ASES ON-CHAIN PROTOCOL

BASELINE REPORT

Verified Water Credits (VWC)

Santa Isabel Water and Soil Credits

LT-012-MEX-210823 CHIHUAHUA, MÉXICO

Life Terra (Foundation)

Type B Project

December 20, 2024

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TABLE OF CONTENTS

Executive summary **4**
I. Project Design **5**
I.1. Project location **5**
I.2. Administrative specifications **6**
I.2.1. Project developer 6
I.2.2. Type of project 6
I.2.3. VNPCs the project is applying to 6
II. Project area baseline **7**
II.1. Spectral response **7**
II.1.1. Index 7
II.2. Impact on the landscape **8**
III. Technical specifications **9**
III.1. Ground works **9**
III.1.1. Methodological process of ground works 12
III.2. Reforestation **13**
III.2.1. Species 13
III.2.2. Reforestation technique 16
III.2.3. Methodological process of reforestation 16
IV Groundwater Recharge **17**
IV.1. GroundWater Recharge Method **17**
IV.2. GroundWater Recharge Results **19**
IV.3. Verified Water Credits calculation **20**
IV.3.1. Contingent table of Verified Water Credits VWCs 23
V. Consulted references **25**

INDEX OF FIGURES

Figure 1. Project location 5
Figure 2. Rainfall and ndvi timeseries in the area of interest 8
Figure 3. Satellite aerial view of Project area before (2021) and after (2023) Project implementation 9
Figure 4. drawing contour lines 10
Figure 5. Flag for marking 10
Figure 6. drawing contour lines 10
Figure 7. Drawing contour lines 11
Figure 8. Ground works layout 11
Figure 9. Aerial photo of the construction site layout in the project area 12
Figure 10. Process of the construction of the works trench-board 13
Figure 11. Tree planting distribution 15
Figure 12. Methodological process of reforestation 16

INDEX OF TABLES

Table 1. Project area location 5
Table 2. Number of trees by species 13
Table 3. Technical data sheets of species used for reforestation 15

EXECUTIVE SUMMARY

The baseline report for the projects is an essential undertaking for their certification process. This step is vital as it lays the groundwork for determining the initial metrics of biomass production, subsequent carbon sequestration, soil erosion, and soil water management in each project. The report encompasses the calculation of NDVI along with an evaluation of soil erosion within the project area. These assessments are conducted using a specific methodology that utilizes satellite imagery and high-resolution ortho mosaics.

The ecological restoration of a plot devoid of vegetation due to overgrazing in Santa Isabel, Chihuahua (Mexico) entailed planting a total of 4,232 *Prosopis glandulosa* (sweet mesquite) plants, mainly native to the region and well-suited for adverse environmental conditions. The project area, situated in the limits of the Santa Isabel community, municipality of Chihuahua, covered 79,118.08 square meters.

The moderate-density technique was employed, providing numerous benefits such as improved yield and efficient resource utilization. The average planting density within the plot was one tree per 19.2 square meters, equivalent to an average of 521 trees per hectare in the plot.

By Year 40 of this restoration project, model estimates indicate an additional 2,568.64 m^3/ha of infiltrated water in the Project Area compared to the Counterfactual Area. Given the total surface area of the Project (7.92 ha), this translates to an estimated 20,343.59 m^3 of additional infiltrated water over the long term. These figures underscore the project's significant contribution to Groundwater Recharge and overall environmental restoration.

The successful reforestation endeavor in Chihuahua demonstrates the positive impact of employing dense planting techniques and strategically selecting native species to reclaim and revitalize degraded landscapes, providing ecological, economic, and social benefits for the region and its communities.

I. Project Design

This section is based on the information compiled in the PSF Format - Project Submission Form prepared by the project developer.

I.1. Project Location

The project is located in the Santa Isabel community, municipality of Chihuahua, (Mexico). The afforested plot lies close to adjoining Grassland and Shrubland areas. A project location map is illustrated in Figure 1. Table 1 shows the coordinates of the reforested Plots.

