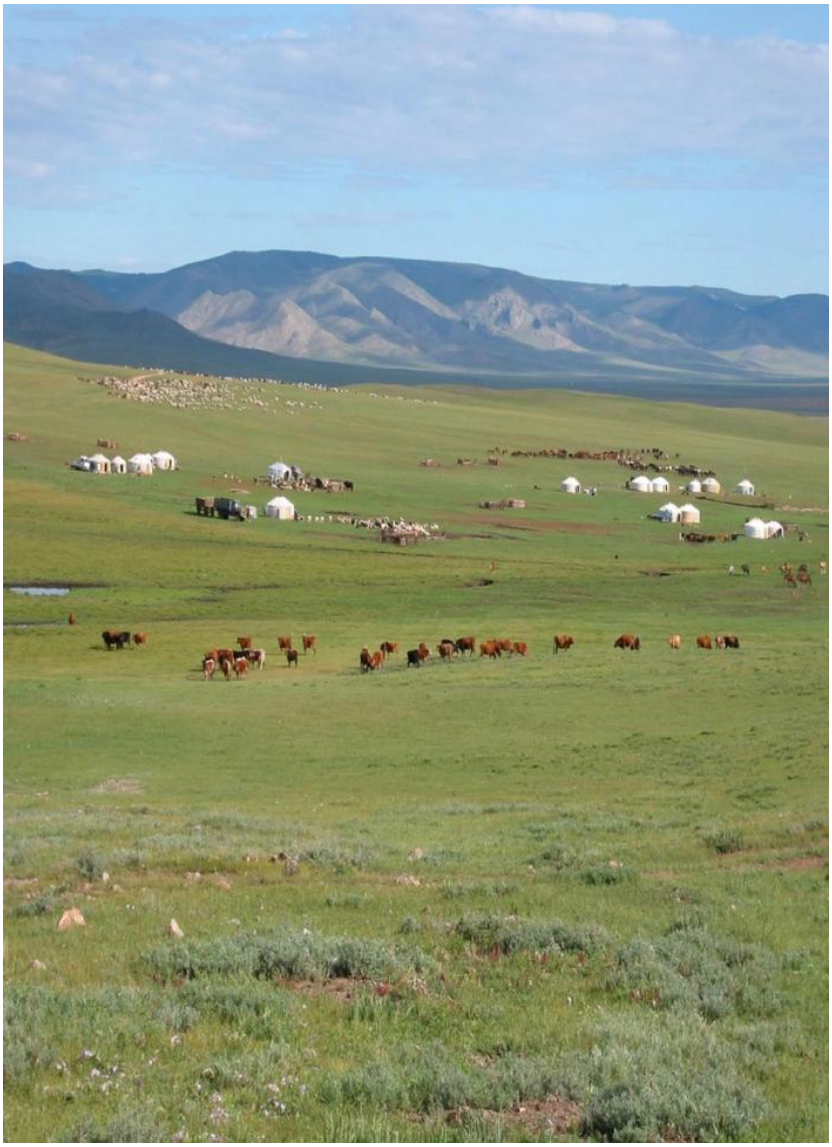
Pastures, Conservation and Climate Action, Mongolia

Annual Report Year 9 (01.04.2023-31.03.2024)

Submitted by: Mongolian Society for Range Management (MSRM);
Professor D. Dorligsuren; D. Uilst, Project Coordinators
Submitted on March 4, 2025
Approved on October 27, 2025



Summary

Project overview	
Reporting period	1st April 2023-31st March 2024
Geographical areas	3 herder community (*heseg*) areas at sites across Mongolia: *i)* Hongor Ovoo *heseg*, Ikh Tamir *soum* (district), Arkhangai *aimag* (region) (36,756 ha) ii) Ikh Am *heseg*, Undurshireet *soum*, Tuv *aimag* (18,241 ha) iii) Dulaan Khairkhan *heseg*, Bogd *soum*, Bayankhongor *aimag* (22,485 ha)
Technical specifications in use	Technical Specification as set out in Part G of approved Phase II PDD (27/6/2022) and linked to Plan Vivo Climate Benefit Quantification Methodology 'Carbon sequestration through improved grassland and natural resources management in extensively managed grasslands' Version 1 (Annex 8, Phase II PDD).

Project indicators	**Historical (Years April 2015 - March 2023**	**Added/ Issued this period (April 2023-March 2024)**	**Total**
No. smallholder households with PES agreements	0	0	0
No. community groups with PES agreements (where applicable)	3	0	3
Approximate number of households (or individuals) in these community groups	116	0	116
Area under management (ha) where PES agreements are in place	77,482	0	77,482
Total PES payments made to participants (USD)	407,101.29	80,399.71	487,501
Total sum held in trust for future PES payments (USD)	115,535.08	56,743.32	91,878.69
Allocation to Plan Vivo buffer (tCO_2) (including this issuance)	30,999	4,212	35,211
Saleable emissions reductions (tCO2)	162,082[1]	21,270	183,352
Unsold Stock at time of Submission (PVC)			43,629

[1] In Year 7 (reporting period 2021–2022), a total of 18,799 PVCs should have been requested. However, only 18,779 PVCs were mistakenly requested and issued, resulting in a discrepancy of 20 PVCs. The accurate figure for tCO2 stands at 162,082, which includes the 20 PVCs that were not issued. We are requesting the additional 20 PVCs in this annual report.

Plan Vivo Certificates available for future issuance	**0**
Buffer credits available for future allocation (after current issuance)	**0**
Plan Vivo Certificates (PVCs) issued to date	**162,062**
Plan Vivo Certificates requested for issuance by vintage	
April 2021 – March 2022 Vintage	**20**
April 2023 – March 2024 Vintage	**21,270**
Total PVCs issued (including this report)	**183,352**

Part A: Project updates

A1 Key events

Compared to the base year 2014, livestock numbers (converted to sheep units) in 2023 decreased by 3.2% in Khongor Ovoo PUG, 5.8% in Ikh Am PUG, and 17% in the Dulaan Khairkhan Herders Group. This decline can be attributed to two main factors. First, project funding provided to herders, including compensation incentives, loans, and training on pasture degradation—its causes, conditions, and harmful consequences—encouraged sustainable herd management. Second, the reopening of China's borders in 2023 led to a significant increase in livestock exports. Compared to 2022, Mongolia's livestock and meat exports surged by 395% (approximately four times), while the price of mutton rose by 15% and beef by 22%, positively impacting livestock sales.

A2 Successes and challenges

Herders have successfully carried out a range of environmental protection activities, including wildlife and saxaul forest conservation, establishment of trade and service centers, increased hay and fodder production, repair and construction of winter and spring shelters, and milk and dairy processing to enhance income.

Although livestock numbers have declined in three project units, two units—excluding the Dulaan Khairkhan group—are still struggling to meet the project's objectives. To address this, training is being conducted to improve livestock quality, aiming to reduce herd sizes without reducing herder income, as outlined in Table 2, Section 2.7.

However, a key challenge remains: the insufficient sale of certificates since 2023, which has hindered the smooth implementation of the project.

A3 Project developments

In Year 9, herders and project employees received training on global warming, its causes and consequences, and the role of herders in mitigating its effects through sustainable pasture management and avoiding overstocking. Building on previous trainings, sessions continued on greenhouse gases and their components (carbon dioxide, methane), strategies for reducing livestock numbers, rotational pasture use, and developing pasture management plans with sketch maps. To ensure a deeper understanding and long-term adoption of greenhouse gas reduction practices, it is essential to conduct this training annually.

Additionally, in Year 9, herders were trained on planting green fodder using animal manure near winter and spring camps, including soil preparation, planting, and harvesting techniques. Three training sessions were also conducted on project monitoring and evaluation, as well as reporting on planned work performance.

Table 2: Progress against corrective actions

Document	Corrective action	Activity against this
Validation Report	**Section 2.4: Permanence** Observation by Validator: additional training required according to the specific planned actions of the herder groups.	The project coordinator met with the Land Manager and Livestock Specialists of the Soum Governor's Office to discuss local policies related to reducing livestock numbers in Khongor Ovoo and Ikh Am PUG. To support this goal, the project has provided loans and incentives to herders from the Revolving Fund, evaluated their progress, and rewarded those who met the objectives, which has had a positive impact. Livestock experts also conducted trainings focused on improving livestock quality and productivity while reducing herd size. For example, in Khongor Ovoo PUG, herders were trained on raising the *Tamir brown* yak, a breed well adapted to the natural and climatic conditions of Tamir soum, Arkhangai aimag. Its milk fat content of 7–9% makes it particularly suitable for dairy products such as curd, cheese, and butter. Training also covered *Khainag* cattle, which produce 2–4 times more milk than yak and yield 100–150 kg more meat. In Ikh Am, herders received training on the *Bayad* sheep, which has an 8% higher meat yield compared to Mongolian sheep. In Dulaan Khairkhan, training focused on breeding *Zalaa Jinst* goats, known for their high-quality cashmere (15–16 microns, 36–42 mm length). Herders who attended reported that the trainings were highly informative and useful.

