



**Verified Carbon
Standard**

NATIONAL SHALE OIL LOW-CARBON INTELLIGENT DEMONSTRATION BASE CARBON SINK AFFORESTATION PROJECT



Draft Document Prepared by Beijing MD Energy Technology Co., Ltd.

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1 PROJECT DETAILS

1.1 Summary Description of the Project

National Shale Oil Low-Carbon Intelligent Demonstration Base Carbon Sink Afforestation Project (hereafter referred to as “the Proposed Project”) is located in Xinbao Village, Yule Town, Huachi County, Qingyang City, Gansu Province, People’s Republic of China.

In the absence of the Proposed Project, the sites of the project are all low-nutrient, low-supply land, and the terrain is steep, with few herbaceous plants growing. Without its implementation, all the sites will keep the same circumstances with no natural renewal and reforestation within the project area. Through the implementation of the proposed project, it enhances ecosystem services through carbon storage, and soil and water conservation. It has a significant potential to mitigate the effects of climate change effects through microclimate moderation and natural resources conservation in the short run and through carbon sequestration in the long run. It also provides employment to rural population, and promote the sustainable development of local economy and society.

PetroChina Company Limited Changqing Oilfield Shale Oil Development Branch (hereafter refers to “the Project Proponent”), as a natural gas production enterprise with a sense of social responsibility, hopes to develop an afforestation project for a single location, and achieve ecosystem conservation and climate change mitigation. From 2023 to 2024, approximately 55,000 saplings will be planted, covering an area of around 500 mu.

The species selected for afforestation include Mongolian pine, Spruce, and Xinjiang poplar, due to the high survival rate, better ecological benefits, ability to withstand extreme weather disasters, strong resistance to pests and diseases, their acceptability by local people, and carbon sequestration potential.

The project estimates the GHG removals occurring from afforestation activities in accordance with the methodology AR-AMS0007: “Afforestation and reforestation project activities implemented on lands other than wetlands”, Version 03.1 developed under Clean Development Mechanism (CDM) for small-scale plantations. The project intends to generate carbon credits for the voluntary market under the VCS standard. The total GHG emission reduction quantified under the project for crediting period of 20 years is 13,184 tCO₂e with average CO₂ removal of 659.20tCO₂e per year.

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
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Validation	25-December-2023	VCS	China Classification Society Certification Co., Ltd	/
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1.3 Sectoral Scope and Project Type

Sectoral scope	VCS Sector 14 “Agriculture, Forestry, and other Land uses (AFOLU)”
AFOLU project category¹	Afforestation, Reforestation and Revegetation (ARR)
Project activity type	Non-grouped project

1.4 Project Eligibility

1.4.1 General eligibility

The sectoral scope of the project is AFOLU, as a result, not applicable.

1.4.2 AFOLU project eligibility

The project will generate GHG removals through small-scale afforestation activity on a non-forest and non-wetlands. Thus, the project falls under the Afforestation/Reforestation (A/R) Small-scale Methodology AR-AMS0007, approved under the CDM, which is recognized and used under the VCS Standards. The project shall comply with all rules and requirements stated in the following documents:

- Verified Carbon Standard (VCS) Program guide Version 4.4,
- VCS Standard, Version 4.5,
- VCS Methodology Requirements, v4.4,
- AFOLU Non-Permanence Risk Tool, v4.1

As a result, the Proposed Project is included under the scope of the VCS Program and not excluded under Table 2.1 of the VCS Standard.

In the absence of the Proposed Project, the sites of the project are all low-nutrient, low-supply land, and the terrain is steep, with few herbaceous plants growing. Thus, the native ecosystems have not been converted, cleared, drained, or degraded to generate GHG credits.

¹ See Appendix 1 of the VCS Standard

No clearance of the native ecosystems will be taken place during the project activities. The project area has distributed native species and/or species that have adapted to local ecological conditions, these include Mongolian pine, Spruce, and Xinjiang populus. And these trees species of the project have passed quarantine inspection, doesn't any invasive species. The project area does not take place clearing or conversion within 10 years of the project start date.

1.4.3 Transfer project eligibility

The project is not a transfer project or CPAs seeking registration, as a result, not applicable.

1.5 Project Design

- ☒ Single location or installation
- ☐ Multiple locations or project activity instances (but not a grouped project)
- ☐ Grouped project

The project is designed to afforestation and carried out in one districts, in Xinbao Village, Yule Town, Huachi County, Qingyang City, Gansu Province, People's Republic of China as described in section 1.1, and the project proponent is PetroChina Company Limited Changqing Oilfield Shale Oil Development Branch which is single project proponent.

1.5.1 Grouped project design

The project is not a grouped project, as a result, not applicable.

1.6 Project Proponent

Organization name	PetroChina Company Limited Changqing Oilfield Shale Oil Development Branch
Contact person	Zhang Haibing
Title	Manager
Address	No.1, Building 51, No.7 Yucai Road, Fengchengyuan Community, Qingcheng Base, Qingcheng County, Qingyang City, Gansu Province, P. R. China
Telephone	+86 13993431513
Email	zhanghb1_cq@petrochina.com.cn

1.7 Other Entities Involved in the Project

Organization name	Beijing MD Energy Technology Co., Ltd.
Role in the project	Project Developer
Contact person	Elva. Feng
Title	Project Manager
Address	Room 18-B, International Metro Centre Office Building, Chaoyang District, Beijing, P.R. China
Telephone	+86-010-65566632
Email	elva.feng@mdenergy.cn

1.8 Ownership

According to the Certificate of title issued by the local government in accordance with relevant laws in the P.R. China, the proposed project land is owned by Madengbian Natural village, Xinbao Village, Yule Town, Huachi County, Qingyang City, Gansu Province, People's Republic of China.

The land owner signed a contractual agreement with the Project Proponent, authorizing the rights of control and operate project activities according to relevant laws, including activities of afforestation, management and development of GHG removals within the project boundary during the project crediting period. According to the Agreement, the Project Proponent is authorized the legal rights to control, develop and manage the carbon credits generated by the proposed project during the crediting period. More details could be referred in the Agreement for specific allocation of carbon credits.

Beijing MD Energy Technology Co., Ltd. is the entity authorized by the Project Proponent to the provide technical support and consultancy on adopting VCS standards for emission reduction of their afforestation project, as well as access the Verra Registry and communicate with Verra on their behalf for specified activities related to the Project. The project of the carbon credits generated on the forest land during the crediting period will be managed by Beijing MD Energy Technology Co., Ltd. Carbon credits will be managed and allocated via Beijing MD Energy Technology Co., Ltd. in strict accordance with the contract. And the financial benefits accrued from the sale of carbon credits under the project are intended for the Project Proponent.

1.9 Project Start Date

Project start date	31-December-2024
Justification	The project start date is the date on which activities such as land preparation and planting are carried out which resulted in removal of the GHG emissions. The accomplishment of

the afforestation started as on 31 December 2024, according to the Afforestation Contract.

1.10 Project Crediting Period

Crediting period	☐ Seven years, twice renewable ☐ Ten years, fixed ☒ Other (The project of sectoral scope is AFOLU, and according to VCS Standard, for all AFOLU projects other such ALM projects described, the initial projects crediting period shall be a minimum of 20 years, thus the project crediting period will be of 20 years starting.)
Start and end date of first or fixed crediting period	31-December-2024 to 30-December-2044

1.11 Project Scale and Estimated GHG Emission Reductions or Removals

☒ < 300,000 tCO₂e/year (project)

☐ ≥ 300,000 tCO₂e/year (large project)

Calendar year of crediting period	Estimated GHG emission reductions or removals (tCO ₂ e)
31-December-2024 to 30-December-2025	0
31-December-2025 to 30-December-2026	0
31-December-2026 to 30-December-2027	8
31-December-2027 to 30-December-2028	28
31-December-2028 to 30-December-2029	77
31-December-2029 to 30-December-2030	151
31-December-2030 to 30-December-2031	288
31-December-2031 to 30-December-2032	363
31-December-2032 to 30-December-2033	476
31-December-2033 to 30-December-2034	510

31-December-2034 to 30-December-2035	566
31-December-2035 to 30-December-2036	609
31-December-2036 to 30-December-2037	707
31-December-2037 to 30-December-2038	890
31-December-2038 to 30-December-2039	992
31-December-2039 to 30-December-2040	1154
31-December-2040 to 30-December-2041	1288
31-December-2041 to 30-December-2042	1478
31-December-2042 to 30-December-2043	1721
31-December-2043 to 30-December-2044	1878
Total estimated ERRs during the first or fixed crediting period	13184
Total number of years	20
Average annual ERRs	659.20

1.12 Description of the Project Activity

The project is located in Xinbao Village, Yuele Town, involves one sub-compartment, covering an area of around 500 mu.

