ASES ON-CHAIN PROTOCOL

PROPOSED PROJECT ACTIVITY ALIGNMENT ASSESSMENT

Manejo Forestal La Solución Somos Todos

BEL-002-MEX-20062024 PARAÍSO, TABASCO, MÉXICO

Desarrollos Sostenibles BELMEX S.A. de C.V.

Modality B

July 2, 2024

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ALIGNMENT ASSESSMENT FOR THE PROJECT SUBMITTED BY DESARROLLOS SOSTENIBLES BELMEX S.A. DE C.V. "MANEJO FORESTAL LA SOLUCIÓN SOMOS TODOS, PARAISO, TABASCO (MEXICO)" WITH AOCP IDENTIFIER BEL-002-MEX-20062024 PARAÍSO, TABASCO, MÉXICO.

CONTEXT

As part of the process for the certification of nature-positive projects and the consequent issuance of Verified Nature-Positive Credits (VNPCs) under the ASES on-chain protocol, the Project developer "Desarrollos Sostenibles BELMEX S.A. de C.V." submitted the project "Manejo Forestal La Solución Somos Todos, Paraiso, Tabasco (Mexico)". This Project activity is in the onboarding stage with the aOCP identification code **BEL-002-MEX-20062024 PARAÍSO, TABASCO, MÉXICO.** It is a Forest Management project in Paraiso, Tabasco, Mexico, and the project was surveyed in February and March of 2024 for vegetation growth. Compliance with the principles, values, standards, and requirements of the aOCP is a fundamental requirement to participate in the program. This evaluation takes place during the onboarding phase, before the registration of the project activities, as stipulated in the aOCP Procedures document, which describes all the stages that a Project goes through from its inception to the issuance, sale, and purchase.

Since Project activities have been implemented before the start of the onboarding process, it participates as a project of Modality B. According to the *aOCP Procedures* document, Modality B projects shall go through the following process to be registered:

1. Application via the Project Submission Form (PSF), done by the Project proponent.
2. Documentation review and alignment assessment, done by aOCP Operations Team.
3. Payment of onboarding fee by the project proponent.
4. Project pre-registration, done by aOCP Operations Team.
5. On-site Validate of the implemented Project activities, done by aOCP Operations Team.
6. Elaboration of Baseline report, Monitoring plan, and Contingent table of credits issuance, done by the aOCP Operations Team.
7. Project proponent agreement.
8. Project Verification by an external, independent, 3rd-party Verifier, delivering a Project Verification Report.
9. Project registration letter and first credits issuance, done by aOCP Operations Team.

This report corresponds to step 2, alignment assessment. The methodology and data gathered on-site are presented here.

ALIGNMENT ASSESSMENT

The aOCP is founded on robust principles aimed at ensuring that Project activities seeking registration and accreditation with Verified Nature Positive Credits (VNPCs) demonstrably and positively impact ecosystems in a real, measurable, permanent, and additional manner, while avoiding any harm to ecosystems and/or society.

Conformity with the aOCP's principles, values, rules, and requirements is a fundamental prerequisite for participation in the program. This evaluation occurs during the onboarding phase, before the registration of Project activities. This mandate is stipulated in the *aOCP Procedures* document, which outlines all the stages a Project undergoes from its inception to the issuance, trading, and retirement of VNPCs.

A positive result of the alignment assessment with aOCP's principles, values, rules, and requirements confirms that the proposed Project activity:

1. Falls into one of the following project types:
   a) Forest management, including Afforestation, Reforestation, and Revegetation (ARR)
   b) Regenerative agriculture
   c) Silvopastoral management
   d) Urban forests / individual tree climate action
   e) Biochar
   f) Water Saving in Agriculture
2. Adheres to the environmental and social no-harm prerequisites;
3. Is anticipated to yield positive impacts on biodiversity;
4. The Project was developed less than 5 years ago;
5. Conforms to the additionality criteria for the requested VNPCs;
6. Possesses documentation substantiating land ownership or an agreement for the project's duration;
7. The Project area has not been degraded, deforested, or burned in the last 24 months;
8. For Projects requesting *Biodiversity Credits for Species Conservation,* a positive alignment assessment also confirms that the proposed Project area has a high conservation value due to its commendable state of preservation;
9. Areas where the Mean Species Abundance indicator (also reported as Biodiversity intactness) is lower than 0.80, indicating that biodiversity is at risk and requires restoration action are eligible for Biodiversity restoration credits;
10. The Key species for biodiversity conservation reported by the Project proponent, are recognized as Key species according to the criteria established in the *aOCP Methodology for biodiversity assessment for species conservation V2.0.*

Certain circumstances may result in an unfavorable assessment and, if not rectified or clarified satisfactorily, could lead to the rejection of the Project activity's registration within the aOCP.

