



REGION CASE STUDY

COUNTRY	PROVINCE	RESTORATION IN 2020	OBJECTIVE FOR 2075	NATIONAL EMISSIONS IN 2019
PAKISTAN	SINDH	75,000 HA	350,000 HA OF MANGROVES PROTECTED AND RESTORED	249 MTCO ₂

Restoring mangroves to augment carbon sinks in the Indus Delta

In 2020, Pakistan's Prime Minister [announced](#) a 'blue economy policy' for Pakistan, aiming to maximise the region's immense 'blue carbon' potential. Under the Paris Agreement and the implementation of Nationally Determined Contributions (NDCs), blue carbon ecosystems have been proposed as Nature-based Solutions to mitigate climate change. Blue carbon [refers](#) to "carbon stored in coastal and marine ecosystems", amounting to a global store of [27-88](#) GtCO₂e. This blue carbon is mainly composed of mangroves, tidal marshes and seagrass beds.

The great potential of Pakistan's Blue Carbon for climate change mitigation

Pakistan currently has 1,464 km² of mangroves that sequester approximately 76.4 MtCO₂e. The National Climate Change Policy (NCCP) adopted in 2012 recognises the value of mangroves for their sequestration potential. Sindh Province, located on the Arabian sea is home to [95%](#) of the nation's mangrove forests. The [seventh largest](#) arid mangrove ecosystem in the world, its area has undergone massive deforestation and intensive degradation, due in part to freshwater diversion, over-exploitation (timber, fodder and grazing) and soil pollution. If these forests are degraded or damaged, however, the sequestered carbon is released into the atmosphere and contributes directly to climate change. It is estimated that globally, mangroves are disappearing [three to five](#) times faster than terrestrial forests.

Restoring Sindh's mangroves through REDD+ projects

In 2015, the provincial government launched the Delta Blue Carbon Project through a public-private partnership with Indus Delta Capital and the REDD+ programme. The [60-year](#) project will eventually protect and reforest [350,000 ha](#) of mangroves, as well as maintain biodiversity and improve the economic lives of local communities in the Indus Delta region, in the districts of Thatta and Sujawal. The reforestation is being carried out jointly with local communities, and is expected to eventually create 21,000 full-time jobs by engaging community members in a variety of natural resource management activities, ranging from protecting existing mangrove forests under Mangroves Stewardship Agreements to propagule collection, nursery maintenance, planting, community and infrastructure development, and survey and data collection work. For example, coordination with the REDD+ office in Pakistan is helping to improve field data and better estimate blue carbon stocks and potential. By the end of 2020, [75,000 ha](#) had already been restored, and another 100,000 ha (of original or restored forest) are being monitored by the programme. To date, the project is estimated to have [absorbed](#) 1 MtCO₂e between 2015 and 2020, and additional

plantings could remove 25 MtCO₂e by 2050, and 150 MtCO₂e by 2075. Finally, in 2018, the provincial government, as part of the federal Ten Billion Tree Tsunami Project (TB-TTP), set a target of planting 10 billion trees between 2018 and 2023, of which 1.5 billion will be in mangrove areas.

ESTIMATED BLUE CARBON STOCK IN THE WORLD (LEFT) AND IN PAKISTAN (RIGHT)

Source : [World Bank, 2021](#)



GLOBAL STOCK OF BLUE CARBON	NATIONAL STOCK OF BLUE CARBON
10-24 GtC / 27-88 GtCO ₂ e	21 MtC / 76.4 MtCO ₂ e
MANGROVES	
5.3-10.4 GtC	19.8 MtC \$873 mn - \$1.4 bn
TIDAL MARSHES	
1.4-6.5 GtC	1 MtC \$44.4 mn - \$74.1 mn
SEAGRASSES	
3.5-8.4 GtC	n.a.