

VERIFICATION REPORT FOR DELTA BLUE CARBON – 1 PROJECT



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Summary

AENOR INTERNATIONAL S.A.U (AENOR) has performed the first verification of the project “Delta Blue Carbon -1” in Pakistan on the basis of Voluntary Carbon Standard (VCS) and Climate, Community & Biodiversity standard (CCB), as well as the host country criteria. The period covered by this verification reports is from 19 February 2015 – 31 October 2021.

AENOR conducted the verification under VCS Standard version 4.3 and the CCB Standard Third Edition, by reviewing the monitoring report and supporting evidence submitted by the project proponent.

The project is an Afforestation, Reforestation and Revegetation (ARR) and Restoring Wetland Ecosystems (RWE). Project area is located in Thatta and Sujawal districts in Sindh Province, Pakistan. The project area comprises of degraded and de-vegetated mangrove lands which are under the management responsibility of Sindh Forest Department and are declared as Protected Forest lands. The over-all project zone extends over an area of 350,000 ha. Area that has been tackled under ARR so far is 73,125 ha. Total Area that will be tackled under ARR activities under this project during the lifetime of the project is 224,997 ha. The project boundary includes deforested mangrove habitats and future wetlands due to sea-level rise.

The purpose of verification is to have an independent, third party assess the project design. In particular, the project's emission reduction calculation; the monitoring plan implementing, and the project's compliance with relevant VCS and CCB requirements.

In order to confirm that the monitoring report as documented meets the stated requirements and identified criteria, the verification consisted of the following three phases: i) a desk review of the project monitoring report and monitoring plan implementation; ii) follow-up interviews with project stakeholders with an on-site visit as well as review of project activities; iii) the resolution of outstanding issues and internal technical review followed by the issuance of the final verification report and opinion. In the course of the verification process 10 corrective actions and 6 clarifications were raised, all have been successfully closed.

The purpose of the visit assessment was to determine the conformance of the project with respect to the VCS Version 4 Standard; the Third Edition of the CCB Standard; The field visit took place from 14/05/2022 to 06/06/2022 in which the CCB expert visited the project area, interviewed key stakeholders, staff and other related experts, and also reviewed the CCB-VCS-MR and supporting documents. The scope of the verification was to assess the conformance of information in the project design document with the VCS and CCB standards.

Hence, once all issued detected were appropriately solved, AENOR carried out a final verification report and deems with reasonable level of assurance that the project complies with all of the verification criteria for VCS and CCB. The assessment team has no restrictions or uncertainties with respect to the compliance of the project with the verification criteria, hence, the audit team concludes that the net GHG emissions reductions or removals, for the lands included in the project boundary at verification stage has been quantified in accordance with VCS rules.

AENOR verification team assessed the calculations and can confirm the GHG emission reductions, during this monitoring period amounts 3,497,159.54 tCO₂e (without discounting buffer emissions) for the whole crediting period. AENOR's verification team is able to confirm that the project is well managed, and results are well supported. Monitoring plans are effective, and the project proponent has developed enough procedures and tools to manage data.

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INTRODUCTION

1.1 Objective

The objective of the verification audit was to conduct an independent assessment of the project to determine:

- The extent to which methods and procedures, including monitoring procedures, have been implemented in accordance with the validated project description, including the monitoring plan.
- The extent to which GHG emission reductions and removals reported in the monitoring report are materially accurate.

1.2 Scope and Criteria

Verification Scope: The scope of the verification audit is to verify the emissions reductions and/or removals of the project, against the Verified Carbon Standard, the identified methodology and the validated CCB-VCS-PD throughout the monitoring period from 19 February 2015 – 31 October 2021.

The objectives of this audit included a verification of the projects calculated removals with the Verified Carbon Standard requirements and any additional requirements of VCS AFOLU projects. In addition, the audit assessed the project with respect to the validated baseline scenarios presented in the CCB-VCS-PD and the fulfilment of the Climate, community, and biodiversity criteria against the CCB Standard.

The scope was defined as follows:

- The project and its baseline scenarios;
- The physical infrastructure, activities, technologies and processes of the project;
- The GHG sources, sinks and/or reservoirs those are applicable to the project;
- The types of GHGs that are applicable to the project; and
- The project monitoring period
- The climate, community, and biodiversity benefits, including gold distinctions

The verification assessment was performed in accordance with the requirements detailed in section 4 of the VCS standard; including the following documents:

- VCS Program Guide, v4.2
- VCS Standard, v4.3
- Program Definitions, v4.2
- AFOLU Non-Permanence Risk Tool, v4.0
- Climate, Community & Biodiversity Standards, v3.1
- CCB Program Rules, v3.1

Unless otherwise indicated, the assessment was performed against the most recent version of the relevant VCS and CCB guidance document.

1.3 Level of Assurance

The assessment was conducted to provide a reasonable level of assurance of conformance against the defined audit criteria and materiality thresholds within the audit scope. Based on the audit findings, a positive evaluation statement reasonably assures that the project GHG assertion is materially correct and is a fair representation of the GHG data and information.

All the revisions of the verification report before being submitted to the client were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent AENOR instructions required. The technical review was performed by a technical reviewer(s) qualified in accordance with AENOR's qualification scheme for CDM/VCS validation and verification.

The threshold for materiality with respect to the aggregate of errors, omissions, and misrepresentations relative to the total reported GHG emission reductions/removals was one percent (1%), as established for large projects by the VCS Standard.

1.4 Summary Description of the Project

The project is located in the Sindh Indus Delta Region in the Thatta and Sujawal districts of Sindh Province in south-eastern Pakistan. The delta is a vast complex of tidal river channels and creeks, low-lying islands, mangrove forests and inter-tidal areas. The delta's mangrove forests are unique in being the largest area of arid climate mangroves in the world. Project activities that have been implemented during this first monitoring period of 19 February 2015 to 31 October 2021, and among them the most relevant are the following:

- Mangrove's restoration of degraded and de-vegetated lands over an area of 73,125 ha under the planting cohorts of 2015 to 2020
- Providing jobs and income-earning opportunities for both male and female populations in the Project Zone
- Local communities' engagement in mangroves, biodiversity and fisheries conservation and sustainable management through measures like Mangroves Stewardship Agreements
- Participatory land-use planning over an area of 224,997 hectares
- Ensuring greater access to health facilities for local communities through the provision of a mobile health unit, facilitation of an existing rural health centre, provision of ambulance, medicines and medical supplies and equipment
- Rehabilitation of one non-functional Reverse Osmosis (RO) plant and operationalisation of another four RO plants for provision of safe drinking water and improving hygiene facilities
- Provision of civic facilities through the construction of a community centre
- Conducting foundational activities for improved access to education through surveying schools, students enrolled in these schools and assessing needs for increasing enrolment, students' attendance and improving the learning environment in these educational facilities
- Awareness-raising, training, and capacity building through a number of Social and Biodiversity Impact Assessment Surveys, PRAs, household surveys and other meetings and talks
- The organisation of local communities into village development committees (VDCs) and Women Organisations (WOs)

To date, until the end of October 2021, the project has protected, conserved, and sustainably managed the restored de-vegetated and degraded mangrove lands of 73,125 ha until and including the year 2020. The ARR/RWE activities of DBC-1 planting cohorts of 2015 to 2020 have so far sequestered 3,497,159.54 metric tonnes of carbon dioxide equivalent (tCO₂e). During this M-1 period (19 February to

31 October 2021), all project activities related to climate change mitigation and adaptation, biodiversity and HCVs conservation and community development implemented have demonstrated a high degree of success in terms of their impacts, sustainability, replicability and all-around engagement of communities.

No events, either in the internal environment or external context, or activities have happened during the period that have affected or could have affected the GHG removals of the project. In addition, there has been no coastal erosion as was ex-ante predicted to happen. Potential leakage from the project was monitored through the project's leakage procedures. Potential activity-shifting and market leakage have been dealt with as per procedures provided and laid out in the methodology.

The DBC-1 project falls under the VCS sectoral scope 14: – Agriculture, Forestry, and Other Land Uses (AFOLU). Specifically, the project falls under the tidal wetlands restoration ARR/RWE category of wetlands restoration and conservation (WRC). The project is eligible under these categories by the definitions provided in the VCS AFOLU Requirements version 3.4 published 8 October 2013 by virtue of the fact that it removes atmospheric carbon dioxide on account of mangroves restoration on de-vegetated and degraded wetlands.

VERIFICATION PROCESS

1.5 Audit Team Composition (*Rules 4.3.1*)

Name	Position in the team
Juan Carlos Gómez	Lead auditor
Javier Cócera Cañas	Auditor
Waqar Ahmed	CCB expert
José Luis Fuentes	Technical Reviewer

The auditors have the Spanish as mother. However, they are fluent in English, which was the main communication language with the project proponent and rest of stakeholders. Complementary the technical expert, is a local expert who was able to speak in the local language of Pakistan with all the people. The auditors have experience in social and cultural issues. They have been auditing CDM, VCS, CCB and GS projects in AENOR for more than 6 years all around the world.

Juan Carlos Gómez has more than 6 years of professional experience in climate change. He is a Forestry Engineer and holds Master in Sustainable Development and Corporate. He has developed his entire career in the field of climate change. He is an expert in the development of climate change mitigation and adaptation policies and has worked in LATAM countries and Africa, auditing REDD+ under VCS and CCB, and forestry projects under the CDM and JI.

Javier Cócera is a forest engineer with a master in forest management. He has developed his career focused to the forest management. Mainly he has been working through sustainability in two ways: in forestry consultancy, developing forest management plans, working with GIS and LiDAR both in the field and the office and getting experience of the forest resources; and in developing environmental footprint

projects and sustainability reports. Currently, Javier is working in AENOR for more than one year as auditor focused in AFOLU projects and working with projects in LATAM, Africa and Asia.

Waqar Ahmed is serving in the University of Karachi as a full-time faculty since 2006. Currently serving as an Assistant Professor, his duties include teaching, research and community service. He has also got experience in teaching as a visiting faculty in other universities like, University of Warsaw, Poland and Hamdard University. This demonstrates his strong communication skills. He has gained experience in research publications by writing 22 international research articles on several aspects of environment. With particular reference to marine pollution which is a part of his Ph.D. work, he has good command on the subject. He has also participated in various conferences at national and international level. Dr. Waqar completed various technical trainings in the country and abroad. He is also a certified trainer of the Integrated Coastal Management by IUCN.

José Luis Fuentes is the manager of the Climate Change Unit of AENOR. He is a Forestry Engineer and has a master's in business administration and a Post-Graduate in Environmental Management. He has more than 15 years of experience in auditing, consulting and training activities related to environmental and carbon management projects. Jose Luis has actively participated in the audit of international sustainable development projects in several carbon schemes, such as the Clean Development Mechanisms (CDM), Verified Carbon Standard (VCS), Climate, Community and Biodiversity Standards (CCB), Gold Standard (GS) and carbon footprints (ISO 14067 and ISO 14064). Jose Luis has extensive technical knowledge about the regulatory framework, policies and technical provisions emanating from the Paris Agreement, the Kyoto Protocol and the Conferences of the Parties

1.6 Method and Criteria

The verification was performed through a combination of document review, interviews and communications with relevant personnel and on-site inspections. The project was assessed for conformance to the criteria described in Section 1.2 of this report. As discussed in this report, findings were issued to ensure that the project was in full conformance to all requirements.

AENOR carried out this verification report and deems with reasonable level of assurance that the project complies with all of the verification criteria.

The verification has been performed through a deep desk review, site visit to the project, interviews with local stakeholders, and interviews with relevant personnel responsibly for monitoring. The verification activities in which risks were assessed were the evaluations of the monitoring system (data flow, data control procedures, etc.) but mainly the quality of raw data as well as sources and the spreadsheet calculations.

AENOR reproduced and verified 100% of sheets in the spreadsheet of emission reduction calculations /30-35/ and the data-calculations carried out in those sheets for the monitoring period 19 February 2015 to 31 October 2021 for the project area. The project area was 100% checked using the GIS database and shape files /39-47/. The carbon calculations were also 100% verified and crosschecked with validated values.

AENOR decided to carry out a deep and meticulous review of the sheets due to the following reasons:

- To verify the correct application of the methodology (formulae, equations.) and checked that data required to calculate the GHG removals are appropriately provided.

Based on the assessment carried out, AENOR confirms with a reasonable level of assurance that the claimed emission reductions are free from material errors, omissions or misstatements.

In addition, AENOR confirms that sufficient evidence was presented for the reported net anthropogenic GHG emission reductions and that there is a clear audit trail that contains the evidence and records that validate the stated figure in this verification report since:

- Sufficient evidence available: The project participant has provided the 100% of data used in the calculations to achieve the final amount of GHG emission reductions reported.
- Nature of evidence: The raw data were collected from reliable sources. They are detailed in the project documents and have been provided to the verification team and the most relevant are appropriately detailed in the appendix I.
- Cross-checked evidence: AENOR cross-checked the collected information through an on-site inspection to the project area and reproducing calculations.

Hence, AENOR confirms that the stated figures in the monitoring report are correct and confirms that is able to certify net anthropogenic GHG removals based on verifiable and reliable evidence.

1.7 Document Review

The monitoring report /2/, project description , and supporting documentation were carefully reviewed for conformance to the verification criteria and consistency with the Project Description. The audit team examined the baseline data gathered from the baseline determined for this Region, spreadsheets used to enter, and compile information required by the methodology and reproduced the GHG emissions reductions calculations presented in the spreadsheet models to obtain same results than those appearing in the Monitoring report. The Non-Permanence Risks Report /3/ for this monitoring period were assessed, as well.

Appendix I to this report details the list of documents provided by PP and reviewed by AENOR during the process

1.8 Interviews

The AENOR's verification team composed of Waqar Ahmed conducted interviews with project developers; local stakeholders; and key personnel involved in the project activity, in order to confirm selected information and to resolve issues identified in the document review.

The field visit took place from 14/05/2022 to 06/06/2022 in which the technical expert visited the project area, interviewed key stakeholders, staff and other related experts, and also reviewed the monitoring report and supporting documents. The people interviewed were those directly affected or involved in the project activity and in some cases were just indirectly affected. Finally, some activities stated within the MR were also reviewed during the on-site visit and verified with the information provided.

Additional to site visit, meetings via teleconferences were carried during December 1 and 2, 2021; in order to validate the baseline calculation and verify the processing data from satellite images. The scope of the verification was to assess the conformance of information in the monitoring report with the VCS and CCB requirements.

The complete list of interviewees is found in appendix III

1.9 Site Inspections

The objectives of the on-site inspections performed were mainly to cross check the description provided in the monitoring report, related to the VCS and CCB requirement implemented by the proponent, including

- Ensure that the geographic area of the project, as reported in the CCB-VCS-PD and the accompanying KML file, is in conformance with Section 3.10.2 of the VCS Standard;
- Perform a risk-based review of the project area to ensure that the project conforms to all other requirements of the VCS rules and the methodology.
- Observe the Project Proponent's evidence and collect and record data in order to assess whether data collection techniques conform to the monitoring plan and related documentation and to evaluate data quality control systems.
- Select samples of data and information for verification in order to meet a reasonable level of assurance and to meet the materiality requirements of the project, as required by Section 4.1.8 of the VCS Standard;
- Perform a risk-based review of the project area to ensure that the project is in conformance the eligibility requirements of the VCS rules and the applicability conditions of the methodology; and
- Interview local authorities to confirm that the project operates in accordance with current permits and authorizations and its relationship with local actors and communities.
- Interview the key personnel involved in the mentoring and observe monitoring practices.
- Verify activities such as planting, in the project zone

Additional to the site inspection, meetings via teleconferences were carried with project representants and personnel in charge of carrying out the calculations, image processing, monitoring, beta regression, additionality and unique metrics report.

The complete list of activities verified onsite, and the itinerary is found in appendix III.

1.10 Resolution of Findings

All documentation provided by the Project Proponent was assessed against the most recent version of the relevant VCS guidance document. Several clarification requests (CL) and corrective action requests (CAR) were raised and submitted to the Project Proponent, which addressed them either by providing to the audit team the requested information or by making the appropriate corrections. Updated versions of the documentation were submitted by the Project Proponent and the audit team reassessed them against the guidance documentation. This process was repeated iteratively until all CLs and CARs were fully resolved. Specifically, 10 CARs and 6 CLs were reported.

All findings issued by the AENOR audit team during the verification process have been closed for both VCS and CCB Standards. All findings issued during the verification process, and the inputs for their closure, are described in Appendix II of this report.

1.10.1 Forward Action Requests

No Forward Action Requests were raised to the PP during this process.

1.11 Eligibility for Validation Activities

AENOR has conducted the verification at the same time considering the paragraph 4.1.20 VCS standard. AENOR holds accreditation for validation and verification for the sectoral scope 14. Agriculture, Forestry, Land Use.

VALIDATION FINDINGS

1.12 Participation under Other GHG Programs

The project has not been registered, and is not seeking registration, under any other GHG programs. The project has already been validated and registered under the VCS and CCB Program.

1.13 Methodology Deviations

There have been no methodology deviations or the criteria and procedures for monitoring that affect the applicability of the methodology, additionality, or the baseline scenario's appropriateness. Therefore, the project remains in compliance with the applied methodology, VM0033.

1.14 Project Description Deviations (*Rules 3.5.7 – 3.5.10*)

Three project description deviations from the validated PD have been applied during this monitoring period:

1. Rectification of the area of strata since validation:

Ground truthing of the planted areas from 2015 to 2020 was undertaken at the time of this first monitoring campaign. The ground truthing exercise revealed that there were certain planted areas polygons whose area was either wholly or partially lying outside the project area boundary. Similarly, water bodies equivalent to the excluded area had crept into the area calculation of planted areas. This situation warranted rectification of the areas of planted polygons, which was accordingly undertaken. As a result of this rectification the planted ARR during the monitoring period has changed from ARR area as per PD from 75,565 ha to Rectified ARR area of 73,465.85 ha. Part of the rectified areas have also been lost due to erosion. However, there has been no change in the total project area on account of these adjustments and it still remains 224,997 ha. Due to this rectification activity, the planted ARR area and the precise geographic boundaries of the planted ARR area have been accurately mapped and presented in the monitoring report.

The audit team has reviewed the new information produced by the reduction of the area, the spreadsheets, calculation /30-36/ and the GIS evidence /39-47/. Through the GIS evidence the team was able to assess the new surface of the project. Additionally, this project description deviation corresponds to an adjust to the surface to a smaller and more accurate area, so the reduction will not suppose an increase in the GHG reduction or removals.

2. Use of different allometric equations for *Avicennia marina*:

The allometric equations used for estimation of aboveground and belowground biomass of *Avicennia marina* species have been changed from the ones detailed in the PD based on additional research and to reflect the actual ground situation concerning the species biomass accumulation rate in the two carbon pools of aboveground biomass and belowground biomass. The PD had proposed the use of Fu and Wu 2011 allometric equation for aboveground biomass estimation ($1.8247 * (C^2 * H)^{1.0202}$). This allometric equation has been replaced with Chatting et al 2020 ($\text{Log (AG)} = 2.14 \times \text{Log (CD)} + 0.20$). Also, the belowground biomass equation given in the PD for the species is that of Pakistan Forest Institute 2019 ($\text{BGB} = 0.6648 * \text{AGB}^{0.9437}$), which has been replaced with Comley and McGuinness 2005 ($\text{BGB} = 0.923 * \text{AGB}$). Pakistan Forest Institute BGB allometric equation for *Avicennia marina* did not use data

collected locally from the Indus Delta site; instead, it was derived another source that was based on data used by the source equation.

The audit team has reviewed the new equations with the sources provided by the project proponent /239/ and considers that the new equations are more representative and accurate for the place in where the project is located. Also, the audit team has reviewed that all the spreadsheets have been considered the new equations and the values are accurate and reliable. Further explanation about the usage of these formulas is found under the findings appendix, where the audit team asked for additional information.

3. Non-validation of separate allometric equations for *Ceriops tagal* and *Aegiceras corniculatum* and use of their biomass estimates in GHG removals calculations:

Separate allometric equations for *Ceriops tagal* and *Aegiceras corniculatum* were not validated in the PD for some reasons. The PD says that all present mangrove trees will be included in the monitoring of the project scenario. Therefore, *Ceriops tagal* and *Aegiceras corniculatum* plants present in the sample plots had to be included in biomass carbon estimation. The inclusion of their biomass carbon in GHG emissions and removals at the time of this first monitoring campaign using allometric equations of related species more accurately reflects the GHG emissions and removals on account of the fact that all GHG sinks and sources gets included in GHG emissions and removals estimation besides meeting the requirement of PD that all mangrove plants present will be included in the monitoring of the project scenario. Therefore, it is prudent to include these in the estimates at the time of this first monitoring campaign using allometric equations of related species instead of totally excluding this known sink/source of GHG, and as explained above, the use of allometric equations of related species for these two species at this stage has not affected the GHG emissions and removals estimates but in fact has resulted in more accurate estimation and has also complied with PD requirements.

At the beginning, during the validation the equations for *Ceriops tagal* and *Aegiceras corniculatum* were not validated separately because the proportion of these two species was very small and their relation to the other species used in the project was very close. Also, the way in which these species are measured according to the allometric equation is using the DBH, but the species in the project have not reached the DBH.

The audit team has reviewed and verified the new equations according to the evidence provided to demonstrate the accuracy of the equation. Also has assessed the proportion of those species and their relevance within the carbon calculations. AENOR considers that the usage of the allometric equations for these two species has been done correctly according to the carbon calculations, the evidence provided and the methodology, and complementary, the usage of the species will mean an increase in the accuracy of the data and reliability of the calculations.

The methodology deviations described above have been assessed by the VVB to analyse and confirm that they do not impact the applicability of the methodology, additionality, or the appropriateness of the baseline. As described in each one of the deviations, the main objective of the three of them is the increase of accuracy in the design, calculation and monitoring of the project. The first one consists in a modification of the area of the project, improving the accuracy of the calculation and providing the real surface of the project due to different causes. The second one, which is the usage of different equations than the validated one, is contrasted with reliable and accurate sources, so the accuracy of the calculation is also being incremented due to the usage of these formulae. Finally, the third one is the separation of some equations due to validation reasons, and also in this case, the usage of new equations, coming from reliable sources, will increase the accuracy of the calculations. The audit team reviewed the evidence that strengthen each deviation, such as the kml., the sources of the equations and the explanation provided by the PP in the

section 2.2.4 of the MR. Therefore, none of these methodology deviations is impacting negatively in the applicability, additionality nor the appropriateness of the baseline.

Hence, AENOR deems, according to the evidence provided and the studies carried on, that the project description deviation are valid, and the modifications on the PD will involve an increase in the accuracy of the data. The reduction of the area will mean avoiding the calculation in invalid areas, while the new formulae of some species will increase the accuracy of the data. Then AENOR considers that the project description deviations are valid.

1.15 Minor Changes to Project Description (Rules 3.5.6)

There have been no community or biodiversity changes to project design that would either require or not require a project description deviation that occurred during the monitoring period compared with the validated project description. Project implementation and monitoring have been done in conformance with the Climate, Community & Biodiversity Standards criteria and indicators.

1.16 Grouped Project (G1.13 – G1.15, G4.1)

This is not a grouped Project.