These circumstances include:

- Non-compliance with aOCP's principles, values, rules, and requirements;
- Issuance of contradictory and/or false declarations by the Project proponent or Project developer;
- Diminished confidence in the Project activity's ability to yield anticipated ecosystem and/or social benefits due to an inadequate risk management plan, which encompasses a comprehensive assessment of internal, external, and natural risks, as well as risk mitigation and contingency planning.

According to the information provided by the Project proponent in the Project Submission Form (PSF), the proposed Project activity belongs to the aOCP category of Forest Management. The information provided in the PSF states the project "Manejo Forestal La Solución Somos Todos" by Desarrollos Sostenibles BELMEX S.A. de C.V. encompasses a total land area of 1,919 hectares, with an intervention zone of 1,146.50 hectares. The project involves comprehensive forest management and restoration activities, including replanting 100,000 red, white, and black mangrove trees, maintaining mangrove channels, monitoring against illegal logging and fires, and managing wildlife habitats. Additional activities include forest inventory, mapping, and ecosystem restoration to rehabilitate degraded areas and promote ecological balance. The project seeks Carbon Removal (VCC) credits for sequestering carbon and Biodiversity Based Credit (VBBC) to enhance and protect biodiversity through sustainable management practices.

The Project area and sampling points used for the present analysis are shown in Figure 1.

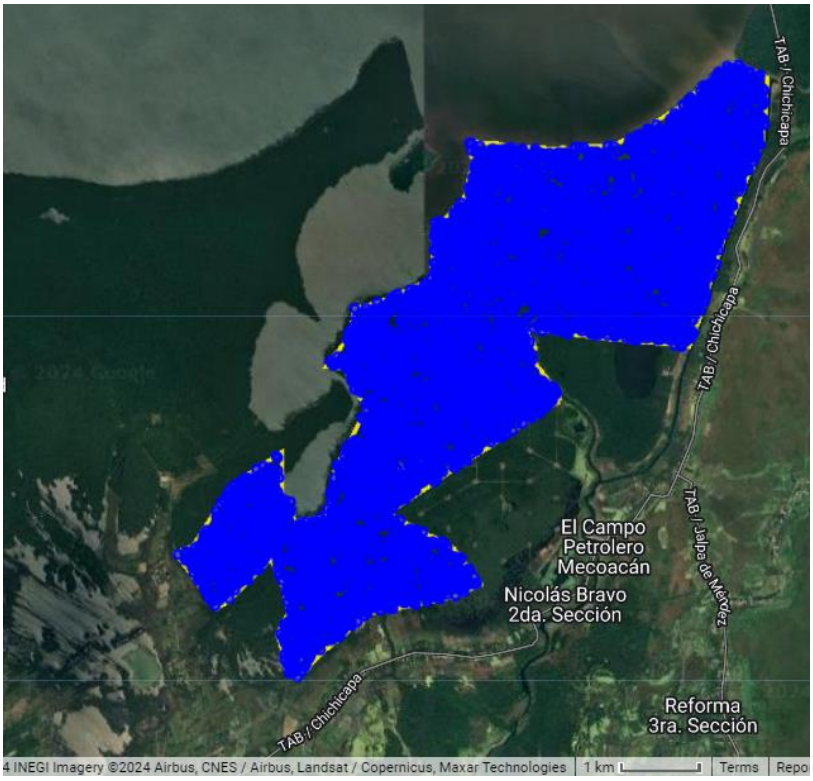

Figure 1. Project area and sampling points used for the NDVI analysis

METHOD OF ANALYSIS

The proposed Project activity was assessed for its alignment with the aOCP rules and requirements, using the following checklist.

