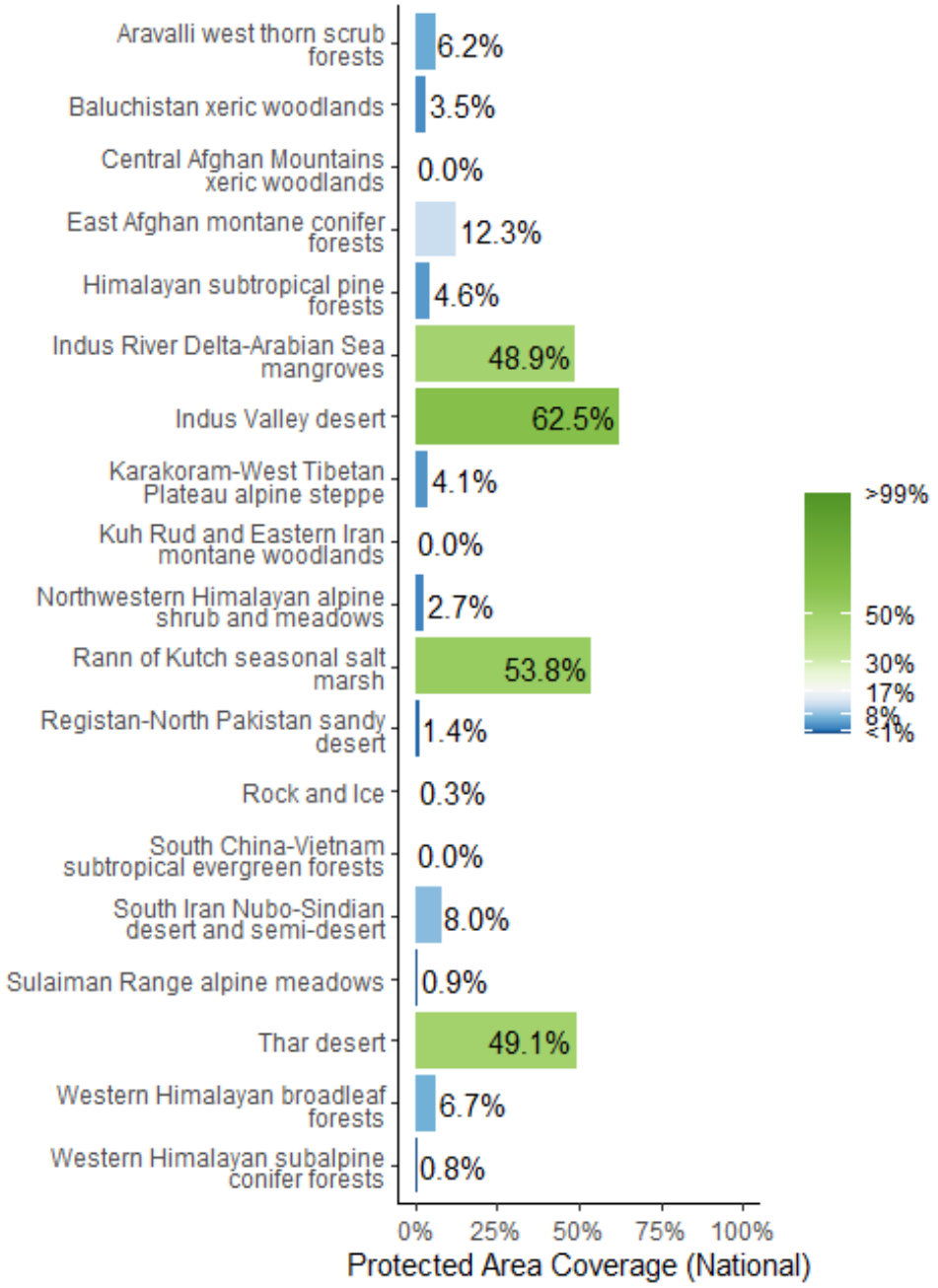
A full list of terrestrial ecoregions in Pakistan is available in Annex I.

The significant ecological zones are covered by the present PAs network. However, planning is underway to further improve the representation of ecological zones under the Protected Areas Initiative (PAI). The current coverage has demanded further expansion to ensure future ecosystem sustenance.

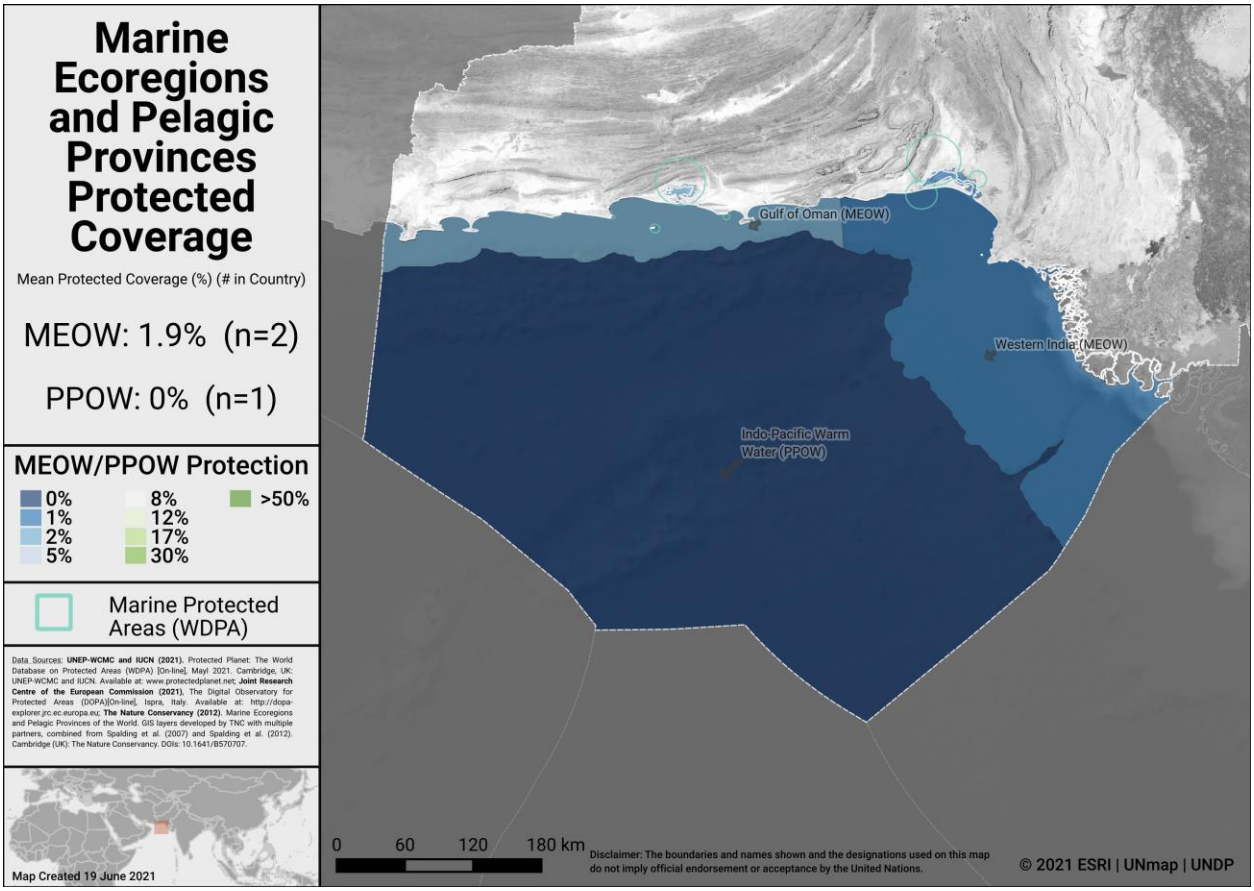
The Protected Areas Initiative (PAI) and the inclusion of new MPAs will trigger further activities leading to enhancing the overall coverage of PAs. With respect to marine ecological representation, the declaration of *Pasni* and *Ras Milan* MPAs is in progress.