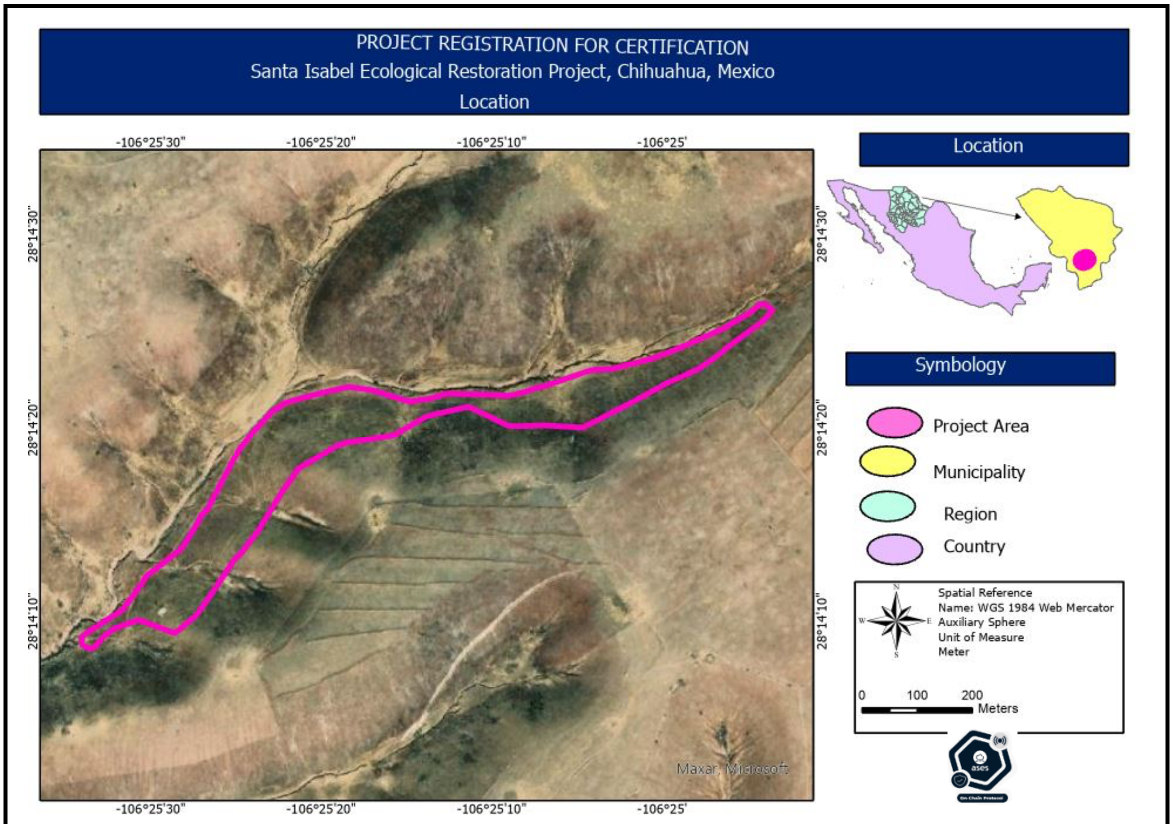

Figure 1. Project location

Table 1. Project area location

Plot	Coordinates	
1	**Latitude**	**Longitude**
	28.2384364°N	106.4214020°W

I.2. Administrative specifications

This section introduces the project developer and provides a clear understanding of the roles and responsibilities assigned to each party involved. It also addresses the status of land ownership, ensuring transparency and certainty regarding the agreements made with the landowners.

I.2.1. Project developer

Key project	LT-012-MEX-210823 CHIHUAHUA, MÉXICO
Project name	Santa Isabel Water and Soil Credits
Company	Life Terra (foundation)
Person responsible	Sven Kallen

I.2.2. Type of project

Project registration year	2023 – Retroactive project (2021)
Project duration	40 years
Issuance of credtis	Annual to 40 years
Methodology applied	Update Baseline Report in 2024 with *Methodology for the issuance of verified water credits V2.3*
Type	☐ Forest management ☐ Regenerative agriculture ☐ Silvopastoral management ☐ Individual tree-based climate action / urban forest ☒ Water flow restoration ☐ Biochar

I.2.3. VNPCs the project is applying to

Type of VNPCs the project is applying for	☐ Carbon Removals (VCRm) ☐ Carbon Emission Reductions (VCRd) ☐ Biodiversity Based Credit (VBBC) ☒ Water Credits (VWC) ☐ Soil Credits (VSC) ☐ Climate action bond

II. PROJECT AREA BASELINE

An evaluation of the ESA-worldcover-v200 for 2021, focusing on land use and land cover, revealed that the project site was situated within a predominantly Grassland area. Adjoining land covers include Shrubland and Grassland areas extending a few kilometers from the site.

II.1. SPECTRAL RESPONSE

When solar radiation interacts with an object, one of three situations can occur, either individually or in combination:

Reflection: The radiation can bounce off the object partially or entirely, resulting in reflection.

Absorption: The object can absorb the radiation, taking in its energy.

Transmission: Radiation can pass through one object and reach another, known as transmission.

The extent to which radiation is reflected, absorbed, or transmitted depends on the specific physicochemical characteristics of the objects involved. However, for object identification purposes, our primary interest lies in the reflected light or radiation at different wavelengths. For instance, vegetation exhibits low reflectance in the visible range, but the presence of chlorophyll in plants increases reflectance in the green channel. On the other hand, plants demonstrate the highest reflectance in the near-infrared region of the electromagnetic spectrum.

II.1.1. INDEX

Vegetation indices (VI) are extensively employed for monitoring and detecting changes in vegetation and land cover. These indices are created by considering the contrasting absorption, transmittance, and reflectance of energy by vegetation across the red and near-infrared portions of the electromagnetic spectrum. Numerous studies have demonstrated that the Normalized Difference Vegetation Index (NDVI) is particularly resilient against the influence of topographic factors. NDVI is commonly utilized as a broad indicator of photosynthetic activity in plants and the corresponding aboveground primary production.

The calculation of NDVI was performed using Sentinel-2 satellite images in the Google Earth Engine platform. Images with less than 20% cloud cover were selected for each month. The assessment focused on the average monthly NDVI time series spanning from January 1, 2021, to October 30, 2023. The findings are presented in Figure 2, which covers both pre- and post-project implementation periods. To delineate the pre- and post-project implementation periods, it is important to note that the reforestation activities took place between July and September 2021. Consequently, all months before these dates are considered the pre-project implementation period, while months after are regarded as the post-project implementation period for this analysis. Analyzing the NDVI values within the plot reveals a spectrum ranging from 0.13 to 0.18 before the project's initiation with the lowest NDVI observed in March 2021.

