REPORTE DE ESTADO DEL PROYECTO
01/01/2020 - 06/30/2020

SECCIÓN 1: SÍNTESIS DEL PROYECTO

Operation number: CH-T1217
Número de suboperación: ATN/ME-17445-CH

Nombre del proyecto: REDD Chain Project
Proposito: The new system will help Chile comply with domestic

País administrador	Pais beneficiario:	Grupo	Subgrupo
CHILE	CHILE	B	

Agencia ejecutora: South Pole Carbon Asset Management Ltd.
Líder de equipo: CARRASCOC

Ciclo del Proyecto:

Fecha de Reporte: 2020 - 07 - 01	Plazo de ejecución original:
Fecha de aprobación: 2019 - 07 - 08	Plazo de ejecución actual:
Fecha de firma: 2019 - 08 - 30	Plazo original de último desembolso: 2022 - 08 - 30
Primera fecha de desembolso: 2019 - 12 - 17	Plazo actual de último desembolso: 2022 - 08 - 30

SECCIÓN 2: DESEMPEÑO

Resumen del desempeño del proyecto desde el inicio

During the second semester of 2019 a comprehensive process was carried out to significantly advance the development of the REDD Chain Pilot (RCP) platform and its objectives as a pioneering land-use management initiative, and especially to take advantage of the main products generated towards the potential of this platform to improve the MRV accuracy, transparency, and significative climate outcomes. In order to accomplish the commitments of the work plan, it was evaluated to have REDD Chain as an internationally accepted approach, through the demonstration of a pilot project to be sufficient for climate action in the forest domain by using new technologies. An independent platform was named and crystalized in its own right which, more than a brand, it was a symbolic rite of passage, helping to anchor the team and focus efforts on the coming phases as part of the OpenSurface Identity. The main achievements were made with the support of the partners who not only have executed specific tasks, discussed and developed the required steps, had also put their full capabilities and relationships with involved partners regarding technology, procedures, and strategic connections to advance towards the RCP goal. As part of this process, there is now a closer relationship with all pilot partners working together throughout 2020 and especially integrating them into concepts, discussions, development and design of the main results expected. One of these key relationships has been made with the Chilean Government (CONAF) after the engagement workshop held in Santiago (Chile) in February 2019. Through this close relationship, it was obtained a huge volume of useful files, labels, and plans, providing what was needed to successfully overcome the first challenge of the array of formats and the manually-prepared state of data, by using the development team experience to prepare, process and appropriately ingest their data, which was considered a major milestone for project's progress. The positive result of being able to recognize CONAF's data inside the dashboard prototypes, much of it digitized for the first time, was achieved thanks to the development team and the support of CONAF. As part of the collaboration process, the manipulation of data has been pivotal in the successful collaborative development of CONAF's pilot application and has cemented a positive feedback loop. A proof of solution-focused R&D has been developing the satellite data and model deployment pipeline, a considerable achievement. We are already handling 3TB of Sentinel-2 data, lays a scalable foundation that will serve the platform well in future phases, beyond pilot proof-of-concept. A true proof of weighing the complex choices and trade-offs between the myriad sources and associated tools, with the project's technical ambitions, resources and timescale. A new challenge arose in the field of Artificial Intelligence (AI) research and was addressed through the support of the ETH team who have delivered significant advances that can be applied immediately to the pilot, that also represent promising avenues for further research with the potential to deliver even greater performance gains in the future. Further advances were made looking to explore the expansion to new market opportunities such as Biodiversity. For this purpose, South Pole's Biodiversity team and the core team committed with the biodiversity strategy had participated in a fruitful collaboration process and envisaged wider participation to leverage donor investment to a more ambitious extent. During 2020, leading on delivering the proposed biodiversity competition will be one of the most complex but exciting aspects of the project. For now, a state of the art it was obtained regarding biodiversity offsets in Chile, a revision in detail of the offsetting guide proposed by the ministry of environment in 2014. All the information, needs of the environmental sector and the guidelines coming from the government to propose a methodology for a biodiversity offset strategy in a compliance market in Chile (guidelines and parameters on what, where and how to compensate and how to determine the area to be compensated) were used. In addition, monitoring guidelines were provided for biodiversity offsets and a pilot project area. All the previous advances have been made with a full team pulling together and delivering genuinely ground-breaking results, working at risk, making difficult choices, performing under pressure and uncertainty to undertake this innovative and challenging project we believe in. In spite of all the contractual challenges, we have faced and the delays to have the project in a position to procure third-party training data labelling support, the core team have implemented successful workarounds such as changing plans and adapting technical solutions to overcome each delay. Thanks to these interim solutions, the project has been delivered on its expected timescales. The main results as a team have been made through a series of adaptations in order to make progress, including that AI research was performed on alternative, existing datasets; platform development followed the contingency plan of ingesting Hansen land-use data instead of in-house AI-generated land-use data (in order to be able to develop the demonstration application with CONAF), and challenges in pipeline development discovered through working with the labelling provider arose far later in the development process than would have been expected. Yet, we have some challenges to overcome in this new stage, especially the relatively short amount of time in Phase 1 in which the development team will have to work with the labelled Sentinel-2 training data on model tuning, scaling up the data pipeline, and testing the CONAF application on the full target region. Now we are prepared, excited and anxious to continue facing constant challenges and providing complex but effective solutions.