The techniques/measures for project implementation are described below.

- Provenance and Seedling Raising

The seedlings must have a phytosanitary certificate and quality inspection certificate, and it is prohibited to use unqualified without a license, unclear sources, and diseases and pests. The seedlings go up the hill to plant trees. In order to reduce carbon leakage caused by long-distance transportation of seedlings, carbon sink afforestation gives priority to local seedling cultivation or nearby seedling transfer.

- Planting Technique

This project adopts the planting method of trees with soil balls. When planting, first dig a planting hole in the center of the planting hole that is slightly larger than the mud head of the seedling, remove the insoluble materials that bind the seedling, put the soil lightly in the

planting hole, and then backfill the fine soil around the seedling, and compacted the fill when filling, so that the seedling and the original soil are in close contact.

- Afforestation Model

This area belongs to the semi-arid grassland area, with mountainous terrain as the main terrain. The species selected for afforestation include Mongolian pine, Spruce, and Xinjiang poplar. In order to preserve the existing vegetation and biodiversity as much as possible, the land preparation method adopts the method of local consolidation, the planting density was 111 plants per mu, digging pits of size 0.80m × 0.60m (length × width) at a spacing of 2m × 3m is equal to a coverage of 8 per cent.

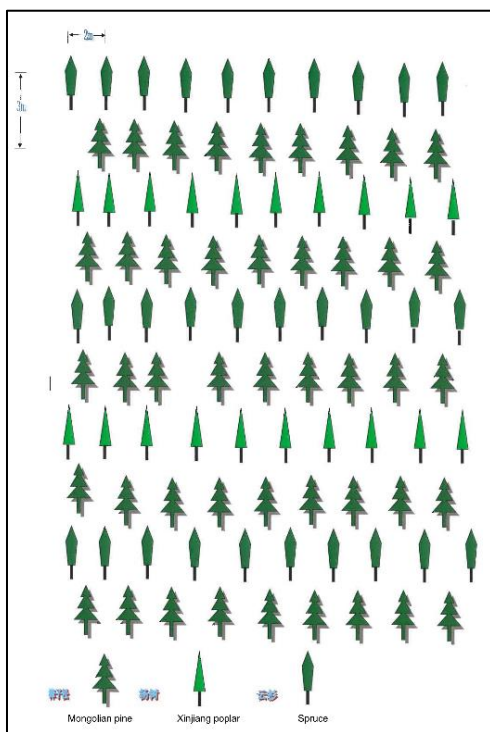


Figure 1-1: Plantation Model

The project is not a REDD+ project and is not located within a jurisdiction covered by a jurisdictional REDD+ program.

1.13 Project Location

The project is located in Xinbao Village, Yule Town, Huachi County, Qingyang City, Gansu Province, People's Republic of China. The project has a central geographical coordinates of the Latitude 36.202687 North and 107.928644 East.

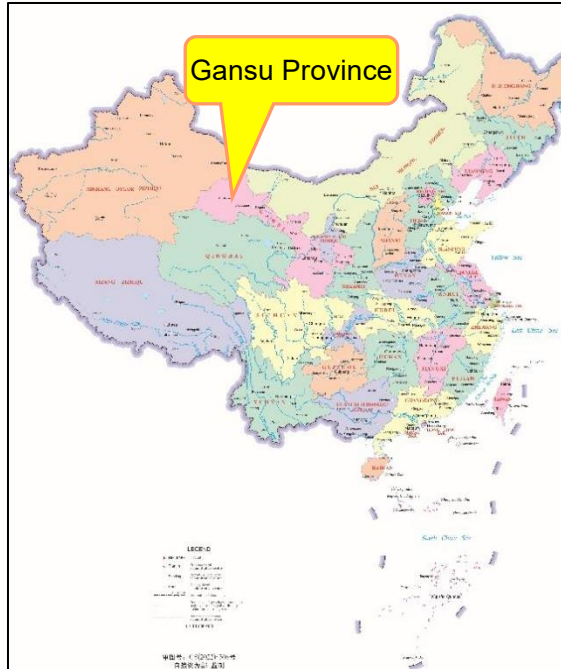


Figure 1-2: Location of Gansu Province in China

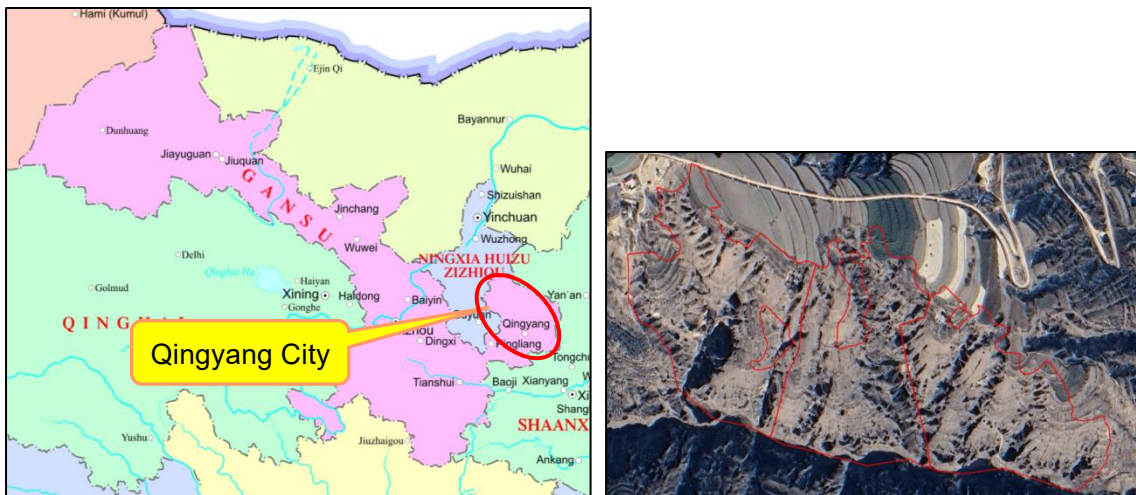


Figure 1-3: Location of the Project

1.14 Conditions Prior to Project Initiation

Ecosystem type: Before the initiation of the project the ecosystem type of the proposed project area was classified as grassland ecosystem.

Current and historical land-use: Currently the project area is forested land. The condition of the selected land under project activity instance prior to the project initiation will be designated other grassland 10 years before the project start date.

Present and prior environmental conditions of the project area:

- Climate

Xinbao Village, Yuele Town, Huachi County, where the project is located, is a semi-arid area with a climate characterized by low temperature, large temperature difference between day and night, dry air. The average annual temperature in this area is 18°C, the annual extreme maximum temperature is 38°C, the minimum temperature is -22°C, and the average daily temperature difference is 11°C.

- Hydrology

Rainfall in this area is small and uneven, with annual precipitation of more than 400 mm, mostly concentrated in July, August and September.

- Topography

The terrain of this area is mainly mountainous, the site conditions are more complex, the landform is undulating, the mountains and rivers have both, belongs to the Longdong loess Plateau landform type, the terrain is high in the north and low in the south, from the northwest to the southeast inclined.