Given the known information a healthy, dense vegetation canopy typically exhibits NDVI values above 0.5, while sparse vegetation generally falls within the range of 0.2 to 0.5. The current assessment indicates that the reforestation project has the potential to foster an ascending trend in the plot's NDVI as it transitions to a forested area. With the project in place, it is anticipated that the NDVI will continue to rise further, eventually reaching a level indicative of a healthy and thriving vegetation cover.

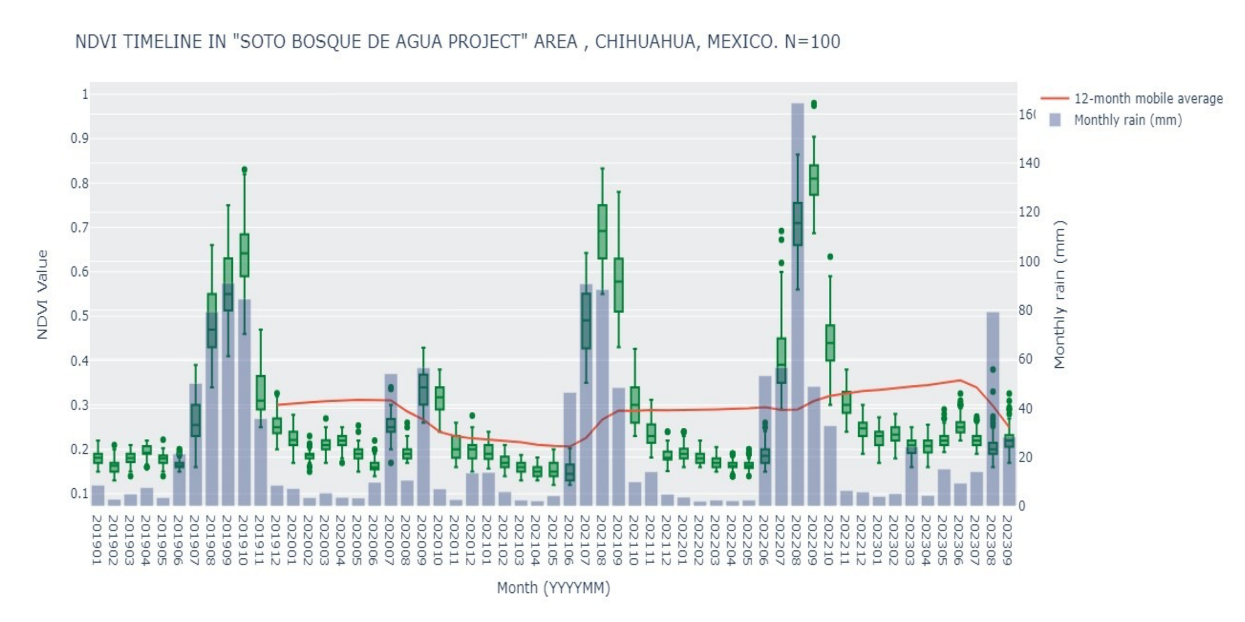

FIGURE 2. RAINFALL AND NDVI TIMESERIES IN THE AREA OF INTEREST

II.2. IMPACT ON THE LANDSCAPE

The project site had experienced decreased biodiversity, and reduced ecosystem services prior to undergoing reforestation efforts. However, this ecological restoration initiative plays a pivotal role in safeguarding various plant and animal species by establishing new habitats and reinstating wildlife corridors as healthy vegetation is crucial for the survival of many species. Furthermore, reforestation contributes to the re-establishment of natural hydrological cycles, by slowing down runoff, enhancing water infiltration, and reducing soil erosion. This helps regulate water flow, improve water quality, and mitigate the impacts of flooding.

An added advantage is the reforested landscapes offering aesthetic beauty and recreational opportunities. They can provide green spaces for leisure activities, such as hiking, wildlife observation, and eco-tourism, enhancing the well-being of local communities and visitors. The implemented project is therefore poised to amplify the effectiveness of these endeavors.

January 2017 | March 2023

FIGURE 3. SATELLITE AERIAL VIEW OF PROJECT AREA BEFORE (2021) AND AFTER (2023) PROJECT IMPLEMENTATION

III. TECHNICAL SPECIFICATIONS

III.1. GROUND WORKS

Soil restoration works are those actions carried out to recover the quality and productivity of soils that have been degraded. In general, they are focused on the following objectives:

- **Improve soil structure:** This can be achieved by incorporating organic matter, reducing compaction and building drainage structures.
- **Reduce erosion:** This can be achieved by planting trees and shrubs, constructing barriers and implementing appropriate management practices.
- **Protect soil biodiversity:** This can be achieved through the conservation of vegetation cover, the creation of wildlife refuges and waste management.

The soil works carried out in the **Soil regeneration project in Soto, Ángel Trías, Chihuahua** were mainly focused on reducing soil erosion and promoting forest cover regeneration. The design of the works followed the "trench-board" methodology.

The "trench-board" works are a practice implemented to control laminar erosion, its benefits are focused on:

- Retain soil and sediment;
- Decrease the degree and length of slope;
- Prevent the formation of gullies;
- Reduce sediment content in runoff water;
- Capture rainwater, promoting water infiltration;
- Intercept runoff and reduce its velocity;
- Increase soil moisture, which helps the establishment of forest vegetation;
- Improve water quality.

According to the Comisión Nacional Forestal (CONAFOR), the " trench-board" works are a set of ditches and berms, as the name implies, which are built on contour lines, placing the product of excavation downstream of the ditch to form the board. The ditches are constructed with dividing dikes to section off the water storage.