Comentarios del líder de Equipo de Supervisión

Resumen del desempeño del proyecto en los últimos 6 meses

During the first semester of 2020, the project's main project activities have been sharpening the advances made on the first semester in the Pilot Proof of Concept Advances, the COVID-19 Contingency has delayed the Planning of the Pilot development, the feasibility of reports due to the impossibility of traveling. even though the project still has advanced into the milestones and progress planned. Regarding Component 1 PPoC, all the data from CONAF All data has now been integrated and is visible within the live prototype; the most recent addition was CONAF's existing record of recent deforestation events for comparison to the system's output. All dashboard features are now implemented from the development of a web-based dashboard. On the other hand, the Development of the Machine Learning model has been improved, by a demonstrated an additional ML model, which is deployed as part of the live prototype; documentation is included in this report and the code will be open-sourced as part of the final PPoC deliverable. The Functioning forest management service that connects available data and machine learning outcomes to a web-based dashboard, all required PPoC features are now implemented. During the development of the activities for Component 2, the Feasibility Reports, the main task Strategy for a feasibility assessment of the application of scalable technologies to advance biodiversity evaluation developed, due to the ongoing deferment of international travel because of COVID-19, the core team will check the opportunity to further adapt the proposed fieldwork in Valdivia, and the feasibility studies based upon it, to more closely fit both CONAF's priorities going forward and the pilots being planned in LatAm. in addition to the Progress estimated based on developments in the pilot planning process, and revisions to the feasibility strategy being proposed. Actionable steps will be proposed once the deferred feasibility studies have been carried out. The Component 3, Knowledge dissemination, There are no further activities since the website was launched, The core team is planning a further revision to the website once the PPoC has been delivered and planned pilots confirmed. The Papers papers, produced by DS3 Lab at ETH Zurich have been published and shared. Additionally, the publication of recommendations for next-generation digital MRV standards, certification, and financial instruments as part of our upcoming website refresh. On the Scope of Component 5 Pilot Extensions, the following activities were started: (i) Evaluation of the applicability of RCP system to result-based payments mechanism under the Chilean national circumstances and its applicability for additional market-based mechanisms and nature-based solution by working on the Work Package 4 (WP4): Expansion of MRV system performance-based payments in Chile. Therefore, it includes the development of the following tasks: Review of the technical and policy national baseline of pilot results-based payments, as well as new market mechanisms and nature-based solutions, demands from the private sector; identification of technical elements and spatial variables needed for MRV system and availability of information in the Governmental organizations; Test RCP application outputs for results-based payments impact at national and landscape level as well as evaluate output features and suggest new features. Regarding activity (iii) Identification of alternative environmental services markets that can be tackled by the RCP platform, such as biodiversity quotes for voluntary commitments as well as the Payment for Environmental Services (PES) mechanisms connected to carbon markets and biodiversity schemes at a national or regional level, the team has been working on providing background information on the definition of Payment for Ecosystem Services (PES) and details the economic value of environmental (or ecosystem) services (ES). The following sections present a literature review of the current state of PES in Chile alongside a benchmark analysis, both of which outline how a national strategy for implementing these schemes would develop.