Validation Report	**Section 2.7: Monitoring** Observation by Validator: MSRM need to provide continued training and ensure that herders and local officials are gaining knowledge from land management techniques and carbon sequestration.	MSRM continued to provide ongoing training for herder groups. Training was organized on the classification of Mongolian grassland plant species, namely, the main characteristics of the four main categories: perennials and annuals, shrubs, fungi, and trees, their nutritional importance, and how to protect them. Among these grassland plants, perennials are the main source of animal feed for pastoral nomadic livestock. Of the total 2,443 plant species in Mongolian grasslands, 72.5 percent are perennials. Understanding the principles of nutrient accumulation in perennials has an important impact on the proper use of grasslands. Training was provided on how to use pastures during the stages of tillering, main tillering, flowering, seed maturation, winter dormancy, and early regrowth. For example, during the spring tillering period, or in May-June, on the one hand, the reserve nutrients in the pasture plants are significantly reduced, and on the other hand, when regrowth begins, the reserve nutrients are greatly needed, so it is very important to not graze animals or to graze them less. Training was provided on the use of pastures in accordance with this stage of plant growth. In Year 9, to reduce grazing pressure, livestock experts conducted three training sessions for project herders on improving livestock quality and breeding.
Annual report Year 8	Provide an updated timeline and next steps for the herder meetings.	MSRM visits the project sites at least two to three times per year to meet with herders, collect their reports on ongoing and planned activities, and provide necessary guidance. In addition, the group leaders periodically travel to Ulaanbaatar to report on progress and receive further instructions. MSRM also holds meetings with herders to address the issue of absentee herders and provides guidance on returning absentee livestock to their rightful owners.

Annual report Year 8	Submit a plan for mitigating the use of inflated livestock numbers for loan collateral.	To bring the pasture management activities of the Khongor Ovoo, Ikh Am, and Dulaan Khairkhan groups to the "green performance level," the following measures are planned: a. Herders who have overcounted their livestock will be advised to conduct accurate counts. Livestock numbers will also be collected directly from herders in addition to the official census data. Based on this combined information, livestock numbers will be recalculated. It is expected that the target can be achieved by correcting the percentage of overcounted livestock. b. Absentee livestock are projected to be reduced to zero by 2024–2025. Agreements confirming this have been signed with the herders, and the minutes of the meeting were sent on September 20. c. In early August this year, the project coordinator participated in a herders' meeting and introduced the project's livestock reduction targets for Khongor Ovoo and Ikh Am. Lessons were provided on pasture carrying capacity and influencing factors, and discussions were held with herders owning large herds about herd reduction. It was agreed that project funding and incentives would be aligned with livestock numbers, and that herders with large herds would receive incentives if they reduced their livestock.
Annual report Year 8	Provide evidence that measures to reduce overall livestock numbers have been implemented.	During 2019–2021, the number of livestock increased significantly due to the impacts of Covid-19, including reduced export volumes, disruption of domestic market networks, lower livestock and meat prices, and favourable weather conditions. However, as shown in the report, livestock numbers have been continuously decreasing over the last three years. This is due to the following factors: First, several measures have been implemented to reduce livestock numbers. Since 2006, numerous training

		courses have been organized in the field of pasture management—initially under the Green Gold project, and since 2015, under the Plan Vivo project. Many plans have been developed, and efforts have been made to put them into practice by organizing small groups within the PUG, establishing agreements, regularly reviewing and evaluating herders' reports in community meetings, and reducing incentives in cases of non-compliance. As a result, herders' attitudes have changed, and their understanding of the importance of reducing or not increasing herd sizes has improved. According to the official livestock census, livestock numbers in the project areas have decreased over the past three years. If the temporary increase in livestock for the purpose of obtaining loans were excluded, the reduction would be even greater. Second, since 2022, the volume of livestock and meat exports has increased, which has had a positive effect on reducing livestock numbers. Third, the risks of natural disasters such as *zud* (pastures covered by snow due to heavy snowfall) and drought have been increasing, leading to higher livestock losses. As herders experience these risks, their interest in maintaining large herds has declined. Regular training and advisory support are also being provided in this regard. Finally, the Government of Mongolia continues to promote policies and provide guidance on regulating livestock numbers in line with pasture carrying capacity. As a result of these combined measures, livestock numbers are gradually decreasing. Although the reduction is modest, it is expected to continue toward the target level set by the project.

A4 Future Developments

Two draft laws "On Herders" and "On the Unified Association of Herders' Households"—are currently

being developed and discussed during the spring session of the Mongolian Parliament. These laws aim to formalize key issues related to pasture management, including the assignment of pastureland to primary associations of herders' households (e.g., Pasture User Groups, Herders' Groups), the establishment and confirmation of pasture boundaries, the determination of pasture capacity within those boundaries, and the regulation of livestock numbers based on capacity through formal contracts with the soum governor.
Together, these draft laws provide greater clarity to the general provision in the Land Law that pastures should be used under contractual arrangements. They assign responsibility to primary herder associations, define their obligations, and outline a monitoring system. This will support the Project's future efforts, particularly in promoting sustainable pasture use by reducing livestock numbers and enhancing pasture rotation. Once enacted, these laws will require expanded training and awareness-raising initiatives.

Part B: Project activities

B1 Project activities generating Plan Vivo Certificates

The Technical specification is as set out in Part G of the approved Phase II PDD (27/6/2022). This mirrors the Technical Specification used in the Phase I PDD, with the continuation of this Technical Specification approved by Plan Vivo and their technical advisors. As in Phase I, this Phase II specification is linked to Plan Vivo Climate Benefit Quantification Methodology 'Carbon sequestration through improved grassland and natural resources management in extensively managed grasslands' Version 1 (Annex 8, Phase II PDD), hereafter referred to as TS1. This is linked to the development and implementation of new schedules for annual pasture use by the *heseg*, designed to reduce grazing pressure and enhance carbon sequestration through enhanced seasonal mobility, and in some cases through reductions in stocking rates. This is as specified for each *heseg* in the Phase II PDD Annex 5 Management Plans. Modelled carbon reductions in Year 9 for each site are as specified in Section C, Table 4 below. A further indicator here, as set out in the Annex 5 Management Plans, was the percentage of herders who complied with the agreed schedule, with 96% required to do so for all sites in Year 9. In addition, as part of the project design, herder groups (*heseg*) each identified a range of other activities, not specifically related to carbon sequestration, against which progress was to be evaluated (see B2 below).

Table 3: Project activity summary

Name of technical specification	Area (Ha)	No herding households	No Community Groups
TS1	77,482 ha (total pasture areas for all three sites – see Project Indicators, above)	116	3

B2 Project activities in addition to those generating Plan Vivo Certificates

The activities reported are those set out in the final PDD. These involve not only carbon sequestration through improved grazing management practices, but also specific activities linked to biodiversity conservation and livelihoods/wellbeing. These are all specified in the site-specific management plans in Annex 5 of the PDD and summarised below. *Heseg* performance against agreed indicators and in relation to these activities is analysed in Section E.

For Hongor Ovoo heseg: In Year 9 of the project these entailed:

- Completion of activities for herder group partnerships for environmental protection, as set up in Year 1, with activities as agreed with local administration for Year 9.
- In Khongor Ovoo *heseg*, the number of livestock (measured in sheep units) decreased by 3.2% in 2023 compared to 2014. The actual livestock population of Khongor Ovoo *heseg*, however, saw a more significant decline of 29.2% compared to the base year 2014. This greater decrease in the actual livestock population, as opposed to the number transferred to sheep units, was largely due to high mortality rates among young animals. The significant reduction in livestock numbers is primarily due to project funds being provided to herders in line with the decrease in livestock, including compensation incentives, loans, and training on pasture degradation, its causes, and its harmful consequences. Additionally, high snowfall and natural disasters contributed to substantial livestock losses.
- In Year 9, 98% of herding households moved 4-5 times and rotated and rested their pastures.
- In the spring of 2023, 8% of the total livestock died due to a 'dzud'—a natural disaster involving heavy snowfall and cold winds that covered pastures with snow. The cleanup and disinfection of the animal carcasses were carried out by community members in collaboration with the soum environmental inspector and veterinary specialists. The carcasses were properly cleaned and buried in the ground to prevent further environmental impact.
- To protect wildlife and prevent unauthorized logging in areas such as Ulaanbaits, Ikh Ulunt, and Bokhturhushin, 30 herders participated in patrols. During these patrols, 10 violations of unauthorized logging were detected and addressed.
- The majority of livestock in Ikh Tamir Soum is located in the high mountain region, primarily consisting of yaks. As a result, various products are produced from yak milk, which serves as the main source of income. In 2023, 45 herder families produced 3,247 kg of curd and 2,301 kg of butter, generating 31.9 million MNT in revenue. Despite a slight decrease in production due to livestock losses, the increase in product prices positively impacted household income, resulting in a 2% increase in annual income.
- To improve livestock productivity, the soum livestock expert conducted training on using standard breeding stock, trading and selling non-breeding males and females, and increasing productivity and profitability. A total of 61 herders participated in this training. Additionally, a tree planting training session was held, with 50 herders attending.
- A total of 280 tons of hay and green fodder were collected in 2023, marking a 4% increase from 2022. This increase in fodder production has significantly helped reduce pasture load and mitigate associated risks.
- In 2023, the Ikh Ulunt community transplanted 25 seedlings.
- Fifteen fences and winter shelters were repaired in Year 9, in addition to the repairs carried out in previous years.
- Since 2023, 16,143 kg of meat and 1,079 kg of dairy products have been sold through the VIVO service centre, generating a total revenue of 166 million MNT. An additional 14 million MNT was earned from restaurant services. This contributed to a 2% increase in herders' income.

Monitoring results against these activities and associated indicators are summarised in Part E, Table 8b.

For Ikh Am heseg: In Year 9 of the project these entailed:

- Compared to 2014, the number of animals (measured in sheep units) decreased by 5.8% in 2023. This decline in livestock numbers is partly due to the decrease in livestock, as well as the project's funding for herders, including incentives, loans, and training on pasture degradation, its causes, and its harmful consequences. On the other hand, the increase in livestock exports, following the opening of China's borders after Covid-19 restrictions were lifted in 2023, also contributed to the decrease. In 2023, Mongolia's livestock and meat exports increased by

395%. Additionally, the price of mutton rose by 15%, and the price of beef increased by 22%, which had a positive impact on livestock sales.