- Relevant historic conditions

Huachi County, where the project is located, is a special cultural zone with profound heritage on the Silk Road and the source of farming culture. There are 43 red sites in Huachi County, such as the former site of the Soviet government of Shaanxi-Gansu Border area and the old residence of celebrities.

- Soils

The main soil types in this area are yellow loam soil, Hailu soil, and a small amount of alluvial loess, meadow soil, red colloidal soil, and secondary salin-alkali soil. The soil type in this project area is mainly yellow spongy soil, is not belong to the category of wetland and organic soil.

- Vegetation

The project area belongs to semi-arid grassland area with vegetation coverage between 20% and 40%. The main afforestation species are apricot, spruce, camphor pine, poplar, platycypress and so on. Herbs are stipa, reed grass, Gaertn and so on.

1.15 Compliance with Laws, Statutes and Other Regulatory Frameworks

As a tree planting program that takes place voluntarily on non-forest land, there are several laws/regulations supporting relevant activities in line with the designed project activities of this project. To demonstrate that the project activity is in compliance with all the applicable

legal and regulatory requirements, the applicable Government laws and regulations which are implemented prior to 2023 are scrutinized.

- People's Republic of China is a member of the UNFCCC (United Nations Framework Convention on Climate Change). The project complies with this regulatory framework, because in the AFOLU scope, Afforestation/Reforestation is one of several mechanisms by which GHG emissions are expected to be reduced.
- The project is compliant with the national and regional legal framework of the Government of China. The development of the project is in line with all current applicable law and regulations in China, but doesn't belong to mandatory scope.

The following are the list of such laws which are implemented:

- According to the Forestry Law of the People's Republic of China, people's governments at all levels encourage all walks of life and urban and rural residents to carry out afforestation activities, so afforestation activities are in line with national laws and regulations. And this forest Law indicates that State owned and collectively owned barren mountains, wastelands and beaches suitable for afforestation may be contracted by units or individuals for afforestation.²
- The guideline of The General Office of the State Council on scientific greening encourages afforestation of barren mountains, wasteland and beaches, degraded woodland and grassland.³
- The project is developed in accordance with Afforestation Technical Regulations which is the standard specifies the basic principles of afforestation.⁴

1.16 Double Counting and Participation under Other GHG Programs

1.16.1 No Double Issuance

Is the project receiving or seeking credit for reductions and removals from a project activity under another GHG program?

☐ Yes ☒ No

1.16.2 Registration in Other GHG Programs

Is the project registered or seeking registration under any other GHG programs?

² https://www.gov.cn/xinwen/2019-12/28/content_5464831.htm

³ https://www.gov.cn/zhengce/zhengceku/2021-06/02/content_5614922.htm

⁴ Artificial afforestation technical regulations (GB/T 15776-2016)

☐ Yes

☒ No

1.16.3 Projects Rejected by Other GHG Programs

Has the project been rejected by any other GHG programs?

☐ Yes

☒ No

1.17 Double Claiming, Other Forms of Credit, and Scope 3 Emissions

1.17.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the *VCS Program Definitions* for definitions of emissions trading program and binding emission limit.

☐ Yes

☒ No

The Project Proponent itself does not have any binding limits on GHG emissions and does not look for any compliance with an emissions trading program.

1.17.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the *VCS Program Definitions* for definition of GHG-related environmental credit system.

☐ Yes

☒ No

There is no other form of environmental credit included in the project framework. The project has not participated in any other program of environmental crediting for GHG emission removals. The project does not intend to generate any other kind of environmental crediting for GHG emission removals.

1.17.3 Supply Chain (Scope 3) Emissions

Do the project activities specified in Section 1.12 affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

☐ Yes

☒ No

The project activity does not involve any trees felling and does not result products or services, thus the project does not affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain.

If yes:

Is the project proponent(s) or authorized representative a buyer or seller of the product(s) (goods or services) that are part of a supply chain?

☐ Yes

☐ No

If yes:

Has the project proponent(s) or authorized representative posted a public statement on their website saying, "Carbon credits may be issued through Verified Carbon Standard project [project ID] for the greenhouse gas emission reductions or removals associated with [project proponent or authorized representative organization name(s)] [name of product(s) whose emissions footprint is changed by the project activities]."

☐ Yes

☐ No

1.18 Sustainable Development Contributions

The project is located in Xinbao Village, Yuele Town. The species selected for afforestation include Mongolian pine, Spruce, and Xinjiang poplar, and the area of afforestation belongs to the semi-arid grassland area, with mountainous terrain as the main terrain.

The implementation of the project can greatly improve the coverage rate of forest vegetation, reduce the occurrence of natural disasters such as soil erosion and debris flow, improve the soil structure, enhance the capacity of soil water retention and replenishment, and prevent soil drought and desertification. In the process of plant planting and natural restoration, forest biodiversity is restored and protected, promoting natural circulation and maintaining a good ecological balance. At the same time, during the construction period, it increased the income for the local residents.

Moreover, the project is strongly aligned with 4 of these 17 objectives for sustainable development from UNDP (United Nations Development Program)



SDG 1: End of poverty: Through afforestation practices, the project aims to secure, diversify and increase farmers' income.



SDG 5: Gender Equality, Through afforestation practices, women will be hired to provide them with equal employment opportunities.



SDG 13: Action for the climate: The project acts for climate change mitigation through carbon storage in the trees. From 2023 to 2024, around 55,000 have been planted.



SDG 15: Life of terrestrial ecosystems: the project aims at protecting the ecosystem and the biodiversity at landscape level.

1.19 Additional Information Relevant to the Project

1.19.1 Leakage Management

The leakage of the proposed project activities is considered as zero as it's insignificant.

1.19.2 Commercially Sensitive Information

No commercially sensitive information has been excluded from the public version of the project description.

1.19.3 Further Information

Not Applicable as everything is mentioned in this PD and other relevant documents.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder Identification

The project proponent signed a contractual with the villagers of Madenbian Village which is the land owner. Thus the villagers of Madenbian Village are considered the stakeholders.

Legal or customary tenure/access rights	The land can be leased or the management right of land can be transferred, according to the Forestry Law of the People's Republic of China. Then, through the stakeholder surveys, the villagers strongly agreed to sublet the land to the project participant for afforestation, so the two sides successfully signed the contract. Through the implementation of the proposed project, it also provides employment to rural population, and promote the sustainable development of local economy and society.
Stakeholder diversity and changes over time	Gansu Province, where the stakeholders belong, is one of the most difficult provinces in China to get rid of poverty. Of the 86 counties and urban areas in the province, there are 75 poor counties, among which Huachi County has been listed as a national-level poor county until 2019⁵. The per capita disposable income of rural residents in Huachi County is much lower than the national average level⁶, and the regional economic development level is low and the cost expenditure is rising⁷.
Expected changes in well-being	In the absence of the Proposed Project, the sites of the project are all low-nutrient, low-supply land, and the terrain is steep, with few herbaceous plants growing. Through the implementation of the proposed project, it enhances ecosystem services through carbon storage, and soil and water conservation. It has a significant potential to mitigate the effects of climate change effects through microclimate moderation and natural resources conservation in the short run and through carbon sequestration in the long run. It also provides employment to rural population, and promote the sustainable development of local economy and society.
Location of stakeholders	The location of stakeholders is Madengbian Natural village, Xinbao Village, Yule Town, Huachi County, Qingyang City, Gansu Province, People's Republic of China.
Location of resources	The location of resources is Xinbao Village, Yule Town, Huachi County, Qingyang City, Gansu Province, People's Republic of China.