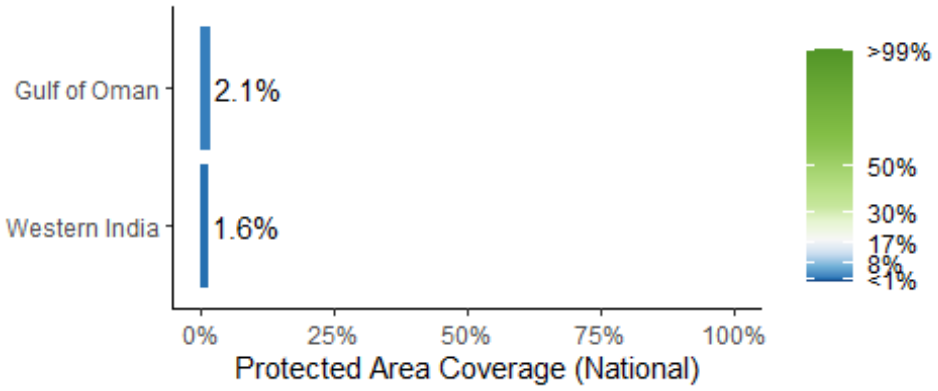
Terrestrial ecoregions in Pakistan



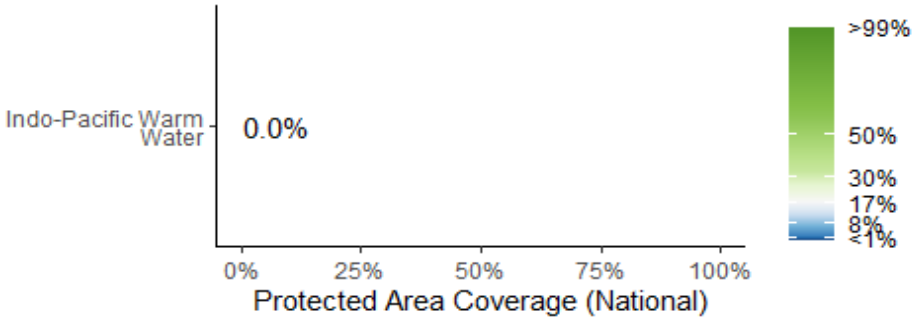
Terrestrial ecoregions of the World (TEOW) in Pakistan



Marine ecoregions and pelagic provinces



Marine Ecoregions of the World (MEOW) in Pakistan



Pelagic Provinces of the World (PPOW) in Pakistan

Opportunities for action

There is opportunity for Pakistan to increase protection in terrestrial and marine ecoregions and pelagic provinces that have lower levels of coverage by PAs or OECMs. Ecoregions which currently have no coverage by PAs or OECMs are key areas for action.

AREAS IMPORTANT FOR BIODIVERSITY

Key Biodiversity Areas (KBAs)

Protected area and OECM coverage of Key Biodiversity Areas (KBAs) provide one proxy for assessing the conservation of areas important for biodiversity at national, regional and global scales. KBAs are sites that make significant contributions to the global persistence of biodiversity (IUCN, 2016). The KBA concept builds on four decades of efforts to identify important sites for biodiversity, including Important Bird and Biodiversity Areas, Alliance for Zero Extinction sites, and KBAs identified through Hotspot ecosystem profiles supported by the Critical Ecosystem Partnership Fund. Incorporating these sites, the dataset of internationally significant KBAs includes Global KBAs (sites shown to meet one or more of 11 criteria in the Global Standard for the Identification of KBAs, clustered into five categories: threatened biodiversity; geographically restricted biodiversity; ecological integrity; biological processes; and irreplaceability), Regional KBAs (sites identified using pre-existing criteria and thresholds, that do not meet the Global KBA criteria based on existing information), and KBAs whose Global/Regional status is Not yet determined, but which will be assessed against the global KBA criteria within 8-12 years. Regional KBAs are often of critical international policy relevance (e.g., in EU legislation and under the Ramsar Convention on Wetlands), and many are likely to qualify as Global KBAs in future once assessed for their biodiversity importance for other taxonomic groups and ecosystems. To date, nearly 16,000 KBAs have identified globally, and information on each of these is presented in the World Database of Key Biodiversity Areas: www.keybiodiversityareas.org.

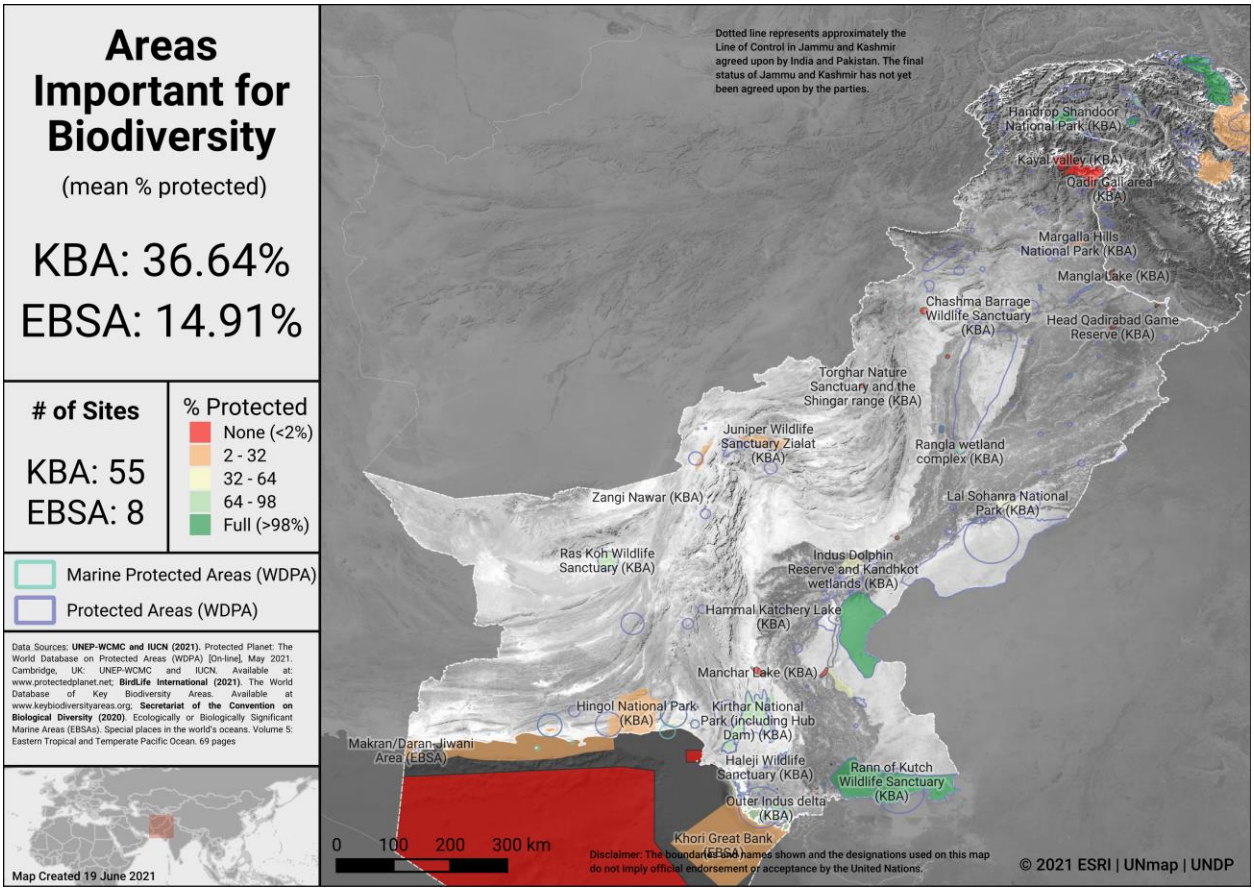
Pakistan has 55 Key Biodiversity Areas (KBAs) [**37 KBAs** included in analysis]