Comentarios del líder de Equipo de Supervisión

SECCIÓN 3: INDICADORES E HITOS

C1 : Component 1: Pilot of a forestry land-use monitoring system **Peso** 54% **Calificación** ~not selected~

Indicadores	Línea Base	Planeado	Logrado	Estado
I1 # Data sets logged as entered into pipeline	0	**3** (2023 - 07 - 30)	**0** (2020 - 04 - 07)	In progress
I2 Development of a web-based dashboard that most effectively supports CONAF staff	0	**4** (2023 - 07 - 30)	**0** (2020 - 04 - 07)	In progress
I3 1.3 [M2] Development of machine learning model(s) that can improve forest management capability	0	**3** (2023 - 07 - 30)	**0** (2020 - 04 - 07)	In progress
I4 1.4 [M3] Functioning forest management service that connects available data and machine learning outcomes to a web-based dashboard	0	**1** (2023 - 07 - 30)	**0** (2020 - 04 - 07)	In progress

C2 : Component II: Feasibility studies exploring potential future and/or phase 2 exte   **Peso** 20% **Calificación** ~not selected~

Indicadores	Línea Base	Planeado	Logrado	Estado
I1 2.1 [M1] Strategy for feasibility assessment of the application of scalable technologies to advance biodiversity evaluation developed	0	**1** (2023 - 07 - 30)	**0** (2020 - 04 - 07)	In progress
I2 2.2 Key discussions and/or technology events on approaches for the future of biodiversity monitoring and evaluation using scalable technologies hosted	0	**1** (2023 - 07 - 30)	**0** (2020 - 04 - 07)	In progress
I3 2.3 Assessment of actionable steps for potential extensions to the project in the 4 feasibility areas (biodiversity, forest degradation, tree species mix and wildfires) and for using the project's technology to unlock new resources via unit-based investme	0	**5** (2023 - 07 - 30)	**0** (2020 - 04 - 07)	In progress

C3 : Component III: Knowledge dissemination **Peso** 10% **Calificación** ~not selected~

Indicadores	Línea Base	Planeado	Logrado	Estado
I1 3.1 Information about the project, key methods and results made available via the web or in non-academic publications	0	**8** (2023 - 07 - 30)	**0** (2020 - 04 - 07)	In progress
I2 3.2 Presentation of project and key methods and results, including potential tech demo, at a key climate-focused international event	0	**1** (2023 - 07 - 30)	**1** (2020 - 04 - 07)	Finished
I3 3.3 [M4] Research papers submitted for peer review	0	**3** (2023 - 07 - 30)	**0** (2020 - 04 - 07)	In progress

C4 : Component IV: Standards & certification **Peso** 6% **Calificación** ~not selected~

Indicadores		Línea Base	Planeado	Logrado	Estado
I1	4.1 [M6] Requirements map (markets/policies/investor) developed to inform standards scheme assessment tool	0	**0** (2019 - 08 - 30)	**1** (2020 - 04 - 07)	Finished
I2	4.2 Pilot testing of assessment tool	0	**3** (2023 - 07 - 30)	**1** (2020 - 04 - 07)	In progress

C5 : Component V: Pilot extensions **Peso** 9% **Calificación** ~not selected~

Indicadores		Línea Base	Planeado	Logrado	Estado
I1	5.1 [M5] Technical designs for extensions to the PPoC, measurement, data-gathering and results-based payment mechanisms to be tested in the field	0	**3** (2023 - 07 - 30)	**0** (2020 - 04 - 07)	In progress
I2	5.2 [M7] Additional pilot extensions to the core project attracting funding	0	**3** (2023 - 07 - 30)	**0** (2020 - 04 - 07)	In progress