Activities conducted in the **Soil regeneration project in Soto, Ángel Trías, Chihuahua,** included drawing contour lines across a 13.4-hectare area using a laser level to prepare for ditch opening. This contouring followed a board ditch design, with a 6-meter separation between lines, to facilitate soil retention and expedite water capture and infiltration. Soil works conducted included excavating a trench board with dimensions: 30 cm deep and 40 cm wide. This trench was designed to enhance rainwater retention and infiltration, as well as to create access roads for various reforestation tasks. Finally, 4,232 *Prosopis glandulosa* (Mesquite) plants were transported to the project site for planting.

FIGURE 6. DRAWING CONTOUR LINES

FIGURE 5. FLAG FOR MARKING

FIGURE 4. DRAWING CONTOUR LINES

FIGURE 7. DRAWING CONTOUR LINES

FIGURE 8. GROUND WORKS LAYOUT

FIGURE 9. AERIAL PHOTO OF THE CONSTRUCTION SITE LAYOUT IN THE PROJECT AREA

Source: Google Earth 2023

III.1.1. METHODOLOGICAL PROCESS OF GROUND WORKS

The first step consists of drawing contour lines based on the amount of runoff to be captured. Their construction should consider the excavation necessary to capture 50% and up to the total runoff produced in a return period of 5 years.

The second step consists of excavating the land and shaping the embankment. The excavation of continuous trenches 40 cm wide by 40 cm deep is started on the contour lines that have been dug. The product of the excavation is placed downstream of the trench and must be separated from it by at least 20 cm to prevent the material from returning to the excavation.

The third step consists of building a 50 cm dividing dike approximately every four or five meters. This dike is built to section off the stored water and prevent it from concentrating at certain points, thus reducing the risk of breaking the embankment.

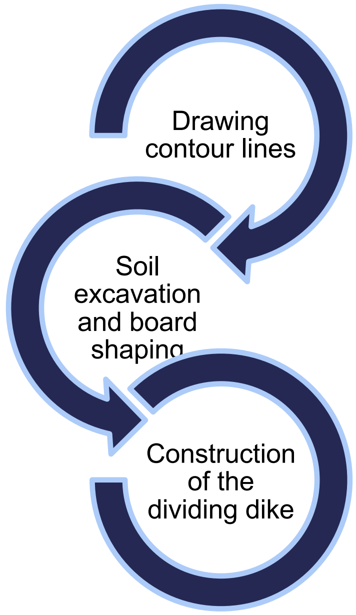

FIGURE 10. PROCESS OF THE CONSTRUCTION OF THE WORKS TRENCH-BOARD

III.2. REFORESTATION

The project encompasses a plot with a total surface of 8.05 hectares, situated in Santa Isabel community, municipality of Chihuahua, (Mexico). The demarcated plot is shown in Figure 3.

III.2.1. SPECIES

The reforestation project successfully planted a total of 4,232 trees, encompassing one plant species. The number of individuals is shown in Table 2. The selection of species was based on a preliminary assessment of the region, considering available bibliographic information, as well as the prevailing climatic, vegetational, and meteorological conditions. The species chosen is indigenous to the area and well-suited to the local climate and environmental conditions.

Out of the total number of trees planted (4,232), the percentage by species is presented in Table 2.

TABLE 2. NUMBER OF TREES BY SPECIES

Species	Number of trees	Percentage (%)
Prosopis glandulosa	4,232	100
Total	4,232	100%

The assessment revealed an average planting density of one tree per 19.2 square meters, equivalent to an average of 521 trees per hectare in the plot (figure 4). This moderate density approach offers several ecological, environmental, and economic advantages. The moderate tree density, combined with the implementation of various tree species, will foster biodiversity, and enhance ecological resilience within the restored ecosystem. Moreover, the density will expedite canopy closure, creating a continuous cover as the tree canopies interlock. This canopy closure plays a crucial role in weed suppression, creating improved microclimates, moisture retention and reducing soil erosion. However, it's important to note that high planting densities can also lead to competition for resources among trees, which may result in stunted growth, reduced health, and increased mortality of some trees. In addition, the proximity between trees can facilitate the rapid spread of diseases and pests. Controlling and managing these issues becomes more complex in densely planted areas.

As a result of this moderate-density with “wide spacing" planting strategy, the reforestation project is well-positioned to maximize carbon sequestration potential, promote wildlife habitat, and provide essential ecosystem services. The management of this densely planted plot will be critical to ensure the continued success and long-term sustainability of the reforestation efforts. Figure 4 shows the mapped planting density of the geolocalized trees within the plots with the location of each tree represented by dot symbols.

The technical data sheets providing detailed information about the species utilized for the reforestation project are included in Table 3. These sheets offer comprehensive insights into the characteristics, growth patterns, environmental requirements, and other relevant details of the selected plant species. These data sheets serve as valuable references for understanding the specific attributes and suitability of each species for the reforestation efforts.