- Mean percent coverage of all KBAs by PAs and OECMs in Pakistan is **36.6%**.
- **6** KBAs have full (>98%) coverage by PAs and OECMs.
- **19** KBAs have partial coverage by PAs and OECMs.
- **12** KBAs have no (<2%) coverage by PAs and OECMs.
- *18 KBAs lack spatial data to allow PA and OECM coverage to be determined*

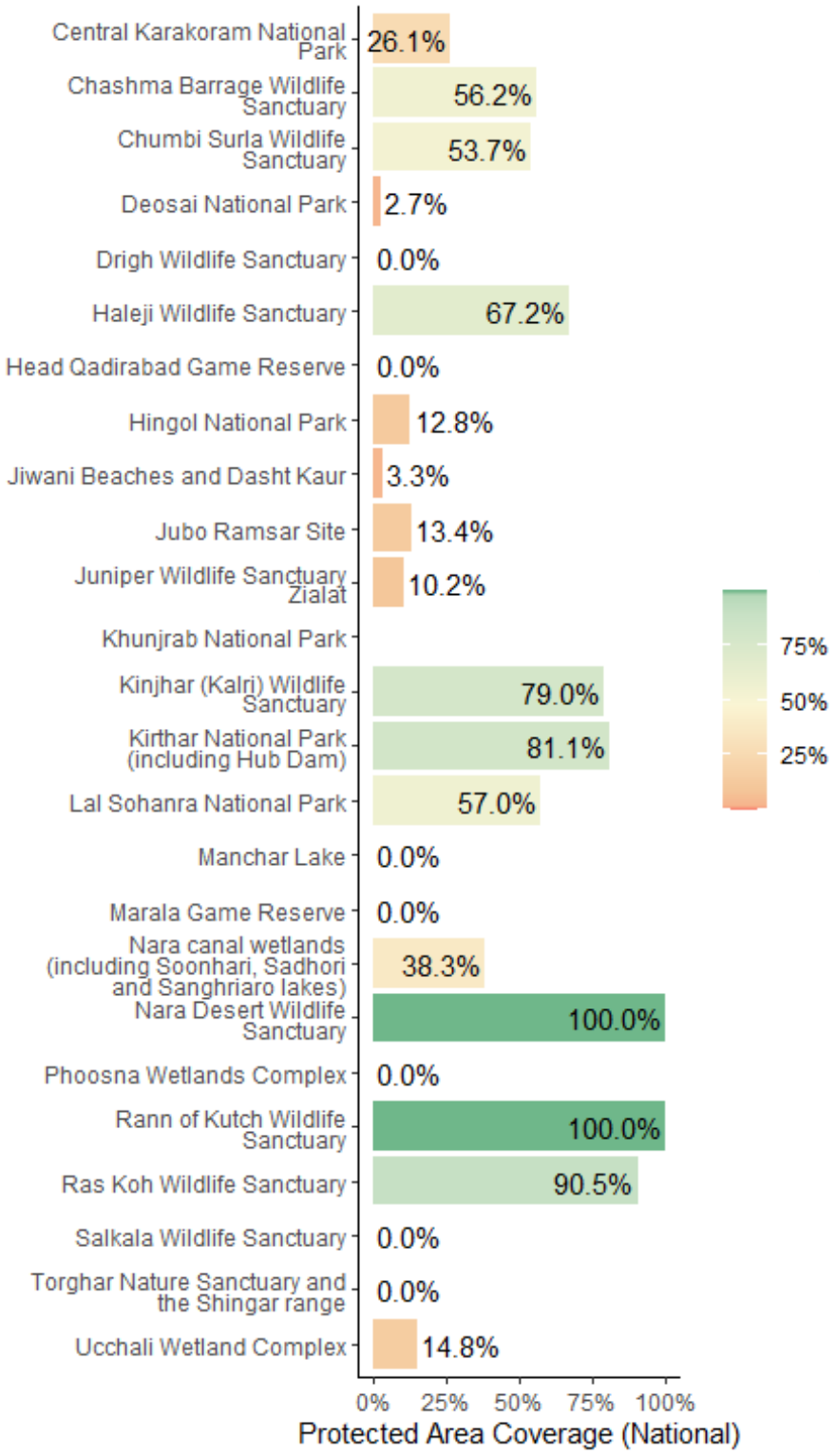
Ecologically or Biologically Significant Marine Areas (EBSAs)

Other important areas for biodiversity also include Ecologically or Biologically Significant Marine Areas (EBSAs), which were identified following the scientific criteria adopted at COP-9 (Decision IX/20; see more at: https://www.cbd.int/ebsa/). Sites that meet the EBSA criteria may require enhanced conservation and management measures; this could be achieved through means including MPAs, OECMs, marine spatial planning, and impact assessment.

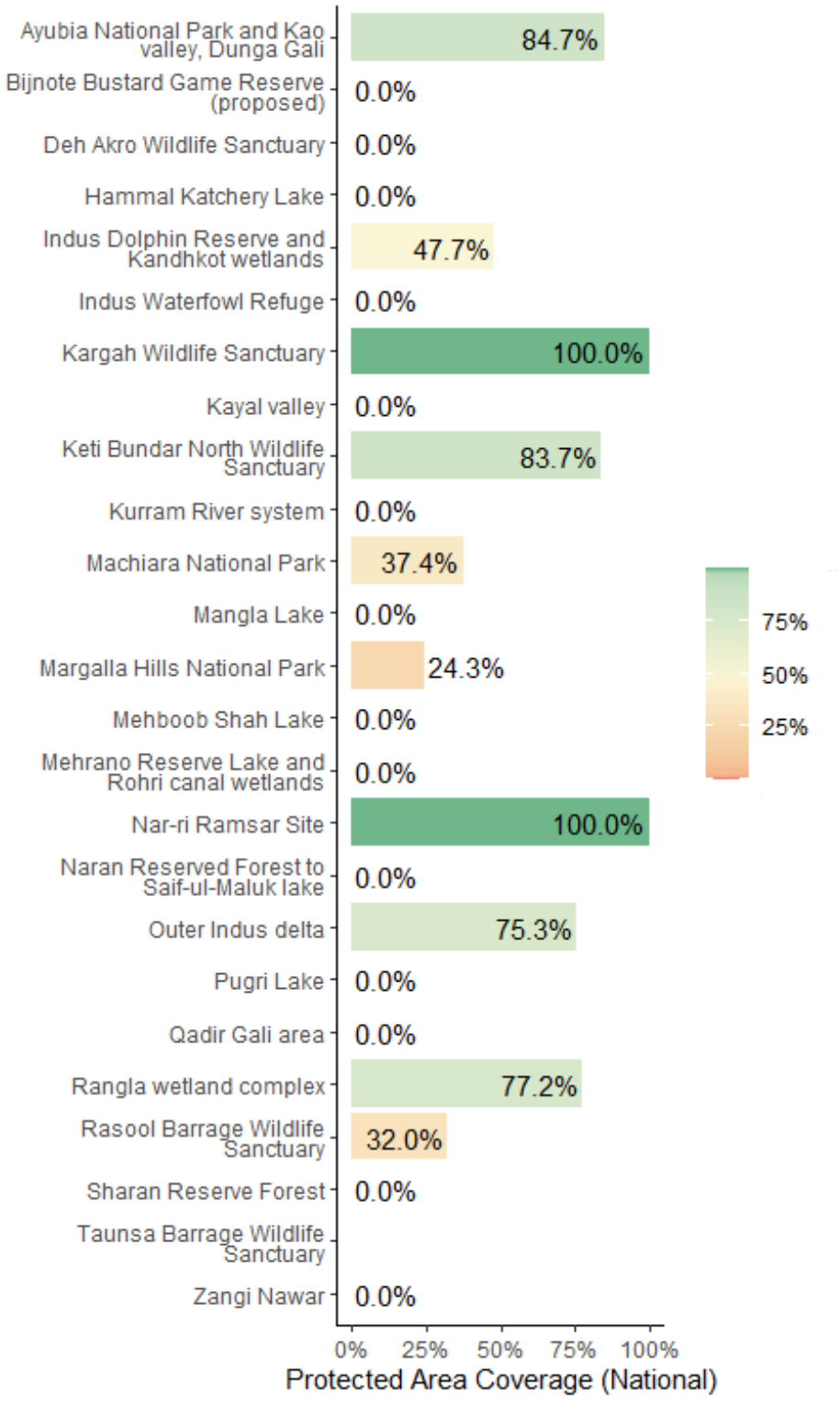
There are 8 EBSAs with some portion of their extent within Pakistan's EEZ, of which 3 EBSAs have no coverage from reported PAs and OECMs.