VERIFICATION FINDINGS

1.17 Public Comments (Rules 4.6)

The monitoring report was submitted to the VCS website for a 30-day public comment period from 13/04/2022 to 13/05/2022. No public comments were received during the verification process. The audit team confirmed this issue against public information in VERRA database platform.

1.18 Summary of Project Benefits

Section 1 of the monitoring report provides information about the project benefits. Achievements for the current monitoring period and for the project lifetime are detailed with specific data per categories.

Data are supported with evidence and records checked during the interview with stakeholders, review of activities implemented and desk review. The section has been completed appropriately with data from the sources provided such as GIS package, records of trainings activities, employees etc.

As specific and remarkable achievements for the current monitoring period the monitoring report in its section 1.2 states the net emission reduction of 3,497,159.54 tCO₂e for the monitoring period. The standardized benefit metrics, including: GHG emission reductions or removals; Forest cover; Training; Employment; Livelihoods; Health; Education; Water; Well-being and Biodiversity conservation. The audit team reviewed information reported in this section against supporting evidences listed in appendix I and further information referenced in proper sections stated in standardized benefits; complementary, due to the onsite audit visit, the VVB was able to personally evidence and crosscheck all this information, the audit team has verified that all achievements reported are substantiated with information provided in the body of the CCB-VCS-PD.

In opinion of AENOR, the project benefits are credible based on the supporting documents provided by PPs and evidence received during the AENOR's stakeholders interviewed, records checked and field records.

1.19 General

1.19.1 Implementation Status (G1.9)

Section 2.2 of the monitoring report provides the relevant milestones occurred during the last years in the project area related to the management and development of the project to understand its implementation status. These milestones are directly linked with the success to implement and achieve the goals established by the project in the community and biodiversity areas.

Tables in section 2.2.1 of the monitoring report provide complete information of activities carried out and impacts of these activities for the goals of the project. Project objectives and activities to reach them are analysed with their outputs and outcomes for the present monitoring period.

The most important milestones are described in the in section 2.2.1 of the monitoring report. The following table summarizes the assessment carried out by the audit team

Date	Milestone(s) in the project's development and implementation	VVB Assessment
18 February 2015	Signing of MoU between Government of Sindh and IDC.	Assessed on the validated PDD
19 February, 2015	Signing of project agreement between Government of Sindh and IDC.	Assessed on the validated PDD
19 February 2015 to 31 December 2020	Restoration of 73,125 hectares of degraded mangrove lands.	Verification team assessed the surface with the analysis of the GIS data /39/ the project deviations and the spreadsheet calculations /30-36/.
February 2015- October 2021	Mangrove Stewardship Agreements (MSAs) agreed and executed with local communities.	Verification team assessed the agreements / 220-223/ through the onsite inspection and the interview with stakeholder and beneficiaries. Further information in appendix III (field notebook)
February 2015- October 2021	Design, development and implementation of training and capacity building activities so as to enhance capacities of communities and stakeholders for coastal resources restoration, conservation and sustainable management as well as increased income earning opportunities and diversified income sources.	Verification team assessed the agreements /120-124/ through the onsite inspection and the interview with stakeholder and beneficiaries. Further information in appendix III (field notebook)
February 2015 to October 2021	Restored non-functional Reverse Osmosis (RO) plants for ensuring access to safe and affordable	Verification team assessed the agreements through the onsite inspection and the interview with stakeholder and beneficiaries. Further information in appendix III (field notebook)

	drinking water and improved hygiene.	
February 2015 to October 2021	Carried out forest patrols on a regular basis for effective law enforcement and conservation of biodiversity and HCVs areas.	Verification team assessed the agreements through the onsite inspection and the interview with stakeholder and beneficiaries. Further information in appendix III (field notebook)
September-October, 2021	Field work and surveys for biomass carbon estimation for first monitoring report preparation	Verification team assessed the carbon calculations /31/ and the protocol for biomass monitoring /218/, the biomass inventories and the preparation of the MR through a proper desk review, and the dates were analysed with direct interviews with calculation staff.
September-October, 2021	Field surveys for biodiversity impact assessment for first monitoring report preparation	Verification team assessed the agreements through the onsite inspection and the interview with stakeholder and beneficiaries. Further information in appendix III (field notebook)
September-October, 2021	Field surveys for community and socio-economic impact assessment for first monitoring report preparation	Verification team assessed the evidence /48-119/ and the agreements through the onsite inspection and the interview with stakeholder and beneficiaries. Further information in appendix III (field notebook)
March, 2022	Monitoring report and dissemination	Assessed through direct interviews with stakeholders. (appendix III)

After reviewing listed documents AENOR's Verification team confirm the most important dates of the project schedule.

During this verification process, AENOR has not detected project changes in regards of the project title, its purposes and objectives. As such, the project activity accurately reflects the proposed project which mainly consists in alleviating deforestation and degradation pressures on the forests, improving the quality of life of population in the area and strengthening relationships with government agencies to insure the proper long-term management of the Project Proponent. Through interviews with key staff and evidence provided, the auditor team ratified the main objectives of the project activity.

Besides, the project has not participated nor been rejected under any other GHG programs. GHG emission reductions or removals generated by the project are not included in an emission trading program or any other mechanism that includes GHG allowance trading. The project has not received or sought any other form of environmental credit.

Hence, after a complete review of the different documents provided and the on-site visit, AENOR is able to confirm that the project implementation is in accordance with the project description contained in the validated CCB-VCS-PD and final version of the monitoring report /2/. There are not material discrepancies between project implementation and the monitoring report.

1.19.2 Risks to the Community and Biodiversity Benefits (G1.10)

Section 2.2.6 of the monitoring report addresses the natural and human induced risks and how the project considered several initiatives to diminish these risks to the project benefits. The main possible risk identified by project proponent are:

- Costs, which are not a high risk, due to the two project proponents have financial resources and financial viability.
- The management risk is not an option because the same team of experts is continuing since project establishment.
- Fire risk is not a problem due to regular inundation and high humidity under the forest canopy and in the whole intertidal zone.
- Pests are minimal because it is a native ecosystem.
- The major human-induced risk to the project is the unsustainable and unregulated use of mangrove forests, along with the failure of restoration work. Measures to end destructive practices that can impact the project negatively have been put in place through a participatory approach with forest-dependent communities in the Project Zone
- All the lands and vegetation included in the Project Area of the DBC-1 project are government-owned and belong to the Provincial Government of Sindh. There have been no changes in land tenure.

Complementary the PP has assessed other risks such as community and biodiversity and described in section 2.2.6 of the MR:

- Community participation risks, according to this risk, there is no community participation related risk since community members have been giving their input at all stages of the project and the community participation risks have been addressed by involving them at each and every step from project activities.
- Risks of marginalized community groups. All the socio-economically marginalized community groups present in the project area are given equal chance to participate in different project activities and therefore have access to and benefit from all project activities implemented including mangrove restoration works, community development activities (drinking water and hygiene facilities, health facilities, etc.), awareness raising and training and capacity building activities.
- Women marginalization risks is not a risk of exclusion because women are an integral part of the project activities and several women organizations have been organized.
- There are neither risks about the protection of the HCV because the interventions have been contributing to the conservation and enhancement of different community related HCVs.
- About the biodiversity risks, the MR has assessed all the type of possible risks, and states that the project has taken measures to ensure that the following biodiversity related risks are avoided and prevented: avoidance of monocultures; avoidance of invasive species; avoidance of exotic species;

avoidance of habitat destruction and fragmentation; avoidance of human-wildlife conflict; avoidance of unsustainable and harmful biodiversity exploitation practices; prevention of waste products and pollution; use of harmful agro-chemicals and biologicals agents; measures to enhance HCVs.

The PP has calculated the risk through the Non-Permanence Risk Report /3/, and it is clear that there has been no great changes in any risk category: internal, external, and natural since the validation.

As stated, the changes in the PDD are minimum, and the audit team has reviewed both, the information provided in the MR and the information provided in the validated PDD. Complementary, an exhaustive assessment of the NPRR /3/ has been carried out, analysing the complementary information and attached evidence to the NPRR. During the visit, the audit team asked about the potential risks of the project, and the interviewees mentioned that the project staff explained them all the possible risks and there is also a health and safety guidance /5/ which they follow during field work. The audit team has also reviewed this policy, which is group of rules to follow for the proper development of project activities.

AENOR deems that the Project Proponent correctly identified the risks to the project, and it is implementing actions to reduce or diminish the negative impacts of these risks in the benefits on the Climate, community and biodiversity.

1.19.3 Community and Biodiversity Benefit Permanence (G1.11)

The project is currently taking active measures to enhance the climate, community, and biodiversity benefits of the project beyond the project crediting period. The measures proposed to guarantee the permanence of climate, community and biodiversity benefits are:

- Quantification, validation and verification of GHG emissions. Carbon credits generated from this first monitoring will be sold and carbon finance re-invested into the project.
- Indus Delta Capital and the Sindh Forest department continued capacity building through forging new strategic alliances and partnerships with industry specialists. Mitigation of financial risk through further investment.
- Regular meetings, consultations, and adaptive management with all stakeholders. Dissemination of project information and strengthening of communication channels.

AENOR has verified those activities through the desk review and during the on-site visit. During the on-site assessment, the following people were interviewed and asked about the benefits of the project among other topics: village development committees, women organizations, village organizations, fishermen, community members employed in mangrove restoration, SBIA participants, beneficiaries of trainings. (further information in appendix III)

Hence, AENOR deems that the benefit permanence and the measures implemented are in accordance with the validated PDD and they are reasonable and apparent to further implemented.

1.19.4 Stakeholder Access to Information (G3.1- G3.3)

According to the section 2.3.1. of the monitoring report, the information is public available in the company webpage (deltabluecarbon.com). Also, the information had been shared with stakeholders and they are encouraged to read various project documents so that fruitful and informative dialogues can take place with them, and they are fully informed about the different project activities and their outcomes.

DBC-1 project has used multiple channels and mechanisms for ensuring stakeholder access to Project Documents. Both hard and soft copies of various project documents such as the PD document, validation event, validation report, verification event, monitoring report and their summaries in Urdu and Sindhi language have been made available to stakeholders using different channels. Hard copies of these documents have been placed in the Project Main office as well as the two Project sub-offices (Keti Bandar and Shah Bandar) for easy access by the stakeholders. Notices of validation event and verification event were posted at conspicuous places throughout the project zone before these events took place.

Verification team reviewed the public information, regarding project activities, in the stated webpage and confirm that information regarding project activity is accessible. Furthermore, during the on-site visit, Verification team confirmed by interviews with various local actors (complete list of interview person is listed in appendix III) that the information generated for the design and distribution of the project has been explained to the community.

These summary and other project documents have also been shared, discussed, and explained to communities in various meetings, workshops, and talks in the project zone. According to the summaries, English language version of summary of the monitoring report has been translated into Urdu (national language) and Sindhi (local language). Copies of these translated documents have been kept in and are available in the two regional project offices (Keti Bandar and Shah Bandar) and the main project office in Karachi. Electronic version of this document is available on the VCS database and the project's website.

The result obtained for the preparation of the documents has been exposed to the communities. Moreover, the documentation developed by the project proponent, including previous studies as well as the project description document and monitoring report, were delivered to local stakeholders. These facts were corroborated during the visit assessment and the desk review. AENOR assessed this during the on-site visit and through the review of the participatory workshops and conclude that the stakeholders have access to information regarding project activity.

1.19.5 Stakeholder Consultation (G3.4 – G3.5)

As described in section 2.3.7 of the MR, communities, including all community groups and other stakeholders, have influenced project design and implementation in a number of ways. As a result of stakeholders' input areas to be planted under ARR have been identified, demarcated, and effectively conserved through the mechanism of Mangrove Stewardship Agreements (MSAs). Terms and conditions of the MSAs have been developed in a consultative manner and have been finalized with the input of the stakeholders.

Specifically, fishing representatives have given their recommendations for mangrove species to be planted in particular areas for the improvement of fish and shrimp populations as well as the spawning places.

The grazing areas have been categorized after consultation with stakeholders, and the areas close to settlements have not been planted and have left for community use.

During the SBIA workshops /140-165/ and /230/ community members were satisfied with the consultative processes adopted by the project and have indicated that their input has been well-received and considered by the project proponents in project design and implementation. The interaction with the communities has allowed to identify the main stakeholders in the influence zone, learning about their needs and proposing action mechanisms for the project.

Verification team reviewed the evidence provided such as pictures /202-210/ and videos /224-229/ of the meetings performed with communities as well as surveys considered for the assessment of the needs and used for the communication among stakeholders /48/ /52/. Also, during the onsite visit, the verification team asked for the consultation process and the participation of the different stakeholders in this process. All of the interviewees answered to be part of the consultation process, being part of the workshops and being considered for the taking decisions process. The project proponent, according to the interviews, accepted suggestions provided from the stakeholders and the project design was developed with the recommendations of those stakeholders.

During the on-site visit, project proponent provided photographs, surveys results and workshop reports; also, the advisory committee for community relationships were intervened. Even the extraordinary situation, that is being experienced, as a result of the COVID-19 pandemic, during the present monitoring period project proponent has provided support to communities and local stakeholders.

Then, AENOR's Verification team is able to confirm that the consultation process is effective and fulfil the requirement of VCS and CCB requirements.

1.19.6 Stakeholder Participation in Decision-making and Implementation (G3.6)

The stakeholder involvement in project design as well as the stakeholder communication system is described in the CCB-VCS-MR and PD. During the site visit, the audit team was able to verify the stakeholder's involvement through the different interviews and meetings conducted and through records of different meetings and workshops.

In opinion of AENOR, the communication and consultation plan are being implemented as described in the project design document and COVID situation, also, has been taken into account. The project design document, monitoring report and other documents related the project activities are public available and were disseminated as per VCS and CCB requirements. These documents have been made accessible to communities through socialization events, workshops, and community participation spaces, and have been delivered via printed, digital, and audiovisual materials created specifically for communities and other interested stakeholders.

Different community groups have been identified and their socio-economic profiles have been developed. Broadly, these community groups include fishing communities, agriculturists and livestock raising communities, daily wage paid labour, youth and women, businesspeople, and middlemen, etc. The activities implemented include their organization, awareness raising, sensitization, training and capacity building and a host of other activities. to ensure effective participation of DBC-1 communities in the monitoring campaign, dissemination of information about the monitoring event program was done to them, and meetings and consultations have been held with them at places and during periods where stakeholders could attend in a culturally appropriate and gender-sensitive manner.

As described in the previous section 4.3.5, the stakeholders have been considered for the decision-making process, and the project has been designed in part according to their needs. The plantation design had in mind the opinion of the fishermen for example.

AENOR's verification team checked the above information, during the on-site visit, by interviewing several stakeholders as well as verified with the information provided on the MR followed by pictures /53-119/ videos /224-229/ and workshops reports /48-52/. Therefore, AENOR deems that the information provided in the MR which has been strengthened with other evidence and supported with the onsite visit and

questions to different stakeholders, is reliable, and confirm that the participation in decision making and implementation is in accordance with VCS and CCB requirements.

1.19.7 Anti-discrimination (G3.7)

The project is committed to fair treatment and equal opportunity for all stakeholders, community members and employees. Neither the project, nor any agent of the project, has discriminated against or will discriminate against any person for any reason, including – but not limited to – gender, religion, nationality, tribe, or sexual identity. DBC-1 is committed to providing a workplace and programmes that are safe and free from all kinds of harassment. The project has drafted an anti-discrimination and non-harassment assurance document outlining its full policy.

During this MP there have not been reporting of any stakeholder discrimination evidence.

The verification team has reviewed the information provided in the MR and crosschecked with the evidence mentioned such as the non-discrimination and non-harassment policy /11/ and the equal employment opportunity policy /12/. Complementary, through the onsite visit carried out by the verification team, AENOR had the opportunity to ask to the stakeholders and beneficiaries if they had knowledge of any sign of discrimination. None of the interviewees declared to know proofs of discrimination. Furthermore, among the interviewees, there were women (listed in appendix III) who declared to be part of the project without being discriminated.

Therefore, AENOR deems that the project implementation is being carried out with out any type of discrimination and is reliable. Hence, the implementation is in accordance with the VCS and CCB requirements.

1.19.8 Stakeholder Feedback and Grievance Redress Procedure (G3.8)

The PP has developed a Feedback and Grievance Redress Management System (FGRMS), described in a SOP and summarized in section 2.3.12 of the PD. The system is based in seven steps: 1) Engage Community Member and Receive Grievance; 2) Carry out a Preliminary Assessment; 3) Respond to Grievance; 4) Investigate and Resolve; 5) Conclusion; 6) Further Action; and 7) Monitoring and Evaluation.

The project as an appointed dedicated Grievance Manager (GM), which has the overall responsibility for grievance redress. Hard copies of the FGRMS SOP are available at the project offices in the UK and Pakistan. Additionally, executive summaries are posted in public places in the project zone. The use of mobile phones (WhatsApp) has been set up has the main communication channel to receive feedback.

The project has used a number of consultation methods such as awareness-raising and training sessions on a number of themes and topics (participatory planning, monitoring and evaluation; socio-economic surveys and assessments and community development related MRV; biodiversity surveys and assessments and biodiversity-related MRV; participatory carbon MRVs; etc.), meetings, workshops (including SIA workshops), focus group discussions, surveys and organised special events (Guinness World Records setting, etc.) and days (Mangroves and Wetlands Day, Forest Day, Biodiversity Day, Environment Day, Plantation Day, etc.) for continued consultation with stakeholders.

Through these different stakeholder consultation channels, relevant information about various aspects of the project, including its design, implementation, outcomes, and the monitoring approach, has been shared with communities and other stakeholders.

AENOR has assessed the information provided in the MR and validated PD and crosschecked with the consultations performed during the onsite visit, and confirms that there are not grievances between the beneficiaries and the project proponent and all of the interviewees are aware of the existence of the FGRMS.

Therefore, AENOR's verification team is able to confirm the grievances producers was applied as per validated CCB-VCS-PD and in accordance with VCS and CCB (G.3.8) requirements.

1.19.9 Worker Relations (G3.9 – G3.12)

Several activities were developed during this monitoring period, despite the pandemic situation. Training and capacity building initiative has taken many forms, from classroom lectures to field-based hands-on exercises and learning by doing sessions. Some of the trainings performed during this monitoring period are: MSAs for mangroves protection and controlled grazing; Socio-economic survey methods, community-related baseline survey and MRV data collection and analysis, and conflict management and resolution; Biodiversity survey methods and Biodiversity MRV. All training activities are detailed in section 2.3.13. of the monitoring report.

During the onsite visits some workers and local actors in the project were interviewed in order to confirm whether they have received the necessary training to perform their activities, all of them confirmed this fact. Therefore, AENOR's Verification team is able to confirm that project proponent provides orientation and training for those employed through project activities and relevant people from the communities and meet the VCS an CCB (G.3.9) requirement. Some of the trainings received by the people interviewed are: plantations methods, collection and nursery, people-organization, environmental awareness.

Project developer has analysed the main legal framework related to occupational safety and also has done a specific analysis of the main risks associated to its operations. The PP has developed a standard operating procedure about field safety /122/ /217/, which provides for assessment of any hazards and safety conditions that need to consider when undertaking field work so as to ensure that any unnecessary risks to humans are avoided and field work is undertaken in a safe manner, and the occupational safety and health policy /5/. AENOR has assessed both documents and crosschecked with onsite interviews, in which the interviewees recognized to be trained in safety protocols and stated that the project staff has explained them the dangers and necessary precaution and safety measures in some situations.

Therefore, AENOR is able to confirm that the project developer is taking the necessary measures regarding occupational safety of workers.

Verification team is able to confirm that all activities are carried out within the framework of the project are in accordance with current regulations. AENOR did not detect incompliances with them checking the documents provided and interviewing to the workers. They have been informed about risks of the works and they received training about safety matters. Then, the project fulfils with CCB requirements related to worker relations.

1.19.10 Management Capacity (G4.2 – G4.3)

The monitoring report states in its section 2.4 the management capacity of the PP, including the skills, the experience, and the financial health.

DBC-1 project has a corps of professional and technical staff who have these needed knowledge, skills and competencies. The project team members, among others, have skills in the following important areas:

- Ecological restoration of mangroves including ARR and ANR techniques
- Community and other stakeholders' consultation, engagement and implementation of community development activities
- Design, development and implementation of coastal and marine biodiversity conservation and sustainable management
- GIS and mapping skills
- VCS and CCB Standards and their Program Rules for credible carbon accounting
- AFOLU Projects Requirements including AFOLU Non-Permanence Risk Assessment
- VM0033 and its associated modules for assessing applicability conditions, project boundary setting, determination of baseline scenario and additionality, quantification of GHG emission reductions and removals, etc.
- Social and environmental skills including implementation of Social and Biodiversity Impact Assessments
- Caring on and facilitating project validation and verification processes
- Legal and contractual aspects of forest carbon projects
- Marketing, finance, and business aspects of forest carbon projects

AENOR's verification team reviewed the resumes of responsible for the project /16-28 /, concluding that the management team has the expertise and prior experience implementing land management and carbon projects at the scale of this project.

According to corruption and other unethical behaviour, both project proponents have sufficient funds to pay their staff salaries, pay for various operating costs and carbon assets development related costs, make payments to specialists, consultants, labourers, and other work contractors and ensure that they have the needed financial resources to meet all their financial obligations. Project proponents have secured 100% of funding needed to cover the total cash out flow before the project reaches breakeven. The audit team has reviewed the evidence provided for the demonstration of the corruption and financial management, which are the different policies /6.7/ /14-15/ and the financial model /37/.

The project has put in place internal and external control mechanisms to avoid corruption and unethical behaviour. These include the development of a comprehensive policy framework and SOPs for ensuring effective implementation of the policy framework so that there is no instance of corruption and unethical behaviour. Other steps taken include the establishment of a UK Private Limited Company, the opening and management of a joint bank account for project funds management, development of transparent financial transactions mechanisms, periodic and regular internal and external monitoring of physical and financial aspects of the project and its assets, rigorous auditing of funds and other project operations, and the inculcation and promotion of a culture of transparency and ethical behaviour.

Through the onsite visit, the verification team did not obtain any proof of corruption signs, and none of the interviewees recognized to have the knowledge of corruption signs. Complementary, AENOR has reviewed

the corruption policy /6-7/ and deems that the information provided does match with the development of the project. Hence, AENOR confirms that the project is in accordance with the VCS and CCB requirements.

1.19.11 Commercially Sensitive Information (Rules 3.5.13 – 3.5.14)

No commercially sensitive information has been presented in the MR.

1.19.12 Rights Protection and Free, Prior and Informed Consent (G5.1-G5.5)

DBC-1 Project recognises, respects and supports all property rights, whether statutory or customary, of local communities and other stakeholders' groups. There is a 60-year legally binding agreement, extendable up to 100 years, signed between IDC and Sindh Government wherein the Government of Sindh being the holder of statutory property right holder in the land, vegetation and conservational and management processes that generate GHG emission reductions or removals which vests project ownership rights in project proponents.

The project is being implemented on Government owned Protected Forests which are under the management responsibility of Sindh Forest Department and where community members have no rights as per statutory and customary laws. Under such situation, VERRA does not require for obtaining free, prior and informed consent from local communities. Despite this exemption by VERRA, the project proponents have undertaken detailed activity for obtaining free, prior and informed consent of the local communities.