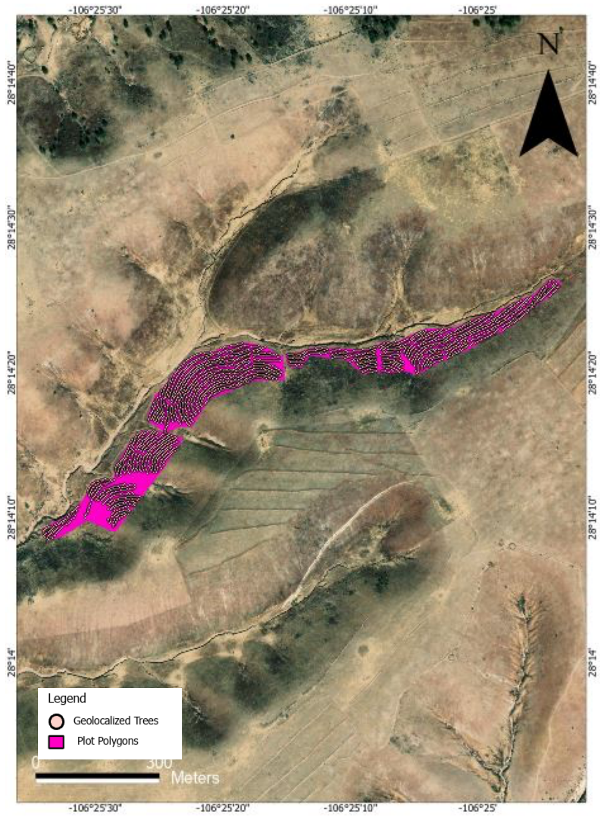

FIGURE 11. TREE PLANTING DISTRIBUTION

TABLE 3. TECHNICAL DATA SHEETS OF SPECIES USED FOR REFORESTATION

Prosopis glandulosa • *Prosopis glandulosa*, commonly known as honey mesquite, is a species of small to medium-sized, thorny shrub or tree in the legume family. • The plant is primarily native to the Southwestern United States and Northern Mexico. • This tree normally reaches 20–30 ft (6.1–9.1 m), but can grow as tall as 50 ft (15 m) and is considered to have a medium growth rate. • *Prosopis glandulosa* shrubs and trees provide shelter and nest building material for wildlife, and produce seed pods in abundance containing beans that are a seasonal food for diverse birds and small mammal species. • Honey mesquite is a honey plant that supports native pollinator species of bees and other insects, and cultivated honey bees.	

III.2.2. Reforestation technique

The reforestation technique implemented is the wide spacing or moderate-density Planting technique. Wide spacing or moderate density planting is a reforestation technique where tree seedlings are planted with relatively larger gaps between them. This approach contrasts with high-density planting, where seedlings are placed closer together. The wide spacing technique aims to provide individual trees with more access to essential resources such as sunlight, water, and nutrients, allowing them to grow with reduced competition. The goal of this technique is to optimize the use of available resources, such as sunlight, water, and nutrients, by creating a more efficient growing environment as trees have ample room to establish strong root systems and develop healthier canopies, potentially leading to better long-term growth. Additionally with wider spacing, there's a reduced risk of disease transmission between trees compared to denser plantings.

Nonetheless, it is important to note that the suitability of wide spacing depends on factors like soil type, climate, and water availability. Also, choosing tree species adaptable to wider spacing is crucial for successful establishment. It is a balance between optimizing individual tree growth and considering the overall ecosystem dynamics.

III.2.3. Methodological process of reforestation

The operational phase is divided into three steps shown in Figure 12.

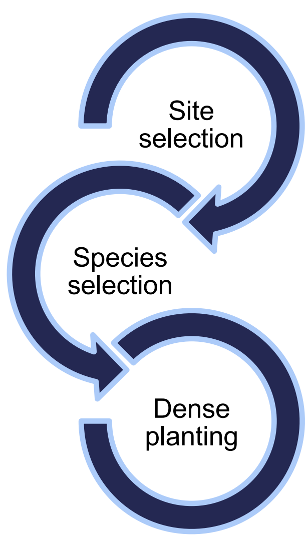

Figure 12. Methodological process of reforestation

The reforestation process involved a well-defined series of steps. Firstly, a thorough evaluation was conducted to select the most suitable reforestation area, considering restoration needs, climatic and soil feasibility, permit requirements, and cost considerations. It ensured that the chosen location was conducive to successful reforestation. To preserve the ecological integrity of the region, afforestation was not carried out on scarified ground. This approach aimed to leverage the existing ecosystem to facilitate the growth and development of the newly planted trees, promoting biodiversity and increasing the chances of successful reforestation. Local community stakeholders were actively involved in the process, fostering a sense of ownership and sustainability in the reforestation initiative.

IV Groundwater Recharge

IV.1. GroundWater Recharge Method

The project area was assessed using the *aOCP Methodology for the Assessment of Groundwater Recharge Restoration*, which employs the Soil Conservation Service Curve Number (SCS-CN) Method to estimate infiltration. The infiltration estimates were then integrated into the Thornthwaite-Mather water balance model to calculate groundwater recharge. This methodology enables the tracking of restoration project outcomes over time by leveraging high-resolution satellite imagery from Sentinel-2, which offers a temporal resolution of five days.

The assessment was implemented within Google Earth Engine (GEE), following a structured workflow to calculate groundwater storage (GWS). The key steps are outlined below:

1. Land Cover Classification: The Dynamic World Cover dataset was used to classify land cover types, which informed the selection of appropriate Curve Number (CN) values for different surfaces.
2. Calculation of Composite Curve Number (CNc): The composite Curve Number (CNc) was computed as a weighted average, following Fan et al. (2013), using:
   a. Soil CN: Based on the hydrologic soil group, determined from soil texture classification. Values were taken from Li et al. (2018), using sand and clay content retrieved from OpenLandMap (Tomislav Hengl, 2018; Tomislav Hengl., 2018).
   b. Impervious Surface CN: Assigned a fixed value of 98, according to literature (USACE Hydrologic Engineering Center, n.d.).
   c. Vegetation CN: Derived from NDVI classes and the percentage of vegetation cover within each pixel, as per Bera et al. (2022).