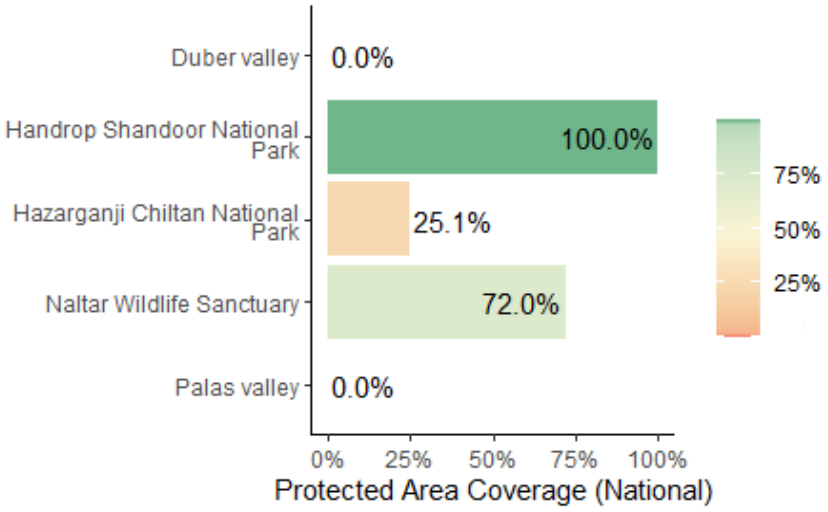
Areas Important for Biodiversity in Pakistan



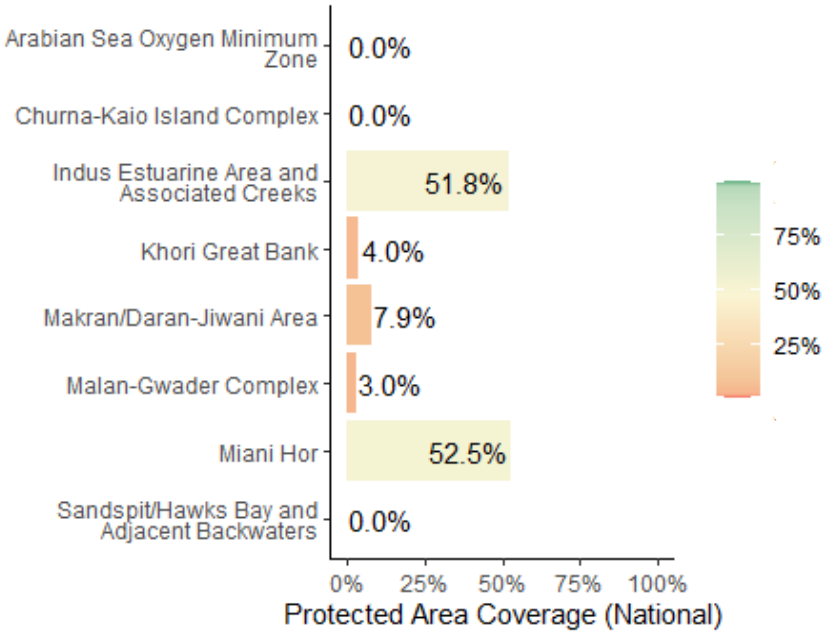
Key Biodiversity Area Coverage (KBA) in Pakistan



Key Biodiversity Area Coverage (KBA) in Pakistan (continued)



Key Biodiversity Area Coverage (KBA) in Pakistan (continued)



Ecologically or Biologically Significant Marine Areas (EBSAs) in Pakistan

Opportunities for action

There is opportunity for Pakistan to increase protection of KBAs that have lower levels of coverage by PAs and OECMs; priority could be given to those with no current coverage.

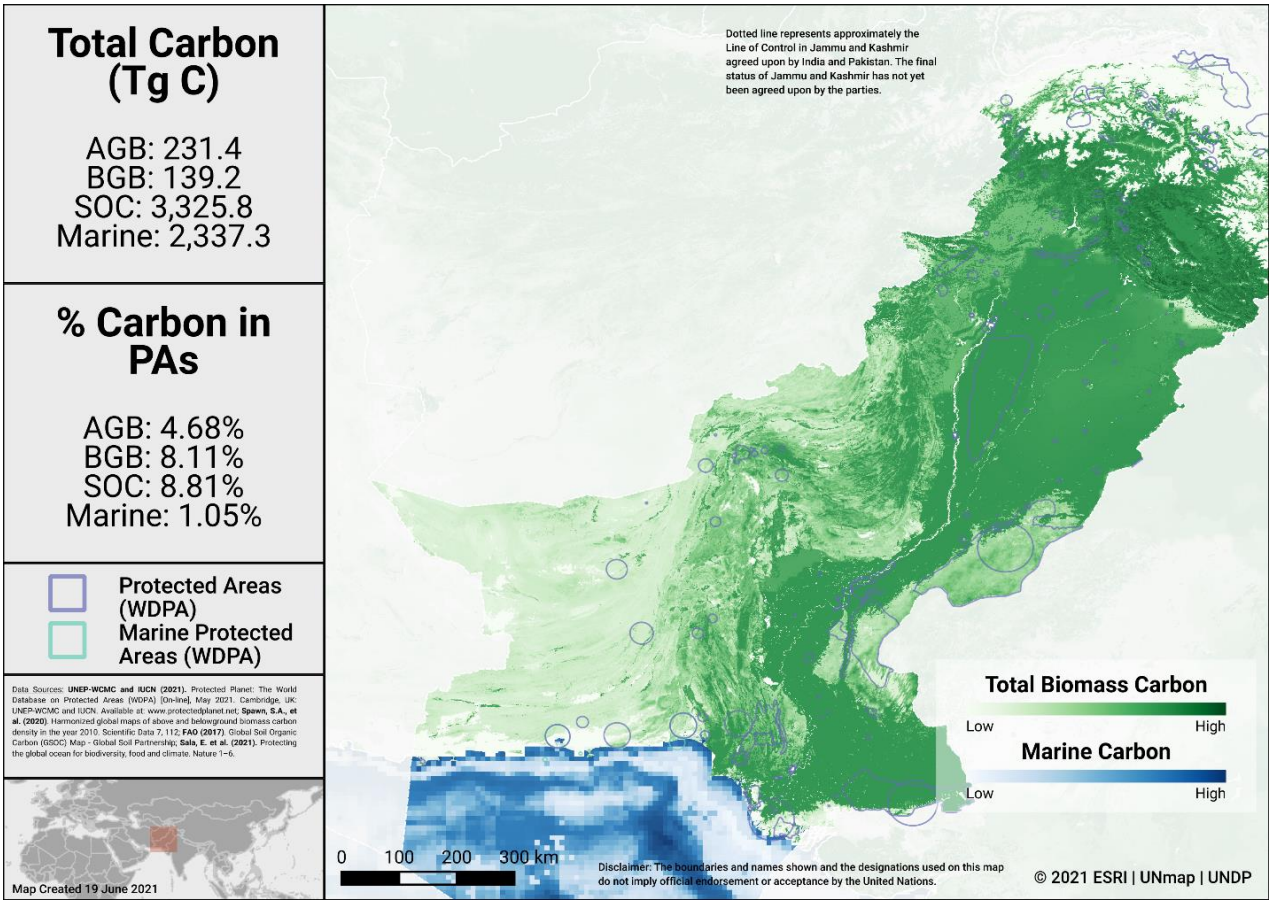
AREAS IMPORTANT FOR ECOSYSTEM SERVICES

There is no single indicator identified for assessing the conservation of areas important for ecosystem services. For simplicity, two services with available global datasets are assessed here (carbon and water). In future, other critical ecosystem services could be explored.