- In terms of pasture management, 97% of the herders in the group made seasonal movements and rotated pastures as planned. The average number of migrations per year for herding households was 4.8, showing a 0.04% increase. The average distance per migration slightly decreased to 19.8 km due to the increase in short-distance migrations.
- In 2023, 5,719 livestock were sold, marking a 2.3-fold increase from the previous year. This increase was driven by the project's training on the causes of pasture degradation and the financial incentives provided, which were linked to the number of livestock owned by each herder household.
- In spring and fall, herders rotated pastures 10 times to patrol and protect deer from poachers seeking to steal their horns. Due to favorable climatic conditions and sufficient natural pasture, no hay was provided, and only 300 kg of salt was given. In 2014, 18 deer and 5 marmots were registered; by 2023, the number of deer had increased to 30, marmots to 25, and more than 35 Mongolian gazelles were reported by herders.
- A tree planting training was organized, with two herder families planting 30 trees, including elms and shrubs, near their winter and spring shelters.
- Some herders took loans from the mutual fund to purchase sewing machines, and as a result, in 2023, 3 herder households sewed and sold more than 160 traditional national costumes (*deel*), increasing each household's income by 3.5%.
- In 2023, PUG herder households purchased 285 tons of hay and fodder, which is a 6.3% increase compared to the previous year.

Monitoring results against these activities and associated indicators are summarised in Part E, Table 8b.

For Dulaan Khairkhan herder group: In Year 9 of the project, these activities entailed:

- In 2023, the actual number of livestock decreased by 14.9%, and the number of livestock in sheep units decreased by 17.0% compared to 2014.
- In 2023, 390 animals were sold in the market, generating 55.6 million MNT in sales. Livestock sales increased by 30%, and income increased by 42.5%. This increase in livestock sales is attributed to higher livestock prices and a boost in meat exports. The project capitalized on this opportunity by reducing livestock numbers to match pasture capacity, while providing training, compensation incentives, and soft loans, which positively impacted herders' livelihoods.
- Dulaan Khairkhan HG herders continue to protect wild sheep, ibex, and goitered gazelles in the Ikh Bogd special protected area. In 2023, 50 *argali*, 32 ibexes, and 40 gazelles were registered. This represents a significant increase from a 2015 survey by ZSL, which recorded only 35 *argali* and 2 ibexes. Specifically, the number of *argal*i has increased by 42.8%, and the number of ibexes has risen 16-fold since the base year.
- The area of new young saxaul trees has increased annually. According to herders, this area expanded by 0.5 hectares by 2023.
- In 2023, the herders of Dulaan Khairkhan *heseg* prepared 50.4 tons of hay and purchased 5.7 tons of fodder.
- Through the Bogd-Vivo trade and service centre, 8 herders (53% of the total households) sold products such as fermented camel milk, goat skin, and goat meat, generating a total of 16 million MNT in sales. This contributed to a 4% increase in household income. In addition, the centre will distribute 12 million MNT of net profit from sales and services to 15 herders in 2023, resulting in an increase of 800,000 MNT in annual income per household.

Monitoring results against these activities and associated indicators are summarised in Part E, Table 8b.

Part C: Plan Vivo Certificate issuance submission

C1 Contractual statement

The project continues to be based on signed PES agreements with participants complying with all the minimum requirements stated in these agreements.

C2 Issuance request

The project requests the issuance of an additional 21,270 certificates earned through Year 9 activities. The number of livestock transferred to sheep units in the three project sites—Khongor Ovoo, Ikh Am, and Dulaan Khairkhan—decreased by 3.2%, 5.8%, and 17%, respectively, reaching the target levels set in Year 9. This decline is attributed to project incentives encouraging herders to reduce livestock numbers, training sessions on pasture degradation—its causes, consequences, and mitigation strategies—as well as increased nationwide livestock and meat exports and rising meat prices.

Table 4: Statement of tCO_2 reductions available for issuance as Plan Vivo Certificates based on activity for reporting period 01/04/23– 31/03/24

Area ID	Total area (ha)	Tech. Spec	Saleable ER's (tCO_2) generated in previous periods (end Phase I)*	Saleable ER's (tCO_2) generated from previous periods (Phase II only)	Saleable ER's (tCO_2) available from previous periods (Phase II only)	Total ER's (tCO_2) achieved this period**	% Buffer	No. of PVCs allocated to buffer from ER's achieved this period	Saleable ER's (tCO_2) from this period	Issuance request (PVCs)	ER's (tCO_2) available for future issuances
Hongor Ovoo	36,756	Improved grassland management	44,287	24,265	14,210	8,848	10	885	7,963	7,963	0
Ikh Am	18,241		12,707	20,946	13,115	6,771	20	1,354	5,417	5,417	0
Dulaan Khairkhan	22,485		33,680	26,197	16,324	9,863	20	1,973	7,890	7,890	0
TOTAL	**77,482**		**90,674**	**71,408**	**43,629**	**25,482**		**4,212**	**21,270**	**21,270****	**0**

*Saleable ERs from Phase I were accounted for and sold during Years 5 and 7, so are not included in further calculations here, only summarised here (column 4: end Phase I). They are not included in Phase II calculations.

** Number of tCO2 sequestered or avoided emissions through participants' activities this reporting period

Note: In Year 7 (reporting period 2021–2022), 18,799 PVCs should have been requested; however, only 18,779 were mistakenly requested and issued, resulting in a discrepancy of 20 PVCs. Table 4 reflects the accurate figures, including the 20 PVCs that were not issued.

C3 Allocation of issuance request

Table 5: Allocation of issuance request

Buyer name/ Unsold Stock	No. PVCs transacted	Registry ID (if available) or Project ID if destined for Unsold Stock	Tech spec(s) associated with issuance
PCCA (unsold stock)	21,290	*PCCA*	*TS1*
TOTAL			

C4 Data to support issuance request

Under the Management Plans in the PDD, evidence for carbon sequestration is through grazing pressure, movement patterns and stocking rates for each site and its different pasture types. Tables c and d for Hongor Ovoo and Dulaan Khairkhan are found in Annex 5 of the PDD, with equivalent tables for Ikh Am included as Table F1a (p.32) and F1c (p.34) in the main body of the Phase II PDD. The site-specific Management Plans also show detailed plans for grazing pressure at each site year in year and how these are translated into carbon sequestration (based on Century modelling, as explained in the Technical Specification). Rates for Year 9 per site are summarised in C2, Table 4 above, with underpinning spreadsheets, based on PDD Annex 5, as set out in Annex 2 tables in this report.

At all sites, compliance with agreed grazing management practices and protocols was to be assessed on the basis of biannual self-reporting by the herder groups, subject to confirmation by MSRM. For Year 9 of the project, MSRM checked reported actions in August/ September, then again at the end of the year.

Overall, monitoring undertaken at the end of Year 9 was thus designed to monitor compliance with site-specific Management Plans, and to confirm climate, livelihood and biodiversity benefits against PDD baselines. Detailed tables of activities for each site, showing progress against agreed activities and indicators for Year 9 are included in Part E, Monitoring Results.

As highlighted in Table 8b in Section E, as well as the accompanying narrative, performance indicators relate not just to stocking rates and mobility and hence to carbon sequestration, but to a range of biodiversity conservation and livelihood support activities. The majority of these met or even exceeded targets and the carbon sequestration calculations have been updated accordingly.

Part D: Sales of Plan Vivo Certificates

D1: Sales of Plan Vivo Certificates

Table 6: Sales of Plan Vivo Certificates

Invoice Date	Date of receipt by MSRM	Vintage	Buyer	No of PVCs	Price per PVC ($)*	Total sale amount ($) *	% Received by participants
2023.08.23	2023.09.01	2020-2021	Clevel	900			70%
2023.08.18	2023.09.26	2020-2021	Zeromission	500			70%
2023.09.01	2023.10.03	2020-2021	myclimate	4,335			70%
2023.10.05	2023.10.23	2020-2021	Pelorus Foundation	500			70%
2023.10.05	2023.11.16	2020-2021	Clevel	2,500			70%
2023.11.10	2023.12.20	2020-2021	Clevel	2,500			70%
Total				**11,235**			

*Pricing reported for internal monitoring purposes only

The amount received by participants takes into account the 30% allocated to MSRM for management, monitoring and reporting (calculated after deduction of any bank and PV issuance fees).

Table 7: Summary of Sales in Year 9

Local bank charges ($) *	
PV issuance fees ($) *	
Total sales after deductions ($)*	
Amount assigned to participants (70%)	56,743.32

*Charges and fees reported for internal monitoring purposes only

Part E: Monitoring results

E1: Ecosystem services monitoring

Monitoring results for all sites and against the full range of indicators (ecosystem services, socioeconomic and environmental/ biodiversity) and in relation to red, orange and green 'traffic light' indicators (Section K of PDD) are set out in Tables 8a & b, below.