The project does not encroach on private, community, or government property uninvited. It is implementing its different interventions in the areas allotted to the Project by the Government of Sindh as per agreement signed between the Government of Sindh and IDC. The Project Area is legally state-owned property and has been declared as Protected Forests under Section 29 and 30 of the Forest Act.

To protect the project of illegal activities, the PP has provided the agreements between the government and the stewardships responsible of the mangrove protection /220-223/.

During the visit, the audit team did not find any inconsistency or proof to demonstrate that the information provided by the PP was wrong.

According to information provided in the monitoring report and gathered from authorities and the project proponent. AENOR can confirm that the project protects the rights of the communities and other stakeholders in accordance to the Climate, Community & Biodiversity Standards and the validated project design.

1.19.13 Legal Status (G5.6)

On the MR the PP has stated that there were not modifications, incorporations, or eliminations of some laws since the validation process.

AENOR did not detect during the interview with local authorities or desk review noncompliances related to laws and regulations.

1.20 Climate

1.20.1 Accuracy of GHG Emission Reduction and Removal Calculations

Procedures for quantifying the baseline emissions were conducted in accordance with the methodology. The verification team performed an intensive review of all input data, parameters, formulas, calculations, conversions, statistics and resulting uncertainties and output data to ensure consistency with the VCS documentation, methodology and associated tools, and the CCB-VCS-PD. Further, the verification team reproduced the calculations to ensure accuracy of the results. Inventory data, formulas, and calculations were provided by project proponents in spreadsheet format to ensure all formulas were accessible for review. The verification team recalculated subsets of the analysis to confirm correctness. If needed, project proponent also provided a step-by-step overview of select calculations to ensure the verification team understood the approach and could confirm its consistency with the methodologies and CCB-VCS-PD. Where applicable, references for analysis methods or default values were checked against relevant scientific literature for best practice.

Verification team assessed the parameters listed in section 3.1 of the final version of the monitoring report, including fixed and monitored parameters and considered that they are complete and in accordance with the applied methodology and validated CCB-VCS-PD. Verification team confirms that the emission reductions, including accuracy of spreadsheet formulae, conversions and aggregations are consistent in the using of the data and parameters. Also, the methods and formulae set out in the project description for calculating baseline emissions, project emissions and leakage have been followed.

To quantify current carbon stocks in the project area, was used the procedure defined in the methodology VM0033 Methodology for Tidal Wetland and Seagrass Restoration, v2.0. Complete steps to calculate emission reduction are detailed in section 3.2 of the CCB-VCS-PD and the results derived from validate project design document are listed in section 3.2 of the CCB-VCS-MR. Verification team assessed the emission reduction calculation spreadsheet /30-36/; NDVI analysis /35/; Project Area Map /47/; KML files /39-43/; GIS data /39-46/. Results are summarized following:

Year	Baseline emissions removals (t CO ₂ e)	Project emissions removals (t CO ₂ e)	Leakage emissions (t CO ₂ e)	Net GHG emission reductions or removals (t CO ₂ e)
2015	109.28	9,934.87	0	9,825.59
2016	212.14	19,285.35	0	19,073.21
2017	1,444.32	131,301.59	0	129,857.27
2018	2,304.57	209,505.99	0	207,201.42
2019	4,326.92	393,356.74	0	389,029.81
2020	11,295.45	1,026,858.92	0	1,015,563.48

2021	19,203.94	1,745,812.70	0	1,726,608.76
2015-2021	38,896.62	3,536,056.16	0	3,497,159.54

AENOR reproduced the calculations to achieve the same results and deems they are clearly and correctly in the provided sheets. The AENOR verification team was able to trace calculations directly from the data sources of inventory's field measurements. Formulae used are in compliance with monitoring plan, project design document and methodology. Monitored parameters and fixed parameters are appropriate. Thus, the net amount of VCUs to be issued is accurate and realistic.

In order to calculate the above terms, the monitoring report details the data and parameters used during the verification process in section 3. Data and parameters available at validation are the ones stated in section 3.1.1. of the MR.

AENOR verified for the parameters available at validation the values reported or the references to the documents where they are used or explained by reviewing, reproducing, and crosschecking the evidence provided by the Project Proponent. AENOR checked the values of these parameters to be appropriate and correctly used in equations

On the other hand, the data and parameters monitored to calculate the VCUs to be issued are the ones stated in section 3.1.2. of the MR.

AENOR checked that the list of parameters to be monitored was complete and consistent with information in the monitoring plan of the validated CCB-VCS-PD.

Regarding the accuracy of spreadsheet, formulae, conversions and aggregations and consistent use of data and parameters, the Project Proponent elaborated a complete procedure to assure the accuracy and appropriateness of data. During the verification process, AENOR not only verified the spreadsheet calculation, data, and parameters but also the AENOR team could verify that the Project Proponent conducted a rigorous QC/QA procedure of its field measurements and an assessment of uncertainty. Thus, AENOR deems the Project Proponent performed good practices in this assessment and concludes that GHG removals were quantified correctly in accordance with the project description and applied methodology.

For all these parameters reported in the monitoring report, AENOR cross-checked with the CCB-VCS-PD and the spreadsheet calculations and deems that values/calculations/methods match and are free of mistakes and errors. AENOR did not find inconsistencies between the project design document, technical annexes, monitoring report and spreadsheet calculation.

1.20.2 Quality of Evidence to Determine GHG Emission Reductions and Removals

The QA/QC procedures are, therefore, an essential part of the Forest Inventory Program and GHG Removal Estimation of Delta Blue Carbon Project. Provisions for different aspects of QA/QC have been implemented to ensure that the carbon stocks and carbon credits generated are accurate and reliable and have been estimated following relevant, consistent, transparent, and comparable standards that meet the requirements set for measurement procedures and which result in conservative estimates. These QA/QC provisions are an integral part of the standard operating procedures for the conduct of Forest Inventory

under the Delta Blue Carbon Project. They are detailed in the Monitoring Protocol /216/ for the conduct of measurements at the time of monitoring. These procedures aim to:

- Collect reliable field measurements;
- Verify laboratory procedures;
- Verify data entry and analysis techniques;
- Check data completeness and consistency; and
- Maintain and archive data.

AENOR's verification team paid close attention to the knowledge of field teams about procedures for measuring, the frequency of measurements and the quality of metering equipment including maintenance/calibration requirements.

After field QA/QC assessments had been completed, the data was then entered into a database. This data was diligently reviewed by field supervisors and compared to information from the digital archives, ensuring field data accuracy.

Interviews with project proponents and inspection of data and results demonstrated that the project proponents possess all of the competencies required for reporting of GHG emissions reductions in an accurate way.

Data presented to the audit team was clear and coherent and processing steps could be traced to the corresponding sections of the methodology and monitoring plan with transparency.

The monitoring plan provides means for internal data review and quality control, and the data presented by the project proponent included the results of these internal assessments. AENOR considers that information provided is sufficient and the quality of that information is appropriate to determine the GHG removals.

AENOR deems they are reliable and appropriate. AENOR deems that evidence is enough to reproduce calculations in quantity and quality.

1.20.3 Non-Permanence Risk Analysis

Verification team has assessed the final version of Non-permanence Risk Report /3/ for the validation and verification process according to the AFOLU Non-Permanence Risk Tool, v4.0.

Below, it is explained the assessment of the non-permanence risk rating determined by the project participant.

Internal Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
Project Management	a) Species planted (where applicable) associated with more than 25% of the stocks on which GHG credits have previously been issued are not native or proven to be adapted to the same or similar agro-	0	Species used in plantation program until now or intended to be used in future replanting are all native: <i>Avicennia marina</i> , <i>Rhizophora mucronate</i> , <i>Ceriops tagal</i> , and <i>Aegiceras corniculatum</i> and it has been verified through pictures and the onsite visit.

Internal Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
	ecological zone(s) in which the project is located.		
	b) Ongoing enforcement to prevent encroachment by outside actors is required to protect more than 50% of stocks on which GHG credits have previously been issued.	2	The baseline scenario is characterised among others by trampling of and damage to any newly emerging natural seedlings/natural regeneration by camels/other livestock and browsing by camels/other livestock and lopping of branches of mangroves and mangrove propagules for fodder and fuelwood purposes. Carbon funds will be used to substantially increase manpower used to enforce these measures.
	c) Management team does not include individuals with significant experience in all skills necessary to successfully undertake all project activities (ie, any area of required experience is not covered by at least one individual with at least 5 year experience in the area).	0	There are a suite of key technical skills which are required to implement DBC-1 project and these all exist in DBC-1 Project Management Team. The audit team has had direct interviews with the responsible of different sections and has reviewed the evidence provided, for example, the resumes.
	d) Management team does not maintain a presence in the country or is located more than a day of travel from the project site, considering all parcels or polygons in the project area.	0	The core team is based in the project headquarters in Karachi and in field offices in Keti Bandar and Shah Bandar and maintains a presence throughout the Project Zone. The audit team has been in the project headquarters when the onsite visit has been performed (appendix III).
	e) Mitigation: Management team includes individuals with significant experience Management team includes individuals with significant experience in AFOLU project design and implementation, carbon accounting and reporting (eg, individuals who have successfully managed projects through validation, verification and issuance of GHG credits) under the VCS	-2	The project proponent has a multidisciplinary team with experience in the development and implementation of REDD projects. The audit team has reviewed the evidence provided and interviewed responsible of different sections, checking the expertise of those members /16-28/.

Internal Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
	Program or other approved GHG programs.		
	f) Mitigation: Adaptive management plan in place	-2	Project activities are monitored and evaluated on a regular basis according to the project's monitoring plans and SOPs with respect to these various activities. The audit team has reviewed the SOPs provided and rest of plans which correspond with the evaluation of the monitoring.
	Total Project Management (PM): (a + b + c + d + e + f): -2 Total may be less than zero.		

In AENOR's opinion, total project management risk rating (-2) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool: VCS V4.0.

Internal Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
Financial Viability	a) Project cash flow breakeven point is greater than 10 years from the current risk assessment	0	No applicable. Project cash flow breakeven point is less than 4 years from the current risk assessment.
	b) Project cash flow breakeven point is between 7 and up to less than 10 years from the current risk assessment	0	No applicable. Project cash flow breakeven point is less than 4 years from the current risk assessment.
	c) Project cash flow breakeven point between 4 and up to less than 7 years from the current risk assessment	0	No applicable. Project cash flow breakeven point is less than 4 years from the current risk assessment.
	d) Project cash flow breakeven point is less than 4 years from the current risk assessment	0	Project cash flow breakeven point is less than 4 years from the current risk assessment. The PP has provided the financial analysis /37-38/ which has been assessed by the VVB.
	e) Project has secured less than 15% of funding needed to cover the total cash out before the project reaches breakeven	0	Not applicable. Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven..

Internal Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
	f) Project has secured 15% to less than 40% of funding needed to cover the total cash out required before the project reaches breakeven	0	Not applicable. Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven..
	g) Project has secured 40% to less than 80% of funding needed to cover the total cash out required before the project reaches breakeven	0	Not applicable. Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven..
	h) Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven	0	Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven. The PP has provided the financial analysis /37/ which has been assessed and reviewed by the VVB.
	i) Mitigation: Project has available as callable financial resources at least 50% of total cash out before project reaches breakeven	-2	The project is financially viable as the project benefits exceed the project costs. The PP has provided the financial analysis which has been assessed by the VVB.
	Total Financial Viability (FV): (a + b + c + d + e + f): 0 Total may not be less than zero.		

In accordance with provided evidence, the project has secured the funding needed to cover the total cash out required before the project reaches breakeven. It was verified against cash flow /37/ and supporting evidences of incomes and outcomes. Then, in AENOR's opinion, total financial viability risk rating (0) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool: VCS v4.0.

Internal Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
Opportunity Cost	a) NPV from the most profitable alternative land use activity is expected to be at least 100% more than that associated with project activities; or where baseline activities are subsistence-driven, net positive community impacts are not demonstrated	0	Not applicable since NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity
	b) NPV from the most profitable alternative land use activity is	6	Not applicable since NPV from project activities is expected to be at least 50%

Internal Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
	expected to be between 50% and up to 100% more than from project activities		more profitable than the most profitable alternative land use activity
	c) NPV from the most profitable alternative land use activity is expected to be between 20% and up to 50% more than from project activities	0	Not applicable since NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity
	d) NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities; or where baseline activities are subsistence-driven, net positive community impacts are demonstrated	0	Not applicable since NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity
	e) NPV from project activities is expected to be between 20% and up to 50% more profitable than the most profitable alternative land use activity	0	Not applicable since NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity
	f) NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity	-4	NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity The PP has provided the financial Analysis /37/ and it has been assessed and reviewed by the VVB.
	g) Mitigation: Project proponent is a non-profit organization	0	Not applicable: IDC is a non profit organization.
	h) Mitigation: Project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over the length of the project crediting period	-2	DBC-1 is developed and managed by the Government of Sindh and Indus Delta Capital Limited, who have entered into public-private partnership arrangements through a 60-year agreement, renewable up to 100 years for the protection, conservation and ecosystem restoration of mangrove wetlands in the Sindh Indus Delta area.

Internal Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
	i) Mitigation: Project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over at least 100 years.	0	Not applicable
Total Opportunity Cost (OC) (a, b, c, d, e or f) + (g + h or i): -6 Total may be less than 0.			

By collaborating with the project-area communities and partner organisations, Forest Department of Government of Sindh, and Indus Delta Capital Limited take full responsibility to manage, finance and implement project activities for the duration of the project. Then, in AENOR's opinion, total opportunity cost risk rating (-6) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.0.

Internal Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
Project Longevity	a) Without legal agreement or requirement to continue the management practice	0	Not applicable
	b) With legal agreement or requirement to continue the management practice	0	The project does have a legally binding agreement that at present covers 60-years period but extendable up to 100-year period from the project start date
	Total Project Longevity (PL): 0		

In AENOR's opinion, Total Project Longevity (0) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.0.

Therefore, **total internal risk** is calculated as the sum of (PM + FV + OC + PL), totalling 0 (according the NPR tool the total may not be less than zero).

External Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
Land tenure and access resource	a) Ownership and resource access/use rights are held by same entity(s).	0	All lands in the Project Area are classified as Protected Forests and are state property. Evidence provided on the MR section 2.5.2 and evaluated by the VVB
	b) Ownership and resource access/use rights are held by different entity(s) (eg, land is government owned and the	0	Not applicable

External Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
	project proponent holds a lease or concession).		
	c) In more than 5% of the project area, there exist disputes over land tenure or ownership.	0	Not applicable
	d) There exist disputes over access/use rights (or overlapping rights).	0	Not applicable
	e) WRC projects unable to demonstrate that potential upstream and sea impacts that could undermine issued credits in the next 10 years are irrelevant or expected to be insignificant, or that there is a plan in place for effectively mitigating such impacts.	0	Not applicable. Since Erosion was estimated using Normalized Difference Water Index (NDWI) from Green band and Near Infra-red (NIR) narrow band. Evaluation from sections 3.1.3.5 of the MR.
	f) Mitigation: Project area is protected by legally binding commitment (eg, a conservation easement or protected area) to continue management practices that protect carbon stocks over the length of the project crediting period.	-2	Legally binding commitments to continue management practices that protect the credited carbon stocks over the length of the project crediting period are in place
	g) Mitigation: Where disputes over land tenure, ownership or access/use rights exist, documented evidence is provided that projects have implemented activities to resolve the disputes or clarify overlapping claims.	0	The Project Area is free of land grabbing, territorial displacement, or deprivation from access to resources. There have been only a few minor disputes amongst the communities of various villages or within communities of a village over land, territory or resources in the Project Zone during the last 20 years. Most of their disputes have been pertaining to migrant herders bringing camels for grazing into the delta area during the flood season. The issue was confirmed during the onsite visit.
Total Land Tenure (LT) ((a or b) + c + d + e + f +g): 0 Total may not be less than zero.			

The ownership and resources access are given by the contracts /38/. While the use rights are government owned. No disputes or conflicts were identified during the on-site visit. Then, in AENOR's opinion, total land tenure (0) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.0.

External Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
Community Engagement	a) Less than 50 percent of households living within the project area who are reliant on the project area, have been consulted.	0	Social and Biodiversity Impact Assessment (SBIA) workshops were held in strategic locations in the Project Zone at the time of monitoring campaign with key representatives of community groups, which represented more than 50 percent of households living within the project area and who are reliant on the project area and also more than 20 percent of households living within 20 km of the project boundary outside the project area and who are reliant on the project, have been consulted. Participants consisted of representatives from all stakeholder groups including local administration, village elders, local community leaders, indigenous women and youth representatives. AENOR has assessed the documentation provided as well as review rest of documentation during the onsite visit. In total for the FPIC process and other project related activities, more than 45 meetings have been held since 2013 which have been attended by hundreds of community members from the Project Zone
	b) Less than 20 percent of households living within 20 km of the project boundary outside the project area, and who are reliant on the project area, have been consulted.	0	Not applicable
	c) Mitigation: The project generates net positive impacts on the social and economic well- being of the local communities who derive livelihoods from the project area.	-5	The project is providing community benefits to the entire population (more than 42,000 people) of the Project Zone. The VVB has assessed the information stated in sections 4.5.2

External Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
			and 4.5.4 of the MR and PD and crosschecked through onsite audit.
	Total Community Engagement (CE), (a + b + c): -5 Total may not be less than zero.		

During the on-site visit, Verification team confirms that local stakeholders participated in the different workshops carried out by project proponent; also, it was confirmed that consultations were carried out outside the project area. Then, in AENOR's opinion, total community engagement (-5) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.0.

External Risk	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
Political Risk	a) Governance score of less than -0.79	6	The country's calculated governance score is -0.99
	b) Governance score of -0.79 to less than -0.32	0	Not applicable.
	c) Governance score of -0.32 to less than 0.19.	0	Not applicable
	d) Governance score of 0.19 to less than 0.82.	0	Not applicable.
	e) Governance score of 0.82 or higher.	0	Not applicable.
	f) Mitigation: Country is implementing REDD+ Readiness or other activities, as set out in this Section 2.3.3.	-2	The country is receiving REDD+ Readiness Funding from the FCPF and is implementing REDD+ Readiness as well as a Social and Environmental Safeguards System
	Total Political (PC) ((a, b, c, d or e) + f): 4 Total may not be less than zero.		

Verification team confirms the governance score against the world bank platform: <http://info.worldbank.org/governance/wgi/Home/Reports>; the average indicator was calculated for the last 5 years.

Pakistan is in the list of countries that is receiving FCPF funding as shown on the website of FCPF in the Asia-Pacific Group. Website of Pakistan National REDD+ Office <http://www.redd-pakistan.org> has various documents related to various FCPF and Safeguards system related documents.

Then, in AENOR's opinion, total political risk (4) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.0.

Therefore, **total external risk** is calculated as the sum of (LT + CE + PC), totalling 0. (according to the NPR tool the total may not be less than zero).

Natural Risk	Score (LS)	Mitigation	DOE Assessment
Fire	0	-	The risk of fire is negligible due to regular inundation and high humidity under the forest canopy and in the whole of the intertidal zone. The risk has been assessed through questions during the onsite visit and desk review of section 2.2.1 of the MR
Pest and Disease Outbreaks	0	-	The VVB has reviewed the information provided in such section of the MR and asked different stakeholders during the onsite visit for the knowledge of pests and diseases risks.
Extreme weather	2	1	No prevention measures applicable to the risk factor are implemented; Project proponent has no history of containing natural risk.
Geological Risk	0	-	The area is subject to very little geological activity. According to the National Centre of Geophysical Data is a region with no seismic activity.
Total Natural Risk (as applicable, F + PD + W + G + ON): 2 Determined by $LS \times M$.			

During the on-site visit, Verification team confirmed that the information provided in the sections above is reliable, in AENOR's opinion, total natural risk (2) is properly justified and in accordance with AFOLU Non-Permanence Risk Tool, v4.0 and was assessed using table 10.

Therefore; overall non-permanence risk rating and buffer determination are calculated as follow:

Risk Category	Rating
a) Internal Risk	0
b) External Risk	0
c) Natural Risk	2
Overall Risk Rating (a + b + c)	2

AENOR has checked that information provided in the Non-Permanence Risk Report is consistent with documents of support provided. AENOR deems that information provided is reliable and appropriate, thus, the overall risk rating is credible and realistic. Then, non-permanence risk deduction to be applied for the project is 10%.

1.20.4 Dissemination of Monitoring Plan and Results (CL4.2)

AENOR confirmed during the on-site visit by interviewing local stakeholders the awareness about the results of the projects, its implementation and monitoring. Through different interviews, the audit team was able to contrast and confirm the information provided in the MR according to the dissemination of the monitoring plan and results. All of the interviewees recognized to know about the process and got access to the documents and summaries of the monitoring plan. Results of the climate benefits were provided in a spreadsheet calculation. AENOR reproduced the calculation to achieve the same results, checked baseline and project emissions and leakage. Further information on the process and data checks is provided in sections above. In opinion of AENOR the monitoring plan and the results were disseminated in accordance with the validated monitoring plan. Complementary, during the meetings that the PP organized with the stakeholders while the development of the MR, the information and the results were provided to them, and proof of that are the pictures that the PP has provided as evidence to be evaluated for the VVB.

Verification team also reviewed the webpage links where supposedly the PP has shared further information complementary to the dissemination process and deems that the information stated on the MR does match with the information obtained from the onsite visit and the review of the documentation.

1.20.5 Optional Gold Level: Climate Change Adaptation Measures (GL1.3)

The DBC-1 project, through its various interventions (up-scaled mangrove restoration and conservation of existing mangrove forests, participatory planning and implementation, awareness-raising, training and capacity building, promotion of various gender development and income-generating activities, etc.), has helped the communities and biodiversity adapt to climate change in the following ways as was communicated by the community members in the participatory assessment of impacts of the DBC-1 project.

The different types of measures according to the impact have been detailed in section 3.3.1 of the MR.

The audit team has reviewed the information provided in those section of the MR as well as the different SIA and BIA documents which among others, are found different trainings and skills increasing in ecological restoration of mangroves an effective implementation to be conscience about the climate change and know about different ways to mitigate or adaptation to climate change. These measures are found in appendix 5 of the MR and its assessment has been strengthen with interviews onsite asking about the trainings and measures and a deep desk review of the description and implementation of these measures.

Hence, AENOR deems that the measures that the project proponent has implemented to mitigate or get adaptation to the climate change are reliable, effective and are consistent according to the information provided on the MR.

1.20.6 Optional Gold Level: Climate Change Adaptation Benefits (GL1.4)

Based on various studies conducted by relevant and competent bodies, likely regional or sub-national climate change and climate variability scenarios and impacts in the absence of the project are given below.

- Increased temperatures
- Erratic rainfall patterns
- Prolonged droughts
- Stronger winds
- Increased intensity and frequency of extreme weather events

- Sea level rise
- Salt water intrusion

The project has contributed to climate related disasters risks reduction in three important ways: firstly, through decrease in the frequency and intensity of climate caused disasters; secondly, through decrease in vulnerability to these disasters; and thirdly, through decrease in exposure to disasters. The project has reduced occurrence and intensity of climate related hazards due to the fact that the planted mangroves attenuate the wave energy of storms surges, and thus reduce the damaging effects of floods and slow the progression of saline water into inland areas.

It has reduced the vulnerability of both communities and biodiversity to different negative impacts of climate change by providing them with additional and alternative means of livelihood for people and additional and alternative habitat areas for wildlife.