   *The weights for each CN component were assigned based on the proportion of each land cover type, obtained using the Dynamic World Cover.
3. Slope-Corrected Curve Number (CNsc) Calculation: CN values were adjusted for slope using the method proposed by (Huang et al. (2006).
4. Runoff and Infiltration Estimation: Surface runoff was computed based on precipitation inputs, CNsc values, and initial abstraction (Ia). Infiltration was derived as the difference between precipitation and runoff.
5. Evapotranspiration (ET) Retrieval: Evapotranspiration estimates were obtained from the MOD16A2 Version 6.1 dataset (Running et al., 2021) in the GEE catalog.
6. Precipitation Data and Time-Series Analysis:
   - Pre-project and monitoring period: Daily rainfall data were sourced from the CHIRPS Daily Climate Hazards Group InfraRed Precipitation with Station Data (Version 2.0 Final) dataset (Funk et al., 2015).

- Runoff, infiltration, and groundwater recharge were calculated on a daily basis using CHIRPS rainfall data for the evaluation period. Daily values were aggregated to compute annual totals for each year.
- For Future projections, annual rainfall estimates were retrieved from NASA GDDP-CMIP6 models (Thrasher et al., 2012) to simulate infiltration and groundwater recharge under projected climate conditions.

7. Groundwater Storage (GWS) Calculation: Groundwater storage was estimated by integrating runoff (from Step 4), evapotranspiration (from Step 5), and precipitation (from Step 6) into the Thornthwaite-Mather water balance model.

The groundwater recharge analysis covered three distinct periods:

- Pre-Project Phase – Baseline conditions before restoration interventions.
- Monitoring Phase – A period following project implementation to evaluate initial impacts.
- Future Projections (Year 40) – Long-term estimates of groundwater recharge under future climate conditions.

TABLE 4. ASSESSMENT PERIODS

Period	Date range
Pre-project	January 2020 to December 2020
1st year monitoring	January 2021 to December 2021
Year 40 projection	January 2061 to December 2061

NDVI, land cover fractions, and precipitation are key independent variables that significantly vary over time. Tables 5 presents the combination of these factors used to compute GWR for the assessed periods.

TABLE 5. COMBINATION OF DATASETS USED TO REPRESENT THE SCENARIOS FOR GROUND WATER STORAGE (GWS) MODELLING

Scenario	NDVI	Land cover fractions (LCF)
Before Project	Mean annual NDVI from pre-project period	Unmixing on S-2 image from 2020-01-01
After Project Year 1	Mean annual NDVI from monitoring period	Unmixing on S-2 image from 2021-01-01
Year 40 projection	Monitoring & Maximum*	Based on LCF from monitoring: • Impervious: unchanged • Vegetation: Multiplied 2x and limited to 1.0 Soil: computed as 1-impervious-vegetation

* For future scenarios, the mean annual NDVI was assumed to remain constant at monitoring period levels for the rest of the microbasin, while in the project area, it was projected to reach the maximum mean annual NDVI observed within the microbasin.

IV.2. GroundWater Recharge Results

The results presented in Table 6 are derived from hydrological modeling and provide estimates of groundwater recharge (GWR) and infiltration across the Project Area, Counterfactual Area, and Microbasin over different time periods: Pre-Project, Monitoring Period, and Year 40 (Projected Future Scenario). These estimates are based on model simulations rather than direct field measurements, incorporating observed rainfall data for past and present conditions and climate model projections (NASA GDDP-CMIP6) for future scenarios.

Prior to the implementation of restoration activities, model simulations indicate that groundwater recharge and infiltration levels were comparable between the Project and Counterfactual Areas, with estimated GWR values of 172.12 m³/ha and 172.65 m³/ha, respectively, and infiltration rates around 1721.16 m³/ha and 1726.54 m³/ha, respectively. These baseline estimates suggest that, in the absence of interventions, both areas exhibited similar hydrological characteristics.

Table 6. Estimated dGWR in the project area (7.92 ha), counterfactual (11.41 ha) and microbasin (843.11 ha) at the assessed periods

Period	Average GWR (m^3/hec)			Average Infiltration (m3/hec)		
	Project Area	Counterfactual	Microbasin	Project Area	Counterfactual	Microbasin
Pre-project	172.12	172.65	169.42	1721.16	1726.54	1694.23
Monitoring	646.58	316.50	622.25	3232.90	3165.05	3111.23
Year 40	3908.80	1670.23	2950.67	12265.44	11978.86	14753.36

Results for the monitoring period after restoration suggest a notable increase in groundwater recharge in the Project Area, with estimated values rising to 646.58 m³/ha, compared to 316.50 m³/ha in the Counterfactual Area. These results suggest that restoration activities including soil works implemented have improved soil infiltration capacity, leading to enhanced water retention and potential groundwater recharge.

Long-term projections, based on future climate model data, estimate that groundwater recharge in the Project Area could reach 3908.80 m³/ha, significantly higher than the 1670.23 m³/ha projected for the Counterfactual Area. This suggests that restoration efforts may contribute to sustained improvements in groundwater recharge over time. Similarly, projected infiltration estimates for the Project Area are 12,265.44 m³/ha, slightly exceeding the 11,978.86 m³/ha estimated for the Counterfactual Area. These differences indicate that, over time, the cumulative benefits of land restoration could lead to substantial improvements in water infiltration and recharge potential.