Table 8a: Summary of Carbon Sequestration (Year 8)

			C Seq. (tCO_2e) p.a. at different grazing pressures				C Seq. (tCO2e) based on recorded grazing pressure at each site (Year 9)
Site	Pasture type	Season	30%	40%	50%	> 50%	Total Yr 9
i) Hongor Ovoo	Riparian Meadow	Spring/summer/fall	1721	811	23	0	811
	Riparian Meadow	Summer	2725	1764	981	0	2725
	Mountain Meadow	Winter	990	466	304	0	304
	Mountain Meadow	Summer/fall	1198	560	-52	0	-52
	Mountain Meadow	Winter/spring	2175	2130	2060	0	2130
	Mountain Steppe	Fall	1241	682	199	0	1241
	Mountain Steppe	Summer/fall	1153	418	-84	0	418
	Mountain Steppe	Winter/spring	2470	2029	1271	0	1271
			13675	**8861**	**4702**	**0**	**8848**
ii) Ikh Am	Riparian Meadow	Spring	988	466	13	0	13
	Mountain Steppe	Spring	628	227	-46	0	-46
	Mountain Steppe	Winter	4302	3534	2213	0	3534
	Steppe	Spring	1354	490	-98.91	0	-98.9
	Steppe	Winter	4102	3369	2110	0	3369
			11374	**8086**	**4283**	**0**	**6771**
iv) Dulaan Khairkhan	Mtn Desert Steppe	Winter/spring	4973	4086	2559	0	4086
	Mtn Desert Steppe	Fall	3021	1660	485	0	3021
	Desert Steppe	Summer/fall	3346	1211	-245	0	1211
	Desert Steppe	Fall	1545	849	248	0	1545
			12885	**7806**	**3047**	**0**	**9863**

Table 8b: Summary of Overall Monitoring Results (Year 9)

Site and 'Traffic light' indicator status	Specific Activities (Year 9)	Indicators (1-3) & Targets (expected results)	Results Achieved
Hongor Ovoo *heseg*			
1.Pasture management (carbon sequestration)	Annual pasture use schedule developed and implemented, with grazing pressure equivalent to modelled carbon sequestration rates for different pasture types.	Development of agreed annual schedule (approved by HG members & LA (by end March each year), and which is equivalent to 50% grazing pressure or less for seasonal pasture areas and in accordance with carbon modelling. Any subsequent updates/ changes also agreed and approved by same parties.	In 2023-2024, grazing pressure across various pasture types was 50% or less, as per targets. The target was met.
		5% reduction in livestock (sheep units) against baseline by end March 2019; further 3% by end March 2020; 3% by end March 2021; 1% by end 2022, 2023.	In the MSRM Year 9 Annual Report (Annex 1), the total livestock numbers and livestock numbers converted to sheep units for Hongor Ovoo are presented (Tables 1a and 1b, Annex 1). In Hongor Ovoo *heseg*, the number of livestock (sheep units) decreased by 3.2% in 2023 compared to 2014. This significant decrease in livestock numbers is attributed to two main factors: First, the project provided funds to herders based on the reduction in livestock numbers, including compensation incentives, loans, and training on pasture degradation, its causes, and its harmful consequences. Second, the late rainfall in the summer of 2022-2023 led to poor pasture yields, and a large number of livestock perished due to natural disasters, including heavy snowfall during the winter and cold winds in the spring.

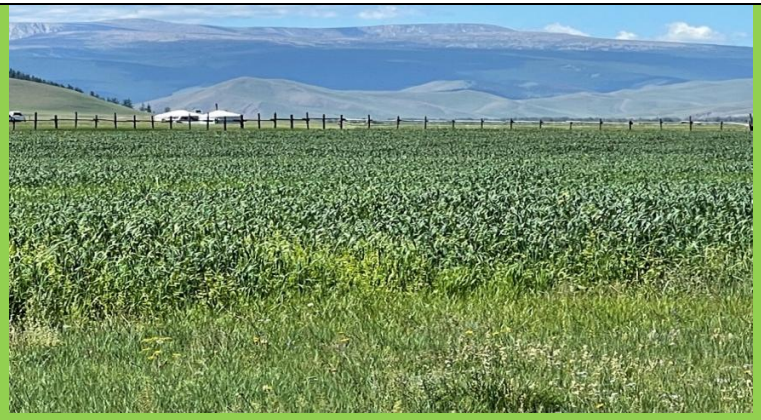
		% of HG households that comply with schedule (80% in summer and winter 2019; 85%, 2020, 90% 2021, 95-100% 2022/29).	The *heseg* leader reported that the number of movements is similar to the previous year. 98% of herding households moved 4-5 times and rotated their pastures for rest, confirmed by MSRM through interviews. Target achieved.
	Assist selling livestock over pasture carrying capacity.	Decrease in number of livestock.	Seventeen percent of the total livestock was sold in 2023-2024. Livestock sales increased due to a 15-22% rise in livestock and meat prices, driven by the increase in meat exports.
	Organise seasonal camping in underused areas (Khanuin gol, Khukh nuur).	Improved pasture conservation through using reserve (less used) pasture and camping. No other specific indicators or monitoring for this activity.	Due to heavy snowfall and challenging weather conditions, 11 households relocated to Khukh Nuur for 3 months and utilized the reserve pasture.
2.Biodiversity Conservation	Herder group partnerships established through the project in Year 1 continuing to undertake activities to protect local environments.	Objectives, work plans, responsibilities, mission statements and registration documents for herder groups produced. Herder groups able to conduct collaborative work to protect local habitat, through collaboration with LA.	In the spring of 2023, 8% of the total livestock perished in the *dzud* (a natural disaster where heavy snowfall and cold winds covered pastures with snow, causing significant livestock loss). The cleaning and disinfection of animal carcasses were carried out by community members in collaboration with the soum environmental inspector and veterinary specialists. The carcasses were properly cleaned and buried.

			 ***Transporting the carcasses of deceased livestock for disinfection and burial***
	Cooperation in groups for forest cleaning & protection.	Forest patrol activities will be continued. Vegetation survey will be conducted and reported. Cleaning of 2ha area by end each year.	Forest protection communities have cleared a total of 2 hectares of forest, distributed as follows: 'Shiree Bulan' - 0.2 hectares, 'Neg Sanaa' - 0.3 hectares, 'Ikh Ulunt' - 1.0 hectare, 'Khaltar Angarkhai' - 0.3 hectares, and 'Khaluun Us' - 0.2 hectares."
	Increased herders' participation in decision- making on environmental issues.	As per targets set by herder representative committee at the end of Year 1: these required herders to conduct forest patrols to monitor and protect the forest from illegal cutting trees in summer and fall.	To protect wildlife and prevent unauthorized logging in areas such as Ulaanbaits, Ikh Ulunt, and Bokhturhushin, 30 herders conducted patrols. During these patrols, 10 instances of unauthorized logging were identified and addressed.
	Nurseries and planting for enhanced provision of forest habitat for native species.	Transplanted 25 seedlings.	In 2023, the Ikh Ulunt community successfully transplanted 25 seedlings. Target met.

			  ***Trees being planted and watered for growth and sustainability***
3.Socioeconomic activities	Repair of fences & winter/spring shelters	Repair 5 fences/ shelters p.a	Herders of Hongor Ovoo *heseg* repaired 15 winter and spring shelters in 2023. Target achieved.  ***Winter and spring shelters repaired by the herders***
	Collaborative production & marketing of local brand milk products	Increased annual HH income through marketing milk products, and against baseline	In Ikh Tamir soum, the majority of livestock consists of yaks, as the region is located in a high mountain area. Yak milk serves as the primary source of income for local herders, who produce a variety of dairy products. In 2023, 45 herder families produced 3,247 kg of curd and 2,301 kg of butter, generating 31.9 million MNT in revenue. This led to a 2% increase in annual household income against the baseline. While the overall production volume slightly declined due to livestock losses, the rise in product prices had a positive impact on income.

			  ***Production of curd, dried curd, cheese, yogurt, and butter***
	Gathering and sale of wild berries and pine nuts	Year 9: Enhanced HH income against baseline.	This year, due to the abundant nut harvest in Ikh Tamir Soum, local herders took advantage of their spare time to collect pine nuts. A total of 50 families were tasked with gathering 12 tons, generating over 180 million MNT in revenue. As a result, the annual household income saw a 2.2% increase against the baseline.
	Establish a herders' market.	Increased annual HH income, and against baseline.	Since 2023, herders have sold 16,143 kg of meat and 1,079 kg of dairy products through the VIVO service centre, generating a total revenue of 166 million MNT. In addition, restaurant services have generated 14 million MNT.   ***Sale of meat and dairy products through the VIVO trade and service centre***
	Comb yak wool and deliver to markets	Year 9: Enhanced HH income against baseline	In 2023, the number of yaks decreased by 20%, resulting in approximately 600 kg of yak wool being combed and generating 18 million MNT in revenue. Annual revenue increased by 2% from the base year. Despite the decrease in the amount of yak wool compared to last year, the price of yak wool increased by 40%, which positively impacted the herders' income.

	Enrol herders to participate activity in project activities	Indicators include nos. of herders attending training events.	To improve livestock productivity, the soum livestock expert conducted training on using standard breeding stock, trading and selling non-breeding males and females, and enhancing productivity and profitability from livestock units. A total of 61 herders participated in the training. Additionally, a training session on tree planting was organized, with 50 herders taking part.  ***Training on tree planting***
	Sewing	Increased income. Job creation.	In 2023, 9 households produced 58 types of shirts and Mongolian traditional clothing, '*deel*,' generating 6.9 million MNT in sales. Meanwhile, 5 households crafted 25 products from yak skin, earning 4.1 million MNT. As a result, the income of these 14 households increased by 1.5-2%.
	Plant perennials for green fodder	It is planned to prepare 120 tons of green fodder and 160 tons of hay.	Green fodder is being cultivated in two ways: 1) Soil cultivation on areas larger than 0.5 ha. In 2023, 19 households cultivated 15 ha of land and harvested 77 tons of green fodder. 2) Manual cultivation on areas ranging from 500 to 1,000 m^2 in winter pastures. This year, 25 households cultivated and harvested 48 tons of green fodder. Additionally, each household prepared an average of 2-3 tons of natural hay.