The information has been assessed and crosschecked with the information provided such as the SIA or BIA document as well as further papers. Complementary, the PP has interviewed different stakeholders and together with the measures has asked about the general benefits that the project has achieved against climate change.

Hence, AENOR deems that the benefits that the project proponent has gotten are reliable, effective and are consistent according to the information provided on the MR.

1.21 Community

1.21.1 Community Impacts (CM2.1)

Community impacts include improved livelihoods and well-being for fishermen, agriculturists, livestock owners, daily wage laborers, women, youth, landless poor and other marginalised groups.

Impacts have resulted explicitly from the following project activities:

- Direct employment and jobs creation through up-scaled ARR (10,410 people benefiting including 1,030 women);
- Support for fishing communities and sustainable fisheries (8,949 which are 25 % of the fishing community members of 35,796);
- Participatory land-use planning and awareness-raising (total 434 community members including 210 women);
- Access to education – planned for a total of 386 including 161 girls);
- Access to safe drinking water and hygiene (total 400, including 150 women);
- Access to improved health care facilities (total 15,124 including 7,662 women)
- Improved protection of planted mangroves, biodiversity and HCVs areas through MSA arrangements and effective law enforcement done through MSAs and forest patrols.;
- Community-based sustainable business development and access to microfinance;
- Sustainable energy development.
- Training of Sindh Forest and Wildlife Department (12 staff members at various levels; and
- Promotion of gender equality and income-generating activities for women (1,030 women).

The project proponent has provided different evidence to demonstrate the community benefits mentioned above. The main evidence provided has been the community monitoring report /48-51/ where all these

benefits have been explained and reported. Additionally, the audit team has verified these benefits through the onsite visit, where different interviews have been carried out and other documentation such as contracts has been shown to the verification team.

The community survey report is the main document where all the activities performed during the MP have been reflected. This document includes the participation process and the community aspects related to the project. It is stated that the SBIA workshops, community and household surveys, focus groups discussions and key informants' interviews were conducted by the trained and professional female and male staff of project proponents who are aware of how to conduct these events. The team members collected and cross-checked the data during the SBIA workshops and community monitoring survey at the village as well as household level and during FDGs and key informant interviews. The surveys were conducted by the team members from 15-09-2021 to 14-11-2021

Then, AENOR's Verification team confirms that the information reported in the CCB-VCS-MR are properly addressed.

1.21.2 Negative Community Impact Mitigation (CM2.2)

According to the MR, all activities implemented by the project have improved the livelihoods and wellbeing of different community groups and no negative impact on the communities was identified and therefore no measures or activities need to be implemented in this regard.

Although there are not negative impacts on the current MR, the PP has developed different mitigation strategies for the negative activities planned on the PD.

The possibilities of any potential negative impacts and related issues were widely discussed and deliberated on with the communities and other stakeholder groups at the time of SBIA workshops held during project design and formulation and the preparation of this monitoring report. It was concluded that the project had no negative impacts during this monitoring period.

Assessment by the audit team through the desk review and further onsite analysis concluded that the likelihood of net negative impacts on the well-being of the community is adequately addressed in the monitoring report and in accordance with the validated project description.

1.21.3 Net Positive Community Well-being (CM2.3)

Mangrove restoration and other project activities implemented by the project during this monitoring period have helped the local communities adapt to climate change. They have led to reduction in the number of hazard-causing events, have increased the resilience and adaptive capacities of communities, and have reduced their exposure to such events. AENOR's verification team confirms that net well-being impacts of the project are positive for all identified community groups compared with their anticipated well-being conditions under the without-project. This was assessed during the onsite visit through interviews with local stakeholders. The interviewees recognized that due to the project activities, among others, the coastal erosion has been reduced with the increase of biodiversity in those areas and the reduction of different coastal hazards.

1.21.4 Protection of High Conservation Values (CM2.4)

According to the MR the following HCV have been identified:

- HCV-4: Environmental services
- HCV-5: natural areas critical for meeting the basic needs of local people
- HCV-6: areas critical for maintaining the cultural identity of local communities

All the HCVs as mentioned above have been positively affected by the different project interventions, particularly the restoration of degraded mangrove lands, execution of MSAs, implementation of various income-generating activities due to the nurseries raising and planting related works and other project interventions, participatory planning and awareness-raising, and training and capacity building.

As per confirmed during the on-site visit, project proponent is providing improvement for environmental services and the activities carried on during the MR have covered the basic need of local people. Different employees and trainings have been obtained by the local people. Complementary, the VVB has reviewed the HCV geodatabase /41-43/ information and crosschecked with the information obtained from the onsite visit. Therefore, verification team is able to confirm high conservation values have not been negatively affected by the project.

1.21.5 Other Stakeholder Impacts (CM3.2-CM3.3)

AENOR has assessed that the project doesn't result in net negative impacts on the wellbeing of other stakeholder groups. Assessment by the audit team concluded that the likelihood of net negative impacts on the well-being of other stakeholder groups is adequately addressed in the monitoring report and the net impacts of project activities on the well-being are positive.

1.21.6 Community Monitoring Plan (CM4.1, CM4.2, GL2.2, GL2.3, GL2.5)

Community monitoring plan are detailed in section 4.3.1. of the monitoring report. The specific variables measured are:

- Impacts on all communities and community groups
- Impacts on other stakeholders
- Impacts on community-related HCVs

All these impacts were positive, and there were no negative impacts. Hence, the net impact of the project on all the above has been assessed to be positive.

The monitoring work was done from 01 September to 15 November 2021. Monitoring was undertaken by professionally trained teams who have experience implementing SBIA workshops, Focus Group Discussions, household surveys, and conducting key informant interviews. The whole monitoring process is fully documented in reports, photographic and videographic form.

Since the project is validated to the Gold Level for exceptional community benefits, additional monitoring data has been collected, analyzed, and reported to demonstrate that the project meets all required criteria. This was done by assessing the increase in adaptation benefits for communities for which monitoring indicators SIA074 through SIA078 are specifically meant, and data on these indicators were collected, analyzed, and reported.

Verification team assessed the evidence provided /140-165/ which are mainly the pictures and videos that evidence the community participation. The pictures provided have been contrasted with the community survey report and asked during the visit to confirm dates, frequency and sampling methods used. Finally, these evidences are in accordance with the validated project design and with the procedures and systematics used in the verification event. Complementary, through the onsite visit, the audit team assessed through

interviews the implementation of the monitoring activities with the different stakeholders and activities. AENOR confirms that community monitoring plan is implemented as per validated CCB-VCS-PD.

1.21.7 Community Monitoring Plan Dissemination (CM4.3)

AENOR confirmed during the on-site visit by interviewing local stakeholders the awareness about the results of the projects, its implementation and monitoring. Verification team reviewed the evidence provided by the PP such as the participatory process /235/ and the consultations /232-234/ which are the list of participants of each consultation process and the video to demonstrate the participation under the community MP dissemination. The community survey report /48-52/ has also been assessed. The AENOR team has also reviewed the links where the information has been uploaded for the stakeholders, and additionally, the audit team, through the onsite visit and the interviews performed confirms that the dissemination of the documents stated by the PP has been done correctly. In opinion of AENOR the results of community monitoring were disseminated in accordance with the validated CCB-VCS-PD.

1.21.8 Optional Gold Level: Short-term and Long-term Community Benefits (GL2.2)

All community members in the Project Zone are dependent on mangrove resources and are thus benefiting from their conservation, restoration, and sustainable management. Where these management practices prevent or curtail previous livelihood activities of dependent communities, the project has put in place actions to mitigate any negative consequences for those community groups. The exceptional community benefits among others include the following: livelihood and income-earning benefits; coastal protection benefits, climate change adaptation benefits; pollution prevention and control benefits; erosion control and shoreline stabilization; control of saltwater intrusion; increase of agricultural and livestock productivity.

The audit team has assessed these benefits through the interviews performed during the onsite visit and deems that the information provided by the PP according to the short-term and long-term community benefits is right and reliable and is in accordance with the requirements of VCS/CCB.

1.21.9 Optional Gold Level: Smallholder/community member Risks (GL2.3)

The project has established a Community Development Unit/Community Development, Extension and Gender Development Directorate in its organizational set-up to ensure that the project's governance and implementation structures enable full and effective participation of smallholders/community members in project decision-making and implementation.

These smallholder/community members ensure that their village and groups interests are protected as they participate in and give suggestions when designing, planning, implementing, and monitoring various project interventions.

The audit team has verified the information provided in the MR through onsite interviews performed through the field visit carried on the project zone. AENOR confirms that the smallholder/community member risks are implemented as per VCS/CCB requirements.

1.21.10 Optional Gold Level: Marginalized and/or Vulnerable Community Groups (GL2.4)

The PP has identified the following groups under this section:

- Coastal fishing communities
- Coastal communities engaged in agriculture and crop husbandry

- Coastal communities engaged in livestock raising
- Coastal communities engaged in daily wage labour
- Women
- Landless poor and other marginal groups

The impacts, benefits and barriers have been described in section 4.4.2 of the MR.

The audit team has assessed these criteria with the interviews performed during the onsite visit in the project area, where through several questions to different participants and stakeholders as well as the review of further information and documentation provided by the PP /11-12/ has been analyzed and crosschecked with the information stated in section 4.4.2 of the MR. These evidence are the Nondiscrimination and anti-harassment policy (with applicability to the DBC-1 project) and the equal employment opportunity policy, which provides an overarching statement of IDC's desire for avoiding all forms of discrimination, in addition to giving the people from the community to fill all work positions as well as ensure equity and diversity for staff, workers, consultants, contractors and the wider community and outlines the obligations of IDC with regard to unlawful discrimination in employment and its various aspects against members of the project area community. Therefore, AENOR deems that the information provided, and the evidence analyzed fulfill the requirements of GL2.4 of the CCB standards.

1.21.11 Optional Gold Level: Net Impacts on Women (GL2.5)

The project has generated net positive impacts on the well-being of women. Women now participate in or influence decision making regarding mangroves (conservation, restoration and sustainable management, biodiversity conservation and community development related matters. These positive impacts and the ability to participate in and influence decision making has been made possible by the implementation of project activities which have increased their income, improved their social status and over-all well-being.

The audit team has performed interviews with representatives of women organization and women benefiting from alternative livelihoods. The interviewees names and information are found in the field book developed by the auditor during the onsite visit.

With these interviews, the women recognized to be part of the consultation process and also that they were benefited by the activities and improvements from the project.

Therefore, AENOR deems that the information stated in the MR according to the benefits in the women group is reliable and correct and complies with the CCB requirements

1.21.12 Optional Gold Level: Benefit Sharing Mechanisms (GL2.6)

The audit team has assessed the benefit sharing mechanisms and crosschecked with the section 4.4.4 of the MR and additional information of PD.

The audit team has reviewed the committees and different social groups to verify that the information provided in the MR is right. The AENOR team did not find any evidence to demonstrate that the information stated on the MR is not correct.

1.21.13 Optional Gold Level: Governance and Implementation Structures (GL2.8)

To ensure that the project's governance and implementation structures enable full and effective participation of smallholders/community members in project decision-making and implementation, the project has established a Community Development Unit/Community Development, Extension and Gender Development Directorate in its organizational set-up.

The audit team has performed different meetings with some stakeholders to verify that the information provided on the MR is reliable and right. The VVB has carried out interviews with men and women groups to ensure participation. Complementary, through individual interviews has asked about the individual participation and their option to participate in public process. The audit team did not find inconsistencies with the MR information and deems that the information is reliable and right and complies with the CCB requirements.

1.21.14 Optional Gold Level: Smallholders/Community Members Capacity Development (GL2.9)

The audit team has performed the onsite visit to demonstrate that the information stated on the MR is right. Through several interviews, the VVB interviewed different community members from several groups such as fishermen, women, farmers, etc. all of them recognized to have the opportunity to develop their skills on several activities to improve their wellbeing or basics needs. The interviewees recognized to be part of different trainings and meetings. Therefore, AENOR deems that the information stated in the specific section of the MR is reliable and complies with the CCB requirements.

1.22 Biodiversity

1.22.1 Biodiversity Changes (B2.1)

Section 5.1.1 describes the biodiversity monitored changes and different project interventions to produce the benefits which includes: Tidal wetlands restoration and coastal and marine habitats; habitat security enhancement through effective enforcement of laws and reducing human wildlife; increasing awareness and capacities for BD and HCVs conservation; executing mangroves and BD conservation stewardship agreements with local communities. The impacts of these interventions have been identified both in flora and fauna. Regarding fauna benefits, the MR states among others: reduction of human wildlife conflict; improvement of refugia due to large-scale planting; increasing of HCVs values due to natural regeneration; laying out the foundation for the declaration of marine protected zones. About flora: large scale planting of native vegetation; maintenance and enhancement of the species composition; reduction of human deforestation.

Verification team reviewed the complementary Biodiversity Impact Assessment Consultancy Report provided as annex 9 in the MR. additionally, the desk review included the assessment of the information stated in the MR and crosschecked with the IUCN red list and further information such as the community report and pictures provided by the project proponent.

During the onsite visit, the audit team reviewed biodiversity and current problems associated. Implementation of CCB biodiversity monitoring plan and biodiversity conservation results including conservation of trigger species. Also, activities such as the forest patrols for biodiversity conservation and HCVs areas, or biodiversity hotspots were assessed and verified onsite.

Finally, different interviews were performed and, in those interviews, questions about biodiversity improvement were done. The verification team visited those biodiversity richness places and had the opportunity to insight the presence of important species that, contrasted with interviews, were not present in the project area few years ago, so, it was an indicator that the quality of the project area has increased and allows the presence of important species such as dolphins, kingfisher, reef heron, or Indian pond heron.

Therefore, verification team is able to confirm that the project's assessment of changes in biodiversity resulting from project activities in the project zone during the monitoring period are accurate.

1.22.2 Mitigation Actions (B2.3)

Section 5.2.1 of the monitoring report detail the measures taken specifically designed, planned and implemented to create positive impacts for biodiversity through reducing direct or indirect threats to biodiversity and HCVs; maintaining or enhancing species, sites, habitats and landscapes for maintenance and enhancement of biodiversity and HCVs; preventing and reducing human-wildlife conflict; stakeholders sensitization, mobilization/organization, engagement and capacitation; and increased availability and provision of different types of resources for biodiversity and HCVs conservation.

Verification team during the onsite visit that the information stated in section 5.1.2 and along the whole biodiversity section is right. Therefore, verification team concludes that the mitigation actions taken are appropriate and in accordance with validated project description.

1.22.3 Net Positive Biodiversity Impacts (B2.2)

The different project activities planned and being implemented under DBC-1 project have resulted in clear biodiversity conservation, HCVs conservation, over-all environmental improvement and socio-economic development in the project zone as compared to the without project scenario. The audit team has assessed the evidence provided such as the paper of Mangrove ecology workshop manual in which deep information about mangroves BD is stated. Mangroves are critical, not only for sustaining biodiversity in these intertidal swamps, but also for their direct and indirect benefit to human activities. As described along the whole document, the positive impacts are the only impacts from the project, due to there are not negative impacts resulting from project activities.

Through direct interviews with stakeholders the audit team confirmed that the information stated on the MR is true, and the project activities have only positive incomes for biodiversity as well as for social sectors. The list of people interviewed is in appendix III.

Therefore, verification team considers that the net impact of the project's activities on biodiversity are positive.

1.22.4 High Conservation Values Protected (B2.4)

All biodiversity related HCVs Areas are present in the project zone and the project has been implementing activities that protect, maintain and enhance these valued biodiversity features and landscapes and other sites of biodiversity significance and value in a manner commensurate with their conservation significance/status or identified quality in the biodiversity conservation plan. The different project activities have helped to improve biodiversity, HCVs areas and other local environmental conditions such as air, water and landscape quality, taking into account relevant information. As a consequence, the project has contributed to the enhancement and maintenance of these HCVs Areas and have had no negative impact on these as described below.

The following HCVs have been identified: Concentrations of biological diversity including endemic species, and rare, threatened or endangered species, that are significant at global, regional or national levels; Large landscape-level ecosystems and ecosystem mosaics that are significant at global, regional or national levels, and that contain viable populations of the great majority of the naturally occurring species in natural patterns of distribution and abundance; Rare, threatened, or endangered ecosystems, habitats or refugia.

During the onsite visit, the VVB has reviewed satellite imagery to demonstrate the increasing of tidal zones and its continuous improvement and conservation in the HCVs values. Potential HCVs areas have been visited such as:

1. Dolphin rich site in Hajamro Creek, Ketu Bunder: location (24° 7' 43.17" N, 67° 24' 17.13 E)
2. Bird site at Bhambore, Near Bhambore fort. 24° 44' 34.33" N, 67° 29' 29.14" E
3. Qureshi Garden: 24° 10' 35.65" N 67° 52' 29.46" E

Therefore, AENOR deems that the information provided by the PP is reliable and correct.

1.22.5 Invasive Species (B2.5)

No invasive species, either floral or faunal, has been introduced or used by the project in its different interventions in any of the areas affected by the project. The project is closely monitoring the presence and populations of various species in the project zone and there are no reported cases wherein invasive species have either been introduced or the population of any invasive species has increased as a result of the project.

1.22.6 Impacts of Non-native Species (B2.6)

Not applicable. The project activity is not using non-native species.

1.22.7 GMO Exclusion (B2.7)

Not applicable. AENOR has checked that no GMOs are used to generate GHG emission reductions or removals

1.22.8 Inputs Justification (B2.8)

Not applicable. No agrochemicals like insecticides, weedicides, pesticides, fertilizers, biological control agents or other environmentally undesirable inputs have been used while implementing the different project activities during the period nor is their use anticipated in the future in the project; therefore the need for justification for the use of these inputs is not needed, nor can there be any adverse effect from their use when their use has not happened to begin with.

1.22.9 Negative Offsite Biodiversity Impacts (B3.1) and Mitigation Actions (B3.2)

DBC-1 project activities have been designed, planned, and implemented in a manner that these have produced only positive impacts as described above. None of the project interventions has had any negative consequence for any aspect of coastal or marine biodiversity or any of the HCVs areas either on-site or offsite as assessed at the time of preparation of this monitoring report. Project interventions during the period have been carried out on degraded and de-vegetated mangrove lands which had no agricultural, livestock, aquaculture or any other community subsistence or commercial activity being carried out on these lands. The areas which have been restored under the project do not have any special biodiversity significance which could have been lost as a result of their restoration. Moreover, the sources of threats to biodiversity are of local nature and, therefore they are unlikely to be transferred outside the project zone. As a result, there are neither any subsistence or commercial activities or biodiversity dimensions/aspects which have the potential to be displaced or negatively impacted. Therefore, there are no unmitigated negative impacts outside the project zone.

Verification team assessed the information provided on the MR through interviews with stakeholders and deems that the information stated on the MR is reliable and right.

1.22.10 Net Offsite Biodiversity Benefits (B3.3)

Since, only positive biodiversity impacts have resulted from different project interventions and there have been no negative biodiversity impacts, either on-site or offsite, therefore the net effect of the project on biodiversity is assessed to be positive.

The net offsite BD benefits has been assessed at the same time than the rest of biodiversity impacts and benefits, performed with onsite interviews with stakeholders and crosschecking the information with the statements of the MR.

AENOR deems that the information provided on the MR is correct.

1.22.11 Biodiversity Monitoring Plan (B4.1, B4.2, GL3.4)

Monitoring of the biodiversity impacts and impacts on biodiversity related HCVs of various project activities implemented by the project was undertaken through in-house project teams as well as via an independent consultant who did this work in a collaborative manner with the local communities to assess their following impacts:

- Impacts on all biodiversity variables identified in the monitoring plan
- Impacts on various HCVs
- Impacts on climate change adaptation benefits for biodiversity
- Over-all results and evaluation of biodiversity monitoring.

Based on findings of the monitoring report, all the above-mentioned biodiversity, HCVs and other related impacts were found to be positive and there were no negative impacts. Hence, the net impact of the project on all the above aspects of biodiversity and HCVs has been assessed to be positive.

The monitoring work was done during the period from 01 September to 15 November, 2021. The approach used for monitoring has been explained in the monitoring report.

The audit team has reviewed the evidence provided to demonstrate the biodiversity monitoring plan, as well as as the pictures or videos of trigger and relevant species obtained from the visit, as well as the appendix of the CCB biodiversity monitoring plan referenced as appendix 3.2 on the MR and the appendix 9 of the MR about the BD impact assessment report.

Complementary, the VVB has reviewed during the onsite visit all the BD aspects and current problems associated as well as the implementation of Biodiversity monitoring plan and conservation of trigger species. The biodiversity monitoring plan complies with the validated PD. The SOPs verified during the onsite visit and their respective procedures are in accordance with the section of the MR and the validated PD.

Therefore, the monitoring plan is in compliance with the validated CCB-VCS-PD. In opinion of AENOR the monitoring plan is effective to have a real idea of the situation. Measures scheduled and designed by the project proponent to maintain or enhance the biodiversity are correct and results confirm their effectiveness.

1.22.12 Biodiversity Monitoring Plan Dissemination (B4.3)

AENOR confirmed during the on-site visit by interviewing local stakeholders the awareness about the results of the projects, its implementation and monitoring. Verification team reviewed the documents shared in various SBIA meetings and workshops as well as the participation evidence of those meetings. AENOR

has also reviewed the website where the PP has uploaded the information to share with the stakeholders and finally it has assessed with the community members to verify if the information has been shared properly with them.

Therefore, AENOR deems that the information provided on the MR is reliable and correct. Hence, the dissemination of the monitoring plan is under the CCB requirements.

1.22.13 Optional Gold Level: Trigger Species Population Trends (GL3.3)

The following trigger species have been identified: Indian River dolphin (*Platanista minor*) and the Indian Ocean Humpback Dolphin (*Souza plumbea*); Indian Pangolin (*Manis crassicaudata*); Fishing Cat (*Prionailurus viverrinus*); Egyptian Vulture (*Neophron percnopterus*).

The audit team has reviewed the papers provided by the PP where there are evidence of the presence of these species within the project area. Complementary, during the onsite visit, the VVB has visited places where it was possible to find these species, having sometimes the opportunity to see some of these species. Additionally, different interviews have been performed and information about the presence of these species and their increasing, have been obtained.

The verification team is able to confirm that the presence of these species under the project area is reliable and accurate.

1.22.14 Optional Gold Level: Effectiveness of Threat Reduction Actions (GL3.4)

The PP has described under section of trigger species, some measures, and actions to maintain or enhance the population status of trigger species.

The audit team has verified onsite the reliability of those measures and deems that the information provided on the MR is correct.

1.23 Additional Project Implementation Information

There is no more additional information; all was discussed in the above sections.

1.24 Additional Project Impact Information

There is no more additional information; all was discussed in the above sections.

VERIFICATION CONCLUSION

AENOR has verified that the project is in compliance with the verification criteria of Verified Carbon Standard version 4.3 and the CCB Standards Third Edition without qualifications or limitations.

The project has been implemented in accordance with the validated project description

AENOR is able to issue a positive verification opinion for the 3,497,159.54 tCO₂e, which discounting the buffer, corresponds to an amount of 3,147,443.59 VCUs, as reported in the Monitoring Report version 3.1.