Carbon

Data for biomass carbon comes from temporally consistent and harmonized global maps of aboveground biomass and belowground biomass carbon density (at a 300-m spatial resolution); the maps integrate land-cover specific, remotely sensed data, and land-cover specific empirical models (see Spawn et al., 2020 for details on methodology). The Global Soil Organic Carbon Map present an estimation of SOC stock from 0 to 30 cm (see FAO, 2017). Data is also presented from global maps of marine sedimentary carbon stocks, standardized to a 1-meter depth (see Sala et al., 2021, and Atwood et al., 2020).

The map below presents the total carbon stocks in Pakistan and the percent of carbon in protected areas. The total carbon stocks is 231.4 Tg C from aboveground biomass (AGB), with 4.7% in protected areas; 139.2 Tg C from below ground biomass (BGB), with 8.1% in protected areas; 3,325.8 Tg C from soil organic carbon (SOC), with 8.8% in protected areas; and 2,337.3 Tg C from marine sediment carbon, with 1.1% in protected areas.



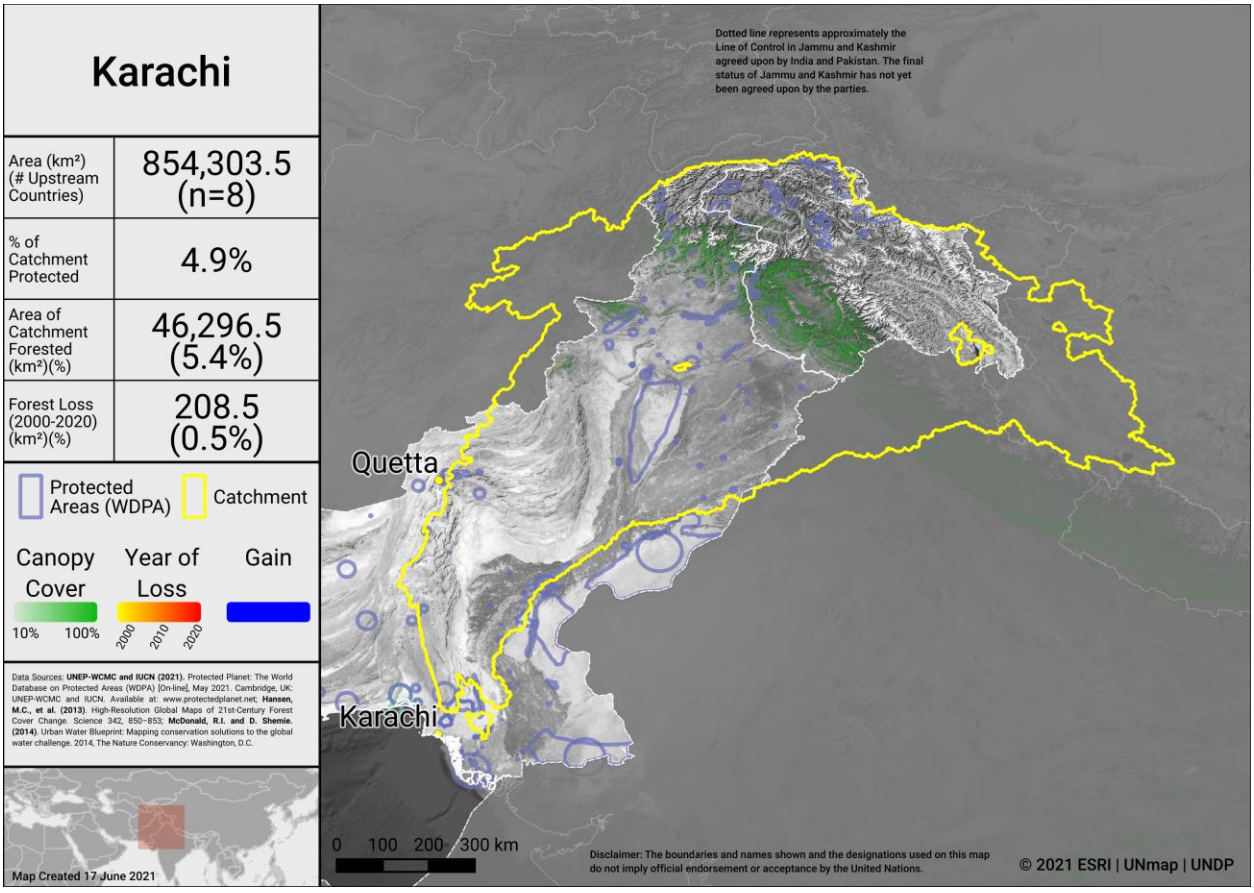
Carbon Stocks in Pakistan

Water

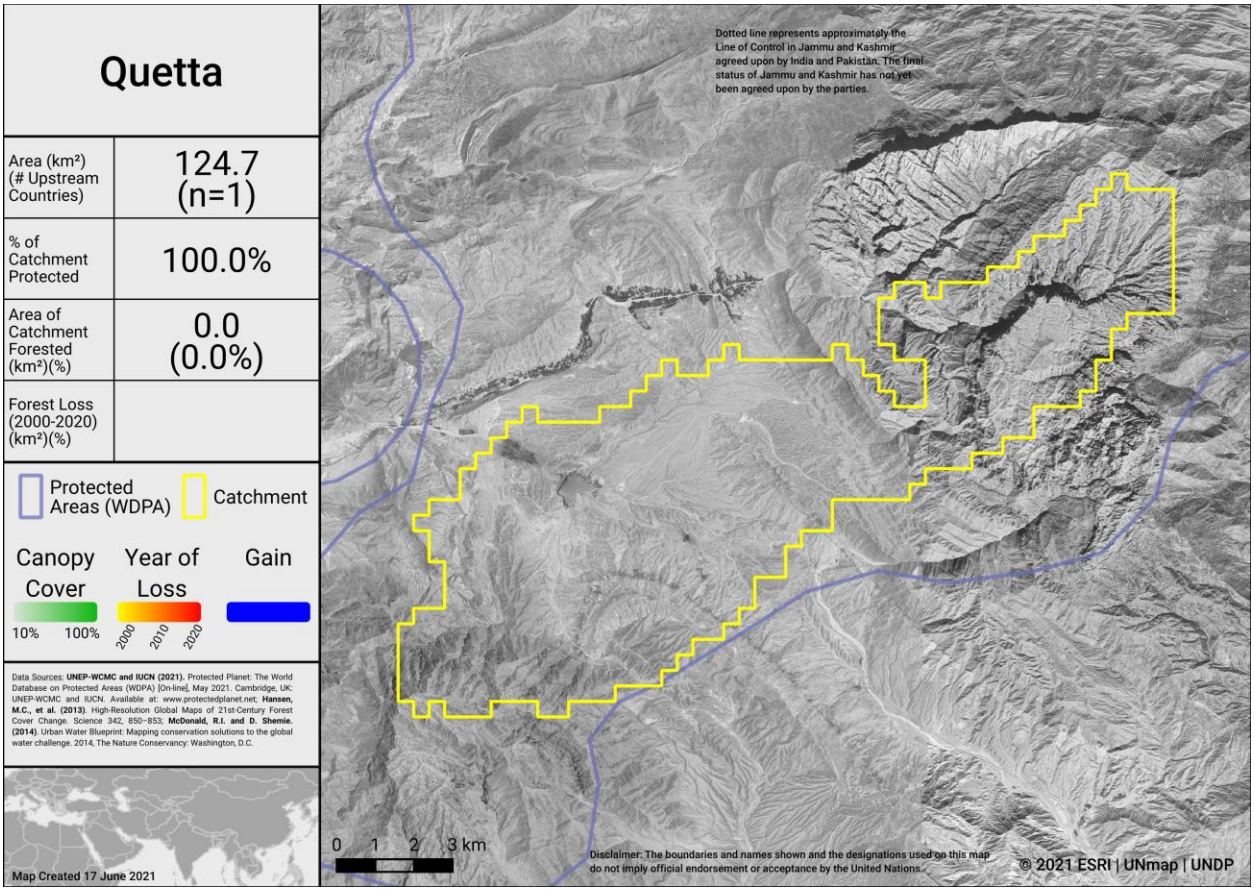
Information on the water sources for 534 cities is available via the City Water Map (CWM) and provides details on the catchment area of the watershed that supplies these cities (see McDonald et al., 2014 for details on methodology).