			 ***Growing green fodder***
	Experiment and introduce soilless green fodder cultivation.		Herders experimented with soilless green fodder cultivation under the training and guidance of MSRM. However, introducing this technology—successfully used in Inner Mongolia—to Mongolian nomadic herders proved challenging. In Inner Mongolia, warm houses provide sufficient heat for indoor plant growth. In contrast, Mongolian herders live in *ger* (traditional felt homes used for migration), where extreme temperature fluctuations between day (+20°C) and night (-5°C) during winter and spring hinder plant growth. As a result, this approach cannot be implemented, and instead, herders plan to increase traditional green fodder cultivation.

Ikh Am PUG			
1.Pasture management (carbon sequestration)	Develop & implement schedule for seasonal pasture use (rotation).	Development of agreed annual schedule (approved by HG members & LA (by end March each year), and which is equivalent to 50% grazing pressure or less for seasonal pasture areas and in accordance with carbon modelling. Any subsequent updates/changes also agreed and approved by same parties.	The total livestock numbers and the corresponding livestock numbers converted to sheep units for Ikh Am are included in the MSRM Year 9 Annual Report (Annex 1), in Tables 3a and b. In 2023-2024, grazing pressure across various pasture types remained at or below 50%, in line with the set targets.

		5% reduction in livestock (sheep units) against baseline by end March 2019; further 3% by end March 2020; 3% by end March 2021 (Year 6); 2% by end 2022, 2023, 2024, 2025, 2026, 2027. 1% by end 2028.	Compared to 2014, the number of animals (sheep units) decreased by 5.8% in 2023. This decline in livestock numbers is partly due to increased project funding for herders, including incentives and loans, as well as training and advice on pasture degradation, its causes, conditions, and harmful consequences. On the other hand, the increase in livestock exports, driven by the reopening of China's border following COVID-19 closures in 2023, also contributed to the decline. In 2023, Mongolia's livestock and meat exports surged by 395%. Additionally, compared to 2022, the price of mutton rose by 15% and beef by 22%, positively impacting livestock sales.
		% of households that comply with schedule (80% in summer and winter 2019; 85%, 2020, 90% 2021, 90-100% 2022/29).	97% of the herders in the group made seasonal movements and pasture rotations as planned. The average number of migrations per year for herding households is 4.8, reflecting a slight increase of 0.04%. The average distance per migration decreased slightly to 19.8 km, due to an increase in the number of short-distance migrations.
	Experiment and introduce soilless green fodder cultivation	Reduction of pasture load	Herders experimented with soilless green fodder cultivation under the training and guidance of MSRM. However, introducing this technology—successfully used in Inner Mongolia—to Mongolian nomadic herders proved challenging. In Inner Mongolia, warm houses provide sufficient heat for indoor plant growth. In contrast, Mongolian herders live in gers (traditional felt homes used for migration), where extreme temperature fluctuations between day (+20°C) and night (-5°C) during winter and spring hinder plant growth.
	Assist selling livestock over pasture carrying capacity	Decrease in number of livestock.	In 2023, 5,719 livestock were sold, which is 2.3 times increase compared to the previous year. This growth can be attributed to the project's training on the causes of pasture degradation and methods for its mitigation, as well as the financial incentives provided, which were tied to the number of livestock per herder household.

			 ***Herders participating in pasture management training***
	Dig hand wells	No specific target for Year 9.	
2.Biodiversity Conservation	Protect red deer, *argali* and Mongolian gazelle	Enhanced populations of target species by 2029 as measured against baselines. Actions to protect species in accordance with agreed annual workplans.	In spring and fall, herders rotated 10 times to patrol and guard the deer from poachers seeking to harvest their horns. As the year was favourable for the climate, there was sufficient natural pasture, so no hay was provided, and only 300 kg of salt was given. In 2014, 18 deer and 5 marmots were registered, but according to the herders' observations, the numbers increased in 2023 to 30 deer, 25 marmots, and more than 35 Mongolian gazelles.

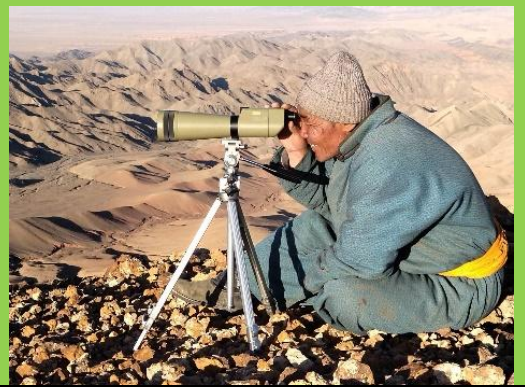
			 ***Delivering salt to wildlife in their grazing area to support their health and well-being***
	Planting trees in winter and spring shelters	Increased absorption of carbon dioxide	Training on tree planting was organized, and two herder families planted 30 trees, including elms and shrubs, near their winter and spring shelters.  ***Planting, watering, and maintaining trees in their winter shelters***
	Clean area (collect rubbish brought down river from Ulaanbaatar and deposited locality)	Cleaning/litter collection in May and October	Each month, the herders conducted garbage clean-up along the Tuul River, disposing of the waste at designated landfills in accordance with tradition. A total of 20 households participated in the clean-up, collectively removing 3.0 tons of garbage.

3.Socioeconomic activities	Repair of fences & winter/spring shelters.	5 additional fences/shelters repaired by end 2022.	Herding families repaired 5 winter shelters, while three families completed repairs on 3 spring shelters. Target met. 
	Collaborative production and marketing of milk and curd in season.	Enhanced HH income against baseline	All 39 households milk their sheep, goats, and cows during the summer and autumn for personal use. Thirty-one percent of the total households process their milk into products such as curd, dried yogurt, milk, cream, and butter, generating an average income of 0.2 million MNT per household. This activity has contributed to a 1.2% increase in household income for these herders against the baseline.
	Sewing	Increase non-livestock income (enhanced participating HH income by the end of each year) and job creation.	Herders took loans from the mutual fund to purchase sewing machines, which they used to make and sell clothing. In 2023, 3 herder households sewed and sold more than 160 Mongolian traditional '*deel*,' resulting in a 3.5% increase in income for each household.

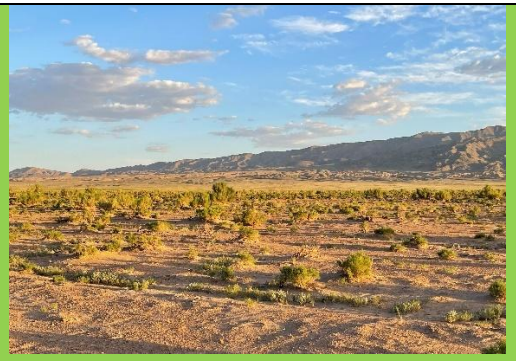
			 ***National traditional costumes (deel) handmade by the herders***
	Small scale processing of hide and skin of animals and deliver to markets.	Enhanced HH income against baseline.	In 2023, 3 herder households processed and sold more than 100 lamb skins, leading to a 2% increase in income for each household against the baseline.  ***A herder woman processing lamb skins for crafting and trade***
	Hay provision	Increased % HH with adequate hay provision.	In 2023, PUG herder households purchased 285 tons of hay and fodder, a 6.3% increase compared to the previous year.

			 ***Herders transporting purchased hay to the winter shelters for livestock feed***

Dulaan Khairkhan heseg			
1.Pasture management (carbon sequestration)	Develop & implement schedule for seasonal pasture use (rotation).	Development of agreed annual schedule (approved by HG members & LA (by end March each year), and which is equivalent to 50% grazing pressure or less for seasonal pasture areas and in accordance with carbon modelling. Any subsequent updates/changes also agreed and approved by same parties.	In 2023-2024, grazing pressure across various pasture types met the targets in all cases (see Table 8a).
		Further 1% reduction in livestock (sheep units) against baseline by end March 2019; 1% by end March 2020; 1% by end March 2021.2% by end March (2023-2029).	In 2023, the number of livestock (sheep units) decreased by 17.0% compared to 2014 (see Table 5b). Target achieved.
		% of HG households that comply with schedule (80% in summer and winter 2019; 85% 2021, 95% 2022, 95-100% 2023/29). Increased annual mobility (Average per *heseg*).	The *heseg* herders jointly developed a draft pasture use plan for 2023, which was approved at the group meeting. Ninety-eight percent of all herder households moved as planned, rotating pastures and allowing for rest. PUG herder households migrated an average of 4.1 times in 2023, with the average distance per migration being 31.7 km. Compared to 2022, the number of migrations increased by 2.1%. Target achieved.

	Assist selling livestock over pasture carrying capacity	Decrease in number of livestock.	In 2023, 390 animals were sold to the market, generating 55.6 million MNT in revenue. Livestock sales increased by 30%, while income rose by 42.5% against previous year's sales. The growth in livestock sales was driven by higher livestock prices and an increase in meat exports. The project capitalized on this opportunity to reduce livestock numbers in line with pasture capacity, providing training, compensation incentives, and soft loans, which had a positive impact.
	Organize seasonal camping in underused areas	Improved pasture conservation through using reserve (less used) pasture and reducing grazing pressure in other areas	20% of herder households camped on unused pastures.
2.Biodiversity Conservation	Protection of *argali*, ibex & goitered gazelle.	By 2029 the populations of each of the three target species have shown an increase from the baseline taken in 2019.	The Dulaan Khairkhan HG herders continue to protect wild sheep, ibex, and goitered gazelles in the Ikh Bogd Special Protected Area. Animals such as argali and ibex, which have been malnourished due to drought, are provided with hay and salt. In 2023, 50 argali, 32 ibex, and 40 gazelles were registered. According to a survey conducted by ZSL in 2015, only 35 argali and 2 ibexes were recorded. This represents a 42.8% increase in the number of argali and a 16-fold increase in the number of ibexes since the base year. During the winter and spring of 2023-2024, due to relatively low snowfall in the Ikh Bogd Mountain area, there was sufficient pasture, so hay was not needed. Instead, 100 kg of salt was provided. 