The verification assessment covered the monitoring period from 19 February 2015 – 31 October 2021 and verified that calculated emission reductions and/or removals were achieved during the monitoring period with a reasonable level of assurance. The overall risk rating was 10 %. Therefore, the total number of credits to be deposited in the buffer account is 349,715.95 tCO₂e.

It is not applicable any conclusion about adaptive activities and resilience for this project. Likewise, AENOR confirms the project benefits on community and biodiversity for the current monitoring period as described in the Monitoring Report version 3.1. In opinion of the AENOR verification team the project is achieving their community and biodiversity objectives.

Verification/monitoring period: 19/02/2015 to 31/10/2021

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions removals (t CO ₂ e)	Project emissions removals (t CO ₂ e)	Leakage emissions (t CO ₂ e)	Net GHG emission reductions or removals (t CO ₂ e)
2015	109.28	9,934.87	0	9,825.59
2016	212.14	19,285.35	0	19,073.21
2017	1,444.32	131,301.59	0	129,857.27
2018	2,304.57	209,505.99	0	207,201.42
2019	4,326.92	393,356.74	0	389,029.81
2020	11,295.45	1,026,858.92	0	1,015,563.48
2021	19,203.94	1,745,812.70	0	1,726,608.76
2015-2021	38,896.62	3,536,056.16	0	3,497,159.54

Project year	Vintage Period	NER _{RWE} [#] (t CO ₂ e)	Buffer (10%) (tCO ₂ e)	VCUs (tCO ₂ e)
1	2015 (Feb 19-Dec 31)	9,825.59	982.56	8,843.03
2	2016 (Jan 1-Dec 31)	19,073.21	1,907.32	17,165.89
3	2017 (Jan 1-Dec 31)	129,857.27	12,985.73	116,871.54
4	2018 (Jan 1-Dec 31)	207,201.42	20,720.14	186,481.28
5	2019 (Jan 1-Dec 31)	389,029.81	38,902.98	350,126.83
6	2020 (Jan 1-Dec 31)	1,015,563.48	101,556.35	914,007.13
7	2021 (Jan 1 – Oct 31)	1,726,608.76	172,660.88	1,553,947.88
Total	19/02/2015-31/10/2021	3,497,159.54	349,715.95	3,147,443.59

Overall non-permanence risk rating: 10%

Date: 20 October 2022

VCUs buffer to be deposited: 349,715.95 tCO₂e.

Lead Auditor
Juan Carlos Gómez

Total VCUs to be issued: 3,147,443.59 tCO₂e.

APPENDIX I: LIST OF EVIDENCES

N°	Documents reviewed or referenced
Monitoring and Risk Analysis Reports	
1	DBC-1 Project First Monitoring Report V3.docx
2	DBC-1 Project First Monitoring Report V3.1_05-07-2022_AKG.docx
3	VCS-Non-Permanence-Risk-Report-Template-v4.0_18 July 2022
4	Appendix 7.6.1 of MR_v3.1 dated 5 July 2022.docx
Agreements, policy and legal documents	
5	OCCUPATIONAL SAFETY AND HEALTH (OSH) POLICY.pdf
6	Anti bribery.pdf
7	Ethical Policy.pdf
8	Hosp-Gifts.pdf
9	Whistleblowing.pdf
10	Communication Strategy and Plan.pdf
11	NON-DISCRIMINATION AND ANTI-HARRASMENT ASSURANCE POLICY.pdf
12	EQUAL EMPLOYMENT OPPORTUNITY POLICY.pdf
13	NAB Ordinance 1999.pdf
14	Sindh Enquiries and Anti-corruption Act 1991.pdf
15	Sindh Enquiries and Anti-corruption Rules 1993.pdf
CVs	
16	CV Alamgir Khan Gandapur.pdf
17	CV Arif Ali Khokhar.pdf
18	CV Muhammad Abdullah.pdf
19	CV Muhammad Adnan Afridi.pdf
20	CV Muhammad Taha.pdf
21	CV Noman Ali.pdf
22	CV Riaz Wagan.pdf
23	CV Rizwan Saeed.pdf
24	CV Saeen Bakhsh Shaikh.pdf
25	CV Sanober Khoso.pdf
26	CV Shahzad Sadiq.doc.pdf
27	CV Syed Ahmer Ali.pdf
28	CV Syed Baqadar Asadullah.pdf
29	CV Waqar Ahmed.pdf
Excel spreadsheets	
30	Number of Sample Plots Calculations as per MR Data.xlsx
31	Biomass Carbon Calcs - Final.xlsx
32	6. Biomass Carbon Calcs - Final.xlsx
33	8 & 9. Biomass Carbon Calcs - Final.xlsx
34	Calculations Sheet.xlsx
35	IndusDelta_Plantation_NDVI_Analysis.xlsx
36	MR-GHG Removal.xlsx

N°	Documents reviewed or referenced
Financial Health	
37	Financial Model.pdf
38	Indus Delta Trafigura_Signed Contract by Traf(reduct Final)-Redacted.pdf
GIS and related-images	
39	DBC_1_New_Boundary.shp
40	erosion.shp
41	HCV4.shp
42	HCV5.shp
43	HCV6.shp
44	Plantation_2015_2020.shp
45	Plantation_2021_2026.shp
46	Sample_Plots.shp
47	Post-Erosion MAP Of The Project Area in 2022.jpg
Meetings, workshops, surveys and pictures	
48	2 & 3. Community Monitoring Survey Report.pdf
49	5. Community Monitoring Surey Report.pdf
50	7, 9 & 12. Community Monitoring Surey Report.pdf
51	7. Community Monitoring Surey Report.pdf
52	Community Baseline Survey Questions.docx
53	Community Meeting Picture (1).jpeg
54	Community Meeting Picture (1).jpg
55	Community Meeting Picture (2).jpeg
56	Community Meeting Picture (2).jpg
57	Community Meeting Picture (3).jpeg
58	Community Meeting Picture (3).jpg
59	Community Meeting Picture (4).jpeg
60	Community Meeting Picture (4).JPG
61	Community Meeting Picture (5).jpeg
62	Community Meeting Picture (5).JPG
63	Community Meeting Picture (6).jpeg
64	Community Meeting Picture (6).jpg
65	Community Meeting Picture (7).jpg
66	Community Meeting Picture (8).jpg
67	Community Meeting Picture (9).JPG
68	Community Meeting Picture (10).JPG
69	Community Meeting Picture (11).JPG
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71	Community Meeting Picture (13).JPG
72	Community Meeting Picture (14).JPG
73	Community Meeting Picture (15).JPG
74	Community Meeting Picture (16).JPG
75	Community Meeting Picture (17).JPG

N°	Documents reviewed or referenced
76	Community Meeting Picture (18).JPG
77	Community Meeting Picture (19).JPG
78	Community Meeting Picture (20).JPG
79	Community Meeting Picture (21).JPG
80	Community Meeting Picture (22).JPG
81	Community Meeting Picture (23).JPG
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108	Community Meeting Picture (50).jpg
109	Community Meeting Picture (51).jpg
110	Community Meeting Picture (52).jpg
111	Community Meeting Picture (53).jpg
112	Community Meeting Picture (54).jpg
113	Community Meeting Picture (55).jpg
114	Community Meeting Picture (56).jpg
115	Consultation (1).jpeg
116	Consultation (1).JPG
117	Consultation (2).jpeg

N°	Documents reviewed or referenced
118	Consultation (2).JPG
119	Consultation (3).jpeg
120	DBC-1 Project Field Inventory Form_AKG-211018.docx
121	DBC-1 Project Training Module-Biomass Carbon Estimation.pptx
122	DBC-1 Project Training Module-Field Safety SOP.pptx
123	DBC-1 Project Training Module-GPS Use and Boundaries Assessment.pptx
124	DBC-1 Project Training Module-Soil Carbon Estimation.pptx
125	Instrument Calibration.jpg
126	Marking Soil Sample.jpg
127	Measuring Circumference.jpg
128	Measuring Plot.jpg
129	Measuring Stem Dia.jpg
130	Measuring Tree Height.jpg
131	Mixing Soil Sample.jpg
132	Monitoring Survey 06-11-2021 Bohri Goth HH1.pdf
133	Monitoring Survey 18-10-2021 Gul Hassan Samoo HH1.pdf
134	Monitoring Survey 21-10-2021 Hayat Jatt HH2.pdf
135	Process Briefing (2).jpg
136	Process Briefing.jpg
137	Record-Keeping.jpg
138	Required Instruments (2).jpg
139	Required Instruments.jpg
140	SBIA (1).jpg
141	SBIA (2).JPG
142	SBIA (3).JPG
143	SBIA (4).jpg
144	SBIA (5).JPG
145	SBIA (6).JPG
146	SBIA (7).JPG
147	SBIA (8).JPG
148	SBIA (9).JPG
149	SBIA (10).JPG
150	SBIA (11).JPG
151	SBIA (12).jpg
152	SBIA (13).JPG
153	SBIA (14).JPG
154	SBIA (15).JPG
155	SBIA (16).JPG
156	SBIA (17).JPG
157	SBIA (18).JPG
158	SBIA (19).JPG
159	SBIA (20).JPG

N°	Documents reviewed or referenced
160	SBIA (21).JPG
161	SBIA (22).JPG
162	SBIA Workshop.jpg
163	SBIA_Part_1.pdf
164	SBIA_Part_2.pdf
165	SBIA_Part_3.pdf
166	SES (1).jpg
167	SES (2).jpg
168	SES (3).jpg
169	SES (4).jpg
170	SES (5).jpg
171	SES (6).jpg
172	SES (7).jpg
173	SES (8).jpg
174	SES (9).jpg
175	SES (10).jpg
176	SES (11).jpg
177	SES (12).jpg
178	SES (13).jpg
179	SES (14).jpg
180	SES (15).jpg
181	SES (16).jpg
182	SES (17).jpg
183	SES (18).jpg
184	SES (19).jpg
185	SES (20).jpg
186	SES (21).jpg
187	SES (22).jpg
188	Slicing Soil Sample.jpg
189	Taging Plant.jpg
190	Taking Coordinates.jpg
191	Taking Soil Sample 1.jpg
192	Taking Soil Sample.jpg
193	Picture (1) Seeds collection, Nursery raising and storage
194	Picture (2) Seeds collection, Nursery raising and storage
195	Picture (3) Seeds collection, Nursery raising and storage
196	Picture (4) Seeds collection, Nursery raising and storage
197	Picture (5) Seeds collection, Nursery raising and storage
198	Picture (6) Seeds collection, Nursery raising and storage
199	Picture (7) Seeds collection, Nursery raising and storage
200	Picture (8) Seeds collection, Nursery raising and storage
201	Picture (9) Seeds collection, Nursery raising and storage

N°	Documents reviewed or referenced
202	Picture (1) MSAs Training
203	Picture (2) MSAs Training
204	Picture (3) MSAs Training
205	Picture (1) MSAs Training 2
206	Picture (2) MSAs Training 2
207	Picture (3) MSAs Training 2
208	Picture (4) MSAs Training 2
209	Picture (5) MSAs Training 2
210	Picture (6) MSAs Training 2
211	Picture (1) Plantation Training
212	Picture (2) Plantation Training
213	Picture (3) Plantation Training
214	Picture (4) Plantation Training
	Procedure
215	DBC-1 Project Field Inventory.pdf
216	Protocol of DBC-1 Project for Biomass and Soil Carbon Monitoring.pdf
217	SOP_1_Field Safety.pdf
218	SOP_2_Stratification and Laying out of Biomass Sample Plots.pdf
219	SOP_3_Soil Samples Collection and Analysis.pdf
	Stewardship Protection Agreements:
220	2015-Abdul Majeed.pdf
221	2015-Lalan.pdf
222	2015-Nawaz Machi.pdf
223	2015-Phaphoo.pdf
	Videos
224	Community video (1)
225	Community video (2)
226	Community video (3)
227	Community video (4)
228	Community video (5)
229	Community video (6)
230	SBIA Workshop
231	List of Participant Filling Process
232	Questionnaire and List of Participants Filling Process
233	Questionnaire Filling Process
234	Questionnaire Filling Process (2)
235	Sampling Video
	Bibliographic references
236	IUCN_SFD_IDC_MOU_Final-08062021.pdf
237	Chatting et al 2020-Mangrove carbon stocks and biomass partitioning in an extreme environment.pdf

N°	Documents reviewed or referenced
238	Limits on carbon sequestration in arid blue carbon ecosystems-Schile et al 2017-Highlighted.pdf
239	Allometric equations of Ceriops tagal and Aegiceras corniculatum mangrove species.pdf
240	Bindu 2020-Carbon-stock-assessment-of-mangroves-using-r_2020_The-Egyptian-Journal-of-Re.pdf
241	Cohen 1996-The Power of Statistical Analysis.pdf

APPENDIX II: VERIFICATION PROTOCOL (FINDINGS)

Corrective action requests (CARs)

CAR ID:	01	Date: 25/05/2022
Description of CAR		
The CCB & VCS Monitoring Report Template has a specific design. However, the project, does not comply with the requirements of the template such as: font, front page, page headings, tables, etc.		
Country participant response		Date: 13/06/2022
A revised version 3.1 of the Monitoring Report has now been prepared as per CCB & VCS Monitoring Report Template and complies with the requirements of the template such as font, front page, page headings, tables, etc.		
Documentation provided by the Country Participant		
Version 3.1 of the Delta Blue Carbon-1 First Monitoring Report.		
VVB Assessment		Date: 20/06/2022
The new version of the MR has been updated according to requirements of the MR template. Therefore CAR 01 is closed.		

CAR ID:	02	Date: 25/05/2022
Description of CAR		
It is stated in the MR that the version of the document is the 1.00, however, previous versions have been provided.		
Country participant response		Date: 13/06/2022
MR version has now been updated and version 3.1 prepared.		
Documentation provided by the Country Participant		
Version 3.1 of the Delta Blue Carbon-1 First Monitoring Report.		
VVB Assessment		Date: 20/06/2022
The version of the MR document has been updated properly. Therefore, CAR 02 is closed.		

CAR ID:	03	Date: 25/05/2022
Description of CAR		
According to the CCB&VCS Monitoring report Template:		

1. The initial table has a specific format and attributes, however the section “expected verification schedule” does not appear in the template table.
2. All instructions, including this introductory text, must be deleted from the final document. However, in section 5.3.1 there are some sections with the remaining sections such as biodiversity changes, mitigation actions...
3. Within the initial table, in the Gold Level Criteria: provide a brief description of the activities implemented and results achieved that enable the project to qualify for each relevant Gold Level”. However, this is not met.
4. In section 1.2: “if this is the project’s first verification, the two columns (MP and PL) will be the same. However, this requirement is not fulfilled.
5. In section 2.1.1: “the description of the project must be shorter than one page, however, this requirement is not fulfilled.
6. In section 2.1.7: “indicate project location and limits of the project”, however, this requirement is not fulfilled.
7. In section 2.1.8: “include the title and version number of any tool or methodology applied”; however, this requirement is not fulfilled.
8. In section 2.2.1: “the table of implementation schedule has a specific format; however, this requirement is not met.
9. In section 2.2.2: “methodology deviations section is for reporting changes on the methodology, however, there is one change corresponding to the allometric equations, while section 2.2.4 of the MR template requires the description of any project deviations applied during this monitoring period.
10. In section 2.3.4:” demonstrate how relevant and adequate information about potential costs, risks and benefits to communities has been provided to communities in an understandable form [...]”; however, this requirement is not fulfilled, and the section should be updated for the MP instead of be referenced to PDD.
11. In section 2.3.6: “Describe how communities and other stakeholders will be or have been informed of the validation/verification body’s site visit in a timely manner before the site visit occurs, and how direct and independent communication between communities and other stakeholders or their representatives and the validation/verification body will be or has been facilitated”; however, this requirement is not fulfilled.
12. In section 2.3.7: “Describe how communities, including all community groups and other stakeholders, have influenced project implementation. Document consultations and indicate if and how project design has been affected by stakeholder input”; However, this requirement is not met.

Country participant response

Date: 13/06/2022

The following requirements of the CCB & VCS Monitoring Report Template have now now been fulfilled in the revised versión 3.1 of the Delta Blue Carbon-1 First Monitoring Report.

1. The section “expected verification schedule” has now been provided in the template table.
2. Section 5.3.1 has been re-written. Introductory text and other text that needed to be removed has been removed.
3. A description of the activities implemented and results achieved that enable the project to qualify for each relevant Gold Level has been provided.
4. In section 1.2: the two columns MP and PL have been made the same now.
5. In section 2.1.1: “the description of the project has been made shorter than one page.

6. In section 2.1.7: the project location and limits of the project have been indicated.
7. In section 2.1.8: the title and version number of any tool or methodology applied has been included.
8. In section 2.2.1: specific format for the table of implementation schedule has been adopted.
9. In section 2.2.2: only methodology deviations related information is now provided. Changes related to allometric equations are now provided in section 2.2.4 which is meant to report on changes related to Project Description deviations.
10. In section 2.3.4: needed information has been now provided which demonstrates how relevant and adequate information about potential costs, risks and benefits to communities has been provided to communities in an understandable form. The section is now updated for the MR instead of the referenced PDD.
11. In section 2.3.6: a description of “how communities and other stakeholders have been and will be informed of the validation/verification body’s site visit in a timely manner before the site visit occurs, and how direct and independent communication between communities and other stakeholders or their representatives and the validation/ verification body has been and will be facilitated” has been provided now.
12. In section 2.3.7: a description of “how communities, including all community groups and other stakeholders, have influenced project implementation has been provided. Consultations have been documented, narrated to indicate how project design has been affected by stakeholder input” has been provided now.

Documentation provided by the Country Participant

Version 3.1 of the Delta Blue Carbon—1 First Monitoring Report

VVB Assessment

Date: 20/06/2022

1. The section “expected verification schedule” which is not part of the template has not been removed. Still open.
2. The section has been updated according to the MR requirements and the instructions have been removed from the final document.
3. The section of the Gold Level Criteria within the initial table has been updated according to the template requirements. Please, summarize the information of this section. Still open
4. The section has been updated according to the MR template requirements.
5. The section has been updated according to the MR template, in this case, the section has been shortened.
6. The section has been updated indicating the location of the project according to the MR template requirements. However, the area that will be tackled under ARR activities does not match with the information provided in sections above. Still open
7. The section has been updated according to the requirements. The methodologies have been updated with the number and version.
8. The table has been updated according to the MR requirements. However, there are some milestones without implementation date. Still open
9. The version has been updated according to the MR template requirements within Methodology deviations.
10. The section has been updated according to the requirements of costs, risks and benefits. However, evidence of the participatory process is required according to the MR template. Still open

11. The section has been updated properly according to the MR template requirements and description of how the communities have been informed about the visit has been provided. 12. The section has been updated. However, consultations have not been provided as required on the MR template. Still open Therefore, CAR 03 is not closed.	
Country participant response	Date: 05/07/2022
1. The section “expected verification schedule” which is not part of the template has now been removed. 3. The section of the Gold Level Criteria within the initial table has now been summarized. 6. The area that will be tackled under ARR activities now matches with the information provided in sections above. 8. All the milestones in the table now have implementation dates. 10. Evidence of the participatory process as required according to the MR template has now been provided in the Dropbox Folder CAR ID-03. 12. Consultations have been provided as required on the MR template in the Dropbox Folder CAR ID-03.	
Documentation provided by the Country Participant	
Version 3.1 dated 05-07-2022 of the Delta Blue Carbon—1 First Monitoring Report Dropbox Folder CAR ID-03	
VVB Assessment	Date: 14/07/2022
1. The section has been removed. 3. The section has been summarized. 6. The section has been updated and does match with sections above. 8. The section has been updated and fully completed. 10. The evidence has been provided. 12. The evidence has been provided. Therefore, CAR 03 is closed	

CAR ID:	04	Date: 25/05/2022
Description of CAR		
According to the CCB&VCS Monitoring report Template: 1. In section 2.3.8: “Describe how communication and consultation about the project has continued between the project proponent(s) and communities and other stakeholders; However, this requirement is not fulfilled. 2. In section 2.3.10: “Describe the activities and/or processes implemented to enable the effective participation, as appropriate, of all communities. Demonstrate the culture- and gender-sensitivity of implementation of such actions; however, this requirement is not fulfilled. 3. The MR template has specific names for the headers, however, section 2.3.12 does not comply with the requirement.		

4. In section 2.3.12: "Document any grievance(s) received and how they were resolved using the project's grievance redress procedure, as set out in the project description; however, this requirement is not fulfilled.
5. In section 2.3.14: "Where relevant, describe the activities and/or processes implemented to ensure community members, including women and vulnerable and/or marginalized people, are given a fair chance to fill positions for which they can be trained. However, this requirement is not fulfilled.
6. In section 2.3.15:" List all relevant laws and regulations covering worker's rights in the host country and provide assurance that the project has met or exceeded each. Where relevant, demonstrate how compliance was achieved and describe activities and/or processes implemented to inform workers about their rights. However, this requirement is not met.
7. In section 2.3.16:" Provide an assessment of substantial risks to worker safety that have arisen due to project implementation. Describe activities and/or processes implemented to inform workers of risks and how to minimize such risks. Show how risks have been minimized. However, this requirement is not met.
8. In section 2.4.3: "Demonstrate how other organizations were partnered with to support the project if relevant experience was or is lacking. Provide evidence that gaps identified in the previous CCB validation or verification have been satisfactorily filled or include a recruitment strategy by which the management team plans to fill any remaining gaps. However, this requirement is not fulfilled.
9. In section 2.4.4: "Document the financial health of the implementing organization(s). For grouped projects, document the ability of the implementing organization(s) to provide adequate financial support to new project areas included in the project at this verification event. However, this requirement is not met.
10. In section 2.4.5: "Describe any activities and/or processes implemented to be able to provide this assurance. However, this requirement is not met.

Country participant response

Date: 13/06/2022

The following requirements of the CCB & VCS Monitoring Report Template have now now been fulfilled in the revised versión 3.1 of the Delta Blue Carbon-1 First Monitoring Report.