2.1.2 Stakeholder Consultation and Ongoing Communication

Date of stakeholder consultation	2-March-2022
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⁵ https://www.gov.cn/xinwen/2020-03/03/content_5486376.htm

⁶ http://www.stats.gov.cn/xgk/sjfb/zxfb2020/202301/t20230117_1892129.html

⁷ https://www.hcx.gov.cn/xgk/fdzdgknr/tjxx/content_9298

Stakeholder engagement process	Stakeholder survey methods and processes are described below: a) Field investigation. Through random field investigation and visit in and around the construction site, on the one hand, to understand the relevant opinions or demands of local residents about the project construction, and collect the public attitude and feedback of random investigation and visit; on the other hand, through field investigation, investigation and analysis of sensitive factors (such as historical relics, scenic spots, etc.), historical contradictions, and incongruity of religions and customs around the project are carried out to identify possible risk points. b) A questionnaire survey. The survey team conducted a questionnaire survey on stakeholders from two aspects: first, to understand the village government's opinions on project implementation and project participants; the second is to conduct a random sampling survey of the people around the project, and collect the opinions and attitudes of the sampled groups.
Consultation outcome	Through understanding, the village government and the local residents very much agree with the implementation of the project, and there are no sensitive factors (such as historical relics, scenic spots, etc.), historical contradictions, and incongruity between religions and customs around the project. The planning and construction of the project have been strongly supported and helped by people from all walks of life and the broad masses of the people, and the project has shown good compatibility with the government, society and local people at the beginning of construction, and the social benefits are remarkable.
Ongoing communication	Mechanisms for soliciting views from stakeholders The evaluation opinions of stakeholders were collected by means of questionnaires. A total of questionnaires were sent out and 50 were recovered, with a recovery rate of 100%. The survey objects are mainly government staff and representatives of villager with land use rights in Madengbian Natural village, who were able to fully represent the opinions and suggestions of stakeholders. The age range of the survey subjects is between 25 and 50 years old, government workers have junior college education or above, and villagers have high school education or below.
Stakeholder input	All stakeholders support the implementation of the project activities.

2.1.3 Free Prior and Informed Consent

Obtaining consent	Through consultation with the villagers, the village collective leased the land contracted by the villagers to the project proponent for afforestation project development. All the villagers
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	related to the project plot agreed and signed a land transfer agreement. Thus, there are no ongoing or unresolved conflicts in this project.
Outcome of FPIC	In the absence of the Proposed Project, the land involved in the project was a barren mountain and wasteland, with steep site conditions, and no residents settled in the land. Before the implementation of the project, the village collective and the project proponent shall publicize the project activities to the local residents, and receive the supervision and comments of the residents. Report project progress to stakeholders during the project implementation phase. Thus, the project has not encroached on land, relocated people without consent, and forced physical or economic displacement.

2.1.4 Grievance Redress Procedure

Development process	Through communication and consultation with Xinbao Village Committee, Madenbian Village collective and stakeholders, the project proponent finally decide that Madenbian Village collective will receive and listen to the opinions and suggestions of stakeholders, and Xinbao Village Committee will coordinate with project participants and resolve the corresponding complaints.
Grievance redress procedure	If the stakeholders have comments or suggestions, they can report the situation to the village collective of Madenbian Village, while the Xinbao Village Committee will supervise and resolve the conflict. The stakeholders strongly agreed with the implementation of the project. During the implementation of the project, the project was implemented in strict accordance with the requirements without any conflict with the stakeholders.

2.1.5 Public Comments

Comments received	Actions taken
N/A	N/A

This project is in the public comment period and no comments have been received.

2.2 Risks to Stakeholders and the Environment

	Risks identified	Mitigation or preventative measure taken
Risks to stakeholder participation	No risk identified	All the villagers related to the project plot agreed and signed a land transfer agreement.
Working conditions	Effects of forest clearing, land preparation and seedling planting on soil and water loss during afforestation.	All kinds of construction activities are strictly controlled in the construction area, as far as possible not to destroy the

		original surface vegetation and soil, to retain the dead leaves and forest ground cover, not to cut the planted trees. Vehicles and construction machinery should drive on the demarcated road, and it is strictly prohibited to roll the surface vegetation at will. Afforestation has a positive impact on the environment.
Safety of women and girls	No risk identified	The afforestation activities of this project will strictly comply with the relevant provisions and requirements of the Environmental Protection Law of the People's Republic of China, the Implementation Regulations of the Law of the People's Republic of China on Soil and Water Conservation and the Technical Regulations of Afforestation.
Safety of minority and marginalized groups, including children	No risk identified	The afforestation activities of this project will strictly comply with the relevant provisions and requirements of the Environmental Protection Law of the People's Republic of China, the Implementation Regulations of the Law of the People's Republic of China on Soil and Water Conservation and the Technical Regulations of Afforestation.
Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)	Exhaust and noise from construction vehicles	The exhaust gas and noise of construction vehicles are short-term and local impacts, which can be eliminated with the end of construction and will not cause pollution to the environment.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

Discrimination and sexual harassment	The project proponent treated the local population with great respect and there was no discrimination or sexual harassment has occurred during the implementation of the project.
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Management experience	Before the implementation of the project, the project proponent have signed a green project contract with a professionally qualified construction party through open bidding. ⁸
Gender equity in labor and work	In order to promote equality between men and women, and to ensure that women enjoy equal rights with men in all aspects, Chinese government promulgated the Law of the People's Republic of China on the Protection of Women's Rights and Interests, which came into force on 1 October, 1992 ⁹ . Project participants have always complied with national laws and regulations, and the equal opportunities have been provided in the context of gender equity and pay for labor and work.
Human trafficking, forced labor, and child labor	In order to protect the legitimate rights and interests of workers, the Chinese government promulgated the Labor Law of the People's Republic of China, which came into effect on January 1995, stipulating that forced labor and the employment of minors are not allowed¹⁰. According to the provisions of the Criminal Law of the People's Republic of China¹¹, and according to the Action Plan against Human Trafficking (2021-2030) promulgated on April 9, 2021¹², China cracks down on human trafficking crimes in accordance with the law. The project proponent have signed a green project contract with a professionally qualified construction companies through open bidding. They have always complied with national laws and regulations. Thus, the project does not and will not use victims of human trafficking, forced labor, and child labor.

2.3.2 Human Rights

In the project design stage, the project selected a professional engineering company to compile the afforestation operation design document, and carried out detailed understanding and communication with the local residents, and selected the tree species suitable for the local environment and the local residents' favorite. During the implementation of the project, the project provides employment opportunities for local residents and increases their income, and improves the local ecological environment through afforestation activities.

The project fully respects and promotes the protection of the rights of intellectual property owners, low-income persons and customary rights holders.

2.3.3 Indigenous Peoples and Cultural Heritage

⁸ <https://www.bidcenter.com.cn/news-222667281-4.html>

⁹ https://www.gov.cn/guoqing/2021-10/29/content_5647634.htm

¹⁰ <https://www.gqb.gov.cn/node2/node3/node5/node9/node108/userobject7ai1378.html>

¹¹ http://www.yueyang.gov.cn/web/2570/2611/3940/content_1789434.html

¹² https://www.gov.cn/gongbao/content/2021/content_5609081.htm

There are no historical sites or cultural heritage in the project area, as a result, not applicable.

2.3.4 Property Rights

Rights to territories and resources	Through consultation with the villagers, the village collective leased the land contracted by the villagers to the project proponent for afforestation project development.
Respect for property rights	In the project design stage, the project selected a professional engineering company to compile the afforestation operation design document, and carried out detailed understanding and communication with the local residents, and selected the tree species suitable for the local environment and the local residents' favorite. During the implementation of the project, the project provides employment opportunities for local residents and increases their income, and improves the local ecological environment through afforestation activities.

2.3.5 Benefit Sharing

Process used to design the benefit sharing plan	Through consultation with the villagers, the village collective leased the land contracted by the villagers to the project proponent for afforestation project development.
Summary of the benefit sharing plan	According to the signed agreement, the right to use and profit from the land belongs to the project property.
Approval and dissemination of benefit sharing plan	According to the signed agreement, the benefit-sharing agreement was agreed up on by the affected stakeholder groups, and that the agreement was shared in a culturally appropriate manner.