			 ***Herder patrol counting and recording the number of argali and ibex in the protected area***
	Protection of saxaul forest.	Patrols and protection of saxaul forest.	The *heseg* herders developed a plan to collectively protect saxaul trees and requested the Citizens' Representative Khural to impose a ban on cutting and using saxaul trees for fuel. As a result, the saxaul forest is regenerating, with new trees growing and the number of stumps decreasing by up to 80%. Herders have ceased cutting trees from the saxaul forest and are protecting it through quarterly patrols. As a result, the forest is expanding by 0.5 hectares per year, and young saplings are being regenerated. 

			 ***Expansion of the saxaul forest as a result of conservation efforts***
3.Socioeconomic activities	Repair of fences & winter/spring shelters.	5 shelters/ fences repaired.	Herders have repaired five of their winter and spring shelters.  ***Stone shelter for livestock built by the herders***
	Experiment and introduce soilless green fodder cultivation	Reduction of pasture load	Herders experimented with soilless green fodder cultivation under the training and guidance of MSRM. However, introducing this technology—successfully used in Inner Mongolia—to Mongolian nomadic herders proved challenging. In Inner Mongolia, warm houses provide sufficient heat for indoor plant growth. In contrast, Mongolian herders live in gers (traditional felt homes used for migration), where extreme temperature fluctuations between day (+20°C) and night (-5°C) during winter and spring hinder plant growth.

	Hay preparation	Every *heseg* family to prepare hay annually. Increased % of HH year on year with adequate hay provision. Annual targets to be confirmed by heseg.	In 2023, the herders of Dulaan Khairkhan h*eseg* prepared 50.4 tons of hay and purchased 5.7 tons of fodder. Compared to the previous year, the amount of hay decreased by 33.9%, and the amount of purchased fodder decreased by 4.5 times. This was due to favourable conditions during the winter and spring of 2023-2024, which resulted in a low need for additional feed for livestock. A training session was also organized on growing green fodder using manure from the herders' winter and spring camps.  ***Herders cutting hay and transporting it to their winter shelters for livestock feed***
	Establish a market to sell livestock, meat and raw materials	Assist *heseg* herders to sell their livestock, meat and raw materials.	Through the Bogd-Vivo Trade and Service Centre, 8 herders (53% of the total households) sold products such as fermented camel milk, goat skin, and goat meat, generating a total of 16 million MNT in sales, which led to a 4% increase in household income against previous year’s revenue. The Bogd-Vivo Centre will distribute 12 million MNT, the net profit from sales and services in 2023, to 15 herders. As a result, the annual income of each household has increased by 800,000 MNT.

			  ***Herders milking camels, producing camel milk products, and selling them at the Bogd-Vivo market***
	Sewing	Increase non livestock income and job creation. Enhanced income for participating HH by end of year.	Two herder families earned 3 million MNT by sewing Mongolian traditional clothing '*deel*,' resulting in a 3% increase in their household income.

			 ***Mongolian traditional clothes handmade by the herders for sale and generating extra income***
	Making noodles	Increase non livestock income and job creation. Enhanced income for participating HH by end of year.	Herders earned 2.5 million MNT by producing noodles and cakes. As a result, 20% of the herder households saw a 2.6% increase in their household income against previous year. 

			 ***Making noodles for sale***

N.B. The 'traffic light' system (red, orange and green dots) relates to the activity-based monitoring set out in Section K of the PDD, where green denotes the project is on track and all payments should be made in full; orange denotes that some activities have fallen short of targets and that corrective action(s) may be required; red denotes that project activities have fallen far short of requirements and corrective action is necessary.

Monitoring and Evaluation of Project Activities

From June 25 to July 6, 2023, MSRM visited the project sites for two weeks, meeting with herders to gather feedback on the implementation of the project.

MSRM conducted training and promotional activities on the purpose and importance of the PCCA project, the effects of global warming and greenhouse gas emissions, the potential for reducing global warming by improving pastures, and the responsibilities of herders. Additionally, discussions covered changes in livestock numbers at the project sites, the number of migrations, project financing, progress made, and future activities. MSRM also provided advice to the herders on implementing the approved pasture management plan, reducing livestock numbers, and ensuring pasture regeneration through rotation.

Between August 12 and 25, MSRM visited Hongor Ovoo *heseg*, Ikh Am *heseg*, and Dulaan Khairkhan HG to assess pasture yields. It is considered that repeating this assessment next year will provide more accurate data for calculating pasture capacity.

Feedback from Herders

Hongor Ovoo *Heseg*

Mr. Erdenebaatar D., the former head of the Khongor Ovoo PUG, shared insights from the past year. In 2023, the availability of pastures in Ikh Tamir soum was severely reduced due to heavy winter snowfall and cold spring winds, resulting in many animals dying. The *dzud* caused 8% of the livestock to die, and 2-3 herder households lost all their animals. The severe conditions led some herders to sell up to 17% of their livestock. As a result, the total actual livestock count in 2023 decreased by 37.2% compared to 2022, and by 29.2% compared to 2014. Despite these challenges, it is believed that the pasture's carrying capacity has not been exceeded. Moving forward, it is expected that grazing pressure will remain within sustainable levels. One key lesson from this *dzud* is the importance of preparing hay and fodder well. Herders are encouraged to plant green fodder on their winter and spring pastures and increase natural hay production. There has also been a significant increase in the price of milk and dairy products, so maximizing the use of milk for curd and other dairy products is recommended. Herders also emphasized the need to plant trees to reduce carbon dioxide emissions and enhance carbon absorption.

Ikh Am *Heseg*

Project coordinators Mrs. Oyun and Mrs. Baasansuren evaluated their work performance as reasonable for the year. 2023 was considered a normal year for the Ikh Am PUG, with no significant natural or climatic issues. The herders successfully implemented the planned activities within the project. The significant increase in livestock numbers in 2022 was attributed to the suspension of livestock and meat exports to China due to COVID-19. However, with the reopening of the Chinese border in 2023, there was an increase in meat exports, allowing for increased livestock sales. As a result, livestock numbers decreased by 5.8% compared to the 2014 baseline. Some herders admitted to overcounting livestock during the national livestock census to access loans. A survey revealed that about 15% of livestock was overcounted, and it was recommended that future livestock counts consider both official data and the numbers reported by herders themselves. In addition, herder households like Dogsom and Ankhbayar planted trees near their winter quarters, and others

expressed interest in introducing this innovation to the broader community. Many herders are also sewing *deel* and producing dairy products for sale.

Dulaan Khairkhan HG

For the Dulaan Khairkhan herders, 2023 was a normal year in terms of climate. In 2023, the number of sheep units decreased by 17% compared to 2014. Nevertheless, the project's goals have been met. The herders have been actively involved in protecting wild animals such as *argali*, ibex, and gazelles by patrolling and laying hay. As a result, the number of wild animals has increased. In 2023, the number of *argali* increased by 42.8% and the number of ibexes increased 16 times compared to the base year. The protection of saxaul trees has also been successful, with the number of young saxaul trees increasing each year, and the mangrove forest area expanded by 0.5 hectares. Through the Bogd-Vivo trade and service centre, the herders sold products such as fermented camel milk, goat skin, and goat meat, generating 16 million MNT in sales, increasing household income by 4%. The centre will distribute 12 million MNT in net profits to 15 herders, with each household's income increasing by 800,000 MNT.

E2: Maintaining commitments

In this period, all existing herder groups have maintained their commitment to the project (see section H1 for further details around participating households). All groups have also demonstrated their commitment through opting to enter into Phase 2 from April 2019.

E3: Socioeconomic monitoring

Monitoring indicators for Year 9 are as set out for each *heseg* in Section B1 and B2 above, and in Table 8b above.

E4: Environmental and biodiversity monitoring

Monitoring indicators for Year 9 are as set out for each *heseg* in Sections B1 and B2 above. B2 sets out biodiversity related activities and monitoring for each site over this period. These are also summarised in Table 8b, above.

Part F: Impacts

F1: Evidence of outcomes

As highlighted above and in Table 8b in particular, PCCA Phase 1 has secured a range of specific impacts in relation to livelihoods, pasture use and management, carbon sequestration and biodiversity conservation.

The overall impacts of Phase II will be summarised in the end of Phase II report.

Part G: Payments for Ecosystem Services

G1: Summary of PES by year

Table 9: Summary of payments made and held in trust

1.Reporting year (04/2015 – 03/2024)	2. Total previous payments (Previous reporting periods)	3. Total ongoing payments (in this reporting period)	4. Total payments made (2+3)	5. Total payments held in trust	6. Total payments withheld
Year 1 (2015-2016)	0	0	0	0	0
Year 2 (2016-2017)	0	0	0	0	0
Year 3 (2017-2018)	0	$6,788.0	$6,788.0	$2,694.31	0
Year 4 (2018-2019)	$6,788.0	$6,340.0	$13,128.0	$6,058.62	0
Year 5 (2019-2020)	$13,128.0	$65,162.70	$78,290.7	$64,393.68	0
Year 6 (2020-2021)	$78,290.7	$8195.70	$86,486.4	$60,150.48	0
Year 7 (2021-2022)	$86,486.4	$73,426.0	$159,912.4	$271,084.45	0
Year 8 (2022-2023)	$159,912.4	$247.188.9	$407,101.3	$115,535.08	0
Year 9 (2023-2024)	$407,101.3	$80,399.71	$487,501	$91,878.98*	0

**Payments previously held in trust were disbursed to the participants (herder groups) in the Spring of 2022 upon review of their work report and planned activities.*

All payments have been made in accordance with the PES agreements signed by participating *heseg* and as set out in the PDD.