1. In section 2.3.8: In the revised version a description of how communication and consultation about the project has continued between the project proponent(s) and communities and other stakeholders is given now.
2. In section 2.3.10: In the revised version a description of the activities and/or processes implemented to enable the effective participation, as appropriate, of all communities has been given now. It has also been demonstrated that these actions have been conducted in a culture- and gender-sensitive manner.
3. In section 2.3.12: The MR template in the revised version now complies with and has specific names for the headers in the section.
4. In section 2.3.12: In the revised version a description of and supporting documentation for any grievance(s) received and how they were resolved using the project's grievance redress procedure has as set out in the project description has been given now.
5. In section 2.3.14: In the revised version a description of the activities and/or processes implemented to ensure community members, including women and vulnerable and/or marginalized people, are given a fair chance to fill positions for which they can be trained has been given now.
6. In section 2.3.15: In the revised version "a list of all relevant laws and regulations covering worker's rights in the host country besides providing assurance that the project has met or

exceeded each” has been given now. It has also been demonstrated how compliance was achieved. Moreover, a description of the activities and/or processes implemented to inform workers about their rights has been given too. - In section 2.3.16: In the revised version, “an assessment of substantial risks to worker safety that have arisen due to project implementation” has now been provided. There is also a description of the activities and/or processes implemented to inform workers of risks and how to minimize such risks. It has been shown therein as to how risks have been minimized. - In section 2.4.3: In the revised version, it has been shown now that the project proponents have in-house capacities to implement various project related activities. It also gives strategy and plans how to partner with other organizations to get support for the project if and where relevant experience was or is lacking. Moreover, no gaps were identified in the previous CCB validation. Similarly, this being the first verification, no gaps have been identified in a previous verification. The project has a recruitment strategy by which the management team plans to fill any remaining gaps. - In section 2.4.4: in the revised version, financial health of the implementing organization(s) has been documented now. This is not a grouped project, therefore there is no need for the project proponents to demonstrate that they have the needed ability to provide adequate financial support to new project areas included in the project at this verification. - In section 2.4.5: in the revised version, the needed assurance as desired by the VVB has been given through a description of activities and/or processes to be implemented in this regard.	
Documentation provided by the Country Participant	
Version 3.1 of the Delta Blue Carbon-1 First Monitoring Report. Strategy and action plan for mobilizing support of other partners organizations and a recruitment strategy which will be used by management team to fill in any remaining gaps.	
VVB Assessment	Date: 20/06/2022
- The section 2.3.8 has been updated according to the MR requirements. - The section 2.3.10 has been updated, however culture- and gender-sensitivity of implementation of such actions is not provided. Please provide evidence of that. - Header 2.3.12 has been updated properly. Still open - The section has been updated. No grievances have been received during the current MR. - The section 2.3.14 has been updated and deemed correct, however, if any evidence is provided as annex, please, refer it within the section. Still open - The section 2.3.15 has been updated and deemed correct. - The section 2.3.16 has been updated, however, please provide specific examples of possible risks and mitigation actions to minimize these risks. Still open - The section 2.4.3 has not been updated as stated above. - The section 2.4.4 has been updated, however, further explanations and specifications are required as well as evidence of the financial health demonstration. Still open - The section has been updated, however, evidence of the comprehensive policy framework and SOPs for ensuring effective implementation of the policy FW is required to demonstrate the topic. Also provide the anti-corruption mechanism from the Sindh Government. Still open	
Country participant response	Date: 05/07/2022
Header 2.3.12 has been updated.	

5. Evidence in support of section 2.3.14 has been provided and reference to this Additional Appendix on Socio-economic Survey Report is now given in the revised version of MR dated 5th July, 2022.
7. Specific examples of possible risks and mitigation actions to minimize these risks have now been provided in the revised version of MR dated 5th July, 2022.
9. Further explanations and specification as well as required evidence of financial health demonstration of IDC and Sindh Forest Department as per section 2.4.4 requirements have been provided in the updated version of MR.
10. Evidence of comprehensive policy framework and SOPs to deal with anti-corruption and unethical behavior have now been provided in the revised version of MR and supporting evidence has been provided in the Dropbox Folders about Anti-corruption.

Documentation provided by the Country Participant

Version 3.1 dated 05-07-2022 of the Delta Blue Carbon—1 First Monitoring Report
Dropbox Folder CAR ID-04 about Anti-Corruption Evidence

VVB Assessment

Date: 14/07/2022

3. updated properly.
 5. the evidence has been provided.
 7. the section has been updated and deemed correct.
 9. the section has been updated and further evidence has been provided.
 10. the section has been updated and the evidence provided.
- Therefore, CAR 04 is closed

CAR ID:

05

Date: 25/05/2022

Description of CAR

According to the CCB&VCS Monitoring report Template:

1. The MR template has specific headers and sections. However, section 2.5.2, “project proponent rights to land, Mangroves and Forest Carbon in the project area “ is not included on the MR template.
2. In section 2.5.3: “Demonstrate with documented consultations and agreements that: The project has not encroached uninvited on private property, community property, or government property; The free, prior, and informed consent has been obtained of those whose property rights will be or are affected by the project; Appropriate restitution or compensation has been allocated to any parties whose lands have been or will be affected by the project. However, this requirement is not met.
3. In section 2.5.5: “Demonstrate that no activity has been undertaken by the project that could prejudice the outcome of an unresolved dispute relevant to the project”. However, this requirement is not met.
4. In section 2.5.6: “List any national and local laws and regulations in the host country that have **gone into effect, changed, or been eliminated since the project’s last validation** or verification that are relevant to the project activities. Provide assurance that the project is in compliance with all national and local laws and regulations in the host country that are relevant

to the project activities and, where relevant, demonstrate how compliance is achieved. However, this requirement is not fulfilled.

5. The MR has a specific format for the tables, however table of section 3.1.1 does not comply with the requirement
6. In section 3.1.3: “the Monitoring Plan should include the organizational structure, responsibilities and competencies of the personnel that carried out the monitoring activities”. However, this requirement is not fulfilled.
7. In section 4.1.2: “Describe activities and/or processes implemented to mitigate any negative well-being impacts on community groups and for maintenance or enhancement of high conservation value (HCV) attributes identified in the project description. Explain how such actions are consistent with the precautionary principle.” However, this requirement is not met. Furthermore, section 4.2.2 of the validated PD states expected negative impacts for specific stakeholder groups
8. In section 4.1.3: “demonstrate how the project activities have assisted communities to adapt the probable impacts of climate change.” However, this requirement is not met.
9. The MR template has specific format for the tables, however table 18 does not comply with the requirement. Furthermore, section 4.1.1 neither complies with the format.

Country participant response

Date: 13/06/2022

The following requirements of the CCB & VCS Monitoring Report Template have now now been fulfilled in the revised versión 3.1 of the Delta Blue Carbon-1 First Monitoring Report.

1. Section 2.5.2, has now been correctly labelled in accordance with MR Template as “Free, Prior and Informed Consent” in versión 3.1 of Delta Blue Carbon-1 First Monitoring Report.
2. In section 2.5.3: In the revised versión, it has been demonstrated now with documented consultations and agreements that the project has not encroached uninvited on private property, community property, or government property. It is shown that the free, prior, and informed consent has been obtained of those whose property rights will be or are affected by the Project. Also, appropriate restitution or compensation has been allocated to any parties whose lands have been or will be affected by the Project.
3. In section 2.5.5: In the revised version, it has been demonstrated now that no activity has been undertaken by the project that could prejudice the outcome of an unresolved dispute relevant to the project.
4. In section 2.5.6: In the revised version, a statement has been made about any national and local laws and regulations in the host country that have gone into effect, changed, or been eliminated since the project’s last validation or verification that are relevant to the project activities. Assurance has been provided that the project is in compliance with all national and local laws and regulations in the host country that are relevant to the project activities. Where relevant, it has also been demonstrated how compliance is achieved.
5. Table of section 3.1.1 The revised version now complies with specific format for MR tables.
6. In section 3.1.3: In the revised versión the Monitoring Plan now includes the organizational structure, responsibilities and competencies of the personnel that carried out the monitoring activities.
7. In section 4.1.2: In the revised versión a description of the activities and/or processes implemented to mitigate any negative well-being impacts on community groups and for maintenance or enhancement of high conservation value (attributes identified in the project description is now given. It is also explained how such actions are consistent with the precautionary principle. Furthermore, the expected negative impacts for specific stakeholder groups as mentioned in section 4.2.2 of the validated PD has been assessed at the time of first monitoring report and results discussed.
8. In section 4.1.3: In the revised versión it is now demonstrated how the project activities have assisted communities to adapt to the probable impacts of climate change.
9. Table 18 in the revised versión now complies with the specific MR template for tables. Also, section 4.1.1 now complies with the format.

Documentation provided by the Country Participant

Version 3.1 of Delta Blue Carbon-1 First Monitoring Report.

VVB Assessment

Date: 20/06/2022

- Section 2.5.2 updated correctly - Although section 2.5.3 has been updated, evidence of consultations and agreements are required to be referenced within the current section. - Section 2.5.5 has been updated and deemed correct. - The section 2.5.6 has been updated. - Section 3.1.1 has been updated and deemed correct - The organizational structure has been provided. - The section 4.1.2 has been updated and deemed correct. - Section 4.1.3 has been updated. - Both sections have been updated and deemed correct.	
Country participant response	Date: 05/07/2022
Evidence of consultations and agreements as required to be referenced in section 2.5.3 has been done now.	
Documentation provided by the Country Participant	
Version 3.1 dated 05-07-2022 of the Delta Blue Carbon—1 First Monitoring Report Dropbox Folder CAR ID-05 containing Additional Appendix about Consultations and Agreements for Property Rights Protection.	
VVB Assessment	Date: 14/07/2022
The evidence has been provided. Therefore, CAR 05 is closed	

CAR ID:	06	Date: 25/05/2022
Description of CAR		
The following incongruences have been found: - Within section 1.1., it is stated that 21,334 people have improved protection from storm surges and other hazards, however, the figure reported for indicator SIA076 in appendix 3.1. does not match with the value in section 1.1. - Within section 1.1., it is stated that 34,659 people have been benefiting from an increase in spawning places, however, the figure reported for indicator SIA074 in appendix 3.1. does not match with the value in section 1.1. - In section 2.1.10, within SDG 4, it is stated that there are 386 beneficiaries, while in section 1.2 the number of benefited people does not match. - In section 2.3.6 it is stated that “In accordance with VERRA’s COVID-19 travel guidance [...] the VVB has carried out a remote audit [...]; however, the field visit has been carried out. - In section 3.1.2, the parameter $A_{t,i}$ is incongruent with the data provided on the table 7T in section 3.1.3.3 which is referred in the MR. - In section 3.1.2, in many occasions there are references of the parameters to appendix 7, nevertheless, appendix 7 is empty and other cases, appendix 7 redirects to appendix 1, which does not provide that info.		

7. The values of # of Tree for 2019 Sample Plot # 05 and 2020 Sample Plot # 07 reported are incorrect of section 3.1.3.4 are incorrect.
8. The values of table 18 of section 3.2.4 of the MR are wrong in the MR and the Spreadsheet from year 2019.
9. The values of table 19 in section 3.2.4 are inconsistent with the values of the spreadsheet.
10. It is stated in table 18 that the calculations are about estimated removals or emissions, however, these values are not estimated.
11. In section 4.1.1 of the MR, several community groups referenced in the impact tables of those section, are not aligned with the stakeholders listed and described in section 2.1.9 of the validated PD and rather belong to marginalised and/or vulnerable communities identified in section 4.5.4 of the PD, in addition, no assessment of the impacts on “borrowers and debtors” has been carried out for the monitoring period.
12. The data of community impacts in section 4.1.1 and section 1.2, such as participatory land-use planning and awareness-raising does not match.
13. In section 4.4.1 it is stated that there are 21,234 beneficiaries of coastal protection, while in page 238 the value does not match.
14. in appendix 7.6 it is stated that “a reasonable correlation ($R^2=0.3429$) was found” however, this is not reasonable.

Country participant response

Date: 13/06/2022

The incongruences have been corrected and/or explained as described below:

1. The value in section 1.1. in the revised version now corresponds to SIA075 in appendix 3.1. The value in both places is reported as 21,344.
2. The figure in section 1.1. in the revised version has been corrected to 8,665 which is 25% of the total fishing community of 34,659 who have reported an increase in spawning places as indicated in indicator SIA074 in appendix 3.1. The figures at two places now match.
3. In section 2.1.10, within SDG 4, it is stated that there are 386 beneficiaries. The total number of beneficiaries mentioned in section 1.2 is also 386 (225 boys and 161 girls).
4. Section 2.3.6 in the revised version 3.1 of the Monitoring Report has been re-drafted and now it does indicate that field visit has been carried out.
5. Necessary correction has been made in the revised version in section 3.1.2 under the parameter $A_{t,i}$. The correct reference is Table 8 in section 3.1.3.4. The text in section 3.1.2. in the MR has also been accordingly corrected.
6. In section 3.1.2, the references of the different parameters are not with respect to their values. Instead, these reference in fact pertain to the following four aspects of the parameters: description of measurement methods and procedures to be applied; monitoring equipment; QA/QC procedures to be applied; and calculation method. All these four aspects are described in Appendix 7 of the MR document.
7. *The values of # of Tree for 2019 Sample Plot # 05 and 2020 Sample Plot # 07 reported are incorrect of section 3.1.3.4 are incorrect.*
Necessary corrections have been made in the revised version. The figure for 2019 sample plot has been changed to 112 and the one for 2020 sample plot has been changed to 72.
8. *The values of table 18 of section 3.2.4 of the MR are wrong in the MR and the Spreadsheet from year 2019.*
Necessary corrections have been made in the revised version.
9. *The values of table 19 in section 3.2.4 are inconsistent with the values of the spreadsheet.*
The inconsistency in the values in table 19 in section 3.2.4 has been removed in the revised version and are now in line with the ones given in the spreadsheet.
10. The text in table 18 has been corrected and now it has proper headings as per template.
11. The community groups referenced in section 4.1.1 of the MR are now aligned with the stakeholders listed and described in section 2.1.9 of the validated PD and the inconformity has been removed. An assessment of the impacts on “borrowers and debtors” has now been provided for the monitoring period in the revised version 3.1 of MR.
12. The figures in section 1.2 have been corrected as per those given for community impacts in section 4.1.1.
13. The figure in section 4.4.1 has been corrected to 21,334 beneficiaries of coastal protection. After this correction, the figures in section 4.4.1 and in page 238 now match.
14. The estimation of biomass carbon stock per hectare from Normalized Difference Vegetation Index (NDVI) is now standard practice throughout the world in all forest types, including mangrove forests. This is due to the fact that there exists positive correlation between biomass carbon and NDVI. The correlation value range as shown by R_2 has a wide range and can vary anywhere between 0.2 to 0.8. Therefore, the value of $R_2=0.3429$ is a reasonable value indeed and that Landsat NDVI does serve as a good proxy for mangrove carbon stocks within the DBC-1 project area as is the case elsewhere in the world.
A footnote to this effect has been added in the revised version 3.1 of MR.

Documentation provided by the Country Participant

Version 3.1 of Delta Blue Carbon-1 First Monitoring Report.

VVB Assessment	Date: DD/MM/YYYY
1. The issue has not been corrected as mentioned above. Therefore, does not match with the sections. Still open 2. The figure has been updated and deemed corrected. 3. The section is updated. therefore, it is correct. 4. The section has been updated and deemed correct. 5. The section has been updated. However, the section mentioned above does not match with the section stated on section 3.1.2 although in both sections the parameter is justified. In addition, the letter font of table 8 does not comply the format requirements. Still open 6. The section is updated and deemed correct. 7. The section is updated and deemed correct. 8. The section has been updated. However, the new values do not match with the information provided on the MR spreadsheet. Still open 9. The section has been updated. However, the new values do not match with the information provided on the MR spreadsheet. Still open 10. The section is updated and deemed correct. 11. The section has been updated and deemed correct. 12. The section does not match. According to section 1.2: "The total number of community members who have improved skills and/or knowledge resulting from DBC-1 FPIC and SBIA participatory workshops awareness-raising and training activities: 434" and the information of section 4.1.1 : "Participatory land-use planning and awareness-raising (total 536 community members including 102 women). Please, explain the inconsistency. Still open 13. The value of section 4.4.1 has not been updated. 14. The explanation has been considered. However, the value of 0,3429, as well as the distribution of the graphic, should not be considered as a reasonable value. Still open	
Country participant response	Date: 05/07/2022

1. The issue has been corrected and the figure in both places is 21,344.
5. Necessary correction has been made in the revised version in section 3.1.2 under the parameter At,i. The correct reference is Table 12 in section 3.1.3.5.
8. The new values of Table 18 in the MR and those in the spreadsheet now match.
9. The new values of Table 19 in the MR and those in the spreadsheet now match.
12. The values in section 1.2 and those in section 4.1.1 now match. The figure is 434 in both sections.
13. The value of section 4.4.1 has now been updated.
14. That distance to plantation edge has no effect on biomass carbon content in the planted areas of DBC-1 project and therefore has not affected biomass estimation during the first monitoring campaign can be shown in either of two ways: either through pictures/photographs taken in the field which show that there is uniformity of vegetation density and growth in the planted areas, or the remote sensing based NDVI analysis. DBC-1 project has used both methods and presented its results in Appendix 7.6., wherein it has first presented the results of NDVI analysis and then given pictures of polygons of different planting years. The purpose of the dual analysis was basically triangulation for more strongly establishing the point.

Taken together, the two types of analyses clearly establish the fact that except for some differences on account of inherent variability in biological organisms/plants and microsite conditions there is indeed uniformity of vegetation and growth throughout the polygon in the planted areas of 2015 to 2020. While the field-based pictures are not affected by any external factors and therefore are true representation of the ground situation, the NDVI analysis can potentially be affected by the season of the year (active plant growth season or dormant growth season) and the stage of plant life cycle (young saplings not having so much green matter vis-à-vis background or fully grown and established plants). For this reason, NDVI values vary according to the season of the year and the stage of plant life cycle.

The two types of analyses done are further described and explained below.

NDVI analysis for showing uniformity of vegetation density and growth in planted areas

The estimation of biomass carbon stock per hectare from NDVI is now standard practice in all forest types including mangrove forests. This is due to the fact that there exists positive correlation between biomass carbon and NDVI. The correlation value range as shown by R^2 can vary anywhere between 0 to 1. An important question in the instant NDVI analysis is what is a good or reasonable value for R^2 ? The statistical answer to this question depends on the objective for the regression model; namely:

a. Are we interested in explaining the existence of relationship between the predictor and the response variable?

OR

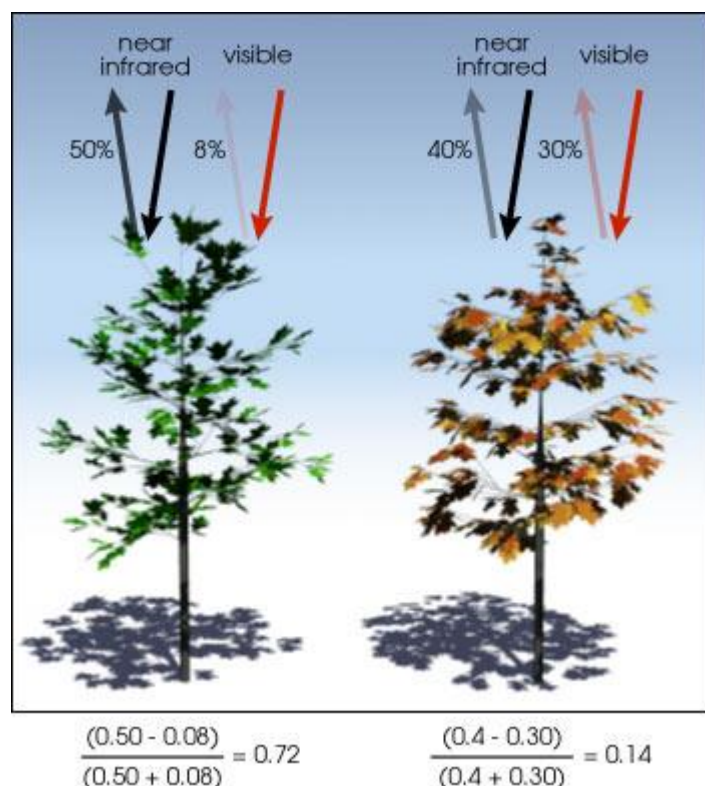
b. Are we interested in predicting the response variable?

Depending on the objective, the answer to “What is a good value for R^2 ?” will be different. In our case, we are interested in answering the first question that is to say that there exists relationship between NDVI and biomass carbon stocks. This is all that is relevant in our case and this all that we are interested in, fully cognizant of the fact that the R^2 value of NDVI analysis does get affected by the season of the year and the age and chlorophyll content of plants. Our point and objective that there is indeed correlation between NDVI and biomass carbon stock gets established once the R^2 is not zero and is instead a positive value. This is because for statistical reasoning purposes, when the main objective for the regression model is to show the relationship between the predictor and the response variable (which is the case in our situation), although reported, the value of the R^2 is not so much relevant. What is important is that there is a positive correlation between the two variables and that the error terms are randomly distributed so that there is no systematic bias. Once the two variables (NDVI and amount of biomass carbon stock in our case) move in the same direction together and the error terms are randomly distributed (which is indeed the case in our situation), the relationship between the two variables gets established and there is no requirement for R^2 to be high. Whether the R^2 value for this regression model is 0.1 or 0.9 doesn't change this interpretation of correlation between our two

variables. This is because we are simply interested in the relationship between NDVI and the biomass carbon stocks, we do not have to be overly concerned with the R^2 value of the model. Given the fact that the value of $R^2 = 0.3429$ in our case is a positive value and is greater than zero; therefore, the point gets established that NDVI does serve as a proxy for mangrove carbon stocks within the DBC-1 project area.

Moreover, as already said that the NDVI value will vary with the season of the time when it is estimated and the age of the plants/stage of life cycle. This is on account of the fact how NDVI is calculated. The NDVI is a quantitative index of greenness ranging from 0-1, where 0 represents minimal or no greenness and 1 represents maximum greenness. Therefore, NDVI is often used as a proxy measure of vegetation health, cover and phenology (life cycle stage) over large areas.

The following picture and their values clearly make the point that the NDVI values can vary with the season of the year (whether it is a growth season or dormant season).



NDVI is calculated from the visible and near-infrared light reflected by vegetation. Green vegetation (left) absorbs most of the visible light that hits it, and reflects a large portion of near-infrared light. Pale or sparse vegetation (right) reflects more visible light and less near-infrared light. Source: NASA Earth Observatory)

As is clear from the above picture, while there exist vegetation in both instances, the NDVI value is higher when it is growing season.

Pictorial analysis for showing uniformity of vegetation density and growth in planted areas

The pictures of different planting cohorts given in Appendix 7.6 clearly show that there is uniformity of vegetation density and growth in the planted areas and therefore taking of measurements near the edge have not affected the biomass estimates during this first monitoring campaign.

Appendix 7.6 has now been amended and the above justification been given therein now.

Documentation provided by the Country Participant	
Updated Version 3.1 dated 5 th July 2022 of Delta Blue Carbon- First Monitoring Report.	
VVB Assessment	Date: 21/06/2022
1. The figure has been updated, actually is SIA075 5. The section has been modified 8. The table 18 has been updated, however, the font style of the table does not match with the template requirements. Still open 9. The table 19 has been updated, however, the font style of the table does not match with the template requirements. Still open 12. The section has been updated properly 14. The explanation is deemed correct.	
VVB Assessment	Date: 18/07/2022
The format of the sections according to the template have been modified. Therefore, CAR 06 is closed	

CAR ID:	07	Date: 25/05/2022
Description of CAR		
In section 1.2, within Biodiversity Conservation, the number of globally critically endangered or endangered species includes the Fishing cat. However, according to the IUCN red list, this specie does not fall within these two categories.		
Country participant response		Date: 13/06/2022
As per IUCN Red List, the Fishing Cat is currently categorized as vulnerable species. However, the species population is experiencing declining trend and is facing a high risk of extinction throughout its range and is thought to be amongst the most vulnerable of the small and medium-sized cats in South and Southeast Asia, including Indus Delta Area. There is very low overlap of its occupied habitat with protected areas and other conservation interventions (e.g., Duckworth et al. 2014). The major threat across its South Asian range (including Indus Delta) is habitat loss and fragmentation by various anthropogenic activities, whereas in Southeast Asia persecution is the major threat (Melisch et al. 1996, Cutter and Cutter 2009, Tantipisanuh et al. 2014, Willcox et al. 2014). In a study conducted by Cutter (2015) in Thailand outside Khao Sam Roi Yot National Park, 84% mortality of radio-collared Fishing Cats during the study period has been reported. Of 16 Fishing Cats that were radio-collared, three could not be located and could have either dispersed or died. Of the remaining 13, only two survived the almost three-year study period while five were poached and six died of unknown causes. Five dead cats were located. In one case the poacher who shot an animal reported the cause of death when he returned its ear tag. Poisoning, trapping and clubbing seem to be common methods to kill Fishing Cats across the species' range. Fishing Cat diet is largely composed of small mammals, fish and birds with a negligible portion (less than 5%) comprising of livestock and surmises that the killings are based on a perception of conflict because of the presence of the cat. Research shows that more than 70% of the deaths occur during the dry season, perhaps when Fishing Cat and human resources overlap maximally. Given the above threats to the species, DBC-1 project is giving high priority to the conservation of the species as it is on its way to becoming threatened locally and therefore liable to extinction if concrete steps for its conservation are not taken under the project. The status of the species has been corrected and changed from threatened to vulnerable in the revised version 3.1 of the Monitoring Report. Also, to properly describe and highlight the threats to the species, needed and relevant text has been added in the revised version of the MR for the species.		
Documentation provided by the Country Participant		
Version 3.1 of Delta Blue Carbon- First Monitoring Report.		
VVB Assessment		Date: 21/06/2022
The information provided is deemed correct. Therefore, CAR 07 is closed.		