Hitos	Valor Planeado	Valor Logrado	Fecha Vencimiento	Fecha Lograda	Estado
Condiciones previas	1	100	2020 - 02 - 26	2020 - 04 - 16	Achieved
Strategy for feasibility assessment	1	60	2020 - 12 - 31	2020 - 03 - 23	Achieved
Development of machine learning model(s)	1	70	2020 - 12 - 31	2020 - 03 - 23	Achieved
Development of machine learning model(s))(s) that can improve	1	0	2021 - 04 - 30		Pending
Development of machine learning model(s)	1	0	2021 - 10 - 31		Pending
Functioning forest management service	1	0	2021 - 10 - 31		Pending
Research papers submitted for peer review	1	0	2021 - 04 - 30		Pending
Research papers submitted for peer review	2	0	2021 - 10 - 31		Pending
Technical designs for extensions to the PPoC	3	0	2021 - 10 - 31		Pending
Requirements map (markets/Policies/investor)	3	80	2020 - 06 - 30	2020 - 03 - 23	Achieved
Additional pilot extensions to the core project attracting funding	1	0	2021 - 10 - 31		Pending
Additional pilot extensions to the core project attracting funding	1	0	2021 - 04 - 30		Pending
Additional pilot extensions to the core project attracting funding	1	0	2022 - 06 - 30		Pending

FACTORES CRÍTICOS QUE HAN AFECTADO EL DESEMPEÑO

Otros. ¿Cuáles?

Due to the ongoing deferment of international travel because of COVID-19, We seek an opportunity to further adapt the proposed fieldwork in Valdivia, and the feasibility studies based upon it, to more closely fit both CONAF's priorities going forward and the pilots being planned in LatAm. It is uncertain how this travelling will be approached.

SECCIÓN 4: RIESGOS

	Área de Impacto	Severidad	Prob.	Fecha	Responsable	Accion de mitigación
3.7 Decentralization, scalability and data privacy/ownership.	Final Outcome, Intermediary Outcome, Component II: Feasibility studies exploring potential future and/or phase 2 exte, Component III: Knowledge dissemination, Component V: Pilot extensions	(3) Medium	Medium 60%	2020 - 04 - 07	Project Coordinator	RCP will engage with academic and corporate partners on technology that can help mitigate this risk.
3.8 Stakeholder adoption.	Final Outcome, Intermediary Outcome, Component II: Feasibility studies exploring potential future and/or phase 2 exte, Component V: Pilot extensions, Component 1: Pilot of a forestry land-use	(3) Medium	Medium 60%	2020 - 04 - 07	Project Coordinator	Given the very significant process advantages which RCP seeks to offer, stakeholder adoption risks might be regarded as limited. Nevertheless, RCP will pay close attention and shall also mitigate stakeholder risks from the outset with an active dialogue and awareness raising efforts, transparent project monitoring and results sharing, diligent pilot management and documentation, active communication on pilot success stories and platform advantages.

> monitoring
> system,
> Component III:
> Knowledge
> dissemination

NUMERO TOTAL DE RIESGOS: 2   IN EFFECT RISKS: 2   RIESGOS NO VIGENTES: 0   RIESGOS MITIGADOS: 0

SECCIÓN 5: SOSTENIBILIDAD

Indique la probabilidad de sostenibilidad del proyecto luego de la finalización:
P

Justificación
la solucion sera sostenida por el desarrollador, ya que se generara un modelo de negocios a partir del mismo

FACTORES CRÍTICOS QUE PUEDEN AFECTAR LA SOSTENIBILIDAD DEL PROYECTO

Factor	Comentarios
2. Falta de mecanismos de recuperación de costos o de fuentes de financiamiento externo (gobierno, donantes y / o sector privado) para continuar las actividades del proyecto una vez que se acaben los recursos de BID Lab	

Acciones relacionadas con la sostenibilidad implementadas en el proyecto

SECCIÓN 6: LECCIONES PRÁCTICAS

	Relacionado a	Author	Fecha
MIGRATION POINT: MYSQL to POSTGRESQL TREAT DATA IN IMAGES AS IMAGES NOT AS DATA ARRAYS SLOW AND STEADY WINS THE RACE SOMETIMES YOU HAVE TO BUILD YOUR OWN WHEEL PRE-CALCULATE AS MUCH AS POSSIBLE FUTURE-PROOFING THE PLATFORM	Implementation	CORE TEAM	2020 - 07 - 30