Alignment criteria	Y: yes N: no P: partially N.A.: not applicable	Comments
Does the project belong to one of the following types: • Forest management, including ARR • Regenerative agriculture • Silvopastoral management • Urban forests / individual climate action • Biochar • Water Saving in Agriculture	**Y**	
Does the project comply with the environmental and social no-harm requirement?	**Y**	
Is the project expected to have positive impacts on biodiversity?	**Y**	
If the project has already started, is it less than 5 years old?	*	The project date is not stated in the original PSF; however, the area was surveyed in February/March 2024.
Do the requested VNPCs comply with the additionality criteria?	**Y**	
Has documentation establishing land ownership or an agreement for the project's duration been provided?	**Y**	
Have any trees or shrubs been cleared in the project area in the last 2 years?	**N**	
For biodiversity conservation credits, the Biodiversity intactness indicator is > 80%	**Y**	The biodiversity intactness is 90.16%.
For biodiversity restoration credits, the Biodiversity intactness indicator is < 80%	**N**	
Are the proposed key species aligned with the aOCP criteria for key species?	**Y**	

Historical land cover dynamics was analyzed using Google Earth high-resolution images as well as NDVI (Normalized Difference Vegetation Index) analysis. The NDVI is a widely used remote sensing metric that provides information about the density and health of vegetation in a specific area. It is calculated from the difference between near-infrared and red light reflectance from the Earth's surface.

When analyzing historic land cover, NDVI can be used to track changes in vegetation over time. By examining archived NDVI data, it is possible to observe trends in vegetation density, identify shifts in land use patterns, and monitor the effects of factors like urbanization, deforestation, or natural disasters.

NDVI provides information on the quantity and quality of vegetation in a given area. It varies from -1 to +1, where values closer to +1 indicate dense and healthy vegetation, while values close to -1 suggest a lack of vegetation or presence of artificial surfaces.

In Google Earth Engine, the maximum monthly NDVI from January 2019 to May 2024 was calculated using Sentinel-2 satellite imagery. Random control points were then plotted in each property (Figure 1) and the monthly NDVI value at each point was extracted.

Google Colab was used to generate a box plot showing the distribution of NDVI values at the control points. A box plot is a standardized way of displaying the distribution of a data set based on its summary of five numbers of data points: the "minimum", the first quartile [Q1], the median, the third quartile [Q3], and the "maximum". Box plots provide information on outliers, symmetry of the data, degree of clustering, and whether and how the data are skewed[1].

Biodiversity intactness quantifies the impact humans have had on the intactness of species communities. Anthropogenic pressures such as land use conversion cause dramatic changes to the composition of species communities and this layer illustrates these changes by focusing on the impact of forest change on biodiversity intactness[2]. This information was assessed via the Orbify platform.

RESULTS

The assessment of Google Earth images (Figure 2) reveals minimal changes in land cover between 2019 and 2023 in the project area. Further information regarding the vegetative cover of the project zone is presented in Figure 3.

[1] Galarnyk, M. Understanding Boxplots. https://builtin.com/data-science/boxplot

[2] Hill, S. L., Arnell, A., Maney, C., Butchart, S. H., Hilton-Taylor, C., Ciciarelli, C., ... & Burgess, N. D. (2019). Measuring forest biodiversity status and changes globally. Frontiers in Forests and Global Change, 2, 70.

2019

2023

Figure 2. Google Earth images of the Project area from 2019 and 2023

Figure 3 provides a monthly analysis of NDVI and rainfall spanning from January 2019 to May 2024. The data indicates that average annual NDVI values (represented by the red line) remained largely stable throughout this period. The average NDVI consistently exceeded 0.8, suggesting robust vegetation, with a slight increase from 0.84 in June 2020 to 0.87 in May 2024. Seasonal variations in NDVI correlate with rainfall patterns; periods of higher rainfall corresponded to increased NDVI, while periods of lower rainfall showed a slight decrease in NDVI. Overall, the analysis indicates healthy vegetation in the area, corroborated by satellite imagery in Figure 2, which shows no distinct signs of negative vegetation impact.