CAR ID:	08	Date: 25/05/2022
Description of CAR		
In section 3.1.3.3, the monitoring and carbon accounting includes not only <i>Avicennia marina</i> and <i>Rhizophora mucronata</i>, but also individuals of <i>Ceriops tagal</i> and <i>Aegiceras corniculatum</i>. However, allometric equations have not been validated in the PD for these last two species.		

Country participant response	Date: 13/06/2022
Separate allometric equations for <i>Ceriops tagal</i> and <i>Aegiceras corniculatum</i> were not validated in the PD for the following reasons: ▪ The proportion of both <i>Ceriops tagal</i> and <i>Aegiceras corniculatum</i> species in the total species composition is small (in fact, less than 2%) due to their specific site requirements. Therefore, their contribution to the total carbon stock in the delta área is also very small. ▪ These two species are closely related to the other two major species in the Indus Delta. <i>Ceriops tagal</i> is closely related to <i>Rhizophora mucronata</i> species in tree morphology and biomass content, whereas <i>Aegicera corniculatum</i> is related to <i>Avicennia marina</i> in biomass accumulation. ▪ The validated allometric equation of <i>Rhizophora mucronata</i> is suitable for biomass estimation of <i>Ceriops tagal</i>. Similarly, the validated allometric equation of <i>Avicennia marina</i> quite closely estimates the biomass of <i>Aegicera corniculatum</i>. Hence, there is likelihood of nil to only insignificant variation in GHG removals on account of the use of the already validated allometric equations for these two species. ▪ The variation in biomass estimation and HGH removal being <i>de minimus</i> on account of the use of already validated allometric, it is prudent to use the already validated allometric equations. ▪ In literature the following two species sepcific allometric equations are available for these species as given below: <i>Ceriops tagal</i>: $AGB = 0.1885 \times DBH^{2.3379}$ <i>Aegiceras corninulatum</i>: $\text{Log AGB} = 1.496 + 0.465 \times \text{Log} (DBH^2 \times H)$ ▪ Both the above allometric equations are based on DBH. Our plantations being young have not yet reached the stage where DBH measurements can be taken. Therefore, it is better to use the allometric equations of <i>Avicennia</i> and <i>Rhizophora</i> which are based on crown diameter and D₃₀ (diameter at 30 cm from the last prop root) respectively. ▪ At a later stage, when DBH measurements can be taken for <i>Ceriops</i> and <i>Aegiceras</i>, we will have the species specific allometric equations validated for their use in future monitoring reports. But for now and in this first monitoring report, it seems more reasonable to use the already validated allometric equations which do not use DBH for aboveground biomass estimation. The above given justification has now been provided in the relevant section in the MR.	
Documentation provided by the Country Participant	
Revised version 3.1 of DBC-1 First Monitoring Report. Published paper giving above cited allometric equations for <i>Ceriops tagal</i> and <i>Aegiceras corniculatum</i> species.	
VVB Assessment	Date: 21/06/2022
The response to the finding is considered rational and accurate. However, in spite of the amount of these two species is near to 2% as described above, they have been accounted into the calculations. A project description deviation, including all this information, about the literature, the similarities among species, the problems related to DBH and age of the species...should be included, as well as the explanation why they have been calculated unless no specific allometric equation is used, and other species equations are used for <i>Ceriops</i> and <i>Aegiceras</i>. Therefore CAR 08 is not closed	

Country participant response	Date: 05/07/2022
A Project description deviation, including all this information about the literatura, the similarities among species, the problems related to DBH and age of the species has now been included in the Project Description Deviation in Section 2.2.4 of MR besides giving justification for their inclusion in measurement despite their relatively small over-all numbers.	
Updated Version 3.1 dated 5th July 2022 of MR.	
VVB Assessment	Date: 14/07/2022
The section has been updated and deemed correct. Therefore, CAR 08 is closed	

CAR ID:	09	Date: 25/05/2022
Description of CAR		
According to the section 8.2.1 of the methodology VM0033: “ex-post estimates of GHGWPS must be based on monitoring results”, however the sections 3.2.2.2 of the MR does not comply with this requirement.		
Country participant response	Date: 13/06/2022	
Expost estimates of GHG_{WPS} in the MR are based on monitoring results for the various variables used in GHG estimation. Besides others, this includes the Projection of Future Conditions using VCS Module VMD0019 (Methods to Project Future Conditions). Using the module/tool, it has been found that there is no change in the applicable and relevant future conditions. The results of this análisis are now added to the revised versión 3.1 of the MR as Appendix 3.3.		
Documentation provided by the Country Participant		
Version 3.1 of DBC-1 Project First Monitoring Report.		
VVB Assessment	Date: 21/06/2022	
According to section 8.2.1 of methodology VM 0033: “ex-post estimates of GHGWPS must be based on monitoring results” Ex-ante estimates of GHG_{WPS} must be based on a project scenario that is defined ex ante, and must be projected using the latest version of VCS module VMD0019 Methods to Project Future Conditions. Ex-post estimates of GHG_{WPS} must be based on monitoring results.		
Country participant response	Date: 05/07/2022	
Ex-post estimates of GHG _{WPS} in Section 3.2.2.2 of the MR are now based on monitoring results.		
VVB Assessment	Date: 21/06/2022	

Section 3.2.2.2 has been updated and deemed correct.

CAR 09 is closed

CAR ID:	10	Date: 25/05/2022		
Description of CAR				
The following errors have been found in section 3.2.2. of the MR:				
1. In section 3.2.2.4 of the MR it is stated: “As outlined in section 3.2.1.4 of the PD, natural regeneration of pre-existing mangrove trees is accounted for by excluding a portion of the Project Area of 1.1% from the GHG removals. All present mangrove trees will be included in the monitoring of the project scenario. This 1.1 % is considered de-minimus and therefore has not been deducted from GHG removals calculations in this monitoring report. However, in the PD the statement reports that the removals in the project scenario will be corrected for the presence of baseline mangrove vegetation by excluding a portion of the Project Area. This portion is estimated at 1.1%. 2. In section 3.2.2.4, according to table 11, there has been a monitored loss of 340,90 ha of the reforested mangrove area due to sea level rise. Section 3.2.2 of the MR states: “Since there are areas that have been actively reforested with mangrove trees but then submerged/eroded and lost due to sea-level rise (“LOSS”) during this monitoring period (Section 3.1.3.5), there has been estimation of emissions due to sea-level rise (“LOSS”) and deduction on this count has been made from GHG removals under the project scenario.” However, no deduction due to area lost has been applied when the reported CO2 removals are calculated for the rectified ARR area (73,465.85 ha).				
Country participant response		Date: 13/06/2022		
The following errors found in section 3.2.2. of the MR have been corrected as follows:				
1. Correction for baseline vegetation of 1.1% from GHG calculations				
Project year	Calendar year	Calculated GHG removals after deduction of eroded areas (tCO ₂ e)	GHG removals deduction on account of 1.1% baseline vegetation (tCO ₂ e)	Net calculated GHG removals (tCO ₂ e)
1	2015	1,230,498.88	13,535.49	1,216,963.39
2	2016	1,528,433.06	16,812.76	1,511,620.30
3	2017	498,074.06	5,478.81	492,595.24
4	2018	134,492.96	1,479.42	133,013.54
5	2019	98,370.94	1,082.08	97,288.86
6	2020	26,602.38	292.63	26,309.75
	Total	3,516,472.28	38,681.20	3,477,791.08

2. Correction in GHG removals on account of deductions made for eroded area

Planting year	Planted Area (ha)	Eroded Area (ha)	Persistent Area (ha)	Mean Total CO ₂ (tCO ₂ e/ha)	GHG removal after deduction of eroded areas (tCO ₂ e)
2015	10,287.74	38.39	10,249.35	120.047	1,230,498.88
2016	18,543.98	105.53	18,438.45	82.903	1,528,433.06
2017	15,407.09	74.93	15,332.16	32.487	498,074.06
2018	10,473.74	39.29	10,434.45	12.907	134,492.96
2019	9,368.45	29.02	9,339.43	10.523	98,370.94
2020	9,384.85	53.74	9,331.11	2.860	26,602.38
Total	73,465.85	340.90	73,124.95		3,516,472.28

Documentation provided by the Country Participant

Version 3.1 of DBC-1 Project First Monitoring Report
Revised Calculations Sheet

VVB Assessment

Date: 30/06/2022

Calculations have been properly corrected.
Thus, CAR 10 is closed.

Clarification requests (CLs)

CL ID	01	Date: 25/05/2022
Description of CL		
Under the <i>History of CCB status</i> within initial table report the issuance date of validation.		
Country participant response		Date: 13/06/2022
Issuance date of validation has now been given under the History of CCB status within the initial table.		
Documentation provided by the Country Participant		
Version 3.1 of DBC- Project First Monitoring Report.		
VVB assessment		Date: 21/06/2022
CL 01 is closed		

CL ID	02	Date: 25/05/2022
Description of CL		
Provide the following documentation or evidence: 1. KML and SHP files of the project: (Location, Boundaries, Limits, Sample Plots...) 2. In section 1.1 it is stated that 34,659 people were benefited of the increase in spawning places. Provide the evidence. 3. In section 1.2 it is stated that 868 people have improve their skills due to training activities. Provide the evidence. 4. The paper "chatting et al. 2020" of section 2.2.2 and the paper "Comley and McGuiness 2005". In addition, provide justification for the appropriateness of BGB equation of Comley and McGuiness over Pakistan Forest Institute. 5. Please, provide the location of the formulae $BGB=0.923 \times AGB$ within the paper Comley and McGuiness of section 3.1.3.3. 6. The Non-Permanence Risk Report of the project. In addition, explain why appendix 2 which is referenced for the project's risks is not completed. 7. In section 2.3.3 provide evidence of the following informational meetings: 18/10/2021 in HH-1; 21/10/2021 in hayat jatt HH-2, 06/11/2021 in Bhori Goth (HH-1). Also provide evidence of the "widely publicized and known events of the meetings. 8. The survey's results of the statement that project interventions have resulted in net positive within section 2.3.7. 9. The project communication strategy of section 2.3.9 10. The report of the various meetings and workshops including pictures, video and meeting results of section 2.3.9 11. The anti-discrimination non-harassment assurance document of section 2.3.11 12. The trainings performed during the first monitoring period of section 2.3.13		
Country participant response		Date: 13/06/2022
Documentation or evidence in respect of the following has been provided as indicated below: 1. <i>KML and SHP files of the project: (Location, Boundaries, Limits, Sample Plots...).</i> KML and SHP files of the project have been provided in the relevant folder in the Dropbox (Folder CL ID-02). 2. <i>Evidence in support of section 1.1 that 34,659 people were benefited of the increase in spawning places. Provide the evidence.</i> Socio-economic Survey Report which provides the necessary evidence has been provided in the relevant folder in the Dropbox (Folder CL ID-02) 3. <i>Evidence in support of section 1.2 that 868 people have improve their skills due to training activities.</i>		

Socio-economic Survey Report providing this evidence has been uploaded to the relevant folder in the Dropbox (Folder CL ID-02-03).

4. *Allometric equations paper "chatting et al. 2020" of section 2.2.2 and the paper "Comley and McGuinness 2005". In addition, provide justification for the appropriateness of BGB equation of Comley and McGuinness over Pakistan Forest Institute.*

Chatting et. al., 2020 and Comley McGuinness 2005 papers have been provided in the Dropbox Folder CL ID-02.

Pakistan Forest Institute BGB allometric equation for *Avicennia marina* did not use data collected locally from the site; instead, it was derived from another source that was based on data which was used by the source equation. Against this, the Comley and McGuinness paper uses data from a source in an arid region in Australia that is more representative of the site conditions in the Indus Delta area. Hence, it is deemed more appropriate to use Comley and McGuinness allometric equation for BGB estimation till we have sufficient data from the Indus Delta area to develop our own allometric equations.

5. *Provide the location of the formulae $BGB=0.923 \times AGB$ within the paper Comley and McGuinness of section 3.1.3.3.*

The source from where the above-mentioned formulae has been used is provided in the relevant Dropbox Folder (Folder CL ID-02).

6. *The Non-Permanence Risk Report of the project. In addition, explain why appendix 2 which is referenced for the project's risks is not completed.*

Since there was no change in risk conditions and assessment at the time of PD preparation and validation compared to the risk conditions prevailing at the time of monitoring campaign; therefore, it was mentioned that there is no change in the Non-Permanence Risk Report. However, The Non-Permanence Risk Repot has now been completed and has been given separately as Additional Appendix-DBC-1 Project Risk Analysis at the time of First Monitoring in the Folder (CL ID-02).

7. *In section 2.3.3 provide evidence of the following informational meetings: 18/10/2021 in HH-1; 21/10/2021 in hayat jatt HH-2, 06/11/2021 in Bhori Goth (HH-1). Also provide evidence of the "widely publicized and known events of the meetings.*

Needed evidence is provided in section 2.3.3 and in the relevant folder in the Dropbox (Folder CL ID-02).

8. *Survey's results of the statement that project interventions have resulted in net positive within section 2.3.7.*

Survey results have been provided in the relevant folder in the Dropbox (Folder CL ID-02).

9. *The project communication strategy of section 2.3.9.*

The project communication strategy as mentioned in section 2.3.9 is available and has been provided in the relevant folder in the Dropbox (Folder CL ID-02)

10. The report of the various meetings and workshops including pictures, video and meeting results of section 2.3.9

The report of the various meetings and workshops including pictures, videos and meeting results of section 2.3.9 is available and has been provided in the relevant folder in the Dropbox (Folder CL ID-02).

11. The anti-discrimination non-harassment assurance document of section 2.3.11.

The anti-discrimination and non-harassment assurance document of section 2.3.11 are available and have been provided in the relevant folder in the Dropbox (Folder CL ID-02).

12. The trainings performed during the first monitoring period of section 2.3.13.

Details of the training performed during the first monitoring period of section are available and have been provided in the relevant folder in the Dropbox (Folder CL ID-02)

Documentation provided by the Country Participant

Version 3.1 of DBC-1 Project First Monitoring Report

Dropbox Folder CL ID-02 which contains the other documents and evidence related to CL ID-02.

VVB assessment

Date: 27/06/2022

1. The GIS evidence has been provided and it is deemed correct.
2. The evidence does not match with the information provided on the MR
3. The evidence does not match with the information provided on the MR
4. The evidence provided is deemed correct
5. The evidence provided is deemed correct.
6. The NPRR has been provided. However, the version and format are not the required by Verra. Please, provide the updated NPRR.
7. The information provided is deemed correct.
8. The evidence provided is deemed correct.
9. The evidence of the strategy has been provided and deemed correct.
10. Evidence of the meetings, including videos and picture have been provided.
11. The policy has been provided and deemed correct.
12. The trainings have not been provided as indicated above.

Country participant response

Date: 05/07/2022

2. Socio-economic Survey Report which provides the necessary evidence has been provided in the relevant folder in the Dropbox (Folder CL ID-02)
3. Socio-economic Survey Report which provides the necessary evidence has been provided in the relevant folder in the Dropbox Folder (Folder CL ID-02).
6. The NPRR on the revised format of VERRA has now been provided as Additional Appendix-Non-Permanence Risk Report.
12. Information about the trainings have now been provided.

Documentation provided by the Country Participant	
Updated Version 3.1 of 5 th July 2022 of DBC-1 Project First Monitoring Report Dropbox Folder CL ID-02 which contains the other documents and evidence related to CL ID-02.	
VVB assessment	Date: 14/07/2022
2. The section has been updated and does match with the evidence provided. 3. the section has been updated and does match with the evidence provided 6. the version and format of the NPRR is not the required for VERRA. 12. the evidence provided is deemed correct	
VVB Assessment	Date: 18/07/2022
The section has been provided and updated. CL 02 is closed	

CL ID	03	Date: 25/05/2022
Description of CL		
Provide the following documentation or evidence: 1. The occupational safety assessment of section 2.3.16 2. The maintenance of the key technical skills required to implement the project successfully, including community engagement, biodiversity assessment and carbon measurement and monitoring skills of section 2.4.1 3. The management team's expertise and prior experience implementing land management and carbon projects at the scale of this project. 4. Provide the evidence of the following statement: "Maps of the eroded polygons are provided in the file Eroded Areas Maps in the Shapefiles Folder in the Dropbox" of section 3.1.3.5 5. In section 3.2.1 provide the emission sources and the explanation why they are considered nil. 6. Provide the calculations of table 15 "cumulative CO2 removals" of section 3.2.2.5 7. Provide evidence of the direct employment and jobs creation (10410 people – 1030 women) 8. Provide the evidence of the SBIA workshops of section 4.1.1 9. Provide the evidence of the statement that improved access to varied markets and expansion to various public and private sector services providers of section 4.1.1 10. Provide the evidence of the following statement: "the whole monitoring process is fully documented in reports, photographic and videographic form" of section 4.3.1 11. Provide the reports and supporting documents available for inspection and perusal by the VVB and any other interested party, as well as the rest of evidence that are said tat are available for the VVB but they are not. 12. Provide the evidence that demonstrate the well-being in women of section 4.4.3.		
Country participant response		Date: 13/06/2022
Documentation or evidence with regard to the following has been provided as noted against each: 1. <i>The occupational safety assessment of section 2.3.16</i> Document pertaining to the occupational safety assessment of section 2.3.16 is available. Required documentation has been provided in the relevant folder in the Dropbox (Folder CL ID-03). 2. <i>The maintenance of the key technical skills required to implement the project successfully, including community engagement, biodiversity assessment and carbon measurement and monitoring skills of section 2.4.1</i> Staff and resource persons having the key technical skills required to implement the project successfully, including community engagement, biodiversity assessment and carbon measurement and monitoring skills of section 2.4.1 is still available with the project. Required supporting documents given in the relevant folder in the Dropbox (Folder CL ID-03).		

3. *The management team's expertise and prior experience implementing land management and carbon projects at the scale of this project.*

The management team of the project has the needed expertise and prior experience implementing land management and carbon projects at the scale of this project. CVs of the Management team showing the needed expertise and prior experience is provided in the relevant folder in the Dropbox (Folder CL ID-03).

4. *Provide the evidence of the following statement: "Maps of the eroded polygons are provided in the file Eroded Areas Maps in the Shapefiles Folder in the Dropbox" of section 3.1.3.5.*

Maps and Shapefiles which give evidence of the extent of erosion and the locations of eroded areas have been provided in the relevant folder in the Dropbox (Folder CL ID-03).

5. *In section 3.2.1 provide the emission sources and the explanation why they are considered nil.*

The emission sources and the explanation why they are considered nil has been provided in the revised version 3.1 of the Delta Blue Carbon-1 MR. Needed document (s) provided in the relevant folder in the Dropbox (CL ID-03).

6. *Provide the calculations of table 15 "cumulative CO2 removals" of section 3.2.2.5.*

Calculations sheet for table 15 provided in the relevant folder in the Dropbox (Folder CL ID-03).

7. *Provide evidence of the direct employment and jobs creation (10410 people – 1030 women).*

The needed evidence is given in the Socio-economic Survey Report which has been provided in the relevant folder in the Dropbox (Folder CL ID-03).

8. *Provide the evidence of the SBIA workshops of section 4.1.1.*

SBIA Workshops Report has been provided in the relevant folder in the Dropbox (Folder CL ID-03).

9. *Provide the evidence of the statement that improved access to varied markets and expansion to various public and private sector services providers of section 4.1.1.*

Needed evidence is available in the Socio-economic Survey Report which has been provided in the relevant folder in the Dropbox (Folder CL ID-03).

10. *Provide the evidence of the following statement: "the whole monitoring process is fully documented in reports, photographic and videographic form" of section 4.3.1.*

Monitoring Process Report containing photographs and videos of the monitoring process is available and has been provided in the relevant folder in the Dropbox (Folder CL ID-03).

11. *Provide the reports and supporting documents available for inspection and perusal by the VVB and any other interested party, **as well as the rest of evidence that are said tat are available for the VVB but they are not.***

All SOPs, documents related to and mentioned with respect to different sections of the monitoring report are available and have now been provided in the relevant folder in the Dropbox (Folder CL ID-03). 12. <i>Provide the evidence that demonstrate the well-being in women of section 4.4.3.</i> Required evidence is given in the Socio-economic Survey Report which has been provided in the relevant folder in the Dropbox (Folder CL ID-03).	
Documentation provided by the Country Participant	
Version 3.1 of DBC-1 Project First Monitoring Report Folder CL ID-03 in the Dropbox which contains different documents and evidence in support of CL ID-03.	
VVB assessment	Date: 27/06/2022
1. The evidence provided is deemed correct. 2. The evidence provided is deemed correct. 3. The evidence provided is deemed correct 4. The evidence provided is deemed correct 5. The section has been updated and deemed correct 6. The calculations of table 15 are not provided within the spreadsheet provided or the information does not match with the one stated on the MR. 7. The evidence provided does not match with the stated on the MR 8. The evidence provided is deemed correct 9. Please, specify where is found the statement above or the evidence to demonstrate that. 10. The evidence provided is deemed correct. 11. The evidence provided are deemed correct 12. The evidence provided is deemed correct	
Country participant response	Date: 05/07/2022
6. The calculations of table 15 are now provided within the spreadsheet. 7. The needed evidence is given in the Socio-economic Survey Report which has been provided in the relevant folder in the Dropbox (Folder CL ID-03). 9. Needed correction has been done in Section 4.1.1.	
VVB assessment	Date: 14/07/2022
6. The evidence provided is deemed correct and does match with the MR. 7. The evidence provided is deemed correct and does match with the MR. 9. The updated is deemed correct. Therefore, CL 03 is closed	

CL ID	04	Date: 25/05/2022
Description of CL		
Please, provide further explanations or clarifications of the following: 1. Within section 2.2.4 it is stated that no project description deviations have been performed during this MP. However, in section 2.1.7 there is a rectification of the stratum since the validation. Please, explain why it was not a project description deviation. 2. Within section 2.1.7 it is stated “here has been no change in the total project area on account of these adjustments”. Please, provide further explanations. 3. Sections 2.3.1 and 2.3.2 of the MR are referenced to other sections within the PDD. However, please complete these sections in the MR according to the MR template requirements. 4. In section 2.3.8 it is stated that DBC-1 has been in continued consultation with the local communities and other stakeholders as outlined in section 4.1.2 of the PDD, however, updated information during this Monitoring Period has to be provided. 5. In section 3.1.3.2, uncertainty estimation is in bold. Explain if it's a header or if its out of the section. 6. Please, explain the following statement which provide from the paper <i>Kirui et al 2006</i>: “mixed stands of naturally growing <i>R. mucronate</i> were sampled at Gazy bay. A total of 15 trees were randomly selected and harvested. For the harvested trees, DBH was measured at 1.3m or 30 cm above the highest prop rot when this root occurred at height above 1.3. Also explain why the equations are the same unless in one, DBH is used while in the other is used D. 7. In section 3.1.3.4 it is stated that” Sample plot locations for biomass measurements during the current monitoring campaign were determined using the random method, as set out in Appendix 7”. Please, provide where it is explained within annex 7.		
Country participant response		Date: 13/06/2022
Further explanations or clarifications in respect of the following have been provided as described below: 1. <i>Within section 2.2.4 it is stated that no project description deviations have been performed during this MP. However, in section 2.1.7 there is a rectification of the stratum since the validation. Please, explain why it was not a project description deviation.</i> As per VCS Standard (Section 3.19 Project Description Deviations) projects may deviate from the validated project description in certain cases in order to accommodate changing circumstances post-validation. Therefore, according to Requirement 3.19.1 of the VCS Standard dated 20 January 2022 deviations from the project description are permitted at verification. The deviation applied by the project pertains to rectification of the stratum since the validation. The applied deviation does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario. Although procedures for documenting such type of project deviation is not required as per Rule 3.19.2 of the VCS Standard; however, these have been fully described and justified by the project in section 2.1.7 in the MR. There has been no		

change in the total project area on account of the rectifications undertaken. Moreover, as a result of this rectification activity, the project area and precise geographic boundaries have been accurately mapped and presented in the MR.