2.4 Ecosystem Health

Identify and summarize any risks to the environment and the steps taken to mitigate them. Where no risk is identified, write "No risk identified" in the first column, and provide justification in the second column.

	Risks identified	Mitigation or preventative measure taken
Impacts on biodiversity and ecosystems	The implementation of the project is conducive to increasing biodiversity and thus improving ecosystem stability.	The project implements scientific afforestation in accordance with afforestation design standards.

	The impact of the project on biodiversity and the ecological environment is positive.	
Soil degradation and soil erosion	In the early stage of afforestation, the soil will be bare and loose, resulting in a certain area of bare ground and damaging the soil stability structure. Overall, the project will play an important role in soil conservation, wind prevention and sand fixation.	During the construction period, the publicity and education of construction personnel should be strengthened, and the work of patrol and law enforcement should be strengthened. Various construction activities should be strictly controlled in the construction area, as far as possible not to damage the original surface vegetation and soil. After preparation, cover the surface with shrubs and herbs in time to avoid exposing the topsoil. Tending adopts local soil loosening to preserve the surface vegetation as much as possible, and the weeds cultivated down are kept in place to reduce soil erosion.
Water consumption and stress	The project contributes to increased water conservation capacity.	Select suitable tree species according to geographical location and climatic conditions. Intensive afforestation measures such as water retaining agent and base fertilization are used. Improve planting skills, shorten planting time, and reduce water consumption during afforestation.
Usage of fertilizers	The project will use a small amount of base fertilizer during the afforestation process, which will have a minimal impact on the environment.	Reasonable control of fertilizer use.

2.4.1 Rare, Threatened, and Endangered species

Is the project located in or adjacent to habitats for rare, threatened, or endangered species?

☐ Yes

☒ No

2.4.2 Introduction of species

N/A

2.4.3 Ecosystem conversion

In the absence of the Proposed Project, the sites of the project are all low-nutrient, low-supply land, and the terrain is steep, with few herbaceous plants growing. The project area was not cleared or drained of existing natural ecosystems during project implementation.

3 APPLICATION OF METHODOLOGY

3.1 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	AR-AMS0007	Afforestation and reforestation project activities implemented on lands other than wetlands	03.1
Tool ¹³	ar-am-tool-08-v4.0.0	Estimation of non-CO ₂ GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity	04.0.0
Tool	ar-am-tool-12-v3.1	Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities	03.1
Tool	ar-am-tool-14-v4.2	Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities	04.2
Tool	ar-am-tool-15-v2.0	Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity	02.0
Tool	AFOLU-Non-Permanence-Risk-Tool-v4.1	VCS AFOLU Non-Permanence Risk Tool (Version 4.1) Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities.	4.1

3.2 Applicability of Methodology

¹³ CDM: Afforestation and reforestation project activities implemented on lands other than wetlands --- Version 3.1 (unfccc.int)

Methodology ID	Applicability condition	Justification of compliance
AR-AMS0007	This methodology is applicable to small-scale afforestation and reforestation (A/R) project activities	The project will reduce estimated GHG emission reductions by less than 300,000 per year which is belonged to small-scale afforestation and reforestation project activities.
AR-AMS0007	(a) The land subject to the project activity does not fall in wetland category	As per the IPCC GPG LULUCF 2003, wetlands are defined as lands that are covered or saturated by water for all or part of the year (e.g., peatland) and that does not fall into the forest land, crop land, grass land or settlements categories including reservoirs, natural rivers and lakes. The project site is sandy, barren and degraded land which designated other grassland without its implementation. Thus, the land subject to the project does not fall in wetland category.
AR-AMS0007	(b) Soil disturbance attributable to the project activity does not cover more than 10 per cent of area in each of the following types of land, when these lands are included within the project boundary: (i) Land containing organic soils; (ii) Land which, in the baseline, is subjected to land-use and management practices and receives inputs listed in appendices 2 and 3 to this methodology.	The project area is other grassland. Soil disturbance attributable to project area will always be less than 10% of the total surface. Soil disturbance attributable to the project activity is 8% which does not cover more than 10 per cent of area of land, according to Design Document of Afforestation Operation prepared, Details are available in Section 1.12. Meanwhile, the area of the project belongs to the semi-arid grassland area, with mountainous terrain as the main terrain. The project

		activity land is not containing organic soils. The land on which the project activity has been established does not contain organic soils. The soils of the initial project activity instances and the grouped project area were classified according to the procedures of the Intergovernmental Panel on Climate Change (IPCC) utilizing soil maps. Any of the selected areas will undergo, under baseline conditions, land use or management practices described in appendices 2 and 3 of the selected methodology.
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Applicability of tools used:

Methodology ID	Applicability condition	Justification of compliance
ar-am-tool-08-v4.0.0	Estimation of non-CO ₂ greenhouse gas (GHG) emissions resulting from burning of biomass attributable to an A/R CDM project activity	The tool will be applied for each fire incident that affects an area greater than 0.5ha, where the accumulated area of fires in any year is higher than $\geq$ 5% of the project area. No fires have occurred in the past.
ar-am-tool-12-v3.1	Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities.	This tool has no internal applicability conditions. The tool is applicable as estimation of carbon stocks from tree plantations is a major outcome. Estimation of biomass carbon pool for the project activity. This is an important carbon pool for the project.
ar-am-tool-14-v4.2	Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities	
ar-am-tool-15-v2.0	Estimation of the increase in GHG emissions	Leakage is considered as nil. The project activities will

	attributable to displacement of pre-project agricultural activities in A/R CDM project activity	not cause, directly or indirectly, drainage of wetlands or peatlands or any increase in GHG emissions.
AFOLU-Non-Permanence-Risk-Tool-v4.1	VCS AFOLU Non-Permanence Risk Tool (Version 4.1) Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities.	Tool is applicable as the current project is an AFLOU project. It is mandatory to conduct non-permanence risk analysis. The tool sets out procedures to determine non-permanence risk rating. This determines number of buffer credits that shall be deposited into the AFOLU pooled buffer account.

3.3 Project Boundary

Source		Gas	Included?	Justification/Explanation
Baseline	Above-ground biomass	CO ₂	No	Not accounted for in the baseline under the AR-AMS0007
		CH ₄	No	Excluded for simplification. This is conservative.
		N ₂ O	No	Excluded for simplification. This is conservative.
		Other	N/A	N/A
	Below-ground biomass	CO ₂	No	Not accounted for in the baseline under the AR-AMS0007
		CH ₄	No	Excluded for simplification. This is conservative.
		N ₂ O	No	Excluded for simplification. This is conservative.
		Other	N/A	N/A
Project	Above-ground biomass	CO ₂	Yes	Carbon stock in this pool is expected to increase due to the implementation of the project activity
		CH ₄	No	Excluded for simplification. This is conservative.
		N ₂ O	No	Excluded for simplification. This is conservative.
		Other	N/A	N/A
	Below-ground biomass	CO ₂	Yes	Carbon stock in this pool is expected to increase due to the implementation of the project activity
		CH ₄	No	Excluded for simplification. This is conservative.
		N ₂ O	No	Excluded for simplification. This is conservative.

Source	Gas	Included?	Justification/Explanation
	Other	N/A	N/A

The map of the locations of the project is shown in Figure 3-1. The KML files for boundary for project location are provided separately. As shown, the spatial boundaries of the project area where the project activity is implemented locates within Xinbao Village, Yule Town, Huachi County, Qingyang City, Gansu Province, People's Republic of China with the geographical coordinate: latitude 36.202687 North and 107.928644 East.



Figure3-1. the spatial boundaries of the project area

3.4 Baseline Scenario

As stated in section 5.2 of the approved small-scale methodology AR-AMS0007 version 03.1, the baseline scenario for this grouped project is the continuation of the pre-project land-use.