Part H: Ongoing participation

H1: Recruitment

The number of participating *heseg* and herder's households are unchanged in 2023.

H2: Project Potential

All three existing participating *heseg* have continued into a second commitment period. As noted, other key organisations in Mongolia have expressed interest in adopting the PCCA approach and thus potentially extending it to new sites and herder groups.

H3: Community participation

Khongor Ovoo PUG:
In the winter of 2023-2024, a large number of livestock died due to severe cold winds and heavy snowfall. Therefore, it is recommended to increase the number of livestock in the next 1-2 years, ensuring that the pasture capacity is not exceeded. Given the rise in prices for livestock meat, milk, and leather compared to 2022, it is considered important to focus on processing dairy products and increasing the sales of juvenile livestock to boost household income. Providing compensation based on the number of livestock per household will be an effective approach. Additionally, there is a need to focus on increasing hay production and fodder cultivation. Special attention will be given to expanding green fodder cultivation in the winter and spring manure.

Ikh Am PUG:
The increase in livestock meat and leather prices due to the rise in livestock exports has positively impacted livestock sales. The herders are working diligently to achieve the goals set within the

project. Furthermore, plans are in place to plant trees near winter and spring shelters to reduce carbon emissions, aligning with environmental sustainability goals.

Dulaan Khairkhan HG:
In 2020, natural disasters led to a significant loss of livestock, which negatively impacted the living standards of the herders. To address this, the focus is on increasing livestock numbers while maintaining the pasture's carrying capacity. The herders are also working to improve hay production and animal feed. Increased efforts are being made in sewing and dairy product production. Moreover, the herders are successfully implementing their responsibilities in protecting saxaul forests and wild animals such as *argali*, ibex, and gazelle. There is also an opportunity to increase income by expanding the activities of the Bogd-Vivo trade and service centre.

Suggestions from Herders:
The annual work reports submitted by the herders should be reviewed not only by the *heseg* leader but also discussed and evaluated at the 5th Forest Community Meeting in the Khongor Ovoo *heseg* and the 4th Herders' Group Meeting in the Ikh Am *heseg*.

A certain amount of funding should be allocated through the Revolving Fund to support community work and training activities planned for the year.

Part I: Project operating costs

I1: Allocation of costs

In Year 9, MSRM's expenses for training, capacity building, and monitoring activities were primarily funded through the proceeds from PV certificate sales. However, due to insufficient sales over the past two years, 56% of the project implementation costs ($30,921) had to be covered through internal resources and bank loans.

Training sessions were held for both herders and project staff, focusing on climate change—its causes, consequences, and the essential role herders play in mitigating its impact. These sessions highlighted the importance of sustainable pasture management and the risks of overstocking.

Three training sessions were conducted, reaching 102 herders. Key topics included:

Greenhouse gases (especially carbon dioxide and methane)

Strategies for reducing livestock numbers

Rotational grazing practices

Developing pasture management plans

Creating pasture sketch maps

To promote environmental sustainability and carbon absorption, tree planting training was also organized, marking the start of a tree planting initiative.

To alleviate grazing pressure, livestock experts led three specialized trainings focused on improving livestock quality and breeding. These efforts were aligned with the government's subsidies for milk and the rise in dairy product prices. Additional sessions were conducted on milk processing techniques, enabling herders to produce and sell value-added dairy products—such as curd, butter, and camel milk—thereby increasing household income.

Table 10: Allocation of costs

Expense	Narrative	Amount (in USD$)	Contribution from sale of PVCs	Contribution from other sources
Travel expense	Training (global warming, carbon emissions and pasture management, tree planting, on improving livestock quality and breeding)	2,500	2,500	
	Survey and monitoring	3,000	3,000	
	Participant meeting	1,500	1,500	
Subtotal		**7,000**	**7,000**	
MSRM staff time (2 staff 12 months)	Country management of project and Markit Account	36,000	17,318.6	18,681.4
	Social insurance (24%)	8,640		8,640
	Income tax (10%)	3,600		3,600
Subtotal		**48,240**	**17,318.6**	**30,921.4**
Total		**55,240**	**24,318.6**	**30,921.4**

Annexes

Annex 1. Monitoring results for issuance request

Results are presented in Tables 8a and 8b, and Section E above.

Further supporting information from Livestock Numbers for Year 9 is also included below.

Livestock Numbers - Year 9

1. Hongor Ovoo

Table 1a. Hongor Ovoo *Heseg* actual livestock numbers

Year	Camel	Horse	Cattle	Sheep	Goat	Total	% change compared with 2014
2014	0	880	2,260	7,120	3,835	14,095	100
2015	0	825	2,450	7,215	3,824	14,314	101.6
2016	0	1,017	2,697	8,758	4,237	16,709	118.5
2017	0	906	2,483	6,590	3,414	13,393	95
2018	0	804	2,432	7,120	3,448	13,804	97.9
2019	0	652	2,895	8,203	3,143	14,893	105.7
2020	0	635	2,083	7,100	2,503	12,321	87.4
2021	0	907	2,669	7,152	2,788	13,516	95.9
2022	0	1,108	3,366	7,740	3,692	15,906	112.8
2023	0	977	2,705	4,273	2,023	9,985	70.8

Table 1b. Hongor Ovoo *Heseg* livestock numbers (sheep units)

Year	Camel	Horse	Cattle	Sheep	Goat	Total	2015-2020 /2014*100%
2014	0	4,879	8,895	4,329	2,163	20,266	100.0
2015	0	4,574	9,643	4,387	2,157	20,760	102.4
2016	0	5,638	10,615	5,325	2,390	23,968	118.3
2017	0	5,023	9,773	4,007	1,925	20,728	102.3
2018	0	4,457	9,572	4,329	1,945	20,303	100.2
2019	0	3,560	13,668	6,871	2,403	26,502	130.8
2020	0	3,467	9,834	5,947	1,914	21,162	104.4
2021	0	4,112	10,370	4,680	1,788	20,950	103.4

2022	0	5,150	12,764	5,325	2,392	25,631	126.5
2023	0	4,541	10,387	3,213	1,472	19,613	96.8

2. Ikh Am

Table 3a. Ikh Am *Heseg* actual livestock numbers

Year	Camel	Horse	Cattle	Sheep	Goat	Total	Compared with 2014 years, %
2014	0	1,188	1,143	10,457	6,960	19,748	100
2015	18	1,503	1,337	11,882	7,677	22,417	113.5
2016	29	1,477	1,377	13,501	7,574	23,958	121.3
2017	26	1,161	1,005	10,853	5,798	18,843	95.4
2018	2	809	985	10,529	6,046	18,371	93
2019	0	971	982	11,710	7,156	20,819	105.4
2020	0	515	686	11,415	6,880	19,496	98.7
2021	0	678	649	10,309	5,556	17,192	87.1
2022	15	961	824	13,331	6,177	21,308	107.9
2023	18	842	827	12,224	5,211	19,122	96.8

Table 3b. Ikh Am *Heseg* livestock numbers (sheep units)

Year	Camel	Horse	Cattle	Sheep	Goat	Total	2015-2020 /2014*100%
2014	0	6,586	4,499	6,358	3,925	21,368	100.0
2015	81	8,333	5,262	7,224	4,330	25,230	118.1
2016	130	8,189	5,420	8,209	4,272	26,219	122.7
2017	117	6,437	3,956	6,599	3,270	20,377	95.4
2018	9	4,485	3,877	6,402	3,410	18,183	85.1
2019	0	5,315	4,497	9,765	5,458	25,035	117.2
2020	0	2,819	3,142	9,519	5,248	20,727	97.0
2021	0	3,424	2,257	6,697	3,630	16,008	74.9
2022	39	4,487	3,019	9,473	4,021	21,039	98.5
2023	58	3,915	3,175	9,192	3,778	20,118	94.2

3.Dulaan Khairkhan

Table 5a. Dulaan Khairkhan actual livestock numbers

Year	Camel	Horse	Cattle	Sheep	Goat	Total	Compared with 2014 years, %
2014	201	85	65	531	3,940	4,822	100
2015	195	96	64	606	4,383	5,344	110.8
2016	230	11 1	73	719	4,787	5,920	122.8
2017	158	72	63	562	3,864	4,719	97.9
2018	202	91	47	528	4,008	4,876	101.1
2019	224	98	39	531	4,109	5,001	103.7
2020	150	54	34	354	2,874	3,466	71.9
2021	147	64	47	365	2,697	3,320	68.9
2022	153	73	28	416	3,439	4,109	85.2
2023	105	73	24	438	3,465	4,105	85.1

Table 5b. Dulaan Khairkhan livestock numbers (sheep units)

Year	Camel	Horse	Cattle	Sheep	Goat	Total	2015-2018 /2014*100%
2014	900	471	256	323	2222	4173	100.0
2015	874	532	252	368	2472	4498	107.8
2016	1030	615	287	437	2700	5070	121.5
2017	708	399	248	342	2179	3876	92.9
2018	905	505	185	321	2261	4176	100.1
2019	886	555	183	450	3208	5282	126.6
2020	593	306	159	300	2244	3603	86.3
2021	519	398	229	338	2357	3841	92.0
2022	505	360	110	307	2240	3522	84.4
2023	309	354	77	312	2413	3465	83.0

Annex 2. Ongoing monitoring results for all participants

Monitoring results for Year 9 are summarised in Section E, Table 8a & 8b.