The above narrative about Project Description Deviations has now been incorporated in Section 2.2.4 of the MR and the section accordingly re-written in version 3.1 of the Delta Blue Carbon-1 Project First Monitoring Report.

2. *Within section 2.1.7 it is stated “here has been no change in the total project area on account of these adjustments”. Please, provide further explanations.*

The total project area to be restored under ARR activity of DBC-1 project is 224,997 ha as per validated PD. While needed area rectifications of planted areas has been and will be undertaken at different points in time at the time of monitoring activity, the total project area that will be restored under the project will be kept the same as given in the validated PD (224,997 ha.). There will be no deviations from this total ARR restored area under the project.

3. *Sections 2.3.1 and 2.3.2 of the MR are referenced to other sections within the PDD. However, please complete these sections in the MR according to the MR template requirements.*

Sections 2.3.1 and 2.3.2 of the MR have now been completed in the revised version 3.1 of DBC-1 Project First Monitoring Report according the MR template requirements.

4. *In section 2.3.8 it is stated that DBC-1 has been in continued consultation with the local communities and other stakeholders as outlined in section 4.1.2 of the PDD, however, updated information during this Monitoring Period has to be provided.*

Updated information regarding section 2.3.8 in the MR pertaining to continued consultation and adaptive management has now been provided in the revised version 3.1 of the DBC-1 Project First Monitoring Report.

5. *In section 3.1.3.2, **uncertainty estimation** is in bold. Explain if it’s a header or if its out of the section.*

The bold text “**uncertainty estimation**” in section 3.1.3.2 was redundant. It has been deleted in the revised version 3.1 of the Delta Blue Carbon-1 Project First Monitoring Report.

6. *Please, explain the following statement which provide from the paper Kirui et al 2006: “mixed stands of naturally growing *R. mucronata* were sampled at Gazy bay. A total of 15 trees were randomly selected and harvested. For the harvested trees, DBH was measured at 1.3m or 30 cm above the highest prop rot when this root occurred at height above 1.3. Also explain why the equations are the same unless in one, DBH is used while in the other is used D.*

The allometric equation developed by Kirui et. al 2006 permits the use of both DBH (diameter at breast height) and D (diameter at base 30 cm above the last prop root/30 cm from the ground) for aboveground biomass estimation in *Rhizophora mucronata* species. Therefore, the allometric equation in both forms has been given in the MR. Text to this effect has now been provided in the revised version 3.1 of MR after the aboveground biomass allometric equations table.

7. *In section 3.1.3.4 it is stated that "Sample plot locations for biomass measurements during the current monitoring campaign were determined using the random method, as set out in Appendix 7". Please, provide where it is explained within annex 7.*

The procedure for the location of sampling plots in the current monitoring campaign has been fully described, explained and justified in Appendix 7.5 which is an integral part of Appendix 7.

Documentation provided by the Country Participant

Version 3.1 of DBC-1 Project First Monitoring Report

VVB assessment

Date: 27/06/2022

All the points have been updated and deemed correct.

Therefore, CL04 is closed

CL ID	05	Date: 25/05/2022
Description of CL		
Please, provide further explanations or clarifications of the following: 1. In section 3.1.3.4 it is stated that 54 plots have been used. According to table in sub-step 4c of appendix 7.2 and table 23 of the PD, a total of 56 sampling plots were required for the strata 2015-2020. Provide calculation of the sample used and justification/explanation for the change. 2. Please, provide a demonstration for the following statement: "For GIS analysis, low-tide timing Sentinel-2 data of 12th February, 2022 comprising of three tiles (Tile 1: L1C_T42RUN_A034694_20220212T055948; Tile 2: L1C_T42QVM_A034694_20220212T055948; Tile 3: L1C_T42QUM_A034694_20220212T055948) which covered the whole project area was procured. Erosion was estimated using Normalized Difference Water Index (NDWI) from Green band and Near Infra-red (NIR) narrow band." of section 3.1.3.5. 3. Please, provide explanations and further information about the following statement of section 3.2.2.1: "According to Monitoring plan (Appendix 7.2), sea level rise is a factor for ex-post stratification." Provide information on loss of planted areas (LOSS) and new inland areas which have become intertidal (GAIN) as per monitoring described in appendix 7.1. 4. Please, explain why no information is provided regarding CH₄ and N₂O emissions from soil in-situ, nor CO₂ emissions from soil eroded, within section 3.2.2.6 5. Include justification of the ecological leakage in the MR instead of reference it to the PD, in section 3.2.3.2 of the MR. 6. Provide explanations of the following statement of section 4.1.1: Improved protection of mangroves and other natural resources and effective law enforcement (125,000 ha existing mangrove forests); clarify whether this 125000 ha are within the ARR or belong to the REDD+ project. 7. While in the PD, one of the community groups is reported as fishermen, in the MR they are called coastal fishing communities. Also, coastal communities engaged in daily wage labour has a different name in the PD. Please, explain this variation between nomenclatures. 8. Provide the meaning of Middle-r, within section 5.1.3		
Country participant response		Date: 13/06/2022
Further explanations or clarifications have been given in respect of each of following observations: 1. <i>In section 3.1.3.4 it is stated that 54 plots have been used. According to table in sub-step 4c of appendix 7.2 and table 23 of the PD, a total of 56 sampling plots were required for the strata 2015-2020. Provide calculation of the sample used and justification/explanation for the change.</i> Calculation of the sample plots used is provided in the relevant folder in the Dropbox (Folder CL ID-05). The 56 number of sample plots in the PD and in the SOP was calculated based on ex-ante variance and uncertainty assessment from an earlier study. However, based on variance and uncertainty estimates of the monitoring data from the current monitoring campaign, the required number of sample plots is 53. Against this, the project has collected data from 54 sample as shown below:		

Plantation Year Stratum – i	Area Stratum – i (ha)	Wi	Wi * Si	No. of Sample Plots as per MR Data	No. of Sample Plots as per PD Data	Actual No. of Sample Plots used for MR
2015	10,287.76	0.05	1.44	7	7	7
2016	18,543.98	0.08	2.60	13	14	14
2017	15,407.08	0.07	2.16	11	8	11
2018	10,473.74	0.05	1.47	8	8	8
2019	9,368.46	0.04	1.31	7	11	7
2020	9,384.86	0.04	1.31	7	8	7
Total	73,465.88			53	56	54

2. Please, provide a demonstration for the following statement: “For GIS analysis, low-tide timing Sentinel-2 data of 12th February, 2022 comprising of three tiles (Tile 1: L1C_T42RUN_A034694_20220212T055948; Tile 2: L1C_T42QVM_A034694_20220212T055948; Tile 3: L1C_T42QUM_A034694_20220212T055948) which covered the whole project area was procured. Erosion was estimated using Normalized Difference Water Index (NDWI) from Green band and Near Infra-red (NIR) narrow band.” of section 3.1.3.5.

Sentinel-2 data of 12th February, 2022 was procured and used for erosion estimation through NDWI analysis. The data procurement timing was 5:54 GMT, locally 11:00 hours Pakistan Standard Time. This timing coincides with low tide timings in the Indus Delta area as shown by the tide timings data for 12th February, 2022. The whole process of image analysis and interpretation is described in section 3.1.3.5 and results of analysis given in table 12. Details of all the affected planted area polygons are available and have been provided in the Dropbox Folder (CL ID-05).

3. Please, provide explanations and further information about the following statement of section 3.2.2.1: “According to Monitoring plan (Appendix 7.2), sea level rise is a factor for ex-post stratification.” Provide information on loss of planted areas (LOSS) and new inland areas which have become intertidal (GAIN) as per monitoring described in appendix 7.1.

This is explained under (b) Procedure in Appendix 7.2 (Biomass Carbon Assessment) as follows:

(b) Procedures

Step 1: Key variables for stratification system

Sub-step 1a: The dominant factor in ex-post stratification is the age of the vegetation or planting year cohorts. Therefore, the project area will be stratified based on the year of planting in 2015 and ending in the year 2026. Project area land within each stratum should be similar with respect to carbon stocks, with different strata having different carbon stocks.

Sub-step 1e: In addition, due to sea level rise some of the planted areas will be washed away while some inland areas will become intertidal and will be gradually colonized by mangrove species because of the nearby presence of mangrove seeds and propagules and planting by DBC-1 project. Such areas will need to be identified, demarcated and mapped.

Sub-step 1f: Thus, additional factors in ex-post stratification include:

- The loss of planted area due to sea level rise, giving rise to a zone actively reforested with mangrove trees but then submerged/eroded and lost. These lands will be classified as “LOSS”.
- The new inland areas which have become intertidal due to sea level rise. These pieces of land will be classified as “GAIN”.

Using the NDWI analysis procedure given under item no. 2 above and explained in section 3.1.3.5 (Project area and estimation of coastal erosion) in the MR, eroded areas (LOSS) were estimated using NDWI from Green Band and Near Infra-red (NIR) narrow band. Using results from the above analysis, out of the total planted ARR area of 73,465.85 ha, 340.90 ha got eroded during the period February 2015 to February 2022, and hence constitute “LOSS”. This LOSS area is 0.464 percent of the “ARR” planted area. Summary results of the “ARR” area, “LOSS” areas, and planted areas that are still existing and intact/persistent are given in the following table:

Year	ARR Area (ha)	LOSS Area (ha)	Persistent Planted Area (ha)
2015	10,287.74	38.39	10,249.35
2016	18,543.98	105.53	18,438.45
2017	15,407.09	74.93	15,332.16
2018	10,473.74	39.29	10,434.45
2019	9,368.45	29.02	9,339.45
2020	9,384.85	53.74	9,331.11
Total	73,465.85	340.90	73,124.97

Details of all the polygons in which erosion has taken place and their net area after deduction of the eroded area given in Appendix 8 of the MR. Maps of the eroded area polygons are provided in the relevant folder in the Dropbox (Folder CL ID-05).

Estimation, demarcation and mapping of the “GAIN” areas due to sea level rise has not been undertaken in this monitoring campaign. These areas will be estimated, demarcated and mapped at future time when these areas will be tackled for planting.

4. *Please, explain why no information is provided regarding CH₄ and N₂O emissions from soil in-situ, nor CO₂ emissions from soil eroded, within section 3.2.2.6*

Activities undertaken by the project during the monitoring period pertain to ARR activities, and some community development and biodiversity conservation related activities. No project activity has been undertaken either by the project proponents or other actors during this period that have

changed salinity values or increased these values; hence, CH₄ emissions have not increased in the project scenario compared to the baseline scenario. Therefore, methane emissions have not increased and hence have been excluded.

Similarly, as explained above none of the activities of the project proponents or project zone communities who are primarily fishermen have either lowered water table or increased nitrogenous fertilizer use in the project area/Project zone or otherwise increased NO₂ emissions in the project scenario compared to the baseline scenario. Therefore, NO₂ emissions have not increased compared to the baseline scenario and therefore have been excluded.

CO₂ emissions from eroded soil material (GHG_{WPS-eroded-CO₂,i,t}) may be calculated by calculating the area eroded of each stratum, the estimates of the amount of carbon that is eroded (C_{WPS-eroded,i,t}) and the percentage of the eroded carbon that is returned to the atmosphere (C%_{WPS-emitted,i,t}). The area of each stratum eroded during this monitoring period has been given above and the total for all strata during this period is 340.90 ha. For mangrove systems, a default factor (GHG_{WPS-insitu-CO₂,i,t} = -1.46 t C ha⁻¹ yr⁻¹ × 44/12) for carbon amount may be used in the absence of data suitable for the published value approach or suitable and reliable field collected data. And when the applicable CPDE (carbon preservation depositional environment) is "Normal Marine" or "Deltaic fluidized muds", which is the case in Indus Delta, then C%_{WPS-emitted,i,t} then 80% of this carbon amount value is assumed to return to the atmosphere in the project scenario.

However, the eroded soil in the case of Indus Delta is re-sedimented on the opposite side of the eroded channel side and the carbon contained therein is not released into the atmosphere and instead is re-buried into the soil layers. Therefore, there is nil to only negligible amount of CO₂ emissions from eroded soil material and hence not estimated.

The above description and justification are now given in the relevant section in the revised version 3.1 of DBC-1 Project First Monitoring Report.

5. *Include justification of the ecological leakage in the MR instead of reference it to the PD, in section 3.2.3.2 of the MR.*

Justification of the ecological leakage in the MR has now been given in the revised version 3.1 of the DBC-1 Project First Monitoring Report.

6. *Provide explanations of the following statement of section 4.1.1: Improved protection of mangroves and other natural resources and effective law enforcement (125,000 ha existing mangrove forests); clarify whether this 125,000 ha are within the ARR or belong to the REDD+ project.*

The statement improvement protection of mangroves and other natural resources and effective law enforcement (125,000 ha existing mangrove forests) although valid has been removed as it belongs to the REDD+ project component and not the ARR project.

7. *While in the PD, one of the community groups is reported as fishermen, in the MR they are called coastal fishing communities. Also, coastal communities engaged in daily wage labour has a different name in the PD. Please, explain this variation between nomenclatures.*

The nomenclature in the revised version 3.1 of the MR has been changed to make it uniform with the one given in the PD.

8. *Provide the meaning of Middle-r, within section 5.1.3*

It is a typographical error and letter "r" has been corrected as "or" in the revised version 3.1 of the DBC-1 Project First Monitoring Report.

Documentation provided by the Country Participant	
Version 3.1 of the DBC-1 Project First Monitoring Report. Folder CL ID-05 in the Dropbox containing documents cited in the response to CL ID-05.	
VVB assessment	Date: 27/06/2022
All the points have been considered corrected and clear Therefore, CL 05 is closed	

CL ID	06	Date: 25/05/2022
Description of CL		
Please, provide under the section 3.1.2 of the MR the values monitored of:		
• $C_{WPS, soil, i, t}$; • %OM; • %Csoil		
Country participant response		Date: 13/06/2022
Under the section 3.1.2 of the MR, the values monitored of the following default values have been provided as shown below:		
• $C_{WPS, soil, i, t} = -1.46 \text{ t C ha}^{-1} \text{ yr}^{-1} \times 44/12$ • %OM; = 2.528 % • %Csoil; = 1.6 %		
Documentation provided by the Country Participant		
Version 3.1 of the DBC-1 Project First Monitoring Report.		
VVB assessment		Date: 27/06/2022
The section has been updated and deemed correct Therefore, CL 06 is closed		

APPENDIX III: LIST OF PERSONS INTERVIEWED DURING THE ON-SITE VISIT

Initial meeting:

AENOR
Confia

PROJECT: LOCATION: MEETING TOPIC: DATE:

ATTENDANCE LIST

No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE
1	Riaz Ahmed Wagon	Chief Conservator of Forests		
2	Saim Bux Sheikh	DFO Coastal left Bank		
3	Muhammad Khan	RFO KT Bundar		
4	Zeeshan Ali	RFO Khara Chahm		
5	Sulaiman Khaskhel	RFO Shah Bundar		
6	Wahid Bhatti	Cox man		
7	Saleem	Launch Driver		
8	Abdul Rahman	Forester		
9	Abdul Sattar	Coxman		
10	Ghulam Qadir	Forester		
11	Satta Sauman	Forest Guard		
12	Hussain Sauman	Coxman		
13	Gul Muhammad	Coxman		

AENOR
Confia

PROJECT: IDC LOCATION: MEETING TOPIC: DATE:

ATTENDANCE LIST

No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE
	Alangis Khan Gandapur	Managing Director IDC		
	Muhammad Abdullah	Director CTS & Field Operations		
	Adnan Afandi	Director Finance		
	Syed Ahmet Ali	CTS & Field Operations Coordinator		

Women livelihood

AENOR
Certified

PROJECT: DBCI

MEETING TOPIC: Women Livelihood

LOCATION: Keli Bunde

DATE: 20-5-22

ATTENDANCE LIST

No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE
	Husam Bano.	Nursing, Plantation	Mallah (Gurab Goth)	
	Fatima	" "	"	
	Baby	Seed collection	"	
	Hajeyan	" "	"	
	Tamin	" "	"	
	Siya	Nursing & Seed collect	"	
	Jojo	Nursing seed collect	"	
	Azan	" "	"	
	Jameela	" "	"	
	Tenoo	" "	"	
	Azizan	" "	"	
	Amena.	" "	"	

PAGE OF

General consultation

[illegible]

Stakeholders met

Shah Bunder	
Name of Participants	Profession
Mohd Yousif	SFD
Abdul Rehman	SFD
Ali Ghulam	SFD
Ghulam mustfa	MSA
Mohd Urs	SFD
Yaqoob	Fisherman
Ayaz ali	Fisherman
Noor Mohd	Labour
Furqan Ali	Labour
Abbas Ali	Labour
Shakeel	Fisherman
Anwer Ali	Fisherman
Arab	Labour
Sajjad Ali	Fisherman
Long	Fisherman
Sahib Dino	Labour
Faiz Mohd	Labour

Ghulam Qadir	Labour
Mohd Umar	Fisherman
Abdul Majeed	Fisherman
Abdu Rehman	Labour
Abdul wahid	Labour
Ali Muhammad	Fisherman

Bhambhore

Name of Participants	Profession
Gul sher shoro	Fisherman
Hamzo jatt	Labour
Ghulam Hyder	Shop
Muhammad Ali Jatt	Pesh imam
Abdul Majeed jatt	Labour
Rafique Jatt	Fisherman
Abdul Gani	Private Job
Niaz Ahmed	Fisherman
Ali Sher Kalmati	Labour
Arshad Ali	Driver
Ajeed Ali	Fisherman
Ali mohd Mirbhahr	Labour
Ahmed Jokhio	Fisherman
Mohd Yousif Shoro	Fisherman

Keti Bunder

Name of Participants	Profession
Shabir	MSA
Soomar	SFD Employee
Abdul Ghafoor	SFD Employee
Alam Sholani	SFD Employee
Shakeel Memon	Social worker
Suleman	Fisherman
Tajan	Fisherman
Mashoq	MSA
Shahzad Shaikh	Driver
Akram	Shop
Iqbal	Seed Collector
abu mohd	Seed Collector
Gul sher	Seed Collector

Juman	Seed Collector
Laddo	Seed Collector
Juman	Seed Collector
Ghafoor	Seed Collector
Murad	Seed Collector
Imran	Seed Collector
Asif	Seed Collector
Aziz	Seed Collector
Nazir	Seed Collector
Remtuallah	Seed Collector
Taj mohd	Seed Collector
Husna	Seed Collector
Noor	Seed Collector
Gudi	Seed Collector
Hajani	Seed Collector
Abida	Seed Collector
Jameela	Seed Collector
Mehnaz	Seed Collector
Aziza	Seed Collector
Nazeera	Seed Collector
Nasreen	Seed Collector

Field notebook summary:

AENOR engaged Dr. Waqar Ahmed, the CCB Technical Expert to carry out the verification as per defined scope of work and assessment criteria during the period 14- May-2022 to 06-June-2022.

In addition to the review of compliance with the requirements of the ISO 14064-3:2019 standard, the verification included the strategic and risk analysis, and evaluation of the issues indicated in the ISO 14064-3:2019 standard by the audit team.

Based on the review of the provided documentation and considering the requirements of the standards used, the following areas were observed:

The following areas

- Project proponent, developers/management team, local team onsite
- Project activities conducted during the monitoring period (reporting, results and concordance with plan as per PD, etc.)
- Monitoring procedures, monitoring team and equipment and biomass plots layout and measurements
- Full review of operations and measurement records. Controls established to detect and correct any errors or omissions in monitoring parameters
- Forest conservation and implementation

- Project activities implemented
- Stakeholders' rights
- Stakeholders' identification and consultation, trainings/benefits/satisfaction
- Project conflicts, barriers or difficulties and grievances/complaints/conflicts
- Stakeholders' consultations, meetings and documents sharing
- Project communication
- Community, implementation of CCB community monitoring plan and benefits to the community
- Areas of High Conservation Value (HCV)
- Biodiversity and current problems associated. Implementation of CCB biodiversity monitoring plan and biodiversity conservation results including conservation of trigger species

Based on desk review, site visits and inspections and supporting documentation and meetings and discussions with communities and stakeholders, the CCB Technical Expert engaged by AENOR carried out this independent verification audit and prepared this report.

Chronogram of the visit:

This was the main chronogram followed during the visit, although other topics were seen and verified complementary to these mentioned in the table below.

Location	Date (dd-mm-yy)	Duration	Sites Visited
Kharo Chan	14-05-22	11 AM to 3.0 PM	2016, 2017, 2018 plantation, meeting and Interviews with MSA signers
Shah Bunder	14-05-22	4 PM to 6.0 PM	2017, 2015 and meeting with community leaders
Bhambore	18-05-22	10 AM to 5.0 PM	2019, 2020, Mangrove Nursery, RO Plant and Historical & Cultural Heritage site
Shah Bunder	19-05-22	11 AM to 5.0 PM	Community meeting at Shah Bunder, Project Employees
Keti Bunder	20-05-22	10 AM to 7.0 PM	Nurseries, + 2015, 2016, 2017, 2018, 2019, 2020. Interviews with

			community members employed for Restoration activities
Keti Bunder	29-05-22	11 AM to 6.PM	Mobile dispensary, Meetings with SBIA participants, Representatives of Women Organization and Beneficiaries of Trainings in Alternate Livelihoods