The continuation of the land uses about project activity area is a minimum period of 20 years and before the proposed project design, the land would be barren woodland. At present, the land is degraded sandy land with an extremely low forest coverage indicated in photo as following. It shows that the proposed project is located in position which was barren grassland and desert before the proposed project is implemented.



Figure3-2. The degraded land before the proposed project

In the proposed project, the species selected for afforestation include Mongolian pine, Spruce, and Xinjiang poplar, due to the high survival rate, better ecological benefits, ability to withstand extreme weather disasters, strong resistance to pests and diseases, their acceptability by local people, and carbon sequestration potential. Meanwhile, the project will enhance the ability of the forest to conserve water, conserve water and soil, prevent wind and sand, fix carbon and release oxygen, improve soil and purify air.



Figure3-3. The project construction status

3.5 Additionality

3.5.1 Regulatory Surplus

Is the project located in an or Non-Annex 1 country?

☐ Annex 1 country

☒ Non-Annex 1 country

Are the project activities mandated by any law, statute, or other regulatory framework?

☐ Yes

☒ No

If the project is located inside a Non-Annex 1 country and the project activities are mandated by a law, statute, or other regulatory framework, are such laws, statutes, or regulatory frameworks systematically enforced?

☐ Yes

☐ No

According to the Forestry Law of the People's Republic of China, people's governments at all levels encourage all walks of life and urban and rural residents to carry out afforestation activities¹⁴, therefore the project activity is not mandated by any law, statute, and other regulatory framework.

3.5.2 Additionality Methods

The demonstration and assessment of additionality is done hereafter using the Appendix 1 of the AR-AMS0007 Small-scale Methodology: "Afforestation and reforestation project activities implemented on lands other than wetlands".

- **Investment barrier**

Gansu Province, where the proposed project is located, is a less developed area, where the local people are in economic difficulties and the local finance is tight, and there is no sufficient funds to invest in afforestation¹⁵. The investing for afforestation is not even the people's priority. Due to their lack of cash availability and capacity to invest, it is very unlikely that farmers invest time and money in tree planting that will take decades to deliver impacts, with rising prices and labor costs. In this context, the project land has been in a state of wasteland. Due to the complex topography of the area in which the project is located, the cost of afforestation investment is further increased. As a result, this project has significant investment barriers.

- **Barriers due to local ecological conditions**

The soil of the project site is poor, the vegetation coverage of forest trees is low, the soil erosion is serious, the land of the project site is degraded, and there are ecological conditions obstacles for afforestation. As a result, this project has barriers due to local ecological conditions.

3.6 Methodology Deviations

No any methodology deviations applied to this project, as a result, not applicable.

¹⁴ https://www.gov.cn/xinwen/2019-12/28/content_5464831.htm

¹⁵ https://pdf.dfcfw.com/pdf/H3_AP202302151583199091_1.pdf?1676534489000.pdf

4 QUANTIFICATION OF ESTIMATED GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

As described in sections above, the baseline scenario corresponds to the continuation of the agriculture status of the land. Considering the conditions of applicability of the selected methodology, changes in selected carbon pools (above ground biomass and belowground biomass) can be assumed to be negligible for the baseline emission calculations.

$$\Delta C_{BSL,t} = \Delta C_{TREE_BSL,t} + \Delta C_{SHRUB_BSL,t} + \Delta C_{DW_BSL,t} + \Delta C_{LI_BSL,t} \quad \text{Equation (1)}$$

Where:

- $\Delta C_{BSL,t}$ = Baseline net GHG removals by sinks in year t ; t CO₂-e
- $\Delta C_{TREE_BSL,t}$ = Change in carbon stock in baseline tree biomass within the project boundary in year t , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; t CO₂-e
- $\Delta C_{SHRUB_BSL,t}$ = Change in carbon stock in baseline shrub biomass within the project boundary, in year t , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; t CO₂-e
- $\Delta C_{DW_BSL,t}$ = Change in carbon stock in baseline dead-wood biomass within the project boundary, in year t , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; t CO₂-e
- $\Delta C_{LI_BSL,t}$ = Change in carbon stock in baseline litter biomass within the project boundary, in year t , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; t CO₂-e

The pools corresponding to shrub biomass, dead wood and litter will not be considered for the purposes of this project as explained above in Section above. The project area was other grassland before afforestation, and there were no loose trees. Therefore, these carbon pools will be assumed as zero in the baseline. As outlined in section above, the carbon stock in the baseline trees and shrubs are going to increases (sinks) due to the conditions of the land

under project area. Hence, the change in the amount of carbon stock is negative. However, changes in carbon stocks in trees in the baseline is accounted as zero in accordance to Methodological tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”, specific requirements are as follows.

- There are very few trees in the pre-project area and these trees are neither harvested, nor cleared, nor removed, throughout the crediting period of the project activity.
- The pre-project trees do not suffer mortality because of competition from trees planted in the project, or damage because of implementation of the project activity, at any time during the crediting period of the project activity.
- The pre-project trees are not inventoried along with the project trees in monitoring of carbon stocks but their continued existence, consistent with the baseline scenario, is monitored throughout the crediting period of the project activity.

Thus, changes in carbon stock in shrubs is also zero.

For simplicity, the baseline net GHG removals is considered to be carbon stock in baseline tree biomass within the project boundary.

$$\Delta C_{BSL,t} = 0$$

$$\Delta C_{TREE_BSL,t} = 0$$

$$\Delta C_{SHRUB_BSL,t} = 0$$

$$\Delta C_{DW_BSL,t} = 0$$

$$\Delta C_{LI_BSL,t} = 0$$

Therefore, baseline net GHG removals by sinks, $\Delta C_{BSL,t} = \Delta C_{TREE_BSL,t} = 0$.

4.2 Project Emissions

According to the applied methodology “AR-AMS0007 v03.1 developed the Clean Development Mechanism for small-scale Reforestation”.

The actual net GHG removals by sinks is calculated as follows:

$$\Delta C_{ACTUAL,t} = \Delta C_{P,t} - GHG_{E,t} \quad \text{Equation (2)}$$

Where:

$$\Delta C_{ACTUAL,t} = \text{Actual net GHG removals by sinks, in year } t; \text{ t CO}_2\text{-e}$$

$$\Delta C_{P,t} = \text{Change in the carbon stocks in project, occurring in the selected carbon pools, in year } t; \text{ t CO}_2\text{-e}$$

$GHG_{E,t}$ = Increase in non-CO₂ GHG emissions within the project boundary as a result of the implementation of the A/R CDM project activity, in year t , as calculated in the tool “Estimation of non-CO₂ GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity”; t CO₂-e

GHG emissions resulting from removal of herbaceous vegetation, combustion of fossil fuel, fertilizer application, use of wood, decomposition of litter and fine roots of N-fixing trees, construction of access roads within the project boundary, and transportation attributable to the project activity shall be considered insignificant and therefore accounted as zero. Therefore, $GHG_{E,t}$ is zero, $\Delta C_{ACTUAL,t} = \Delta C_{P,t}$.

Change in the carbon stocks in project, occurring in the selected carbon pools, in year t is calculated as follows:

$$\Delta C_{P,t} = \Delta C_{TREE_PROJ,t} + \Delta C_{SHRUB_PROJ,t} + \Delta C_{DW_PROJ,t} + \Delta C_{LI_PROJ,t} + \Delta SOC_{AL,t} \quad \text{Equation (3)}$$

Where:

$\Delta C_{P,t}$ = Change in the carbon stocks in project, occurring in the selected carbon pools, in year t ; t CO₂-e

$\Delta C_{TREE_PROJ,t}$ = Change in carbon stock in tree biomass in project in year t , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; t CO₂-e

$\Delta C_{SHRUB_PROJ,t}$ = Change in carbon stock in shrub biomass in project in year t , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; t CO₂-e

$\Delta C_{DW_PROJ,t}$ = Change in carbon stock in dead-wood biomass in project in year t , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; t CO₂-e

$\Delta C_{LI_PROJ,t}$ = Change in carbon stock in litter biomass in project in year t , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; t CO₂-e

$\Delta SOC_{AL,t}$ = Change in carbon stock in SOC in project, in year t , as estimated in the tool “Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities”; t CO₂-e

For the proposed project, Carbon stock in pre-project tree biomass is estimated in three type of trees, and detailed equation is following.

$$\Delta C_{P,t} = \Delta C_{TREE_PROJ,t}$$

Equation (4)

According to the applied methodological tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”.