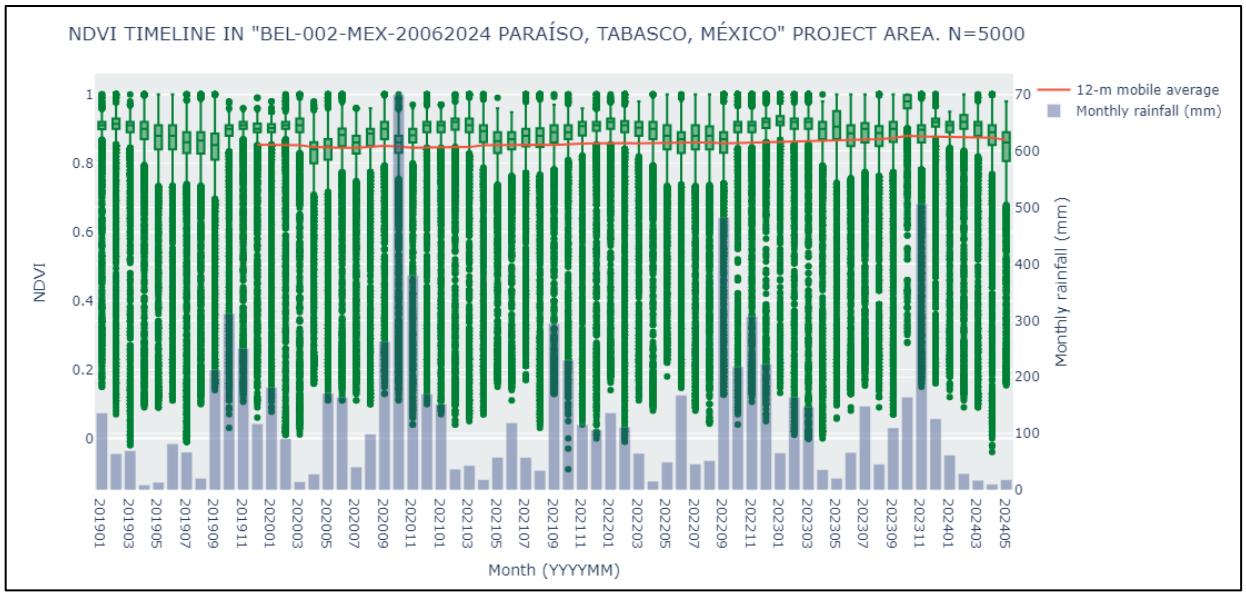

Figure 3. NDVI and monthly rainfall since January 2019

Biodiversity intactness increased from 89.68% in 2017 to 90.16% in 2020 (Figure 4). This value is compatible with the biodiversity conservation objectives. More detailed information on the ecological status of the project area and its risks can be consulted in the *Preliminary assessment* document.

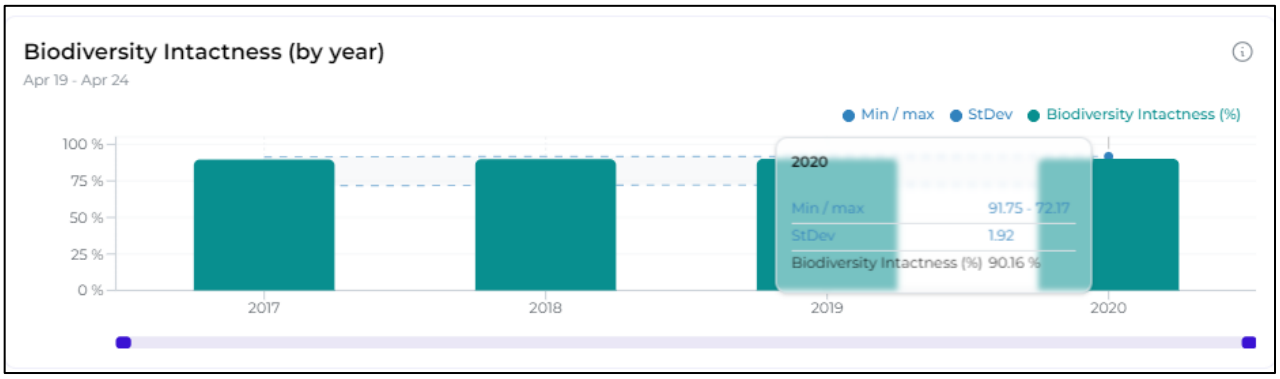

Figure 4. Biodiversity intactness

The project focuses on the conservation of crucial endemic species and their habitats, giving priority to the preservation of biodiversity. This prolonged effort aims to catalog meticulously and understand ecological dynamics, providing valuable data for strategies-informed conservation policies and management practices aimed at safeguarding the delicate balance of ecosystems. Therefore, the planned activities of the project represent an important step towards forestry and biodiversity management in the area of the project, while bringing crucial environmental benefits to the local community.