Forests and intact ecosystems support stormwater management and clean water availability, especially for large urban populations. Research that has examined the role of forests for city drinking water supplies shows that of the world's 105 largest cities, more than 30% (33 cities) rely heavily on the local protected forests, which provide ecosystem services that underpin local drinking water availability and quality (Dudley & Stolton, 2003).

Drinking water supplies for cities in Pakistan may similarly depend on protected forest areas within and around water catchments. The maps below show the percentage forest and PA cover and the forest loss from 2000-2020 in the most heavily populated water catchments of Pakistan. Intact catchments can support more consistent water supply and improved water quality.



Water supply area for the city of Karachi



Water supply area for the city of Quetta

Opportunities for action

For carbon, there is opportunity for Pakistan to increase PA and OECM coverage in both marine and terrestrial areas with high carbon stocks, as identified in the map above. Protecting areas with high carbon stocks secures the benefits of carbon sequestration in the area.

For water, there is opportunity to increase the area of the water catchment under protection by PAs and OECMs, or in cases where there is high levels of protection, focus on effective management for these areas. Protecting the current area of forested land and potentially reforesting would have benefits for improving water security.

CONNECTIVITY & INTEGRATION

Two global indicators, the Protected Connected land indicator (ProtConn; EC-JRC, 2021; Saura et al., 2018) and the PARC-Connectedness indicator (CSIRO, 2019), have been proposed for assessing the terrestrial connectivity of PA and OECM networks. To date there is no global indicator for assessing marine connectivity, though some recent developments include proposed guidance for the treatment of connectivity in the planning and management of MPAs (see Lausche et al., 2021).

Protected Connected Land Indicator (Prot-Conn)

As of January 2021, as reported in the Joint Research Centre of the European Commission's Digital Observatory for Protected Areas (DOPA) (JRC, 2021), the coverage of protected-connected lands (a measure of the connectivity of terrestrial protected area networks, assessed using the ProtConn indicator) in Pakistan was 4.6%.

PARC-Connectedness Index

In 2019, as assessed using the PARC-Connectedness Index (values ranging from 0-1, indicating low to high connectivity), connectivity in Pakistan is 0.42. This represents no significant change since 2010.

Corridors and integration into the wider landscape and seascape

There are no corridor case studies available for Pakistan (but see general details on conserving connectivity through ecological networks and corridors in Hilty et al 2020). However, the significance of connectivity is well recognized. As new knowledge about ecosystems and species emerges, efforts are being made regarding connectivity and the establishment of corridors.

Per Pakistan's *Protected Areas Initiative*: The three main objectives of include expanding the protected areas coverage to at least 15% of Pakistan's area by 2023. The second objective is to effectively "protect what is notified" with proper management plans, legislative interventions as well as standardised eco-infrastructure designs. The third objective is to link this initiative globally by getting at least seven leading national parks registered under the International Union for Conservation of Nature (IUCN) "Green List of Protected Areas", which accords the gold standard for nature protection.

Opportunities for action

There is opportunity for a targeted designation of PAs or OECMs in strategic locations for connectivity and to focus on PA and OECM management for enhancing and maintaining connectivity. Improving connectivity increases the effectiveness of PAs and OECMs and reduces the impacts of fragmentation.

As well, a range of suggested steps for enhancing and supporting integration are included in the voluntary guidance on the integration of PAs and OECMs into the wider land- and seascapes and mainstreaming across sectors to contribute, inter alia, to the SDGs (Annex I of COP Decision 14/8).

GOVERNANCE DIVERSITY

There is a lack of comprehensive global data on governance quality and equity in PAs and OECMs. Here, we provide data on the diversity of governance types for reported PAs and OECMs.

Pakistan has noted that the response remains largely qualitative. There remains a room of improvement and under new initiative, focus remains on governance and management arrangements of PAs.

As of May 2021, PAs in Pakistan reported in the WDPA have the following governance types:

- 0.0% are governed by **governments**
- 0.0% are under **shared** governance
- 0.0% are under **private** governance
- 0.0% are under **IPLC** governance
- 100.0% **do not** report a governance type

OECMs

As of May 2021, there are **0** OECMs in Pakistan reported in the WD-OECM, therefore there is no data available on OECM governance types.

Privately Protected Areas (PPAs)

There is currently no data available on PPAs in Pakistan.

Territories and areas conserved by Indigenous Peoples and local communities (ICCAs)

From Kothari et al. (2012), potential ICCAs (or similar designations) in Pakistan include:

- 140 ICCAs recorded so far in different provinces of Pakistan
  - These cover 19,500.0 km^2.
  - Data is currently limited and there is no overall estimate available; ICCA figures might be much higher.

Other Indigenous lands

Lands managed and/or controlled by Indigenous Peoples cover an area of 638,552.0 km^2, of which 587,832.0 km^2 falls outside of formal protected areas. Indigenous lands with a human footprint less than 4 (considered as 'natural landscapes') cover an area of 125,980.0 km^2 (for details on analysis see Garnett et al., 2018).

For Pakistan evidence for the presence of Indigenous Peoples comes from: Ali, S. S. & Rehman, J. Indigenous Peoples and ethnic minorities of Pakistan: constitutional and legal perspectives (Routledge, 2013).

Boundaries of the lands Indigenous Peoples manage or have tenure rights over come from: Ali, S. S. & Rehman, J. Indigenous Peoples and ethnic minorities of Pakistan: constitutional and legal perspectives (Routledge, 2013).

Opportunities for action

Increase efforts to identify the governance types for the 100.0% of sites that do not have their governance type reported. If applicable, explore opportunities for governance types that have lower representation.

There is also opportunity for Pakistan to complete governance and equity assessments, to establish baselines, and identify relevant actions for improvement. Examples of existing tools and methodologies include: Governance Assessment for Protected and Conserved Areas (Franks & Brooker, 2018), Social Assessment of Protected Areas (Franks et al 2018), and Site-level assessment of governance and equity (IIED, 2020). As well, a range of suggested actions are included in the voluntary guidance on effective governance models for management of protected areas, including equity (Annex II of COP Decision 14/8).

Equator Prize Projects

The Equator Initiative brings together the United Nations, governments, civil society, businesses and grassroots organizations to recognize and advance local sustainable development solutions for people, nature and resilient communities.