The change in carbon stock in trees and the associated uncertainty are estimated as follows:

$$\Delta C_{TREE_PROJ,t} = C_{TREE_PROJ,t2} - C_{TREE_PROJ,t1}$$

Equation (5)

Thus,

$$\Delta C_{P,t} = \sum_{i=1}^M \Delta C_{TREE_PROJ,i}$$

Equation (6)

Where:

$\Delta C_{TREE_PROJ,t}$ = Change in carbon stock in tree biomass in the project in year t ; tCO₂-e

$C_{TREE_PROJ,t1}$ Carbon stock in trees as estimated at time t_1 ; t CO₂e

$C_{TREE_PROJ,t2}$ = Carbon stock in trees as estimated at time t_2 ; t CO₂e

4.3 Leakage Emissions

The calculations for leakage are determined through Tool AR0015: Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity.

$$LK_t = LK_{AGRIC,t}$$

Equation (7)

Where:

LK_t = GHG emissions due to leakage, in year t ; t CO₂-e

$LK_{AGRIC,t}$ = Leakage due to the displacement of agricultural activities in year t , as calculated in the tool “Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity”; t CO₂-e

There is no displacement of the agriculture activities for this project hence the leakage is accounted as zero.

4.4 Estimated GHG Emission Reductions and Carbon Dioxide Removals

The net anthropogenic GHG removals by sinks is calculated as follows:

$$\Delta C_{AR-CDM,t} = \Delta C_{ACTUAL,t} - \Delta C_{BSL,t} - LK_t \quad \text{Equation (8)}$$

Where:

- $\Delta C_{AR-CDM,t}$ = Net anthropogenic GHG removals by sinks, in year t ; t CO₂-e
- $\Delta C_{ACTUAL,t}$ = Actual net GHG removals by sinks, in year t ; t CO₂-e
- $\Delta C_{BSL,t}$ = Baseline net GHG removals by sinks, in year t ; t CO₂-e
- LK_t = GHG emissions due to leakage, in year t ; t CO₂-e

Since baseline removals and emissions due to leaks were considered zero, net anthropogenic removals are expressed according to the formula:

$$\Delta C_{AR-CDM,t} = \Delta C_{ACTUAL,t} \quad \text{Equation (9)}$$

Vintage period	Estimated baseline emissions (tCO ₂ e)	Estimated project emissions (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated reduction VCUs (tCO ₂ e)	Estimated removal VCUs (tCO ₂ e)	Estimated total VCUs (tCO ₂ e)
31-December-2024 to 30-December-2025	0	0	0	0	0	0
31-December-2025 to 30-December-2026	0	0	0	0	0	0
31-December-2026 to 30-December-2027	0	8	0	8	0	8

31-December-2027 to 30-December-2028	0	28	0	28	0	28
31-December-2028 to 30-December-2029	0	77	0	77	0	77
31-December-2029 to 30-December-2030	0	151	0	151	0	151
31-December-2030 to 30-December-2031	0	288	0	288	0	288
31-December-2031 to 30-December-2032	0	363	0	363	0	363
31-December-2032 to 30-December-2033	0	476	0	476	0	476
31-December-2033 to 30-December-2034	0	510	0	510	0	510
31-December-2034 to 30-	0	566	0	566	0	566

December -2035						
31- December -2035 to 30- December -2036	0	609	0	609	0	609
31- December -2036 to 30- December -2037	0	707	0	707	0	707
31- December -2037 to 30- December -2038	0	890	0	890	0	890
31- December -2038 to 30- December -2039	0	992	0	992	0	992
31- December -2039 to 30- December -2040	0	1154	0	1154	0	1154
31- December -2040 to 30- December -2041	0	1288	0	1288	0	1288
31- December -2041 to 30- December -2042	0	1478	0	1478	0	1478
31- December	0	1721	0	1721	0	1721

-2042 to 30-December-2043						
31-December-2043 to 30-December-2044	0	1878	0	1878	0	1878
Total	0	13184	0	13184	0	13184

For projects required to assess permanence risk:

i) Provide the requested information using the table below:

State the non-permanence risk rating (%)	13%
Has the non-permanence risk report been attached as either an appendix or a separate document?	☒ Yes ☐ No
For ARR and IFM projects with harvesting, state, in tCO ₂ e, the Long-term Average (LTA).	573.50 tCO ₂ e
Has the LTA been updated based on monitored data, if applicable?	☐ Yes ☐ No If no, provide justification. N/A
State, in tCO ₂ e, the expected total GHG benefit to date.	11,470 tCO ₂ e
Is the number of GHG credits issued below the LTA?	☒ Yes ☐ No If no, provide justification.

ii) Complete the table below for the project crediting period.

Vintage period	Estimated baseline emissions (tCO ₂ e)	Estimated project emissions (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated buffer pool allocation (tCO ₂ e)	Estimated reduction VCUs (tCO ₂ e)	Estimated removal VCUs (tCO ₂ e)	Estimated total VCU issuance (tCO ₂ e)
31-December-2024 to 30-December-2025	0	0	0	0	0	0	0

31- Decem ber- 2025 to 30- Decem ber- 2026	0	0	0	0	0	0	0
31- Decem ber- 2026 to 30- Decem ber- 2027	0	8	0	1	0	7	7
31- Decem ber- 2027 to 30- Decem ber- 2028	0	28	0	4	0	24	24
31- Decem ber- 2028 to 30- Decem ber- 2029	0	77	0	10	0	67	67
31- Decem ber- 2029 to 30- Decem ber- 2030	0	151	0	20	0	131	131
31- Decem ber- 2030 to 30- Decem ber- 2031	0	288	0	37	0	251	251
31- Decem ber- 2031 to	0	363	0	47	0	316	316

30- Decem ber- 2032							
31- Decem ber- 2032 to 30- Decem ber- 2033	0	476	0	62	0	414	414
31- Decem ber- 2033 to 30- Decem ber- 2034	0	510	0	66	0	444	444
31- Decem ber- 2034 to 30- Decem ber- 2035	0	566	0	74	0	492	492
31- Decem ber- 2035 to 30- Decem ber- 2036	0	609	0	79	0	530	530
31- Decem ber- 2036 to 30- Decem ber- 2037	0	707	0	92	0	615	615
31- Decem ber- 2037 to 30- Decem ber- 2038	0	890	0	116	0	774	774

31- Decem ber- 2038 to 30- Decem ber- 2039	0	992	0	129	0	863	863
31- Decem ber- 2039 to 30- Decem ber- 2040	0	1154	0	150	0	1004	1004
31- Decem ber- 2040 to 30- Decem ber- 2041	0	1288	0	167	0	1120	1120
31- Decem ber- 2041 to 30- Decem ber- 2042	0	1478	0	192	0	1286	1286
31- Decem ber- 2042 to 30- Decem ber- 2043	0	1721	0	224	0	1497	1497
31- Decem ber- 2043 to 30- Decem ber- 2044	0	1878	0	244	0	1634	1634
Total	0	13184	0	1714	0	11470	11470

5 MONITORING

5.1 Data and Parameters Available at Validation

Data / Parameter	CF_{TREE}	
Data unit	$t\ C\ (t\ d.m.)^{-1}$	
Description	Carbon fraction of tree biomass	
Source of data	The People's Republic of China Second National Communication on Climate Change, issued by NDRC, 2013	
Value applied	Tree species	$CF_{TREE,j}$
	Mongolian pine	0.522
	Spruce	0.521
	Xinjiang poplar	0.496
Justification of choice of data or description of measurement methods and procedures applied	Standard operating procedures (SOPs) prescribed under national forest inventory are applied. In absence of these, SOPs from published handbooks, or from the IPCC GPG LULUCF 2003, may be applied	
Purpose of data	Calculation of project emissions	
Comments	N/A	