Figure 13 illustrates the modeled evolution of cumulative groundwater recharge in the Project and Counterfactual Areas. The diverging trajectories in the projections highlight the potential long-term benefits of restoration activities, with the Project Area showing significantly higher recharge estimates compared to the Counterfactual Area.

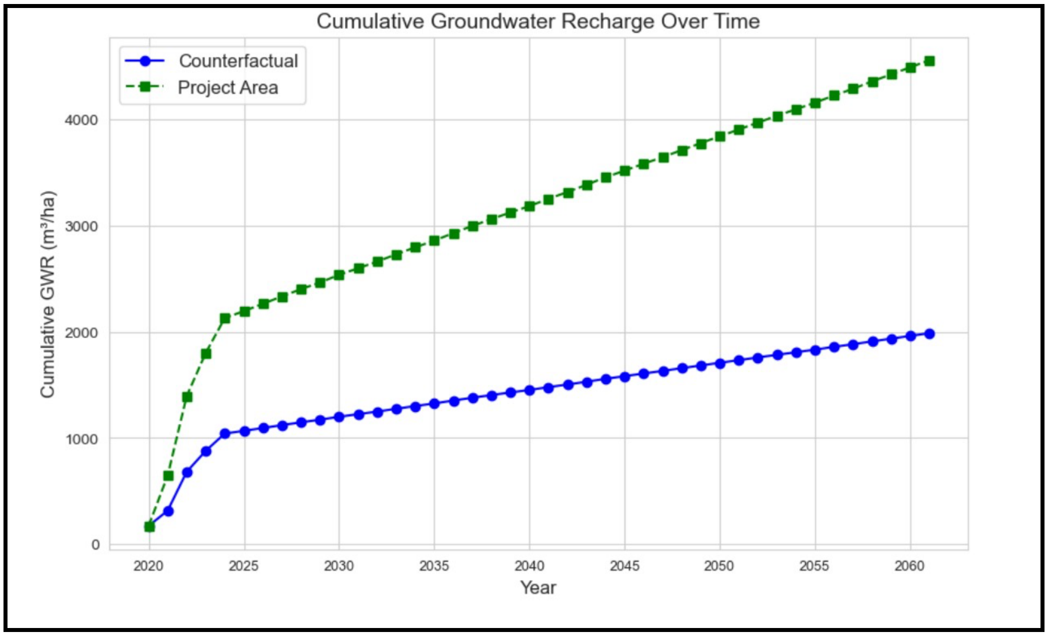

FIGURE 13. PROJECT AND COUNTERFACTUAL AREAS MODELLED INFILTRATION OVER TIME

IV.3. VERIFIED WATER CREDITS CALCULATION

The additional groundwater recharge (GWR) and infiltration resulting from restoration activities are quantified by comparing the Business-As-Usual (BAU) scenario, represented by the Counterfactual Area, with the implemented Project scenario. The difference between these two scenarios reflects the incremental water retention benefits directly attributable to the restoration interventions. By Year 40, model estimates indicate an additional 2,568.64 m^3/ha of infiltrated water in the Project Area compared to the Counterfactual Area. Given the total surface area of the Project (7.92 ha), this translates to an estimated 20,343.59 m^3 of additional infiltrated water over the long term.

Since 1 water credit is equivalent to 1 m^3 of additional water infiltrated, the Project has the potential to generate approximately 20,322 water credits by Year 40 (Figure 14). These results highlight the substantial hydrological benefits of restoration activities, demonstrating their role in enhancing water infiltration and recharge capacity compared to a scenario without intervention.