The Equator Prize projects provide examples of unique and locally based governance of natural resources. Pakistan has the following Equator Prize winners that showcase examples of local, sustainable community action:

Organization	Year	Project Description
Baltistan Wildlife Conservation and Development Organization (BWCDO)	2017	Tackling acute human-snow leopard conflicts in Pakistan, Baltistan Wildlife Conservation and Development Organization (BWCDO) protects Baltistan's snow leopards by providing economic incentives to local farmers in 17 villages through insurance schemes and financial compensation against livestock losses following snow leopard attacks. Damages are paid after verification through joint decisions between BWCDO and Village Insurance Committees established for this purpose. Communities have also set up predator-proof fencing, and received training to improve herding techniques. Vaccination campaigns protect both livestock and wildlife. BWCDO's achievements have reduced economic losses to farmers. An educational program raises awareness and provides opportunities for girls, proactively engaging youth in conservation and development.

Photo from Equator Prize Project: Baltistan Wildlife Conservation and Development Organization (BWCDO)

PROTECTED AREA MANAGEMENT EFFECTIVENESS

This section provides information on the coverage of PAs and OECMs with completed protected area management effectiveness (PAME) assessments as reported in the global database (GD-PAME). The proportion of terrestrial and marine PAs with completed PAME assessments is also calculated and compared with the 60% target agreed to in COP-10 Decision X/31. Information is also included regarding changes in forest cover nationally within PAs and OECMs.

Pakistan has noted that the notified protected areas invariably are not truly "protected" through effective governance and management regimes. The issue is addressed as an objective of "Protected Areas Initiative" launched by the Prime Minister.

Protected area management effectiveness (PAME) assessments

As of May 2021, Pakistan has 178 PAs reported in the WDPA; of these PAs, 2 (1.1%) have management effectiveness evaluations reported in the global database on protected area management effectiveness (GD-PAME).

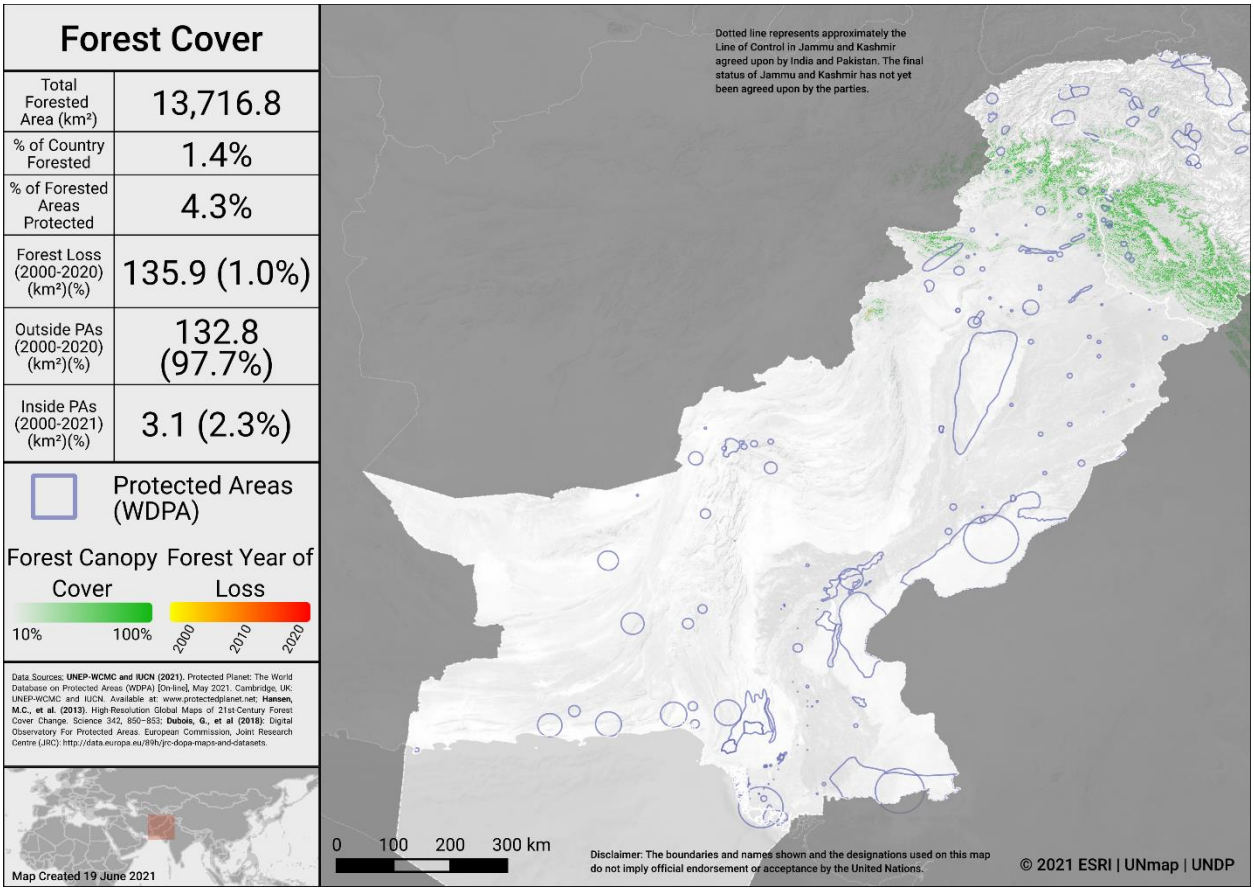
- 0.0% (237 km^2) of the terrestrial area of the country is covered by PAs with completed management effectiveness evaluations.
  - 0.2% of the area of terrestrial PAs have completed evaluations.
- 0.0% (0.0 km^2) of the marine area of the country is covered by PAs with completed management effectiveness evaluations.
  - 0.0% of the area of marine PAs have completed evaluations.

The 60% target for completed management effectiveness assessments (per COP Decision X/31) **has not** been met for terrestrial PAs and **has not** been met for marine PAs.

As of May 2021, there are 0 OECMs in Pakistan reported in the WD-OECM and no information available on the management effectiveness of potential OECMs.

Changes in forest cover in protected areas and OECMs

Forested areas in Pakistan cover approximately 1.4% of the country, an area of 13,716.8 km^2. Approximately 4.3% of this is within the protected area estate of Pakistan. Over the period 2000-2020 loss of forest cover amounted to over 135.9 km^2, or 0.01% of the country (1.0% of forest area), of which 3.1 km^2 (2.3% of forest loss) occurred within protected areas. The map below shows how forest cover has changed in Pakistan from 2000-2020 both inside and outside of PAs. This can indicate how effective PAs are in reducing forest cover loss.



Forest Cover and Forest Loss in Pakistan

Opportunities for action

The 60% target for completed management effectiveness assessments (per COP Decision X/31) **has not** been met for terrestrial PAs and **has not** been met for marine PAs. Therefore, there is opportunity to increase protected area management effectiveness (PAME) evaluations for both terrestrial and marine PAs to achieve the target.

There is also opportunity to implement the results of completed PAME evaluations, to improve the quality of management for existing PAs and OECMs (e.g. through adaptive management and information sharing, increasing the number of sites reporting 'sound management') and to increase reporting of biodiversity outcomes in PAs and OECMs.

SECTION II: EXISTING PROTECTED AREA AND OECM COMMITMENTS

PRIORITY ACTIONS FROM 2015-2016 REGIONAL WORKSHOPS

National priority actions for Aichi Biodiversity Target 11 were provided by Parties following a series of regional workshops in 2015 and 2016. The Capacity-building workshop for South, Central and West Asia on achieving Aichi Biodiversity Targets 11 and 12 took place 7 - 10 December 2015 in New Delhi, India. Progress towards the quantitative targets for marine and terrestrial coverage has been assessed based on data reported in the WDPA and WD-OECM as of 2021. For more information, see the workshop report at: https://www.cbd.int/meetings/

The following actions were identified during the workshops:

Terrestrial and marine coverage: Review of PAs system of the Country and make room for improvement (new areas, including marine/coastal including existing Ramsar sites)

Ecological representation:

1) Coral reefs expected to be part of PAs soon
2) Coverage of all eco-zones under PA system.