Data / Parameter	CF_{TREE}	
Data unit	dimensionless	
Description	Root-shoot ratio for trees.	
Source of data	The People's Republic of China Second National Communication on Climate Change, issued by NDRC, 2013	
Value applied	Tree species	$R_{TREE,j}$
	Mongolian pine	0.241
	Spruce	0.224
	Xinjiang poplar	0.227

Justification of choice of data or description of measurement methods and procedures applied	<i>Standard operating procedures (SOPs) prescribed under national forest inventory are applied. In absence of these, SOPs from published handbooks, or from the IPCC GPG LULUCF 2003, may be applied</i>
Purpose of data	• Calculation of project emissions
Comments	N/A

5.2 Data and Parameters Monitored

Data / Parameter	$A_{PLOT,i}$
Data unit	mu
Description	<i>Area of a sample plot</i>
Source of data	<i>Field measurement</i>
Description of measurement methods and procedures to be applied	<i>Standard operating procedures (SOPs) prescribed under national forest inventory are applied. In the absence of these, SOPs from published handbooks, or from the IPCC GPG LULUCF 2003, are applied</i>
Frequency of monitoring/recording	<i>At every verification</i>
Value applied	<i>Actual value will be applied in verification</i>
Monitoring equipment	N/A
QA/QC procedures to be applied	<i>Quality control/quality assurance (QA/QC) procedures prescribed under national forest inventory are applied. In the absence of these, QA/QC procedures from published handbooks, or from the IPCC GPG LULUCF 2003, are applied</i>
Purpose of data	• Calculation of project emissions
Calculation method	N/A
Comments	N/A

Data / Parameter	DBH_i
Data unit	cm

Description	<i>Diameter at breast height of trees of species i in sample plot</i>
Source of data	<i>Field measurement</i>
Description of measurement methods and procedures to be applied	<i>Standard operating procedures (SOPs) prescribed under national forest inventory are applied. In the absence of these, SOPs from published handbooks, or from the IPCC GPG LULUCF 2003, are applied</i>
Frequency of monitoring/recording	<i>At every verification</i>
Value applied	<i>Actual value will be applied in verification</i>
Monitoring equipment	<i>N/A</i>
QA/QC procedures to be applied	<i>Quality control/quality assurance (QA/QC) procedures prescribed under national forest inventory are applied. In the absence of these, QA/QC procedures from published handbooks, or from the IPCC GPG LULUCF 2003, are applied</i>
Purpose of data	• <i>Calculation of project emissions</i>
Calculation method	<i>For the ex-post calculation during the following verification, the allometric equations will be used to calculate the tree biomass.</i>
Comments	<i>N/A</i>

Data / Parameter	H_i
Data unit	<i>m</i>
Description	<i>Height of trees of species i in sample plot</i>
Source of data	<i>Field measurement</i>
Description of measurement methods and procedures to be applied	<i>Standard operating procedures (SOPs) prescribed under national forest inventory are applied. In the absence of these, SOPs from published handbooks, or from the IPCC GPG LULUCF 2003, are applied</i>
Frequency of monitoring/recording	<i>At every verification</i>
Value applied	<i>Actual value will be applied in verification</i>
Monitoring equipment	<i>N/A</i>

QA/QC procedures to be applied	<i>Quality control/quality assurance (QA/QC) procedures prescribed under national forest inventory are applied. In the absence of these, QA/QC procedures from published handbooks, or from the IPCC GPG LULUCF 2003, are applied</i>
Purpose of data	• <i>Calculation of project emissions</i>
Calculation method	<i>For the ex-post calculation during the following verification, the allometric equations will be used to calculate the tree biomass.</i>
Comments	N/A

5.3 Monitoring Plan

Monitoring is required to measuring, recording, storing, aggregating, collating and reporting on monitored data, about the proposed project.

- ***The methods for monitoring***

The monitoring plan addresses the monitoring of project implementation, the monitoring of actual carbon stock changes from project activity set out in Section 5.2 (data and parameters monitored).

- ***Organizational structure and responsibilities***

The operational and management structure that will be implemented by the Project Proponent in order to the monitoring of actual carbon stock changes and any leakage generated by the project activity is described in the following figure:

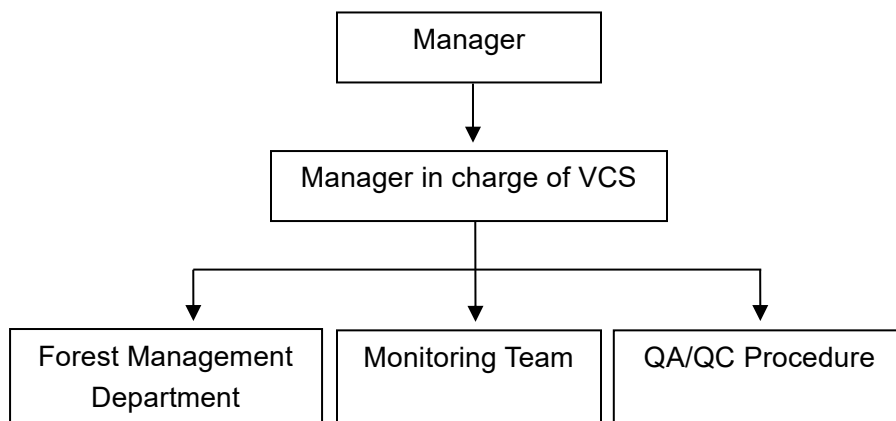


Figure 5-1 Monitoring Organization Chart

Composition	Function
Manager	Formalizing the procedure to establish monitoring as an official process
Manager in charge of VCS	Shall verify the relevance of the procedure and the declaration of GHG reductions and removals in the project areas. Supervision and providing orientation to the monitoring team on procedures and quality assurances.
Forest Management Department	Identify and evaluate possible discrepancies between the proposed procedures and implement corrective measures, if needed. Assure correct measurements and quality of the monitoring system.
Monitoring Team	Perform measurements, and process data at set times and within reasonable statistical thresholds.
QA/QC Procedure	Implement procedures for internal auditing and QA/QC plans

- ***The procedures for internal auditing and QA/QC***

The monitoring program will include strict quality assurance and quality control procedures (QA/QC) incorporating Standard Operating Procedures for all phases of the monitoring process. The QA/QC procedures will be abided to ensure the following:

- Reliability of data collected from field measurement,
- Verification of the techniques used to obtain field data,
- Verification of data entry and analysis methods,
- Verification of data maintenance and archiving, and
- Upgrading of electronic data with technological changes.

When employing allometric and general equations (IPCC), the error is generally concentrated in the equation itself, causing it to be constant and unmanageable in the system. Human error is one variable that may cause uncertainties, such as incorrect compass readings (errors between one or more meters), incorrect measuring tape placement, inaccurate location for the data collection on trees, deformed or bifurcated stems, explication in maps and determining forest cover with the exclusion of areas or inclusion of others (pixels), and registration of information in the field. As a result, a monitoring team is being created in the field, who are trained with proper measuring procedures, and establishing a control mechanism to ensure accuracy and quality in monitoring data collection and processing.

Internal data audits will be performed on a regular basis to ensure accuracy. The technical field team will visit the plots measured by the monitoring team to determine measurement data accuracy. The team will also undergo a regular equipment test to ensure that all field equipment is consistent and functional. The technical field team will also examine the internal database of the monitoring team to ensure a quality data entry process and data analysis. This approach will help in detecting persistent faults that can have a significant impact on the monitoring process.

APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

Section	Information	Justification
/	/	/

No commercially sensitive information has been excluded from the public version of the project description.