Further supporting information from Livestock Numbers - Year 9 is also included as part of Annex 1, above.

Carbon modelling calculations are presented in the following tables. These underpin the figures for carbon sequestration achieved in Year 9, as presented in Section C, Table 4 of the main report.

Table Annex 2a: Hongor Ovoo, Ikh Tamir soum. Grazing Management Activity Description by Grazing Location

Grazing location	Riparian meadow		Mountain meadow			Mountain steppe		
	spring/summer/fall	summer	winter	summer/fall	winter/spring	fall	winter/spring	summer/fall
Estimation of sustainable carrying capacity								
Year 9 (2023-2024) 1% reduction in livestock numbers against 2014 baseline								
Start of grazing season (dd/mm)	25-Mar-23	12-Jun-23	15-Oct-23	25-May-23	1-Nov-23	20-Aug-23	15-Oct-23	25-May-23
End of grazing season (dd/mm)	20-Aug-23	1-Aug-23	25-Mar-24	1-Nov-23	1-May-24	15-Oct-23	25-May-24	15-Oct-23
Number of days grazing in this location	148	50	162	160	182	56	223	143
Average number of moves (camps) in this location	5	3	2	5	3	3	3	5
Average number of sheep units grazing in this location	3,934	5,273	8,059	1,936	3,768	4,307	7,786	4,162
Area (ha)	1,483.5	2,651.2	4,639.4	786.4	2,169.1	1,647.9	4,481.8	1,292.6
Yield (kg DM ha)	**700.0**	**525.0**	**950.0**	**650.0**	**950.0**	**690.0**	**950.0**	**850.0**
Total yield (kg DM)	1,038,450.0	1,391,885.3	4,407,401.5	511,160.0	2,060,645.0	1,137,023.4	4,257,710.0	1,098,727.0
Estimation of sustainable carrying capacity	630	472.5	855	585	855	621	855	765
Recommended biomass utilization rate (%)	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4
Kg DM per sheep unit per day	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Number of days grazing for each plot in this location	30	17	81	32	61	19	74	29
Total number of sheep unit that can be grazed to sequester carbon	10,023.6	23,860.9	19,433.0	4,563.9	9,704.8	17,403.4	16,365.3	10,976.3
	0.39	**0.22**	**0.41**	**0.42**	**0.39**	**0.25**	**0.48**	**0.38**

Table Annex 2b: Ikh Am, Undurshireet soum. Grazing Management Activity Description by Grazing Location

Grazing location	Riparian meadow	Mountain steppe		Steppe	
	spring	spring	winter	spring	winter
Estimation of sustainable carrying capacity					
Year 9 (2023-2024) 2% reduction in livestock numbers against 2014 baseline					
Start of grazing season (dd/mm)	1-Mar-23	1-Mar-23	20-Nov-23	1-Mar-23	20-Nov-23
End of grazing season (dd/mm)	10-Jun-23	10-Jun-23	1-Mar-24	10-Jun-23	1-Mar-24
Number of days grazing in this location	101	101	101	101	101
Average number of moves (camps) in this location	5	5	2	5	2
Average number of sheep units grazing in this location	5,577	4,606	10,299	9,935	9,819
Area (ha)	851.7	703.3	7804.8	1517.1	7441.3
Yield (kg DM ha)	**837**	**837**	**647**	**837**	**647**
Total yield (kg DM)	712,872.9	588,662.1	5,049,705.6	1,269,812.7	4,814,521.1
Estimation of sustainable carrying capacity					
Recommended biomass utilization rate (%)	0.5	0.5	0.4	0.5	0.4
Kg DM per sheep unit per day	1.4	1.4	1.4	1.4	1.4
Number of days grazing for each plot in this location	20	20	51	20	51
Total number of sheep unit that can be grazed to sequester carbon	12,603.8	10,407.7	28,569.8	22,450.7	27,239.2
	0.44	**0.44**	**0.36**	**0.44**	**0.36**

Table Annex 2c: Dulaan Khairkhan, Bogd soum. Grazing Management Activity Description by Grazing Location

Grazing location	Mountain desert steppe		Desert steppe	
	winter/spring	fall	summer/fall	fall
Description of baseline grazing practices				
Year 9 (2023-2024) 1 % reduction in livestock numbers against 2014 baseline				
Start of grazing season (dd/mm)	10-Nov-23	20-Aug-23	1-May-23	20-Aug-23
End of grazing season (dd/mm)	1-May-24	10-Nov-23	10-Nov-23	10-Nov-23
Number of days grazing in this location	173	82	193	82
Average number of moves (camps) in this location	3	4	5	4
Average number of sheep units grazing in this location	3,465	1,399	1,261	690
Area (ha)	9,023	4,010	3,750	2,051
Yield (kg DM ha)	220	140	135	135
Total yield (kg DM)	1,985,060.0	561,400.0	506,250.0	276,885.0
Estimation of sustainable carrying capacity				
Recommended biomass utilization rate (%)	0.4	0.3	0.4	0.3
Kg DM per sheep unit per day	1.4	1.4	1.4	1.4
Number of days grazing for each plot in this location	58	21	39	21
Total number of sheep unit that can be grazed to sequester carbon	9,835.1	5,868.3	3,747.2	2,894.3
	0.35	**0.24**	**0.34**	**0.24**

Annex 2d: C sequestration per ha by pasture type under differing grazing pressures, Hongor Ovoo

See Table 8a in main text.

Annex 2e: C sequestration per ha by pasture type under differing grazing pressures, Ikh Am

See Table 8a in main text.

Annex 2f: C sequestration per ha by pasture type under differing grazing pressures, Dulaan Khairkhan

See Table 8a in main text**.**

Annex 3. Reallocation of commitments

n/a

Annex 4. Socioeconomic monitoring results

These are reported in Table 8b.

Annex 5. Conservation and monitoring results

These are reported in Tables 8a, 8b, referring to Annex 2.

Annex 6. Impacts

Monitoring results as reported in previous annexes and in Table 8b.

Annex 7. Community meeting records (summary)

Meetings and training events with *heseg* members are described in Section H above.

Annex 8. Historic sales data

Table 11: Historic sales data

Invoice Date	Date of receipt by MSRM	Vintage	Buyer	No of PVCs	Price per PVC ($)*	Total sale amount ($) *	% Received by participants *
06/02/2017	15/05/2017	2015-2016	CLevel	50			70%
01/07/2017	04/10/2017	2015-2016	ZeroMission	2,500			70%
15/12/2017	27/11/2018	2015-2016	ZeroMission	500			70%
31/05/2018	27/11/2018	2015-2016	ZeroMission	1,000			70%
02/04/2019	05/04/2019	2015-2016	CLevel	140			70%
09/03/2019	PV escrow	2015-2016	ZeroMission	700			70%
07/05/2019	15/05/2019	2015-2016	ZeroMission	1,653			70%
05/06/2019	18/06/2019	2015-2016	ZeroMission	328			70%
26/07/2019	19/02/2020	2015-2016	CLevel	50			70%
05/09/2019	18/10/2020	2015-2016	myclimate	12,784			70%
05/09/2019	18/10/2020	2015-2016	myclimate	310			70%
05/09/2020	18/10/2020	2016-2017	myclimate	6,906			70%
02/10/2019	11/11/2019	2016-2017	ZeroMission	624			70%
06/02/2020	13/02/2020	2016-2017	ZeroMission	454			70%
02/03/2020	13/04/2020	2016-2017	ZeroMission	1,181			70%
16/03/2020	20/03/2020	2016-2017	CLevel	300			70%
17/02/2021	04/06/2021	2016-2017	Clevel	50			70%
27/03/2021	02/04/2021	2016-2017	Zeromission	547			70%
24/03/2021	13/04/2021	2016-2017	Azolla	70			70%
14/04/2021	04/08/2021	2016-2017	Clevel	320			70%
04/06/2021	04/08/2021	2016-2017	Clevel	500			70%
01/07/2021	16/07/2021	2016-2017	Eternal Landscapes	87			70%
06/07/2021	27/08/2021	2016-2017	Zeromission	28			70%
14/07/2021	04/08/2021	2016-2017	Clevel	636			70%
23/07/2021	04/06/2021	2016-2017	Clevel	300			70%
27/10/2021	16/02/2022	2016-2017	myclimate	7,997			70%
27/10/2021	16/02/2022	2015-2016	myclimate	7,592			70%
27/10/2021	16/02/2022	2016-2018	myclimate	17,975			70%
27/10/2021	16/02/2022	2018-2019	myclimate	25,092			70%
03/11/2021	15/11/2021	2020-2021	Carbon technnologies	74			70%
19/03/2022	26/04/2022	2019-2020	Zeromission	96			70%
19/03/2022	26/04/2022	2020-2021	Zeromission	5,854			70%
19/01/2023	26/01/2023	2019-2020	Clevel	10,000			70%
23/08/2023	01/09/2023	2020-2021	Clevel	900			70%
18/08/2023	26/09/2023	2020-2021	Zeromission	500			70%
01/09/2023	03/10/2023	2020-2021	myclimate	4,335			70%

05/10/2023	23/10/2023	2020-2021	Pelorus Foundation	500			70%
05/10/2023	16/11/2023	2020-2021	Clevel	2,500			70%
10/11/2023	20/12/2023	2020-2021	Clevel	2,500			70%
Total				**117,933**			

Table 12: Summary of historic sales data

International bank wire fees ($)	
Local bank charges	
PV issuance fees ($)	
Total sales after deduction of bank fees and issuance fees ($)	
Amount assigned to participants (70%)	