No actions were identified for the following elements of Target 11: Areas Important for biodiversity and ecosystem services; Connectivity; Management effectiveness; Governance and Equity; Integration into the wider landscape and seascape

NATIONAL BIODIVERSITY STRATEGY AND ACTION PLANS (NBSAPs)

Pakistan has submitted an NBSAP during the Strategic Plan for Biodiversity 2011-2020 (most recent NBSAP is available at: https://www.cbd.int/nbsap/search/).

Actions related to Target 11:

- The lists of PAs will be refined to include only those sites that meet the internationally recognized definitions
- Management plans will be prepared on priority basis and implemented for effective and equitable management of PAs integrated into the wider landscapes
- Local communities will be empowered and their capacity built to both collaborate in the management of PAs as well as establish community conservations areas on common property lands
- The PA network will be expanded by 2020 to cover at least 17% of terrestrial area to fill in the gaps in the protected area system and to establish corridors between fragmented habitats of threatened species
- Mechanisms will be developed for financial sustainability of PAs
- Representative forest landscapes of special importance for biodiversity will be designated as Forest Biodiversity Reserves and effectively managed
- Wetlands PAs will be established by 2019 covering at least 15% area of wetlands of biodiversity significance and effectively managed together with the surrounding landscapes
- Management plans will be prepared and implemented for integrated management of RAMSAR sites including the surrounding landscapes after the NBSAP is adopted
- PAs covering at least 10% of the marine area of biodiversity significance will be established and managed effectively as seascapes for conservation and sustainable use

This NBSAP **did** include a quantitative target for **terrestrial** PAs or OECMs (17%).

- As of May 2021 (based on the WDPA/WD-OECM) has the target been met: **NO**
- Accounting for other projects, actions and commitments, if this target is met, coverage in the country will increase by **24,992 km²**.

This NBSAP **did** include a quantitative target for **marine** protected areas or OECMs (10%).

- As of May 2021 (based on the WDPA/WD-OECM) has the target been met: **NO**
- Accounting for other projects, actions and commitments, if this target is met, coverage in the country will increase by **20,567 km²**.

APPROVED GEF-5 & GEF-6 PROTECTED AREA PROJECTS

Approved GEF-5 and GEF-6 PA-related biodiversity projects

This includes biodiversity projects from the fifth and sixth replenishment of the Global Environment Facility (GEF-5 and GEF-6) with a clear impact of the quantity or quality of PAs; also including some projects occurring within the wider landscapes/seascapes around PAs. Only those with a status of 'project approved' or 'concept approved' as of June 2019 were considered. The qualifying elements likely benefiting from each GEF project is assessed based on a keyword search of Project Identification Forms (PIF). Where spatial data for the proposed PAs was available, further details (based on an analysis by UNDP) regarding their impacts for ecological representation, coverage of KBAs, and coverage of areas important for carbon storage is included.

GEF ID	PA increase?	Area to be added (km^2)	Type of new protected area	Qualitative elements potentially benefitting (based on keyword search of PIFs)
4380	No	N/A	N/A	All except Ecologically representative and Connectivity
5660	No	N/A	N/A	All except Ecologically representative
9231	Yes	12,404	Terrestrial	All except Connectivity

Based on spatial data available for GEF project 9231, benefits will arise for several elements of Target 11:

Coverage of Terrestrial and Marine Ecoregions:

- 8 terrestrial ecoregions will have improved coverage. These ecoregions are: Himalayan subtropical pine forests; Karakoram-West Tibetan Plateau alpine steppe; North Tibetan Plateau-Kunlun Mountains alpine desert; Northwestern Himalayan alpine shrub and meadows; Pamir alpine desert and tundra; Rock and Ice; Western Himalayan broadleaf forests; Western Himalayan subalpine conifer forests.
  - The average increase in coverage of Terrestrial Ecoregions will be 1.64%.

Coverage of KBAs:

- Coverage will improve for 5 KBAs.

Ecosystem services:

- 2.96 % increase in the PA coverage of aboveground biomass.
- 3.48 % increase in the PA coverage of important aboveground biomass areas.
- 3.75 % increase in the PA coverage of soil organic carbon (SOC).
- 6.4 % increase in the PA coverage of areas important for SOC.

OTHER ACTIONS/COMMITMENTS

Leaders' Pledge for Nature

Pakistan **has** signed onto the Leaders' Pledge for Nature.

Political leaders participating in the United Nations Summit on Biodiversity in September 2020, representing 84 countries from all regions and the European Union, have committed to reversing biodiversity loss by 2030. By doing so, these leaders are sending a united signal to step up global ambition and encourage others to match their collective ambition for nature, climate, and people with the scale of the crisis at hand.

Pakistan's statement at the 2020 UN Biodiversity Summit mentions PAs, OECMs or corridors:

As you heard from our Prime Minister, our policies, which includes planting 10 billion trees, which includes having a protected area initiative in which we are enhancing our protected area coverage from 12 to 15%, and which also includes includes the green stimulus that we gave in this kind of depression, to protect nature and create jobs, is all based on nature.

High Ambition Coalition for Nature and People

Pakistan **has** joined the High Ambition Coalition for Nature and People.

The High Ambition Coalition for Nature and People (HAC) is an intergovernmental group, co-chaired by France and Costa Rica [currently including 65 countries and the European Commission]. Its objective is to support the adoption of a target aiming to protect 30% of the planet's land and 30% of its oceans by 2030 (30x30 target), within the future global framework of the Convention on Biological Diversity (CDB) for the protection of biodiversity, which is to be adopted at the next COP in China this autumn.

ANNEX I

FULL LIST OF TERRESTRIAL ECOREGIONS

Ecoregion Name	Area (km^2)	% of Global Ecoregion in Country	% of Country in Ecoregion	Area Protected (km^2)	% Protected in Country
Aravalli west thorn scrub forests	243,625.7	50.0	30.7	15,150.2	6.2
Baluchistan xeric woodlands	255,162.5	88.5	32.2	9,041.2	3.5
Central Afghan Mountains xeric woodlands	25.5	0.0	0.0	0.0	0.0
East Afghan montane conifer forests	7,313.3	36.4	0.9	900.8	12.3
Himalayan subtropical pine forests	8,767.0	11.5	1.1	405.4	4.6
Indus River Delta-Arabian Sea mangroves	3,030.8	50.6	0.4	1,481.6	48.9
Indus Valley desert	19,479.4	100.0	2.5	12,176.5	62.5
Karakoram-West Tibetan Plateau alpine steppe	9,483.9	6.6	1.2	391.1	4.1
Kuh Rud and Eastern Iran montane woodlands	2,084.7	1.7	0.3	0.0	0.0
Northwestern Himalayan alpine shrub and meadows	15,634.8	31.7	2.0	425.8	2.7
Rann of Kutch seasonal salt marsh	3,442.6	12.4	0.4	1,853.5	53.8

Ecoregion Name	Area (km^2)	% of Global Ecoregion in Country	% of Country in Ecoregion	Area Protected (km^2)	% Protected in Country
Registan-North Pakistan sandy desert	67,508.9	24.4	8.5	941.9	1.4
Rock and Ice	1,507.8	0.0	0.2	3.9	0.3
South China-Vietnam subtropical evergreen forests	18.6	0.0	0.0	0.0	0.0
South Iran Nubo-Sindian desert and semi-desert	40,437.9	11.5	5.1	3,241.9	8.0
Sulaiman Range alpine meadows	19,584.7	82.1	2.5	174.5	0.9
Thar desert	78,406.1	32.9	9.9	38,497.3	49.1
Western Himalayan broadleaf forests	2,567.1	4.6	0.3	172.4	6.7
Western Himalayan subalpine conifer forests	16,263.7	41.0	2.0	130.5	0.8

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For any questions please contact support@unbiodiveristylab.org.