Some of the species are considered key because they are endemic or in some category of risk, and their potential distribution according to bibliographic information covers the project area, these are presented in Table 1. However, the proponent must present the complete list of species inventoried in the project area and the corresponding evidence (photographs with camera traps, sensors, etc.) as established by the aOCP Methodology for biodiversity assessment for species conservation V1.0. in section III.2.1. Recompilation of data will be done, with which the aOCP team of technical experts will determine the species applicable to be considered “key” based on the criteria of the standard.

Table 1. Key species with potential distribution

Class	Scientific name	Common name	National Status	World status	Distribution Mexico
Fauna					
Reptilia	*Ctenosaura similis*	Black Spiny-Tailed Iguana	A	LC	Native
Aves	*Mycteria americana*	Wood Stork	Pr	LC	
Aves	*Buteogallus anthracinus*	Common Black Hawk	Pr	LC	Native
Aves	*Rostrhamus sociabilis*	Snail Kite	Pr	LC	
Aves	*Cathartes burrovianus*	Lesser Yellow-headed Vulture	Pr	LC	
Aves	*Tigrisoma mexicanum*	Bare-throated Tiger-Heron	Pr	LC	
Aves	*Busarellus nigricollis*	Black-collared Hawk	Pr	LC	
Aves	*Sturnella magna*	Eastern Meadowlark		NT	

Class	Scientific name	Common name	National Status	World status	Distribution Mexico
Aves	*Pteroglossus torquatus*	Collared Aracari	Pr	LC	
Reptilia	*Crocodylus moreletii*	Morelet's Crocodile	Pr	LC	
Reptilia	*Iguana iguana*	Green Iguana	Pr	LC	
Mammalia	*Alouatta palliata*	Mantled Howler Monkey	P	VU	Native
Mammalia	*Tamandua mexicana*	Northern Tamandua	P	LC	
Aves	*Notharchus hyperrhynchus*	White-necked Puffbird	A	LC	
Mammalia	*Herpailurus yagouaroundi*	Jaguarundi	A	LC	Native

NOM-059-SEMARNAT-2010 (Mexico): (P) En peligro de extinción, (A) Amenazados, (Pr) Sujeto a protección especial, (E) Probablemente extinto en la naturaleza.

Global status IUCN Red List: (CO) Collapsed, (CR) Critically Endangered, (EN) Endangered, (VU) Vulnerable, (NT) Near Threatened, (LC) Least Concern, (DD) Data Deficient, (NE) Not Evaluated.

CONCLUSIONS

- The Project area has a biodiversity intactness of 90.16%, which is aligned with biodiversity conservation objectives;
- The potential distribution of at least 15 species of fauna in some category of risk and/or endemic, highlights the importance of biodiversity conservation activities in the project area;
- In addition to positively impacting biodiversity, the project is expected to increase carbon dioxide removal and sequestration by enhancing vegetation cover, as well as safeguarding the soil from erosion and sustaining rainfall water infiltration;
- The Project activities have not caused net harm to ecosystems or society, on the contrary, they are expected to create ecological, social, and economic benefits, thus driving sustainable development.
- The aOCP rules and requirements stipulate that at least five plant species should be included to enhance biodiversity. Planting three different species native to the region does not meet this requirement.
    - **The project proponent indicated the planting of red, white, and black mangrove trees. Additional information is requested regarding any further species to be implemented or conserved in the project area.**
- The aOCP requires that projects be no more than 5 years old at the time of this assessment. No precise information was given in the PSF stating the project implementation period.
    - **The project proponent indicated a survey of the implemented species between February and March of 2024. Additional information is requested regarding the precise project implementation period and any further planned activities.**
- Having assessed all these criteria for the aOCP Modality B project alignment criteria, the project "Manejo Forestal La Solución Somos Todos, Paraiso, Tabasco (Mexico)" with key identifier **BEL-002-MEX-20062024 PARAÍSO, TABASCO, MÉXICO** is deemed **eligible** to be registered as a Modality B, Forest Management project.

- Upon positive assessment of the requested **additional information**, the project may proceed to the next steps of assessment for Biodiversity Credits for Species Conservation (BCSCs) and Verified Carbon Removal Credits (VCCs).