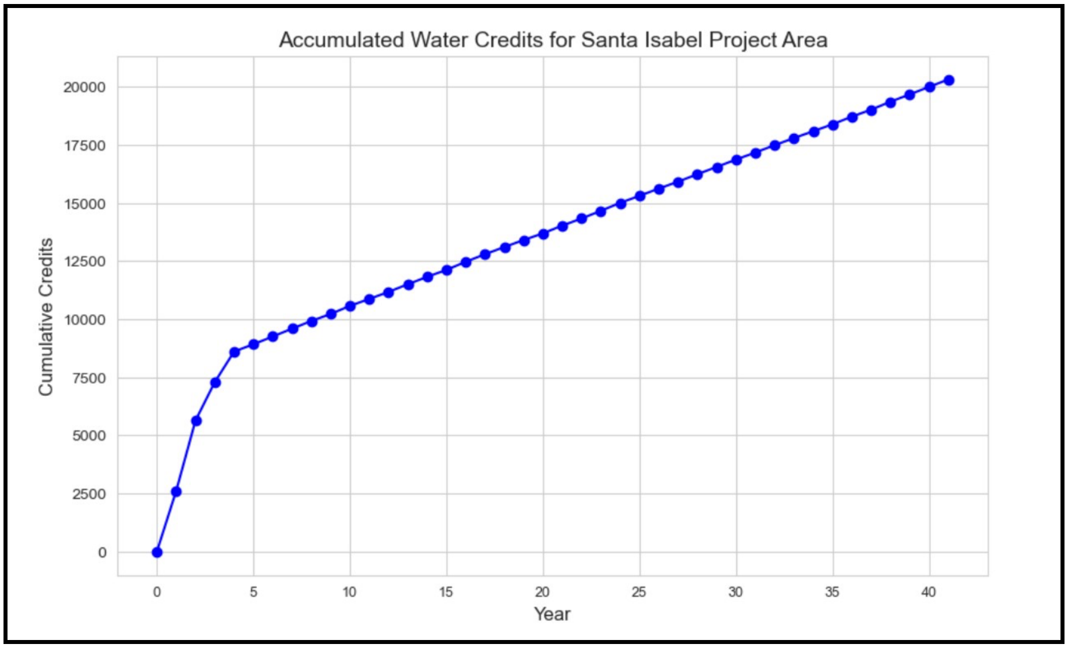

FIGURE 14. YEARLY ACCUMULATED NUMBER OF WATER CREDITS FOR ENTIRE PROJECT AREA

It is important to emphasize that these estimates are based on hydrological modeling and climate scenario projections, incorporating key assumptions about precipitation patterns, soil retention capacity, and land cover dynamics. As such, actual field conditions may vary due to uncertainties in future climate variability and land-use changes. To ensure the accuracy and reliability of these estimates, periodic monitoring and empirical data collection will be conducted. Such validation efforts would enhance confidence in the projected water credits and support adaptive management strategies for long-term sustainability.

TABLE 7. MODELLED YEARLY INFILTRATION FROM PRECIPITATION IN THE PROJECT AREA AND ACCUMULATED NUMBER OF CREDITS PER HECTARE

Year	GWR Project (m^3/hec)	GWR Counterfactual (m^3/hec)	Project Impact (m3/ha)	Accumulated credits per Hectare
0	646.58	316.50	330.08	330
1	747.69	365.56	382.13	712
2	406.54	197.40	209.14	921
3	328.38	162.58	165.80	1087
4	64.79	25.27	39.51	1126
5	69.15	26.76	42.40	1169
6	69.55	26.89	42.66	1211
7	68.50	26.54	41.96	1253

Year	GWR Project (m^3/hec)	GWR Counterfactual (m^3/hec)	Project Impact (m3/ha)	Accumulated credits per Hectare
8	62.53	24.49	38.04	1291
9	71.79	27.63	44.16	1335
10	61.71	24.20	37.51	1373
11	63.23	24.73	38.49	1411
12	68.40	26.50	41.90	1453
13	65.74	25.60	40.14	1493
14	62.50	24.48	38.02	1531
15	71.56	27.55	44.01	1575
16	67.32	26.14	41.18	1617
17	64.04	25.02	39.03	1656
18	62.80	24.58	38.21	1694
19	59.66	23.48	36.19	1730
20	69.36	26.82	42.53	1773
21	63.01	24.66	38.35	1811
22	68.67	26.60	42.08	1853
23	70.24	27.12	43.12	1896
24	62.97	24.64	38.32	1934
25	64.92	25.32	39.60	1974
26	61.65	24.18	37.47	2012
27	66.65	25.91	40.74	2052
28	64.95	25.33	39.62	2092
29	65.45	25.50	39.95	2132
30	63.42	24.80	38.62	2170
31	65.10	25.38	39.72	2210
32	63.72	24.90	38.81	2249
33	61.49	24.13	37.37	2286
34	62.12	24.35	37.77	2324
35	67.72	26.28	41.45	2366
36	62.57	24.50	38.07	2404
37	70.49	27.20	43.29	2447
38	65.40	25.48	39.91	2487
39	66.47	25.85	40.62	2527
40	66.56	25.88	40.68	2568

IV.3.1. CONTINGENT TABLE OF VERIFIED WATER CREDITS VWCS

Given that the Baseline Report has been updated in 2024, incorporating version 2.3 of the *Methodology for the issuance of Verified Water Credits*, the calculation of the credits generated by this project integrates and quantifies the benefits obtained in the year 2024.

The Verified Water Credits that will be initially issued for this project will be based on a conservative and adaptive approach, using real data and dynamic models to ensure accuracy and integrity. Therefore, the VWC corresponding to "after project" will be issued, including the retroactive period from 2021 to 2024, which was used as input for its quantification of the actual precipitation data that has been recorded during this time. This approach ensures that the credits accurately reflect the actual impact of the project on the contribution to water infiltration during this period.

For the period between 2025 and the end of the project in 2064, the water credits will be calculated annually using a dynamic baseline. This baseline will be adjusted periodically, ensuring that the credits continue to represent additional benefits in water infiltration and verifiable over time.

It is important to note that only verified credits will be used for this period. This means that the calculations will be based on real precipitation models, rather than estimates, to maintain a conservative approach and ensure maximum accuracy in quantifying the benefits of the project.

As established in section *III.1.2.* of the *Procedures document version 2.0*, **20%** of the credits generated by the project will be withdrawn for the buffer pool as a measure to guarantee the permanence of the project benefits (1,722 credits), resulting in a total of **6,888 Verified Water Credits** to be issued **in "after project"** period (Table 8).

TABLE 8. CONTINGENT TABLE OF VERIFIED WATER CREDITS VWCS

Year	Number of VWCs issued on each year
2021	2,091
2022	2,421
2023	1,325
2024	1,051
2025	The VWC for this period will be calculated annually in the dynamic Baseline Report.
2026	
2027	
2028	
2029	
2030	
2031	
2032	
2033	
2034	
2035	

Year	Number of VWCs issued on each year
2036	
2037	
2038	
2039	
2040	
2041	
2042	
2043	
2044	
2045	
2046	
2047	
2048	
2049	
2050	
2051	
2052	
2053	
2054	
2055	
2056	
2057	
2058	
2059	
2060	
2061	
2062	
2063	
2064	
Total	*

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